

A Review Of Indigenous Manufacturers In Power Sector

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Abstract: Power is essential for development of any country. Power projects are highly capital intensive. There are few executors in the power sector. The paper analyses the power projects in the ninth plan to the eleventh plan according to the executors of the project. Indigenous manufacturers and foreign manufacturers of power equipment have been compared in this paper.

Keywords: Power Projects, Executors, BHEL, Chinese, Indigenous, Ninth, Tenth and Eleventh plan

Introduction

Executors are the agency responsible for supplying the main plant order which is the boiler, turbine and generator and its associated auxiliaries. They have been divided into three types, **BHEL**, **Chinese** and **others** which include Siemens, L&T, ABB, and others. Mainly Equipment is supplied by BHEL. Chinese suppliers are being engaged by mostly Private power generators. The reasons for time and cost overruns have also been analyzed.

Data

233 projects were analyzed for time and cost overruns executor wise for the 9th Plan to 11th Plan (till August 2011) by means of charts and descriptive statistics. The reasons for cost and time overruns for the projects were also analyzed by pareto chart.

Cost Overrun in Percentage (COR %) was calculated as the ratio of cost overrun and the originally planned cost of the project multiplied by hundred.

Time Overrun in Percentage (TOR %) was calculated as the ratio of time overrun and planned duration of the project multiplied by hundred.

Table 1. Data Set 233 Projects (90.1%) of Capacity addition in 9th, 10th and 11th plans**Source: CEA**

Factors		9 th Plan		10 th Plan		11 th Plan		Total Cap Added mw	%
Executor Type	Bhel	26	4980.5	38	6217.8	73	23159.0	34357.3	62.5
	Chinese	0	0	0	0	35	12556.0	12556	22.9
	Others	24	2210.8	18	1709.6	19	4115.7	8036.1	14.6

Findings

Analysis of time and cost overruns of the power projects executor wise shows that time and cost overruns are least for Chinese projects (Table 2,3 Figure 1,2). This is mainly due to the fact that major executor is BHEL then Chinese and lastly other executors. Time overruns for projects of BHEL are more as they have too many orders and it is difficult to execute all of them on time. Chinese suppliers have got easy entry into India with their cost-effective equipment. Projects are facing delays because of poor logistics in equipment handling in ports in India. Chinese professionals faced lot of visa problems too. The main drawback of Chinese equipment is that the manuals of machines are in Chinese and we have to rely on them for any problem that arises. Moreover, India has compromised its energy security by importing equipment from China. Other executors are not as efficient as the Chinese suppliers as their time overruns are more (Figure 2). Median of cost overrun in percentage terms is the least for Chinese executors (Table 2).

Table 2: Analysis of COR% by Executor Type

Descriptive Statistics: COR%

Variable	Executor Type	N	Mean	Std. Deviation	Minimum	Median	Maximum
COR%	BHEL	137	28.06	75.68	-16.91	2.72	584.19
	Chinese	35	5.20	11.11	-15.07	2.13	33.68
	Others	61	54.0	139.9	-5.3	21.8	654.2

