The process concept study of any capital project is the primary step to delivering a successful, cost effective project.

The initial stages of any project are critical to its success. There are typically multiple technologies that may satisfy the technical brief, however wider business drivers must also be taken into account in order to identify the preferred solution. It is essential to identify the projects success criteria and their relative importance based on a customer’s individual needs to ensure the most suitable option is chosen. ABB’s process concept study methodology allows the operator to evaluate multiple options at the early stages of a project with minimal impact on project cost.

**What we offer**

At ABB, we work closely with the operating company to get a full understanding of what the project is required to achieve and the drivers that are in place and must be adhered to. Our experienced engineers develop and evaluate the different options, and rank them against the agreed success criteria. Typical criteria that may be considered include:

- Safety
- Capital cost
- Operational cost
- Operability
- Constructability
- Reliability
- Maintainability
- Sustainability
- Timescales
- Risk levels

The approach generally follows the steps shown in figure 1.

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**Fig 1 - The study steps.**

- **Problem**
  - Understand customer need
  - Define project fully with customer

- **Drivers**
  - Understand business drivers
  - Develop and agree success criteria

- **Options**
  - Review process options
  - Develop technical solutions

- **Analyse**
  - Preliminary process design
  - Budget cost generation
  - Rank options against agreed criteria

- **Solution**
  - Presentation of viable solutions
  - Recommendation of preferred option
  - Next steps
ABB’s approach to process concept studies has proven to be successful for many clients. By using ABB the operator can:

- Be confident that the study is being performed by engineers who have worked on plant, understand real world issues and will generate pragmatic solutions
- Save time and money by minimising re-work at later stage of project
- Have confidence to proceed with the project
- Reduce demand on operator in-house engineering resource
- Receive unbiased advice - independent of technology suppliers
- Take delivery of a cost estimate that can be used to sanction the project for the next step

Our experience
ABB have a strong track record in delivering process concept studies. Below are some examples of projects delivered to clients:

- Study of options for a hydrogen plant revamp
- Compression and convertor option study for methanol plant
- Feasibility study for a 35% capacity increase of an ammonia plant
- Reconfiguration of hot oil heaters for a refinery
- Odour control for speciality chemicals manufacturer
- Automation of manual process steps for a pharmaceutical manufacturer
- Option study for BAT flowsheet for latex facility
- Tank replacement study for oil and gas company

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Option study scorecard.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Health and safety</th>
<th>Capital cost</th>
<th>Opex</th>
<th>Score</th>
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Why ABB?
ABB works with a wide range of process industry customers, supporting project development and providing option studies.

Some of the reasons people work with us are:

- ABB acts independently of any EPC contractor
- We have a broad specialist functional engineering expertise to provide support to the process function
- We structure and present the study in an easy to understand way
- Our approach has been proven to be cost effective and many projects have been taken forward to the next project stage
- Have access to leading industry experts

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ABB’s front end service offer
Process concept studies forms part of ABB’s front end engineering services. These services include:

- FEED
- FEED health check
- Rapid and accurate project development
- Project risk management
- Process concept studies
- Contracting strategies
- Project value analysis
- Technology scale-up risk assessment

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