

Tata Group's "Sustainable is Attainable" Initiative - Powering Green Mobility with Green Energy

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Abstract

The case examines the Tata Group's "Green Energy for Green Mobility" initiative, a key component of its "Sustainable is Attainable" strategy. The initiative aims to create a synergistic partnership between renewable energy sources and electric vehicles (EVs) to address India's transportation and environmental challenges. The study explores the advantages and challenges of this innovative approach, including Tata's leadership in the market and its differentiation from competitors, as well as the impact of regulatory frameworks and the difficulties in managing costs. Ultimately, the case evaluates the initiative's success in transforming India's transportation sector towards a more sustainable future.

Key words: *Sustainable Mobility, Electric Vehicles, Renewable Energy, Climate Change, Green Entrepreneurship.*

Introduction

Sustainability in the business environment was no longer only a social responsibility but had also become a strategic imperative. As global energy demands rose and environmental degradation became a critical concern, corporations were increasingly called upon to lead the shift towards greener solutions. India, as a fast-growing economy with high energy consumption, faced the dual challenge of fueling growth while addressing environmental sustainability. The transportation sector as a major source of emissions was also a focal point for innovative, eco-friendly solutions.

The Tata Group, one of India's most prominent and respected conglomerates, was a leader across diverse industries, from automotive and steel to technology and power. With a

legacy built on innovation, ethical business practices, and social responsibility, Tata Group was uniquely positioned to drive impactful change in India's sustainability landscape.

Recognizing the urgent need to reduce emissions and promote clean energy, Tata Group launched the "Sustainable is Attainable" initiative. Spearheaded by Chairman Natarajan Chandrasekaran, this initiative focused on building a sustainable transportation ecosystem by aligning Tata Motors' leadership in electric vehicle (EV) manufacturing with Tata Power's expertise in renewable energy. Through this integrated approach, the initiative aimed to advance EV adoption while ensuring these vehicles were powered by clean, renewable energy sources. The case examines how the initiative was carried out.

Growth of Green Energy and EV Adoption in India

Since 2020, India's automotive sector was seeing a substantial move toward electric vehicles (EVs), catalyzed by several key factors that redefined the industry's growth trajectory. According to the India Energy Storage Alliance (IESA), India's EV industry was projected to grow at an impressive 36% CAGR, driven by government subsidies and rising consumer interest. Financial incentives had significantly reduced the cost of EV ownership, increasing their appeal across a broad consumer base (see **Exhibit 1**). This support was India's commitment to reducing greenhouse gas emissions and advancing sustainable development goals.

Government Initiatives for Electrification. India's central think tank, NITI Aayog, had set ambitious targets for EV adoption by 2030, including the goal of converting 70% of commercial vehicles, 30% of private cars, 40% of buses, and 80% of two- and three-wheelers to electric power. This roadmap aimed to reduce India's reliance on imported oil—an economic and strategic vulnerability—while also decreasing pollution and fostering clean mobility. These goals aligned with India's international climate commitments, highlighting the country's dedication to creating a sustainable future for its transportation sector.

Transition Away from Fossil Fuels. With oil imports accounting for approximately 80% of India's total oil consumption, dependence on fossil fuels presented significant economic and geopolitical challenges. EV adoption offered a viable solution to this issue by reducing dependency on imported oil and addressing associated costs due to volatile oil prices. This shift was anticipated to improve India's trade balance and promote greater energy security. The expansion of EV infrastructure, such as charging stations, supported this

transition, making EVs more accessible and economically viable compared to traditional fuel-powered vehicles.

Green Energy Expansion. India's electric vehicle (EV) sector and renewable energy growth were deeply interconnected, as highlighted by the nation's strategic investments and infrastructure development. With a \$20 billion investment in renewable energy over the past five years, India had been laying a strong foundation to power EVs sustainably, relying heavily on solar and wind sources, which accounted for more than 57% of the installed renewable capacity. This investment underscores the government's forward-thinking approach to creating an environmentally sustainable future.

The government's ambitious goal of 500 GW of non-fossil fuel electricity by 2030 aligns perfectly with the goal of reducing emissions and accelerating the transition to green mobility. By relying on solar power (with an installed capacity of 82.63 GW) and other renewable sources, India has positioned itself to significantly reduce the carbon footprint of EV adoption. With more than 45% of India's energy mix already coming from renewable sources, the country is well on its way to creating an integrated ecosystem where renewable energy directly supports the growth of the EV sector.

