केन्द्रीय विद्युत विनियामक आयोग
CENTRAL ELECTRICITY REGULATORY COMMISSION

Presentation to Stakeholders
on
Approach Paper
on
TERMS AND CONDITIONS OF TARIFF REGULATIONS

For Tariff Period from 01.04.2024 to 31.03.2029
Central Electricity Regulatory Commission

June 22, 2023
New Delhi

के वि वि आयोग
CERC

In this Presentation

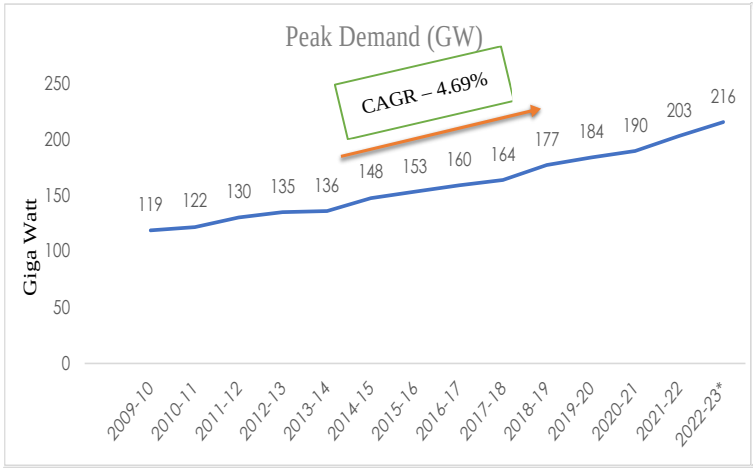
- Review of Past & Key Determinants
- Tariff Simplification – Possible Approaches to Tariff Determination
- Financial Aspects Impacting Tariff
- Operational Parameters Impacting Tariff
- Other Key Issues
- Way Forward

