# 2. PROFILE AND PROBLEM ANALYSIS

## 2.1 Turkey SOMA Thermal Power Project Overview

The Turkish SOMA thermal power station project is a project of cooperation between Harbin Electric International Engineering Corporation and Kolin Turkey. The project is located in the SOMA area in the northern Aegean region, 175 meters above sea level and approximately 135 kilometers from the port city of Izmir. The construction party of this project is Harbin Electric International Engineering Co., Ltd. The owner of the project is Kolin Company of Turkey. Kolin owns real estate, agricultural irrigation, tourism and other businesses. It operates in Afghanistan, Jordan, Libya, Uganda, Serbia and many other countries. It is a well-known Turkish integrated company and has repeatedly been ranked among the top 225 countries in the world. The engineer is from the Belgian engineering company in Belgium. The total amount of the project contract was 390 million U.S. dollars. Owners own financing in Turkey and Harbin Electric Engineering Company needs to provide relevant documentation support. The contract was signed at the end of 2013 and the contract timing started in January 2014. The contract clearly stipulates that the construction period of Unit 1 is 36 months, and the construction period of Unit 2 is 39 months. The project's warranty period is 2 years.

As shown in the location map of Turkey's SOMA project as shown in Figure 1-1, the project construction area is a relatively important economic development area in Turkey. Based on the complexity and importance of the economic development of the site, the project will be constructed at the site. During the process, it will inevitably encounter various problems, including various aspects such as hiring labor, procurement and transportation. These problems will affect the development of the project to varying degrees. By observing the plan layout of the project in Figure 2-2, we can see that the project is a large-scale international engineering project. The construction scope of this project is relatively large and the construction complexity is high. Whether in terms of the design of infrastructure layout, installation of specific equipment, personnel scheduling, logistical support, or the complexity of cross-border engineering or differences in the living habits of workers of different races, Turkey’s SOMA Thermal Power The project is a major engineering project that is relatively complex, risky, and uncontrollable. These factors and conditions have brought great obstacles to the smooth development of the project, and have also created greater difficulties for the project's cost control management.

Figure 1-1: Location map of SOMA project in Turkey

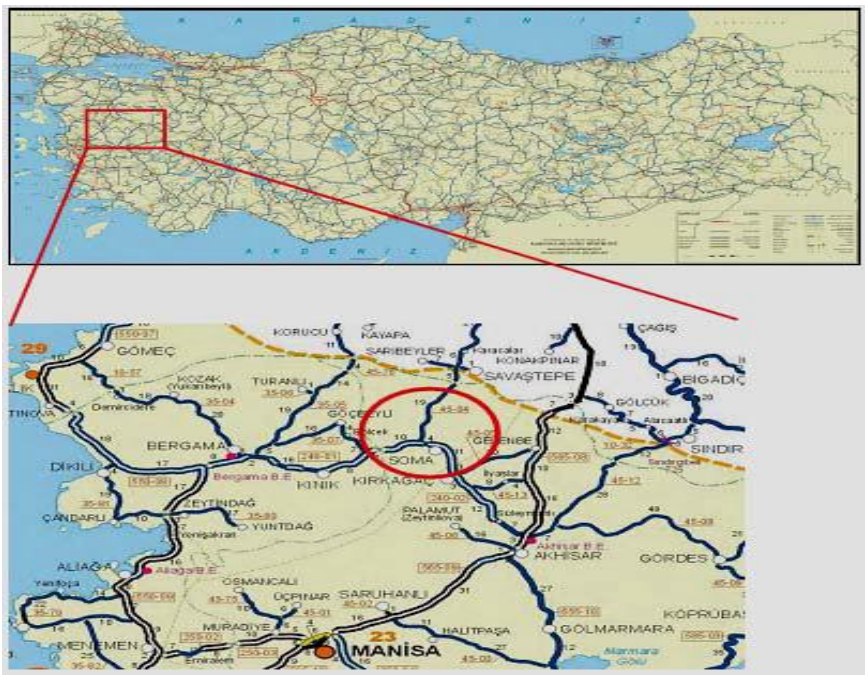
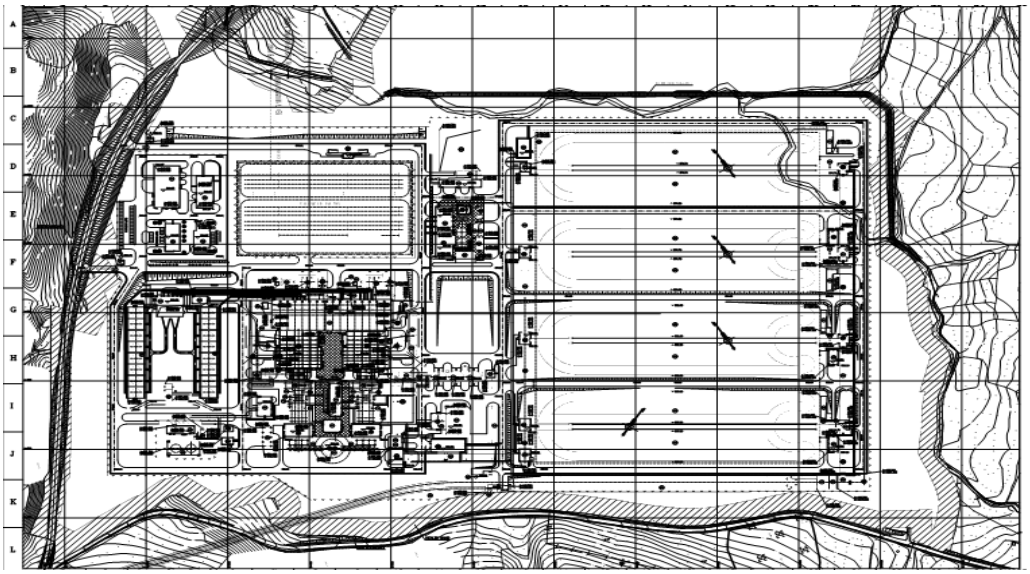



