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LIFE CYCLE COST

ANALYSIS User Guide



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I. INTRODUCTION

PURPOSE

The purpose of this User Guide (UG) is to provide instructions on using the Life Cycle Cost Analysis Tool. The Life Cycle Cost Analysis Tool (LCCA) determines the economic feasibility of a proposed SME energy efficiency project by assessing the estimated investment and annual savings with and without the grant funding. The assessment is conducted by calculating and analyzing the Net Present Value (NPV), the Savings-to-Investment Ratio (SIR) and the Internal Rate of Return (IRR).

STRUCTURE

To be eligible for the Energy Excellence for SME's Grant Program, applicants must provide the requested inputs to complete the Life Cycle Cost Analysis. The excel tool contains four different sheets and enables automatic calculation:

1. **Input Data Dashboard:** Applicants shall include their input values in the light blue cells.
2. **LCC:** Determines the Life Cycle Cost Analysis of the proposed project and calculates financial parameters to assess the project eligibility.

3. **LCC + Subsidy:** Determines the LCCA of the proposed project considering the SME Grant Subsidy requested by the applicant and calculates financial parameters accordingly.

4. **Summary:** Summarizes financial parameters to be included in the Proposal Template file.

2. INPUT DATA DASHBOARD

The “Input Data Dashboard” sheet includes all necessary input data, calculated parameters and as assumptions to be used for the calculations of the LCCA. These are described in the below paragraphs.

REQUIRED INPUTS

The following data comprise the required inputs to be filled by the user:

01. Annual energy consumption

- Description: Yearly averaged energy consumption. The most recent 2-year average should be considered at least, with a 3-year average to be considered ideal, if relevant (and reliable) information is available. A 1-year average consumption shall be justified in terms of data unavailability.
- Input unit values in MWh/year
- Note: Input value(s) shall necessarily concern the energy source (electricity and/or thermal) from which energy savings are expected. Hence, if energy savings are expected from both energy sources, then inputs should be inserted separately for electricity and thermal consumption. Otherwise, input value shall reflect only the energy source from which energy savings are expected (electricity or thermal consumption).

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02. Annual energy savings

- Description: Quantified (expected) energy savings on an annual basis, as derived from the technical assessment on the basis of the improved performance of the proposed energy efficiency measure.
- Input unit values in MWh/year
- Comment: Inputs to be inserted separately in terms of electricity and thermal energy savings.

03. Annual expected energy cost savings

- Description: Cumulative annual cost savings (on the basis of the expected energy savings) using current/ most recent tariffs available for each energy source considered (electricity and/or thermal).
- Input unit values in USD/y

04. Sum of new initial investments of ECMs (Year 0)

- Description: Estimated overall investment costs (procurement of equipment, materials and installation) for the proposed energy efficiency project

- Input unit values in USD

05. Cost of equipment procurement

- Description: Investment cost for equipment procurement
- Input unit values in USD

06. Sum of maintenance costs for old technologies in all ECMs

- Description: To be considered only if relevant information is available.
- Input unit values in USD

07. SME grant subsidy

- Description: Envisaged / requested contribution of the grant subsidy in the overall estimated investment cost.
- Input unit values in percentage (%)

08. Sum of maintenance costs for new and old technologies in all ECMs ▪

Description: To be considered only if relevant information is available.

- Input unit values in USD

09. Operational Lifetime

- Description: Actual operational lifetime of the proposed energy efficiency measure. ▪
- Input unit values in years

AUTOMATICALLY CALCULATED VALUES

10. Total annual energy cost savings

- Description: The sum of expected energy cost savings (03) and replacement costs required for old technologies (05) minus future costs for new and old technologies (07). ▪
- Input unit values in USD/y
- Comment: Parameter calculated automatically



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11. Sum of residual value of ECM equipment at end of the analysis period ▪

Description: The residual value of the ECM equipment at end of the analysis period, based on its actual operational lifetime.

- Comment: Parameter calculated automatically

ASSUMPTIONS

12. Analysis period

- Description: The analysis period considered for the feasibility assessment calculations under the LCCA.
- Fixed: 10 years

13. Discount rate

- Description: The rate of interest used to discount future cash flows to calculate their present value.
- Fixed: 13%

3. LCC

The sheet “LCC” calculates the discounted cash flows of expected cost savings and overall investment cost **without** considering grant funding. Then the Net Present Value (NPV), the Savings-to-Investment Ratio (SIR) and the Internal Rate of Return (IRR) as well as the simple payback are determined to enable the financial assessment of the initial investment’s actual market value.

4. LCC + SUBSIDY

The sheet “LCC + SUBSIDY” calculates the discounted cash flows of expected cost savings and overall investment cost **considering** the grant funding. Then the Net Present Value (NPV), the Savings-to Investment Ratio (SIR) and the Internal Rate of Return (IRR) as well as the simple payback are determined to enable the comparison of the initial investment with the contribution of the grant subsidy.

5. SUMMARY

The last sheet “Summary” presents the results of the LCCA with and without the grant subsidy to enable direct comparison of the investments.