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Abstract

This study explores the power industry's role in India's economic growth examining economic principles, supply limitations, and regulatory structures. A steady and dependable electricity supply plays a key part in India's economic progress, as it gives energy to homes, companies, and cutting-edge tech like green energy and electric vehicles. The research delves into how power outages and rising electricity prices can significantly dent the economy in growing nations such as India.

First, the research looks at domestic factors that impact the availability of energy. It uses statistics from the Ministry of Power, which states that as of 2023, India had 417,668 MW of installed generation capacity. The initiative assesses the economic impact of important legislation, such as the National Electricity Policy and the Electricity Act of 2003.

This research revolves around two seminal cases: Jaipur Vidyut Vitran Nigam Ltd. & Ors. v. MB Power (Madhya Pradesh) Ltd. & Ors and Reliance Infrastructure Ltd. v. State of Maharashtra & Ors. In the former, the equilibrium between justice and efficiency in the purchase of electricity is investigated, while in the latter, the function of regulatory agencies such as the Maharashtra Electricity Regulatory Commission (MERC) in enforcing efficiency standards is explored.

By applying economic principles like incentives and trade-offs, the study illustrates how corporate conduct is influenced by regulatory decisions, which in turn promote sustainability and fairness. It also covers the need for government action to guarantee resource efficiency and correct market imperfections.

To sum up, this initiative emphasizes how crucial it is to apply economic principles and efficient regulation to maximize the potential of India's electrical sector. The results underscore the necessity of ongoing endeavours to improve supply and regulatory frameworks since they are pivotal in maintaining the nation's economic expansion.

Keywords: Electrical sector, economic principles, supply, and regulatory framework

Introduction

Any country's main economic objective is to increase its Gross Domestic Product. To ensure an efficient and growing economy, the energy sector must be of top-grade value. The most important energy in today's times is electricity since it is being generated through innovative measures like using of solar energy, the use of electricity in vehicles and especially it is all the more relevant in manufacturing industries. Electricity is the backbone of any manufacturing industry and it is the key factor in increasing production.[1] When problems are caused by electricity supply and increases in prices arise, how seriously can the condition of an economy be affected, especially in a developing country like India which needs electricity to grow its potential- this is an important question addressed by this paper. Electricity is also one of the best energy sources known to mankind, it creates close to zero pollution and is used in every single household to the biggest mainstream industries.[2] Production and manufacturing require energy and electricity in huge quantities to converge materials and create diverse products as well as transport them to different places.[3]

This paper focuses on India and the domestic factors affecting the supply of electricity and how can they be improved to tap into the potential that India's electricity sector has to offer. The Ministry for Power's report suggests that the total installed generation capacity as of 2023 is 417668 MW. [4]This paper also analyses the impact of the Electricity Act 2003 which was enacted and came into force on 15.06.2003. Regulations like national electricity policy, and rural electrification and their impact on the economy will be ascertained in this paper by applying various principles of economics. Keeping in context of today, the paper will also analyse the repercussions and the suggestions for the new budget of 2024.

[1] Sonja Koščak Kolin, Relationship between electricity and economic growth for long-term periods: New possibilities for energy prediction, ScienceDirect(August 1, 2021), https://www.sciencedirect.com/science/article/abs/pii/S036054422100788X.
[2] Indian Power Industry Analysis Presentation, *India Brand Equity Foundation* (July 24, 2024), https://www.ibef.org/industry/power-presentation.
[3] Stern, David I Burke, Paul J Bruns, Stephan B, The Impact of Electricity on Economic Development: A Macroeconomic Perspective, *eScholarship* (December 8, 2017), https://escholarship.org/uc/item/XXXXXXX.
[4] Power Sector at a Glance ALL INDIA, *Ministry of Power, Government of India* (2023), https://powermin.gov.in/en/content/power-sector-glance-all-india.

Literature Review

"The current paper delves into the intersection between India's electricity and power sector and its economics and overall impact. India has five key governmental organs involved in setting directions for the energy sector. These institutions are the Ministry of Coal, the Ministry of Power, the Ministry of Petroleum and Natural Gas, the Ministry of New and Renewable Energy, and the Department of Atomic Energy. Considering the importance for India to meet its long-term economic goals and energy demand, it has been observed critically that policy integration at all levels is necessary and an integrated framework needs to be developed that encompasses the five different organs dealing with the energy sector under the government of India.[5]

The Indian Electricity sector remained a complete State monopoly with social objectives till the year 1991. The social objectives did help to serve the underprivileged domestic and the agricultural class but the results were undesirable in the long run as continued cross subsidies spelled disaster for the overall economy. It was with this aim that the Electricity Act, 2003 was recently enacted "to consolidate the laws relating to generation, transmission, distribution, trading and use of electricity and generally for taking measures conducive to development of electricity industry, promoting competition therein, protecting interest of consumers and supply of electricity to all areas, rationalization of electricity tariff, ensuring transparent policies regarding subsidies, promotion of efficient and environmentally benign policies constitution of Central Electricity Authority, Regulatory Commissions and establishment of Appellate Tribunal and for matters connected therewith or incidental thereto"[6]

"The Electricity Act, 2003 is a comprehensive piece of legislation that governs the electricity sector in India. It replaced three previous laws: the Indian Electricity Act, 1910, the Electricity (Supply) Act, 1948, and the Electricity Regulatory Commissions Act, 1998. The Act aims to consolidate the laws relating to the generation, transmission, distribution, trading, and use of electricity. It provides for the establishment of regulatory commissions at both the central and state levels to oversee the electricity sector. The Act promotes competition, protects consumer interests, and aims to provide electricity to all areas, including rural regions. It introduced key

[5] Nandakumar Janardhanan, Energy Transition: Institutional and Legal Framework in India, 13 Transition to Energy Secure Future: Policies Enabling Energy Transition in India 13, 13–15 (Inst. for Glob. Envtl. Strategies 2012), http://www.jstor.org/stable/resrep00778.9.

[6] Tripta Thakur,S.G. Deshmukh,S.C. Kaushik,Mukul Kulshrestha,2005,Impact assessment of the Electricity Act 2003 on the Indian power sector,Energy Policy,vol. 33, no. 9,pp. 1187-1198, https://doi.org/10.1016/j.enpol.2003.11.016

reforms such as open access in transmission, phased open access in distribution, and mandatory metering. The Act recognizes electricity trading as a distinct activity and provides for private sector participation in generation, transmission, and distribution. It establishes a multi-year tariff framework and introduces stricter penalties for theft of electricity."[7]

One could explain regulatory reforms in many countries following proponents of new institutional economics (NIE) who argue that an appropriate institutional framework can help reduce transaction costs, uncertainty and encourage competition. The government thus delegated responsibility to regulate and encourage competition to quasi-judicial Electricity Regulatory Commissions (ERCs). These ERCs are designed to be autonomous but their decisions could be referred to the Appellate Tribunal for Electricity and challenged in the High and Supreme Courts. The ERCs also remain accountable to the legislature for their performance.[8]

The cases analyzed in this paper include Jaipur Vidyut Vitran Nigam Ltd. & Ors v. MB Power (Madhya Pradesh) Ltd. & Ors, and, Reliance Infrastructure Limited v. State of Maharashtra and others, both landmark judgments concerning the Electricity Act, 2003 and its regulation. In Jaipur Vidyut Vitran Nigam Ltd. & Ors v. MB Power (Madhya Pradesh) Ltd. & Ors, the case concerned disputes over power purchase agreements and tariff determination between state distribution companies and power producers.

