

Original Article

A Study on Economic Value Addition in Andhra Pradesh Power Generation Corporation Limited, India (APGENCO)

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Abstract: Electricity is essential for human survival and economic development. The power sector is not only the most important component of the infrastructure sector, but also crucial for development of all other infrastructure facilities, which is so important for overall development of the economy. Increase in production of electric power and reduction in cost of power together with proper distribution of power is important to sustain a high rate of economic growth and development. The aim of this research is to analyze the Economic Value Added (EVA) in Andhra Pradesh Power Generation Corporation Limited (APGENCO) for a period of 13 years. The present study is designed to make an attempt to understand the concept of EVA and its impact on APGENCO, which is a state owned organization in Andhra Pradesh, India. The analysis of the study indicates that EVA is better indicator to understand the wealth maximization of a company and increased value of shareholders wealth. EVA has applied as an indicator to understand the wealth maximization of APGENCO during the study period EVA was negative because of capital investment on new projects commenced from 2005-06 but revenues yielded from those projects commenced from 20010-11. EVA of APGENCO is low according to its size of capital and company should strive for more operating profits.

Keywords: Power Generation, Economic Value, Electricity, APGENCO.

I. INTRODUCTION

Electricity is essential for human survival, and plays a crucial role in economic development. So energy production and consumption are some of the most important activities of human life. India views the power industry as a public good and essential component of the nation's infrastructure network. The power sector is not only the most important component of the infrastructure sector, but also crucial for development of all other infrastructure facilities – which is so important for over all development of the economy. Increase in production of electric power and reduction in cost of power together with proper distribution of power is important to sustain a high rate of economic growth and development. The purpose of this study is to examine the Economic Value Added (EVA) during a 13-year period at Andhra Pradesh Power Generation Company Limited (APGENCO). The goal of the current study is to attempt to comprehend the idea of EVA and how it affects APGENCO, a state-owned company in Andhra Pradesh, India.

II. ELECTRICITY REFORMS

APSEB was unbundled into APTRANSCO and APGENCO in February, 1999 according to Electricity Reforms Act, 1998. According to the memorandum of association, APGENCO is required to acquire, establish, construct, and operate power generating stations as of the beginning of its business operations on 1.2.1999. The former APSEB ceded management of all of its generating stations to APGENCO. As of March 31, 2013, APGENCO had an installed capacity of 8924.86 MW, which included 5092.50 MW of thermal power, 3829.36 MW of hydropower, 2 MW of wind power, and 1 MW of solar power. This capacity contributed to almost half of Andhra Pradesh's total energy needs. APGENCO is the third largest power generating utility in the segment of thermal power generation in the country, next to NTPC (capacity of 43128 MW) and MAHAGENCO (capacity of 7980 MW). Its installed hydropower capacity of 3892.36 MW is second only to NHPC's (5987 MW) national record. APGENCO is State owned organization having equity of Rs.2107 Cr, with net fixed asset base of Rs.14017.66 Cr and with 10751 dedicated employees. According to the recommendation of the High Level Committee, APGENCO has made a strategic decision to add at least 1,500 MW of new capacity each year over the next five years (Hiten Bayya Report 1995). Taking the social responsibility, the Energy Policy of GoAP aims to produce the power at cheaper rate and to provide reliable power to consumers at affordable price.

III. CONCEPT OF EVA

How well an organisation performs in respect to its goals is assessed by a successful performance metric. Performance metrics should assess this since it is typically thought that the main goal of commercial enterprises is to maximise the wealth of

their owners. Profit-based metrics are frequently used by enterprises as the main indicator of their financial performance. There are two issues with profit in this area:

- Profit disregards the expense of equity financing. Businesses can only become wealthy when they produce a return greater than the return demanded by stock and debt investors. The cost of debt financing is considered in the financial accounts when calculating profit, whereas the cost of equity financing is not taken into consideration.
- Accounting standards-based profits are susceptible to manipulation by accountants and do not accurately reflect the wealth that has been created.

