**Comments on the Draft CERC (Terms and Conditions of Tariff) Regulations, 2024 (Draft Regulations)**

1. By way of a brief introduction, in my 39-year career in the power transmission and distribution sector, I've accumulated extensive hands-on experience in these areas. From leading EPC projects to navigating regulatory approvals and managing strategic business units, I've worked across the spectrum, including notable stints with Power Grid Corporation of India Limited (**PGCIL**), NTPC Limited, GMR Group and Arvensis Energy. I have been involved in successfully completing BOOM projects, acquiring and executing transmission projects incorporating HVDC and EHV AC technologies, and developing evacuation systems for IPPs. Throughout my tenure, I've been directly involved in project execution, regulatory compliance, and stakeholder management. For instance, I've overseen the establishment of tariff billing and collection frameworks, managed revenue streams, and resolved regulatory hurdles.
2. I am submitting the instant comments in the interest of the power sector at large and the inter-state transmission sector in particular. I have focused the instant submissions primarily on the issue of the normative Return on Equity (**RoE**), which the Hon’ble Commission is proposing to fix for inter-state transmission projects.
3. As per the National Tariff Policy, 2016 (**NTP**), the Hon’ble Central Electricity Regulatory Commission (**the Hon’ble Commission**) is to notify the rate of RoE for generation and transmission projects keeping in view the ‘*assessment of overall risk and the prevalent cost of capital*’. The same shall be followed by the State Electricity Regulatory Commissions (**SERCs**) as well.[[1]](#footnote-1) Therefore, the RoE benchmark needs to be reviewed regularly as market dynamics evolve and regulatory paradigms mature.
4. Based on a perusal of all past tariff regulations of this Hon’ble Commission since 2001, the following conclusions can be drawn:
	1. Equity is a risk capital and the rate of RoE needs to be commensurate to the risk of investment in the project. Higher the risk of a type of project, higher should be the rate of return.
	2. As the debt market is not stable in India, linking the rate of RoE to a benchmark interest rate with a mark-up is difficult.
	3. Capital Asset Pricing Model (**CAPM**) has been the best scientific model to compute cost of equity and is a method to give an approximate rate of RoE for various regulated projects. Accordingly, this model has been continuously adopted for specifying norms on RoE by this Hon’ble Commission in the tariff regulations for the last three control period, i.e., since 2014.
5. In my view, the RoE specified under Clause 30 of the Draft Regulations for existing (15.5%) and new (15%) transmission projects is very high and not in tune with the present risks involved in the inter-state transmission business. The risk profile in the inter-state transmission sector is quite low. In this regard, the Forum of Regulators’ (**FoR**) report issued in April, 2021 (**FoR Report**) also states that in the entire value chain of the electricity sector, transmission business has the lowest risk.[[2]](#footnote-2) On this basis, the FoR Report concludes that the RoE for transmission companies should be reviewed immediately.
6. I submit that the RoE for RTM transmission projects ought to be reviewed and lowered immediately for the following reasons:
	1. No data or calculations have been provided in the Explanatory Memorandum (**EM**) of the Draft Regulations substantiating the 15% rate. I have also provided my independent calculations, which justify a lower rate of 12% - 12.5%.
	2. Risk and return must go hand in hand. Since there is a lower risk in the transmission sector, a lower RoE is appropriate. There has been an incremental de-risking of various constructions and cost escalation risks in the regulated tariff mechanism (**RTM**) or Section 62 transmission projects.
	3. Other SERCs have prescribed a lower RoE for intra-state transmission projects.
	4. SERCs typically adjust the Non-Tariff Income of RTM transmission licensees, which is not done by this Hon’ble Commission.

**No calculations provided in the EM & my independent calculations**

1. I note that the EM and Approach Paper from the Draft Regulations has relied on the CAPM to determine the cost of equity for stipulating the appropriate RoE. This is in line with tariff regulations notified by this Hon’ble Commission for preceding control periods. The formula for computing the RoE based on CAPM has been specified in the EM is as follows:

*Required (or expected) Return = Risk Free Rate + (Market Return – Risk Free Rate) x Equity Beta*

1. In summarily arriving at ~15.52% common cost of equity, the EM also does not provide any data or calculations – which makes the entire exercise non-transparent and contrary to the letter and spirit of Section 178(3) of the Electricity Act, 2003 read with Rule 3 of the Electricity (Procedure for Previous Publication) Rules, 2005. This may be contrasted with the explanatory memoranda of various SERCs, wherein detailed data and calculations are provided while calculating the RoE stipulated in their draft regulations.

***Inconsistency/ Deficiency in the EM***

1. Based on the CAPM model and formula specified in the EM, I have tried to validate the cost of equity computation and approximation of rate of RoE proposed by this Hon’ble Commission in the EM for its Draft Regulations. On validation, I have found that while the risk free rate (**Rf**) of 7.35% considered based on 10-year government securities for the period from April 2022 to March 2023 is correct, there seems to be an inconsistency/ deficiency on the Market Rate of Return (**Rm**) considered by the Hon’ble Commission. The inconsistencies/ deficiency in the Market Rate of Return (**Rm**) has been summarised below: -
	1. The figure considered for Rm has not been specified in section “12.5 Commission’s View” of the EM, which can be independently validated.
	2. The Beta was computed based on last 5 years daily data on the BSE Power Index, whereas Rm was computed considering 31 years (April 1992 to March 2023). Both these numbers need to be for the same period of 5 years for consistency. As such, there is no justification/ reasoning provided in the EM for such a large difference in the time period considered for both these inter-connected parameters.
	3. In order to derive the Beta, the Hon’ble Commission has mandated the use of the most recent five-year dataset for calculating the leveraged beta value so as to determine the average cost of equity. However, specific details were not provided regarding the values or the timeframe. It is unclear whether the data set pertains to the latest five financial years' data (FY 2017-18 to FY 2022-23) or the most recent five years' data preceding the month when the EM was notified (December 2018 to December 2023). I have assessed the Beta computation based on the BSE Power Index since its inception and returns of major power companies involved in both generation (thermal & hydro) and transmission businesses, which is provided in the later sections of these comments.
	4. Average annual growth rate for 31 years is considered for computing the Rm. There is a wide fluctuation on annual growth rate with as high as 81.03% and as low as -52.45% - which are wide abnormalities. Therefore, average annual growth rate doesn’t eliminate these abnormalities. Further, the Rm on yearly basis or average annual growth rate is not an appropriate reflection of the return expectation of a 35-year long term project investment such as an inter-state transmission project as yearly numbers only reflect a very short period investment return of 1 year. On the contrary, market returns to be considered for a long term investment should be at least comparable to the investment term of the project - which is the life of the project. Therefore, it is suggested that compound annual growth rate (**CAGR**) method be adopted for considering the growth rate which will not only provide an accurate reflection of Rm for long term investments (over a 35 year term) but also will eliminate the yearly abnormalities.
	5. The annual growth rate considered for BSE Sensex seems to be incorrect especially when there is no computation methodology specified/ described. In fact, the annual growth rate needs to be computed based on variation between the opening value as on 1st day of the financial year *vis-à-vis* last closing value as on last day of the respective financial year. The same has been computed by me and the same seems to be in variance with the numbers computed by this Hon’ble Commission as per the EM.