"In Reliance Infrastructure Limited v. State of Maharashtra and others, the case dealt with tariff regulations under the Maharashtra Electricity Regulatory Commission (MERC). The appellant challenged a regulation related to Station Heat Rate (SHR), claiming it imposed unfairly stringent norms compared to other power stations, thus breaching the National Tariff Policy. The Supreme Court addressed issues of regulatory discrimination and procedural fairness in tariff determination. The validity of a tariff regulation framed by the Maharashtra Electricity Regulatory Commission (MERC) was questioned before the High Court of Judicature at Bombay. Bereft of jargon - both legal and scientific - the plea of the appellant is of discrimination. The discrimination, according to the appellant, lies in a statutory regulation determining the Station Heat Rate. According to the appellant, its thermal power station at

[7] "The Electricity Act, 2003," Drishti Judiciary Editorial (Dec. 10, 2024), available at https://www.drishtijudiciary.com/editorial/the-electricity-act-2003.

[8] Devendra Kodwani, Regulatory Institution and Regulatory Practice: Issues in Electricity Tariff Determination in Reformed Electricity Industry in India, OU Business School, UK (unpublished manuscript). JEL Classification: K2, L33, L43, L51, L94.

Dahanu has been subjected to a more stringent norm than other comparable units. MERC, it is asserted, breached the National Tariff Policy 2006."[9]

Most normative legal analysis is devoted to determining which procedures or policies society should prefer. Any divergence between proposed solutions and the current legal regime raises the question of how the gains and losses caused by the transition to the more desirable system should be addressed.[10]

In conclusion, India's energy industry functions at the nexus of its regulatory environment and economic goals. An important reform that addresses consumer demands and environmental concerns, the Electricity Act of 2003 modernizes and consolidates earlier laws to promote efficiency, competition, and transparency. The government's commitment to creating a strong and independent institutional framework for the industry is demonstrated by the Act's creation of regulatory commissions and a multi-year tariff system. The difficulties of coordinating regulatory rules with practical and economic realities are demonstrated by legal matters like Jaipur Vidyut Vitran Nigam Ltd. v. MB Power and Reliance Infrastructure Limited v. State of Maharashtra. These instances shed light on the difficulties in maintaining uniformity and equality in regulatory systems by bringing to light important problems such as tariff determination, procedural fairness, and adherence to national policy."

[9] Reliance Infrastructure Ltd. v. State of Maharashtra & Ors., 2019 Latest Caselaw 40 SC (India), https://www.latestlaws.com/latest-caselaw/2019/january/2019-latest-caselaw-40-sc/.

[10] Louis Kaplow, Economic Analysis of Legal Transitions, An , 99 HARV. L. REV. 509 (January 1986).

Statistical Analysis of the cases

CASE 1:

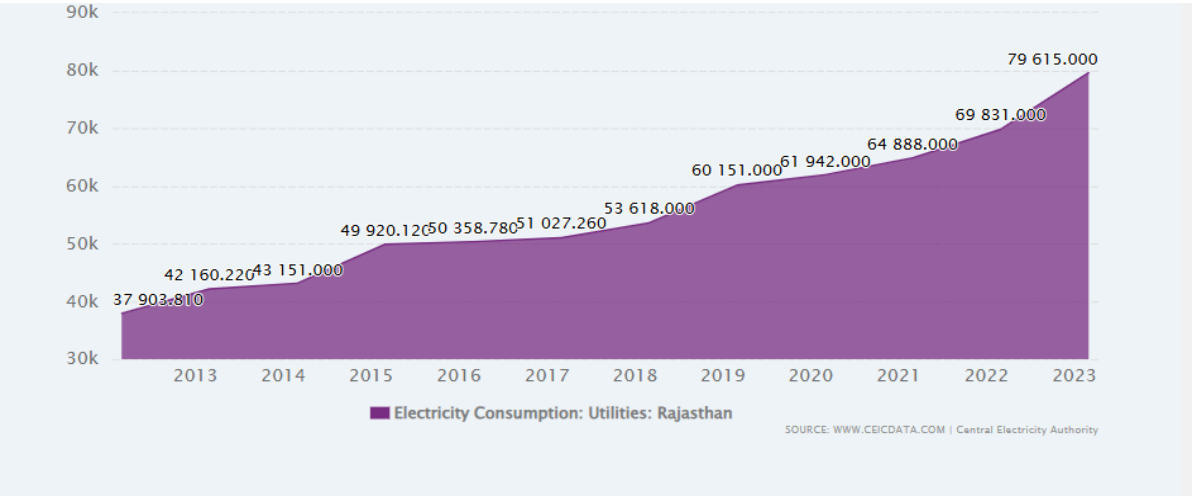
Rajasthan is one of the richest states in India which offers stratergic opporutinies in electricity generation especially through solar energy. The government aims to tap into the same through different schemes and judicial decisions of the supreme court help maintain the balance between companies who provide electricity as well as the consumers who have never ending demand.[11] It is predicted and forecasted by the different authorities in India like the EAL and the Central Electricity Authority that the demand for electricity will increase significantly till 2030.[12] The peak demand is expected to grow at 24.85GW in financial year 24.85.[13] In this particular case, the government wanted to reduce the electricity generation so as to reduce costs, but with increasing demand, the supply should also match up, thus the decision of the court considering consumer satisfaction and their interests along side the autonomy of the state commissions decision is highlighted in this case. The governments decision to reduce the generation of electricity by conventional methods was in line with the national commitments to reduce carbon footprints and use renewable energy.[14] The government aims to reduce the gap between demand and supply of electricity but it is difficult to achieve the same with factors like sustainability targets and consumer/society's interests.

[11] Muralidhar Nayak Bhukya et al., *Renewable Energy: Potential, Status, Targets and Challenges in Rajasthan*, 1854 Journal of Physics Conference Series (2021), https://www.researchgate.net/publication/356712687_Renewable_Energy_Potential_Status_Targets_and_Challenges_in_Rajasthan.

[12] RAJASTHAN ENERGY SCENARIOS 2030 | 2050 Centre for Energy Regulation (CER) and Energy Analytics Lab (EAL) Department of Industrial Management and Engineering Indian Institute of Technology Kanpur |A project Funded by |In Association with SED Fund CUTS International Bask Research Foundation 2 Acknowledgements, (2022), https://eal.iitk.ac.in/CER_EAL_IITK_Project_Summary_Report_of_LTDF_for_Rajasthan.pdf.

[13] *Id* at 2.

[14] Renewable Energy, RISING RAJASTHAN (2024), https://rising.rajasthan.gov.in/renewable-energy.



