REFERENCE PROJECTS

ETHYlene
PROPYLENE
LPG
AMMONIA
**PROJECT**

*Project name:* Ammonia Storage Terminal  
*Country:* Varna, Bulgaria  
*Client:* adapt for Oiltanking

*Year:* 2000  
*GOC project:* 7001

**PROJECT DESCRIPTION**

Terminal to import Ammonia by ships  
Marine unloading system @ 15,000 m³/h  
Refrigerated storage tanks @ 2 x 15,500 m³  
Send out system including  
Discharge to production plant @ 37.5 t/h  
Rail tank car loading @ 61 t/h

**PROJECT PHASES**

Technical/commercial study

**GOC DISCIPLINES**

Process  
Mechanical & rotating equipment  
Commercial

**GOC WORK SCOPE**

Technical study  
costing of plant equipment
<table>
<thead>
<tr>
<th>PROJECT</th>
<th>Ethylene Terminal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country:</td>
<td>Petroquimica Triunfo, Brazil</td>
</tr>
<tr>
<td>Client:</td>
<td>Whessoe Oil &amp; Gas</td>
</tr>
<tr>
<td>Year:</td>
<td>2000</td>
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<tr>
<td>GOC project:</td>
<td>7003</td>
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</tbody>
</table>

**PROJECT DESCRIPTION**

Ethylene storage system as part of a production plant

- Refrigerated storage tank @ 1 x 7,100 m³
- Ethylene BOG compressor
- Ethylene vaporizer
- Methanol system
- Send out system including
- Discharge to production plant 25 m³/h @ -104 °C

**PROJECT PHASES**

- Technical/commercial study

**GOC DISCIPLINES**

- Process
- Mechanical & rotating equipment
- Commercial

**GOC WORK SCOPE**

- Technical review
- Costing study
**PROJECT**  
*Project name:*  
Salalah Gas Pipeline  
*Country:*  
Oman  
*Client:*  
ILF & Partners  

*Year:*  
2000  
*GOC project:*  
7004

**PROJECT DESCRIPTION**  
LPG extraction plant as part of the Salalah Gas Pipeline in Oman including  
Dehydration system  
Gas treatment unit  
Compression unit  
Cryogenic gas processing unit  
Fractionation system  
Product storage  
Loading unit

**PROJECT PHASES**  
Technical study

**GOC DISCIPLINES**  
Process  
Mechanical & rotating equipment  
Commercial

**GOC WORK SCOPE**  
Technical review of outline documents  
Site selection review
**Project name:**
LPG Terminal DMCC

**Country:**
India

**Client:**
Whessoe Oil & Gas

**Year:**
2001

**GOC project:**
7006

**PROJECT DESCRIPTION**
LPG import terminal in India to import Propane or Butane
Marine unloading system, design flow rate 1000 t/h
Refrigerated storage tanks, 2 x 25,000 m³
BOG reliquefaction system
LPG blending system
LPG Heater system
Safety system
Instrumentation & control
Piping & valves
Utility system
Flare System

**PROJECT PHASES**
Tender phase

**GOC DISCIPLINES**
Process
Mechanical & rotating equipment
Electrical & instrumentation
Commercial

**GOC WORK SCOPE**
Pre-bid assistance
Process design
Process description
Layout
Costing of equipment
LPG Recovery Plant

Country: Poland
Client: ILF
Year: 2001
GOC project: 7008

LPG Recovery Plant for Wladyslawowo CHP Project
Slug catcher
Deethanizer
Debutanizer
Cold separator
Condenser
Feed cooler
Reflux pumps
Transfer pumps
Reboiler
Flare system

Tender phase

Process
Mechanical & rotating equipment
Electrical & instrumentation
Commercial
Piping & valves
Pre-bid assistance
Process design
Process flow diagram
Sizing of equipment
Costing of equipment
**Project name:** Ammonia Storage Facility  
**Country:** Middle East  
**Client:** UK  
**Year:** 2001  
**GOC project:** 7009/7013/7014

**Project Description:**  
New Ammonia storage facility within an existing production plant  
Refrigerated storage tank, 5,000 mt  
Reliquefaction system  
Send out system  
Safety system  
Instrumentation & control  
Piping & valves  
Utility system  
Interface with existing system

**Project Phases:**  
Tender phase

**GOC Disciplines:**  
Process  
Mechanical & rotating equipment  
Electrical & instrumentation  
Commercial  
Tanks  
Piping & valves

**GOC Work Scope:**  
Pre-bid assistance  
Process design  
Process flow diagram  
Sizing of equipment  
Costing of equipment
**Ethylene**