The above-mentioned issues are described in further detail below.

***My calculation of Market Return (Rm) vis-à-vis Market Return (Rm) calculated by this Hon’ble Commission in the EM***

1. This Hon’ble Commission has adopted the average annual growth rate of the BSE Sensex from FY 1992-93 to FY 2023-24 as the baseline for the risk premium rate. The graph below illustrates the annual growth rates of the BSE Sensex considered by this Hon’ble Commission.



*Source: EM of Draft Regulations*

1. In my evaluative model, I aimed for a thorough comprehension of the market dynamics by capturing the day-to-day values of the BSE Sensex spanning FY 1992-93 to FY 2023-24. To calculate the annual growth rate of the market, I assessed the percentage variation between the opening value on the first day of the financial year and the closing value on the last day of the financial year. For example, in computing the returns for FY 1993, I considered the opening value on April 2, 1992, and the closing value on March 31, 1993. The annual values and growth rates are outlined in **Annexure-I**.
2. The calculated yearly returns for the period FY 1993 – FY 2023 are illustrated in the following graph:



1. Based on the comprehensive analysis of the BSE Sensex in the aforementioned graphical representation, it is evident that the annual growth rate of the BSE Sensex exhibits large variability over the specified period. However, the Hon’ble Commission has not disclosed its methodology or offered any illustrative examples to explain the derivation of these values as without access to the underlying data, stakeholders cannot verify the reliability of the data being relied upon by the Hon’ble Commission. The Hon’ble Commission may consider including a detailed explanation of its computation methodology in the Statement of Reasons accompanying the Tariff Regulations.

***My computation of RoE***

1. Based on the above observations, I have computed the rate of RoE based on CAPM model for the consideration of the Hon’ble Commission in the Draft Regulations. In developing my model, I have crafted distinct scenarios to assess the sensitivity of each component within the CAPM method. These four scenarios have been strategically formulated to enhance our understanding of the projected returns for power utilities.

**Scenario – I**

Risk Free Rate considered – 7.35%

Risk Premium considered (CAGR latest 5 financial years of the BSE Sensex) – 15.60%

Beta –

To compute the beta, the returns of major power companies, in the generation (thermal and hydro energy) and transmission businesses, was considered for the period FY 2019-20 to FY 2023-24.

The expected returns calculated for each company is mentioned in the table below.

| **Particulars** | **Covariance** | **Variance** | **Beta** | **Rf** | **Rm** | **Re** |
| --- | --- | --- | --- | --- | --- | --- |
| PGCIL | 8.29E-05 | 0.0002 | 0.5428 | 7.35% | 15.60% | 11.83% |
| Tata Power | 1.58E-04 | 0.0002 | 1.0351 | 7.35% | 15.60% | 15.89% |
| JSW Energy | 1.23E-04 | 0.0002 | 0.8066 | 7.35% | 15.60% | 14.01% |
| Torrent Power | 1.02E-04 | 0.0002 | 0.6678 | 7.35% | 15.60% | 12.86% |
| Reliance Power | 9.36E-05 | 0.0002 | 0.6134 | 7.35% | 15.60% | 12.41% |
| Adani Power | 1.84E-04 | 0.0002 | 1.2069 | 7.35% | 15.60% | 17.31% |
| Jai Prakash Power | 8.56E-05 | 0.0002 | 0.5607 | 7.35% | 15.60% | 11.98% |
| Rattan Power | 8.16E-05 | 0.0002 | 0.5346 | 7.35% | 15.60% | 11.76% |
| NTPC | 9.74E-05 | 0.0002 | 0.6384 | 7.35% | 15.60% | 12.62% |
| Adani Energy Sol. | 1.25E-04 | 0.0002 | 0.8164 | 7.35% | 15.60% | 14.09% |
| SJVN | 7.01E-05 | 0.0002 | 0.4595 | 7.35% | 15.60% | 11.14% |
| NLC | 9.81E-05 | 0.0002 | 0.6427 | 7.35% | 15.60% | 12.65% |
| NHPC | 8.48E-05 | 0.0002 | 0.5559 | 7.35% | 15.60% | 11.94% |

Scenario-1 analysis suggests that the expected returns for most companies are below 15%, except for Tata Power and Adani Power, which stand out as exceptions.

**Scenario – II**

Risk Free Rate considered – 7.35%

Risk Premium considered (CAGR latest 5 financial years of the BSE Sensex) – 15.60%

Beta –

To compute the beta, the BSE Power Index was considered for the period FY 2019-20 to FY 2023-24.

The expected returns calculated is mentioned in the table below:

| **Particulars** | **BSE Power** |
| --- | --- |
| Covariance | 0.0001 |
| Variance | 0.0002 |
| Beta | 0.7249 |
| Rf | 7.35% |
| Rm | 15.60% |
| **Re** | **13.33%** |

It can be inferred from the table that the expected return while considering BSE Power Index for the latest 5 financial years (FY 2019-20 to FY 2023-24) is less than the value mentioned by this Hon’ble Commission in its EM (15.5%).

**Scenario – III**

Risk Free Rate considered – 7.35%

Risk Premium considered (CAGR latest 10 financial years of the BSE Sensex) – 13.49%

Beta –

To compute the beta, the BSE Power Index was considered for the period FY 2014-15 – FY 2023-24.

