ECONOMIC MODULE IN FEASABILTY STUDIES " F.S."

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FESABILTY STUDY

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FESABILTY STUDY

- 1.Description of the Project

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- **Description of the Project**
  - **Identification and exploration of business scenarios.**
  - **Identify alternative scenarios or business models of what the project will entail, how it will be organized, and how it will generate profits. These may come from the idea assessment or market assessment that you may have already completed.**
  - **Eliminate scenarios that don't make sense.**
  - **Flesh-out the scenario(s) that appear to have potential for further exploration.**

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- **Define the project and alternative scenarios**
  - **Describe the type and quality of product(s) or service(s) to be marketed.**
  - **Outline the general business model (i.e. how the business will make money).**
  - **Include the technical processes including size, location, kind of inputs, etc.**
  - **Specify the time horizon from the time the project is initiated until it is up and running at capacity.**

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- Relationship to the surrounding geographical area.
-
  - Outline the economic and social impact on local communities.
  - Describe the environmental impact on the surrounding area.

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- **2.Market Feasibility**

- This can be based on a market assessment that you may have already completed.

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- Industry description
  - **Describe the size and scope of the industry, market and/or market segment(s).**
  - **Estimate the future direction of the industry, market and/or market segment(s).**
  - **Describe the nature of the industry, market and/or market segment(s). Is it stable or going through rapid change and restructuring?**
  - **Identify the life-cycle of the industry, market and/or market segment(s). Is it emerging, growing, mature, declining?**

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- Industry competitiveness
  - Describe the industry concentration. Are there just a few large producers or many small producers?
  - Describe the major competitors? Will you compete directly against them?
  - Analyze the barriers to entry of new competitors into the market or industry. Can new competitive enter easily?
  - Analyze the concentration and competitiveness of input suppliers and product/service buyers.
  - Describe the price competitiveness of your product/service.

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- Market potential
  - **Identify whether the product be sold into a commodity market or a differentiated product/service market.**
  - **Identify the demand and usage trends of the market or market segment in which the product or service will participate.**
  - **Examine the potential for emerging, niche or segmented market opportunities.**
  - **Explore the opportunity and potential for a branded product.**
  - **Assess market usage and your potential share of the market or market segment.**

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- Access to market outlets
  - **Identify the potential buyers of the product/service and the associated marketing costs.**
  - **Investigate the product/service distribution system and the costs involved.**

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- Sales projection

  - **Estimate sales or usage.**
  - **Carefully identify and assess the accuracy of the underlying assumptions in the sales projection.**
  - **Project sales under various assumptions (i.e. selling prices, services provided, etc.).**

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- 3. Technical Feasibility

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- Facility needs.
  - **Estimate the size and type of production facilities.**
  - **Investigate the need for related buildings, equipment, rolling-stock, etc.**

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- Suitability of production technology

  - **Investigate and compare technology providers.**
  - **Determine reliability and competitiveness of technology (proven or unproven, state-of-the-art, etc.).**
  - **Identify limitations or constraints of the technology**

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- Availability and suitability of site

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- Investigate access to:
  - **raw materials**
  - **transportation**
  - **labor**
  - **production inputs (electricity, natural gas, water, etc.)**
  - **Investigate potential emissions problems.**
  - **Analyze other environmental impacts.**
  - **Identify regulatory requirements.**
  - **Explore economic development incentives**

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- Raw materials

  - **Estimate the amount of raw materials needed.**
  - **Investigate the current and future availability and access to raw materials.**
  - **Assess the quality and cost of raw materials.**

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- Other inputs
  - **Investigate the availability of labor including wage rates, skill level, etc.**
  - **Assess the potential to access and attract qualified management personnel.**

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- 4. Financial/Economic Feasibility

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- Estimate the total capital requirements

  - **Assess the "seed capital" needs of the business project during the investigation process and start-up, and how these needs will be met.**
  - **Estimate capital requirements for facilities, equipment and inventories.**
  - **Estimate working capital needs.**
  - **Estimate start-up capital needs until revenues are realized at full capacity.**
  - **Estimate contingency capital needs due to construction delays, technology malfunction, market access delays, etc.**
  - **Estimate other capital needs.**

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- Estimate equity and credit needs
  - Estimate equity needs.
  - Identify alternative equity sources and capital availability - family, producers, local investors, angle investors, venture capitalists, etc.
  - Estimate credit needs.
  - Identify and assess alternative credit sources - banks, government (i.e. direct loans or loan guarantees), grants and local and state economic development incentives.

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- Budget expected costs and returns of various alternatives
  - Estimate the expected revenue, costs, profit margin and expected net profit.
  - Estimate the sales or usage needed to break-even.
  - Estimate the returns under various production, price and sales levels. This may involve identifying “best case”, “typical”, and “worst case” scenarios or more sophisticated analysis like a Monte Carlo simulation.
  - Assess the reliability of the underlying assumptions of the analysis (prices, production, efficiencies, market access, market penetration, etc.)
  - Benchmark against industry averages and/or competitors (cost, margin, profits, ROI, etc.).

