Financing and Investment Plans and Progress in Karnataka Power Corporation Limited.

ANANTANAGA H P
Assistant Professor of Commerce,
Govt First Grade College
HARIHARA – 577 601,
Davangere District, Karnataka.

Abstract:

Nothing moves without power and power does not move without finance. Hence, financial management has a vital role in the power sector. The power sector of India is plagued of several inherent bottlenecks like scarcity of energy resources, high T&D losses, dearth of huge funds, long gestation period, poor management, socio-economic and environmental issues etc. However, for the last two decades, there is an upward trend in urbanization, industrialization, IT boom and in agriculture sector in India. To cope up with this growth trend, the power sector of Karnataka has not been grown parallelly. Therefore, to remove such gaps and hurdles, the Electricity Act 2003 has opened up plethora of opportunities to investors. It is encouraging competition through various policies and government decisions. Hence, in order to support the economic growth in Karnataka, the power sector needs more investment in all segments of the system. Karnataka Power Corporation Limited (KPCL) is one of the state owned electric utilities which hold more than half of the total installed capacity of the State as of FY 2006-07 and supplying more than 70 percent of electricity to the consumers in the State. To assess the financial health and operational performance of the KPCL, a research study has been conducted for a period of five years (FY 2002-2007). The suggestions that were received from respondents (senior officers of KPCL) have been discussed here. The results which are arrived from analysis of the operational and financial performance of the corporation are narrated here. The performance of the KPCL is compared with the major power generation companies of India like NTPC Limited, Reliance Energy Limited, the TATA Power Company Limited, NHPC and APGENCO. Many findings and suggestions for improve of financial and operational performances of KPCL have been analyzed in this research study.

1. **Merton Miller H and Franco Modigliani** (1966) in *Some Estimate of the Cost of Capital to the Electric Utility Industry* have attempted to develop effective methods for inferring the cost of capital relevant for optimal investment decisions. These decisions are to be based on the market value of securities. The study also presents some actual estimates of the cost of capital for a sample of large electric utilities for the years from 1954–57. The scholars demonstrated that the two-stage instrumental variables approach

developed in the study can be an effective way of dealing with the problems caused by errors in measurement of expected future earnings. This problem bears a major share of the responsibility for the meagre progress in empirical research on this front to date. The estimates of cost of equity capital and of the average cost of capital differ considerably both in level and movement during the sample period from the conventional kinds of yield estimates so widely used in economics and finance.

Introduction:

The calculation of future earnings has always been a thorny issue in the power sector and considering the huge investments involved, the errors in calculation can make or mar companies or even small states. The research study analyses this aspect and suggests methodologies to overcome this lacuna. But considering that this study was conducted in America about 45 years ago, the relevance and implications of this study cannot be agreed to in toto.

2. A **UNITED NATIONS** (1970) sub-committee on *Economic Commission for Asia and the Far East on Energy Resources and Electric Power* made a broad survey of the technical / economic problems involved in planning, designing and operating of thermal power plants. The study made pertinent observations such as about the consumption of electricity in developing countries which increases annually by about seven percent and doubles itself every ten years. The study concludes that Indian coal contains maximum sulphur content and its removal in the pre-combustion phase is uneconomical. In Japan, land is extremely scarce and therefore some of the modern thermal power stations have been built on land reclaimed from the sea. The study highlighted that in United States, the cost of movement of coal for thermal plants in a slurry pipeline compared favourably with other conventional modes of transport. For the critical project implementation schedule, the study suggested developing a “Critical Path Method” of project formulation and computerising the same.

The study gives an overview of the modus operandi obtaining in thermal power plants and their current problems. The study gives projections for the increase in consumption and provides methodologies that can be employed to meet the increasing demands in various countries.

Power or energy, is a core sector item. Power *empowers* developing countries. If one traces the growth achieved by the advanced economies, one will realise that power enabled them to fast forward their economic growth. Even in South Asia or for that matter South-East Asia, we find countries like South Korea overtaking the much larger economies like China and India on various parameters owing to their well-developed power sector, amongst other things. For

example, Karnataka produces around 9,600 megawatt (MW) of power but South Korea that has half of Karnataka's population produces a whopping 64,000 MW!