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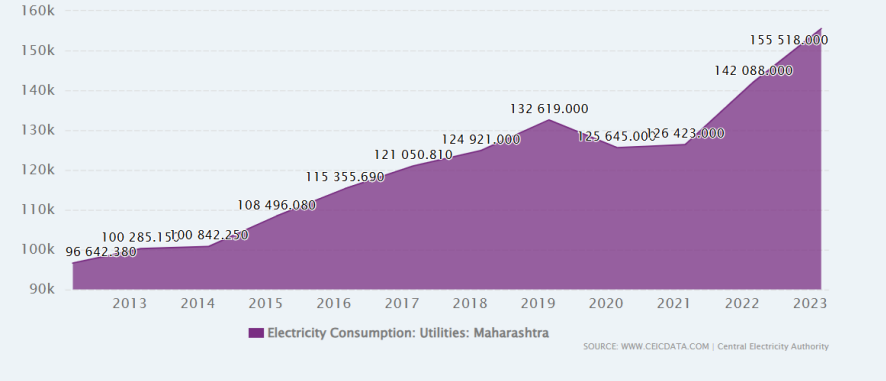
CASE 2:

Maharashtra is one of the most industrially developed states in India. With a rich variety and diversity of industries ranging from agricultural to manufacturing to even residential areas the generation and consumption of electricity is paramount to the development of the state. In 2023 the total cost of electricity purchased by the top two electricity providers in the state was 52680 crores and 2983 crores to which the electricity generation amounted to 101511 MU.[16] The consumption of electricity in the year 2023 was 111653 MU[17]. It is crlear from the data that demand by consumption of electricity is larger than the supply, but the Maharashtra government has been reforming the electricity sector focusing on transmission and distribution so as to increase supply.[18] This has led to a surplus in the supply side of the demand-supply graph when compared with average peak demand. The case of Reliance Infrastructure Limited v. State of Maharasthra and others is significant since it aligns with the state givernments policy of increasing the quality and quantity of the infrastructure so as to achieve efficient transmission and distribution channels which overall will reduce the cost for electricity.

[15] Electricity Consumption: Utilities: Rajasthan | Economic Indicators | CEIC, www.ceicdata.com, https://www.ceicdata.com/en/india/electricity-consumption-utilities/electricity-consumption-utilities-rajasthan.
[16] Economic Survey of Maharasthra 2022-2023, https://bankofmaharashtra.in/writereaddata/documentlibrary/8658c0aa-fe9c-4300-9d8a-909f2e5f9129.pdf.
[17] *Id* at 6.
[18] *Supra,* n 7.

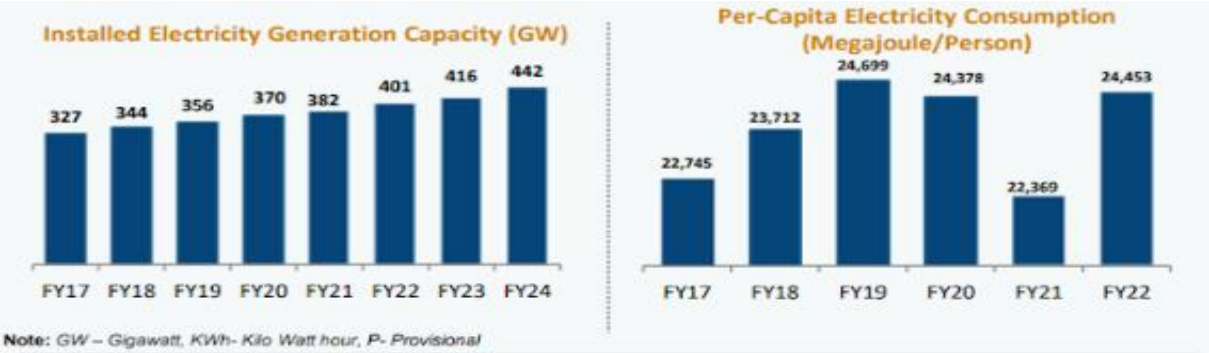


[19]

This data reflects the ever increasing consumption therefore demand for electricity which must be combatted with the increasing price. With sustainability and environmental factors coming into play as the government commits to national and international goals on reducing carbon consumption and related environmental issues, the government aims to balance both consumer statisfaction in terms of prices thus meeting the demand of the public as well as keeping up with its commitments to a green environment. This is done through schemes which are enacted in different secotrs namely the agricultural and the manufacturing secotrs.[20] The indirect taxes through tarrifs are made separate and speicif to each category so as to achieve this goal.[21] To balance out these differing interests, judicial decisions like these are important to navigate different parties' interests and are welcomed for further development.

[19] CEICdata.com, *India Electricity Consumption: Utilities: Maharashtra*, Ceicdata.com (2024), https://www.ceicdata.com/en/india/electricity-consumption-utilities/electricity-consumption-utilities-maharashtra.
[20] Economic Survey of Maharasthra 2022-2023, https://bankofmaharashtra.in/writereaddata/documentlibrary/8658c0aa-fe9c-4300-9d8a-909f2e5f9129.pdf.
[21] power electricity-tariff-by-categories Statistics and Growth Figures Year-wise of maharashtra– Indiastat, Indiastat.com (2021), https://www.indiastat.com/maharashtra-state/data/power/electricity-tariff-by-categories (last visited Nov 25, 2024).

An overview of the electricity sector in India:[22]



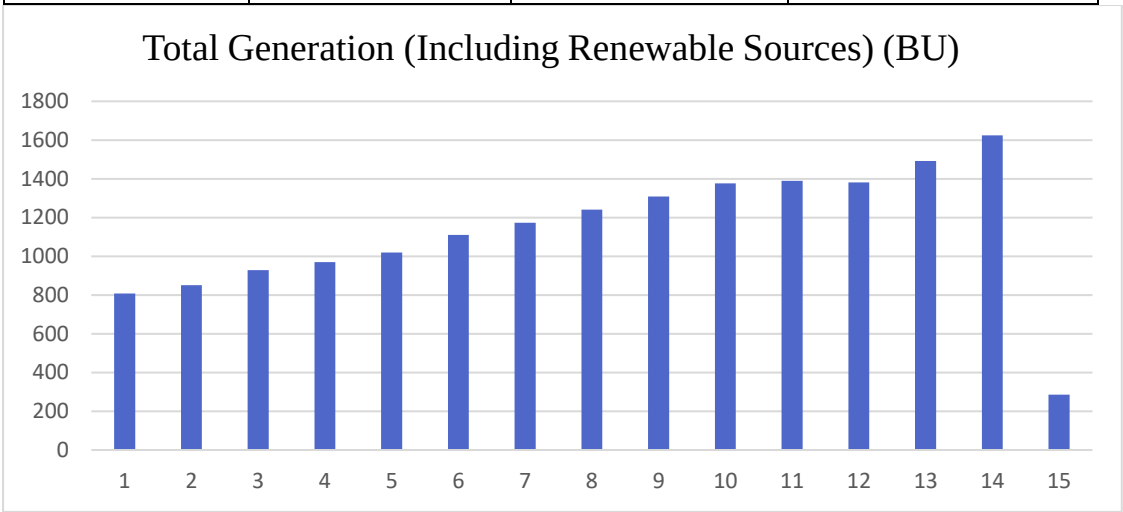
Descriptive Statistics:

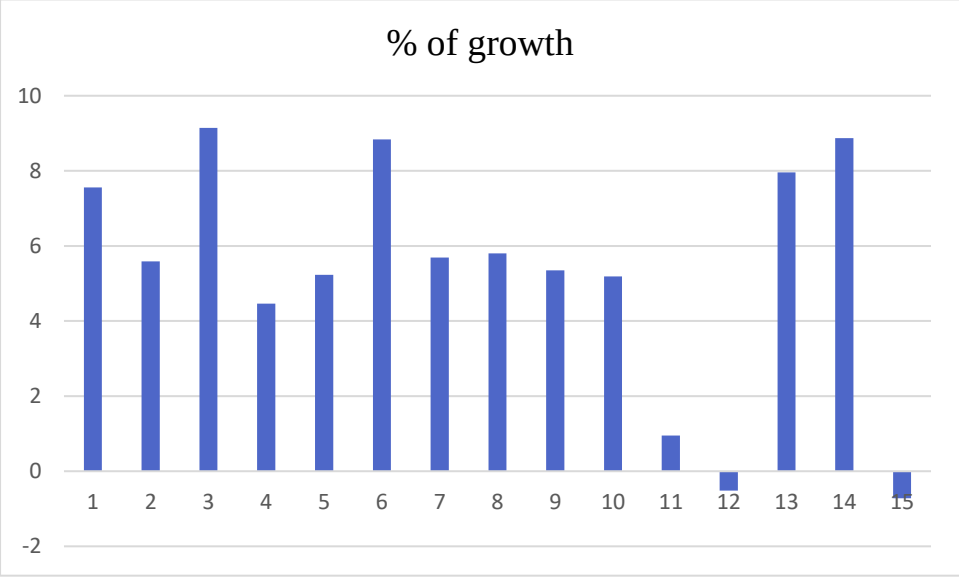
Over the last about 15 years, the average total electricity generation in India has been at about 1130 BU with an average percentage growth of 5.29%. Considering the population of India to be over 1 billion, the upward trend of electricity generation is expected to continue for a long time ahead. Because the data analyzed only goes until mid-2024, the variability within the dataset, as measured by standard deviation and variance, is relatively low. In fact, the standard deviation is calculated at 3.18%, reflecting a constant growth trend over the period covered. This is also attributed to the fact that the growth percentage which is 10.17% and the total generation of energy which is 113207.86 is an extremely huge difference. [23]

Total Generation (Including Renewable Sources) (BU)	**Values**	**% of growth**	**Values**
Mean	1130.651933	Mean	5.292666667
Standard Error	86.87456707	Standard Error	0.823613101
Median	1173.603	Median	5.59
Mode	Not applicable	Mode	Not applicable
Standard Deviation	336.4637515	Standard Deviation	3.189839823

[22] Power Sector Growth - An Infographic, *India Brand Equity Foundation* (2023), https://www.ibef.org/industry/power-sector-india/infographic.
[23] Power Sector at a Glance ALL INDIA, *Ministry of Power, Government of India* (2023), https://powermin.gov.in/en/content/power-sector-glance-all-india.

Sample Variance	113207.8561	Sample Variance	10.1750781
Kurtosis	1.526118205	Kurtosis	-0.135981239
Skewness	-0.972094757	Skewness	-0.807548111
Range	1337.982	Range	9.86
Minimum	286.176	Minimum	-0.72
Maximum	1624.158	Maximum	9.14
Sum	16959.779	Sum	79.39
Count	15	Count	15





Analysis:

The data indicates that the generation of electricity is usually high as indicated by the mean of 1130 BU and the growth rate is positive as well with minimum instances of decline attributed to other factors like changes in government over the past 15 years. The maximum and minimum values show significant differences which can be attributed to the different seasons, sources of electricity, and the volatile nature of industries.

The variation expressed by the descriptive statistics suggests that the electricity sector is maturing in the sense that the consumption of electricity by the public is increasing despite minor fluctuations and negative growth in some periods due to inefficiencies.

INELASTIC NATURE OF ELECTRICITY

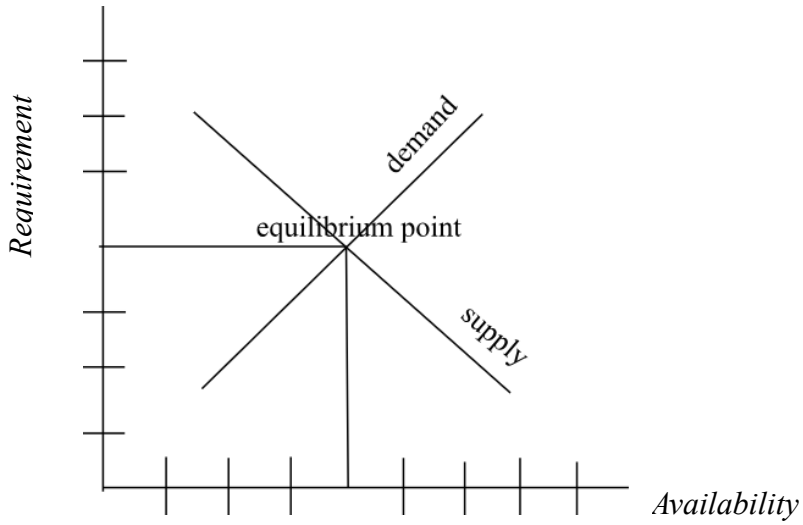
Energy					**Peak**			
Year	**Requirement**	**Availability**	**Surplus(+)/Deficits(-)**		**Peak Demand**	**Peak Met**	**Surplus(+) / deficits(-)**	
	(MU)	(MU)	(MU)	(%)	(MW)	(MW)	(MW)	(%)
2009-10	8,30,594	7,46,644	-83,950	-10.1	1,19,166	1,04,009	-15,157	-12.7
2010-11	8,61,591	7,88,355	-73,236	-8.5	1,22,287	1,10,256	-12,031	-9.8
2011-12	9,37,199	8,57,886	-79,313	-8.5	1,30,006	1,16,191	-13,815	-10.6

2012-13	9,95,557	9,08,652	-86,905	-8.7	1,35,453	1,23,294	-12,159	-9.0
2013-14	10,02,257	9,59,829	-42,428	-4.2	1,35,918	1,29,815	-6,103	-4.5
2014-15	10,68,923	10,30,785	-38,138	-3.6	1,48,166	1,41,160	-7,006	-4.7
2015-16	11,14,408	10,90,850	-23,558	-2.1	1,53,366	1,48,463	-4,903	-3.2
2016-17	11,42,929	11,35,334	-7,595	-0.7	1,59,542	1,56,934	-2,608	-1.6
2017-18	12,13,326	12,04,697	-8,629	-0.7	1,64,066	1,60,752	-3,314	-2.0
2018-19	12,74,595	12,67,526	-7,070	-0.6	1,77,022	1,75,528	-1,494	-0.8
2019-20	12,91,010	12,84,444	-6,566	-0.5	1,83,804	1,82,533	-1,271	-0.7
2020-21	12,75,534	12,70,663	-4,871	-0.4	1,90,198	1,89,395	-802	-0.4
2021-22	13,79,812	13,74,024	-5,787	-0.4	2,03,014	2,00,539	-2,475	-1.2
2022-23	15,11,847	15,04,264	-7,583	-0.5	2,15,888	2,07,231	-8,657	-4.0

