

Client provides pertinent information for desired plant:

Product(s) to be Produced

Raw Materials Available

Available Utilities

Local Environmental Conditions

A set of technical deliverables are mutually agreed upon; these are incorporated into the contract between the parties

Typical time frame: Approx. 4 weeks.



Contract executed; first payment received



PrimeStar delivers a simplified process description for review and approval

Upon approval and sign off by client, begin Process Design Package

The PDP begins with Heat and Material Balance (HMB). Upon completion, HMB delivered to client for approval. Time to complete HMB: 4 weeks - 3 months

From the HMB a process flow diagram is developed, including a detailed equipment list, raw material consumption, average utility consumption, detailed process description, start up and shut down procedures, control logic parameters, troubleshooting info

PDP completed and provided to client for approval

PDP is delivered electronically and both hard copy and CD/DVD

Typical time frame: 3-6 months



PrimeStar and client agree upon set of deliverables for the BEP

Design Process and Instrumentation Diagrams (P&ID's) are submitted to client for review and approval

Upon approval of P&ID's, the development of a plot plan of the overall plant is started; preliminary plot plan

Once preliminary plot plan is laid out, exact equipment is then specified; then exact utility requirements are specified

Electrical diagrams completed

Piping layout completed

Additional BEP items, if applicable

Plot plan finalized

BEP completed and delivered to client for approval in electronic form and hard copy

Typical time frame: 4-6 months



## If client desires a Pilot Plant, this phase will run concurrently with the PDP/BEP

Typical Pilot Plant design goals:

Engineering steps to complete Pilot Plant design:

- ✓ New process development
- Process demonstration & process economics
- ✓ Technical service and problem solving for existing or planned plant
- ✓ New product development
- Market development and assistance
- ✓ Operator and engineering training

Typical time frame: 6-9 months

- ✓ Complete process flow diagrams
- Complete heat and material balance
- ✓ Materials of construction
- ✓ Complete process and instrumentation diagrams
- ✓ Size and specify custom equipment
- Complete 3D layout drawing for major equipment
- ✓ Complete Pilot Plant
- ✓ Design Description Document