CURRENT NEWS

மின் செய்திகள்

VOLUME IX, ISSUE 3 • MARCH 2024

CONSIDERATIONS BEFORE BUYING AN EV TWO WHEELER (PART- 3)

G.N.BHARATH RAM

The previous issue highlighted the importance of energy storage systems in Electric Vehicles (EVs), their types and how these impact purchase decisions. This part of the series will discuss the vehicle riding experience and its cost implications compared to petrol bikes.

How is riding an EV different from riding a petrol vehicle? I drove a few electric two-wheeler models to get a firsthand feel of the rides. Once the key is inserted, the quiet hum of the electric motor and the instant torque are some of the obvious differences in riding an EV. The traditional engine sound was noticeably missing. Electric two-wheelers are often also lighter compared to their petrol counterparts. This gives an easier ride, particularly at low speeds and during parking.

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Citizen consumer and civic Action Group

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What is the maximum load that an electric two-wheeler can manage? The question I had in my mind was "Will I be able to ride with a pillion rider"? The majority of petrol vehicles weigh from 125 to 180 kg and easily carry two riders, whereas the electric two-wheeler is popular because it is lighter. It weighs 110 - 150 kg, but promises to carry two people. While this is true, the driving range correlates with the rider's weight. If two or more people are riding the electric two-wheeler, the motor will use more power from the battery. Hence the driving range decreases. It indicates a rider can not overload the vehicle as it decreases the driving range.

How to compare maintenance costs with the petrol two-wheeler? Petrol vehicles have comparatively more parts such as engines, transmissions, gearboxes, converters, filters, engine parts, etc. Due to wear and tear or when not properly maintained, the parts will need replacement or repairs. Once in six months, I would spend Rs.2000 - Rs.3000 on average repairing / maintaining my petrol two-wheeler. The maintenance cost includes changing oils and overhauling the parts. These are mandatory checkpoints for maintaining a reliable vehicle.

Electric two-wheelers have a distinct advantage in this regard. Firstly, electric two-wheelers have fewer parts. Hence, the risk of component failure is lower, which translates into less frequent repairs. Additionally, the parts that are present in electric two-wheelers are typically more durable; so they don't need to be replaced as often. Furthermore, electric two-wheelers don't require oil changes or spark plug replacements, which are common maintenance tasks for petrol two-wheelers. This further reduces the maintenance costs for electric two-wheelers. Overall, the lower maintenance costs make electric two-wheelers a more cost-effective choice in the long run, despite their higher upfront purchase price.

What are the exclusive features of electric two-wheelers?

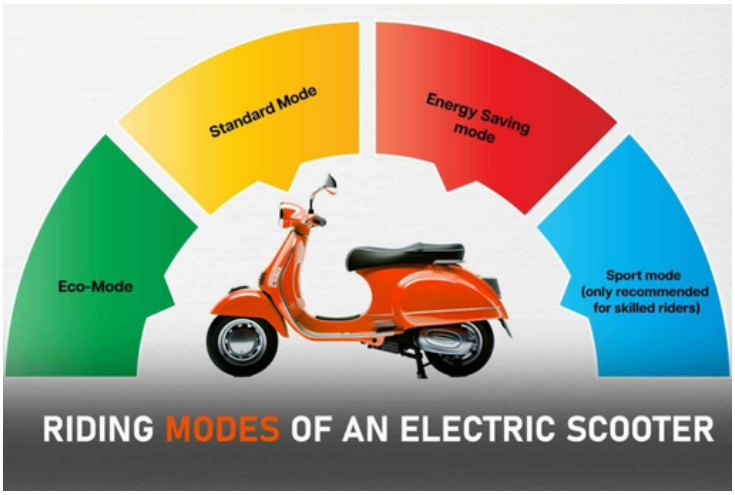
1. Display: Petrol vehicles have two types of display - analog, and digital. The analog display has the speedometer, fuel capacity, indicators, horn, and headlamps. The above features are customized in a digital display. Electric two-wheelers use the latest features such as touch-in LED panels, bluetooth connectivity to mobile phones, and built-in GPS navigation in addition to the regular features. Below mentioned are key pieces of information prevalent in popular brands such as Ola, Ather, Komaki, Okinawa and Hero Electric.
    - Speed: The current speed of the vehicle is displayed.
    - Battery Level: Electric two-wheelers show the remaining battery charge as a percentage.
    - Range: The estimated range (in kilometers or miles) based on the current battery level.
    - Trip Information: Details about the ongoing trip, including distance travelled and time taken.
    - Settings: Riders can adjust settings like riding mode (Eco, Sport, etc.), headlamp brightness, and more.
    - Notifications: Alerts related to maintenance, system updates, or safety warnings.
    - Connectivity features: If the vehicle supports bluetooth, you might see call notifications, music controls, and navigation prompts.