Because it takes into consideration the total cost of capital, the EVA concept is preferable to the accounting profit idea as a tool for value creation (Bardia, S.C.) (2002). EVA is a performance indicator as well as a value indicator. Investors' expectations for the company's future profits determine a business's worth. EVA is far more strongly correlated with stock prices than are earnings per share or return on equity. The market worth of the company will rise as long as EVA continues to rise. Economic Value Added compels a firm to create shareholder value as a performance indicator. The usage of capital is subject to high fees under the EVA strategy. Companies with an EVA focus on increasing the net cash return on invested capital. (1999, Michael Durant)

A measurement method called Economic Value Added (EVA) gives a clear picture of whether a company is increasing or decreasing shareholders' wealth. EVA gauges a company's capacity to generate profits above its actual cost of capital. EVA measures the profit that is left over after achieving a required rate of return on capital by fusing the idea of residual income with the notion that all capital has a cost. A company is creating wealth for its owners if its earnings are higher than its true cost of capital. By concentrating the entire organisation on tasks that result in outcomes valued by shareholders, EVA can add a lot of value to a business. The financial institution is uniquely qualified to offer advice that will guarantee the proper implementation of this new measure because it has a solid understanding of EVA. (Stephens et al 1997)

A) Definition of Economic Value Added

The origin of the term "economic value added" (EVA) has sparked a controversy on the topic. It is based on the research of Professors Merton H. Miller and Franco Modigliani. These two finance professors wrote "Dividend Policy, Growth and the Value of Shares," which was published in the Journal of Business in October 1961. In this article, the concepts of free cash flow and cash-basis company appraisal were developed. Bennett Stewart and Joel Stern of Stern, Stewart & Company expanded on these concepts to create the idea of EVA. "Net operating profit after taxes and after the cost of capital" is the definition of economic value added. The rate of return needed by shareholders and lenders to fund a company's activities is known as the cost of capital. When revenue outpaces operating expenses and capital costs, the company makes money for its stockholders. The corporate community is very interested in EVA. This financial tool favours debt financing, which is clear from its fundamental formula, which uses the weighted cost as the cost of capital and, as a result, makes equity less expensive than debt in part due to the tax deduction for interest (Blair 1997). EVA can be used for more than just gauging an organization's financial performance. It can also be a tool for communicating with shareholders and creating manager incentive programmes. (Rajeshwar 1997)

B) Objective of the study

To examine the idea of Economic Value Added and how it affects APGENCO

C) Methodology

The research is supported by secondary data. The secondary data was gathered from APGENCO yearly reports. EVA was used to examine the data that had been collected. The analysis of the Economic Value Added concept and its effects on APGENCO's performance is the exclusive focus of the study.

D) Period of the study

The 13-year research spans the years 2000–01 to 2012–13. The reason for selecting this period was that the APGENCO was established through unbundling of APSEB 01.02.99. Hence, the study covers from starting of the Tariff regime of APGENCO.

E) Calculation of EVA

Because it proposes profit adjustment by the capital cost, EVA is an indicator for assessing corporate performance in a different way than the other indicators that were in use prior to its introduction to the market. (Black Andrew, 1998) EVA is calculated as below;

$$\text{EVA} = \text{NOPAT} - C \times k$$

Where:

$\text{NOPAT} = \text{PAT} + \text{Interest on Debt}$

$C = \text{Weighted Average Cost of Capital (WACC)}$

$K = \text{Capital employed (Net worth + Long term loans)}$

The results of the economic value added approach provide a response to the query regarding the efficiency of capital usage and growth in firm value. We will examine three different interpretations of the connection between the EVA indicator's value and investor behaviour (Fernandez, 2002):

- 1) If $\text{EVA} > 0$, value creation takes place because the relevant corporation or its departments profit more than the capital's weighted average value. The EVA value's positive value indicates effective capital management and serves as a gauge of value growth.
- 2) If EVA is zero, the examined company or its departments profit exactly as the capital cost level, i.e., they are worth exactly what they were when investments were made in them. This is a noteworthy quality because the business owners were able to recoup their investment and cover the expected risk.
- 3) If $\text{EVA} < 0$, the company under analysis or some of its divisions fail to recoup the capital expenditure. Investors may have taken the same risk and made a bigger reward somewhere else. An inefficient use of capital and a decline in the value of the company are both indicated by the EVA indicator's negative value.

