Feasibility Study for Energy Efficiency projects (online)

Course Introduction

Energy Efficiency is very important nowadays. Simply put, the less energy you use, the less money you will pay and the less carbon emissions you output. The type of energy you use is also important to consider. Electricity from renewable sources, such as solar and wind, has a much lower carbon footprint than fossil fuels like natural gas and oil.

This Energytics Training course aims to give the trainees hands-on experience on how to do feasibility studies for energy projects. The course starts by explaining the types of feasibility studies and then constructing the foundation for the financial and economic terms. Hands-on exercises are included in the course material. The course starts with simple exercises and then introduces the participants to actual real-life projects. An advanced final project will be in the last part of the course and will contain one-to-one session with the participants.

This training course will highlight the following:

- Importance of feasibility studies
- Use different KPIs used for project assessment
- How to assess different scenarios for one project

Course Objectives

Familiarise course participants with

- Project cash flow construction
- Comparison of different projects with different characteristics
- Assess the project feasibility using different KPIs
- Analyse the feasibility study results
- Carry on sensitivity analysis and different scenarios for the energy project

Why You Should Attend

Besides achieving the course objectives, the course is

- Flexible for busy people who want to advance their careers and gain new knowledge without disrupting their professional lives
- Course materials are updated continuously to reflect the latest trends in the industry
- Course material extracted from real-life case studies (kindly see an example of the final project below)
- course lecturer is an expert with hands-on experience in feasibility studies and financial modelling for energy projects.

Course prerequisites

The trainees should be familiar with Microsoft Excel; It is advisable that Trainees have two screens during the course (or one big screen that could be split to follow up with the instructor)

At the End of the Course, You Will Be Able To

After finishing this course, the trainees will be able to:

- Define, search, and formulate the project's assumption in a structured manner
- Construct the project's cash flow
- Use different matrices (IRR, NPV…) to evaluate the project
- Do a sensitivity analysis of the results
- Assess different scenarios for energy projects

Who Should Attend?

This course is suitable for a wide range of professionals but will greatly benefit:

- Individuals who want to learn about energy projects
- professionals who plan to work in energy audits
- Enthusiastic persons about decarbonisation technologies
- Persons who want to learn about the energy systems

Course lecturer

The lecturer has more than **15 years of working experience** in distributed power, co-generation, waste heat utilisation, energy efficiency, and renewable energy. He holds several master's degrees that enable him to cover the topic from different aspects, such as technical, policy, and economics.

The Expert has **worked with national and international** organisations such as the **EU, GIZ, MEDREG, RCREEE, UNIDO, and UNDP**. The expert was engaged in several national and international projects, such as Energy audits, long-term energy planning for multiple countries, developing national renewable energy action plans (NREAPs) and national energy efficiency action plans (NEEAPs), and techno-economic assessments for hydrogen projects.

Besides lecturing at Cairo University, the lecturer has **several publications** in both Arabic and English languages. His publications reflect **the latest technologies** in the renewable energy and **energy efficiency fields**. Moreover, his published work also presents the latest policies and regulations. For example, **the latest publication about Hydrogen development in Egypt** with the world-leading research institute, **The Oxford Institute for Energy Studies,** reflects the ability of the expert **to produce high-quality research and studies**.

Course Syllabus

Day 1: Introduction feasibility studies	
Session 1 (7:00 – 8.25)	• Introduction • Types of feasibility studies • Financial terms
Session 2 (8:30 – 10:00)	• Constructing the first Cashflow • Project evaluation matrices • Exercises
Day 2: Application	
Session 1 (7:00 – 8.25)	• Project 1 • Project 2 • Sensitivity analysis
Session 2 (8:30 – 10:00)	• Project 3 • Scenario Manager • Introduction to the Final project
Day 3 (After one week): Final Project	
One to one session with each participant	• Evaluation of the final project

Course mode: Interactive Online[1]
Course duration: 7 hours
Course fees: 200 Euro[2,3]

For any inquiries, please get in touch with info@energytics.net

[1] Face to Face course could be organised (kindly contact us for more details and fees)
[2] Payment could be in equivalent amounts in AED, USD
[3] Payment could be in EGP for Egyptians only

Example of Final project

You are working in a power generation company. Your manager asked you to conduct a feasibility study for a power generation project to sell electricity to a new customer.

Your company will sell electricity after using a gas engine to generate power. Engine power will be 1000 kw and will work at 90% for 8000 hours annually. **Calculate the appropriate electricity price (EGP/kWh) to achieve MARR 15%.** Consider that you will get a loan (30% of the capital cost) at an interest rate of 10% for five years. The Capital cost is EGP XX,096,000.

The engine consumes 0.XX m^3/kWhr of natural gas, 0.XXX kg/hr of oil. Labour cost will be LE 264,000 for the first year and will increase every year by 10%. The spare part cost is shown in the table below (current cost in Euro). And the cost is increased by 3% annually.

N.G cost is USD 4.5 MMBTU; the oil cost is XX LE/kg and increases by 5% annually

Year	Maintenance cost in Euro
Year 1	Xxxxx
Year 2	Xxxxx
Year 3	Xxxxx
Year 4	27,076
Year 5	115,998
Year 6	Xxxxx
Year 7	Xxxxx
Year 8	Xxxxx
Year 9	Xxxxx
Year 10	10,954

After calculating the electricity price, conduct a sensitivity analysis for IRR with the change in natural gas prices. Also, construct different scenarios for engine load and annual working hours.