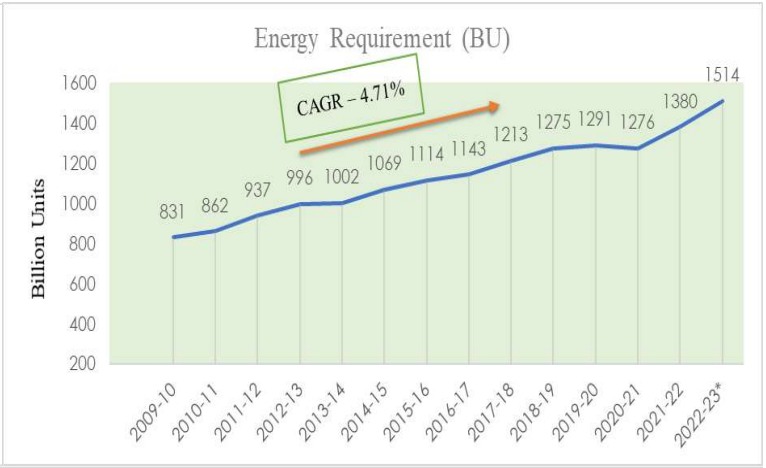
के वि वि आयोग
CERC

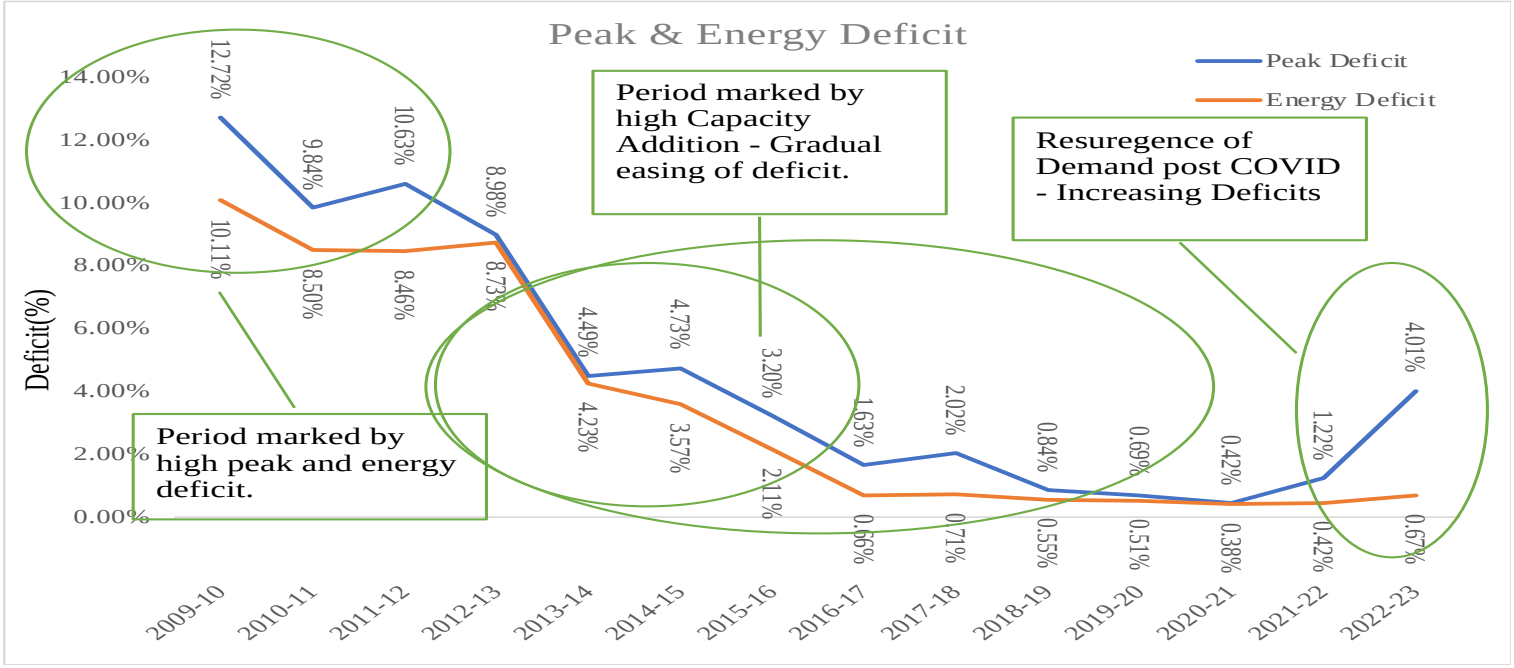
Review of Past and Key Determinants

Review of Past

Sector Growth – Key Indicators





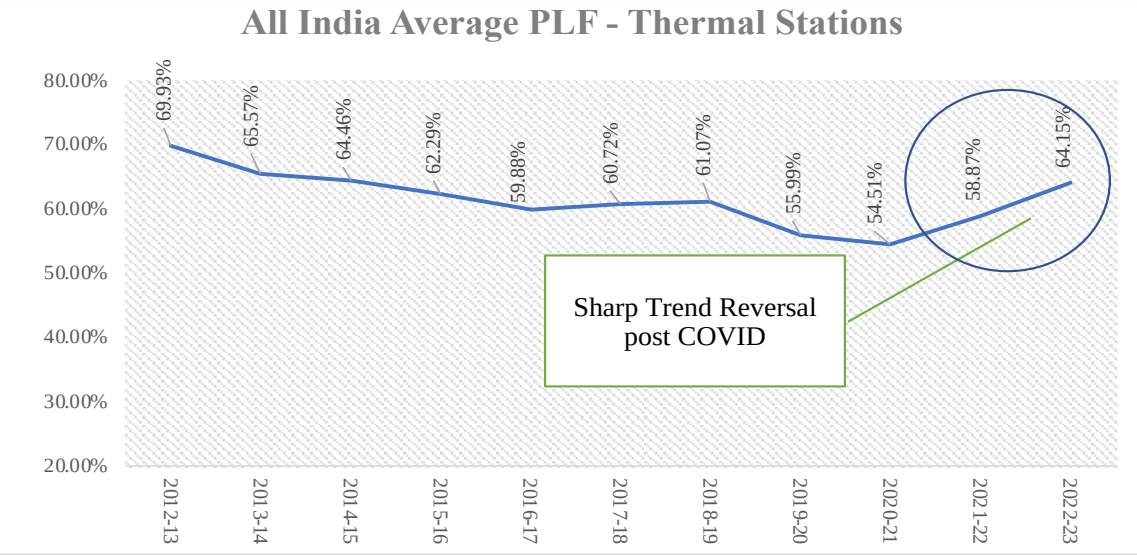


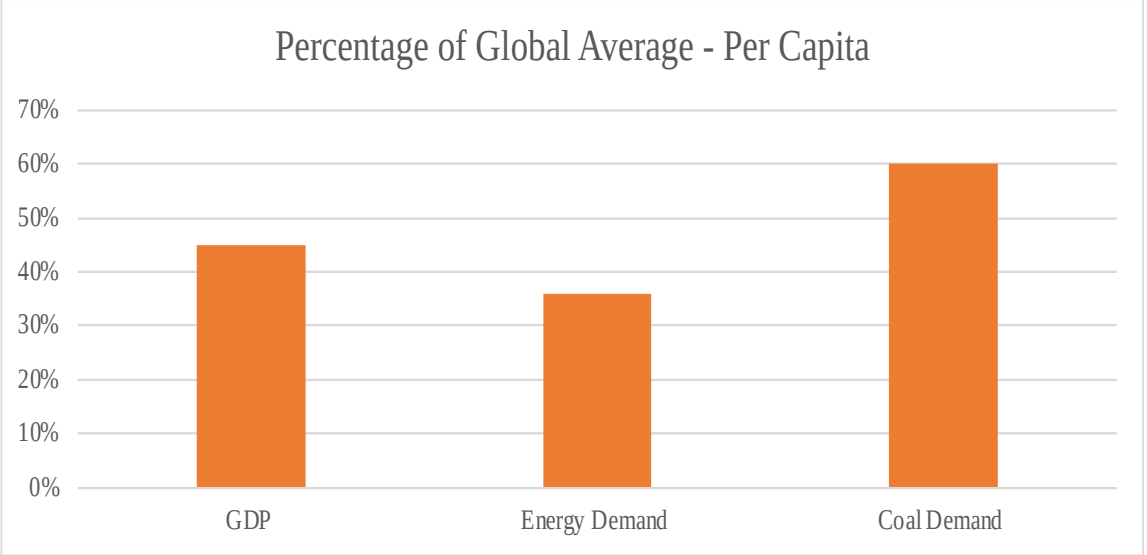
1. **Steady Growth in Energy Requirement and Peak Demand.**
2. **Peak deficit at 4% has started to widen from FY 2022-23 owing to strong revival in demand and delayed execution of scheduled projects.**
3. **Considering Economic Survey estimates GDP growth in the range of 6.5% for FY 2023-24. All Indicators points to considerable appetite to grow.**
4. **CEA in its Report on Optimal Generation Mix for FY 2029-30 (Version 2.0) has projected that by 2030 the existing capacity of FY 2021-22 will be required to double to approx. 777 GW – Requires 38 GW of thermal capacity addition.**
5. **The Report states that the present transmission system needs to be augmented to accommodate an additional 300 GW requiring considerable capital investment.**