The expected returns calculated is mentioned in the table below:

| **Particulars** | **BSE Power** |
| --- | --- |
| Covariance | 0.000098 |
| Variance | 0.00012 |
| Beta | 0.8349 |
| Rf | 7.35% |
| Rm | 13.49% |
| **Re** | **12.47%** |

The expected return of the market is 12.47%.

**Scenario – IV**

Risk Free Rate considered – 7.35%

Risk Premium considered (CAGR latest 15 financial years of the BSE Sensex) – 9.88%

Beta –

To compute the beta, the BSE Power Index was considered for the period FY 2009-10 – FY 2023-24.

The expected returns calculated is mentioned in the table below:

| **Particulars** | **BSE Power** |
| --- | --- |
| Covariance | 0.000161 |
| Variance | 0.00018 |
| Beta | 0.9072 |
| Rf | 7.35% |
| Rm | 9.88% |
| **Re** | **9.65%** |

The expected return of the market is 9.65%.

1. Based on the above analysis, it can be seen that there is a significant difference in the expected return for conventional power projects compared to this Hon’ble Commission’s proposal in the RM of 15.50% RoE. The analysis suggests that the expected return should be reduced from 15.50% to at least 12%.
2. On the above basis, I respectfully request this Hon’ble Commission to reconsider the expected return for conventional power projects for the upcoming control period based on the current market scenario of risk and return. There appears to be little justification to have a RoE exceeding 12%.

**Lower Risk in the Transmission Sector**

1. The NTP clarifies that risk and return must go hand in hand. Further, the FoR Report notes that the transmission business has the lowest risk in the entire value chain of the transmission sector, and therefore its RoE needs to be reviewed immediately.
2. Thus, it is a widely known principle that the rate of RoE should be commensurate to the risk of the investment, which has also been recognised by this Hon’ble Commission as provided earlier in various explanatory memoranda, statements of reasons, *suo-moto* orders, *etc*. As such, the transmission projects have a very low gestation period of 2-3 years compared to a thermal generation projects’ gestation period of 4-5 years, which by itself makes transmission business a lower risk venture.
3. The major risks associated in the transmission projects are with regard to delay in commissioning the projects and negligible risk is associated for the balance life of the projects unlike generation projects having fuel-related, environment-related risks, *etc*. Even the risks associated with respect to the delays for cost plus tariff projects are mitigated by way of condonation of delays by this Hon’ble Commission and pass through of additional costs corresponding to the delays condoned. Therefore, majority of the risks are mitigated by way of regulatory interventions and as such these projects should attract lower returns due to the nature of risk remaining for the entire life of the project including the project cost disallowance risks.
4. In this regard, it is well known that RTM projects are entitled to claim time and cost overrun, Interest During Construction (**IDC**) and Incidental Expenditure During Construction (**IEDC**), unlike TBCB projects. On this basis, this Hon’ble Commission routinely allows time & cost overruns along with IDC and IEDC claims of RTM licensees and adjusts the tariff accordingly. A similar provision is provided under Clause 22(2) of the Draft Regulations. Notably, for the first time, ‘land acquisition delays’[[3]](#footnote-3) have been expressly recognised as an uncontrollable factor in addition to Change in Law and Force Majeure events. This, among other reasons, warrants the RoE to be much lower for RTM transmission projects as most of the construction and operational risks are adequately addressed through appropriate tariff revision by this Hon’ble Commission.
5. I have analysed the past data on the investments done in RTM projects (INR 1,87,000 Crore) which is 2.46 times that in TBCB (INR 76,000 Crore) (data till June 2022) comprising of 203 RTM schemes and 62 TBCB schemes. Considering 203 RTM schemes comprising of 1060 distinct elements (post 2010), 68% of the elements faced delays out of which 39% of the delays were more than 10 months. However, out of the cumulative delays of 9,778 months across elements commissioned between FY 2015-16 to FY 2020-21, 84% of the delays were condoned.
6. Some examples are being highlighted below for reference:
	1. **Biswanath - Chariali HVDC-** The given scheme was planned to evacuate power from the eastern and the north-eastern regions to the northern and the western regions. It had a time overrun of 62 months which got condoned by this Hon’ble Commission.
	2. **Raigarh - Pugular HVDC-**  To facilitate import of power into southern region through 800 kV & 400 kV HVDC system, the scheme was proposed. The given scheme took 75 months, i.e., 6.25 years from the 34th Empowered Committee to get commissioned. The cost of scheme increased from INR 19,681 Crore to INR 21,792 Crore leading to an overall increase of INR 1,931 Crore.
	3. **System Strengthening-XIV in Southern Region:** There was a delay of ~55 months, which was condoned by this Hon’ble Commission. Further, an IDC of ~INR 102 Crore and an IEDC of ~INR 15 Crore was also allowed by this Hon’ble Commission.
	4. **Champa- Kurukshetra HVDC**- The delay in Champa Kurukshetra HVDC scheme was ranged from 0 to 27 months, wherein the average delay was 17 months per element. Out of the total time overrun of 27 months, 24 months got condoned by this Hon’ble Commission.
	5. **Ultra Mega Solar Power Park at Tumkur (Pavagada), Karnataka - Phase II (Part A)-** There was a delay of ~17.5 months, which was condoned by this Hon’ble Commission. Resultantly, a cost escalation of ~INR 93 Crore was also granted by this Hon’ble Commission.
7. Further, it can be seen that the time over-run of transmission projects under RTM are higher than the time over-run of transmission projects under TBCB. This clearly indicates that as capital cost escalation will not be recovered, the developers executing TBCB projects are wary of the risks of under-recovery and impact on returns on the project. On the other hand, the developers under RTM route are assured that majority of the capital cost escalations, including on account of time overruns, will get passed through in consumer tariff along with them enjoying a higher rate of RoE. Hence, in the very same sector for similarly placed projects, investors are attracted to invest capital with a much lower RoE. This shows that the consumers do not need to pay RTM projects 15% RoE in order to attract investment in new projects. Any return commensurate with what is practically covered by TBCB projects will be more equitable.
8. The following tables specifies the factual positions of impact of delay (time and cost overruns) for RTM projects *vis-à-vis* TBCB projects for the past investments till June 2022 analysed above.