At the international level, India is among the least producers of power: it produces 1.5 lakh megawatt compared to 8 lakh mw by China and 11 lakh mw by USA. Hence power is an area that an emerging market economy (EME) like India has to focus on in a sustained manner whatever the difficulties it may face along the way. It may be recalled that one of modern India's best engineers and the modern-day Karnataka's chief architect Sir M Visweswarayya remarked, "Industrialise or Perish". None could have put it so succinctly. If Karnataka has to industrialise, it has to rev up the power sector failing which its economy will perish.

Objectives of the Study

The objectives of the study are to:

1. Analyze the performance of Karnataka's power sector.
2. Analyze the financial management practices of Karnataka Power Corporation Limited (KPCL)
3. Identify the problems associated with the financing and investment management practices of Karnataka Power Corporation Limited.
4. Examine the efficiency of asset-liability management practices and ascertain its financial impact on Karnataka Power Corporation Limited.

Suggest ways and means of improving KPCL's financing and investment practices to enhance the overall efficiency and profitability of the organization and make comparative analysis with peer corporates.

The gears of enterprise in Karnataka powered the nascent industrial activity as early as the year 1800, when the first sugar unit was set up. In 1902, Karnataka recorded another "mega-watt sized project first" - Asia's first Hydro Electric Power Station in Shivasamudram, on the banks of river Cauvery. In fact, Karnataka's pioneering spirit in the field of power has been translated into several major milestones. Karnataka was the first to embark on alternating current electricity, when Bangalore City's lighting scheme was completed.

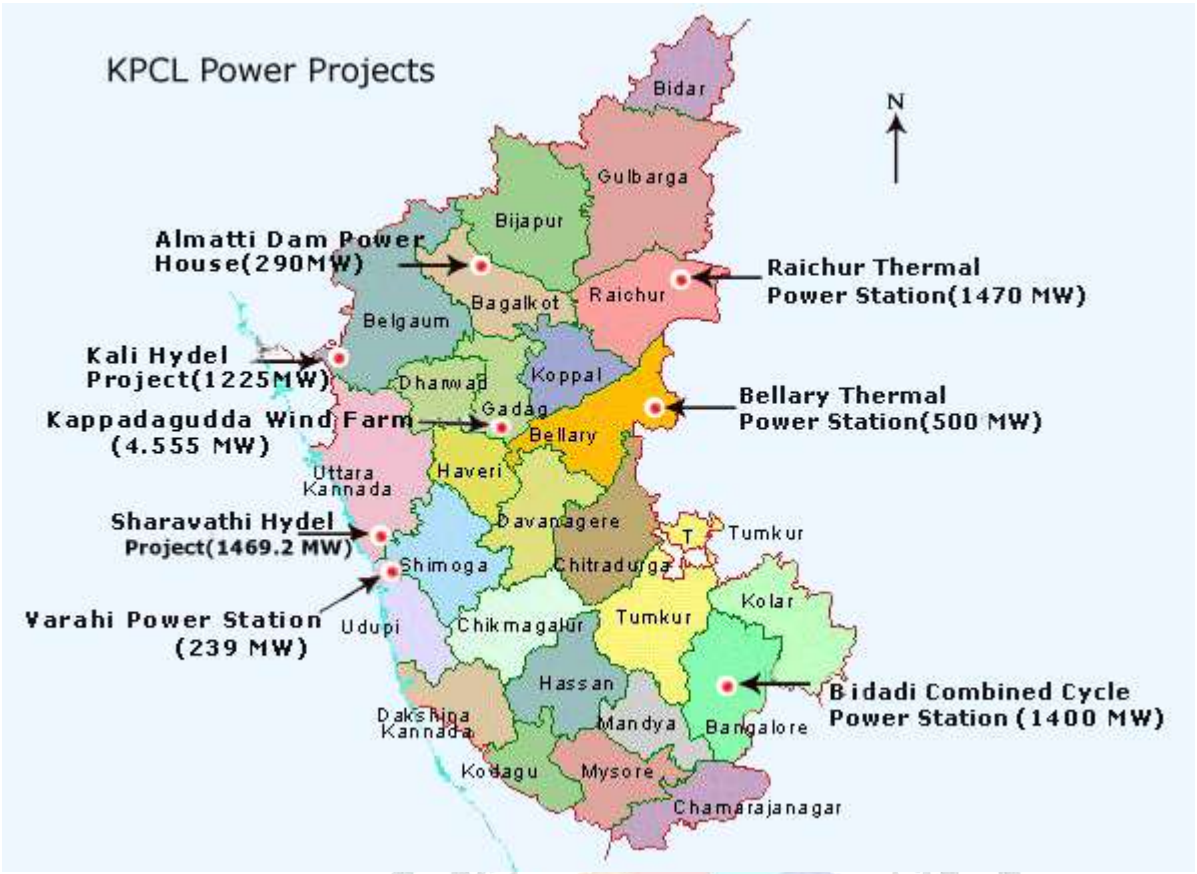
Karnataka boasted of the longest transmission line in the world in 1902, from Shivasamudram to KGF, covering a distance of 147 km and Karnataka was the first state in the country to conceive and set up a professionally managed corporation to plan, construct, operate and maintain power generation projects in the state. That is the legacy that KPCL started with and built on.