Illustration of an electric two-wheeler's display | Bikewale

Exclusive features like battery capacity (in percentage), range left on charge, riding modes, etc. which were typically features in four-wheelers, are now available in electric two-wheelers. When compared to petrol two-wheelers, some electric two-wheelers are equipped with technology features like built-in speakers, proximity unlock (when connected to your mobile phone) etc , which can provide a different or new riding experience.

Riding modes: Only the electric two-wheelers offer riding mode variations with the majority of electric two-wheelers having three to four riding modes such as standard, economic, energy saving and sports.

- Energy saving / economic mode prioritizes energy efficiency for low speed riders. The top speed is typically limited to around 25-30 km/h (kilometres per hour)
- Standard mode strikes a balance between performance and efficiency. It provides a good mix of power and range. The top speed is typically limited to around 30 - 50 kmph



An example of riding modes available in electric two-wheelers | Komaki

- Sports mode is all about performance. It unleashes the full power of the electric motor for quicker acceleration and higher speeds. It can go beyond 60 km/h.

The top speed differs for each mode depending on the model and brand.

Reverse Assist: This is an exclusive feature introduced in electric two-wheeler segments. Reverse assist is designed to help riders move their two-wheelers backwards effortlessly, especially when parking on slopes.

What is the cost impact on electricity charges and how do EV's save on fuel cost?

The battery plays a crucial role in storing and providing electrical energy to power the electric motor. However, the battery requires electrical power to recharge. To calculate the electricity consumption, the rider must know (1) battery capacity (kWh), (2) charging power (kW), (3) charging time.

Let's assume, an electric vehicle with an 80 km range, powered with a 3 kWh battery capacity and 750 W charger requires 5 hours of charging time.

- Electricity Consumed (kWh)=Charging Time (hours)×Charging Power (kW)
- Electricity Consumed = 5 hours × 0.75 kW
- Electricity Consumed = 3.75 kWh (units)

Therefore, a 3kWh battery consumes approximately 4 units of electricity per charge. The electricity cost for 4 units will be approximately between Rs.24 - Rs.44 based on TANGEDCO's tariff slab.

Savings on fuel cost: Let's see the comparison of the running cost of an electric two-wheeler vs a petrol two-wheeler, whose travel range is 80 KM.

Petrol two-wheeler		Electric two-wheeler	
Fuel Cost (Rs./L)	Rs.100/-	ElectricityCharges(Rs/unit)	Rs.6/-
Mileage (km/L)	40	Range (km/charge)	80
Running cost per km(Rs./km)	Rs 2.50/-	Running Cost per km (Rs./km)	Rs.0.22/-
Running cost for 80 km	Rs.200/-	Running Cost for 80km	Rs.18/-
Savings when using an EV	Rs.200-18 = Rs.182/-		

- The per km cost of running an electric two-wheeler is only Rs 0.22 per km whereas the running cost per km for a petrol two-wheeler is Rs 2.50 per km.
- Savings: If a rider rides an electric two-wheeler for 80 km, the cost saved on fuel will be Rs.182/-.

Conclusion:

Electric two-wheelers are becoming increasingly popular in India due to their environmental, financial, and practical benefits. While they have clear advantages, the fact that they are newer on the market is likely to fill people with apprehensions. While switching from petrol to electric might seem daunting, EV technology has certainly come a long way and offers a suitable challenge to the current dominance of petrol vehicles. The promises of sustainability however will be better met only when renewable sources of energy become more commonplace.

