

# BEFORE THE TAMILNADU REGULATORY COMMISSION

Filing No: \_\_\_\_\_

Date: 13<sup>th</sup> January 2020

## IN THE MATTER OF

Petition filed by TANGEDCO seeking approval of Capital Investment Plan for the Multi Year Tariff Control Period of FY20 to FY22.

## SUBMISSION FROM PRAYAS (ENERGY GROUP)

TANGEDCO vide its public notice invited comments and suggestions for the petition filed before TNERC for the approval of the Capital Investment Plan for its generation and distribution business for the period FY20 to FY22.

At the onset, we submit that the proposals of TANGEDCO indicate massive capacity addition in the pipeline by FY27 which would result in significant costs. The proposed capacity addition (including renewable) is 20 to 28 GW by FY27. This is 1.2 to 1.7 times the existing capacity. The approval of such costs needs to be ensured not only on the basis of cost prudence but also on the basis of assessment of trends in demand (especially sales migration due to renewable energy captive use and open access) and proliferation and increasingly viability of new technological options.

It is urged that the Commission approve such costs only after an in-depth, scientific, scenario-based assessment of demand and supply options after, directing TANGEDCO to submit additional data and ensuring wide public consultations (including public hearings) as such approvals will have significant cost impact and could result in potential lock-ins in the coming years.

Our submission in the matter is detailed below:

### 1. Need for additional data on crucial aspects of TANGEDCOs petition to ensure compliance with TNERC regulations

The approved capital investment plant will have significant impact on power procurement costs, consumer tariffs, revenue gaps and subsidy support required in the coming years. Thus, it is imperative that the capital investment plan is comprehensive. Recognising this, the TNERC had directed TANGEDCO to submit a detail plan for all capital works. However, many crucial aspects of a Capital Investment Plan as specified in the regulations have not been submitted by TANGEDCO. It is submitted that the Commission direct TANGEDCO to submit the following information in compliance with Regulation 17 and Regulation 7 (2-A) of the tariff regulations.

#### 1.1 Lack of clarity in capacity addition plan

Based on TANGEDCO submission in Annexure I of the petition, the DISCOMs has 20 GW of capacity in the pipeline. Table 1 details the capacity which has been listed by TANGEDCO as part of its capacity addition plan. However, in Annexure IV-A , TANGEDCO considers 15.49 GW of conventional capacity and

12.54 GW of renewable energy capacity to be added by FY27. This consideration is higher than the capacity considered in the pipeline in Annexure 1.

**Table 1: Capacity listed by TANGEDCO in M.P No.18 of 2019**

Plant	Capacity in MW
ETPS Expansion TPP	660
Ennore SEZ TPP	1320 (2*660)
North Chennai TPS Stage III	800
Uppur TPP	1600 (2*800)
Udangandi TPP Stage I	1320 (2*660)
Kundah pumped storage HEP	500 (4*125)
Ennore Replacement TPP	660
Udangundi Expansion Project Stage II	1320 (2*660)
Udangundi Expansion Project Stage III	1320 (2*660)
Cheyur Ultra Mega Power Project	4000 (5*800)
Sillahalla pumped storage HEP	2000 (4*500)
Kadaladi Supercritical TPP	4000 (5*800)
Kadaladi Ultra Mega Solar PV park Power Project	500

Source: Annexure 1 of TANGEDCO filings

While annual capacity addition has been considered, the data regarding the status of each plant is not provided in a consistent and comprehensive fashion. From the information provided, it is not clear when the projects are expected to come online and what the anticipated cost impact would be. Further, it is also not clear if this is all of the contracted/expected capacity in the pipeline. From the information provided, the following details need to be submitted:

#### **1.1.1 Details of CGS and private capacity contracted/ expected till FY27**

TANGEDCO provides details of power plants which it will ensure capital investment in. However, it also reports details of Cheyyur UMPP which is to be operated by CNTPL. It is unclear if the project was reported as TANGEDCO also has plans to take over the project. Similarly, it needs to be clarified whether Kadaladi Supercritical TPP and Kadaladi Ultra Mega Solar PV park Power Project are to be competitively bid projects.

In any case, it is crucial that TANGEDCO provides details of not only the capacity it is building or but also the capacity it has contracted. Therefore TANGEDCO should also submit a list of capacity contracted from central generating stations as well as private power plants from all sources (coal and renewable) which are expected to be commissioned by FY27. This would help the Commission get an accurate assessment of power procurement and supply plans.

