CURRENT NEWS

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ELECTRICITY TARIFF FOR COMMON AREA FACILITIES IN RESIDENTIAL BUILDINGS - COMPARISON (PART - 1)

G.N.BHARATH RAM

In India, the idea of common areas in residential buildings has evolved considerably due to urbanisation and the increasing number of housing complexes. A common area is any part of an apartment building meant for more than one person living there to use and includes staircases, lifts, lobbies, fire escapes, common entrances and exits of buildings, common basements, terraces, parks, play areas, open parking areas, and storage spaces.

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The smooth functioning of these common areas relies on electricity, which powers essential services such as lighting for staircases, water pumps, elevators, and more. Consequently, these shared facilities are referred to as common area facilities or common facilities

In addition to the necessary services, such as those mentioned above, many residential complexes offer luxurious amenities that enhance the living experience. These value-added features, while part of the common area facilities, significantly improve the overall quality of life within the community. Examples of such amenities include: A. Swimming pools B. Gymnasiums or fitness C. Clubhouses D.Playgrounds or parks E. Sports facilities (e.g., tennis courts, basketball courts F. Community halls

How is electricity measured for common area facilities?

Implementing dedicated meters specifically for common area facilities ensures that electricity consumption is monitored separately from individual residential units. This allows for precise tracking of energy usage in shared spaces. Dedicated meters provide real-time data on electricity consumption, helping to identify trends and patterns that can inform energy-saving strategies.

Establishing separate service connections for common areas enhances the clarity and accuracy of electricity billing. By providing a distinct utility line for shared spaces, it allows property management to delineate usage between common and individual services efficiently. This measure is particularly beneficial in multi-unit dwellings, where shared amenities may lead to confusion regarding power consumption responsibilities.

How are common area facilities' electricity consumption billed?

The State Electricity Regulatory Commission (SERC) is responsible for setting tariff rates that dictate the cost of electricity across various consumer categories. These rates are periodically reviewed and determined based on multiple factors, including the cost of power generation, distribution expenses, and the need to ensure sustainable electricity supply. .

Consumers are categorized into distinct groups depending on their electricity usage patterns. This categorization is essential for applying appropriate tariff rates and ensuring equitable billing. The primary consumer types include residential, commercial, industrial, and specific classifications for common area facilities, allowing for targeted regulatory measures and pricing strategies that align with consumption behavior.

The commission categorizes consumers based on their electrical usage and electrical load needs. The various consumer categories include:

1. Domestic category - This is for residential consumers who have living spaces, kitchens, and bathrooms.
2. Commercial category - This is designated for non-residential activities, such as businesses and shops.
3. Common area facilities category - This category applies to the electrification of equipment or appliances installed in common areas.

In the upcoming series,we will look at a comparative analysis of electricity tariffs for common areas across various Indian states - Tamil Nadu, Chhattisgarh, Karnataka, Telangana and Tripura.

(To be continued)

FACTORS INFLUENCING ELECTRICITY PRICES IN TAMIL NADU - (PART 3)

MANIKANDAN.M

In continuation to factors influencing electricity price, this article discusses the components considered for determination of transmission tariff, distribution tariff , and transmission and distribution losses.

Transmission Tariff

The tariff for transmitting electricity through a transmission system will include the recovery of annual transmission charges, which consist of the following components.

i) Interest on loan capital

Interest on loan capital is the cost incurred by the borrower for borrowing funds. ie, the fee charged as interest. This is an essential component of the financial costs considered in tariff determination.

Example Calculation:

Assume: Loan Amount: ₹200 crore
Interest Rate: 9% per annum (Actual), 8.5% per annum (Benchmark)
Opening Balance (FY): ₹150 crore
Closing Balance (FY): ₹100 crore

1. Average Loan Balance: (Opening Balance + Closing Balance) / 2 = (150+100) / 2 =₹125 crore
2. Interest Rate: Applicable Rate = 8.5% (TNERC's Benchmark Rate, as it is lower)
3. Interest on Loan Capital: Interest = Average Loan × Interest Rate = ₹125 × 8.5% = ₹10.625 crore.