TAKING STOCK OF THE FINANCIAL ASSISTANCE OPTIONS FOR RESIDENTIAL ROOFTOP SOLAR INSTALLATION IN INDIA(PART - 1)

B.VANATHI

Installation of rooftop solar is considerably consumer-driven. Consumers' ability to afford the installation together with its economic benefits underpins their decision to adopt it or not. Several experts and officials agree that switching to solar does not make economic sense in India, a lower-middle-income country, as consumers are already offered electricity at subsidised rates. Additionally, for a majority of people interested in installing solar, the financial cost is prohibitively high even after being subsidised by the government. For instance, a 2-kilowatt structure considered suitable to provide for the electricity needs of an average Indian household can cost anywhere between Rs. 1 lakh to Rs. 1.25 lakhs.

At the policy level, the Government of India provides incentives and loans to enable consumers to adopt rooftop solar through the Rooftop Solar (RTS) Programme. Under the RTS programme, Central Financial Assistance (CFA)/subsidy is offered for installing residential grid-connected rooftop solar systems. Despite the incentives, the RTS Programme (phase II) missed the original 2022 deadline to achieve its set target of 4 gigawatts (GW) of rooftop solar installed capacity in the residential sector. As on 31.12.2022, it achieved only around 1.66 GW of installed capacity of residential RTS in the country. The deadline then was extended by MNRE to 2026.

Amid this backdrop, recently, the Indian government has launched the PM Surya Ghar: Muft Bijli Yojana (dubbed as Prime Minister's Rooftop Solar Scheme) in 2024, further raising subsidies from previous rates. This program aims to cover one crore households, upgrading the poor and middle-income population from the status of electricity consumers to electricity prosumers (producer+consumer=prosumer) of solar power. To ensure the effective implementation of such an ambitious project, it is crucial now more than ever to conduct a thorough review of the prevailing policy-implementation gaps in financing, along with the associated difficulties that consumers face in engaging with the policies.

Despite fiscal policies like the recent one that should support residential RTS installation, it is identified that gaps in the existing policies, together with poor implementation, are hindering India's progress towards just energy transition. This series will explore why India's policy incentives do not translate into installation numbers, by demystifying the different lending schemes/subsidies and exploring how these actually influence consumer decisions.

Overview of the Central Financial Assistance (CFA)

In India, the Central Financial Assistance (CFA) / subsidy is offered nationwide by the MNRE (Ministry of New and Renewable Energy). The MNRE and Distribution Companies (DISCOM) / State Implementing Agencies (SIA) are the nodal agencies at the national and state levels respectively.

Currently, the CFA is offered under the PM Surya Ghar: Muft Bijli Yojana (PM Rooftop Solar Scheme). The Rooftop Solar (RTS) Programme (phase II) is now subsumed under this scheme. The CFA is available only if applied through the national portal - https://pmsuryaghar.gov.in/ and obtained from any vendors empanelled by the government agencies. The subsidy is fixed against individual households' projected rooftop solar plant/system capacity. It's structure is tabulated below:

System Capacity	CFA
For 1-3 kW	Rs 30,000 per kW, up to a system capacity of 2kW
	Rs 18,000, for the additional capacity ie, the 3rd kW
For >3kW	Maximum Rs 78,000
For Group Housing Society (GHS) / Resident Welfare Association (RWA) etc, for common facilities, including EV charging, up to 500 kW capacity (@3 kW per house) with the upper limit being inclusive of individual rooftop plants installed by individual residents in the GHS/RWA	Rs 18,000 per kW

National Portal CFA structure | Source: MNRE

The process for obtaining a subsidised grid-connected residential RTS through the national portal is as follows:

Registration and account creation

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Account log-in to proceed with the application

↓

Technical feasibility approval by the concerned DISCOM

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Selection of vendor from the registered vendors' list and installation

↓

Submission of the plant details and application for net meter

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Authorisation for commissioning:
A commissioning certificate will be generated from the portal, after the installation of the net meter and inspection by DISCOM.

