Advantages of the Optimized Cascade Process Technology

High Availability
- "Two-trains-in-one" configuration yields approximately 95% plant availability, with high efficiency during turndown

Proven Technology
- Over 50 years’ operation
- 26 trains producing more than 105 MTPA at 12 plants
- Designed and built plants with broad range of ambient temperatures and feed compositions

Flexible Operations
- Easy to start up, shut down, operate and maintain with fast startup cycles and wide operating range
- Cold boxes retain cold temperatures during extended outages, which translate into faster startup cycles
- Widest range of plant turndown capability from 100% to 10% of nameplate capacity
- Shifting load between refrigeration circuits allows for quick response to changing operating conditions

High Thermal Efficiency and Low Emissions
- Use of brazed aluminum heat exchangers, centrifugal gas turbines, and waste heat recovery systems yields high efficiency and lower emissions
- Refrigerants retained in process and not flared during shutdowns

Integrated Design Options
- Improve overall LNG plant thermal efficiency and economics with integrated heavies removal and/or nitrogen rejection units
- Increase LNG production and efficiency with:
  - gas turbine power augmentation (air cooling or humidification, water injection, etc.)
  - gas and flashing liquid expanders
  - combined cycle/oxygenation

ConocoPhillips Optimized Cascade® Process

Add ConocoPhillips to Your Team

ConocoPhillips, with experience as an owner, licensor and operator of LNG facilities:
- Consistent development and application of best practices from more than 50 years of operation
- Experience working with many different EPC contractors around the world

Predictive Outcomes
- Competitive capital and operating costs
- Simple and flexible operations: easy to start up and operate

Owner’s Perspective
- Broad experience in all aspects of the LNG value chain
- Shares available design and operational insight with licensees

Services and Support Expertise
- Experienced subject matter experts
- Provide engineering and operations services during all project phases
- Provide quality assurance of key process equipment
- Ensure safe, successful commissioning and startup
- Provide post-startup technical and operations support

ConocoPhillips Optimized Cascade® Process

Simplified Plant Layout

Refrigeration Compressor
LNG Storage
LNG Metering/Pumps
Ethylene Cold Box
Nitrogen Rejection Unit (optional)
Methane Cold Box
Water and Mercury Removal
Ammonia Treating
Propene Condensers
Main Pipe and Cooling Rack
Propane System
Ethylene Cold Box
Nitrogen Rejection Unit (optional)