ZEPPELIN SYSTEMS VALUE ENGINEERING: POLYMER PLANTS

SYSTEM FOR SUCCESS

ZEPPELIN
WE CREATE SOLUTIONS

zeppelin-systems.com

ENGINEERING YOUR SUCCESS

ABOUT ZEPPELIN SYSTEMS

Zeppelin Systems specializes in the design, construction and technological upgrading of industrial plants for storing, conveying, mixing, dosing, and weighing high-quality bulk materials and raw materials. From plant engineering and project implementation to aftersales service including process optimization. As an integrated solution provider, Zeppelin Systems delivers complete solutions from a single source.

WE ARE EXPERTS IN PLANT ENGINEERING

OUR EXPERIENCE GUARANTEES YOUR SUCCESS!

Zeppelin Systems individually develops and manufactures every plant. It goes without saying that, in doing so, we address the needs and challenges of our customers. We develop tailored solutions using innovative processes, smart technologies, high-performance components and efficient services, depending on the industry and sector.

Zeppelin Systems draws on many years of cross-industry experience and is a professional in the handling of high-quality bulk materials. The wide-ranging portfolio is rounded off by the unique worldwide network of technology centers, which performs trials and tests on an industrial scale. This ensures one thing: Your success! **WE CREATE SOLUTIONS!**

ZEPPELIN SYSTEMS' BUSINESS SEGMENTS

- **FOOD INDUSTRY**
- **RUBBER AND TIRE INDUSTRY**
- **PLASTICS INDUSTRY**
- **CHEMICAL INDUSTRY**
- **BATTERY INDUSTRY**

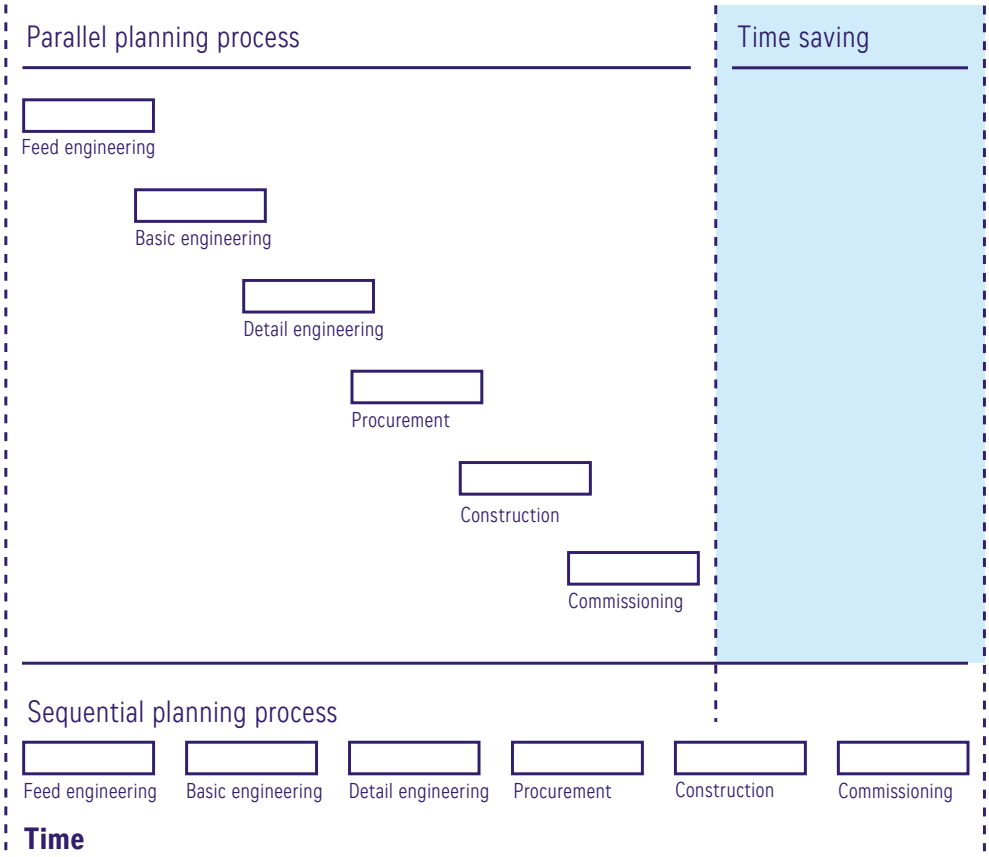
- **STORAGE AND DISCHARGING**
- **CONVEYING**
- **WEIGHING AND DOSING**
- **MIXING AND KNEADING**
- **FILTERING AND SEPARATING**
- **PREPARATION**
- **SERVICE**

FASTER, SMARTER, BETTER

ZEPPELIN SYSTEMS VALUE ENGINEERING

More value for more success – this is what we strive for. Our engineering departments all over the world apply all their experience and knowledge in the optimization of planning processes. The result: an innovative concept that not only saves time, but also reduces costs. We call it value engineering. For you, this means market edge, whether for new plants or plant expansion.