#### **1.1.2 Anticipated date of commissioning of capacity in the pipeline**

TANGEDCO states that the projections for demand and supply in Annexure IV-A is 'based on the presumption that all the ongoing and upcoming projects are commissioned as per the year-wise capacity addition enclosed in Annexure 1'. However, Annexure 1 does not provide year-wise capacity addition details and important details like the anticipated date/ year of commissioning are not provided for all

the plants. Without this information it is uncertain as to when this capacity can be considered available, making power procurement planning and management challenging.

### 1.1.3 Details of time and cost-overruns

TANGEDCO plants have faced significant time and cost overruns in the past which has resulted in substantial increase in the interest during construction borne by consumers and has also resulted in uncertainty in power procurement, leading to dependence on high cost short-term sources, further increasing the cost burden.

In order to avoid this predicament, it is crucial that the DISCOM report time and cost overruns for the plants in the pipeline along with reasons for delay for each works. For example, as per the [CEA monthly broad monitoring status report](#):

**ETPS Expansion TPP** was delayed due to Corporate Insolvency & Bankruptcy process initiated against LITL (the EPC Contractor) by IDBI Bank. The project is reported to be stalled since August 2017.

**Ennore SEZ TPP** was delayed as work was temporarily suspended due to litigation between September 2015 and October 2016.

**North Chennai TPS Stage III** was delayed as structural works were kept on hold due to issues with the contractor for boiler and bunker erection.

These are not reported or elaborated on with sufficient details in TANGEDCO's submission. Further similar issues with other plants which could result in slippage of the project are not detailed. In order to ensure delays and cost-overruns are tracked, TANGEDCO should provide:

#### 1.1.3.1 Timeline of events

A complete timeline of events for each of the units under consideration- starting from the board resolution approving the said unit. Such chronology is essential to understand the nature and extent of delay, if any. It will also be very useful for managing and executing future projects.

#### 1.1.3.2 Schedule and timeline for each capital works

Information as specified in Table 2 should be provided for each plant being built by TANGEDCO.

Table 2: Details of construction or service packages for each unit

Name / Supply / Service Package			
Scope of works (in line with head of cost break-ups )			
Awarded through ICB/DCB/Departmentally			
Bids Received			
Date of Award			
Date of Start of Work			
Scheduled date of completion of work			
Actual date of completion of work			
Value of Award (in Rs Cr)			
Firm or with Escalation in prices			
Total cost incl. Price Variation from award			
Actual expenditure till date (Rs. Crore)			

### 1.1.3.3 Delay as per schedule and liquidated damages recovered

As seen in the examples cited from the CEA report, delays could be attributed to the EPC contractors. However, the contract also provides for recovery of liquidated damages in case the contractor is in violation of the terms of the contract. Exercising the terms of the contract would reduce the burden of increased cost to consumers of TANGEDCO. Therefore, reporting such information for each works as suggested in Table 3 is necessary.

Table 3: Details of interest during construction and liquidated damages claimed for each unit

<i>BTG/ BOP/ Civil Works/ Other where delay took place</i>		
<i>Schedule date</i>		
<i>Actual date</i>		
<i>Delay (in days)</i>		
<i>Reasons for delay</i>		
<i>Ordering cost (Rs. Crore)</i>		
<i>Final cost/ estimate (Rs. Crore)</i>		
<i>Impact on Interest during construction (Rs. Crore)</i>		
<i>Liquidated damages recoverable (Rs. Crore)</i>		
<i>Liquidated damages recovered (Rs. Crore)</i>		

### 1.1.4 Details of financing for upcoming capacity and all capitalisation by TANGEDCO

To enable tracking of the project towards effective commissioning, it is also crucial that TANGEDCO provide details of sources of funds as well as details of loans taken for each cost-plus project undertaken. **Such information should also be provided for distribution related capital investment and additional capital investment for existing plants.** Table 4 provides formats for detailing the sources of funds.

Table 4: Source of funds for each project

Sources of funds (Rs. Cr)	
<b>Loans</b>	
Domestic loans	
Foreign loan (equivalent in Rs. Cr)	
<b>Equity</b>	
State Government	
TANGEDCO	
<b>Grants</b>	
State Government	
Central Government	
<b>Internal Accruals , if any</b>	
<b>Consumer contribution, if any</b>	
<b>Others</b>	

Further, as loans would form a major source of funds, it is also essential to capture loan-wise details for all cost-plus projects executed by TANGEDCO. Table 5 is suggested to capture this information.

