Chapter 12

Financing of Power Projects

ABSTRACT

Economy and finance represent major factors in the planning process. For power system planning, the investments are very huge in amount (billions of dollars). In this free market era, almost all governments are trying to reduce budgetary expenses. This results in governments divorcing themselves from being involved in such huge investments. The economy of scale forces governments to rely on the private sector. However, as the profit is the driving force for the private sector, incentives must be set clear, and regulations must be flexible enough to encourage the Public-Private Partnership (PPP), which comprises many financing schemes. These may be attractive to the private sector and, hence, enable the financing of such projects. This chapter discusses issues related to economic feasibility and financing factors that govern investment in the power industry. Different PPP schemes are discussed in further details and their potential contribution and roles in the future of the power industry are pinpointed.

INTRODUCTION

Power related projects are generally characterized by large capital requirements, uncertainty over costs and schedules, and most probably long construction periods. A major requirement is the availability of financial resources for the huge capital requirements needed on reasonable terms at the right time. In fact, financing of such projects presents a critical problem, especially for developing countries, not only because of the very large amount of financing needed, but also because of the low creditworthiness of some of these countries as perceived by various lending organizations (Schlabbach & Rofalski, 2008). This can be associated with other problems such as the difficulties in servicing debts, and the reluctance of commercial banks as well as governmental organizations of exporting countries to lend additional funds.

Although the process of financial planning is complex with many intervening variables, it can be viewed as a cyclic process as illustrated in Figure 1. This figure illustrates the main blocks related to financial planning process of any project. The process comprises 6 main building blocks, and it is repeated and updated periodically to arrive at the best results.

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The process main blocks are:

1. Determine, understand, and assess the present situation, through gathering relevant pieces of data.
2. Develop and set financial goals and objectives.
3. Propose, set, and develop appropriate alternatives for courses of action.
4. Evaluate alternatives from the points of view of life span, values, economic factors, risk assessment, mitigation, and opportunity costs.
5. Create and implement the optimum action plan.
6. Monitor, review, revise, and update the plan.

The importance of each block varies from one project to another; however, it is vital to note that in the planning process, all of the above steps must be documented throughout all the project phases (Greenwood, 2002).

In general, financial and economic analyses provide the relevant evidence within the frameworks of discounted cash flows and Cost/Benefit (C/B) analysis. These represent decision tools that combine between the quality of the proposed assumptions and the project outcomes. Core issues that must be taken into consideration which aid quality enhancement include: (a) accurate estimation of financial cost, (b) accurate estimation of financial benefits, (c) demonstration of financial viability and sustainability, and (d) assessment of social and environmental costs and benefits.

Conventional sources for financing power related projects include: (a) financing through utility’s own resources, (b) national budgets, (c) local commercial banks, and (d) foreign multilateral and bilateral sources. However, the problem becomes serious when there is a lack of foreign exchange and/or when the ability to mobilize resources in the domestic capital markets is present (IAEA, 1993; IAEA, 1986; Kayaloff, 1998).

Industrialized countries that have the ability and willingness to finance projects, controlled by the latter issue, have developed certain arrangements and measures to exporting components and services to developing countries.

More approaches and complementary mechanisms are explored and investigated that take into account the need for more foreign exchange in most developing countries. These measures take

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*Figure 1. The financial planning process*
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