Figure 2-2: Plan layout of Turkish SOMA thermal power project



## 2.2 Overview of Cost Control of Turkish SOMA Thermal Power Projects

With the continuous development of Harbin Electric International Engineering Co., the cost control awareness of companies in operation and management is also gradually becoming stronger, but within the enterprise, these cost management consciousnesses are still only at the decision-making level of company management or this small portion of senior management has not been fully implemented in enterprises. The sources of staff involved in Turkey's SOMA thermal power project are relatively complex. There are great differences in the overall knowledge structure

of employees and related professional standards, and there is less participation of highly professional experts in the project.

In the cost control of the SOMA thermal power project in Turkey, the management paid more attention to the direct costs incurred by the project's material costs and labor costs. The employees of the company pay more attention to these costs, which, to a certain extent, ignores the hidden costs such as the cost of security, the cost of quality, and the time cost. After the completion of the project acceptance, there was a feeling of relief. However, the project audit work after completion of the settlement may be delayed for a long time. The construction materials that have not been exhausted after the construction and any related personnel or departments are properly cleaned up. , resulting in the waste of related materials. This is also a negative result of the weak awareness of project cost control.

## 2.3 Analysis of the Problems in the Cost Control of Turkish SOMA Thermal Power Projects

For the cost control of the project, it is first necessary to clearly define the object and scope of the control, and then to grasp the key points of control and use appropriate control methods. The cost control process of any project must include the core content of four major aspects. The absence of any one aspect will affect the cost control management effect of the project, and even hinder the smooth development of the entire project. Since the implementation of the SOMA thermal power project in Turkey to date, due to the mismatch between the project construction process and the cost expenditure, many problems have emerged in the control and management of its costs. The following are summarized in the following aspects:

### 2.3.1 The cost control basis is not perfect

The task for the cost management function is to produce information for internal users who need accurate, detailed and frequent economic information for making decisions (Belkanoui, 1993). Specifically, cost management “identifies, collects, measures, classifies, and reports information that is useful to managers for determining the costs of products, customers, and suppliers, and other relevant objects and for planning, controlling, making continuous improvements, and decision making” (Hansen & Mowen, 2006). Project cost management includes three major functions called cost estimating, budgeting and cost control. The goal of these functions is to “ensure that the project is executed in a cost efficient, profitable manner, according to business principles and from the perspective of the entire company” (Artto et al.,

2011). In the process of cost control and control of Turkey's SOMA thermal power project, due to various reasons, the cost control basis of the project was not perfect. The main imperfections of these cost control basics are:

(1) There is no explicit material quota and working hour quota. The so-called quota mainly refers to the enterprise project planning or organization personnel, to a certain extent, the production level and the organization's basic conditions, its human, material, financial and other related aspects of the consumption can achieve a clear demarcation line, For example, there is a quota for materials and a quota for working hours. However, in the construction process of this project, there is no clear material quota and working time quota. Under such a background, it will easily lead to an increase in the expenditure of materials during the construction of the project, as well as a large-scale increase in the cost of working hours, leading to costs, loss of control.