Figure 1: COR% by Executor Type

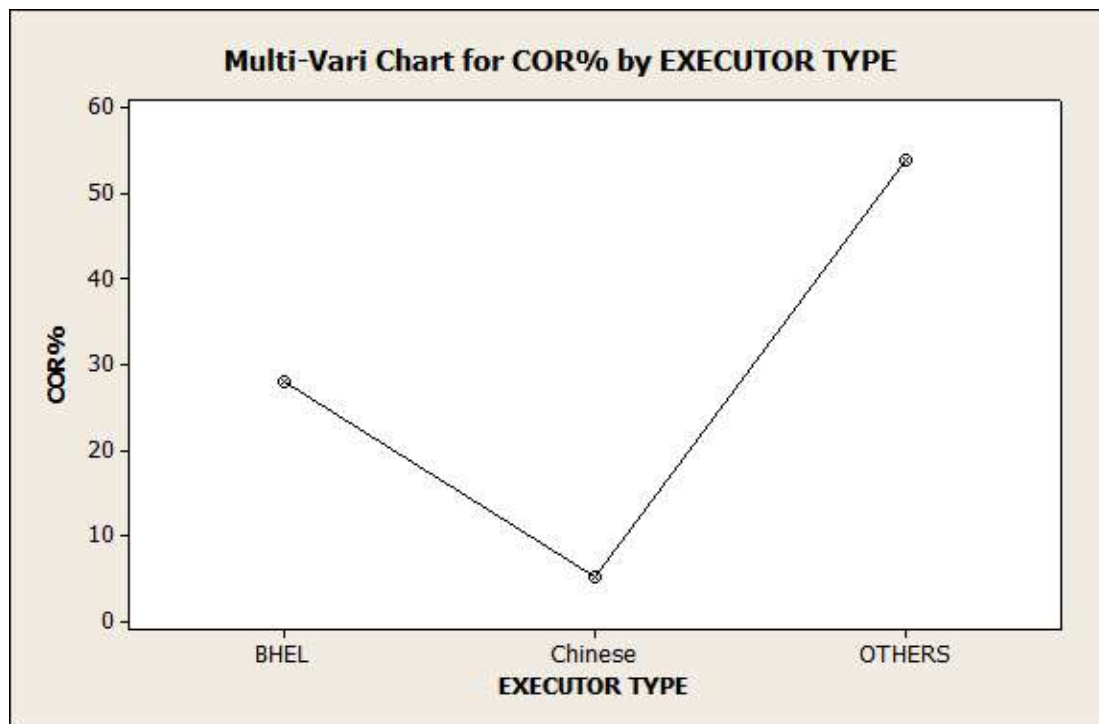


Table 3: Analysis of TOR% by Executor Type

Descriptive Statistics: TOR%

Variable	Executor Type	N	Mean	Std. Deviation	Minimum	Median	Maximum
TOR%	BHEL	137	37.81	73.01	-21.03	12.79	350.14
	Chinese	35	15.43	16.26	-5.81	10.29	49.43
	Others	61	65.05	55.32	-3.28	57.04	189.25