This resulting interest amount of ₹10.625 crore will be included in the fixed cost component of the Average Revenue Requirement (ARR) and ultimately impacts the electricity tariff for consumers. (The ARR represents the total revenue a utility needs to collect from its customers to cover its costs. It includes both fixed and variable costs. Electricity consumer tariffs must be designed such that fixed and variable costs are recovered).

ii) Depreciation

Depreciation reflects the decrease in the value of fixed assets over their useful life due to factors such as wear and tear or usage. The implication of depreciation would be cost recovery through tariff from consumers. As per the TNERC order 10.10.2024 the Commission approved a depreciation rate of 3.99% (₹ 1082.07 Crore) for the fiscal year 2021-22. TNERC's guidelines ensure that the recovery of depreciation aligns with the lifespan of the assets while safeguarding consumer interests. For example, let us assume TANGEDCO buys a transmission system (i.e: transformer or conductor wire) for ₹ 50,000 with an expected lifespan of 10 years. To know the depreciation per year of the system, simply divide the total cost by useful life [i.e:₹50,000/10 =₹5000/year]. It implies that the utility provider will record ₹ 5000/year as depreciation cost. This means that after ten years the value of the system is ₹0, even if it is in operation .

Example Calculation:

1. Assume Capital Cost: ₹100 crore
2. Salvage Value: 10% of ₹100 crore = ₹10 crore
3. Depreciable Value: ₹100 crore - ₹10 crore = ₹90 crore
4. Depreciation Rate: 5% per annum (as per TNERC norms).
5. Depreciation Cost = (Capital cost of Asset - Salvage value) x Depreciation rate
   = ₹90 crore × 5% = ₹4.5 crore per year.

This depreciation cost of ₹4.5 crore per year will be included in the fixed cost component of the Average Revenue Requirement (ARR) and ultimately impacts the electricity tariff for consumers.

iii) Operation and maintenance charges

Operation and Maintenance (O&M) charges are critical expenses that electricity utilities incur to operate, maintain, and manage their assets, ensuring a reliable power supply. The key components of O&M cost includes employee costs, repair and maintenance costs, and administrative & general expenses. The methodology followed by TNERC is based on normative basis and annual escalation.

Example Calculation:

Assume the following for calculation,

1. Transmission System:
2. Normative O&M Cost: ₹1.2 lakh per circuit-km/year
3. Total Circuit Length: 2,000 km
4. Transmission O&M charge = ₹1.2 lakh per circuit-km x 2,000 km = ₹ 24 Crore.

This Transmission O&M of ₹ 24 crore per year will be included in the fixed cost component of the Average Revenue Requirement (ARR) and ultimately impacts the electricity tariff for consumers.

iv) Return on Equity

Return on Equity (RoE). The Return On Equity ratio essentially measures the rate of return that the owners of common stock of a company receive on their shareholdings. Return on equity signifies how good the company is in generating returns on the investment it received from its shareholders. Equity is the money that shareholders have put into the company, representing their ownership. Return is the profit the company makes from this investment. TNERC generally permits a fixed Return on Equity (RoE) rate, typically ranging from 14% to 16%, as specified in its tariff regulations. TNERC assumes a 70:30 debt-equity ratio for capital projects.

Example Calculation:

1. Total Capital Investment: ₹500 crore
2. Equity Portion (30%): ₹150 crore
3. Allowed RoE Rate: 15%
4. Return on Equity: RoE = ₹150 crore × 15% = ₹22.5 crore/year

The Return on Equity (RoE) should be maintained between 14% to 16% as per TNERC, thus the required revenue to be recouped from consumers, and incorporated into the fixed costs within the Annual Revenue Requirement (ARR).

Distribution Tariff

Distribution charges are fees imposed by distribution utilities for the use of their network to transmit electricity from transmission systems to end consumers. The components of distribution tariff for supply of electricity to the consumers includes energy consumption charge, fixed charge, demand charge and meter rent. These charges form a crucial part of electricity tariffs, covering the expenses incurred by distribution companies (DISCOMs) in operating and maintaining the distribution network.