Market Dynamics in the Indian EV Segment

The two-wheeler market had seen a substantial rise in EV adoption, with companies such as Hero Electric, Okinawa, and Ather Energy commanding a 64% market share (see **Exhibit 2**). In the passenger vehicle segment, Tata Motors emerged as a leader, achieving a 74% market share with models like the Tigor EV and Nexon EV. Tata's success in the EV market, driven by strategic investments in technology and brand strength, underscored the growing competition and innovation essential for further industry progress.

Tata Group's Sustainability Initiatives

The Tata Group's approach to sustainability reflected a commitment to transforming India's energy and mobility landscape through renewable energy and electric vehicle (EV) initiatives (see **Exhibit 3**), closely aligned with the UN Sustainable Development Goals (SDGs) and frameworks like the Triple Bottom Line. Under the leadership of Natarajan Chandrasekaran, Chairman of Tata Group, the "Sustainable is Attainable" initiative advanced

critical objectives in green energy and sustainable mobility, particularly with the “Green Energy for Green Mobility” campaign.

Specific Sustainability Projects. Chandrasekaran’s vision drove pioneering projects across Tata companies, most notably in Tata Motors and Tata Power. Tata Motors, a key player in India’s EV market, introduced electric models like the Nexon EV, Tigor EV, and Tiago EV, which helped reduce transportation-related carbon emissions. Complementing this, Tata Power developed over 1,000 EV charging stations across India, providing the necessary infrastructure to support widespread EV adoption. Tata Power Renewable Energy Limited (TPREL) further exemplified Tata’s commitment, with 1,800 MW of renewable energy capacity and significant solar and wind power installations, including the 300 MW solar plant in Pavagada, Karnataka. This initiative not only addressed India’s energy needs but also reduced dependence on fossil fuels.

Strategic Alignment with Sustainability Frameworks. The Tata Group’s strategy resonated with global sustainability frameworks by focusing on clean energy and sustainable transportation, directly contributing to SDGs 7 (Affordable and Clean Energy) and 13 (Climate Action). Initiatives like the use of sustainable materials, such as recycled aluminum and bio-based polymers in manufacturing, aligned Tata Motors’ operations with circular economy principles, reducing environmental impact and supporting resource conservation.

Challenges of Implementation and Strategic Leadership

Implementing these initiatives had not been without challenges. Chandrasekaran's leadership focused on overcoming regulatory and infrastructural hurdles through strategic alliances. For instance, the collaboration between Tata Motors and Tata Power addressed the need for EV charging infrastructure, which was crucial for EV market expansion. Additionally, by investing in advanced battery management and regenerative braking systems, Tata enhanced EV efficiency, though these technologies required continuous innovation and cost reduction.

Chandrasekaran’s role was pivotal in navigating these challenges. His focus on partnerships and innovation, along with his commitment to sustainable development, underscored Tata Group’s position as a leader in green energy and mobility. Through sustained efforts, Tata set a benchmark in India’s journey toward a sustainable future, driving impactful change across industries and exemplifying corporate responsibility.

The "Sustainable is Attainable" Initiative

The Tata Group's 'Sustainable is Attainable' initiative, led by Chairman Natarajan Chandrasekaran, emerged as a transformative campaign advocating for green energy and sustainable mobility. Under the broader vision of 'Green Energy for Green Mobility,' Tata aimed to integrate renewable energy sources into India's transportation sector, aligning with global sustainability objectives, strengthening its brand reputation, and addressing the rising demand for environmentally friendly solutions.

Objectives and Strategic Implementation. The initiative's core objective was to facilitate the transition to electric mobility powered by renewable energy, addressing India's urgent need for sustainable transportation solutions. Key goals included accelerating the adoption of electric vehicles (EVs), establishing a robust nationwide EV charging infrastructure, and leveraging green energy to reduce carbon emissions. Tata Power, a pivotal entity in this initiative, had installed over 1,000 EV charging stations across 475+ cities and towns by mid-2024, reinforcing its position as a leader in India's EV infrastructure development.

The execution strategy of the initiative was structured around three fundamental pillars:

First-Mover Advantage in EV Infrastructure: Tata Power secured a competitive edge by pioneering the deployment of EV charging stations across India in 2021, capturing a significant share of the rapidly expanding market.

Sustainability through Renewable Energy: The charging network was predominantly powered by renewable energy sources, differentiating Tata Power from its competitors and aligning with consumer preferences for eco-friendly mobility solutions.