**Table 5: Details of loans taken to finance project**

Name of Bank or Agency (Source of loan)		
Amount of Loan sanctioned (Rs. Cr.)		
Amount of Gross Loan drawn up to date (Rs. Cr.)		
Interest Type (Fixed or Floating)		
Fixed Interest Rate, if applicable (%)		
Base Rate, if Floating Interest (%)		
Margin, if Floating Interest (%)		
Specification of cap/ floor, if any		
Moratorium Period		
Moratorium effective from		
Repayment Period		
Repayment effective from		
Repayment Frequency		
Repayment Installment		
Base Exchange Rate, if applicable		

In addition, in the interest of transparency, TANGEDCO should also submit copies of sanction letters and loan agreement for each loan to the Commission.

#### 1.1.5 Status of statutory clearances

The details provided by TANGEDCO do not mention the status and issues faced in obtaining statutory clearances such as environment clearance, forest clearance and CRZ clearance etc. Plants like ETPS Expansion TPP, NCTPS Stage III and Uppur TPP have had many setbacks in obtaining clearances which contribute to the delay in execution and also lends uncertainty to the date of commissioning of the project. TANGEDCO should provide the following details (Table 6) regarding the status of the clearances which will provide a clearer picture of the status.

**Table 6: Status of statutory clearances**

Type of clearance	Environmental Clearance	Forest Clearance	Wildlife Clearance	CRZ Clearance
Current status				
Fresh/Extension of validity/ Amendment/Corrigendum				
Details of Terms of Reference (date of application, date of approval)				
Clearance application/proposal number				
Date of application of clearance				
Date of approval of clearance				
Prior delisted clearances (if any)				

### **1.1.6 Fuel and water arrangements**

While most of the projects are listed to be commissioned in the medium term, the fuel and water arrangements for the projects are not specified. Given the issues with coal management and availability and issues with water shortages such information is crucial as it could affect costs and availability of the plant in the future. Thus, TANGEDCO should submit arrangements made for fuel and water for the plants in the pipeline. This should also include transportation arrangements for both fuel and water, if required.

### **1.1.7 Details of capacity to be retired by FY27**

Given the vintage of TANGEDCO's existing capacity, it is also crucial that TANGEDCO specifies retirement of existing capacity that is being planned till FY27. If the plants can operate economically with some additional capitalisation, this too should be clearly specified in the petition.

## **1.2 Need for a comprehensive demand assessment to determine capacity required**

As part of the petition, TNERC directed TANGEDCO to submit projections of demand and energy requirement. As most of the capital investment is being undertaken to meet future demand, this type of assessment is crucial. TANGEDCO has submitted annual details till FY27 for capacity available (conventional and renewable), demand (MW) and energy requirement (MU). However, the crucial assumptions and the data used to for these assumptions are not specified. Assumptions and specifications in the methodology which require clarity are listed below:

### **1.2.1 Estimation of available capacity**

The projected demand based on past projections is about 25 GW. As per TANGEDCO estimates based on available capacity, there is a deficit of 2559 MW by FY27. However, the installed conventional capacity is about 30 GW. TANGEDCO assumes lower available capacity based '*on the availability on 27.04.2018 to meet the lighting demand of 15440 MW during the off-wind season*'. The reason for this assumption as well as the manner in which availability was projected for the coming years for conventional power is unclear. TANGEDCO should specify if the lower availability was assumed due to issues with coal and water availability, required shut-down for the plant for annual maintenance or other reasons. TANGEDCO should also specify a plan to ensure increased availability from the capacity in the next seven years such that high cost, resource intensive capacity addition can be minimised. Similarly, TANGEDCO should specify source of renewable energy capacity addition every year as the source and technology planned can influence availability of such during the period.

### **1.2.2 Assumption regarding demand growth given captive, open access growth**

Given non-competitive tariffs, many consumers of TANGEDCO have been opting to reduce their dependence on the DISCOM by meeting part of their demand through open access and captive options. About 22,948 MUs were consumed via open access and captive in TANGEDCOs license area in 2016-17. This quantum is bound to grow as the cost of supply will only increase going forward make TANGEDCO tariffs less competitive. Going forward, rooftop PV systems will also contribute to the reduction in demand, especially day-time demand from the DISCOM. Given the importance of open access and captive sales migration, TANGEDCOs demand projections should consider the impact of increased sales migration with multiple scenarios to assess impact. Based on the projections, capacity addition can also

be evaluated planning for the grid and standby services these consumers would require rather than to meet their demand in entirety.

