S. No	Particulars	Approved in MYT Order	Petitioner's Submission	Now Approved by Commission
2	Fuel Cost	252.97	172.49	
3	O&M Expenses	217.79	224.41	217.98
4	Depreciation	6.79	17.40	8.24
5	Interest and Finance charges	3.58	17.16	3.06
6	Interest on Working Capital	5.95	7.91	4.56
7	Return on Equity	11.22	27.24	10.88
8	Interest on Security Deposit	0.00	0.00	0.00
9	Income Tax	0.00	0.00	0.00
10	**Total Revenue Requirement**	**847.58**	**909.39**	**719.00**
11	Less: Non-Tariff Income	3.25	3.25	3.25
12	**Net Revenue Requirement**	**844.33**	**906.14**	**715.75**

The Commission approves net ARR of INR 715.75 Crore for the FY 2021-22.

5.20. Revenue at existing Retail Tariff

Petitioner's submission

The Petitioner has estimated revenue from sale of power at existing tariff as INR 192.17 Crore for the FY 2021-22 based on the projected energy sales, connected load and number of consumers.

Commission's analysis

The category wise revenue at existing retail tariff is calculated as per the applicable tariff rates. The revenue from demand charges and the energy charges have been projected for each category. The Commission has considered number of single phase and three phase consumers in the ratio of 98.02%-1.98% for Domestic consumers, 86.43%-13.57% for Commercial consumers and 58.52%-41.48% for government consumers. Further, the Commission has also considered the power factor of 0.9 for kVA billing (Fixed Charges). The revenue from category tariff as computed by the Commission for the FY 2021-22 has been shown in the following table:

Table 80: Revenue at existing tariff computed by the Commission for the FY 2021-22

S. No.	Category	Sales (MUs)	Revenue from Fixed Charges (INR Crore)	Revenue from Energy charges (INR Crore)	Total (INR Crore)	ABR (INR/ unit)
1	Lifeline Connection	7.84	0.00	1.61	1.61	2.05
2	Domestic	140.14	3.05	58.63	61.68	4.40
3	Commercial	28.97	0.97	25.35	26.32	9.08
4	Government Connection	18.21	0.24	18.79	19.03	10.45
5	Industry	9.70	1.05	6.50	7.55	7.78
6	Bulk	30.46	2.02	38.08	40.10	13.16
7	Public Lighting	6.15	0.56	3.75	4.31	7.01
8	Irrigation, Pumps & Agriculture	1.03	0.03	0.16	0.19	1.90
	TOTAL	**242.50**	**7.91**	**152.88**	**160.79**	**6.63**

The Commission has determined revenue from sale of power at existing tariff as INR 160.79 Crore in FY 2021-22.

5.21. Standalone Revenue Gap/ Surplus

Petitioner's submission

Based on the ARR and the revenue from retail tariff projected by the Petitioner, the Petitioner has submitted a standalone revenue gap of INR 713.96 Crore for the FY 2021-22.

Commission's analysis

The Commission based on the approved ARR and existing retail tariff has derived the following Revenue Gap/Surplus:

Table 81: Standalone Revenue Gap/ Surplus approved at existing tariff for the FY 2021-22 (INR Crore)

S. No	Particulars	Petitioners submission	Now Approved
1	Annual Revenue Requirement	906.14	715.75
2	Revenue from sale of power	192.17	160.79
	Revenue Gap/(Surplus)	**713.96**	**554.96**

The standalone revenue gap at existing retail tariff is INR 554.96 Crore for the FY 2021-22.

6. Chapter 6: Tariff Principles and Design

6.1. Overall Approach

The Commission while designing retail tariffs for the FY 2021-22 has kept in view the principles of determination of tariff set out in the Electricity Act, 2003 (EA 2003), Tariff Policy, 2016 and the MYT Regulations, 2018.

The Commission, with this Tariff Order, has tried to meet the objectives of the EA 2003, as set out in its Preamble, including the protection of the interest of consumers, the supply of electricity to all areas and the rationalisation of tariffs. The EA, 2003 also directs to maintain a healthy balance between the interests of the Utilities and the reasonableness of the cost of power being supplied to consumers. The Commission has also taken into consideration the public responses in these proceedings.

The provision of supply of electricity to all the people is an essential driver for development, and also influences social and economic change. Since the majority of the energy sales within EDA&N's jurisdiction is to tourism related businesses, the Commission has attempted to ensure that, tourism is promoted, but not at the cost of other segments of society.

