Energy evolution for Viksit Bharat: Balancing growth, sustainability, innovation & global partnerships

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As India strives toward becoming a Viksit Bharat, the role of energy in this transformation cannot be overstated. Energy, in all its forms, is the backbone of national development.

From powering industries to fuelling homes, the evolution of India's energy sector is essential in ensuring both economic growth and environmental sustainability. The roadmap for India's future is clear—One Nation, One Agenda: Development. And at the heart of this agenda is a revolutionary shift in energy policy.

As we continue this transformative journey, let us embrace the spirit of Jai Urja, Jai Bharat—empowering our people with education, innovation, and sustainability to shape a Viksit Bharat that is as green as it is strong.

The Decarbonisation Mandate: Leading the Global Clean Energy Transition

India's energy revolution took a bold turn at COP26 when Prime Minister Narendra Modi announced the ambitious 2030 decarbonisation target. With a goal to decarbonise 50% of the energy mix and achieve 500 GW of non-fossil fuel-generating capacity, this marked a transformative moment in India's global environmental leadership.

These targets were not just a symbolic commitment to international climate agreements but represented India's firm stance on marrying growth with sustainability.

This is an important leap, far exceeding expectations from the Paris Agreement and showcasing India's determination to reduce its carbon footprint while maintaining its trajectory toward becoming a global economic powerhouse. This transformation requires

a well-strategised transition to clean energy, balancing the immediate needs for growth and the long-term necessity for sustainability.

From Record Growth to Renewable Leadership

India has made rapid strides in both its electricity generation and consumption over the past two decades. Per capita electricity consumption rose from 559 kWh in 2001 to 1,208 kWh in recent years, with an expected tripling as the country progresses towards higher living standards.

All Indian households are now electrified, and the national power grid is integrated to facilitate optimal energy distribution. However, as India's economy continues to expand, the demand for reliable, affordable, and round-the-clock power will grow significantly. Addressing this surge requires not just an expansion of energy capacity but a conscious effort to embrace renewable energy sources.

India now boasts the world's fifth-largest solar capacity and fourth-largest wind capacity, with around 200 GW of renewable energy installed. Renewable energy accounts for over 40% of the total electricity generation capacity. To ensure sustainable growth and maintain its leadership in global climate initiatives, India must expand this share exponentially over the coming decades.

Building Global Partnerships: U.S.-India Collaboration on Clean Energy

India's commitment to a sustainable energy transition is not a solo journey. The country has formed significant international partnerships, particularly with the United States, to facilitate the shift toward clean energy. As part of the U.S.-India Strategic Clean Energy Partnership, both nations are collaborating to enhance manufacturing capacity for clean energy technologies and components.

This effort is designed to capture the economic and environmental benefits of the clean energy revolution, including the creation of high-quality jobs and the accelerated deployment of clean energy solutions globally.

Together, the U.S. and India are laying the groundwork for enhancing manufacturing capabilities in solar, wind, battery storage, and energy-efficient technologies. This partnership is poised to catalyse USD 1 billion in multilateral financing through the International Bank for Reconstruction and Development (IBRD) to expand clean energy manufacturing, focussing on solar and wind technologies, energy storage, and electric vehicle infrastructure.

Furthermore, this bilateral collaboration extends beyond borders, as India and the U.S. aim to foster partnerships in Africa, driving clean energy deployment in developing nations. This trilateral cooperation underscores India's emergence as a global clean energy leader and its role in reshaping the world's approach to sustainable energy.

Policy Innovations Driving Growth and Sustainability
India's energy evolution is also fuelled by robust policy initiatives that encourage innovation, investment, and adoption of clean energy.

The Production Linked Incentive (PLI) schemes, with over $4.5 billion allocated to catalyse clean energy manufacturing, are testament to the government's commitment to localising supply chains and reducing reliance on imports. By incentivising domestic production, India is not only securing its energy future but also contributing to global energy resilience.

On the international stage, India's policy framework aligns with the U.S. Bipartisan Infrastructure Law and the Inflation Reduction Act, both of which aim to reinvigorate manufacturing capacities for clean energy technologies. This shared vision between the world's largest democracies sends a strong signal to the rest of the world: development and sustainability can—and must—go hand in hand.

One Nation, One Agenda: Development Powered by Energy
The journey toward a Viksit Bharat is one of growth, inclusivity, and resilience. Energy plays a pivotal role in this narrative. As India transitions to a cleaner, more sustainable energy system, it is setting a powerful example for the world. By balancing the need for rapid economic growth with the imperative of reducing carbon emissions, India is crafting a future where development is not just about economic progress but about fostering a better, greener world for generations to come.

Prime Minister Modi's vision for India's energy evolution embodies this ethos—One Nation, One Agenda. This agenda is not just about achieving energy security but about leveraging energy as a tool for national and global development. With bold targets, strategic partnerships, and innovative policies, India is positioned to lead the world into a cleaner, brighter, and more prosperous future.

As we continue this transformative journey, let us embrace the spirit of *Jai Urja*, *Jai Bharat*—empowering our people with education, innovation, and sustainability to shape a Viksit Bharat that is as green as it is strong.

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Social media can amplify herding behaviour, leading to irrational price movements based on popular sentiment rather than fundamental value.

Efficient Market Hypothesis (EMH) says that financial instruments prices, such as stocks, fully incorporate and reflect all available market information at any given time. There are three forms of EMH: The Weak form of EMH states that stock prices reflect all historical price data. This means that technical analysis, which relies on past price patterns, cannot be used to consistently outperform the market. Next is the Semi-Strong Form that asserts prices reflect public information, including financial statements, news and analyst reports. Thirdly, the Strong Form of EMH that affirms prices, reflects all information, including private information that is not publicly available. This theory advocated that markets are efficient and cannot be outperformed in any case. Even if insider information is available then also, this theory says that it is already priced in the market.