Mission and Aims of KPCL

KPCL seeks to touch higher vantage points in the world of power engineering and enunciates a formula to achieve this - *start with a world class organization, build in efficiency and cost control and ensure that progress is in harmony with the environment; e*xplore, identify and develop opportunities in power generation, devise innovative ways of setting up and operating power plants and invest in a resource base of technical competence, systems, processes and capability. These, along with empowering people, work teams and the support network to achieve these objectives are part of its success formulae. A pictorial representation of the KPCL's projects follows:

Figure-3.1

Power Projects of KPCL



KPCL has 34 dams (including the main, pick-up and saddle dams) and 24 power stations across the state with power production capabilities ranging from 0.35 MW to 1035 MW. The total installed capacity of KPCL is 5975.91 MW. The corporation has its thermal power station at Raichur and one more thermal project at Bellary of 500MW. The installed capacity of the thermal power station is 1470 MW (210 MW x 7 units). The total gross power generation per annum is in the order of 10,362 GWh at a plant load factor (PLF) of 80 percent and 11,589 GWh at a plant load factor of 90 percent.

Achievements

As stated in the foregoing paragraph, KPCL currently has 34 dams and 25 power stations across the state with profiles that range from 0.35 MW to 1720 MW. The total installed capacity logged by KPCL is 5975.91 MW across a project canvas that covers expansions, renovations and upgrading of existing plants. The following Table furnishes the power generation capacities of KPCL.

Table-3.1

KPCL Power Generation

Power Station	No of Units	MW	Total
Thermal + Diesel			
Raichur	7+1	210+250	1720
Bellary	1	500	500
Yelahanka	6	18	108
Hydel			
Sharavathy Project			
Linganamakki	2	27.5	55
Sharavathi	10	103.5	1035
Gerusoppa	4	60	240
Mahatma Gandhi Jog	4 4	21.60 13.20	139.20
Bhadra Left Bank	2 1	12 2	26
Bhadra Right Bank	1 1	7.2 6	13.20
Kalinadi Project			
Supa	2	50	100
Nagjhari	2 4	135 150	870
Kadra	3	50	150
Kodasalli	3	40	120
Varahi Project			
Varahi	4	115	460
Mani	2	4.5	9
Other Projects			
Almatti	1 5	15 55	290
Shivanasamudram	4 6	6 3	42
Shishma	2	8.6	17.20
Munirabad	2 1	9 10	28
Ghataprabha	2	16	32
Mallapur	2	4.5	9
Sirwar	1	1	1
Kalmala	1	0.40	0.40
Ganekal	1	0.35	0.35
Wind Project			
Kappadagudda	9 11	0.225 0.230	4.56
Solar Projects			
Yalesandra Solar PV Plant, Kolar Dist.	1	3	3
Itnal Solar PV Plant, Belgaum Dist	1	3	3
Total			5975.91

KPCL's Record Achievements

- Highest generation of 26635 million units (2006-2007).
- Highest thermal generation of 13263 million Units (2009-10).
- Highest Plant Load Factor (PLF) of 90.39 percent at Raichur Thermal Power Station (2002-2003).
- Highest capacity addition of 730 MW, in 2008-2009.
- Highest annual turnover of INR 3387 Crores (2006-2007), commissioning of Unit - 7 at RTPS in 25 Months - a national record.