6.2. Applicable Regulations

Regulation 19 of MYT Regulations, 2018 states the following:

"19. Annual determination of tariff

19.1 The Commission shall determine the tariff of a Generating Company, Transmission Licensee and Distribution Licensee covered under a Multi Year Tariff framework for each Year during the Control Period, in accordance with timelines specified in Regulation 17, having regard to the following:

a) The approved forecast of Aggregate Revenue Requirement and Expected Revenue from Tariff and Charges of the Generating Company, Transmission Licensee and Distribution Licensee for such Financial Year, including modifications approved at the time of Mid-term Review, if any; and

b) Approved gains and losses, including the incentive available, to be passed through in tariff, following the truing up of previous Year."

Further, Regulation 67 of the MYT Tariff Regulations, 2018 stipulates as follows:

"67. Determination of Tariff

67.1 The Commission may categorize Consumers on the basis of their load factor, power factor, voltage, total consumption of electricity during any specified period or the time at which the supply is required or the geographical position of any area, the nature of supply and the purpose for which the supply is required and any other factor as considered appropriate by the Commission.

67.2 The Commission shall endeavour to determine cost of supply for each category/ sub-category of Consumers.

67.3 The Commission shall endeavour to reduce gradually the cross-subsidy between Consumer categories with respect to the cost of supply in accordance with the provisions of the Act.

67.4 The tariff proposal by Licensee and the tariff determination by the Commission shall be based on the following principles:

(a) The tariff for all categories shall preferably be two part, consisting of fixed and variable charges.

(b) The fixed charges in tariff shall progressively reflect actual fixed cost incurred by Distribution Licensee;

(c) The overall retail supply tariff for different Consumer categories shall progressively reflect the cost of supply for respective categories of Consumers;

(d) The tariff for residential Consumers shall be set considering the affordability of tariff for various class of Consumers;

(e) The tariff shall be set in such a manner that it may not present a tariff shock to any category of Consumers."

In case of Andaman & Nicobar Islands, the source of power is own generation and purchase from Hired Power Plants (HPP), Independent Power Producers (IPP) and solar plant of NTPC.

Since sales are predominantly in the LT category, the Commission is of the view that the functional demarcation of costs will not have substantial impact on the present tariff structure. Additionally, due to practical constraints, open access is not an option for the consumers of Andaman and Nicobar Islands.

In view of the above, the tariff needs to be designed in such a way that cross subsidy between different categories of consumers is progressively brought within ±20% of Average Cost of Supply and that even for BPL category consumers, tariff rates are close to 50% of the Average Cost of Supply. The Commission has taken a considerate view in this regard balancing the interest of the utility and the consumer, thus compensating the department with additional revenue and providing a reasonable hike in consumers' tariff.

Accordingly, the Commission has designed tariff for different categories of consumers as brought out subsequently.

6.3. Cumulative Revenue Gap/ (Surplus) at Existing Tariff

Petitioner's Submission

The Petitioner has proposed revenue gap of INR 713.97 Crore for FY 2021-22 at existing tariff. The revenue gap submitted by the Petitioner for FY 2021-22 is as follows:

Table 82: Revenue Gap at existing tariff submitted by the Petitioner for FY 2021-22 (INR Crore)

Sr. No.	Particulars	FY 2021-22
1	Net Revenue Requirement	906.14
2	Revenue from Sale of Power at existing Tariff	192.17
3	**Net Gap during the year**	**713.96**
4	Add: Previous Year Gap	0.00
5	**Total Gap**	**713.96**

Commission's View

The Commission based on the ARR and Revenue from sale of power computed above, has derived revenue gap for the FY 2021-22 at existing tariff as shown in table below:

Table 83: Revenue Gap determined by the Commission at existing tariff for FY 2021-22 (INR Crore)

Sr. No.	Particulars	FY 2021-22
1	Net Revenue Requirement	715.75
2	Revenue from Sale of Power at existing Tariff	160.79
3	**Net Gap during the year**	**554.96**
4	Add: Previous Year Gap	0.00
5	**Total Gap**	**554.96**

Accordingly, the Commission determined the revenue gap of INR 554.96 Crore for FY 2021-22 at existing tariff.

6.4. Treatment of Gap /(Surplus) and Tariff Design

From above, it can be seen that at existing tariff, there is revenue gap of INR 554.96 Crore for FY 2021-22. However, the Commission has approved a marginal increase in the tariff of FY 2021-22 over the FY 2020-21 considering the socio-economic conditions of the people in Andaman & Nicobar and in view of the budgetary support by the Government to meet the balance revenue gap.