Though there are many ongoing debates about the viability of this theory whether it is the hypothesis only or actually works. Further, the theory proves to remain inconsistent. Having said that, there are various instances that themselves alibi for the contradictory nature of this hypothesis. After all, it’s a hypothesis and not an axiom.

To begin with, let’s consider the big fall in the stock market on the Lok Sabha Election Day result on June 4, 2024, likely exhibiting the semi-strong form of the EMH. This form posits that all publicly available information is already baked into stock prices. The market reacted sharply to the election results as investors were processing new information (the election outcomes) and adjusting their expectations accordingly. Since this information (news & exit polls) was publicly available, the market's reaction aligns with the semi-strong form of EMH, indicating that stock prices adjust quickly to new information.

The moment the election results began to trickle in, the market went into freefall. Investors, reacting to the fresh public information, sent concussions through the financial landscape. The mid-day index painted a grim picture, suggesting that the election outcome could herald significant shifts in government policies or investor sentiment. This dramatic market response is a textbook example of the EMH's semi-strong form in action.

It suggests that:

Rapid Reaction to News - The market quickly adjusted to the election results, demonstrating that investors processed the implications of this new information almost immediately; Incorporation of Public Information - Since the results were publicly known and could influence the economic landscape (such as changes in fiscal policy, trade agreements, etc.), the market's drop reflects how that information was already priced into stock prices; Lack of Predictive Advantage - If traders had tried to use their analysis of the election outcome to predict stock movements ahead of time, they would have been unable to outperform the market consistently because the market had already adjusted based on the available information.

Moving ahead, the flip side of the coin portrays that due to the digital revolution, the viability of this hypothesis can be questioned. The key variable in the matrix is social media. It has a greater role to play in shaping the markets and changing the retail investor’s perception. Social media and the EMH share a paradoxical relationship. The EMH postulates that all available information is immediately reflected in asset prices, making it impossible to consistently outperform the market. Social media, on the other hand, has democratized information, enabling retail investors to access and share information instantaneously. This raises questions about the validity of the EMH in the digital.

Undeniably, social media can accelerate the spread of information, ensuring that price adjustments occur more rapidly in response to new developments. Platforms like Twitter and Reddit can expose corporate misconduct or fraudulent activities, leading to more efficient pricing. However, it can also lead to herding behaviour, manipulation and misinformation, potentially distorting market prices. Social media can amplify herding behaviour, leading to irrational price movements based on popular sentiment rather than fundamental value. The decentralised nature of social media makes it susceptible to

manipulation and the spread of misinformation, which can distort market prices. Social media-driven phenomena like meme stocks and short squeezes can create significant deviations from fundamental value, challenging the assumption of efficient pricing.

The other potential facet of social media is it can also create hype and fear of missing out (FOMO), leading to overvalued IPOs (Initial Public Offerings) and SPACs (Special Purpose Acquisition Company). Prominent figures or influencers on social media can sway investor decisions and create significant market movements based on their opinions or recommendations. This phenomenon demonstrates how social media can sometimes lead to irrational behaviour that contradicts the idea of a fully efficient market, highlighting potential inefficiencies. Bite portal, 'Swiggy' is expected to go public soon. Can we expect Swiggyites to cause significant volatility in the company's share price? Maybe!

The EMH, a cornerstone of modern finance theory, continues to be debated and challenged in the face of rapid technological advancement and evolving market dynamics. The Impact of Artificial Intelligence & Algorithmic Trading cannot be undermined. AI-powered algorithms can process vast amounts of data and execute trades at lightning speed, potentially challenging the assumption of efficient pricing. Furthermore, AI-based predictive analytics can be used to identify patterns and trends in market data, potentially giving certain investors an informational advantage.

Mindfully, one should not forget it's a people's market, where the role of behavioural finance and cognitive biases cannot be overlooked. Behavioural finance research continues to highlight the role of cognitive biases in investors' decision-making, suggesting that markets may not always be rational. Secondly, it has identified a number of market anomalies, such as value investing and momentum effects, that challenge the traditional beliefs of EMH.

A striking example of value investing in South Asia is Tata Motors in 2020-2021 when the stock plummeted due to pandemic-caused supply chain disruptions and a decline in automobile demand, yet sharp-eyed investors saw opportunity where others saw risk. These investors recognised Tata's potential in the booming electric vehicle market, fuelled by India's push for electric mobility. By late 2021, their foresight paid off as Tata Motors' stock surged, driven by new EV launches and a turnaround at its UK-based Jaguar Land Rover (JLR), proving the power of a long-term, value-driven approach.

When considering Tata Motors' recovery in 2020-2021 through the lens of the EMH, this example creates an interesting perspective on market efficiency. In a perfectly efficient market (semi-strong or strong form), value investors should not be able to systematically identify undervalued stocks because all publicly available information would already be priced in. According to EMH, if Tata Motors truly had potential, the stock price would have reflected this right away.

Behavioural biases, like overreacting to short-term news or underestimating long-term potential, may have caused the stock to be undervalued - an inefficiency not explained by EMH but addressed by behavioural finance. Alongside, when positive news sparked a

recovery, the stock's rapid rise suggested a momentum effect, which contradicts EMH, as past price performance shouldn't predict future gains. Tata Motors is a perfect case to exemplify that markets don't always fully price in information immediately, creating opportunities for value investors and challenging the semi-strong form of EMH.

To sum up, while the EMH remains a fundamental concept in finance theory, its applicability in today's world is increasingly being questioned. The rapid pace of technological change, the growing influence of retail investors and the emergence of new asset classes like cryptocurrencies are all factors that challenge the traditional assumptions of efficient markets.

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