2023-24	2,66,951	2,66,360	-591	-0.2	2,21,370	2,21,347	-23	-0.01

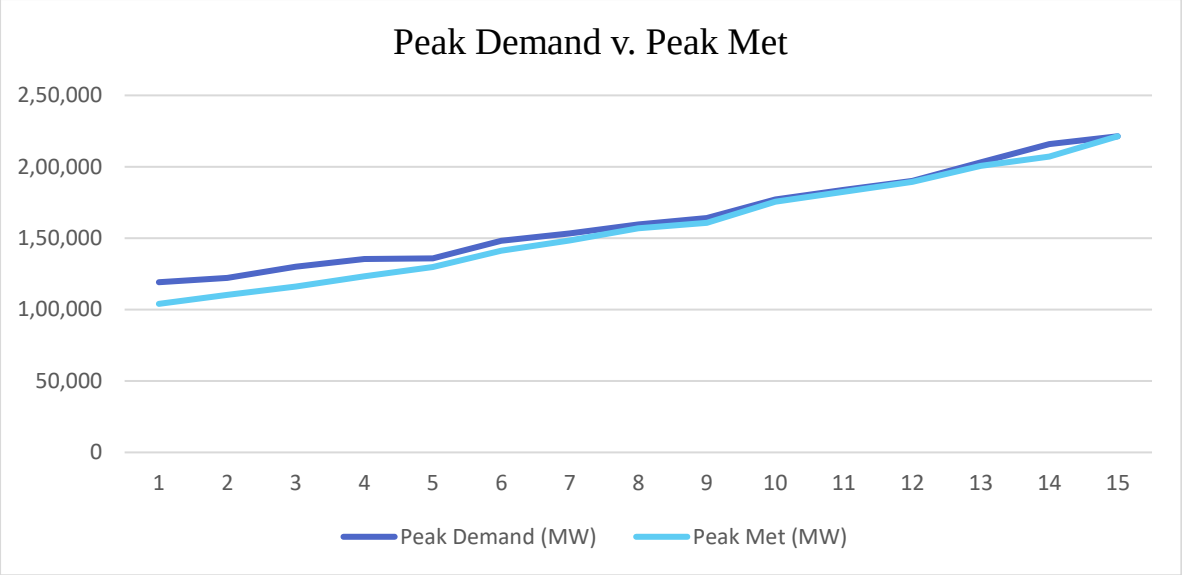
Law of Supply and Demand:

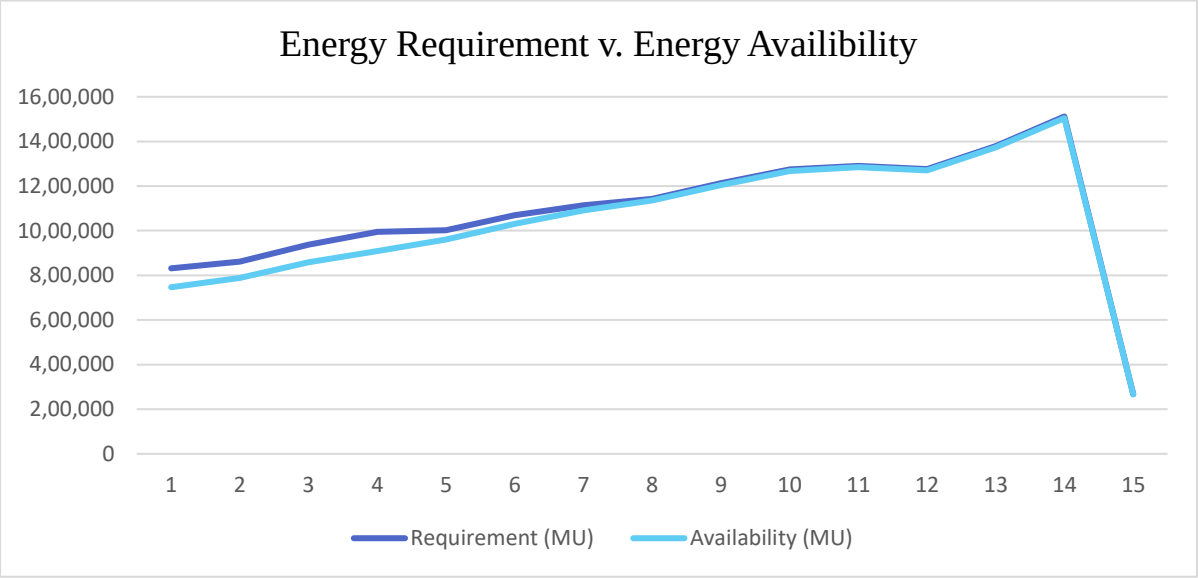
The graph represents the demand for energy i.e. requirement and availability which can be attributed to the supply of the energy. It shows a marginal gap between both the demand and supply of energy in the initial years which has been overcome in 2024.[24] * It highlights the improvement in meeting the demands of the economy by producing and supplying sufficiently.



The principles of Economics and the legislation of the Electricity Act align together by forming to make sure that the demand and supply are on par with each other considering other factors like global warming and the environment as well. The Electricity Act itself is a testament to the commitment to reduce prices and overcome the increasing demand of energy through electricity by enacting national policies and distributing responsibilities for the holistic growth of India's power sector.[25] The reduction in deficits highlights that the Electricity Act encourages investment in the electricity sector as well as competition resulting in a win-win situation **pareto improvement**.

[24] Power Sector at a Glance ALL INDIA, *Ministry of Power, Government of India* (2023), https://powermin.gov.in/en/content/power-sector-glance-all-india.
[25] Electricity Act, 2003, No. 36, Acts of Parliament, 2003 (India).





The trifecta of law and economics is completed when landmark judgments by the supreme court are added to the analysis of economic principles coupled with legislations designed to satisfy consumer and producer needs in a nation like India.

1. **Jaipur Vidyut Vitran Nigam Ltd & Ors v. MB Power (Madhya Pradesh) Ltd & Ors.**

   Before the Supreme Court of India

   Civil appeal no. 6503 of 2022

   Date of order: 8 January 2024

   Appellants: Jaipur Vidyut Vitran Nigam Ltd. & Ors
   Respondents: MB Power(Madhya Pradesh) Ltd. & Ors

   Bench: J B.R. Gavai & J Prashant Kumar Mishra

Facts: through a bidding process Rajasthan Rajya Vidyut Prasaran Nigam Limited (RVPN) received approval to procure 1000 MW of power. The government of Rajasthan approved only 500MW of power allowed to be procured after RVPN had signed Power Purchase Agreements for 1000MW and this was also approved by the State Commission.

Appellate Tribunal for Electricity (APTEL) ruled that 1000 power procurement should be done and in favour of the L-2 and L-3 bidders Moreover, the L-5 bidder challenged the ruling of the State Commission on tariff alignment with market prices. APTEL ruled that the tariffs must be adopted without reassessment by the state commission. The Supreme Court allowed the L-5 bidder to supply power at a specific rate on an interim basis. The appellants challenged the Respondents writ which was filed and approved in the High Court for a PPA and a Letter of Intent in the supreme court.

Decision: The Supreme Court ruled that the decision was unjustified to consumer interests and overall public welfare. The Supreme Court also declared the High Court's ruling legally unsustainable, hence, quashing it down entirely.

This case is an important precedent since it reinforces the importance of judicial discretion and the need to protect public interests. The ruling emphasizes the judiciary's duty to balance justice with the broader societal good.[26]TRADE OFF BETWEEN JUDICIARY'S DUTY TO BALANCE JUSTICE WITH BROADER SOCIETAL GOOD.

Judgement Analysis:

[26] Jaipur Vidyut Vitran Nigam Ltd. vs Mb Power (Madhya Pradesh) Limited, 2024 SCC ONLINE SC 26.