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- Identify limitations or constraints of the economic analysis.
  - **Calculate expected cash flows during the start-up period and when the business reaches capacity.**
  - **Prepare pro forma income statement, balance sheet, and other statements of when the business is fully operating.**

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- 5. Organizational/Managerial Feasibility

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- Business structure

  - **Identify the proposed legal structure of the business.**
  - **Outline the staffing and governance structure of the business along with lines of authority and decision making structure.**
  - **Identify any potential joint venture partners, alliances or other important stakeholders.**
  - **Identify the availability of skilled and experienced business managers.**
  - **Identify the availability of consultants and service providers with the skills needed to realize the project, including legal, accounting, industry experts, etc.**

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- Business founders

  - **Character matters - are the people involved of outstanding character?**
  - **Do the founders have the "fire in the belly" required to take the project to completion?**
  - **Do the founders have the skills and ability to complete the project?**
  - **What key individuals will lead the project?**
  - **Is there a reward system for the founders? Is it based on business performance?**
  - **Have the founders organized other successful businesses?**

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- **Study Conclusions**
  - **Identify and describe alternative business scenarios and models.**
  - **Compare and contrast scenarios based on goals of the producer group.**
  - **Outline criteria for decision making among alternatives.**

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- **Next Step**

- **After the feasibility study has been completed and presented to the leaders of the project, they should carefully study and analysis the conclusions and underlying assumptions.**

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Next, the leaders will be faced with deciding which course of action to pursue. Potential courses of action include:

- **Choosing the most viable business scenario or model, developing a business plan and proceeding with creating and operating a business.**
- **Identifying additional scenarios for further study.**
- **Deciding that a viable business opportunity is not available and moving to end the business investigation process.**
- **Following another course of action.**

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- **Who is the Right Technical Person to Join the Team ?**

  - A COST ENGINEER

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- ISSUES EFFECT THE DESCISION OF" GO " IN THE STUDY

ECONOMIC MODULE IN FEASABILTY STUDIES

- **ECONOMIC MODULE CONTENTS**
  - Finance
  - Ratios

ECONOMIC MODULE IN FEASABILTY STUDIES

- **TYPES OF FINANCE**
  - Internal
    - Capital Raise
    - Self Finance
  - External
    - Local Banks
    - External
    - Export Credit Facilities
    - Bonds
    - Grants

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- **Other Types Of Finance**
  - Hire Purchase
  - Islamic Models
    - The Ownership is not passed till the end of Contract

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- **The Main Deference Between Internal & External Finance**
  - **Finance Costs**
  - **Period**
  - **Tax**

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- **The Most Important Ratios**
  - Payback Period
  - Internal Rate Of Return “I . R . R .”
  - Other Ratios

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- **Payback Period**
  - The *payback period* formula is used to determine the length of time it will take to recoup the initial amount invested on a project or investment.

    - In capital budgeting for a business firm, historically, the payback period is the selection criteria that most business firm use to select capital projects. Even today, small businesses find the payback period selection criteria most useful. Small business owners like to look at the time it takes them to earn back their initial investment in a capital project.

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- **Internal Rate Of Return**
  - The discount rate often used in capital budgeting that makes the net present value of all cash flows from a particular project equal to zero.
  - Generally speaking, the higher a project's internal rate of return, the more desirable it is to undertake the project.
    - As such, IRR can be used to rank several prospective projects a firm is considering. Assuming all other factors are equal among the various projects, the project with the highest IRR would probably be considered the best and undertaken first.

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- **Sales Ratios**
  - % CHANGE OF SALES
  - ROE（DUPON EQUATION）
  - COGS/ SALES
  - ROA
  - GPM
  - NOP/ SALES
  - NPBT/ SALES

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- *Depreciation*

- ***A noncash expense that reduces the value of an asset as a result of wear and tear, age, or obsolescence. Most assets lose their value over time (in other words, they depreciate), and must be replaced once the end of their useful life is reached. There are several accounting methods that are used in order to write off an asset's depreciation cost over the period of its useful life. Because it is a non-cash expense, depreciation lowers the company's reported earnings while increasing free cash flow.***

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- **Book-keeping Net Profit & Taxable Profit**

  - **The Effect in Investing Decisions**

ECONOMIC MODULE IN FEASABILTY STUDIES

- **CONTENTS OF ECONOMIC MODULE**
  - Income Statement
  - Cash Flow
  - Financial Statements
  - Ratios

ECONOMIC MODULE IN FEASABILTY STUDIES

- **EXCEL SHEETS IN THE MODULE :**
  - Oil Prices
  - Prices Forecast “global , region , Etc” (raw , services , labor , product }
  - Costs Components (Fixed & Variables)
  - Final Product Prices in Several Areas
  - Income By Product , Total Inc, Costs, Cash flow, Balance Sheet , NPV& Recovery Period
  - Debt Run off
  - Sensitivity
  - Charts