### **1.2.3 Assumptions regarding base and peak load**

While the energy required and demand is specified in TANGEDCOs demand projections, it would be crucial for TANGEDCO to provide base and peak load estimations as well as category-wise demand estimations (based on recent data and trends) till FY27 to provide a better understanding of the capacity requirement to cater to the demand.

### **1.2.4 Assumptions regarding backing down and scenarios to assess the viability of storage**

As per the demand supply assessment in Annexure VI-A, the installed conventional capacity expected to be commissioned by FY27 is 5 GW in excess of the projected demand required. Such 'surplus' would be higher with generation from the 25 GW of renewable energy expected to be online. Even with TANGEDCOs current projections, significant amount of the thermal capacity, especially the relatively high cost capacity in the pipeline will be backed down. Thus, the average PLF for the capacity would be low. It is necessary to evaluate if building such capacity is prudent if its utilisation would be only for the equivalent of a few months in the year. Based on demand projections and RE capacity in the pipeline, TANGEDCO should determine the extent of backing down and the potential PLF for the planned capacity. If the utilisation is low and the fixed cost is high, the per unit cost for the capacity would be significant. In such a case, TNERC and TANGEDCO should evaluate battery based storage projects as a viable option for capacity addition as well. Such an option would also be viable if TANGEDCO has energy surplus as projection by the DISCOM in Annexure VI-A.

## **1.3 Need for schedule for capitalisation in existing projects**

One of the reasons cited for delay in capital investment works is that the plants could not be shut down in order to ensure capitalisation as it would have affected supply. As delays results in costs, it is essential that TANGEDCO also submit a detailed plan to ensure capital works is planned to optimize generation. The plan should state which works can be completed without shut down and which capital works can be undertaken during the annual maintenance shutdown of the plant. Further, the schedule can also specify if some capital works can take place during high wind seasons when power availability is high. If shut-down is still required after such optimisation, the plan to ensure capitalisation on time under the circumstances should also be specified to the Commission. Such planning could help avoid delay and cost overruns in the future.

## **2. Capital investment to ensure compliance with revised environmental norms**

All thermal power plants are required to comply to the revised environmental norms, and toward this end, generators are required to install or retrofit pollution control equipment (PCE). This is both time and cost intensive, and may require some shut down period during installation. The shut down period can extend up to 18 months, depending on the technology, and will impact generation. As per the 'tentative capital expenditure and capitalisation plan of generation and projects for FY20 to FY22' submitted by TANGEDCO, five TPPS, amounting to 4320 MW, are installing PCE such as Flue Gas Desulphurisation technology (FGD), Electro Static Precipitators (ESP), etc.

In order to ensure adherence to the MOEFCC norms, compliance must be ensured before 2022. As the deadline approaches, there is a danger of such large scale shutdown affecting electricity supply and grid safety and an added need to adhere to pre-set schedules for shut down. Additionally, while the timeline submitted in the petition anticipates the installation of PCE to be completed within this period, any delays could disrupt the scheduling of the shut downs and cross the 2022 deadline.

As this is an important matter of complying with a law to curb environmental pollution which affects public health, **the Commission should not allow any capitalization related to installation of FGD or other pollution control equipment to comply with the new environmental norms beyond the deadline as stated.**

### 3. Capital cost approval for each plant to take place through a separate process

TANGEDCO should file separate petitions for capital cost approval for the projects in the pipeline so as to ensure detailed scrutiny of project specific details which will have significant cost impacts. This will ensure regulatory clarity, reduce unnecessary litigation and ensure processes are adhered to and will be in compliance to TNERC regulations.

### 4. Need for a periodic review of capacity addition and capital investment plans

#### 4.1 Review of demand assessment and capacity addition plans every two years

An assessment of capacity addition in the pipeline as well as demand projections of the DISCOM for the medium term took place last in 2012 with TANGEDCO's petitions regarding restriction and control (R&C) measures. We welcome the Commission's efforts to initiate this process but we also submit that given the dynamic nature of the sector and uncertainty in demand trends, it is imperative a comprehensive exercise be repeated every two years. Based on such an exercise, TANGEDCO and the Commission can evaluate power procurement strategies required for the future which could include peak/ off-peak contracts, sale of surplus power, investment in battery based storage options as well as evaluating the requirement for capacity in the pipeline. To initiate such an effort it is submitted that the Commission can direct TANGEDCO to track capacity in the pipeline based on the format specified in Table 7. This information can be provided on a monthly basis for all capacity contracted/ planned by TANGEDCO.