↓

Request and release of CFA:
Once you get the commissioning report, submit the bank account details and a cancelled cheque through the portal. You will receive your subsidy in your bank account within 30 days.

Along with the CFA, the national portal also provides information on solar loans.

The next part of the article will explain solar loans as well as gaps in current financial assistance policies and implementation.

Since 1991, the appellant (homeowner) has had an electricity service connection on the ground floor of his premises. Recently, the appellant had constructed a house on the first floor of the same premises. For effecting supply, the appellant submitted an online application under the tariff category LA1A (domestic) for a new service connection. Based on the application, Tamil Nadu Generation and Distribution Company Limited (TANGEDCO) inspected the appellant's premises and found the new house was not occupied. In the application, the appellant had mentioned the electricity supplied would be for 'own use". According to TANGEDCO, the appellant was already using an average of more than 500 units every two months for the ground floor of their building. TANGEDCO therefore assumed that the appellant applied for a new service connection to reduce their electricity bill and take advantage of the 100 free units of electricity.

TANGEDCO stated that the building has physical and electrical segregation, indicating it was not part of the same dwelling downstairs. Therefore, it was suggested that the owner reapply under a different name or produce tenant occupancy documents such as a rental agreement or applying for tariff 1d (common service connection). Since there is already an existing electricity service connection in the appellant's name TANGEDCO said it could not provide a new connection in the same name.

As per, Tamil Nadu Electricity Regulatory Commission Suo-motu Order No.6 of 2023, dated 30.06.2023 Tariff scheduled 3.2.2.1(a) "only one service connection is permissible in an independent floor/dwelling unit with permanent physical and electrical segregation. If more than one service connection exists already, only one service is eligible to be retained under classification of this tariff 1A, the balance number of services shall be converted to tariff ID and charged accordingly".

The Independent status of floor/dwelling unit with permanent physical/ electrical segregation as specified in TNE Distribution Code can be very well inspected and confirmed on site inspection. In case such independent status is not evident and clear to the inspecting officer, the rental/legal agreement may be insisted, In case of same family members separate family cards may be insisted in lieu of rental/ lease agreement"

Cancellation of the application for non-submission of valid documents proving the independent status was sent to the appellant.

The appellant approached CGRF to redress his complaint. The petitioner contested on behalf of the case. The appellant queried :

- Why is it not possible for the same name to be applied for the new service connection as the land documents and other documents are in the appellant's name?
- Why should TANGEDCO decide on who occupies the building? As a service utility, it needs to only decide the tariff category before providing the supply.

At the hearing, the appellant also submitted that the cancellation notice was received only after several follow-ups and 37 days after the receipt of the application by TANGEDCO. . TANGEDCO stated that the appellant occupies both floors. Further, the appellant did not submit the modified service connection application, needed if the new house was to be occupied by a tenant. Therefore, TANGEDCO stated they had cancelled the application. After hearing both parties, CGRF passed the order stating that the new service application cannot be effected in the name of the same person as per the TNERC tariff order (Suo-motu Order No.6 of 2023).

Dissatisfied with the CGRF order, the appellant appealed to the Electricity Ombudsman for not effecting the service connection within 30 days and to compensate for not following the Tamil Nadu Electricity Distribution Standards of Performance Regulations 2004. As per Regulation 4, Duties of the Licensees to Supply on Request states that "the Licensees shall endeavor to give supply within a week but not exceeding 30 days wherever no extension or improvement works are involved in giving supply'. Regulation 21, Compensation says "if a Licensee fails to meet the standards the affected consumer is entitled to compensation by the Licensees"

Based on the Electricity Ombudsman hearing, the findings were:

- As per, TNERC Suo-motu Order No.6 of 2023, dated 30.06.2023 Tariff scheduled 3.2.2.1 (a), only one service connection is permitted under Tariff 1(a) in an independent house or apartments.
- As per TN Electricity Distribution Code "27(14), Requisitions for Supply of Energy" 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/ electrical segregation of areas for which different service connections are applied for.
- The appellant's application can be processed under tariff 1a, if the first floor of the house is occupied by the tenant or the same family persons with a different ration card.
- It was observed that the appellant had not submitted to validate the above conditions; therefore the application that was cancelled by CGRF was found to be valid.

