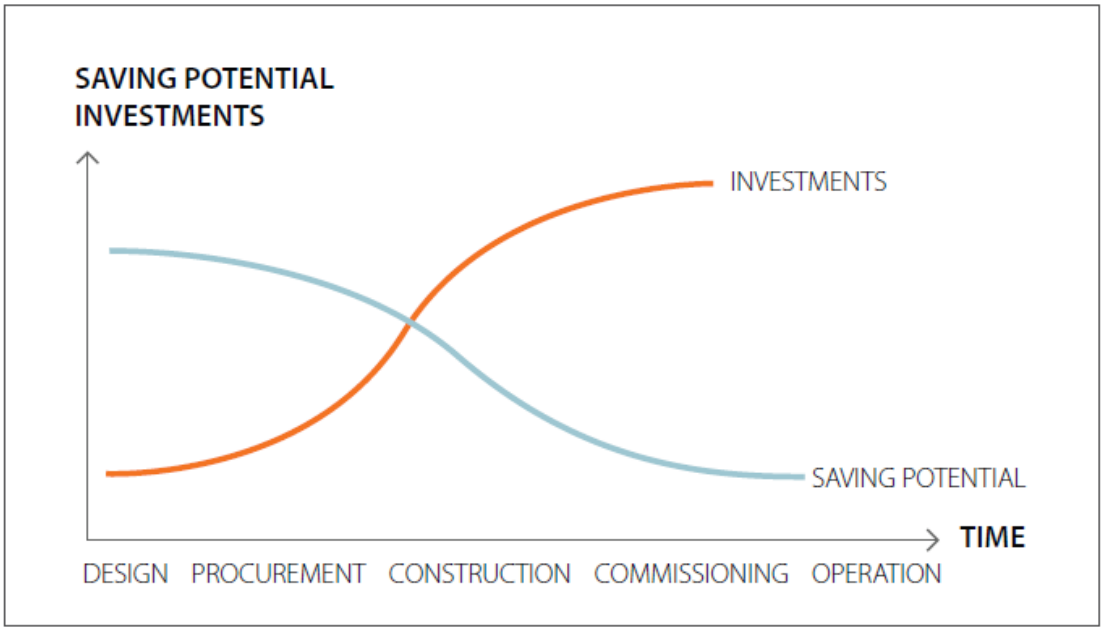
Annex 1

Savings Potential and Cost of Investments for Energy Efficiency



Source: Sustainability Energy Authority of Ireland, Energy Efficient Design Methodology

Annex 2

The EEOA process includes the following:

1) Developing a plan to conduct the EEOA, which must detail the scope, objectives, and assessment method of the EEOA

2) Identifying energy efficiency opportunities during the Concept Engineering stage by considering:
    a) Optimum methods or processes to produce outputs
    b) Alternative technology choices

3) Identifying energy efficiency opportunities, for energy-consuming systems that make up at least 80% of the total energy consumed, as calculated in the FEED stage, considering:
    a) Location and arrangement of equipment to allow opportunities such as heat transfer between processes
    b) Best available technologies and best operating practices
    c) Alternative technology choices

4) Assessing the feasibility of implementing each energy efficiency opportunity identified in (2) and (3), based on the following criteria:
    a) Cost of investment
    b) Operations cost
    c) Annual energy savings as compared to a proposed option
    d) Financial savings
    e) Payback period or internal rate of return
    f) Annual carbon emissions
    g) Other criteria, economic or otherwise, where appropriate
    h) Other non-energy benefits (e.g. improvement in productivity)
    i) Potential interactions between various opportunities

5) Incorporating shortlisted energy efficiency opportunities into a final design, and calculating the energy and carbon savings from each of these opportunities incorporated

6) Develop a final design with the following details:
    a) Layout, energy balance and process flow diagram of the new venture
    b) Expected annual energy consumption, by type(s) of fuel or energy commodity
    c) Expected quantity of output(s)
    d) Expected specific energy consumption (energy consumed divided by output)
    e) Expected annual carbon emissions
    f) For energy-consuming systems that make up at least 80% of the calculated total energy consumption of the new venture:
        i. Type and description of system
        ii. Projected annual energy consumption, by type(s) of fuel or energy commodity
        iii. Projected output
        iv. Projected specific energy consumption
        v. Projected annual carbon emissions

Annex 3

EEOA Reporting Requirements

1) An executive summary of the report

2) Background of new venture and EEOA plan

3) Details of the final design (as spelled out in point 6 of Annex 2 of this document)

4) Expected energy use and specific energy consumption of the new venture, at the Concept Engineering and FEED stages

5) Process of identification and analysis of energy efficiency opportunities, during the Concept Engineering stage, and for energy-consuming systems that make up at least 80% of the calculated total energy consumption of the new venture in the FEED stage. The analysis for each opportunity shall include:
    a) An explanation why it was selected/ not selected
    b) Energy performance relative to the system in the design
    c) Cost of investment
    d) Estimated cost of operations
    e) Expected annual energy savings and reduction in carbon emissions compared to the system in the design
    f) Expected financial return
    g) Payback period or internal rate of return