Review of Past

Sector Growth – Key Indicators

Source: CEA and IEA





1. **Average PLF has also been increasing drastically (6% - FY 2022-23) suggesting strong demand revival.**
2. **Steady Growth in Energy Requirement and Peak Demand.**
3. **India way below global average in per-capita terms on key indicators such as GDP, Energy and Coal indicating huge appetite to consume.**

के वि वि आयोग
CERC

Sustainability and Role of Different Generating Sources

- Government of India has pledged that it shall strive to be net-zero country by 2070.
- While planning to achieve the required capacity addition, one therefore needs to support sustainable sources of generation and incentivize efficiency of existing generating stations.

Role:

- Hydro Stations– **Sustainable Source – Percentage Share dwindling – 29% (FY 1989-90) to 13% (FY 2022-23)** - Ideally to **Operate as Peaking Plants – Storage Based Plants needs to be incentivized**.
- Gas Stations– **Distinct advantages with regards to balancing grid - higher anticipated RE penetration, evolution of Ancillary Services and anticipated disruption in hydrogen production cost – Can provide transitional Support-**
- Old Thermal Generating Station – Efficient – Economical – **Require Additional Financial and Operational support**

The following key aspects have been considered while preparing this Approach Paper.

1) Simplification of Tariff Determination Process.
2) Preserving and augmenting existing capacities – Incentivising life extension, R&M, and efficient old generating stations.
3) Providing the necessary push to Investments– Assured Returns – Mitigation of Risk Perception.
4) Regulatory Certainty.
5) Incentivising efficient plant operations and sustainable development.
6) Encouraging development of Hydro Generation Projects.

के वि वि आयोग
CERC

Tariff Simplification
&
Possible Approaches

के वि वि आयोग
CERC

Simplification of Tariff Determination Process

Two possible options suggested as follows.

1. **Approach 1:** Shift to Normative Tariff wherein, once capital cost is approved on actual basis after prudence check, all other AFC components are determined on normative basis.
2. **Approach 2:** Further Simplification of Existing Performance Based Hybrid Approach, wherein based on admitted capital cost, AFC components can be approved based on actuals or norms as may be specified for the Control Period. Further, additional capitalisation may be allowed on certain counts on normative basis.