The Commission can also track sales migration and reduction in contracted demand due to consumers opting for long-term, medium-term, short-term open access as well as captive power from conventional and renewable sources. Understanding these trends along with trends in installation of grid connected net metered system would be crucial to assessing DISCOMs demand in the future. Therefore, the DISCOM should also submit monthly reports regarding sales migration from various sources (for each duration) to the ERC and should publish such statistics on its website.

TANGEDCO should submit demand assessments (base and peak load) and power procurement plans for the next ten years which should be reviewed every two years. The Commission can also direct the DISCOMs to file a petition for review of the capacity addition plan and demand assessment every two years, failing which the Commission can initiate a suo-motu process in the matter.



**Table 7: Format for reporting capacity in the pipeline**

A. Details of Plant							
Name of Plant		Unit		Planned Capacity		Location	
Original Expected commissioning date							
Current expected commissioning date							
Reasons for slippage							
B. Status of Major Project Milestones (with relevant documentation, letters, agreements)							
Board Approval							
Land Acquisition							
Forest Clearance							
Environment Clearance							
Fuel Arrangements							
Fuel Source							
Fuel Grade							
Fuel Quantity							
Water Arrangements							
Transport, Coal Handling Arrangements							
Financial tie-up							
Financial closure							
C. Status of Construction (BTG and BOP)							
Tender Awarded							
Construction initiated on							
Capitalisation completed by							
Date of CoD							
D. Finances (Rs. Cr)							
Estimated cost							
Cumulative expenditure from start date							

#### 4.2 Need for process for annual verification of progress under CIP

Regulation 17 of TNERC's tariff regulations, specify that:

*The licensee shall file a detailed Capital Investment Plan every year (emphasis added) showing separately, on going projects that will spill into the year under review and new project (along with justification) that will commence but may be completed within or beyond the tariff period.*

To track the progress of the new projects, capital investment for existing projects and well as capital works planned for the distribution business, it is crucial that the DISCOMs report schedule of completion of works, delays and cost overruns along with reasons for the same as well as interest during construction which have accrued. To ensure compliance with Regulation 17, the TNERC should direct the DISCOMs to submit a capital investment plan every year of the Control Period along with a status update for ongoing projects approved by the Commission. The capitalisation, prudent costs and cost over runs can be tracked and reviewed by the Commission via an annual public process.

#### 5. Need for an extensive public consultation process

Multi Year tariff determination process is crucial for effective, cost-optimal planning reducing regulatory and performance risk. As per TNERC tariff regulations, the capital investment plan approval is to be

conducted before the tariff determination process as it provides estimates for cost and performance trends. This is specified in Regulation 17 (2) of the tariff regulations:

*‘The Commission may consider the licensee’s investment plan for approval and for this purpose, may require the licensees to provide relevant technical and commercial details. The costs corresponding to the approved investment plan of a licensee for a given year shall normally be considered for its revenue requirement.’*

Given its potential impact on tariffs, it is vital that:

- TANGEDCO publishes the public notice in leading English and Tamil newspapers in the state seeking public comments
- TNERC ensures public hearings are part of the processes for finalization of tariffs to ensure wide consultation
- The final order in the matter is a reasoned order addressing public comments

## **6. Need to initiate process for a business plan as per TNERC regulations**

With the initiation of the process for the capital investment plan, it is understood that the tariff determination process for the control period would also be underway soon. As per Regulation 16 of the TNERC Tariff Regulations,

*‘The licensee shall furnish a detailed Business Plan for five years for approval by the Commission at least six months prior to submission of the MYT petition. The Business Plan shall contain projections for all activities including loss reduction, effective and tamper proof metering and the criteria for projection and percentage of evacuation improvement to be achieved over the existing evacuation capacity.’*

Thus , it is submitted that the Commission direct TANGEDCO to submit a detailed business plan for the control period to ensure better planning, performance evaluation and cost optimisation. The Commission can also specify formats for the process to ensure detailed regulatory review of TANGEDCOs operations and costs.

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