PHASE MODEL OF A PROJECT



Project phases that run in parallel require pre-engineering. On the one hand, the duration of the project can be considerably shortened. On the other hand, the increased risk, compared to a sequential planning process, becomes more manageable thanks to professional pre-engineering.

FRONT-END LOADING (FEL)

Optimizing planning processes while saving time and money. That is the goal of Zeppelin Systems Value Engineering. We start the process at a point in time when project costs can still be influenced: at the initiation phase.

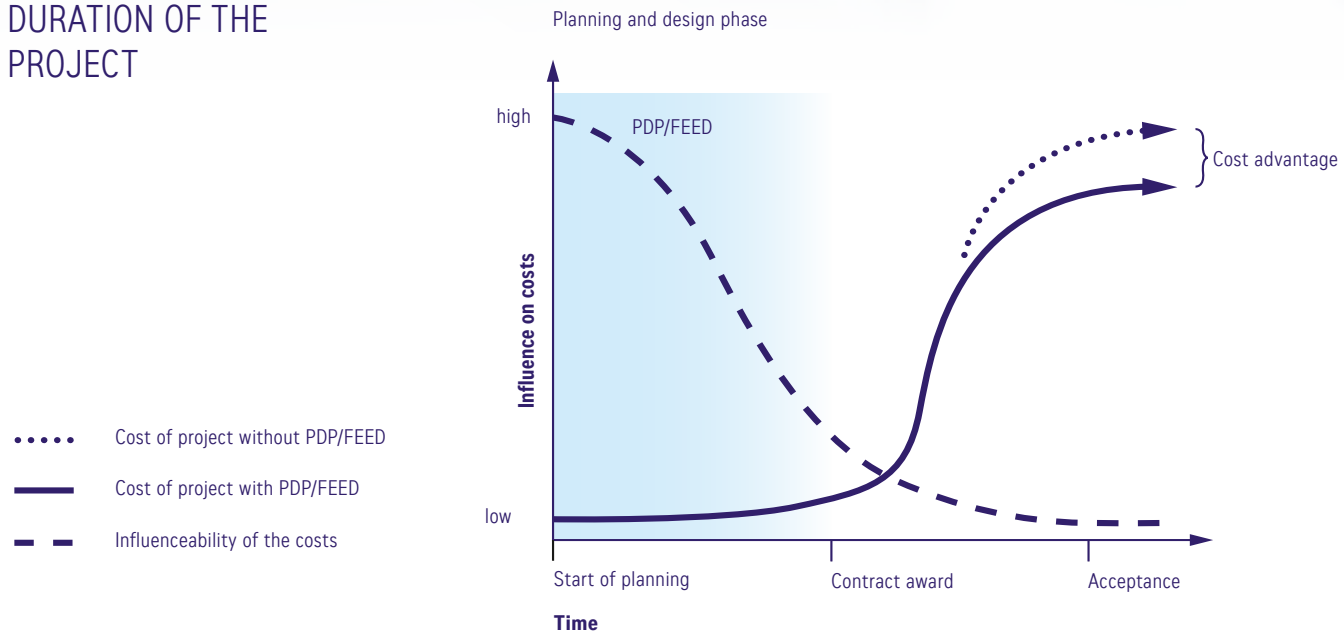
FEL can be gradually implemented in the design process and ends with the BASIC engineering or the request for bids of the project. Zeppelin Systems provides the necessary know-how for all FEL phases as well as the appropriate engineering services that will optimize your project at any given time.

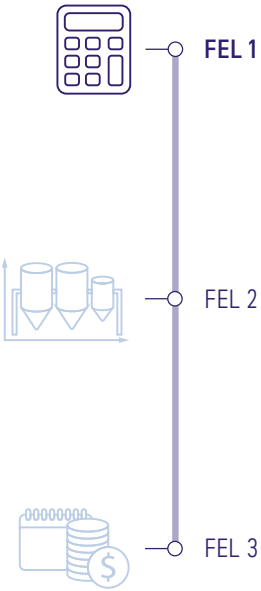
THE PLANNING PHASES

- FEL 1 – Project Design Package (PDP)
- FEL 2 – Front-End Engineering Design (FEED)
- FEL 3 – Basic Engineering (BASIC)

Project costs can be significantly influenced in the initial phase, but only very little once the project is in execution.

DURATION OF THE PROJECT





FEL 1

PROJECT DESIGN PACKAGE (PDP)

Simulations and calculations are the basis for a realistic estimation of the anticipated costs. Step 1 of an FEL consists in determining the main components and providing a first assessment of the thermal and material balances.