(2) There is no standardized data measurement. This leads to inaccuracies in the underlying data, which can affect all future work using the data for analysis, and may even result in a wrong decision.

2.3.2 The cost control method is not scientific

Some cost control proponents believe that such strategic cost-cutting must be planned carefully, as not all cost reduction techniques yield the same benefits. In a notable late 1990s example, chief executive Albert J. Dunlap, nicknamed "Chainsaw Al" because of his penchant for deep cost cutting at the companies he headed, failed to restore the ailing small appliance maker Sunbeam Corporation to profitability despite his drastic cost reduction tactics. Dunlap lay off thousands of workers and sold off business units, but made little contribution to Sunbeam's competitive position or share price in his two years as CEO. Consequently, in 1998 Sunbeam's board fired Dunlap, having lost confidence in his "one-trick" approach to management (International Monetary Fund 2011). Once the method is selected incorrectly, it may lead to invalidation of cost control. By analyzing the basic overview of the cost control of the SOMA project in Turkey, there is an unscientific situation in the cost control of the project in terms of cost control. The specific performance is as follows:

(1) The choice of cost control method lacks flexibility and pertinence. The management’s choice of project cost control method only recognizes the importance of using absolute cost control, and only looks at the absolute cost control method from the beginning to the end, and can't address the stage of the project and the various projects it faces. Class problems and adopt flexible and variable cost control methods.

It is easy to increase the chance of negative effects.

(2) The execution of the cost control method is not up to the standard. During the cost control process of the SOMA thermal power project in Turkey, although a more appropriate cost control method was chosen, when using this cost control method, errors such as calculation statistics or analysis often occur, which affects the result of cost control. . This is not because of the negative results caused by the wrong choice of cost control methods, but because of problems in the implementation and implementation of cost control methods that ultimately led to non-compliance of cost control results.

2.3.3 The system of cost control rules is not perfect

The cost control rule system plays an important role in the cost control process. The cost control rule system plays a very important role in guiding the project's cost control and ensures the orderly development of cost control in the direction. Without a sound system of rules, it is impossible to promote the orderly implementation of cost control, and it will affect the basic effects of cost control to a large extent. The inadequacy of the cost control rule system in Turkey's SOMA thermal power project is mainly reflected in the following two aspects:

(1) There are many gaps in many aspects of cost control. There is no effective constraint mechanism. A lot of cost control activities and links reflect the arbitrariness of the work, lack of standardized management of the system. The incomplete content of the project's cost control system is an important manifestation of the incompleteness of the project's cost control system, and it is also a very important core issue.

(2) The system of cost control related rules plays a minor role. The system of cost control related rules should be able to play an important role in guiding the cost control process. However, there is a problem that the role of the system of cost control related to the SOMA thermal power project in Turkey cannot be fully exerted. This makes the cost control-related rule system useless. Many cost control-related staff are blind to their rule system. In the course of carrying out cost control, they rarely follow the cost control-related rules and systems and act on their own wishes.

## 2.4 Analysis of the Causes of the Cost Control of Turkey's SOMA Thermal Power Projects

Through the various problems that have emerged in the cost control of Turkish SOMA thermal power projects summarized in the previous section, this paper combines the actual operation of the project and summarizes the three main reasons that contribute to the emergence of these problems.

### 2.4.1 Unreasonable cost budget planning

A budget segments the business into its components or centers where the responsible party initiates and controls action. Responsibility centers represent applicable organizational units, functions, departments, and divisions. Cost centers are accountable only for expenses, they do not generate revenue. The use of responsibility centers allows management to design control reports to pinpoint accountability, thus aiding in profit planning. A more accurate budget for the cost of a company or project can provide a clear basis for the management of costs in the project budget period and provide important relevant evidence for the related cost control work. The cost budget can also organize the employees' careful planning and control of costs, and encourage companies to effectively use their manpower, material resources, and financial resources to improve the entire project and the company's business and management work. It can minimize the cost of labor, and ultimately obtain better economic benefits.