| **Particulars** | **RTM** | **TBCB** |
| --- | --- | --- |
| Average time overrun per scheme (months) | 14 | 11 |
| Impact of time overrun (with respect to delay condoned) | INR 4,476 Crore | No impact |
| Total cost overrun (claimed cost- Investment Approval) | INR 14,729 Crore | INR 570.66 Crore (Change in Law) |

1. Therefore, I strongly suggest that since the majority of the risks for RTM transmission projects are mitigated by regulatory interventions, especially condonation of delays and pass through of time/ cost overruns in the tariffs, the rate of RoE should be lower than 15% - as proposed in the Draft Regulations.
2. Separately, it may be noted that state regulators have no jurisdiction over the tariffs of inter-state transmission projects, which fall exclusively under this Hon’ble Commission’s jurisdiction. Consequently, consumers in various Indian states find themselves paying higher electricity tariffs due to the inflated RoE and favourable time and cost overrun provisions outlined in the Draft Regulations governing inter-state RTM transmission projects. Despite bearing a significant financial burden, state consumers have no direct representation in the matter or oversight from their respective state regulatory bodies (i.e., SERCs), exacerbating their sense of unfairness and disenfranchisement. Therefore, this Hon’ble Commission ought to be extremely cautious while creating a regulatory framework that may result in unfairly high consumer tariffs.

**Approach by Other SERCs**

1. Electricity regulators should consider factors such as present market expectations, development risk, trend of RBI Repo Rate, interbank rate and SBI Base Rate/ MCLR, *etc.* while calculating RoE for inter-state transmission projects. Lately, SERCs in prominent States such as Gujarat, Delhi, Rajasthan, *etc.* have dealt with the matter of RoE basis the aforesaid factors and have downwardly revised the RoE for the RTM transmission projects. Some references in this regard are as follows:

| **Source** | **Particulars** |
| --- | --- |
| Regulation 35.1, 35.2, 35.7, Draft GERC (Multi-Year Tariff) Regulations, 2023 | A maximum RoE of **13%** has been proposed for the transmission business – 11.5% being base RoE and the remaining 1.5% RoE being linked to the performance of the transmission licensee (to be considered during true-up). Notably, the Gujarat Electricity Regulatory Commission (**GERC**) has also relied on the CAPM model and arrived at significantly different findings.In the Explanatory Memorandum published in September 2023, GERC has also clearly noted as follows:  1. Para. 4.5.17 notes that the GERC has analysed the data for various listed entities and has considered a period of the same 13 years (2010-2023) for each of the components of CAPM, i.e., risk free rate, equity beta and market risk premium, as most of the listed companies shortlisted have become operational post 2010. Further, the GERC intended exclude the period of uncertainty due to 2008 financial crisis.
2. Para. 4.5.16 elucidates the approach for estimating the beta for power sector utilities using data of listed Indian companies:

a. Calculate equity beta for major listed firms and determine average of equity betas.b. Calculate each firm’s financial leverage and determine the average of financial leverage.c. Un-lever the average equity beta using average financial leverage to get average un-levered beta. Formula is *Unlevered Beta = Levered or Equity Beta / (1 + (1 – Tax Rate) x (Debt/Equity)).* d. Re-lever the average un-levered beta using normative financial leverage.1. Para. 4.5.19 states that **under the CAPM model, the expected return works out to be 13.003%.**
 |
| Regulation 12, DERC (Business Plan) Regulations, 2023 (**DERC BPR**) | The Delhi Electricity Regulatory Commission (**DERC**) in DERC BPR has reduced RoE for Transmission/ Generation projects to **13%** (Post Tax), from the earlier 14% (Post Tax). The DERC has adopted CAPM method to determine the RoE.In the Explanatory Memorandum dated 13.01.2023, the DERC has also clearly noted as follows: 1. In exercise of powers conferred under Section 3(3) of Electricity Act, 2003, the Central Government notified the revised NTP on 28.01.2016.
2. The NTP mandates prescription of an appropriate return on investment. The NTP has also mandated the Distribution Licensees to procure their future requirement of power through TBCB.
3. The market forces are likely to exert downward pressure on the Internal Rate of Return (**IRR**) of the new projects.
4. Further, the rate of interest has also come down in recent times.
5. Therefore, there is market dynamics that favours reduction of rate of return.
 |
| Regulation 20.1(d), HERC (Terms and Conditions for Determination of Tariff for Generation, Transmission, Wheeling and Distribution & Retail Supply under MYT Framework) Regulations, 2019, 2nd Amendment Regulations, 2022 | RoE shall be computed at the rate of **11%** for transmission licensees. |
| Regulation 20(2), RERC (Terms and Conditions for Determination of Tariff) Regulations, 2019 | RoE shall be computed at the rate of **14%** for transmission licensees. |
| Regulation 28(1), KSERC (Terms and Conditions for Determination of Tariff) Regulations, 2021. | RoE shall be computed at the rate of **14%** for transmission licensees. |
| Regulation 29.2(d), TSERC (Multi Year Tariff) Regulation, 2023 | RoE shall be computed at the rate of **14%** for transmission licensees. |
| Regulation 29(b), Draft KERC (Multi Year Transmission,Distribution and Retail Supply Tariff) Regulations, 2023 | RoE shall be computed at the rate of **14%** for transmission licensees. |
| Regulation 22.1, UPERC (Multi Year Tariff for Distribution and Transmission) Regulation, 2019 | RoE shall be computed at the rate of **14.5%** for transmission licensees.In this regard, reference may be had to the Uttar Pradesh Electricity Regulatory Commission’s (**UPERC**) Order dated 24.05.2023 in proceedings related to the approval of ARR and Tariff for Uttar Pradesh Power Transmission Corporation Limited (**UPPTCL**) for FY 2023-24, APR of FY 2022-23 and True-Up of FY 2021-22 (Petition No. 1907 of 2022). Page no. 88 records UPPTCL’s submission claiming only 2% RoE citing the distribution licensees’ financial stress. The UPERC accepted the submission and allowed a RoE of 2%.  |
| APERC Order dated 08.03.2019 – Transmission tariffs for the 4th control period – FY 2019-20 to 2023-24 | The Andhra Pradesh Electricity Regulatory Commission (**APERC**) continued with **14%** RoE for transmission licensees, despite the latter’s request for 15.5% RoE.APERC’s regulations do not provide a specific RoE percentage, but the formula for its calculation. |

