Benchmarking: Conventional and Combined Cycle Power Plant O&M Cost & Technical Performance

Acronym: Benchmarking cost & Performance

ETD Proposal No: 1395-gsp-prop15

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1. INTRODUCTION

Plant efficiency and cost are the two most important parameters that define clearly the operation & maintenance performance of power plants. In the world there are numerous conventional power plants and combined cycle gas turbine plants. All of them work for a common goal, production of electrical energy and timely supply of that energy to the pool. In order to be competitive and meet the large demand of electrical energy it is necessary for production to be as efficient and economical as possible. One of the easiest ways to identify and classify the effectiveness of the policies and strategies implemented by a particular utility is to compare operation and maintenance parameters with other similar plants and to aim for achieving what the best achievers in the pool studied can do.

Despite the large number of power plants that may be involved in such a study it can sometimes be difficult to compare/share information due to factors such as location, size, type of fuel, number of units, plant age, equipment type (e.g. manufacture, Equivalent Operating Hours (EOH), maintenance and inspection contracts), maintenance practices, organizational goals and most importantly, the type of operation (two-shifting, load following or base load). Factors such as these should be considered during the study of plant performance. Usually the direct exchange of information between utilities is not allowed due to the sensitivity of the operational data and company policy.

Fortunately ETD has developed a flexible procedure that allows normalising and comparing information from different plants without the necessity to identify the true origin of the data. The methodology establishes a pattern based on parameters such as operation, maintenance and management covering all aspects that allow calculating with accuracy the relative performance level of different power plants.

ETD’s methodology on Benchmarking is perhaps one of the most effective tools to analyse and share information regarding the cost and plant performance. It allows examination of individual circumstances and performances within groups of similarly-normalised power plants.

Benchmarking of power stations and other industrial plants is a very beneficial practice for plants trying to improve operation, maintenance, efficiency, cost reduction and other such factors. This can help the utilities to set targets for best achievable practices. This project will help plants to know how their plants compare with other successful utilities in order to set achievable targets for significantly improving their plant performance and reducing costs.

ETD has completed several projects related to cost analysis, using the above approach. The information later in this document shows, ETD has a record of successfully carrying out such
studies for utilities in Europe, USA, Canada and in Asia. It is therefore ideally placed to deliver these requirements for the benefit of owners, operators and shareholders.

2. OBJECTIVES & SCOPE

The overall aim of the project is to analyse the project sponsors/ participating plant data Operation & Maintenance (O&M) performance and costs which are typically due to damage, related inspection, repair, maintenance, plant modifications and other similar issues. This will help the project participants to develop a better understanding of their O&M cost and technical performance. This knowledge is essential for utilities to understand their plants main cost drivers, their current position against the wider position of other successful plants in terms of dispatch / scheduling / reliability according to the plant owner’s business strategy.

ETD will analyse the O&M performance and cost as the core scope of the project using Top-down statistical analysis. These results will then be benchmarked against the ETD’s best performance models developed through the analysis of similar plants from ETD’s extensive database. Plants within a client’s own fleet can also be benchmarked against each other’s performance to see where there is room for performance improvement and cost reduction.

The work will be based on the following:
1. Published information and plant reports/ data from a number of European, North American, Japanese and other utility/power plants.
2. Analysis of your basic plant operational historical data (service life, number of starts etc.). Note that ETD will issue a questionnaire to collect information on your plants.
3. Analysis of failure rate and compare to other similar plants from ETD database. (Note that sufficient plant data will be required to define the mode of failure).
4. Analysis of technical performance indicators such as forced outage factor (FOF), planned outage factor (POF), availability, reliability etc. to determine the O&M technical performance.
5. Analysis of cost performance indicators such as day to day maintenance cost, forced outage maintenance cost etc to determine the O&M cost performance.

Benchmarking of the plants’ historical data, failure rate, O&M technical & cost performance against ETD’s database from the information collected by ETD of over 80 plants in Europe, Asia and North America. All plants and their data are treated in the report anonymously.

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Note: Detailed proposal can be sent on request to: enquiries@etd-consulting.com

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