Consumer Awareness and Engagement: Recognizing the need for market education, Tata Power invested in awareness campaigns to inform consumers about the benefits of EVs, driving acceptance and market penetration.

Impact on Tata's Market Position, Customer Base, and the Environment. The initiative substantially reinforced Tata's image as a sustainability leader, attracting environmentally conscious consumers and expanding its market reach. By integrating renewable energy into the EV charging network and emphasizing the ecological advantages of electric mobility, Tata successfully engaged a new customer segment focused on sustainability. The initiative's environmental impact was profound, as the expansion of EV charging stations powered by clean energy significantly reduced dependence on fossil fuels. Consequently, EV sales surged from 124,681 units in 2020 to over 1.4 million units by 2023, reflecting the initiative's effectiveness in driving sustainable transportation adoption.

Strategic Collaboration Between Tata Motors and Tata Power. Tata Motors and Tata Power strategically aligned their efforts to create a comprehensive EV ecosystem, recognizing that EV adoption would be hindered without a robust charging infrastructure. Their collaboration ensured that Tata Motors' growth in the EV segment was supported by Tata Power's parallel investment in charging infrastructure, addressing critical challenges such as range anxiety.

The timeline of their coordinated efforts illustrates the synchronized approach:

2017: Tata Motors introduced the Tigor EV for fleet customers,

Tata Power announced its entry into the EV charging segment.

2019: Tata Motors launched the Nexon EV, India's first mainstream electric SUV,

Tata Power deployed its first 100 public EV charging stations.

2021: Tata Motors captured a dominant 70% market share in the EV segment and announced the Tiago EV,

Tata Power expanded its network to over 1,000 chargers across metro cities.

2023: Tata Motors further strengthened its EV portfolio with the Tiago EV and the Sierra EV concept,

Tata Power expanded its charging infrastructure to 4,000+ stations nationwide, including key highway corridors.

This integrated approach to EV production and infrastructure development played a pivotal role in mitigating barriers to EV adoption and reinforcing Tata Group's leadership in India's transition to electric mobility.

India's EV Policy and Charging Infrastructure

India's EV transition has been strongly influenced by government policies, with initiatives such as the Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME) scheme playing a vital role in accelerating sectoral growth.

Evolution of EV Policies in India. FAME-I (2015–2019) This Policy focused on providing incentives for electric two-wheelers, three-wheelers, and fleet vehicles. It primarily benefited hybrid vehicles but did not adequately support charging infrastructure development.

FAME-II (2019–Present) This allocated ₹10,000 crore for charging infrastructure and local battery manufacturing. It also introduced subsidies for electric buses, four-wheelers, and two-wheelers, significantly accelerating EV adoption. This led to the success of Tata's Nexon EV, India's best-selling EV, driven by subsidy-enabled affordability.

Challenges in EV Charging Infrastructure. Despite policy advancements, India's EV expansion continued to face several infrastructure challenges due to limited charger deployment in Tier-2 and Tier-3 cities, restricting widespread EV adoption; Grid stability concerns due to increased electricity demand from high-speed chargers; and Interoperability issues, as varied charging standards among EV manufacturers hindered a seamless charging network.

Tata Power's Role in Overcoming Challenges

Tata Power played a proactive role in addressing these barriers by aligning its strategies with the FAME-II framework. Key initiatives such as deploying solar-powered fast chargers in metro cities, reducing dependency on fossil fuels; launching battery swapping pilot projects for two-wheelers, offering a faster and more convenient alternative to traditional charging and; establishing public-private partnerships with state governments to secure subsidies and drive infrastructure expansion.

By resolving critical challenges, Tata Power reinforced its leadership in India's green mobility transition and positioned itself as a key enabler of the nation's sustainable transportation future.

TATA Group's Green Energy for Green Mobility

The Tata Group's "Green Energy for Green Mobility" initiative led to substantial progress in sustainable transportation infrastructure within India, highlighting both Tata's achievements and the strategic challenges it faced in promoting eco-friendly mobility.

Advancements in Sustainable Mobility. Tata Power made significant strides by establishing EV charging stations powered exclusively by renewable energy. This initiative had facilitated the broader adoption of electric vehicles (EVs) while reducing transportation-related carbon emissions. It had marked a critical step toward reducing dependence on fossil fuels and supporting India's transition to greener transportation.

Industry Leadership and Benchmarking. Through its commitment to green energy, Tata Power set a new industry benchmark, positioning itself as a leader in sustainable infrastructure. This leadership had not only strengthened Tata Power's market reputation but had also inspired similar sustainable initiatives within the sector.