F) Application of EVA in APGENCO

As a result of power sector reforms in India, APSEB was unbundled in 1999 into APTRANSCO and APGENCO under Andhra Pradesh Electricity Reforms Act, 1998. Incorporated under the Companies Act of 1956, APGENCO started doing business on January 2, 1999. The memorandum of association mandates that APGENCO acquire, establish, build, and operate power producing facilities. The former APSEB ceded management of all of its generating stations to APGENCO. As of March 31, 2013, APGENCO had an installed capacity of 8924.86 MW, which included 5092.50 MW of thermal power, 3829.36 MW of hydropower, 2 MW of wind power, and 1 MW of solar power. This capacity contributed to almost half of Andhra Pradesh's total energy needs. EVA applied as an indicator to understand the wealth maximization of APGENCO. EVA was calculated for the study period FY 2000 – 2013 is as mentioned hereunder;

Step – I: Calculation of NOPAT of APGENCO

Table – 1.1 NOPAT

Year	PBIT (A)	Interest on Debt (B)	PBT (C)=A-B	Tax (D)	PAT (E)=C-D	Interest on Debt (F)	NOPAT (G) =E+F
2000-01	905.00	1055.00	-150.00	0.00	0.00	1055.00	1055.00
2001-02	1011.00	1107.00	-96.00	0.00	0.00	1107.00	1107.00
2002-03	1068.00	1007.00	61.00	0.00	61.00	1007.00	1068.00
2003-04	1087.00	1077.00	10.00	5.00	5.00	1077.00	1082.00
2004-05	908.87	819.48	89.39	0.00	89.39	819.48	908.87
2005-06	855.90	721.94	133.96	37.76	96.20	721.94	818.15
2006-07	867.58	580.71	286.86	70.92	215.94	580.71	796.66
2007-08	1002.48	657.52	344.96	135.86	209.10	657.52	866.62
2008-09	1184.15	671.65	512.50	147.32	365.17	671.65	1036.83
2009-10	1286.45	801.70	484.75	266.04	218.71	801.70	1020.41
2010-11	1878.84	1369.23	509.61	196.09	313.52	1369.23	1682.75
2011-12	2414.41	1649.36	765.05	196.39	568.66	1649.36	2218.02
2012-13	2622.99	1724.28	898.71	363.53	535.18	1724.28	2259.46

Source: compiled and calculated from annual reports

Step – II: Capital Structure of APGENCO

Capital structure of APGENCO consists of Equity share capital including Reserves & Surpluses but excluding fictitious assets.

Table – 1.2 Capital Structure of APGENCO

Year	ESC and R&S (Cr)	Long term Debt(Cr)	Total Capital(Cr)
2000-01	1751.08	8161.83	9912.91
2001-02	1678.58	8904.73	10583.31
2002-03	1726.05	8974.37	10700.42
2003-04	1852.56	9036.54	10889.11
2004-05	1902.94	8798.88	10701.82
2005-06	1965.98	8792.25	10758.24
2006-07	2116.99	9372.20	11489.19
2007-08	2304.44	11092.70	13397.13
2008-09	2550.89	13082.17	15633.06
2009-10	2847.32	14553.25	17400.57
2010-11	3160.54	14768.80	17929.34
2011-12	3562.06	15571.34	19133.40
2012-13	3998.64	13892.03	17890.67
Total	31418.08	145001.09	176419.17

Source: Compiled and calculated from annual reports

Based on the above capital mixture weights can be calculated as below;

Average of Equity Capital including Retained earnings = Total of ESC with R&S / No of Years

Average of Equity Capital including Retained earnings = 31418.08 / 13 = Rs. 2416.78Cr

Average of Long Term debt = Total of Long term loan / No of Years

Average of Long Term debt = 145001.09/13 = Rs. 11153.93

Weighted Average Debt = Average Debt / Total of Average Capital

Weighted Average Debt = 11153.93 / (11153.93+2416.78) = 0.82

Weighted Average Equity = 2416.78 / (11153.93+2416.78) = 0.18

Step – III : Calculation of Cost of Debt

Cost of debt was determined for the research period based on interest paid by APGENCO and the typical cost of debt taken into account for WACC calculation.