Distribution charges are calculated based on the Annual Revenue Requirement (ARR) of the DISCOM, encompassing all costs necessary for the operation, maintenance, and expansion of the network. The components (i.e: substations, main feeder lines, distribution transformers, tension lines and metering) involved in expansion of the distribution network for electricity supply, includes upgrading infrastructure, enhancing grid stability, and improving connectivity for efficient and reliable power delivery. The distribution network assets are as follows:

Substations: Substations include grid substations and distribution substations. In grid substation, the high-voltage transmission lines from power plants are reduced to lower voltages appropriate for distribution. Similarly, in distribution substations, these are situated near consumer load centers which further reduce voltage to levels that residential, commercial, or industrial users can use. Example: Based on expected increases in electricity demand, new substations might be needed, or existing ones upgraded.

Main Feeder lines: Feeder lines are high voltage transmission lines that transport electricity from substations to different local areas or feeder pillars. Example: A new residential area might need installation of new feeders for adequate power supply.

Distribution Transformers: The function of distribution transformers is to reduce the voltage from main feeder lines to levels suitable for consumer connections [i.e 11 kV to 400 V in urban areas]. Example: In rapidly growing urban areas, installation of new transformers might be needed to avoid overloading existing ones and enhance service quality.

Tension Lines: There are two types of tension lines , namely high tension (HT) line and low tension (LT) line. HT lines are used for long distance power transmission at higher voltages (i.e: 11 kV, 33 kV etc.,) and LT lines are final distribution lines with voltage lower than 11 kV that supply power to consumers. Example: If a large industrial zone or a new township is developed, the installation of extra high-tension (HT) and low-tension (LT) lines to ensure sufficient electricity supply will be required.

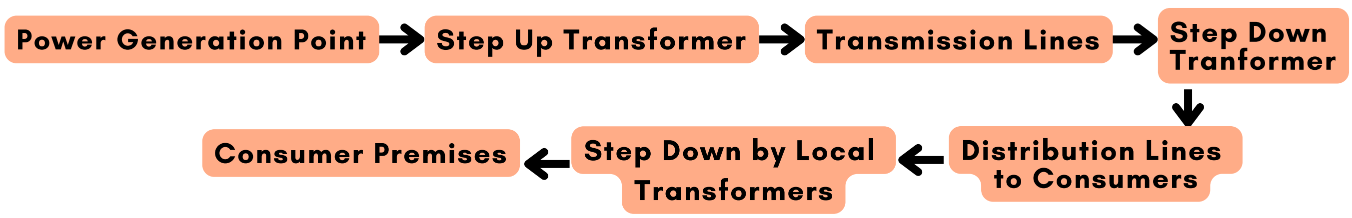
Metering: Adequate metering infrastructure is essential for monitoring electricity consumption and enabling accurate billing. This includes installing electronic or smart meters. As per TNERC, new installations might need smart meters to enable real-time monitoring and data logging, thereby improving system efficiency.

Example Calculation:

1. Assume ARR: ₹5,000 crore
2. Energy Distributed: 50,000 million kWh
3. Distribution Charge per kWh = (₹5,000 crore) / 50,000 million kWh = ₹ 1 per kWh.

Transmission and Distribution losses

Transmission and Distribution (T&D) losses indicate the energy that is lost during the transportation of generated electricity from power plants to end consumers.



Flowchart: Electricity flow from generation to consumption

These losses are a part of electricity systems and occur due to various factors, such as resistance in wires and inefficiencies in substations. The formula to calculate T&D losses and Aggregate Technical and Commercial (AT&C) losses are as follows:

$$\text{T\&D Losses} = \frac{\text{Total Energy Input} - \text{Total Energy Billed}}{\text{Total Energy Input}} \times 100$$

$$\text{AT\&C Losses} = \frac{\text{Billing Efficiency} - \text{Collecting Efficiency}}{\text{Collecting Efficiency}} \times 100$$

To cover these losses, Tamil Nadu Generation and Distribution Corporation (TANGEDCO) has to generate or purchase extra power, increasing the per-unit cost of electricity. These additional costs are ultimately reflected in the electricity tariff, raising the amount that consumers pay. Tariff hikes directly affect consumer bills, especially in urban and semi-urban areas where higher usage leads to larger bills. As per the recent TNERC order, the percentage of increase has been calculated at 4.83% as base for revision of tariff with effect from 1st of July 2024. Further, as per TANGEDCO, the AT&C losses in Tamil Nadu grid is about 11.6%. Consequently, TANGEDCO wants to bring down the losses to under 10 per cent. Every percentage point reduction in AT&C losses corresponds to a gain of ₹800 crore. Thus, TANGEDCO converted low tension (LT) lines in its transmission system to high tension (HT), to bring down transmission losses.