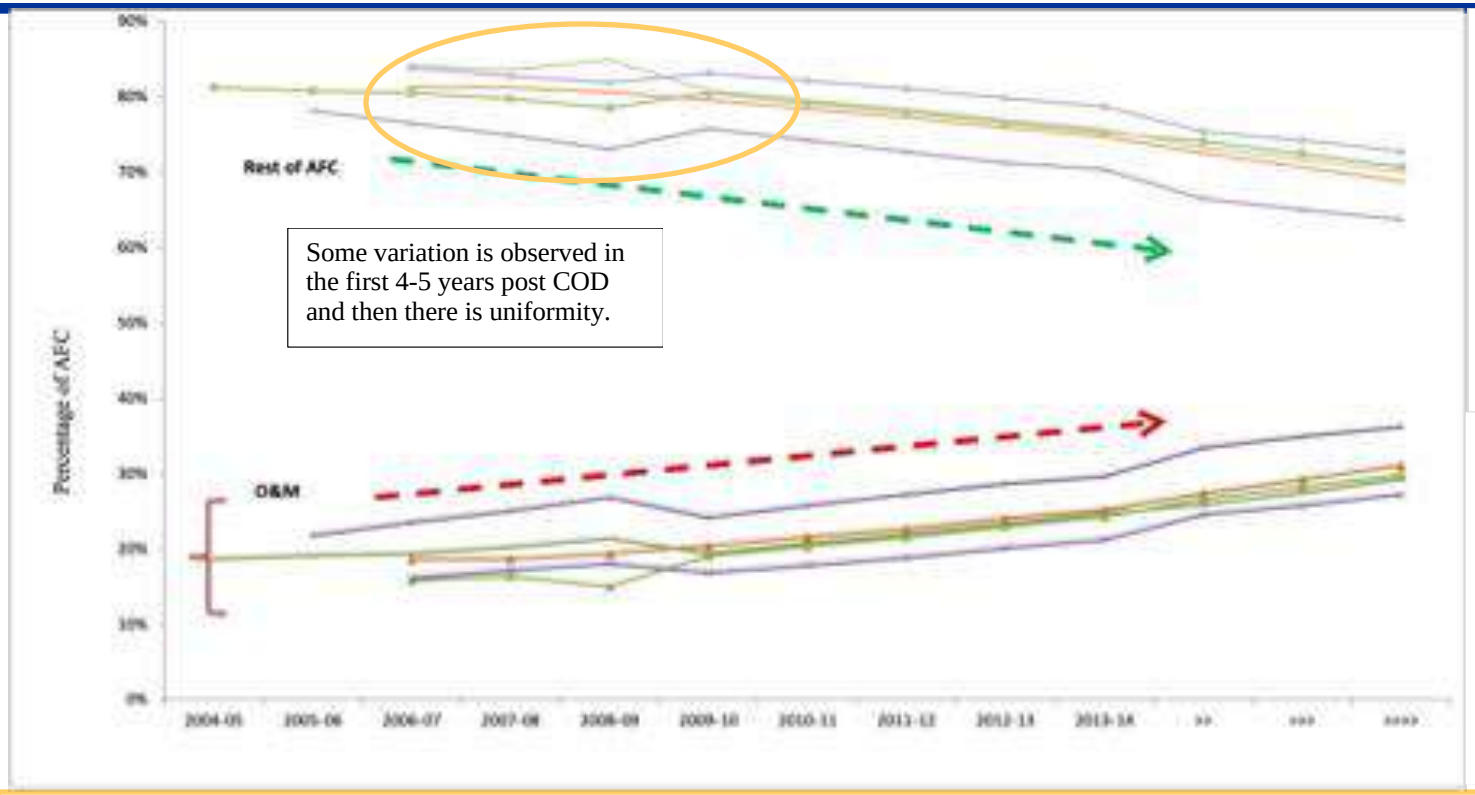
Approach 1: Normative Tariff

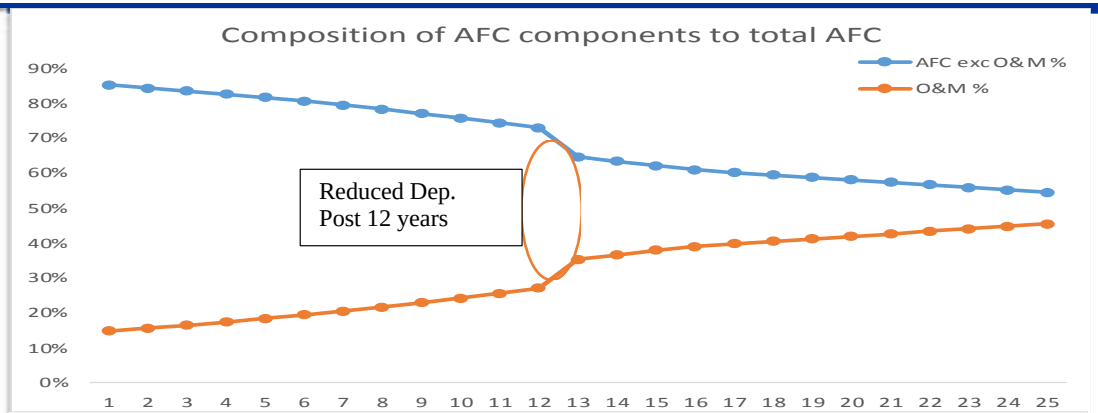
Components of AFC may be clustered into following two groups.

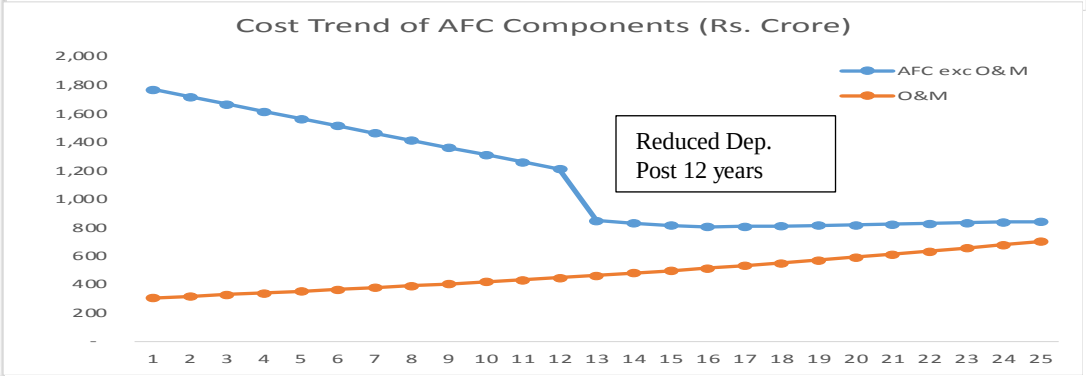
1) AFC component that increases over a period – O&M Expenses.
2) AFC components that decrease over a period – Rest of AFC components.

