

# **The Influence of the Bill of Quantities and Fixed Total Cost Construction Contract on Project Management**

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## **Abstract**

Recently, with the development of the electric power construction project market in China, more and more projects began to use two kinds of contracts, one is Bill of Quantities Contract and the other is Fixed Total Cost Construction Contract. This paper combining with the characteristics of projects management practice, gives a detailed expatiation on the characteristics of the both kinds contract modes, and the effect they act on the project management, such as risk management, contract management and cost management, etc. The paper also gives the application area of the both kinds of contract, which offers a reference for investor choosing the right contract style in construction project management.

## **Key Words**

Bill of Quantities; Fixed Total Cost; Contract

In recent years, with the enforcement of Chinese electricity mechanism reform including opening electricity generation market in whole scale and diversity of investment, the market-oriented extent in electricity generation project area enhances and competition becomes more and more dense. Most of the contractees may choose the mode of Bill of Quantities contract or fixed total cost construction contract when they contract with contractors during the process of constructing electricity generation projects.

The fixed total cost construction contract confirms a fixed total price for the construction of one certain project. Under this mode, the contractees may save worry and care less about the project administration. The risks assumed by the contractees are smaller. The contractors will bear losses or get premium brought by the varieties of quantity and price of project and takes more risks correspondingly. So this mode requires more for the experience and credit standing of contractors. The fixed total cost contract is more suitable for the short-term project with small scale and simpleness in technology.

The Bill of Quantities contracts refer to the contracts in which contractees give the quantity of every detailed project and the contractor gives corresponding integrated cost. In this mode, contractees take risks brought by varieties of project quantity, whereas contractors assume risks from price changes. This mode embodies the principle of fairness and sharing risks by all participants. This mode applies to projects with large scale\ complex technology \ longer time limit for the projects.

The electric power construction projects feature with large scale and investment\complex technology\long time limit for construction \dense capital. Our company employs fixed total cost construction contract in most of the invested electricity power projects. But in this mode the contractors incline to get the contracts with lower bidding price because of the dense competition in this industry and if the contractors suffer loss affected by some adverse factors during the construction of the projects, the contractors tempt to delay the progress of construction or claim for the compensation of the loss from the contractees and in case of suffering from more loss the contractors have to pay more to the contractees. So if electricity power projects employ the mode of Bill of Quantities contracts, both the contractees and contractors assume high risks and this mode is also disadvantageous to the fair competition of electricity power construction market.

I think that electricity power projects mainly employ the mode of Bill of Quantities contracts and take fixed total cost construction contract as a supplementary approach will help to control the project investment effectively and attribute to the harmony of contractees and contractors and realize win-win.

Under the above-mentioned mode, the principal part of the project calculates price with Bill of Quantities contracts which have more project alteration and high risks. The contractees take the risk of project quantity changes and the contractors are only responsible for their bidding price. So the two counterparts can share the project risks reasonably. The rest part of the projects will use the mode of fixed total cost construction contract mainly including some special measure\temporary projects which are accessorial to the principal part of project and are mostly designed and constructed or installed by the contractors. The contractors have sufficient self-determination about these accessorial projects and should correspondingly assume all those attached risks.

Electricity power projects mainly use employ the mode of Bill of Quantities contracts and take fixed total cost construction contract as a supplementary approach has the following virtues :

- 1、 The Bill of Quantities calculate price in a simple integrate unit price, it is easy to manage the contract and control the cost, and reflect the cost for certain project, contractor can quote price independence and have a fair competition .
- 2、 Other project take the calculating method of fixed total cost, it is good at playing down the risk of the investor and make contractor give a reasonable quote price, increase the self-management by the contractor, give a exact decision-making for project construction to make the construction got along well.
- 3、 it shows the reasonable share risk。 Because of the long term of electric power generation, complicated outer factors and design changed risk largely, taking the calculate mode “employ the mode of the bill of the quantification mainly , and the fixed total cost accessorial.”, the investor take the risk of the change of the workload, the contractor take the risk of the quote price, it is fair for the principle of two parts have equal responsibility, right and obligation.

Taking the calculating price mode “employ the calculating mode of the bill of the quantification mainly , and the fixed total cost accessorial.”, some problems should be noticed in electric power project management:

- 1、 When take off the Bill of Quantities (BQ), the contractors should try their best to gain precise and reflect the reality and avoid omitting any items. It is also needed to check the BQ with the similar projects which have been done. Accurate BQ can reflect the true value of the projects, reduce and distribute risk, protect the profit of the both sides of the parties, and avoid the conflicts and claim. This method as while is propitious to the bidder to evaluating the cost of the project, and establishing a platform which will promote the competition and quote the clients the best price. Good BQ is a central document of the contract management, cost and risk management in construction field.

- 2、 Avoiding the bidder take the imbalance method to quote price due to the large fluctuate in project, which will increase the difficult of the investor venture and the

project management.

3、Improving the design change management。Avoid the change of the workload which due to the change of the design change changing the contract price, it will make against the cost control.

4、The project take the Bill of Quantities to calculate the price need the more workload of the project management and the more human resource and material, investor make the change budget for various project, collect all kinds of data and take part in the spot check and accept, make out the contractor declare schedule , the finished workload, the application of the plan payment , the cost of the project change budget and application of claim for compensation; summarize the cost finished state every month, and analyses the development trend of the forecast cost, give the advice of the cost control, calculate the cost control of monthly form, all that can make the project cost controlled smoothly in all the process.

In a word, the electric power construction contract take a calculating price management model “employ the calculating mode of the bill of the quantification mainly , and the fixed total cost accessorial.” ,which can reduce the venture of the investor and the contractor, go shares the risk reasonable, it is an important reformation in our country for electric power project cost management, it suits the need of the economical development of the electric power market well and it is the right point to connect the world for our country electric power project cost management method.