Trade-offs: It is the principles of economics which states that there is nothing free in this world. To achieve one thing we have to let go of another thing is the condition precedent or the basis of making any decision. The trade-off generally faced in society is between **efficiency and equity**, since India is a democratic republic with a mixed economy model, government intervention is inevitable for the goals of public welfare and equity.[27] The decision of the government here to procure 500MW represents a trade-off between the choice of procuring 1000MW or 500MW. It is then considered that the government needed to look into its financial saving as well as the supply of electricity. The high court sided with the trade-off at 500 MW because it seemed to be in agreement with public interest, but in final orders, the Supreme Court disagreed with the high court decision and explained that the high court didn't weigh the larger public consequences including the long-term interests of consumers and the prestige of judicial process.

Another trade-off was between regulatory scrutiny and market efficiency. Here the regulatory scrutiny done by the state commission was highlighted as the state commission wanted to match its tariffs with the market prices hence establishing a trade-off between consumer protection and market-driven pricing through another economic principle of demand and supply.

Overall, the Supreme Court's decision to overturn the high court's decision highlights a trade-off between judicial intervention to correct a wrong judgment and respecting the authority of the High Court.

[27] N. Gregory Mankiw, *Principles of Economics* (9th ed. 2021).

Opportunity cost: the concept of opportunity cost is that something must be given up to obtain something else. The general and rational mind would apply reasoning to obtain the most benefit out of any situation, so after performing a cost-benefit analysis, the person will choose the decision that suits and benefits him the most.[28] since the government initially opted to procure only 500 MW instead of 1000MW, the government's opportunity cost includes the benefits that would have been gained by the additional 500MW of power, like **more security and lower prices**.

The High Court first ordered a judicial ruling which was not in line with that of the Supreme Court, and hence the Supreme Court eventually saved up all that it could to negate any harm to the consumers and public interest as it considered the long-term interest of consumers. Now here opportunity cost is immediate benefits that could be availed by the government but have been negated due to the ruling.

The opportunity cost for not overturning the high court's decision would be immense since it would include potential long-term negative repercussions for consumers, resulting in high electricity prices, reduction in consumption, and erosion of public trust. To avoid the same the Supreme Court applied the cost-benefit analysis and the concept of opportunity cost, comparing both the options and resulted in quashing the high court's order.

Also, the opportunity cost was between choosing short-term or long-term benefits, the decision of the Supreme Court would now impact the long term since that has more benefits regarding regulating and maintaining the prices of electricity. Since the Supreme Court made sure that the government stick to its commitment of 1000MW as mentioned in the bid, the opportunity cost that the government will pay will be in the form of not being able to save energy as envisaged. This might not be beneficial for the government individually, but overall, it has a great impact since it affects the society as a whole**. COST BENEFIT ANALYSIS**

[28] N. Gregory Mankiw, *Principles of Economics* (9th ed. 2021).

2. **Reliance Infrastructure Limited v. State of Maharashtra and others**
   Before the Supreme Court of India

   Civil Appeal No. 879 of 2019

   Decided on 21st January 2019

   Appellant- Reliance Infrastructure Limited

   Respondent- State of Maharashtra and others

   Bench: J DY Chandrachud and J Hemant Gupta

Facts: Reliance Infrastructure Ltd operates the Dahanu thermal power station in Maharashtra. This coal-fired power plant has to follow several rules, including those about the Station Heat Rate (SHR). SHR measures how much heat it takes to make one unit of electricity. It's a key way to check how well a thermal power plant works. The Maharashtra Electricity Regulatory Commission (MERC) used its power under the Electricity Act of 2003 to set a price rule. This rule put a new tougher SHR standard in place just for the Dahanu plant.

Since the new SHR standard enforced by MERC was more stringent than the SHR standards applied to other comparable thermal power plants in the state, Reliance Infrastructure Ltd. contended that it was unjust and discriminatory. The company argued that this was not warranted by any special technological or operational aspects peculiar to the Dahanu plant and instead placed them at a competitive disadvantage. In addition, they claimed that the National Tariff Policy of 2006, which highlights the significance of consistency and equity in the implementation of regulations among comparable entities to avoid discrimination and preserve equal playing fields in the power industry, was broken by MERC's regulation.

Reliance also argued that the strict SHR standard would impact the tariff decision process. This would lead to higher operating costs that customers would have to pay hurting the overall financial health of their business.

The Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL), along with MERC, stood by the regulation. They claimed that the SHR norm for the Dahanu facility was needed to boost the plant's productivity and was backed by a thorough technical study. They maintained that the standard was created expressly to address the particular inefficiencies at the Dahanu station rather than being discriminatory. Additionally, MERC said that it was operating within the bounds of the Electricity Act of 2003, which gives state regulatory commissions the right to

create rules pertaining to rate determination, including establishing efficiency standards like SHR. They argued that by ensuring that tariffs fairly represent the true cost of producing power, the legislation complies with their responsibility to safeguard consumer interests and promote efficiency.

Under Section 183 of the Electricity Act, 2003, a National Tariff Policy 2006 was framed to have a systematic framework for electricity generation, transmission, and distribution tariffs in the country of India. This plan seeks to ensure the financial viability of the electrical industry while making electricity accessible to consumers at reasonable and competitive prices. The policy aims to provide openness, efficiency, and equity in the industry through clear regulations that will determine how tariffs are set, and encourages the use of current methods and technology that will bring down costs and increase the reliability of power delivery. In summary, the over-arching objective of the National Tariff Policy is to ensure a sound and competitive electricity market which is in the best interests of suppliers and customers, with the assurance that the industry will be able to meet growing energy demand in tandem with economic stability and environmental sustainability.

Dispute: The maintainability of Reliance Infrastructure's writ petition under Article 226 of the Constitution was at the centre of the first disagreement that the Bombay High Court heard. The High Court denied the company's request for a judicial review of the MERC regulation, ruling that the matter was within the purview of regulation and that the court should abstain from influencing technical and regulatory determinations unless there was an obvious breach of the law or fundamental rights.

Regarding the substantive matter, the High Court maintained the legality of the MERC regulation, concluding that the SHR standard was warranted in light of the technical data that the commission had provided. The allegation that the rule was not unjust or in opposition to the 2006 National Tariff Policy was thrown out by the court.

Having been disheartened by the High Court's verdict, Reliance Infrastructure lodged an appeal with the Supreme Court of India, keeping up and appealing claims both on the SHR norm's legality and what MERC seemed biased in its decisions.

Decision of Supreme Court: The Maharashtra Electricity Regulatory Commission (MERC) was granted authority by the Supreme Court to create and implement tariff regulations, including the particular Station Heat Rate (SHR) standards that Reliance Infrastructure Ltd. had contested. The Court recognized that MERC, as the state's electrical regulator, has the

authority to establish efficiency standards for power plants, including standards like SHR that have a direct bearing on price computations. The Dahanu thermal power plant owned by Reliance Infrastructure was subject to SHR requirements, which the court determined were neither unreasonable nor discriminatory. It stated that the goal of these standards was to increase the plant's operational efficiency and that they were founded on a comprehensive technical study carried out by MERC. The Court made clear that, if the rules are backed by facts and reason, regulatory bodies are allowed to set varied standards for various power plants depending on their unique circumstances and operational performance. Reliance Infrastructure claimed that the SHR standards were discriminatory and in violation of the National Tariff Policy 2006, but the Court dismissed this argument, making it clear that differential treatment is permitted under the policy as long as it is supported by technical and reasonable factors. The Court concurred with MERC that stricter standards should be imposed due to the unique operational features of the Dahanu plant. In the context of judicial review, the Bombay High Court in the case titled "Judge should really be careful while commenting on the decisions of specialized regulatory bodies. MERC, for example, are experts in the technical aspects of law, and their work should not be interfered with unless it is unduly in violation of the law. What if it is legal? The Court retained that the decision of regulatory bodies—which are the ones that are directly governing the technical and the policy aspects—should be left to the them unless it is a clear violation of the law. Therefore, the Supreme Court gave a ruling that the MERC tariff standards and SHR levels of the Dahanu plant were correct. This was because the appeal of Reliance Infrastructure Ltd. was dismissed." reiterated the view that courts need to be careful when interfering with the decisions of specialized regulatory bodies like MERC, and declared that in matters to do with regulations, which include technical and policy matters, the regulatory bodies will have the primary responsibility and the courts would have limited choices unless it is a violation of the law. Then we saw that the highest court upheld the law open to it. The decision emphasized the need of independent regulators and the function of specialized commissions in establishing industry norms to guarantee equity and efficiency in the electrical industry.[29]

[29] Reliance Infrastructure Limited v. State of Maharashtra and others, 2019 (3) SCC 352.