Comprehensive Infrastructure Development. Tata had implemented an extensive EV charging network, including fast-charging stations along highways and within key urban and commercial zones. Cities like Mumbai had exemplified how well-planned infrastructure had

enhanced EV travel, providing greater convenience for both urban and intercity commuters while setting a precedent for replication in other regions.

Challenges, Considerations and Way Forward

Despite the above accomplishments, Tata Group encountered several challenges in its mission to expand EV infrastructure while adhering to sustainability principles.

Market and Regulatory Challenges. Tata operated within a regulatory landscape that continued to evolve alongside the rapidly expanding EV market. In regions outside major metropolitan areas, regulatory uncertainties and inconsistent government support had slowed the rapid deployment of EV infrastructure. To mitigate these barriers, Tata had actively engaged with policymakers and stakeholders to advocate for regulatory frameworks that supported the sustainable expansion of EV infrastructure.

Technological and Logistical Barriers. Expanding EV charging stations to underserved rural and semi-urban areas had presented unique technological and logistical challenges. Limited infrastructure, high installation costs, and lower population densities had made it more difficult to set up charging stations in these areas. In response, Tata Power had explored technological innovations and strategic partnerships, such as mobile charging solutions and grid-independent stations, to address these constraints and ensure better service coverage in remote locations.

Risks in Transitioning to Green Energy and Mobility. The shift to renewable energy for EV charging had necessitated sustained investments in clean energy sources and advanced technology, which came with inherent financial and operational risks. Tata had needed to balance these investments with cost-effectiveness to ensure long-term financial viability while maintaining its commitment to green mobility.

Balancing Expansion with Sustainability Goals. As Tata expanded its EV network, a key challenge had been maintaining a sustainable energy commitment across all charging stations. Ensuring sustainability while scaling up infrastructure in diverse geographic regions required careful balancing of costs, service quality, and environmental impact. Tata worked on optimizing operational costs and forming strategic collaborations to implement scalable, sustainable infrastructure solutions.

This case study illustrates Tata Group's efforts to navigate the complexities of expanding EV infrastructure within a sustainable framework. The moot question is how Tata Group was able to address these challenges. If the Tata Group could do it, the question is could organizations foraying

into the EV segment replicate the success? What elements are replicable and what are not? Addressing these challenges had required continuous innovation, collaboration, and strategic decision-making, ensuring that Tata's long-term vision for green mobility remained viable even in less accessible regions.

Exhibits

Exhibit 1: *Vehicle Registrations in the period 2020-2023*

Particulars	2020	2021	2022	2023(Dec)
No. of Petrol vehicles	1,63,54,918	1,63,15,856	1,78,17,281	1,80,56,749
No. of Diesel vehicles	20,33,747	20,18,742	23,47,488	24,02,341
No. of Electric vehicles	1,24,681	3,31,634	10,25,118	14,33,545
Total	1,85,13,346	1,86,66,232	2,11,89,887	2,18,92,635
Total vehicles registered calendar year-wise	1,86,41,661	1,89,20,541	2,15,70,361	2,27,17,562
The ratio of EVs to total vehicles	0.0067	0.0175	0.0475	0.0631

Source: Centralized Vahan 4 (Excludes Telangana and Lakshadweep)

Exhibit 2: *4-Wheeler Electric Vehicle Sales*

Sl. No.	Manufaturers	Mar-24	Feb-24	Difference	% Change	Market share (Mar-24)
1	Tata Motors	6,949	5,090	1,859	37%	74%
2	MG Motors	1,107	1,085	22	2%	12%
3	Mahindra & Mahindra	652	638	14	2%	7%
4	BYD India	134	148	-14	-9%	1%
5	Hyundai Motors	146	122	24	20%	2%
6	BMW India	70	128	-58	-45%	1%
7	PCA Automobiles	178	83	95	114%	2%
8	Volvo Auto India	40	45	-5	-11%	0%
9	Mercedes-Benz AG	50	46	4	9%	1%
10	Kia Motors	33	23	10	43%	0%
11	Others (Audi, Porshe, JLR etc.)	24	26	-2	-8%	0%
	Total	9,383	7,434	1,949	26%	100%

Source: Vahan Dashboard (Data from 1,360 of 1,447 RTOs)

Exhibit 3: Tata Renewable Energy installed generation ability

Source: Tata Power Renewables: (tatapowerrenewables.com)

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