(To be continued)

CONSUMER FOCUS

Ms.Y, the petitioner and a domestic consumer, living in a housing complex, has a domestic service connection (SC) No. xxx-xxx-1185 for door no. S17. She also has another service connection (SC No. XXX-XXX-1124) which she holds jointly together with Mr.X, for door number S11. Due to her age and limited mobility, the petitioner had demolished a common wall, so she can easily access the next flat.

One of the flatmates from the housing complex had complained to the respondent i.e TANGEDCO, stating the flat owners S11 & S17 were misusing their electricity service connections by having an internal passage between the two flats. Based on the complaint, the enforcement wing and Assistant Engineer (AE) from Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO) inspected Ms.Y's house. On inspection the team found that the petitioner had demolished a common wall to access the next flat. The enforcement wing and AE sent a notice stating there is no physical segregation found between the flats and therefore, the electricity service connections should be merged into one service connection. Denying the notice, the petitioner filed a complaint with the Consumer Grievance Redressal Forum (CGRF).

During the CGRF hearing, the petitioner mentioned that the interconnection between two different flats is only an emergency arrangement to assist the elderly occupants, Ms.Y and Mr.X, who are both in their 70s. The petitioner emphasized that this temporary opening should not be calculated as a single unit.

After hearing both sides, the forum stated that if the petitioner wants to avoid merging the service connections of the said two individual flats, there must be electrical as well as physical segregation between the two flats as per Regulation 27 of Tamil Nadu Electricity Distribution Code, 2004. With this, the Forum dismissed the case.

Dissatisfied with the order, the petitioner filed a petition with the Tamil Nadu Electricity Ombudsman. During the TNE Ombudsman's hearing, the petitioner emphasized that both the flats have separate identities, with individual property documents such as separate house tax bills, separate water tax bills, individual kitchens, and separate maintenance bills. Furthermore, the petitioner argued that the existence of this emergency access should not be used to justify any changes to the current service connections, as the wiring for each flat is also independent of the other.

The Respondent stated that Regulation 27 (13) to (15) of The Distribution Code, 2004 requires physical separation for separate service connections. Since the petitioner had violated this regulation by creating a common passage, the connections should be merged.

Ombudsman findings:

- Regulation 27 (14) states that where more than one person or more than one establishment is or intended to be in occupation of a door number or sub door number, more than one service connection will be given only if there is a permanent physical and electrical segregation of areas for which different service connections are applied for.
- Regulation 27 (15) states that incase of flat systems and shopping complexes, where separate units, such as flats or shops, are physically segregated, multiple service connections can be granted.
- However, Regulation 27 (15A) clarifies that, regardless of physical segregation, only one service connection will be allowed per premises for an establishment, business, or entity, including its associated activities, even if there is a permanent segregation between areas.

Additionally, the Respondent pointed out that the petitioner had admitted in her petition that a common passage exists between the two flats. Therefore, the physical segregation has indeed been violated, justifying the need for a merger of the service connections.

After hearing both the sides, the Electricity Ombudsman stated that the petitioner has utilised the two flats as a single unit for daily purposes which has violated TNERC Distribution Code Regulation 27. Further, the Ombudsman mentioned that the Government of Tamil Nadu provides subsidies to domestic consumers, including 100 free units and further concessions based on usage slabs. Therefore, the petitioner's arrangements would result in revenue loss to TANGEDCO and the Government Of Tamilnadu.
The Ombudsman ordered the petitioner to merge the service connections as mentioned by the enforcement wing, TANGEDCO. Therefore the petitioner's request for having two separate connections is rejected and the case is dismissed.