Judgement Analysis:

People respond to incentive:

An incentive is such a thing that induces people to respond. Because people make decisions after comparing all the costs and benefits incentives given to them. For example, when a price of a commodity rises, people tend to choose the alternative commodity in place of that commodity, because the price of that commodity is higher.

Incentives decide behavior by rewarding or punishing an individual. For example, a child who cleans a room is expected to have a reward, or the child can be expected to use the excuse of cleaning their room in order to have the benefit of not having to share the video console for a while. Loss of privileges can also be a motivator. Discounts and bonuses are used by companies and governments in taxes or subsidies for instituting such behavior, reducing the prize into personal relationships. The praise is personal; it speaks to the heart.

There are some exceptions to this; other driving forces include emotions and social norms, as well as the value system. Basically, it reflects human nature, as people weigh their pros and cons at times of making choices on costs and benefits based on potential gains or losses.

For Reliance Infrastructure's Dahanu power station, the strict Station Heat Rate (SHR) norm set by the Maharashtra Electricity Regulatory Commission (MERC) acted as a tactical inducement intended to promote operational enhancements. The goal of MERC's more stringent SHR criterion was to incentivize Reliance Infrastructure to improve its efficiency. The intention was to force the business to make investments in cutting-edge technologies and optimize its operations in order to reduce the quantity of heat needed to produce energy. The corporation was financially motivated by this requirement to improve the way it handled its operating expenses. The corporation would be under pressure to streamline its operations and cut costs if it didn't satisfy the more stringent SHR criterion, which would raise operating costs. If the policy changes incentives, it will cause people to alter their behaviour.[30]

The SHR standards debate serves as another example of how perceived unjust treatment might serve as a catalyst for legal actions. Reliance Infrastructure requested judicial intervention because it felt that it was being treated less favourably than other power plants when it came to the execution of SHR regulations. The purpose of this action was to guarantee a fair and competitive environment while resolving the apparent unfairness. Any policy analysis must

[30] N. Gregory Mankiw, *Principles of Economics* (9th ed. 2021).

take into account not just the direct consequences but also the indirect, perhaps less evident effects that arise from incentives. This example shows how incentives are used by regulatory authorities to enforce compliance and promote advancements. Commissions such as MERC encourage businesses to follow regulations by providing financial and operational incentives through the establishment of particular norms and standards. This approach improves industry efficiency and equity.

The National Tariff Policy-2006 was formulated to differentiate the electric tariffs generation, transmission, and distribution uniformly throughout India, as per the Electricity Act of 2003 imposed by GOI. Enabling an attractive method of a sustainable electricity supply to ensure the financial viability of the electricity sector while at the same time making supply of electricity reasonably priced and equitably accessible to everybody. The goal of the policy is to encourage transparency, efficiency, and equity in the electricity sector; in some sense, its enormous action plan setting tariff. The aspirational policy strives to introduce new methods and technologies that could deliver lower power costs along with higher reliability and consistency of electricity supply. The overall purpose of the National Tariff Policy is to create a competitive electricity market in India and give rewards to all suppliers who display equivalent efficiencies as well as customers.

Governments can sometimes improve market outcomes:

Adam Smith provided the theory of the 'Invisible Hand', which states that the collective outcome of individual actions leads to a well-functioning economy. It emphasized on minimal government and official intervention.

The invisible hand is powerful, but it is not omnipotent. Although markets are often a good way to organize economic activity, this rule has some important exceptions. There are two broad reasons for a government to intervene in the economy and change the allocation of resources that people would choose on their own: to promote efficiency and to promote equity. That is, most policies aim either to enlarge the economic pie or to change how the pie is divided. Although the invisible hand usually leads markets to allocate resources efficiently, this is not always the case. Economists use the term market failure to refer to a situation in which the market on its own fails to produce an efficient allocation of resources. One possible cause of market failure is an externality, which is the impact of one person's actions on the well-being of a bystander. Another possible cause of market failure is market power, which refers to the ability of a single person (or small group) to unduly influence market prices. [31]

Hence, government intervention can enhance efficiency, equity, and overall welfare in markets where externalities exist. In the present scenario, MERC, a regulatory body intervened by imposing a stricter SHR norm on the plant. It was contended that it was done so as to improve the overall efficiency of the Dahanu plant.

Allowing Reliance Infrastructure to run at a less efficient SHR would raise operating expenses, which would raise consumer power bills and perhaps lower overall consumer welfare.

[31] N. Gregory Mankiw, *Principles of Economics* (9th ed. 2021).

Trade Can Make Everyone Better Off:

The proverb "Jack of all trades, master of none" emphasizes the value of specialization in economic endeavours and how trade may benefit everyone. We can't succeed in any one area if we try to handle everything by ourselves.

Imagine a society in which each individual is self-sufficient. Our food is grown, our houses are built, and our tools are made by us. That is a difficult image, isn't it? Everybody has special skills and interests. Some people have creative talent, some have green thumbs, and some have a knack for solving problems.

The key to specialization is identifying and maximizing these unique strengths. We produce valuable things that other people need when we concentrate on what we do best. A world that is richer and more diverse is created by people like the farmer who grows the best wheat, the artist who creates the most beautiful paintings, and the engineer who builds the most effective machinery.

However, it goes beyond personal fulfilment. Specialized knowledge is typically needed for economic activity. Years of training and experience are required to design sophisticated software, build skyscrapers, or carry out difficult surgery. Simply put, it is not feasible for everyone to acquire these abilities.

"Countries as well as families benefit from the ability to trade with one another. Trade allows countries to specialize in what they do best and to enjoy a greater variety of goods and services. The Japanese, as well as the French and the Egyptians and the Brazilians, are as much our partners in the world economy as they are our competitors."[32]

The Maharashtra Electricity Regulatory Commission (MERC) had put stricter Station Heat Rate(SHR) norms on Reliance Infrastructure's Dahanu power plant. Power producers are required to trade off a little of something else, inasmuch as MERC (public and consumer interest) drives them with regulations that they need to adhere to render market operation possible... In the long run, consumers may benefit from cheaper costs and more dependable energy as a result of the stronger regulations, which are designed to increase the overall efficiency of electricity production.

Reliance Infrastructure may be able to make investments in better technology and operational enhancements by adhering to these more stringent regulations. Even though there may be

[32] N. Gregory Mankiw, *Principles of Economics* (9th ed. 2021).

immediate expenses, doing this can lead to more productive energy output. The cost of producing power can be decreased by these efficiency advances.