The generation performance of KPCL is as furnished in the following Tables:

Table-3.2

Generation Performance of KPCL

Generation Performance					
Generation	2009-10	2008-09	2007-08	2006-07	2005-06
Thermal	13263	11717	10876	11484	9165
Diesel + Hydro + Wind+Solar	12757	13363	14737	15151	10724
Total	26020	25080	25613	26635	19889
Thermal Details					
Generation(MU)	13263	11717	10875	11484	9165
Aux.Consumption (%)		8.55	8.66	8.22	8.62
Plant Load Factor (%)		67.90	84.45	89.18	71.17
Specific Coal Consumption (KG/KWH)		0.646	0.643	0.658	0.660
Specific Oil Consumption (ML/KWH)		1.770	0.741	0.445	0.736

Overview of Related Financial Factors

Fixed Assets

Capital work-in-progress which was at INR 668.85 crore in FY 2002-03 increased to INR 2151.50 crore in FY 2006-07 which represents an increase of 221.67 percent. This signifies that

many fixed assets have been lying in the capital work-in-progress and many projects are under construction, renovation or modernisation. The fixed assets turnover ratio which was at 0.81:1 in FY 2002-03 decreased to 0.68:1 in FY 2006-07.

Current Assets

The current ratio which was at 3.19:1 in FY 2002-03 increased to 5.09:1 in FY 2004-05 and again increased to a high at 8.32:1 in FY 2005-06. However in the next FY 2006-07, the CR has been maintained at 3.72:1.

Sundry Debtors

Debtors Turnover ratio which was at 1.99:1 in FY 2002-03 came down to 1.32:1 in FY 2006-07 and correspondingly the average collection period increased from 183 days in FY 2002-03 to 276 days in FY 2006-07.

Consumption of Coal and Fuel

This represented 52.27 percent of the total turnover in FY 2002-03 and reduced further to 47.72 percent of total turnover in FY 2006-07. This is the major contributory component of the operation of RTPS.

Administrative and Other Expenses

This accounts for 24.14 percent of total turnover and 26.78 percent of total expenditure for the FY 2006-07. This is the highest over the previous five years because of factors like bad debts being written off, donation of assets, pension, gratuity, VRS etc.

Financial Charges

It represents 10.22 percent of total turnover and 11.32 percent of total expenditure respectively in FY 2006-07.

Depreciation

This works to about 9 to 10 percent of the total turnover. This is accounted as per the rates specified in the Electricity Supply Act 1948 but not as per the Electricity Act 2003.

Management Practice

The corporation has adopted professionalism in the management practices to meet the challenges of a competitive financial scenario in the power sector. The company practises cost consciousness and transparency in its day-to-day transactions. KPCL is consistently maintaining time and cost element in project execution benchmarking with the best in India and abroad. Financial and commercial systems are in place to ensure fair play for all stakeholders alike - whether they are vendors, contractors or lenders. The organisation focuses on obtaining lawful consents, permits and clearances for all activities. Contractors, suppliers and other business associates are expected to comply with the relevant legal requirements for smooth running of the business. The organisation is consistently upgrading the knowledge and skills of employees through continuous in-house training programmes. The corporation, as a public authority, has taken steps towards the compliance with the Right to Information Act, 2005. The corporation has created separate task forces to take up research and development activities in order to optimize generation from the existing power plants through improvements and adopting new technology for better efficiency. Level monitoring at Talakalale dam with GSM-based technology has been implemented for optimum usage of water resources.

