

STATUS OF POWER TRANSMISSION NETWORK IN GUJARAT

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ABSTRACT

It is a well-known fact that power is of utmost importance for Indian economy to thrive. Various sectors depend on power for their operation. Thus, the present paper deals with the power sector. The paper is descriptive in nature which deals with the present status of transmission network in the state of Gujarat. The paper gives a brief background of development of power sector in India and Gujarat. The paper attempts to give a brief introduction of the state transmission utility of Gujarat - Gujarat Energy Transmission Corporation Limited (GETCO). GETCO serves the important function of transmitting the electricity generated at power plants to the distribution companies in Gujarat through its efficient network of extra high voltage (EHV) transmission lines and sub stations. It also attempts to analyze the performance of GETCO from two perspectives i.e. physical performance and operational performance.

KEYWORDS: *Electricity, GEB, GETCO, Operational Performance, Physical Performance, Power Sector.*

Introduction

Extensive, efficient and quality infrastructure network, mainly including electricity and transportation, is the prime requirement for sustainable and inclusive growth of almost all the sectors of the economy. High class infrastructure definitely accelerates the pace of development.

The power sector of India as well as that of Gujarat is one of the most diversified in the world. The sources of power generation range from conventional sources such as coal, lignite, natural gas, oil, hydro and nuclear power to viable non-conventional sources, such as wind, solar and agriculture and domestic waste.

The first demonstration of electric light was conducted, in Calcutta on 24th July 1879 by P.W. Fleury & Co. Mumbai experienced electric lighting for the first time in 1882 at Crawford Market. The first hydro-electric installation in India was setup by Crompton & Co. for the Darjeeling Municipality in 1896. The Bombay Electric Supply and Tramways Company (B.E.S.T.) set up a generating station, in 1905, to provide electricity for the tramway.

The Indian Electricity Act 1910 was enacted to regulate supply by the licensees to the consumers. After independence, in 1947, Indian Electricity (Supply) Act 1948 (ES Act) was enacted to form State Electricity Boards, with full powers, to control generation, distribution and utilization of electricity within their respective states and Central Electricity Authority for planning and development of power system

There arose the need for Central Generating Companies, for development of super thermal power stations, at coal pit heads and large hydroelectric stations. Therefore, in 1976, NTPC, NHPC, NPC, NLC and NEEPCO were formed. In 1991, ES Act 1948 was amended, to pave the way, for the formation of private Generating companies.

The Electricity Act 2003 was enacted to repeal all the previous Acts and bring a paradigm shift in Indian power market. The requirement of obtaining license was removed for setting up

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generation capacity. Distribution was also made license free for notified rural areas and the development of power market was also envisioned. The trading of electricity was recognized as a distinct activity and open access was granted for bulk producers and consumers. The Act was further amended, in 2007 to bring in modifications. The prominent amendments were regarding subsidy and combined responsibility of state and central regulators. Reforms in power sector in India, are being pursued since then and continue till date.

The power sector in India has the fifth largest electricity generation capacity in the world, and it is among the core sectors of the country with an installed capacity of 361495.02 Megawatt (MW) as on August 31, 2019. It facilitates development in various other sectors like agriculture, manufacturing, construction and services among others. India's fast paced economic growth and its increasing rate of industrialization has fuelled the demand for energy.

Power Sector in Gujarat

As a part of Power Reform Process, the Electricity Act, 2003, was passed by the Central Government and Gujarat Electricity Industry (Re-organization & Regulation) Act, 2003, was passed by the Government of Gujarat to restructure the Electricity Industry with an aim to improve efficiency in management and delivery of services to consumers.

Under the provisions of the said Acts Govt. of Gujarat framed the Gujarat Electricity Industry Re-organization & Comprehensive Transfer Scheme, 2003, (the Transfer Scheme) vide Government Notification dated 24-10-2003 for transfer of assets/liabilities etc. of erstwhile GEB to the successor entities.

Accordingly erstwhile Gujarat Electricity Board (GEB) was reorganized effective from 1st April, 2005 in to seven companies with functional responsibilities of trading, generation, transmission and distribution.

The Companies incorporated are as under:

- Gujarat UrjaVikas Nigam Limited (GUVNL), the holding and trading company.
- Gujarat State Electricity Corporation Limited (GSECL), the generation company (Genco).
- Gujarat Energy Transmission Corporation Limited (GETCO), the transmission company (Transco).
- Uttar Gujarat Vij Company Limited (UGVCL), the distribution company (Discom).
- Dakshin Gujarat Vij Company Limited (DGVCL), the distribution company (Discom).
- Madhya Gujarat Vij Company Limited (MGVCL), the distribution company (Discom).
- Paschim Gujarat Vij Company Limited (PGVCL), the distribution company (Discom).

The State Transmission Utility: GETCO

Gujarat Energy Transmission Corporation Limited (GETCO) was set up in May 1999 and is registered under the Companies Act, 1956. The Company was promoted by erstwhile Gujarat Electricity Board (GEB) as its wholly owned subsidiary in the context of liberalization and as a part of efforts towards restructuring of the Power Sector.

