Engineering

Innovation

CAPABILITY STATEMENT
Our Mission

is to develop long-term partnerships with our customers in order to help them meet the individual objectives of their projects. We use multi-skilled projects-teams to develop innovative technological solutions to optimize economic and technical performance. Our expertise gained as an operator of LNG facilities as well as from operational support plays a decisive role to effectively respond to the engineering challenges.

We are a 100% Independent Engineering Consulting Company

with more than 30 years of experience in the design, construction and operation of LNG facilities, gas processing as well as hydrocarbon storage & transport infrastructure.

MEI was founded in 1976 to provide independent consulting services for cryogenic engineering and in particular LNG facilities such as LNG Peak Shavers, small to midsize liquefaction plants and LNG Import and Regasification Terminals. Years of experience in Design, Construction and Operation of LNG Plants allow us to provide a wide range of services from small consulting engagements to large-scale energy infrastructure projects.

Our approach for every project is to:

- Carefully analyze the Unique Challenges for every individual project
- Apply Innovative Technologies in order to minimize cost and improving operational efficiency, reliability and safety
- Incorporate our Vast Experience and Operational Feedback in our design workflow

EPC Capability

MEI has Engineering & Construction licenses in various states and has successfully carried out modifications/modernization and safety upgrades in LNG facilities as an EPC Contractor.
MEI offers a comprehensive range of engineering and consulting services for the Oil & Gas industry.

We specialize in engineering solutions for LNG facilities; Gas Processing and Hydrocarbon Storage & Transport Infrastructure.

We develop customized and innovative solutions to meet our clients’ needs.

Our technical expertise and experience in the design, construction and operation of Oil & Gas facilities is valuable for an independent review and a due diligence process that financial institutions and investors require for the large scale investments in the energy sector. Our experts provide support with privatization projects and sell-off processes on behalf of our clients.

What distinguishes MEI is the extensive experience in the operation of LNG facilities. The operational feedback from facilities designed by us is a key factor in our design and review process for new facilities.

MEI has a history of introducing Innovative Engineering Solutions in the LNG sector such as:

- New Design for Recondenser Units to provide more operational flexibility for High & Low Send-out
- Conceptual design of a regasification process on board an LNG Carrier

Conversion of a LNG vessel to an off-shore LNG production unit with Feed Gas treatment and Nitrogen Expander based liquefaction units
Our services

Consultancy

- Technical Due Diligence
- Technical, Economical, and Legal Feasibility Studies
- Environmental and Social Impact Assessments
- Technical Evaluations
- Feed Gas Pre-Treatment
- Safety Engineering & Upgrades

Engineering & Design

- Conceptual Design
- Permit Applications
- Front End Engineering Design (FEED)
- Authority Engineering (FERC)
- Detailed Engineering
- Engineering during Construction

Project Management

- Project Scheduling
- Cost Risk Analysis
- Change Management
- Bid Review with focus on technical, quality and commercial aspects
- Prequalification of suppliers and sub-contractors
- Preparation and review of Project Quality, Health, Safety, Security and Environment System Procedures
- Preparation and establishment of Document Management Systems and Procedures
- Inspection and Expediting during manufacturing/ pre-fabrication; Factory Acceptance Tests
- Construction Management

Special Services & Studies

- Hazard Identification (HAZID)
- Hazard Operability Study (HAZOP)
- Safety Analysis, Safety QRA, Consequence Analysis
- Operating & Maintenance Manuals & Procedures
- Operator & Maintenance Staff Training
- Hazard Evaluation & Detection Systems
- Fire Protection Evaluation in accordance with NFPA
- Safety Programs emphasizing Accident and Loss Prevention
- Compliance with OSHA & British Safety Council
- HSE & QA/QC Audits
Procurement & Expediting

- Cost estimates
- Land acquisition
- Procurement strategy
- Elaboration of tender documents
- Tender evaluation and assistance in contract negotiation
- Expediting, Site Inspection & FAT

Construction

- Specialized EPC
  - Equipment Replacement/Modernisation
  - Plant Capacity Increase
  - Plant Modifications
  - Safety Upgrades

Construction Supervision

- Safety Coordination and Site supervision
- Site supervision in accordance with legal construction requirements
- Independent supervision of safety measures and adherence to safety procedures
- Coordination of multiple contractors on site, continuous contractor supervision
- Inspection and Test supervision
- Change Management
- As-built documentation
- Project Control
- Occupational health and safety management

Commissioning & Start-up

- Elaboration and coordination of commissioning, takeover and performance test program as well as start-up procedures
- Supervision of commissioning, takeover and performance tests as well as start-up
- Supervision and coordination of trial run as well as takeover of plant
- Acceptance test and pertinent certificates
- Elaboration of operating and maintenance manuals
- Staff training
- Operational Optimization
Some of our projects

LIQUEFACTION NATURAL GAS ENGINEERING DUE-DILIGENCE IN ALASKA, USA

Client: HDR Alaska, Inc. Fairbanks, Alaska – USA
Project Value: Confidential
Execution Period: 2013 - ongoing
Technical Data: Liquefaction of Natural Gas - Engineering Due-Diligence
- 3x 100,000 GPD Liquefiers
- 15 MW Power Generation
- 2x 75,000 Gal Holding Tanks
- Feed Gas Pipeline
- 5.25 Million Gallon Storage Tank
- 10x Tractor Trailers
Services:
- Cost Estimate
- Process Technologies
- Schedule
- Suggested Future Build-Out
- Code Compliance and Permitting
- Suggested Design Modifications