**Propylene**

**LPG**

**Ammonia**

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**PROJECT**

*Project name:* PPC Off-site Facilities  
*Country:* Middle East  
*Client:* adapt for Intecsa-Uhde  
*Year:* 2003 - 2004  
*GOC project:* 7031/7037/7057

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**PROJECT DESCRIPTION**

LPG storage facility within a grassroots petrochemical complex  
Refrigerated storage tank for Propane, 120,000 m³  
Refrigerated storage tank for Butane, 60,000 m³  
Tank instrumentation  
Tank safety valves

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**PROJECT PHASES**

Engineering

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**GOC DISCIPLINES**

Process  
Electrical & instrumentation  
Safety

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**GOC WORK SCOPE**

Sizing of tank safety valves  
Design, engineering for tank instrumentation  
Inquiry specification for instrumentation and valves
**Ethylene**  
**Propylene**  
**LPG**  
**Ammonia**

**PROJECT**

- **Project name:** PPC Off-site Facilities  
- **Country:** Middle East  
- **Client:** adapt for Intecsa-Uhde  
- **Year:** 2004  
- **GOC project:** 7037

**PROJECT DESCRIPTION**

LPG storage facility within a grassroots petrochemical complex  
Refrigerated storage tank for Propane, 120,000 m³  
Refrigerated storage tank for Butane, 60,000 m³  
Tank instrumentation  
Tank safety valves

**PROJECT PHASES**

Engineering

**GOC DISCIPLINES**

- Process  
- Electrical & instrumentation  
- Safety

**GOC WORK SCOPE**

Roll-over study
### PROJECT

**Project name:**
LPG Terminal, La Libertad

**Country:**
Ecuador

**Client:**
adapt for Dragados

**Year:**
2005

**GOC project:**
7045

Source: Dragados

### PROJECT DESCRIPTION

- Propane and Butane unloading and storage
- Marine unloading facilities
  - 1 x 21,000 m³ DWST single containment tank for Propane
  - 1 x 47,000 m³ DWST single containment tank for Butane
- BOG handling
- Send out pumps
- LPG Send out system with static mixer, LPG Heater and LPG booster pumps
- Flare system
- Instrumentation and control
- Utility system

### PROJECT PHASES

- Tender

### GOC DISCIPLINES

- Process
- Electrical & instrumentation
- Safety

### GOC WORK SCOPE

- Functional technical specification
- Costing study
**Ethylene**

**Propylene**

**LPG**

**Ammonia**

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**PROJECT**

*Project name:* Panipat Naphta Cracker  
*Country:* India  
*Client:* Larsen & Toubro Ltd. for IOCL  
*Year:* 2005  
*GOC project:* 7054

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**PROJECT DESCRIPTION**

Ethylene storage and transfer system including  
2 x 21,600 m³ full containment tank for Ethylene  
Ethylene BOG compression system  
Ethylene emergency vaporization system  
Ethylene pumping system  
Propylene storage and transfer system including  
2 x 15,600 m³ full containment tank for Propylene  
Propylene BOG compression system  
Propylene heating system

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**PROJECT PHASES**

Pre-bid assistance

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**GOC DISCIPLINES**

Process  
Mechanical & rotating equipment  
Electrical & instrumentation  
Safety

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**GOC WORK SCOPE**

Process engineering  
Tank engineering  
Costing study
**Project name:** PPC Off-site Facilities  
**Country:** Middle East  
**Client:** adapt for Intecsa-Uhde  

**Year:** 2005  
**GOC project:** 7057

**PROJECT DESCRIPTION**  
LPG storage facility within a grassroots petrochemical complex  
Refrigerated storage tank for Propane, 120,000 m³  
Refrigerated storage tank for Butane, 60,000 m³  
Tank instrumentation  
Tank safety valves

**PROJECT PHASES**  
Engineering

**GOC DISCIPLINES**  
Process  
Electrical & instrumentation  
Safety

**GOC WORK SCOPE**  
Purge and cool-down procedure for refrigerated tanks
**Project name:** Ethylene storage tank  
**Country:** Germany  
**Client:** Ineos  

**Year:** 2005/2006  
**GOC project:** 7056

**PROJECT DESCRIPTION**  
Existing Ethylene storage tank within a Ethylene production plant  
1 x 4,000 m³ single containment tank for Ethylene  
Ethylene send out system with Ethylene pumps installed in a pump cellar below ground level.  
Ethylene vaporizer system

**PROJECT PHASES**  
Technical and commercial study

**GOC DISCIPLINES**  
Process  
Mechanical & rotating equipment  
Electrical & instrumentation  
Safety  

**GOC WORK SCOPE**  
Detailed study to upgrade the safety level of the Ethylene tank.  
Process engineering  
Tank engineering  
Process engineering  
Tank engineering  
Costing study