6.4.1. Tariff Proposal

Petitioner Submission

1. The Petitioner has proposed that at existing tariff, the average cost of supply comes to INR 32.15 per unit, whereas the Average Billing Rate (ABR) is INR 6.82 per unit. Thus, there is a gap of INR 25.33 per unit.
2. The Petitioner has proposed a tariff hike of 17.01% for FY 2021-22.
3. The Petitioner has proposed a reduced tariff for domestic, commercial and industrial consumers who have installed Rooftop Solar in their premises in order to incentivize them.

Accordingly, the tariff proposal submitted by the Petitioner for FY 2021-22 for individual category is as follows:

Table 84: Tariff proposal submitted by the Petitioner for FY 2021-22

Existing			Proposed		
Category	**Fixed Charge**	**Energy Charge (INR/kWh)**	**Category**	**Fixed Charge**	**Energy Charge (INR/kWh)**
Life Line Connection			**Life Line Connection**		
0 to 100 units	INR 10 per connection per month or part thereof	2.05	0 to 100 units	INR 10 per connection per month or part thereof	1.75
Domestic Connection			**Domestic Connection**		
0 to 100 units	INR 20 per connection per month or part thereof for Single Phase & INR 70 per connection per month for three phase or part thereof for three phase	2.25	0 to 100 units	INR 20 per connection per month or part thereof for Single Phase & INR 70 per connection per month for three phase or part thereof for three phase	2.50
101 to 200 units		5.00	101 to 200 units		6.00
201 to 500 units		7.20	201 to 500 units		8.50
501 units & above		7.50	501 to 1000 units		10.00
			1001 & above		15.00
Commercial			**Commercial**		

Existing			Proposed		
Category	**Fixed Charge**	**Energy Charge (INR/kWh)**	**Category**	**Fixed Charge**	**Energy Charge (INR/kWh)**
0-200 Units	INR 30 per connection per month or part thereof for Single Phase & INR 125 per connection per month for three phase or part thereof for three phase	7.50	0-200 Units	INR 30 per connection per month or part thereof for Single Phase & INR 125 per connection per month for three phase or part thereof for three phase	9.00
201 to 500 Units		9.50	201 to 500 Units		11.00
501 units & above		12.00	501 to 1000 units		13.50
			1001 & above		15.00
Govt. Connection			**Govt. Connection**		
0-500 Units	INR 35 per connection per month or part thereof for Single Phase & INR 125 per connection per month for three phase or part thereof for three phase	9.20	0-500 Units	INR 35 per connection per month or part thereof for Single Phase & INR 125 per connection per month for three phase or part thereof for three phase	9.20
501 units & above		10.60	501 units & above		10.60
Industrial			**Industrial**		
0 to 500 units	INR 50/kVA/Month or part thereof	6.00	0-200 Units	INR 50/kVA/Month or part thereof	6.00
501 units & above		8.00	201 to 500 Units		8.00
			501 to 1000 units		12.00
			1001 & above		15.00
Bulk Supply	INR 100/kVA/Month or part thereof	12.50	**Bulk Supply**	INR 100/kVA/Month or part thereof	15.00
Public Lighting	INR 150/kVA/Month or part thereof	6.10	**Public Lighting**	INR 150/kVA/Month or part thereof	8.00

Existing			Proposed		
Category	**Fixed Charge**	**Energy Charge (INR/kWh)**	**Category**	**Fixed Charge**	**Energy Charge (INR/kWh)**
Irrigation Pumps & Agriculture	INR 50/kVA/Month or part thereof	1.60	**Irrigation Pumps & Agriculture**	INR 50/kVA/Month or part thereof	1.60
EV Charging Stations		6.90	**EV Charging Stations**		7.00

Accordingly, the computation of impact of proposed tariff on revenue for FY 2021-22 is as follows:

Table 85: Average Tariff Hike for FY 2020-21 as submitted by the Petitioner

Sr. No.	Particulars	Units	FY 2020-21	
			Existing	Proposed
1	Net ARR for FY 2020-21	INR Crore	906.14	906.14
2	Revenue for FY 2020-21	INR Crore	192.17	224.85
3	Gap (1-2)	INR Crore	713.97	681.28
4	Total Sales	MU	281.85	281.85
5	Average Cost of Supply	INR/kWh	32.15	32.15
6	Average Revenue	INR/kWh	6.82	7.98
7	Pure Gap	INR/kWh	25.33	24.17
8	Average Tariff Hike	INR/kWh		1.16
9	Tariff Hike in %	%		17.01%