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- PROJECT RISKS

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- **Project Technology**

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- **Currency Risks In Multi Currency Project**

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- **Risk With Floating Interest Rate**

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- **How To Eliminate Risks?**

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- **How To Use Insurance To Cover Risks?**
  - Design Default
  - Contractor All Risk (E.P.C)
  - Currency Risk
  - Delay Completion Risk
  - Sales Contracts Risk

ECONOMIC MODULE IN FEASABILTY STUDIESCASE STUDY

- CASE STUDY
  - By : SSSS, Italy

INTRODUCTION

This study is to update and reconfirm the terms of economic and market viability of the PPPP project in the current global market and economic environment and in view of the upcoming new investments and competitors. This project market and economic feasibility study represents an opportunity to review what has changed since the original considerations in 2006 that lead to the investment decision and what possible technical, market, economic, financial and commercial measures should be considered in light of this review. SSSS Consulting in this study provides

recommendations on the market and financial viability of the project with a comparative review of the project in relation to relevant competitor's economics. Detailed capital cost, technology evaluation, Individual propane commercial terms and detailed strategic analysis were not a substantial part of this survey although if and where an anomaly has been encountered; SSSS would include its comments to the Client. SSSS at the best of its knowledge note express its opinion on the project and suggest possible opportunities and threats.

PPP PROJECT: IMPLICATIONS OF THE GLOBAL MARKET ON THE PLANNED PROJECT

The impact of the global trend on the Client project can only be negative: however on a relative basis, given the strong competitive cost position relative to higher cost producers in WE, the position of the Client plant become stronger. In fact, we have found that the higher the crude price the stronger is the competitive advantage of gas based projects (PDH included)..

An increasingly more fierce competition will also occur among the off takers such as traders an d distributors as there is less margin available to share while the increasing risk of antidumping and countervailing duties will make the finding of export niches more complex and less evident. A good factor influencing the project has been the decline of the global trade, which in the short term is having a beneficial effect on cargos availability and accordingly in lower freight rates, than planned two years ago. The dry bulk index in Rotterdam is considered lower than one year ago, reflecting substantial saving in freight rates but more so in the availability of carriers

TARGET MARKETS AND END USES

The outlook for the Client Project is substantially unchanged in terms of product distribution by area or product slate. If anything on a strategically basis the need for impact may be lower that estimated two years ago, due to the negative influence of durable demand on the PP market mainly new cars, and less from construction (carpets and appliances, etc.). However the impact of economic margins on the project is less sensitive to the product grade slate.

PROJECT ECONOMICS AND SENSITIVITIES PPPP

project economics were evaluated using SSSS's knowledge of financial evaluations, inputs from PPPP and specific assumptions by SSSS that have already been agreed to by the client PPPP). Furthermore, the financial evaluations were done using a base case scenario and also a low case scenario, in which the low case had lower price forecasts for all prices including crude oil, naphtha, propane, and polypropylene; the low case also assumed lower GDP (%) changes, and lower consumer price inflation.

Additionally, a sensitivity analysis was completed on the project (utilizing the base case financial model) in order to evaluate changes in the following **four** input variables: total fixed investment, propane feedstock costs, total product revenue and annual utilization rates. The output variables evaluated were: project IRR, project NPV (at 6%) and cumulative project cash flows (CF); the analysis was also done utilizing the discounted cash flows (CF) on the project. . The tables summarizes the changes (%) from the base case by decreasing the input variables by 20% (shown as '80%' in table) and by increasing the input variables by 20% (shown as '120%' in table):

- PROPANE AVAILABILITY AND SOURCING The project contract includes a long-term supply agreement securing the propane raw material for the propane dehydrogenation (PDH) unit. The entire supply of propane will be secured via an 'off-take' agreement with United Gas Derivatives Company (UGDC) and Egyptian Natural Gas Company (GASCO), each supplying 70% and 30%, respectively, of the propane requirements. The EPPC PDH-PP complex will be located next to the UGDC gas separation facility in Port Said, while the GASCO facility is located at Ameriya near Alexandria, approximately 200 km from Port Said. The close proximity to the main propane supplier would eliminate the need for large propane storage facilities at the EPPC complex. The risks associated with a secure raw material supply are lower for the EPPC project since GASCO is a shareholder in EPPC project and GASCO is also a shareholder of UGDC

- HAND OUT FOR CASE STUDY

PPPP ECONOMIC MODLE CASE

- SEE EXCELL FILE TABLES OF THE CASE

PPPP ECONOMIC MODLE CASE

- Please Wok out the Numbers for 2015

- Split in 4 groups
- Each group will work on a part of the model

PPPP ECONOMIC MODLE CASE

- SHOW THE CORRECT AMOUNTS

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- Open Disc.

The end

- مع الشكر
- 19/01/2014