Prior to the launch of the SOMA thermal power project in Turkey, the responsible department of the project was to carry out budget and estimation of costs. Although relevant cost calculations have been made, there are still problems such as cost overruns and imperfect cost control foundations during the construction of the project. This is mainly due to the fact that the project management unit is performing cost calculations. Inaccurate estimates and cost budget planning are also not very reasonable. This is precisely due to the unreasonable cost budget planning of the project. Moreover, the unreasonableness of this cost budget planning mainly has the following aspects:

(1) The unreasonable cost budget planning of the project. This is closely related to the previous research, the accumulation of experience in related projects, and the personal capabilities of leaders. The responsible unit of the SOMA thermal power project is Harbin Electric International Engineering Co., Ltd. The company has a lot of international engineering projects in the international scope, but there are relatively few engineering projects in Turkey and Central Asia, and the experience is lacking.

Therefore, the pre-cost budget is under consideration. In terms of formulation, there are great deficiencies that cause cost estimation problems.

(2) The project's cost budget is not detailed. In the process of setting up its cost control, the expenditures for each project are not elaborated. For example, the expenditure on labor costs only has a rough estimate on the total number, and it does not estimate the cost of human resources in different departments and modes of use. For example, the cost of translators, the cost of local hired personnel in Turkey, etc., are seriously underestimated. In particular, the relatively high cost of locally employed personnel is also a very important reason for the current cost overrun of the project. There are many cost overruns that result from such inconsequential cost budgets, such as the procurement of local construction materials, local food, transportation, and other cost overruns.

### 2.4.2 Ignoring the Relationship between Project Cost and Progress

In the signing of the contract for Turkey's SOMA thermal power project, Turkey’s enterprises have strict requirements on the progress of the project. In order to allow Harbin Electric Engineering Company to complete its tasks on schedule, the company in Turkey clearly lists the time nodes of the project's progress in the contract. These time nodes are carefully planned and each time node is very close. Once there is no scheduled completion at any of the time nodes, Harbin Electric Engineering Company must pay fines to Turkish companies, and even pay a large amount of liquidated damages. Although the requirements of the contract were stringent, Harbin Electric Co., in order to be able to open up the Turkish market, expand international business, and driven by interests, still agreed to the strict requirements of the other party.

In order to be able to carry out project construction according to the time node of the contract, in order to avoid fines, the construction unit has been working overtime during the construction process, and the progress has been always the most important goal, thus ignoring the construction cost of the project. Especially in some of the more important core expenses, affecting the time of the project progress, the leaders of related management will agree to pay the expenses first without affecting the progress of the project. Under the guidance of the concept of leading enterprise project management, it is obviously ignoring the project's cost control and management. Under the premise of guaranteeing the progress of the project, it caused excessive expenditure of costs.

The construction of the project so far has resulted in cost overruns. This is due in large part to the fact that the construction management department of the project failed to properly handle the relationship between the project cost and the progress of the project, pursuing the progress of the project blindly and neglecting the project. The cost control has led to a mismatch between the progress of the project and the payment of costs and has affected the development of the project.

2.4.3 Failed to handle the relationship between project cost and quality

Controlling project margins is one of the most important functions to ensure profitability. Margin control is done by project employees who are mainly interested in the total margin of the project and business segment. For them, margin control is one way to control the cost performance of the project. However, they play a vital role in ensuring the high quality of cost and margin-related data.

The Turkish SOMA thermal power project is a very important project for Harbin Electric Engineering Company. The project is the company's first large-scale project in Turkey and throughout the Middle East. In order to successfully complete this project and be able to get a good reaction from the other company, the company opened the power engineering project market in Turkey and the entire Middle East, with particular emphasis on the construction quality of the project. On the basis of originally meeting the requirements of the contract and basic quality and safety, the project construction party has further improved the quality of the project, thereby increasing the cost. However, in the process of pursuing the construction quality of the project, the relevant management personnel of the project did not fully grasp this measure, over-emphasizing the project quality and causing the project cost overrun.

**2.5 Summary of this chapter**

In the research of this chapter, the cost control of the SOMA thermal power project in Turkey was introduced from three aspects. Based on the introduction of relevant basic conditions, this paper also extracted the main existing relatively central issues in the process of cost control of Turkey's SOMA thermal power projects. Finally, in light of these problems, the main reasons for these problems are analyzed in depth.