**RoE in RTM Transmission Projects versus RoE in TBCB Transmission Projects**

***Current RoE in RTM Transmission Projects***

1. I have analysed the RoE earned by the major transmission player in the country, i.e., Power Grid Corporation of India Limited (PGCIL). PGCIL has the overwhelming majority of transmission projects under RTM and a small portion of the TBCB projects as well. On scrutiny of PGCIL’s financial statements, it can be observed that the RoE earned by PGCIL is way higher than the RoE stipulation of 15.50% provided under the CERC (Terms and Condition of Tariff) Regulations, 2019 (**2019 CERC Tariff Regulations**). The below table provides a compilation of the RoE earned by PGCIL which is 20% plus in FY 2021-22 and FY 2022-23:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Particulars** | **FY 2018-19** | **FY 2019-20** | **FY 2020-21** | **FY 2021-22** | **FY 2022-23** |
| **Net Profit**  | 9938.55 | 10811.18 | 11935.78 | 15333.02 | 17093.76 |
| **Equity** | 59017.14 | 64439.69 | 69578.84 | 76151.57 | 82832.96 |
| **RoE (%)** | 16.84% | 16.78% | 17.15% | 20.13% | 20.64% |

*Source: Annual Financial Statements of PGCIL*

1. Thus, it is evident that by the present RoE norms that the regulated transmission businesses such as PGCIL are earning very high returns, while the risk in RTM transmission projects is way too low. Therefore, the RoE proposed under the Draft Regulations are way higher than the RoE that needs to be allowed commensurate to the risk of the projects.

***RoE in TBCB Transmission Projects***

1. I have analysed 39 schemes under TBCB route for which this Hon’ble Commission has issued tariff adoption orders and has provided its assessment of tariff and the L1 tariff received in the bids. Graphical representation and detailed data is provided in **Annexure-II** depicting the reduction in tariff achieved by undertaking TBCB.
2. It can be seen from the above that the reduction in tariff achieved is approximately in the range of 35-40% across projects. Most of the tariff parameters are same or comparable for each project except for the RoE for each of the projects. It could be inferred that the only variable or differential parameter in these kinds of projects would be the rate of RoE built in the tariff by the developers, which is likely to be around 10-11%, which is significantly lower than the guaranteed RoE for RTM transmission projects. In case these projects were to be executed under the RTM route, their tariffs would have been approximately 35-40% higher tariff due to the higher rate of RoE of 15.50%. In fact, out of these 39 projects, 19 are being executed by PGCIL with such a lower tariff and a corresponding lower RoE, where the same entity is claiming rate of RoE of 15.50% on the regulated projects. Therefore, I strongly suggest that this Hon’ble Commission should consider a lower rate of RoE compared to the 15% proposed in the Draft Regulations.

***Need for an equitable and uniform RoE framework for TBCB and RTM projects***

1. Ensuring consistency across TBCB and RTM transmission projects is paramount for maintaining fairness and equity within the regulatory framework. Presently, there exists a glaring incongruity in the RoE between these two categories of projects. TBCB projects typically have their RoEs ranging from 10% to 11%, reflecting a balance between attracting investments and ensuring reasonable returns for investors. However, in contrast, entities like PGCIL have been enjoying substantially higher RoEs, reportedly around 20% in the recent years. Such a stark contrast raises questions about the consistency and fairness of the regulatory approach.
2. The disparity in RoEs between TBCB and RTM projects underscores the need for harmonization within the regulatory regime. While it’s understandable that different projects may warrant different returns based on various factors, such as risk profiles and market conditions, a significant gap in RoEs without a clear rationale must be rectified. If the same is not rectified, investors participating in TBCB projects may perceive this gap as unfair, potentially undermining their confidence in the transparency and consistency of regulatory decisions.
3. Moreover, aligning RoEs across TBCB and RTM projects is essential for promoting healthy competition and fostering a level playing field in the transmission sector. A disproportionate RoE advantage for entities like PGCIL could inadvertently discourage private investment in TBCB projects, limiting competition and innovation in the sector. Conversely, providing a more equitable RoE framework across all transmission projects encourages broader participation, stimulates investment in TBCB projects in line with the NTP’s mandate, and ultimately benefits consumers through improved efficiency and cost-effectiveness in project execution.
4. In summary, achieving consistency in RoEs between TBCB and RTM projects is crucial for upholding the principles of fairness, transparency, and competitiveness within the regulatory framework. Addressing the disparity in RoEs will not only enhance investor confidence but also promote a more vibrant and dynamic transmission sector, ultimately serving the best interests of stakeholders and consumers alike.

**Non-adjustment of Non-Tariff Income for RTM Transmission Licensees**

1. The existing provision for Non-Tariff Income in the 2019 CERC Tariff Regulations is as follows:

*“62. Sharing of Non-Tariff Income: The non-tariff net income in case of generating station and transmission system from* ***rent of land or buildings, sale of scrap and advertisements shall be shared*** *between the beneficiaries or the long term customers and the generating company or the transmission licensee, as the case may be, in the ratio 50:50.”*

1. The proposed provision for Non-Tariff Income in the Draft Regulations is as follows:

*“84. Sharing of Non-Tariff Income: The non-tariff net income in case of generating station and transmission system from* ***rent of land or buildings, eco-tourism, sale of scrap, and advertisements*** *shall be shared between the generating company or the transmission licensee and the beneficiaries or the long term customers, as the case may be, in the ratio of 1:1.”*