Cost of Debt = Interest on Long Term Loan / Long Term Loan

Table – 1.3 Cost of Debt of APGENCO

Year	Interest (Cr) A	Long term Debt (Cr) B	Cost of Debt (%) A/B*100
2000-01	1055.00	8161.83	12.93
2001-02	1107.00	8904.73	12.43
2002-03	1007.00	8974.37	11.22
2003-04	1077.00	9036.54	11.92
2004-05	819.48	8798.88	9.31
2005-06	721.94	8792.25	8.21
2006-07	580.71	9372.20	6.20
2007-08	657.52	11092.70	5.93
2008-09	671.65	13082.17	5.13
2009-10	801.70	14553.25	5.51
2010-11	1369.23	14768.80	9.27
2011-12	1649.36	15571.34	10.59
2012-13	1724.28	13892.03	12.41

Source: compiled and calculated from annual reports

Average Cost of Debt % = Total of Cost of Debt / No. of Years

Average Cost of Debt % = 121.06/13 = 9.31%

Step – IV: Weighted Average Cost of Capital

Based on the individual costs of each capital component and weights, the weighted average cost of capital was computed (Proportions). Specific cost of debt (k_d) is taken based on average cost of debt and for which tax advantage

considered @ 30 per cent. Specific cost of equity (k_e) is taken based on statutory provision mentioned by APERC in Regulation 1 of 2008. As per regulation ROE allowed by the commission is 15.50 per cent.

Table – 1.4 WACC of APGENCO

Component of Capital	Specific Cost (Pre Tax)	Specific Cost (After Tax)	Weights	Weighted Cost
Cost of Debt (k_d)	9.31%	6.517%	0.82	5.30%
Cost of Equity (k_e)	15.50%	15.50%	0.18	2.80%
WACC				8.10%

Step – V: Economic Value Added (EVA)

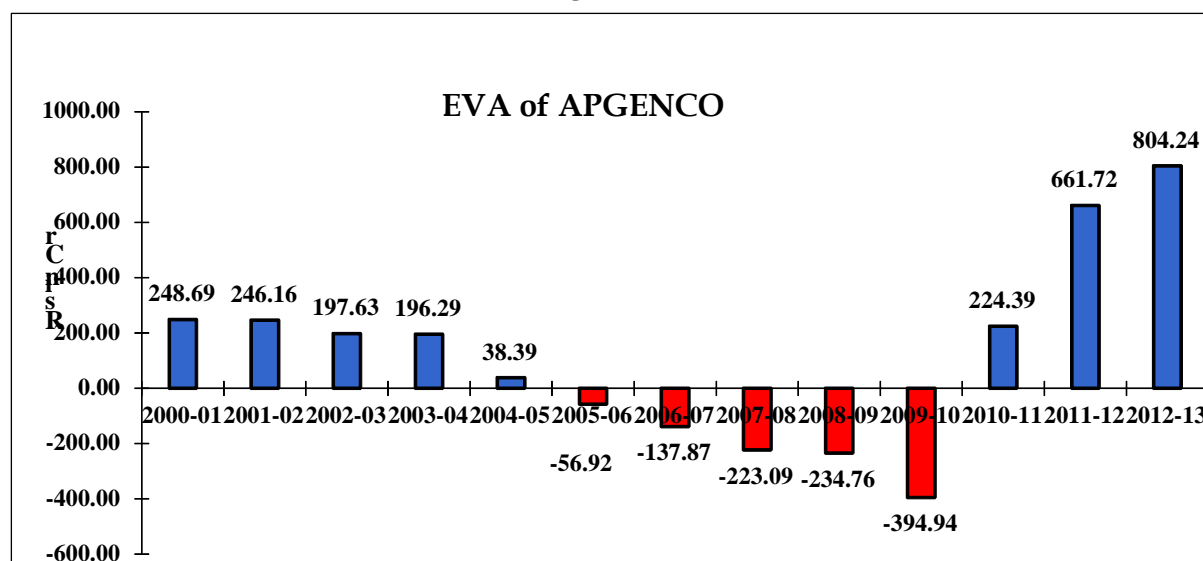
The excess of NOPAT over and above the weighted average cost of capital is what is referred to as economic value added. Cost of weighted average capital calculated @ 8.10 per cent on total capital of APGENCO is as mentioned above in the Table no 1.4 EVA of APGENCO is calculated as below;