The Petitioner has proposed to revise the solar tariffs proposed to incentivise the consumers to become prosumers (producing Consumers) by installing solar panels on their roofs or other available areas and participating under the virtual net metering scheme of EDA&N as shown in the following table:

Table 86: Proposed Tariff for consumers installing solar panels in their premises

Sr. No	Particulars		Exiting Tariff		Proposed Tariff	
			Fixed Charges	Energy Charges (INR/kWh)	Fixed Charges	Energy Charges (INR/kWh)
1	Domestic Connection	0 to 200 units	Rs. 20/- per connection per month or part thereof for single phase Rs. 70/- per connection per month or part thereof for three phase	2.05	Rs. 20/- per connection per month or part thereof for single phase Rs. 70/- per connection per month or part thereof for three phase	2.15
		201 to 500 units		7.20		7.55
		501 and above units		7.50		7.85
2	Commercial	0 to 200 units	Rs. 30/- per connection per month or part thereof for single phase Rs. 125/- per connection	7.00	INR 50/- per KVA per month or part thereof	5.75
		201 to 500 units		9.50		6.30

		501 to above units	per month or part thereof for three phase			
				12.00		8.40
3	Industrial	0 to 200 units	INR 50/- per KVA per month or part thereof	5.50	INR 50/- per KVA per month or part thereof	5.75
		201 to 500 units		6.00		6.30
		501 to above units		8.00		8.40

Commission View

As discussed above, the Commission has determined the retail tariff for the FY 2021-22 in accordance with the principles stated in the Electricity Act, 2003 Tariff Policy, 2016, and the MYT Regulations, 2018. The Tariff design in general is guided by the following principles:

1. Cost reflective: The tariffs determined should efficiently reflect the cost of supply for each consumer category.

2. Progressive tariffs: Ensuring progressivity among tariffs by having telescopic tariff slabs which encourages efficient consumption and at the same time promotes intra-category cross-subsidy by way of charging higher tariff for higher consumption to subsidise the lower consumption consumers

3. Revenue neutrality: There should be no impact on the utility's yearly revenue due to rationalization of tariffs i.e. the overall status quo should be maintained.

4. Affordability: Assessing affordability of electricity for Domestic & Commercial consumers for defining slab ranges and setting tariffs

5. Revenue stability: Utilities should ensure adequate fixed cost recovery from fixed/demand charges

6. Avoiding tariff shocks: Tariff shocks should be prevented and consumers should be kept informed about the future trends in tariffs

7. Demand management and grid stability: Demand management and grid stability should be ensured with demand-based tariffs

8. Simplified tariff structure: Tariff structure should be simplified to make it easily administrable by the utility and easy to understand for the consumer.

9. Smart tariff design: Tariff rate design should take into consideration trends in electric power such as small-scale renewable generation by consumers, energy efficiency, electric vehicle charging, etc.

While all the above parameters contribute significantly in developing a sustainable tariff framework, there are certain parameters namely Cost of Supply and Tariff Affordability which are of importance and constitute the building blocks in achieving the overall objective. The context and the approach for these parameters have been discussed as follows:

1. Cost of Supply

a) Context

Due to electricity being a crucial utility item for all consumers, over the period of time, various socio-economic issues have been factored in to determine the end user's tariffs. This has unfortunately led to severe imbalance between the tariffs levied vis-a-vis the cost of supply of the electricity, causing distress to the Discom. For example, in order to ensure that tariffs are kept in check for residential consumers, while still allowing cost recovery for Discoms, cross subsidy is built in between categories. The tariffs so determined, are skewed, with tariff for industrial and commercial consumers being higher and for other categories being lower than their respective costs of supply. The implications of this imbalance in tariffs is twofold – uncompetitive industries owing to higher input costs and inability of Discoms to recover sufficient tariffs from domestic consumers, resulting in financial distress. The issue is more pronounced for rural supply where tariffs are highly subsidized, actual cost of supply is higher and revenue recovery is poor.

It is thus essential that tariffs reflect the true cost to service a category of consumer. As a crucial first step towards cost-reflective tariffs, it is important for distribution utilities to determine the costs of supply (which cascade from generation to transmission and finally to distribution and retail supply of power) that should be prudently recovered from each consumer category. These costs should correspond to the actual costs being imposed by each consumer category on the Discom. By determining consumer category wise costs of supply, the Discom would be in a better position to allocate costs where relevant and determine how tariffs can be levied fairly on each category.