Even though Reliance Infrastructure had to deal with more stringent rules, the idea that "trade can make everyone better off" argues that the long-term advantages of greater productivity and lower operating costs might outweigh the initial difficulties. In the event that the business satisfies the new requirements, it may gain a competitive edge, eventually cut expenses, and possibly pass those savings forward to customers in the form of cheaper electricity rates.

The case also emphasizes the function of regulatory agencies in maintaining fair and competitive market conditions. MERC levels the playing field by establishing requirements that all participants must follow, which allows efficiency trade-offs to result in overall market gains.

In this instance, the idea that "trade can make everyone better off" is clear because MERC and Reliance Infrastructure's regulatory "trade" has the potential to benefit both parties. Stricter restrictions present a challenge for the business, but the efficiency benefits that follow can benefit the company and customers in the long run. This shows how well-designed regulations can promote a more fair and efficient market.

Public Choice Theory

The public choice theory is looking at political science through the lense of economics. Here, the policymakers are not treated as ideal public servants however individuals who respond to incentives just like market actors as they are also self-interested. This theory was developed by James Buchanan and can be applied in these two landmark judgements so as to get a perspective on the impact of these two judgements through a macro economic and political view point.

In the case of **Jaipur Vidyut v. MB Power**, the State government's decision to reduce the power procurement from 1000 to 500 MW despite the prior agreements and approvals by the concerned authorities may appear to serve public interest, as it helps in the renewable transition of energy as aimed by the new policies of the government and also helps in cost saving. However, it also reflects the political incentives like reducing fiscal strain before elections and appeasing the vote bank and relevant interest groups like those of green lobbies and budget conscious taxpayers who form a majority part of the vote bank.

The Supreme Court overturning the judgement of the High Court re establishes the role of the judiciary in acting as a check on political opportunism which is an important factor which Buchanan focused upon with respect to constitutional design. This can be an example of how governments try to go back on their promises and distort efficient outcomes for short term gain which maybe political and thus ignore then consumer welfare, until the judiciary intervenes.

In the case of **Reliance Infra v. State of Maharashtra**, the aim was to increase efficiency which can be considered as a technocratic move, instead of political opportunism which was present in the above case. The tussle between corporate lobbying and regulatory intent is shown here as when Reliance challenged the regulation to protect its profit margins, thus showcasing the process of how companies and conglomerates function, just like how politicians sometimes act in self-interest, to make policies through legal or political pressure. However, the presence of MERC, as an independent regulator allowed the political populism or the corporate influence to subside in this case to limit the rent seeking behaviour as mentioned by Buchanan.

Government actions in both the cases highlight the reality of public and private sectors as they respond to self interest and not just efficiency or equity. Here, the judiciary plays an important role as they seek to align the interest of public welfare and to prevent rent seeking behaviour. The Indian electricity sector is a living example of Buchanan's Public Choice Theory in action due to its complex nature of state policy and the state holding a major stake in supplying

electricity, corporate interest and their profit induced decisions and judicial oversight which balances both.

Sustainability And Energy Goals

The use of energy in India has doubled since 2000 and fossil fuels and biomass still meet 80% of the demand. On a per capita basis, India's energy use and emissions are less than half the world average, as are other key indicators such as vehicle ownership, steel, and cement output. However, Per-capita Energy Consumption increased from 20,874 Mega joules in 2012-13 to 24,453 Mega joules in 2021-22. Currently, India has a regulatory framework that attempts to balance sustainability with electricity laws, driven by the Electricity Act, 2003 which mandates promoting renewable energy and ensuring grid connectivity. The objective of sustainable development is to strike a harmonious balance between fulfilling present requirements and safeguarding the opportunity for future generations to meet their needs. Sustainable development recognizes the interconnection of economic, social, and environmental factors in developmental processes. The government has implemented policies and regulations, including subsidies, tax benefits, and renewable purchase obligations to incentivize the adoption of renewable energy and reduce reliance on fossil fuels. Energy efficiency measures are also prioritized across various sectors, managed by the Bureau of Energy Efficiency, to reduce energy consumption and promote sustainable practices.

In both circumstances, sustainability arises as a compromise between cost-effectiveness and environmental obligations. The court's decisions demonstrate how judicial scrutiny enables regulatory agencies such as MERC to enforce environmental efficiency (e.g., stricter SHR norms), boosting sustainable energy generation while protecting consumer interests. In Reliance Infrastructure, MERC's stricter standards targeted enhancing plant efficiency are consistent with the idea of regulatory authorities influencing market behavior toward sustainability. This highlights the implementation of "polluter pays" and incentive-based regulation principles, which encourage companies to expand while ensuring fair competition and efficiency. In essence, the judgments emphasize that sustainable development in India's power sector necessitates a coordinated approach that balances economic efficiency, environmental goals, and social welfare, with regulatory and legal supervision ensuring that none of these pillars collapse under market pressure.

Conclusion

In the both of the cases mentioned above i.e. Jaipur Vidyut Vitran Nigam Ltd. & Ors. v. MB Power (Madhya Pradesh) Ltd. & Ors and Reliance Infrastructure Ltd. v. State of Maharashtra & Ors, the court has outlined the scope and validity of government intervention, and given differing judgements. In the former case, the actions of the government (as decided by the court) were unfair and disturbed a set equilibrium by reducing the requirement from 1000W to 500W, however this is where it differs from the latter case wherein the MERC's directives to the Dahanu plant were upheld so as to improve overall efficiency of the plant and improve general welfare.

Government plays the role of the regulator and may intervene however it should not be arbitrary or harm the interests of the other stakeholders of the economy at large. Government also plays an important role as a creator and regulator of such conditions that allows the other sectors, firms and markets to emerge and thrive.

By analysing the various principles of economics and their application to each case. The far reaching economic and social impact of the cases can be seen wherein not only the company, firm or industry is affected but it impacts the public and economy at large. Hence by doing an economic analysis of these cases an attempt is made to understand the importance of a regulatory framework in a sphere as important as power and it can be concluded that the government not only acts as a watchdog but also has the authority and responsibility to make laws and safeguards for the stakeholders and especially consumers to ensure peak efficiency and prevent undue exploitation. However, at the same time it is also noted that the government is not all-powerful and also has a duty to maintain its obligations and avoid arbitrary use of its power.

Recommendations & Suggestions:

In light of the cases mentioned above and the broader context of India's energy sector the government should ensure any intervention in the sector is justifiable and must release clear guidelines and adhere to them throughout the country.

Given India's ambitious plans especially with respect to renewable energy the government should provide subsidies and other incentives to other industries and players to encourage the onset of a new source of energy and must also provide clear rules and regulations for the same to reduce ambiguity and also provide clear guidelines for cases where there will be intervention.

In consideration of the verdict in Reliance Infrastructure Ltd. v. State of Maharashtra, which upheld guidelines intended to increase plant efficiency, the government needs to incentivise current power plants to use cutting-edge technology that both boost efficiency and lessen their environmental effect. Prioritizing research and development expenditures is important, especially when it comes to cutting-edge energy solutions like clean coal technology, energy storage systems, and smart grids. In order to promote collaborations between the commercial sector and academic institutions, the government can have an impact.

A regulatory framework for both the sectors and combining the said sectors should be created so as to ensure provision of energy at a cheaper rate and causing minimal environmental impact.

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