1. From the above-mentioned provision, it is clear that the non-tariff income is limited to the above few components – and only such non-tariff income is to be shared with the beneficiaries in the specified ratio. However, non-tariff income against other sizable components have not been included in the proposed provision of the Draft Regulations. Notably, a significant quantum of non-tariff income from the components comes from sources not mentioned in the proposed provision under the Draft Regulations. On analysis of PGCIL’s financial statements, it is found that a significant quantum of non-tariff income has been earned in each year which is provided in the table below:

| **Particulars** | **FY 2018-19** | **FY 2019-20** | **FY 2020-21** | **FY 2021-22** | **FY 2022-23** |
| --- | --- | --- | --- | --- | --- |
| Income from Transmission | 33317.17 | 35562.96 | 37418.5 | 39187.62 | 42647.15 |
| Income from Consultancy | 615.74 | 618.02 | 506.16 | 771.21 | 528.7 |
| Income from Telecom | 742.08 | 782.23 | 783.19 | 668.86 | 813.55 |
| Total | 34601.61 | 36893.27 | 38637.89 | 40558.61 | 43914.69 |
|  Net Profit | 9938.55 | 10811.18 | 11935.78 | 15333.02 | 17093.76 |
| % of consultancy income to the profit | 6.20% | 6.22% | 5.09% | 7.76% | 5.32% |

1. Importantly, PGCIL is utilising its in-house employees to earn income from the consultancy activities. The salaries of such in-house employees are already included under the O&M expenses. Neither the benefit of income earned from consultancy activities, nor the exclusion of the corresponding employee expenses is dealt with while approving the O&M expenses of PGCIL. Therefore, it is suggested such consultancy income and any other income earned by a transmission licensee from other revenue streams, apart from the transmission and telecom businesses, may also be shared with the beneficiaries.
2. Significantly, there is an inconsistency in the treatment of non-tariff income, especially considering that revenue from telecom business, a significant component, has consistently been shared by PGCIL and other RTM licensees. The extant CERC (Sharing of Revenue Derived from Utilization of Transmission Assets for Other Business) Regulations, 2020, and its predecessor, the CERC (Sharing of Revenue derived from utilisation of transmission assets for other business) Regulations, 2007, explicitly mandate the sharing of telecom business revenue with beneficiaries. However, the proposed provision in the Draft Regulations fails to acknowledge this established precedent and inexplicably excludes certain substantial sources of non-tariff income such as consultancy services. This arbitrary approach raises concerns about the lack of a coherent rationale behind distinguishing between different types of non-tariff income. If telecom revenue, which is unrelated to core transmission activities, is subject to sharing, there should be a uniform and reasoned approach to include other income streams beyond the specified categories. Without a clear justification for this disparity, the non-inclusion of non-tariff income from other streams such as consultancy services appears arbitrary and warrants reconsideration.

**Need to Regularly Review RoE for Existing RTM Projects**

1. While not altering the RoE for any existing projects, including transmission projects (15.5%), this Hon’ble Commission has relied on the need for regulatory certainty and the need for aggressive capacity addition. This appears to be flawed as the NTP requires this Hon’ble Commission to periodically assess the market risk (i.e., for every 5 year control period) for all existing and future projects to ensure that the electricity tariffs are in line with the prevailing market conditions. RoE, being a key component of the tariff, also needs to be in line with the prevailing market risk/ cost of capital – as mandated by the NTP. Therefore, prescription of a different RoE for existing and new transmission projects is not warranted or prudent.
2. A perusal of the EM for the Draft Regulations reveals a lack of cogent rationale for differential RoE for existing and future projects. This differentiation, devoid of substantive justification, appears to be arbitrary and irrational. Notably, Section 62 of the Electricity Act, 2003, does not confer upon this Hon'ble Commission the authority to make such distinctions between the RoE for existing and future projects. Consequently, a reassessment of the proposal to continue 15.5% RoE for existing projects is warranted.

**Annexure-I: Annual Growth Rate and CAGR computation for Market Return**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **FY** | **Opening Date** | **Sensex Points** | **Closing Date** | **Sensex Points** | **% Growth in the year** |
| FY 1993 | 02-Apr-92 | 4547 | 31-Mar-93 | 2281 | -49.84% |
| FY 1994 | 02-Apr-93 | 2294 | 31-Mar-94 | 3779 | 64.70% |
| FY 1995 | 04-Apr-94 | 3767 | 31-Mar-95 | 3261 | -13.43% |
| FY 1996 | 03-Apr-95 | 3288 | 29-Mar-96 | 3367 | 2.40% |
| FY 1997 | 02-Apr-96 | 3377 | 31-Mar-97 | 3361 | -0.47% |
| FY 1998 | 01-Apr-97 | 3339 | 31-Mar-98 | 3893 | 16.57% |
| FY 1999 | 01-Apr-98 | 3901 | 31-Mar-99 | 3740 | -4.14% |
| FY 2000 | 01-Apr-99 | 3750 | 31-Mar-00 | 5001 | 33.36% |
| FY 2001 | 03-Apr-00 | 5071 | 30-Mar-01 | 3604 | -28.91% |
| FY 2002 | 02-Apr-01 | 3491 | 28-Mar-02 | 3469 | -0.63% |
| FY 2003 | 01-Apr-02 | 3483 | 31-Mar-03 | 3049 | -12.47% |
| FY 2004 | 01-Apr-03 | 3038 | 31-Mar-04 | 5591 | 84.05% |
| FY 2005 | 01-Apr-04 | 5599 | 31-Mar-05 | 6493 | 15.96% |
| FY 2006 | 01-Apr-05 | 6507 | 31-Mar-06 | 11280 | 73.36% |
| FY 2007 | 03-Apr-06 | 11343 | 30-Mar-07 | 13072 | 15.24% |
| FY 2008 | 02-Apr-07 | 12812 | 31-Mar-08 | 15644 | 22.11% |
| FY 2009 | 01-Apr-08 | 15772 | 31-Mar-09 | 9709 | -38.44% |
| FY 2010 | 01-Apr-09 | 9746 | 31-Mar-10 | 17528 | 79.85% |
| FY 2011 | 01-Apr-10 | 17555 | 31-Mar-11 | 19445 | 10.77% |
| FY 2012 | 01-Apr-11 | 19463 | 30-Mar-12 | 17404 | -10.58% |
| FY 2013 | 02-Apr-12 | 17430 | 28-Mar-13 | 18836 | 8.07% |
| FY 2014 | 01-Apr-13 | 18891 | 31-Mar-14 | 22386 | 18.50% |
| FY 2015 | 01-Apr-14 | 22455 | 31-Mar-15 | 27957 | 24.50% |
| FY 2016 | 01-Apr-15 | 27955 | 31-Mar-16 | 25342 | -9.35% |
| FY 2017 | 01-Apr-16 | 25302 | 31-Mar-17 | 29621 | 17.07% |
| FY 2018 | 03-Apr-17 | 29738 | 28-Mar-18 | 32969 | 10.86% |
| FY 2019 | 02-Apr-18 | 33031 | 29-Mar-19 | 38673 | 17.08% |
| FY 2020 | 01-Apr-19 | 38859 | 31-Mar-20 | 29468 | -24.17% |
| FY 2021 | 01-Apr-20 | 29505 | 31-Mar-21 | 49509 | 67.80% |
| FY 2022 | 01-Apr-21 | 49869 | 31-Mar-22 | 58569 | 17.45% |
| FY 2023 | 01-Apr-22 | 58531 | 31-Mar-23 | 58992 | 0.79% |
|  |  |  |  |  |  |
| **5-Year CAGR** | 02-Apr-18 | 33031 | 31-Mar-23 | 58992 | 15.60% |
| **10-Year CAGR** | 01-Apr-13 | 18891 | 31-Mar-23 | 58992 | 13.49% |
| **15-Year CAGR** | 01-Apr-08 | 15772 | 31-Mar-23 | 58992 | 9.88% |

