

THE BASIC PHASE OF PETROLEUM PROJECT AND THE ECONOMIC ASSESSMENT

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ABSTRACT

The process of evaluating, researching, and choosing new petroleum projects, which include a variety of operations, requires a thorough economic evaluation. An overview of the economic evaluation process, including its ideas and standards, and the nature of petroleum projects, is provided in this article. The new responsibilities, skills and tools required to conduct a reasonable study of any Petroleum Project proposal were given particular attention.

Keywords: *Evaluation, Economy, Project, Proposal*

0 - Introduction

In order to make the greatest investment decisions, it is essential to do an economic assessment of the many investment alternatives accessible to you. The contemporary economic assessment has become more essential and more difficult as a result of a wide range of developments, including technology, a rising number of economic and non-economic considerations, and new fiscal terms. Investing in petroleum projects entails significant financial and time commitments, as well as a host of potential dangers and pitfalls. This is why it's important to do an economic review to identify the greatest petroleum investment options in terms of income and risk. Many methodologies and procedures have been developed to assist in the appraisal of petroleum projects from an economic standpoint under these circumstances. That was made feasible by enhanced software, new talents and experiences, and the results of mathematics and statistical research. Several related tasks have been made simpler, and this development may contribute to an increase in the amount of accessible information while decreasing costs and dangers. It also ensures increased speed and accuracy.

1- ECONOMIC EVALUATION

1-1: Definition

There are numerous parties that utilize economic evaluations, such as firms and banks, investors, promoters, people, as well as government organizations, to evaluate new projects as investment opportunities by looking at the project's costs and revenues. Financial, quantitative and qualitative factors are used to build projections about the project's start-up costs; operating costs; financing sources; expected revenues and net cash flows; as

well as taking into account monetary time value; risk factor; and changing conditions; to arrive at an initial judgment on a project's viability.

1-2: Practical Requirements

In reality, the economic assessment process has a variety of needs. To begin, an assessment panel for divers should be assembled. Specialists (Engineers, Economists, Accountants, Legal experts and Coordinators) make up the bulk of this team, each of whom has relevant expertise in the field of the project. To calculate capital expenditures, operational expenses, and production, the project's technical data and information must be provided in the form of technical data and information. Tax and duty laws and regulations, as well as any other financial responsibilities that the project will incur, should be reviewed and brought up to date, as well. Collecting economic data, such as supply and demand, market prices, inflation and interest rates, is a crucial fourth step in the economic process. It is also important to note that software tools have been built for the aim of evaluating costs and benefits. The economic assessment procedure should include all of these needs.

1-3: Factors and Indicators

Depending on the assessment's goal, the structure and techniques for economic evaluation might be quite diverse. In the process of gathering data and information and calculating outcomes, this framework incorporates a variety of topics (e.g. factors, ideas, indicators, equations). A few more tidbits of information:

Economic Factors - If you're looking for information about the pricing of a product or service, you should be able to find it on multiple websites. To create and assess the primary evaluation factors, economists will employ these (cost and revenue as cash flows of project).

The indicators of Evaluation - The appraisal of the project is based on a variety of parameters (investment opportunity). Economic assessment does not rely just on return on investment (ROI) as the sole criterion for success. These indicators are used in practice to assess and evaluate the viability of a particular project. Depending on the scope of the project and the goals of the parties involved, economists may employ two or more indicators. Net Present Value, Internal Rate of Return (IRR), Discounted Payback and Profitability Index (PPI) fall under the first group of evaluation indicators, which are commonly computed using specific formulae and equations in simple and sophisticated ways. Methods like Break-even Analysis, Exposure Point, Sensitivity Analysis, and Cost/Benefit Ratio should not be dismissed in the second step. If the project's financial accounts need to be analyzed, the assessment might employ additional financial and accounting indicators (e.g. financial ratios).

1-4: Risk Analysis

However, it is important to keep in mind that the project cash flows will occur at some point in the future, and their values will alter as a result of economic and technological factors. It is the responsibility of the assessment team to determine a specific economic value (best option). In other words, it should base its hypotheses on what it knows about the present and what it expects in the future. Some specific strategies are used in this situation, such as (Probability Theory, Monte Carlo Simulation, Decision Tree and Sensitivity Analyses).

1-5: Software Programs

Economic analyses need the use of a wide range of software applications. With these applications, data and information may be organized, analyzed, and the results of that analysis can be produced quickly and easily. Modern computer programs and extensive statistical and mathematical analyses were used to construct the software packages. Inputs, processing, and outputs are the three basic components of these programs. However, the final design is largely dependent on the nature of the project and the specifics demanded by the parties involved.