SOURCE: OMBUDSMAN CASE

NEWS FROM TAMIL NADU

TANGEDCO taking steps to integrate Minnagam with mobile app for seamless registering of complaints by consumers

The officials of the electricity department are working on integrating the centralised Customer Care Management System (CCMS) with the mobile app of Tangedco for attending to the various complaints including power failures in the State. The centralised CCMS functioning through 'Minnagam' and having a dedicated mobile no. 9498794987 was used for attending to various electricity complaints in the city and the State. A senior official of Tangedco said Minnagam is functioning in the headquarters of Tangedco located on Anna Salai and was launched in June 2021.

The consumers could register complaints of power cuts, voltage issues, tree falling down on transformers or poles, billing issues, free connections, new connection issues and others to the Minnagam which operates using Session Initiation Protocol (SIP) technology. At present the information technology department of Tangedco is working on integrating the mobile app with the CCMS to help customers make complaints quickly. The mobile app is being provided with a special window having eight types of grievances. The customers could register the complaints with the touch of a button.

SOURCE: THE HINDU, 18 MARCH 2024

NEWS FROM ACROSS THE COUNTRY

India's Energy Subsidies High; Fossil Fuel Subsidies More Than Renewables: Report

India subsidised a whopping Rs 3.2 lakh crore energy sources, including fossil fuels and renewable energy in the fiscal year 2023, as per a report by the International Institute for Sustainable Development (IISD).

The report titled 'Mapping India's Energy Policy: A Decade in Action' released on March 12 mentioned that energy subsidies reflect a nine-year high for the country, and come in the wake of the Russia-Ukraine war. However, subsidies for renewable energy made up only 10% of this amount.

Shifting support from fossil fuels to clean energy "in a socially responsible manner" – or ensuring a just transition – will be important for India to achieve its global commitments such as achieving 50% cumulative electric power installed capacity from non-fossil sources by 2030, energy independence by 2047, and net-zero emissions by 2070, the report noted.

SOURCE: THE WIRE, 14 MARCH 2024

WORLD NEWS

Energy industry methane emissions rise close to record in 2023

Methane emissions from the energy sector approached record highs last year, the International Energy Agency (IEA) warned. In a report released on Wednesday, the global watchdog said the fossil fuel industry's emissions of the potent greenhouse gas, responsible for about 30 percent of global warming, reached more than 120 million metric tonnes in 2023. That put emissions close to the record set in 2019, despite the sector having promised to use freely available technology to reduce their levels.

Despite pledges made by the oil and gas industry to bring down large-scale emission spikes by plugging infrastructure leaks, they jumped by 50 percent last year compared with 2022. One disastrous well blowout in Kazakhstan, recorded by satellites, lasted more than 200 days. The increase also came despite the availability of technology capable of curbing pollution at virtually no cost, said the Paris-based agency. Some 40 percent of the emissions recorded in 2023 "could have been avoided at no net cost" using tried and tested methods, said IEA energy expert Christophe McGlade.