के वि वि आयोग
CERC

Approach 1 – Normative Tariff







The above graphs depict a clear trend of cost components, provided that the terms and conditions of tariff remain the same throughout the project life. The above trend is equally true in case of transmission assets.

If normative regime is to be adopted, the impact on account of following factors need to be duly accounted for from time to time so that the AFC components can be fine-tuned to incorporate impact of changes in market dynamics.

1. Weighted average rate of Interest
2. Interest on Working Capital

Approach 1 – Normative Tariff

1. Apart from the year on year variation which could be station specific, there could be inherent variation due to different cost of funds, funding pattern, depreciation rate and other plant specific peculiarities and therefore **normative tariff for these stations appears to be feasible only when determined Asset specific.**
2. The Asset specific normative tariff will allow the tariff determined to be close to actuals thereby eliminating the chance of major gain or loss and will also help achieving the other objective of eliminating the need of periodic tariff filings.
3. In view of aberrations observed in the first five years post COD, **Tariff during the first five years may be approved on actual basis and shall be subject to truing up.**

Detailed Approach

1. From Projects under Operation for more than 5 years as on 01.04.2024

a) Capital Cost as on 31.03.2024 is proposed to be considered for determination of tariff for FY 2024-25. Based on the norms to be specified in the CERC Tariff Regulations, 2024, Annual Fixed Charges (AFC) for first year of the next tariff period i.e., FY 2024-25 is proposed to be determined. The AFC components for base year (FY 2024-25) shall be determined individually and then clubbed under the following two categories.

1) AFC excluding O&M Expenses
2) O&M Expenses

Once the above two major components of AFC are determined for FY 2024-25 (Base Year), the above two components for rest of the years of tariff period shall be determined and indexation rate shall be specified.

Approach 1 – Normative Tariff

Detailed Approach – Contd..

- Post expiry of each tariff period, the Commission shall call upon relevant data and only revise the indexation factor pertaining to "AFC excluding O&M component" approved at the time of tariff determination for each Project for each year.
- Based on the revised indexation of past tariff period, Generating Station or Transmission Licensees shall refund/recover the differential amount as done presently
- Through the same exercise **the Commission shall also specify the indexation factor for the above two categories for the next tariff period (2029-2034) with base as FY 2024-25.**
- In case of any additional capitalisation was incurred or is required, the Petitioner may file a separate petition seeking approval of capital expenditure and once allowed, the variation on account of additional capitalisation can be serviced through computing the impact on AFC and adjusting the same through the same indexation mechanism as specified above.
- AFC of existing projects, including servicing of additional capitalisation shall continue to be governed as per the CERC Tariff Regulations, 2024.
- Energy Charges are already being allowed based on normative performance parameters and actual fuel cost and is proposed to be continued.

Sample Calculation >>>

के वि वि आयोग
CERC

Approach 1 – Normative Tariff

Approach 1 – Projects that are yet to complete five years post COD as on 01.04.2024

a) The Capital Cost shall be approved on actual basis upto cut-off date. Further, additional capitalisation post cut-off date can be allowed on normative basis.

b) The tariff components of AFC shall be determined and trued up on actual basis till the financial year in which the cut-off date of such generating stations ends. The AFC for each station shall be determined under the following two categories for the first financial year post cut-off date.

   1. AFC excluding O&M Expenses
   2. O&M Expenses

c) Thereafter, from 6th financial year onwards, the above AFC categories shall be determined based on indexation mechanism as proposed for existing projects.

d) The current practice of approving Energy charges shall continue, in case of generating stations.

के वि वि आयोग
CERC

Approach 2 – Performance Based Hybrid Approach

Approach 2 – Existing Approach with further simplification of tariff determination process

Generation Tariff

In case of generating stations although O&M expenses, Depreciation, Return on Equity are specified on normative basis, following components as per present Regulations require consideration of actual values.

1. Energy Charge – Fuel Cost and GCV to be considered.
2. Working Capital – Actual fuel cost keeps varying and affects total receivables.
3. Interest Rate on Loans and Interest Rate on Working Capital

Transmission Tariff

As per the current Tariff Regulations governing determination of transmission charges, the following components of tariff are already allowed on normative basis.

1. O&M expenses
2. Depreciation
3. Return on Equity
4. Working Capital Requirement and Interest thereon.

The Regulation at present allows interest on normative loan capital on actual weighted average rate of Interest.