Figure :2 TOR% by Executor Type

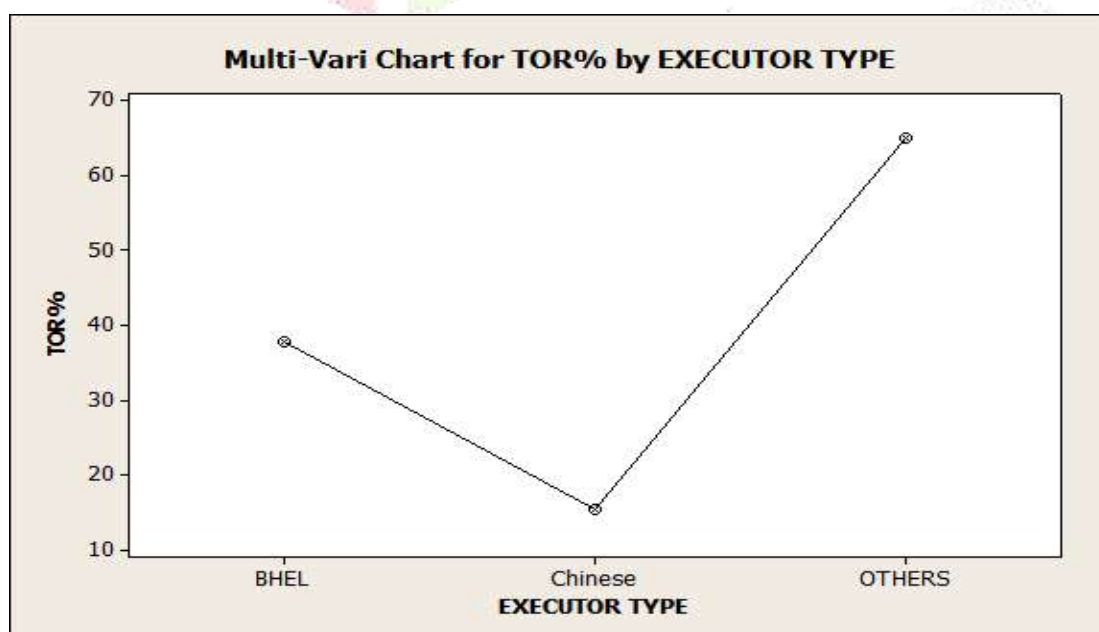
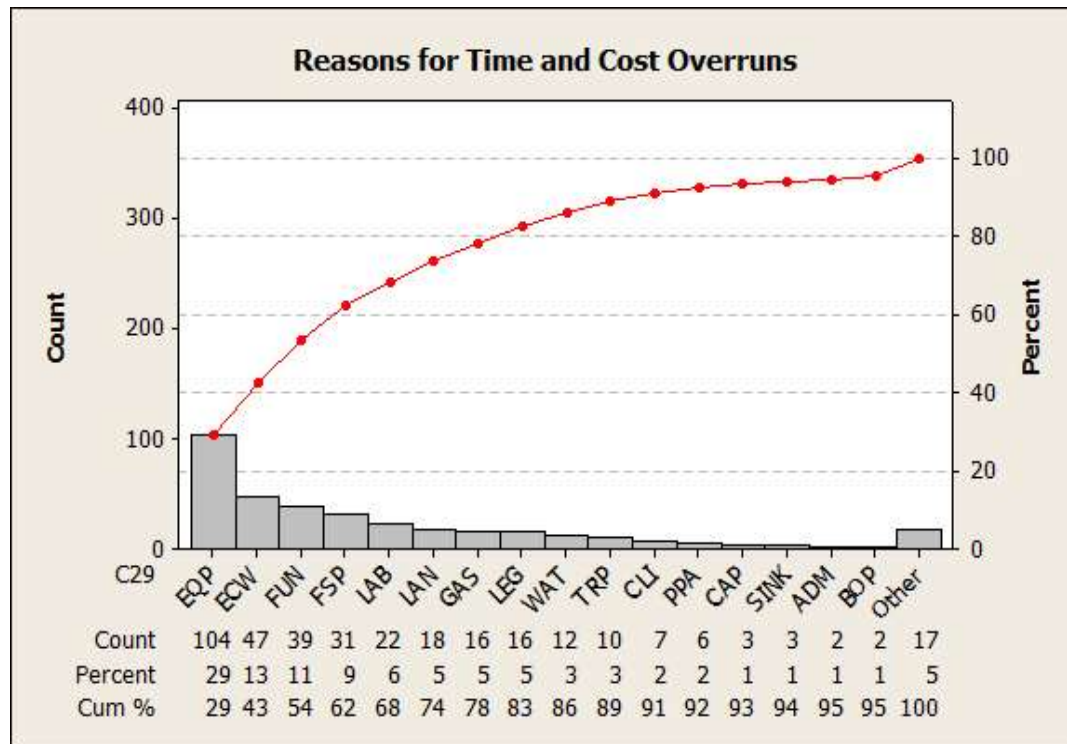


Figure 3: ANALYSIS FOR REASONS FOR TIME AND COST OVERRUNS

EQP= Equipment; ECW= Execution of civil work; FUN= Funds; LAB=Labor; GAS=Fuel; LEG=Legal; WAT=Water; TRP=Transport; CLI=Climate; PPA=Power Purchase Agreement; CAP=Capacity Change; SINK=Sinking of Vessel in sea; ADM=Administration; BOP=Balance of Plant

The above Pareto chart (Figure 3) shows major reasons for delay collated from reasons of individual projects. Major issues are equipment delay from Original Equipment Manufacturers (OEM), delay in execution of civil work, funds issue, labor problems, availability of fuel (gas), legal issues and availability of water. Reasons for cost overruns are mainly related to equipment suppliers.

Conclusion

Reasons for time and cost overruns are mainly related to equipment suppliers. Also, other major factors include execution of civil works, funds issues, foreign supplier problems, lack of skilled labor, land acquisition issues, fuel availability and legal disputes between parties. Visa and port issues can be easily resolved. Indigenous manufacturers of main plant (boiler, turbines and generators) and balance of plant equipment should be promoted so that energy security of India is not compromised. The indigenous manufacturers of plant equipment should improve their products and make them globally competitive. If the cost and time overruns of power projects can be minimized then India's economic development will get a tremendous boost.

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