 **Annexure-II: Tariff Assessment of TBCB projects by this Hon’ble Commission**

**Graphical Representation**

**Detailed Data\***

| **S No.** | **SPV** | **NAME OF PROJECT** | **L1 BIDDER** | **APPROX. PROJECT COST (Cr.)** | **L1 TARIFF (Cr.)****per Annum** | **CERC Tariff** | **Difference between CERC tariff & L1 tariff (TBCB) (Cr.)** | **Reduction in tariff w.r.t tariff worked out by CERC (%)** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Powergrid Southern InterconnectorTransmission Limited | Strengthening of Transmission System beyond Vemagiri | PGCIL | 5000.00 | 359.30 | 762.60 | 403.30 | 52.88% |
| 2 | Powergrid Mednipur-Jeerat Transmission Limited | ERSS 18 | PGCIL | 3994.00 | 498.70 | 506.80 | 8.10 | 1.60% |
| 3 | Powergrid Warora Transmission Ltd | Transmission System associated with Gadarwara STPS (2x800 MW) of NTPC (Part-A) | PGCIL | 2550.00 | 290.10 | 593.50 | 303.40 | 51.12% |
| 4 | Powergrid Parli Transmission Ltd. | Transmission System associated with Gadarwara STPS (2x800 MW) of NTPC (Part-B) | PGCIL | 2400.00 | 256.70 | 526.80 | 270.10 | 51.27% |
| 5 | Lakadia – Vadodara Transmission Project Limited; Sterlite Grid 18 Limited | WRSS – 21 Part – B – Transmission System Strengthening for Relieving Over Loadings Observed in Gujarat Intra-State System Due to Re-injections in Bhuj PS | Sterlite Power TL | 2314.00 | 178.90 | 281.90 | 103.00 | 36.54% |
| 6 | Khargone Transmission Limited | Connectivity system for Khargone TPP (2x660 MW) | Sterlite Power TL | 2136.00 | 159.10 | 310.32 | 151.22 | 48.73% |
| 7 | Khetri Narela Transmission Limited | Transmission system associated with LTA applications from Rajasthan SEZ Part-G, Phase-II | PGCIL | 1666.00 | 148.40 | 260.46 | 112.06 | 43.02% |
| 8 | Bikaner-Khetri Transmission Limited | Transmission System Associated with LTA applications fromRajasthan SEZ Part-D | Adani TL | 1630.00 | 100.10 | 229.50 | 129.40 | 56.38% |
| 9 | Powergrid Sikar Transmission Limited | Transmission system associated with LTA applications from Rajasthan SEZ Part-C, Phase-II | PGCIL | 1562.00 | 163.70 | 310.10 | 146.40 | 47.21% |
| 10 | Goa-Tamnar Transmission Project Limited | Additional 400kV Feed to Goa and Additional System for Power Evacuation from Generation Projects pooled at Raigarh (Tamnar) Pool | Sterlite Power TL | 1531.00 | 164.80 | 224.60 | 59.80 | 26.63% |
| 11 | Alipurduar Transmission Ltd. | Transmission system strengthening in Indian system for transfer of power from new HEP's in BHUTAN | Kalpaturu | 1400.00 | 129.40 | 184.91 | 55.51 | 30.02% |
| 12 | Powergrid Bikaner Transmission Ltd. | Transmission system associated with LTA applications from Rajasthan SEZ Part-F, Phase-II | PGCIL | 1340.81 | 140.50 | 203.20 | 62.70 | 30.86% |
| 13 | ERSS XXI Transmission Limited | Eastern Region Strengthening Scheme-XXI | PGCIL | 1321.00 | 138.60 | 252.00 | 113.40 | 45.00% |
| 14 | Kudgi Transmission Company Ltd. | Transmission system required for evacuation of power from Kudgi TPS (3X800 MW in Phase I) of NTPC Ltd. | L&T | 1240.00 | 179.60 | 232.74 | 53.14 | 22.83% |
| 15 | Powergrid Vizag Transmission Limited | Transmission system for strengthening in Southern region for import of Power from ER | PGCIL | 1180.00 | 231.10 | 237.00 | 5.90 | 2.49% |
| 16 | Khavda Bhuj Transmission Limited | Transmission scheme for evacuation of 3GW RE injection at Khavda P.S. under Phase-I | Adani TL | 1180.00 | 100.03 | 198.36 | 98.33 | 49.57% |
| 17 | WRSS XXI(A) Transco Limited | Transmission System for Western Region Strengthening Scheme – 21 (WRSS – 21) Part – A – Trasnsmission System Strengthening for Relieving Over Loadings Observed in Gujarat Intra-State System Due to Re-injections in Bhuj PS | Adani TL | 1090.00 | 95.10 | 174.60 | 79.50 | 45.53% |
| 18 | Lakadia Banaskantha Transco Limited | Transmission System for Transmission System Associated with RE Generations at Bhuj-II, Dwarka & Lakadia | Adani TL | 1052.00 | 83.50 | 141.30 | 57.80 | 40.91% |
| 19 | Sikar II- Aligarh Transmission Ltd. | Transmission system associated with LTA applications from Rajasthan SEZ Part-D, Phase-II | PGCIL | 1006.00 | 99.70 | 195.50 | 95.80 | 49.00% |
| 20 | Powergrid Jabalpur Transmission Limited | Transmission System Strengthening associated with Vindhyachal- V | PGCIL | 1000.00 | 211.00 | 421.40 | 210.40 | 49.93% |