- ✓ Under Existing approach, most of the regulatory overburden is on account of recurring but low value additional capitalization claims.
- ✓ **In order to eliminate such requirement, option of normative additional capitalization has been suggested in this Approach Paper.**

के वि वि आयोग
CERC

Financial Aspects Impacting Tariff

के वि वि आयोग
CERC

Capital Cost

Parameter	Issue in Brief	Description/Additional Detail
Capital Cost	Issue Flagged: Mode of Procurement of Equipment and Services **Mandatory to follow Competitive Bidding on Public Procurement Platform.** **Genesis – To ensure competitive bidding is followed.**	In order to encourage transparency in project execution, suggestion on the following have been sought. **1. Need to mandatorily award work and services contracts for developing projects under regulated tariff mechanism through transparent process of competitive bidding using public procurement platforms duly complying with the policy/guidelines issued by Government of India as applicable from time to time.**
	Issue Flagged: What cost should be considered for allowing capital cost? **Benchmark Cost or Cost as per Investment Approval?** **Genesis - Tariff Policy recommends Benchmarking of Capital Cost.**	Benchmark Cost may not be a true representation for all the plants that can form basis for disallowing cost due to following reasons. ❖ Thermal Generating Station - Cost is largely affected by site conditions, water handling, coal handling systems etc. ❖ Hydro Generating Station - Cost depends on several aspects such as choice of technology, design, reservoir based/Pondage/ROR, etc. ❖ Transmission System – Cost depends on factors such as tower design, terrain, soil type, wind zones etc., **Therefore, benchmarking may serve limited purpose and may not be a better alternative to current project specific Investment Approvals. – Comments Sought**

Capital Cost

Parameter	Issue in Brief	Description/Additional Detail
Capital Cost	Issue Flagged: What cost to be considered for assets acquired post NCLT Proceedings? **Cost of Acquisition or Historical Cost of Asset?** **Genesis: It is observed that acquired value of Assets are lower than the historical cost of Assets.**	Section 62 specifies determination of tariff based on cost plus principle and therefore, the acquisition value may need to be considered. **Comments and Suggestions are sought on the following issues.** **1. Historical Cost or Acquisition Value whichever is lower should be considered for determination of tariff post approval of Resolution Plan.** **2. Tariff Provisions to be included to address the issue of cost of debt servicing including repayment that were allowed as a part of tariff during the CIRP process.**

के वि वि आयोग
CERC

IDC

Parameter	Issue in Brief	Description/Additional Detail
Interest During Construction (IDC)	Issue Flagged: Existing IDC provisions may require more pragmatic approach to recognise and allow the cost considering implementation schedule and base case IDC/IDC approved in IA. IDC approved in Original Investment Approval may also be considered. **IDC may require to be computed post SCOD.** **Whether to consider IDC approved in Original Investment approval for allowing IDC?** **Genesis – Under existing provisions if developers starts work post SCOD and if for some reason delay is not condoned, it cannot be allowed any IDC.** **Further, IA includes IDC working based on prudent phasing without delay hence can form basis of prudence check.**	**Comments and Suggestions are sought on the following issues** **1. Existing mechanism wherein the pro-rata computation is done on excess IDC pertaining to delay period beyond SCOD; or** **2. Pro-rata IDC may be allowed considering the total implementation period wherein the actual IDC is pro-rated considering the SCOD and period of delay condoned over total implementation period; or** **3. IDC approved in the original Investment Approval to be considered while allowing actual IDC in case of delay.** **4. In case the actual IDC is below that approved in the Original Investment approval, the same may be allowed as lower IDC even in case a project is delayed may be due to prudent phasing of funds adopted by the utilities.** **[Illustration]**

Price Variation and Renovation & Modernization 1/1

Parameter	Issue in Brief	Description/Additional Detail
Price Variation	Issue Flagged: Additional Information pertaining to Price Variation to be provided in a Separate Tariff Format. Utilities to submit statutory auditor certificate certifying the price variation corresponding to delay. **Price Variation to be allowed on Pro-Rata Basis corresponding to Delay condoned** **Genesis – Time overrun not only increases IDC and IEDC, but it also results in increase in the hard cost in case the contract provides for cost escalation beyond SCOD.**	In case of Time overrun, if the impact of such delay is not being allowed for the delay not condoned, the same treatment may be extended to price variation, therefore comments sought on the following. **For allowing price variation, the utilities may be mandated to submit the statutory auditor certificate along with the petition duly certifying the price variation corresponding to delay and the same may be allowed on pro-rata basis corresponding to the delay condoned. Further, a separate form may also be specified to submit the relevant information pertaining to price variation.**
Renovation and Modernization	Issue Flagged: In view of the inherent benefits of undertaking R&M as against going for fresh capital investment the current provisions may be continued. **Whether to continue the existing provisions or make these provisions more efficient?** **Genesis – R&M is a cost effective alternative to huge Capital Infusion Requirement and hence has been allowed in the past.**	R&M is a cost effective alternative and allows to defer infusion of huge capital investments on construction of new capacities and avoids seeking fresh approvals and clearances. Therefore, it has been allowed in the past. **Suggestions are sought from stakeholders on continuation of the existing provisions of undertaking R&M or continuing with Special Allowance, if opted at the beginning of the tariff period for the rest of the tariff period.**

