The development of a robust and cost effective Front End Engineering and Design (FEED) package is vital to the successful delivery of a capital investment project. The FEED package includes details of the project such as scope, layout, delivery schedule and estimate on which a business will make a sanction decision. Mistakes or omissions at the FEED stage can lead to escalating costs, schedule overrun or lost business opportunities later in the project. Unnecessary over development of the FEED package results in money wasted if the project is subsequently not sanctioned.

ABB has a mature process that ensures only the engineering and design necessary to deliver an accurate project scope, schedule and estimate is produced during the front end phase of a project.

Our clients can confidently base their sanction decision on our installed cost estimates plus the documentation we prepare during FEED can be relied upon to form a sound basis for the subsequent engineering, procurement and construction phases of the project.

ABB has extensive experience in developing FEED packages for revamps and uprates of existing plants. Brownfield work of this nature has its own unique set of challenges, not experienced when completing a greenfield project. These challenges include; lack of design and condition data for existing equipment; working safely within operating plants; the need for complex shutdowns and tie ins; working with the physical and capacity constraints of the existing equipment.

**What we offer**
ABB can provide experienced project and functional engineers to take your project from the initial concept through to a fully developed front end engineering package complete with an installed cost estimate, which can be used to confidently sanction your project.
We ensure the chosen solution is developed so as to fully align with your strategic business objectives.

- Technology and process options - we use AspenTech’s suite of process modelling tools as well as our own comprehensive, process properties software (PEL) to develop the process engineering specification, including process flow diagrams and associated heat and mass balances
- Layout and scheme development - we make use of AutoCAD and PDMS 3D modelling to ensure rapid development, evaluation and optimisation of equipment schemes and layouts
- Functional engineering surveys - our experienced engineers and designers will review existing plant designs and survey the existing plant to ensure that any limitations in existing plant capacity, such as services and utilities or equipment conditions, are understood and allowed for in the developing project scope
- Development of cost estimates - we use Aspen Capital Cost Estimator to allow us to rapidly develop cost estimates at an early stage in the project’s development. This is particularly powerful when the comparison of alternative schemes is required, allowing only those elements that vary from one scheme to the other to be updated in the cost database. The options can be quickly assessed and optimised with the preferred option taken forward for further development
- Design reviews - our proven project process includes the use of a number of design reviews, including hazard reviews, flowsheet, P&ID and layout reviews to ensure the design is optimised for safety, cost, operability and maintainability; meeting all of the client’s key project objectives
- Value analysis and risk management studies - we are experienced in carrying out a range of Value Engineering studies at different stages of a project to challenge and test the basis and scope of a project, helping to ensure it is properly aligned with the business needs and is delivering good value for money. Our process for project risk reviews helps a project team to understand and properly manage the risks to achieving its objectives

Benefits
ABB’s approach to the development of FEED packages offers our clients a number of benefits:

- Experienced engineers and designers who ensure alignment of the developed engineering definition with the client’s project strategy and overall business objectives
- Confidence that the process solution developed will be optimised and will deliver the project objectives
- Confidence that the project schedule and estimate will be realistic and achievable
- The FEED package produced will form a firm foundation for later stages of the project, with no unpleasant surprises
- Confidence that the particular considerations relating to brownfield projects have been taken into account

Why ABB?
ABB provides professional engineers and designers with decades of experience in the delivery of FEED packages. Our operational heritage means we have particular skills and knowledge in the delivery of revamp and uprate projects on high hazard, brownfield sites, using a tried and tested project process accredited to ISO 9001.

We ensure that not only plant efficiency, but operability and maintainability are considered from the outset. We maintain a focus on the key elements of FEED to ensure the project is accurately defined and the installed cost estimate does not significantly escalate when the project moves into later phases of development.