| 21 | WR-NR Power Transmission Limited | New WR- NR 765 kV Inter-Regional corridor | PGCIL | 916.00 | 92.70 | 141.00 | 48.30 | 34.26% |
| 22 | Udupi Kasargode Transmission Limited (Sterlite grid 14) | Establish Transmission System for 400 kV Udupi (UPCL) – Kasargode D/C Line | Sterlite Power TL | 754.87 | 84.70 | 114.40 | 29.70 | 25.96% |
| 23 | Koppal-Narendra Transmission Limited | Evacuation of power from RE sources in Koppal Wind Energy Zone (Karnataka) (2500MW) | ReNew Transmission Ventures Private Limited | 750.00 | 61.10 | 120.80 | 59.70 | 49.42% |
| 24 | Powergrid Bhadla Transmission Ltd. | Transmission system associated with LTA applications from Rajasthan SEZ Part-B, Phase-II | PGCIL | 713.82 | 72.90 | 158.40 | 85.50 | 53.98% |
| 25 | Fatehgarh-II Transco Limited | Transmission system associated with LTA applicationsfrom Rajasthan SEZ Part-B | PGCIL | 676.00 | 71.60 | 158.40 | 86.80 | 54.80% |
| 26 | Powergrid Bhuj Transmission Limited | Transmission System for providing connectivity to RE Projects at Bhuj-II (2000 MW ) in Gujarat | PGCIL | 645.00 | 123.80 | 207.70 | 83.90 | 40.39% |
| 27 | Fatehgarh-Bhadla Transmission Limited | Transmission System for Ultra Mega Solar Park in Fatehgarh, Distt. Jaisalmer Rajasthan | Adani TL | 624.00 | 38.00 | 83.90 | 45.90 | 54.71% |
| 28 | Ajmer Phagi Transco Limited | Transmission system associated with LTA applications from Rajasthan SEZ Part-A | PGCIL | 583.00 | 61.30 | 117.50 | 56.20 | 47.83% |
| 29 | Nangalbibra-Bongaigaon Transmission Limited | Establishment of new 220/132kV substation at Nangalbibra | Sterlite Power TL | 560.00 | 55.80 | 85.00 | 29.20 | 34.35% |
| 30 | Maheshwaram Transmission Ltd. | Connectivity lines for Maheshwaram 765/400 kV Pooling Station | Sterlite Power TL | 534.00 | 55.30 | 82.80 | 27.50 | 33.21% |
| 31 | North Karanpura Transco Ltd. | Immediate evacuation for North Karanpura(3x660MW) generation project of NTPC(ERSS-XIX) | Adani TL | 472.00 | 56.00 | 75.00 | 19.00 | 25.33% |
| 32 | Raiichur Sholapur Transmission Company Ltd. | Transmission System Associated with Krishnapattnam UMPP- Synchronous interconnection between SR and WR (Part-B) | RSTCL(Patel Engineering Limited/ SimplexInfrastructure Limited/ BS Transcomm Limited | 440.00 | 29.40 | 53.70 | 24.30 | 45.25% |
| 33 | NRSS XXXVI Trans.Ltd | System strengthening in northern region (NRSS XXXVI) along with LILO of Sikar-Neemrana 400 kV D/C line at Babai (RVPNL) | Essel Infra | 437.00 | 48.60 | 60.49 | 11.89 | 19.66% |
| 34 | Jam Khambaliya Transco Limited | Transmission System for Jam Khambaliya Pooling Station and Interconnection of Jam Khambaliya Pooling Station for Providing Connectivity to RE Projects (1500 MW) in Dwarka (Gujarat) and Installation of 400/220 kV ICT along with Associated Bays at CGPL Switchyard | Adani TL | 394.00 | 33.70 | 66.50 | 32.80 | 49.32% |
| 35 | NRSS XXXI (B) Transmission Limited. | Northern Region System Strengthening Scheme(NRSS) - XXXI (Part-B) | Essel Infra | 370.00 | 88.70 | 92.30 | 3.60 | 3.90% |
| 36 | Powergrid Ramgarh Transmission Limited | Transmission system associated with LTA applications from Rajasthan SEZ Part-A, Phase-II | PGCIL | 353.85 | 39.10 | 77.00 | 37.90 | 49.22% |
| 37 | Gadag Transmission Limited | Transmission Scheme for Solar Energy Zone in Gadag (1000 MW), Karnataka – Part-A, Phase-I | ReNew Transmission Ventures Private Limited | 350.00 | 29.70 | 58.35 | 28.65 | 49.10% |
| 38 | Kallam Transmission Limited | Transmission System for evacuation of power from RE Projects in Osmanabad area (1 GW) in Maharashtra | IndiGrid Limited | 245.00 | 16.70 | 37.40 | 20.70 | 55.35% |
| 39 | Powergrid Kala Amb Transmission | NR System strengthening Scheme-NRSS-XXXI (Part-A) | PGCIL | 225.00 | 59.40 | 69.60 | 10.20 | 14.66% |
| 40 | Powergrid Unchhahar Transmission Limited | ATS of Unchahar TPS | PGCIL | 70.00 | 16.80 | 19.10 | 2.30 | 12.04% |
| **Overall tariff reduction of 40.15 %** |

\*Serial Numbers in the aforesaid tabulation do not correspond to the Scheme Numbers in the graphical representation.

1. National Tariff Policy, 2016, para. 5.11(a). [↑](#footnote-ref-1)
2. Report titled “*Analysis of Factors Impacting Retail Tariff and Measures to Address Them*”, Forum of Regulators, April 2021, para. 3.2.3. [↑](#footnote-ref-2)
3. Provided that such delay should not be attributable to the generating company/ transmission licensee. [↑](#footnote-ref-3)