के वि वि आयोग
CERC

Initial Spares and Controllable & Uncontrollable Parameters 1/1

Parameter	Issue in Brief	Description/Additional Detail
Initial Spares	Issue Flagged: For Transmission Projects Number of Categories proposed to be reduced from 11 categories to 5 broad categories **Process of approval of Initial Spares needs to simplified.** **Genesis – Need is felt to simplify the process of approval.**	In order to simplify the process of approval without going into the miniscule details of having 11 classifications, a single norm for green and brown field projects may be introduced under 5 broad categories of assets as follows: 1. Transmission Lines including HVDC lines. 2. Sub-stations (including HVDC S/s) 3. Dynamic Reactive Compensation devices 4. Communication System 5. Under Ground Cable
Controllable and Uncontrollable Parameters	Issue Flagged: Delay on account of Forest Clearance may be treated as Uncontrollable Parameter **Whether delay on account of Forest Clearance to be treated as Uncontrollable Parameter ?** **Genesis – Delay on account of getting Forest clearances may be beyond the control of utilities.**	**Delay on account of forest clearances may be included as uncontrollable reasons provided that such delay is not attributable to generating company or the transmission licensee.**

के वि वि आयोग
CERC

Differential Norms - Servicing Impact of Delay

Parameter	Issue in Brief	Description/Additional Detail
Differential Norms - Servicing Impact of Delay	Issue Flagged: Rigorous pursuit of approvals such as forest clearances and other critical clearances to be encouraged. **RoE on Equity corresponding to cost and time overrun allowed may be allowed at the weighted average rate of interest on loan instead of fixed RoE. Or,** **Even if delay on account of uncontrollable parameter is condoned some part of cost impact (Say 10%-20%) corresponding to the delay condoned may be disallowed to encourage rigorous pursuit of approvals.** Genesis – Delays could have been restricted if the approvals were sought more assertively instead of mere having written correspondences.	In several cases the delays are attributable to lack of timely clearances, forest approvals etc. which require constant and rigorous follow up. In some of these cases the delays could have been restricted if the approvals were sought more assertively instead of mere having written correspondences. Further, if the generating stations or transmission licensees are allowed such impact, the cost of servicing of such delay should not result in increase in RoE for such utilities instead such allowances should be mere compensatory in nature. **Another View is that no additional measure may be required as even with RoE at 15.50%, and the entire delay is condoned, the Equity IRR reduces from around 12% to 11% and for every subsequent year of delay, the Equity IRR reduces further.** **Accordingly, Comments and Suggestions are sought on the following issues:** **1. Whether RoE on Equity corresponding to cost and time overrun allowed over and above project cost as per investment approval may be allowed at the weighted average rate of interest on loan instead of fixed RoE?** **2. Whether some part of cost impact (Say 20%) corresponding to the delay condoned may be disallowed to encourage rigorous pursuit of approvals?** **3. Whether the current mechanism of treating time overruns may be continued, considering that Utilities are automatically dis-incentivised if the project gets delayed**

Additional Capitalisation

Parameter	Issue in Brief	Description/Additional Detail
Additional Capitalisation	**Cut Off Date – Whether to be increased to 5 years**	**It was observed that the majority of additional capitalisation post COD is incurred within 5 years from COD and therefore it is proposed to increase the cut off date from the present 3 years to 5 years. *A Separate study carried out found that around 84% total Capital cost is incurred as on COD and almost entire balance 16% is incurred in the first 5 years.***
	Intermittent additional capitalisation may be approved on normative basis. **Genesis – Simplification of Tariff Determination and shifting towards normative tariff**	**1. Thermal - Based on the analysis of actual add cap in the past (15-20 years) and co-relating such expenses to different unit sizes such as 200/210 MW series, 500/660 MW Series and different vintage (5-10, 10-15, 15-20, 20-25 years post COD) a special dispensation in the form of yearly allowance may be allowed which shall not be subject to any true up and shall not be required to be capitalised.** **2. Hydro - As each hydro generating station is unique owing to various factors, additional capitalisation of such generating stations may not be benchmarked as can be done for thermal generating stations.** **Station Specific add cap may be approved on normative basis.** • **Discharge of liabilities of works already admitted by the Commission as on 31.03.2024 shall be allowed as and when such liability is discharged.**

Additional Capitalisation 2/3

Parameter	Issue in Brief	Description/Additional Detail
Additional Capitalisation	Additional Capitalisation under Regulation 26 to 29 to continue as these add cap is incurred on account of uncontrollable reasons. **Genesis – Simplification of Tariff Determination and shifting towards normative tariff**	➢ **Cost incurred towards works presently covered under Regulation 26 to Regulation 29 to be allowed separately.** ➢ **Items that may be in the nature of minor items such as tools and tackles, spares costing below Rs. 20 lakhs may be allowed only as part of O&M expenses and may not be considered as part of additional capitalisation**
	Issue Flagged: Provisions for necessary add. Cap pertaining to Railway Infra and Coal transportation after cut off date does not exists in case of thermal stations. Enabling provisions may be added. **Genesis – If add cap results in reduction in operational cost and is beneficial the same may be allowed.**	➢ There are no enabling provisions under which a generating station can seek approval of cost pertaining to Railway Infrastructure and its augmentation for transportation of coal up to the receiving end of the generating station (excluding any transportation cost and any other appurtenant cost paid to railways) which are not covered under the above provisions that may result in better fuel management and can lead to reduction in operation costs or shall have other tangible benefits. **Therefore, in order to have an enabling provision under which such costs can be allowed with prior approval, a provision may be introduced to existing Regulation 26 to allow such expenses if it is established that such expenses will result in quantifiable benefits.**