SOURCE: OMBUDSMAN CASE

NEWS FROM TAMIL NADU

Solar scheme fails to shine in Tamil Nadu, only 18K applicants in six months

The installation of domestic rooftop solar plants under the PM Surya Ghar Scheme in Tamil Nadu is facing poor response from consumers with only 70,122 registering for the scheme and just 18,032 applications submitted so far. The union government has set an ambitious target to cover 25 lakh households in Tamil Nadu between April 1, 2024 and March 31, 2025. In the last six months, those who have registered for the scheme constitute just 2.8% of the target. During its announcement, the Ministry of New and Renewable Energy (MNRE) stated the PM Surya Ghar scheme will aid in generation of up to 300 units of free power per month in 1 crore households. Under the scheme, a consumer can install a 2KW solar plant, at a cost of Rs 2 lakh. The centre will provide a subsidy of `60,000. For consumers using 300 units per month, their electricity bill will effectively be zero. There is also a significant gap between registration and actual submission of applications, according to the data from the Tamil Nadu Green Energy Corporation (TNGEC), the nodal agency for implementing the Rooftop Solar Photovoltaics (RTPVs) scheme.

Of the 18,032 applications submitted, RTPVs have been installed in 13,000 households, while the remaining 5,032 applications are pending in various stages, officials said. Across the country, too, the scheme has elicited only tepid response with just 1.28 crore registrations and 14.84 lakh applications submitted till September. An official from TNGEC told TNIE, “We have installed RTPVs with a combined capacity of 792.17 MW till September. This is well below our target.” Discussing the reasons for the scheme’s poor response, the official said, “In major cities like Chennai, Tiruchy, Coimbatore, and Madurai, the growing apartment culture makes it difficult to install the plant.

SOURCE: THENEWINDIANEXPRESS, OCTOBER 23,2024

NEWS FROM ACROSS THE COUNTRY

Cabinet approves India to Join International Energy Efficiency Hub by signing the Letter of Intent

The Union Cabinet, led by Prime Minister Narendra Modi, on Thursday approved the signing of the 'Letter of Intent,' thus enabling India to join the 'Energy Efficiency Hub.' India will join the International Energy Efficiency Hub (Hub), a global platform dedicated to fostering collaboration and promoting energy efficiency worldwide. This move solidifies India's commitment to sustainable development and aligns with its efforts to reduce greenhouse gas emissions.

Established in 2020 as the successor to the International Partnership for Energy Efficiency Cooperation (IPEEC), in which India was a member, the Hub brings together governments, international organisations, and private sector entities to share knowledge, best practices, and innovative solutions. By joining the Hub, India will gain access to a vast network of experts and resources, enabling it to enhance its domestic energy efficiency initiatives. As of July, 2024, sixteen countries (Argentina, Australia, Brazil, Canada, China, Denmark, the European Commission, France, Germany, Japan, Korea, Luxembourg, Russia, Saudi Arabia, the United States, and the United Kingdom) have joined the Hub. Bureau of Energy Efficiency (BEE), the statutory agency, has been designated as the implementing agency for the Hub on behalf of India. BEE will play a crucial role in facilitating India's participation in the Hub's activities and ensuring that India's contributions align with its national energy efficiency goals.

SOURCE: THEECONOMICTIMES, OCTOBER 04, 2024

WORLD NEWS

US power system becomes more fossil-dependent than China's

Utilities in the United States have relied on fossil fuels to generate a larger share of electricity than their counterparts in China since June, seriously undermining U.S. claims to be a leader in energy transition efforts. U.S. utilities have relied on fossil fuels to generate an average of 62.4% of total electricity production for the past four months, according to data from energy think tank Ember. The high U.S. fossil dependence came during the summer when domestic power demand is highest due to air conditioner use, while China's relatively lower fossil reliance has occurred. Nonetheless, the higher U.S. fossil reliance highlights how much more aggressive China has been in ramping up clean power output, which has left China closer to hitting a peak in fossil use for power than the United States. U.S. firms also reduced fossil capacity by around 4% over that time, mainly through the closure of outdated coal plants. So far in 2024, coal's share has dropped below 60% for the first time, and looks set to keep declining as power firms add more renewables and other clean power sources to generation systems.

However, China boosted clean generation by over 100% since 2018, and has the most aggressive clean energy development roadmap of any major economy. China's clean energy capacity also already exceeds total fossil capacity by roughly 20%, and continues to grow. In contrast, U.S. clean generation capacity remains around 35% less than fossil capacity. If the U.S. is to establish itself as a true leader on climate action and decarbonisation, a much more aggressive clean capacity pipeline must be developed that sharply tilts the country's generation mix away from fossil fuels.