As a part of the ongoing reforms process in the state power sector, in the year 2003, the Government of Gujarat under the provisions of Gujarat Electricity Industry (Re-Organization & Regulation) Act, 2003 framed the Gujarat Electricity Comprehensive Transfer Scheme, 2003 (the Transfer Scheme) vide Government Notification on 24th October, 2003. Assets of the GEB were disaggregated into six companies – One each in Generation and Transmission and Four in Distribution. As a part of the above exercise, all the generation plants of GEB have been transferred to GSECL, which was a company already, existing since 1993.

Subsequently, the Government of Gujarat vide Notification dated 31st March, 2005 notified that pursuant to the Transfer Scheme, the effective date for the transfer of assets, liabilities, proceedings and personnel be further extended to 1st April, 2005. A holding company, Gujarat Urja Vikas Nigam Limited (GUVNL), has been also been formed. Apart from co-ordination functions, GUVNL is also handling Trading and Bulk Supply functions.

GETCO provides the pathway for power within whole of Gujarat. It owns, builds, maintains and operates the high-voltage electric transmission system that helps to keep the lights on, businesses running and communities strong. The customers of GETCO includes electricity generators, distribution

companies and open access consumers who count on it to deliver power from the location of generation to inter-phase point of Discoms enabling them to supply where it's needed in the homes and businesses they serve.

Physical Performance of GETCO

The transmission network is measured in terms of circuit kilometer (Ckt. Km), which is the route kilometers of revenue producing circuits in service, determined by measuring the length in terms of kilometers, of actual path followed by the transmission medium. The total Extra High Voltage (EHV) Transmission network of the State as on March, 2014 was 50131 Ckt.km (circuit km) which has increased to 61056 Ckt.km upto March, 2018. The total Transmission network has increased by 21.79 per cent from 2013-14 to 2017-18. Transmission network in the State is shown in the following tables:

Table 1: Transmission Network in Gujarat

(In Ckt. Km)

Year/ Voltage	2013-14	2014-15	2015-16	2016-17	2017-18
765 KV	-	-	-	-	-
400 KV	3906	4052	4301	5015	5497
220 KV	16276	16987	17847	18805	19476
132 KV	5003	5073	5333	5436	5448
66/33KV	24946	26430	27987	29251	30635
Total	50131	52542	55468	58507	61056

Source: Annual Reports of GETCO

Table 2: Number of EHV Sub-Stations in Gujarat

Year/ Voltage	2013-14	2014-15	2015-16	2016-17	2017-18
765 KV	-	-	-	-	-
400 KV	11	12	13	14	15
220 KV	88	94	99	99	99
132 KV	51	54	55	56	58
66/33 KV	1320	1410	1503	1601	1697
Total	1470	1570	1670	1770	1869

Source: Annual Reports of GETCO

Operational Performance of GETCO

It has been a general trend in Gujarat, as well as all over India, that power sector companies are burdened with huge accumulated losses with countable exceptions. Fortunately, GETCO is one of those exceptions, having continuous profits.

The revenue from operations have continuously increased from Rs.2231.18 crore in FY 2013-14 to Rs.3537.38 crore in FY 2017-18, with an exception in FY 2015-16, when it fell by 1.85% to Rs.2459.40 crore. However, total revenue has shown an increasing trend.

Moreover, in case of profit after tax, there was a decreasing trend ultimately reversing in FY 2017-18 with significant increase in profit after tax. In the year 2013-14, profit after tax was Rs.320.59 crore which continuously fell to reach at Rs.81.42 crore in FY 2016-17 but increased in FY 2017-18 to reach at Rs.297.37 crore.

The transmission losses have been increasing in all these years except FY 2017-18. It was 3.57% in 2013-14 and 3.72% in FY 2017-18. The figures have been summarized in table as below:

Table 3: Summary of Operations

(In Rs. Crore)

Year/ Particulars	2013-14	2014-15	2015-16	2016-17	2017-18
Revenue from Operations	2231.18	2505.65	2459.40	2709.60	3537.38
Total Revenue	2255.91	2569.83	2694.30	2935.26	3728.03
Profit/(Loss) After Tax	320.59	288.58	188.65	81.42	297.37
Transmission Losses within state (%)	3.57	3.65	3.68	3.85	3.72

Source: Annual Reports of GETCO

Conclusion

Thus, based on the above discussion, it can be inferred that GETCO is working hard to provide reliable electric transmission service within the state. As a public utility its infrastructure serves as the link in transporting electricity to millions of electricity users. GETCO is planning and co-coordinating relating to intra-state transmission with all concerned agencies such as central transmission utilities, State Govt., generating companies, licensees, Regional Power Committees etc. It ensures development of an efficient, co-ordinated and economical system of intra-state transmission of electricity from generating stations to Load Centers. Moreover it is providing non-discriminatory Open Access to its transmission system on payment of transmission charges

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