The overall approach that can be followed for accurately determining the Cost of Supply has been discussed as follows

b) Approach:

Presently, the most commonly used approach for determining the cost of supply of electricity for tariff determination is the Average Cost of Supply (ACoS) method. The ACoS is computed by dividing the Annual Revenue Requirement (ARR) determined by the Commission for recovery through tariffs by the total energy sales for the year. However, this methodology doesn't indicate the costs incurred by consumers at different voltage levels using different assets of the network. Therefore, it doesn't help in determining accurate tariffs for particular consumers, eventually resulting in insufficient cost coverage.

As a next logical step, the Voltage wise cost of supply (VCoS) method provides a better reflection of cost to supply to consumers at different voltage levels. A simplified version of the same was suggested by Hon'ble ATE in 2010, to determine VCoS in the absence of all necessary data. In this method, the power purchase costs and other costs (such as network costs, wheeling costs etc.) are allocated to various consumer categories based on energy input or energy sales (as considered appropriate by the State Commission). This approach factors in the voltage level differentiation based on losses, however, it does not factor in asset utilization at different voltage levels.

A more refined version of determination of VCoS uses three parameters for allocating various costs to voltage levels – energy input at each voltage level, energy sales and asset allocation to voltage levels. The losses segregated voltage wise (as percentage of input energy) are to be allocated to different voltage levels based on energy input to each voltage level (as explained in subsequent sections). Subsequently, the cost elements such as power procurement costs, employee expenses, administrative and general expenses and income tax can be allocated to each voltage levels based on total sales at each voltage level. The cost elements, which are dependent on assets such as depreciation, interest costs, return allowed to utility etc. are allocated in ratio of assets allocated to each voltage level. The sum of all the cost components at each voltage level is the cost to supply the particular voltage (EHT/HT/LT).

The Commission is of the opinion that while VCoS differentiates cost allocation based on voltage levels, it does not factor in consumer category level differentiation. For instance, at the same LT level, cost of supplying

electricity to a Commercial consumer may be different from that of a Residential consumer. Thus, it believes that the most progressive way forward for EDA&N is to accurately determine the cost of supply is to attempt to determine Cost of Supply at various category level. The Commission notes that States like Andhra Pradesh and Telangana have determined Category wise Cost of Supply albeit with several assumptions and EDA&N must also attempt to determine the same.

On studying the existing methodologies followed internationally, among developing nations with energy access situations like India's, the Commission is of the opinion that the Category wise Cost of Supply methodology is an appropriate starting point. The embedded cost method identifies and appropriately assigns the historical or accounting costs that make up a Discom's revenue requirement to all categories and sub-categories of consumers.

This method involves three steps:

- Cost Functionalization
- Cost Classification
- Cost Allocation

Cost functionalization separates cost data into the functional activities performed in the operation of a utility system - power generation/supply, transmission, distribution and retail supply. Classification determines the portion of the cost that is related to specific cost-causal factors, such as those that are demand-related, energy-related, or customer-related. Finally, the cost allocation step assigns the costs to specific customer categories based on the customer's contribution to the specific classifier selected.

The Commission as part of this Order has determined the tariff according to the Average Cost of Supply (ACoS) due to lack of requisite data. The Commission strongly believes that determination of Category wise Cost of Supply is essential to ensure cost reflectivity in tariffs fixed for different categories. However, the Commission feels that to carry out this exercise a lot of field level information would be required such as Category wise co-incident and non- co-incident demand, Voltage wise value of assets (Voltage wise asset ratio), Voltage wise losses, Category wise break-up of costs related to Metering, Billing and Collection etc. which currently the Petitioner doesn't maintain. Therefore, in absence of the same the Commission is unable to determine the Category wise CoS in this Order but directs the Petitioner to start maintaining this data and submit the same in the tariff proceedings of next year.

2. Tariff Affordability

a) Context

The Commission understands that the consumer base of EDA&N is varied and covers a wide spectrum of socio-economic backgrounds, specially the domestic category consumers. It is aware that most low income households spend a substantial share of their income on utility services such as electricity, heating and water. However, any envisaged tariff reforms are often objected to avoid further burdening of these consumers. But to improve the quality of service of electricity, the Discom has to undergo significant capital expenditure which eventually deteriorates the affordability of tariffs. Thus, to tackle this problem and in the spirit of economic wellbeing of all consumer classes, the concept of cross-subsidies has been built into the current tariff structure.

However, the Commission believes that a more scientific and logical approach can be adopted to identify the right categories of consumers and the right cross-subsidy/subsidy requirement that will benefit the end consumers at the same time. Hence, the Commission believes that there is a strong need to develop a scientific methodology to assess the social impact of electricity tariffs.

The overall approach that can be followed for determining the tariff affordability has been discussed as follows.