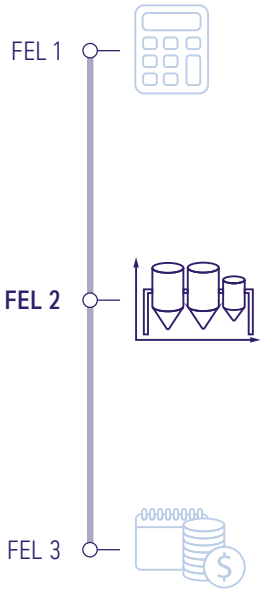
The result is a PFD with the main components process data as well as a cost estimate of all the components.

We carry out the preliminary simulation of pneumatic conveying systems, of a degassing process for monomer containing polymers, of the storage and blending process up to the logistics facility of polymers.

- PFD
- Simulation
- Concept development
- Cost estimate

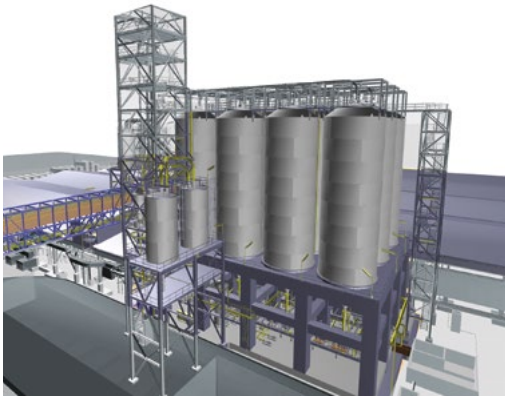
FEL 2

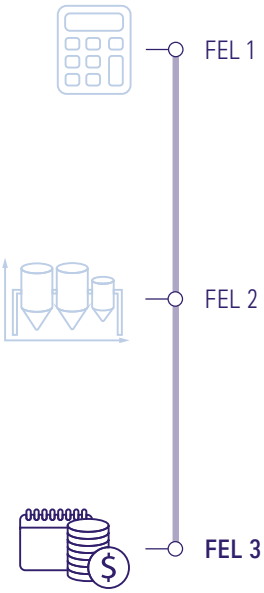
FRONT-END ENGINEERING DESIGN (FEED)



In step 2 of the FEL phase, focus is set on the technical realization of the plant. The main components (silos, blenders, blower stations, bagging units, warehouses and pipelines) are integrated into an overall layout plan. We create the necessary PFDs, determine the energy required and support you in the dimensioning and specification of the main components.

- PFD
- Dimensioning of the main components
- Specification of the main components
- Energy required
- Overall layout plan
- Budget proposal
- Timetable





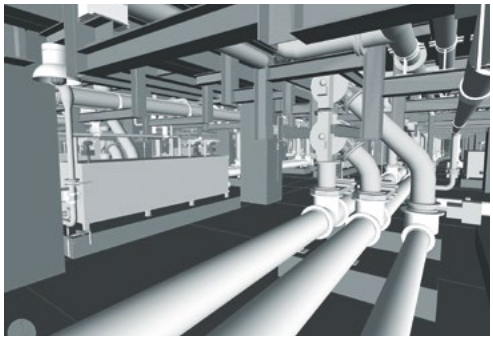
FEL 3

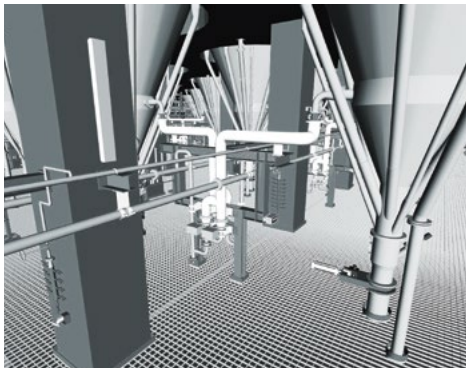
BASIC ENGINEERING (BASIC)

The more accurately costs, volumes, deadlines, time and efforts can be determined, the more efficiently a project can advance. Zeppelin Systems will also support you in every matter related to step 3 of FEL.

In this phase, which represents the completion of the Front-End Loading, inaccuracies are reduced. Quantity structure, deadlines, number of hours required and costs are determined much better and more accurately.

P&IDs for the project as well as other relevant documents for the realization of the plant result from FEL 3.





- E/I&C design
- Civil engineering
- Specification of instruments
- P&ID
- Final compilation and arrangement of the plants and main components
- Bill of material
- Timetable
- Budget

FROM A TO ZEPPELIN

TECHNOLOGICAL LEADERSHIP INCLUDED

As the world leading manufacturer for high quality bulk material handling, we can of course also support you in all other steps of the project. Product testing, studies on performance enhancement, design of degassing silos and process vessels, expansion and extension of existing logistics or dedusting plants, risk management analysis for bulk material plants, handling of new polymer grades, etc.: we have a wide scope of services and our professional project management is renown all over the world.

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