

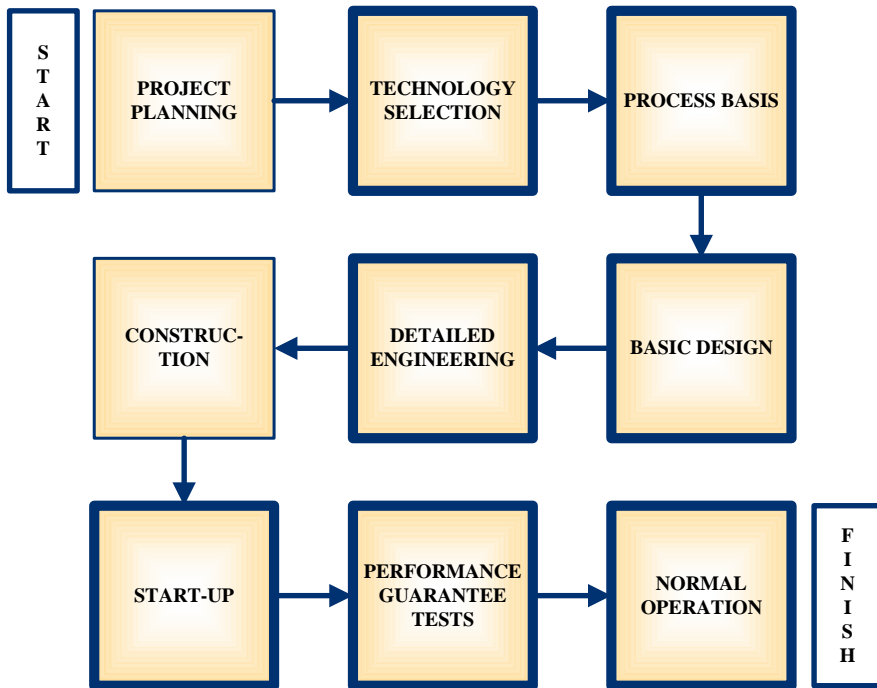


PROCESS SUPPORT OF CAPITAL PROJECTS

In recent years, the hydrocarbon industry has undergone major personnel changes. As a result, companies generally have lower manpower and average experience levels than they had ten years ago. This is true at owner companies, contractors, and equipment manufacturers.

This situation presents a major challenge to the refiners advancing major capital projects. Carmagen Engineering, Inc. (CEI), with its large pool of exceptionally experienced specialists, can provide expert process support to the clients in all phases of project development and implementation (see Figure).

Key CEI project-related process follow-up activities include, but are not limited to, the following:



- Preparation and/or review of the refinery inputs to process licensors
- Technology selection assistance
- Participation in the kick-off meeting with the licensor/engineering contractor
- Basic Design Review in contractor's office (mid-point review)
- Basic Design Review (final)
- HAZOP review of the Basic Design
- Preparation and/or review of the Operating Guides
- Review of the Operating Manuals
- Start-Up Assistance
- Performance and/or Guarantee Test participation

OUR EXPERIENCE: Carmagen Engineering has provided extensive process follow-up assistance for many capital projects worldwide. These include multiple projects in the USA and Europe.

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