Projects

Raichur Thermal Power Station (RTPS), an ISO-accredited power station

The Raichur Thermal Power Station is situated about 20 km north of Raichur. The plant consists of seven units of 210 MW capacities each. The annual generation is around 10,000 million Units. The units were commissioned during various periods starting from 1985. The latest (7^{th}) unit has state-of-the-art control systems. This unit was commissioned in a period of 25 months setting a new national record. The station has a zero-discharge water conservation system of ash-pond water. Roughly, seven million tonnes of coal are consumed by the station every year. Coal sampling is done by the mechanical auger system.

The station has a modern oxidation pond. The station has been accredited with ISO 14001 - 2004 for environmental protection management. Going forward, one more unit of 250 MW will be put up shortly.

Sharavathi Hydro-Electric Plant

Sharavathi Generating Station: Originating at a height of 730 m near Ambuthirtha, in Shimoga district, the Sharavathi river flows in a north-west direction. In its long, 132-km journey, the Sharavathi is joined by several tributaries. The Sharavathi Hydro-Electric Project is today the backbone of Karnataka's power generating arsenal. The Sharavathi Generating Station with its 10 Units has an installed capacity of 1035 MW and the Linganamakki Dam Powerhouse with 2 units has an installed capacity of 55 MW. To further tap the potential of the Sharavathi river, KPCL has installed at the Gerusoppa Dam Project, four generating units of 60 MW each. The unique feature of the Sharavathi Project is the establishment of a 1035-MW resource under one roof, with an annual yield of 5000 MU. The project has used equipment from US, Canada, France, Japan and other specified markets. The generating units have been recently renovated and upgraded. The KPCL blueprint identifies Sharavathi as its "Master Station" – a head point that will control all peripheral stations through a nodal monitoring system. The prime objective here is to optimise power generation through a systematic integration of several reservoirs and water-conductor systems. A visual representation of this paradigm power plant follows:

Findings and Conclusions Emerging from KPCL's Financial Statements

- ✓ The gross income from sale of energy has been inconsistent and the compounded annual growth rate (CAGR) of gross income from sale of energy during the period under review is 8.94 percent.
- ✓ Profit after tax (PAT) has exhibited, to some extent, a similar trend - inconsistent. However, since fiscal 2008-09, PAT has been rising, peaking at INR 525 crores during fiscal 2010-11. The compounded annual growth rate (CAGR) of PAT during the period is a healthier 14.01 percent.
- ✓ The compounded annual growth rate or CAGR indicates that thermal power generation has grown by 9.68 percent while power generation from other sources has grown by only 4.44 percent. Neither CAGR is impressive.
- ✓ The rather high levels of current ratio namely, 5.10, 7.44, 3.72, 4.33, 1.23 and 7.60 respectively for the fiscal years 2005-2010 indicate poor financial management. Only in the year 2009, it was normal by Indian standards.
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- ✓ The fluctuation in the gross profit margin – from a minimum of 9.44 percent to a maximum of 16.65 percent suggests the inconsistency surrounding the gross profit margin in the case of KPCL.
- ✓ The net profit margin, in percentage terms, was 9.64, 9.98, 9.39, 6.16, 6.69 and 9.92 respectively for the fiscal years 2005-2010. The margin is characterised by inconsistency.
- ✓ The fixed assets turnover ratio was 0.59, 0.69, 0.61, 0.70 and 0.66 respectively for the fiscal years 2006-10 which fails to impress the analyst.
- ✓ The total assets turnover ratio was 0.37, 0.45, 0.41, 0.43 and 0.38 respectively for the fiscal years 2006-10 which fails to impress the analyst.
- ✓ The return on assets, in percentage terms, was 3.71, 4.23, 2.53, 2.91 and 3.74 respectively for the fiscal years 2006-10 which fails to impress the analyst.
- ✓ Earning power, in percentage terms, was 10.11, 9.90, 8.14, 10.11 and 10.42 respectively for the fiscal years 2006-10 which fails to impress the analyst.
- ✓ RoE, in percentage terms, was 10.57, 12.06, 7.01, 8.03 and 10.08 respectively for the fiscal years 2006-10 which is not impressive. But then it is not bad either.