There are a variety of abilities and experiences that are required for program design when it comes to economic assessment (such as project kind and nature, the evaluation process's demands as well as mathematical and statistical tools). There are several software applications available today, both basic and complicated. Some rely on Excel, while others use other programs and new parameters and equations that have been built just for them.

1-6: Tasks of the Economist

Modern economic assessments need new responsibilities for the economist, who is an integral component of the evaluation team. It is possible for him or her to take on a variety of roles throughout the review process, depending on the scope and volume of the project and his or her expertise in this field. As an economist, s/he is expected to have a strong grasp of economic theory and practice, as well as a working understanding of finance, mathematics, statistics, accounting, computer, and contractual skills.

The economist would be able to do a wide range of duties, from the earliest stages to final decision-making, if they had access to these essentials. As a result, the economist may be involved in any or all of the following activities: assisting in the collection of data and information, conducting analyses, developing models, formulating assumptions, compiling and calculating expected cash flows and profitability indicators, interpreting and explaining results, assessing economic and financial risk, and making appropriate recommendations for the situation.

2- ECONOMICS OF PETROLEUM PROJECTS

2-1: Petroleum Projects

In the oil and gas industry, various operations connected to the extraction of oil and gas from below and above ground constitute the mainstay (Exploration, Development, Production, Refining, Gas Processing, as well as Transportation and Distribution). Despite this, each one has its own distinct characteristics, yet they are all interconnected and intertwined.. Investing in a petroleum project may not be all that different from investing in other sorts of enterprises. As a simple definition, it is the allocation of money to be spent on various production variables that are necessary to construct a (Project) with commercial or non-commercial purposes. There are many different forms of petroleum project evaluations; basic or complicated, high cost or cheap cost, done by a team of experts for a corporation or an investor..., depending on their cost and aims.

As a result of this, it must be kept in mind that the money invested in the early stages of a petroleum project will be spread out across a wide range of locations and channels. There are several examples, such as procuring supplies from diverse sources, hiring a large number of specialists, entering into agreements with numerous firms to carry out certain designs or perform specific services, etc. It is expected that just a few items, if any, would be sold over a lengthy period of time under uncertain circumstances. As a result, the economist must have appropriate knowledge and expertise, and must be cautious throughout the many phases of the economic assessment process.

2-2: Characteristics and Indicators

Projects in the oil and gas industry may vary greatly based on the activities they include. This means that the specifics of the project's technical and economic foundation, as well as the activities that inform and shape them, are going to be distinct. If you're looking for an illustration, have a look at the differences in the technological backgrounds of exploration ventures and refineries. In the end, they should all be stated in monetary terms and categorized as either costs or revenues.

Oil and gas economics software covers a wide range of topics, from reserves analysis through drilling and production, refineries and gas plants, among other things. There are many different forms of petroleum economics software. In order to get the most out of these programs, you'll need a variety of talents and previous experience working on similar projects.

Here are a few examples of how some of the petroleum projects' cash flows might be summarized:

- A.** One way to evaluate the cost of an exploration and production project is to split it down into capital expenditures and operational costs, such as transportation and maintenance costs, which are sometimes included in special contractual fiscal conditions. However, the anticipated income from the sale of oil and/or gas will be sufficient to pay the expenditures and generate the anticipated profits.
- B.** In contrast, the evaluation process for refining projects includes capital expenditures for the construction of the refinery complex and operating costs for maintenance work, material purchases and labor, but the feed crude oil purchases are most important in terms of their cost. B. Refining projects. In contrast, profits come from the selling of things.
- C.** The costs of building a pipeline and maintaining it, as well as taxes and charges, are all included in pipeline projects. Tariffs levied on pipeline transporters of crude oil, natural gas, and other commodities generate income.

D. When building complicated gas plants, large sums of money must be invested up front (as a capital expenditure), including the cost of purchasing feed gas and other supplies, as well as the ongoing costs of maintenance and labor.. The plant's goods will be sold, and the profits will come from that (e.g. LPG and Dry Gas).

Investment forms are also critical to consider, as petroleum investment is defined by the employment of specific forms known as (International Petroleum Contracts) for exploiting petroleum resources, which are categorized into three primary types: Concession, Production Sharing, and Service Contracts. Contracts like these include a variety of terms, such as (Bonus, Royalty, Petroleum Income Tax, Cost Oil and Profit Oil). In addition, complicated and simple formulae are used to calculate specific formulas like (Sliding Scales, R-Factor, ROR-Factor, Price Cap and Netback). Those words and formulae are critical to the preparation, scheduling, and computation of cash flows and the project's projected values.

3 - CONCLUSION

In general, the assessment of petroleum projects is comparable to the evaluation of projects in other sectors. There are, however, unique challenges associated with petroleum operations that need the use of specialized knowledge and expertise. To put it another way, there are a number of fundamental variables that must be taken into account while evaluating the economics of petroleum projects.

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