Additional Capitalisation 3/3

Parameter	Issue in Brief	Description/Additional Detail
Additional Capitalisation [Transmission System]	Issue Flagged: Add Cap post Cut-off date seldomly required except in case of technological obsolescence, Damages or Augmentation. **Cut-off date may be extended to 5 years from present 3 years.** **Add Cap post Cut-off Date -** Technological Obsolescence, Change in Law and Force Majeure **Genesis –Based on analysis carried out post COD major add cap continues for around 5 years.** **No recurring expenses**	Unlike generating stations, additional capitalization post cut-off date is seldom required in case of transmission system unless due to technological obsolescence or damages or augmentation. Accordingly, the may be allowed if required post cut-off date. **Therefore, for Transmission Systems, additional capitalisation post cut-off date may be allowed on technological obsolescence, change in law, force majeure or due to replacement as presently allowed -**Comments Sought.

O&M Expenses

Parameter	Issue in Brief	Description/Additional Detail
Segregation of Normative O&M Expenses	Issue Flagged: Allowing one time impact on issues affecting one of the components of O&M Expenses (Employee, A&G and R&M Expense) becomes difficult due to absence of segregation of baseline expenses forming part of O&M expenses. **The O&M Expenses may be segregated into Two Broad Categories i.e. Employee Expenses and other O&M Expenses comprising of R&M and A&G Expenses.** **Genesis – The need to have a Reference Cost to allow future impact.**	**In case of Employee Expenses one-time effect for pay revision impact is required to be approved.** **It is further anticipated that in the forthcoming tariff period wage/salary revision is expected and therefore O&M norms may be specified under following two categories.** **1. Employee Expenses** **2. Other O&M Expenses comprising of Repair and Maintenance and Administrative and General Expenses.** **Alternatively, 50% of the actual wage revision can be allowed on a normative basis to cater the impact of pay/wage revision**. However, considering that systems which are more automated will require lesser manpower and systems that are less automated will require higher manpower, approving separate norms may result in inequity even though the total O&M expenses of such systems may be comparable. **Therefore, the above suggestion may also be seen in the perspective that these expenses have been historically allowed as one time expenses and any change in the methodology as suggested above may result in un-necessary complications.**
Norms for HVDC Stations	Issue Flagged: One Single Norm for all HVDC Schemes needs to be specified. **Simplification of O&M Norms required for HVDC Schemes.** **Genesis – Normative O&M Expenses are approved for certain Schemes while for other schemes O&M Expenses are approved based on Norms of Schemes of similar nature.**	There is a need to simplify the norms and therefore one norm for all HVDC Schemes in terms of per MW considering the actual expenses incurred in the past may be specified. **Whether the proposed approach can be adopted or any alternatives can be adopted?**

O&M Expenses

Parameter	Issue in Brief	Description/Additional Detail
O&M Expenses for Special Cases	Issue Flagged: Whether additional O&M Expenses needs to be allowed for Transmission Assets being operated in NE Region and Hilly Region? **Possible solution needs to be explored so that development of electrical infrastructure in these regions is encouraged** **Genesis – O&M expenses towards upkeep of Transmission System in the North-Eastern region of India entails additional costs due to logistical challenges as well as poor infrastructure growth of the region**	**Whether to approve additional O&M expenses for transmission assets being operated in N-E Regions and Hilly Region manner in which such additional costs need to be allowed?**
Inclusion of Capital Spares	Issue Flagged: Whether Norms for Capital Spares be included in O&M norms? **In order to simplify the process of allowing the spares, all the spares may be allowed on normative basis or on actual basis** **Genesis – Capital Spares are being allowed on the basis of actuals and Initial Spares and O&M Spares are being allowed on normative basis leading to considerable effort to be put in to map these expenses.**	Capital Spares expenses are non-recurring and sporadic and therefore benchmarking the same may be difficult. However, if the Capital Spares are analyzed for a larger duration of 15-20 years and the same can be projected with some degree of predictability. Further, instead of including all the capital spares as part of normative O&M expenses, recurring and low value capital spares below Rs. 20 lakh may be made part of normative O&M expenses while for capital spares with value in excess of Rs. 20 lakh, utilities may submit the same on case to case basis with appropriate justification for Commission's consideration. **Whether the proposed approach can be adopted or any alternatives can be adopted to simplify the approval of Capital spares?**