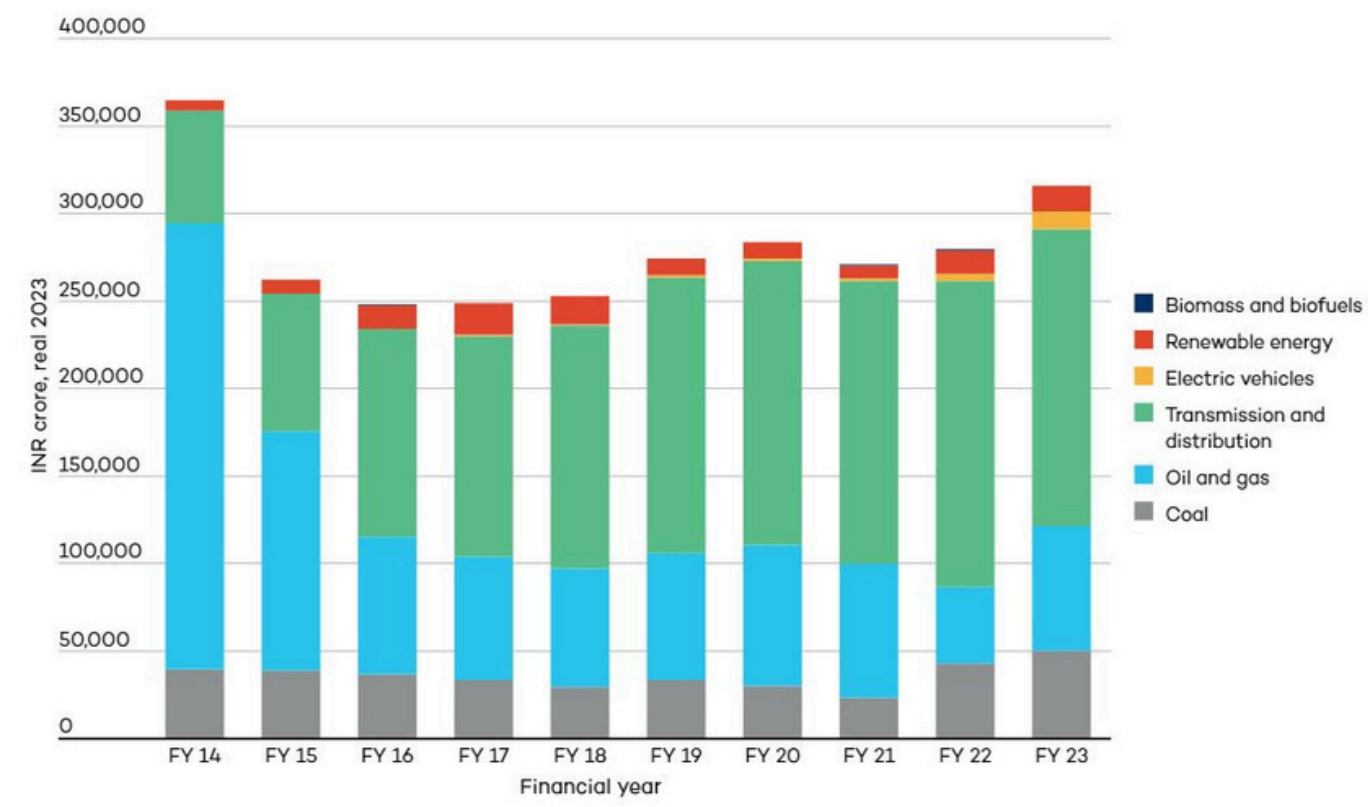
Oil and gas firms have pledged to slash their methane emissions by 2050, but their commitments have not been backed up by detailed plans. Reduction of methane, second only to carbon dioxide for its contribution to rising temperatures, is essential to meeting international targets on climate change. While some 40 percent of methane is released from natural sources, human activities are responsible for the rest. In the energy sector, methane leaks from energy infrastructure, such as gas pipelines, and from deliberate releases during maintenance. Two-thirds of the emissions in 2023 were from just 10 countries, including China's coal industry and the United States' gas sector, with Russia not far behind.

SOURCE: ALJAZEERA, 13 MARCH 2024

PUBLICATIONS

- Expression of Interest (EOI) of Suryamitra Skill Development Program for FY 2023-24, MNRE
- PM Surya Ghar: Muft Bijli Yojana Scheme - Nodal officers for processing of LT Rooftop Solar applications for households in Tamil Nadu, TANGEDCO
- March 2024 Newsletter, Energy Efficiency Services Limited
- Global Waste Management Outlook 2024, UNEP

INDIA'S ENERGY SUBSIDIES



SOURCE: IISD

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@CAGChennai

GET IN TOUCH

+91(44) 2435 4458 | 2435 0387

helpdesk@cag.org.on

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