Table – 1.5 EVA of APGENCO

Year	NOPAT A	Total Capital B	Cost of WACC @ 8.10% C = B*8.10%	Annual EVA D = A-C	Ratio of NOPAT to Total Capital E = A/B*100	WACC F	Value Added G=E-F
2000-01	1055.00	9912.91	806.31	248.69	0.11	0.08	0.03
2001-02	1107.00	10583.31	860.84	246.16	0.10	0.08	0.02
2002-03	1068.00	10700.42	870.37	197.63	0.10	0.08	0.02
2003-04	1082.00	10889.11	885.71	196.29	0.10	0.08	0.02
2004-05	908.87	10701.82	870.48	38.39	0.08	0.08	0.00
2005-06	818.15	10758.24	875.07	-56.92	0.08	0.08	-0.01
2006-07	796.66	11489.19	934.52	-137.87	0.07	0.08	-0.01
2007-08	866.62	13397.13	1089.71	-223.09	0.06	0.08	-0.02
2008-09	1036.83	15633.06	1271.58	-234.76	0.07	0.08	-0.02
2009-10	1020.41	17400.57	1415.35	-394.94	0.06	0.08	-0.02
2010-11	1682.75	17929.34	1458.36	224.39	0.09	0.08	0.01
2011-12	2218.02	19133.40	1556.30	661.72	0.12	0.08	0.03
2012-13	2259.46	17890.67	1455.22	804.24	0.13	0.08	0.04

Source: Compiled and calculated from annual reports

Figure -1.1



The above table 1.5 reveals that highest EVA of APGENCO was recorded at Rs.804.24 Cr in the FY 2012-13, during the study period. This is followed by Rs. 661.72 in the FY 2011-12. EVA at the beginning of the study period was Rs. 248.69; subsequently it started decreasing and went to negative side from FY 2005-06. The reason for negative EVA was component of term loan increased in the capital mix for addition of new capacities without addition of capital infusion by the GoAP and these

new capacities started generating revenues from FY 2010-11 onward. Therefore, EVA was reported in positive and has shown rapid growth. Positive EVA represents increase in the wealth of shareholders and it is a good sign for better performance in future.

IV. FINDINGS AND SUGGESTIONS

1. It is observed that present capital mix consisting of borrowed capital 82 per cent, and 18 per cent equity shareholders funds. As per industry specification debt-equity mix should be 70:30. Therefore, APGENCO holding high debt contribution which is 12 per cent above the standard and it leads to high geared situation.
It is suggested that APGENCO either has to make request for further capital infusion or raise the equity through public issue.
2. It is observed that APGENCO could raise high cost loans during the study period which resulted to weighted average specific cost of debt was 9.31 per cent. High cost of debt causes to decrease the EVA.
It is suggested that APGENCO should raise the debt by issuing of bonds/debentures at lowest market.

V. CONCLUSION

EVA is a superior method of creating value than accounting profit since it takes the total cost of capital into account. EVA is better indicator to understand the wealth maximization of a company and increased value of shareholders wealth. EVA has applied as an indicator to understand the wealth maximization of APGENCO during the study period 2000-13. EVA of APGENCO was shown down trend from 2000-01 to 2009-10, and EVA was negative between 2005-06 and 2009-10. EVA was negative because of capital investment on new projects commenced from 2005-06 but revenues yielded from those projects commenced from 20010-11. EVA of APGENCO is low according to its size of capital and company should strive for more operating profits.

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