SOURCE: REUTERS, OCTOBER 25 , 2024

PUBLICATIONS

- **Decentralised solar PV: A gender perspective, October 2024, IRENA**
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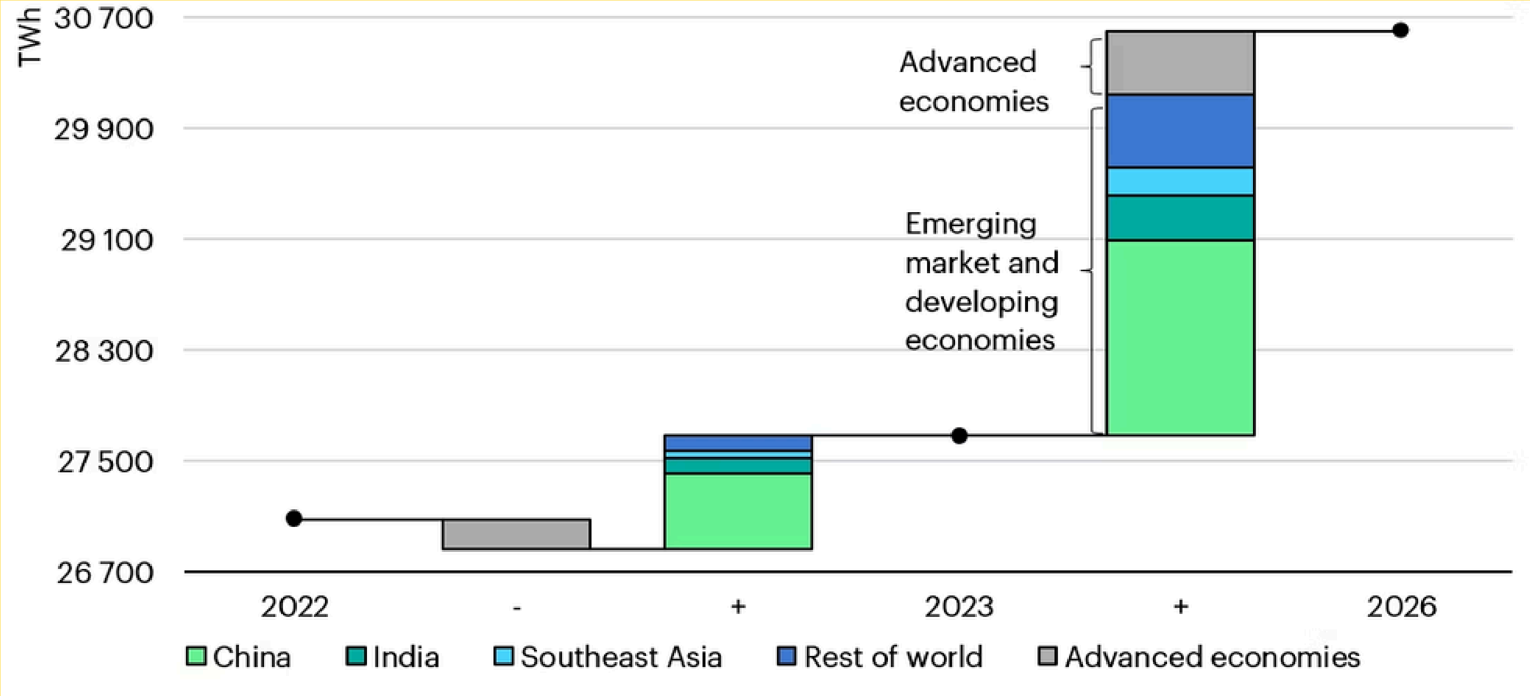
CHANGE IN ELECTRICITY DEMAND BY REGION, 2022-2026



SOURCE:IEA

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WE ARE ON

@CAGChennai

GET IN TOUCH

+91(44) 2435 4458 | 2435 0387

helpdesk@cag.org.on

No.103 (First Floor), Eldams Road, Teynampet, Chennai-18