PRE-FEASIBILITY LOCATION STUDY – CHILE

Client: GHS, S.A. – Santiago, Chile
Project Value: Confidential
Execution Period: 2013 - ongoing
Technical Data:
- LNG FSRU Terminal, including offshore platform (82.5mX44.0m) with two parallel berths.
- FSRU Storage Capacity: 135,000m³ to 170,000m³
- Re-gasification Capacity: 10,000,000 m³/d
- LNG Arms Transfer rate: 5000m³/h
- Natural Gas Pressure To The Pipeline: 80bar
Services:
- Provide preliminary safety analysis with regard to proposed FSRU location
- Preliminary Vapor Dispersion/Thermal Radiation Calculations
- Review Terminal Layout/Location
- Review Maximum Total Air Draft
- Participate in Risk Analysis Study
FLNG REGASIFICATION TERMINAL IN KAKINADA – INDIA

Client: VGS Group, Inc., New Jersey – USA
Project Value: Confidential
Execution Period: 2013 - ongoing

Technical Data:
- Annual LNG Terminal throughput of 3.6 MTPA
- One FSU (Floating Storage Unit) of LNG holding capacity of 139,000 m³ to 170,000 m³
- One FRU (Floating Regasification Unit) capable of up to 750 MMscfd send out
- Sub-sea Pipeline from FRU to Onshore Facility at 110 barg
- Fixed Mooring System

Services:
- Validation of LNG terminal throughput of 3.6 MTPA at 110 barg
- Validation of process design on FRU and transfer of LNG between FRU, FSU and LNGC.
- Development of shipping schedule based on 3.6 MTPA.
- Review of BOG handling system for normal and LNGC transfer operations.
- Sizing of Sub-Sea Pipeline

LNG PLANT MODERNIZATION ENGINEERING SERVICES IN CONNECTICUT – USA

Client: UIL Holdings Corporation, Connecticut – USA
Project Value: Confidential
Execution Period: 2012 - ongoing

Technical Data:
- LNG Tank with 356,200 BBL capacity
- Liquefaction Plant with 6 MMSCFD
- Regasification with 90 MMSCFD via Submerged Combustion Vaporizers (3)

Services:
- Upgrading both facilities to increase service life by an additional 25 years.
- Specifying and installing (4) new 120 MMSCFD Submerged Combustion Vaporizers
- New Emergency Generator sizing and installation
- Replacing plant control systems
- Installation of new LNG pumps
- Installation of new purification skid (11MMSCFD)
- Installation of new cooling tower
- Environmental permit assistance
FEED FOR BOG COMPRESSOR REPLACEMENT, VIRGINIA – USA

Client: Roanoke Gas Company, Virginia – USA
Project Value: Confidential
Execution Period: 2012 - 2013
Technical Data: Replace Existing BOG Compressor with new 2 Stage BOG Compressor
- Capacity – 1.279 MMSCFD
- Discharge Pressure – 550 PSIG
Services:
- Equipment selection and sizing
- Process simulation utilizing HYSYS
- Process Design - PFDs and P&IDs development
- Preliminary Piping Plans
- Cost Estimate and Project Planning

KERAWALAPIYALNG LNG IMPORT TERMINAL - COLOMBO, SRI LANKA

Client: Lakdhanavi Limited
Project Value: $180,000,000
Execution Period: 2012
Technical Data: Proposed LNG Import Terminal with
- LNG Storage Tanks with up to 75,000m³ capacity (Phase 3)
- Marine Structures for LNGC up to 30,000m³
- Send-out up to 1.76 bcm/a (Phase 3)
Services:
- Technical review of existing Marine Studies
- Selection and Sizing of all Process Equipment
- Specification of major equipment
- Development of FSRU options
- Comparison of LNG On-Shore vs. FSRU options
- Comprehensive Safety/Security Analysis
- Lay-out of the proposed facility
- CAPEX&OPEX Estimates
- Implementation Planning
ELBA ISLAND LNG IMPORT/EXPORT TERMINAL - GEORGIA, USA

Client: Southern LNG Inc.
Project Value: Confidential
Execution Period: 2012

Technical Data: Proposed Liquefaction and LNG Export Terminal with additional
- 4 LNG Export Pumps – 8,500gpm each
- 2 LNG Export Pumps – 12,000gpm each
- 10 Liquefaction Trains – 0.25MTPA each
- 1 BOG Compressor – 30MMscfd

Services:
- Sizing of LNG Pumps
- Review of LNG Piping for Modifications
- Steady-State Calculations/Modeling
- Vapor Handling System Modeling
- LNG Surge Analysis
- 10-Year Weather Envelope Study
- Impoundment Sizing Calculations
- Liquefaction Equipment Layout
- Pipe Rack Layout
- Firewater Conceptual Design
- Development of FW Protection Scenarios
- Hydraulic Analysis
- Liquefaction Utility Supply Study
**LNG BUNKERING AND IMPORT TERMINAL IN FINLAND**

**Client:** SWECO/Gasum Oy, Finland  
**Project Value:** Confidential  
**Execution Period:** 2012  
**Technical Data:** Preparation of a Study Report and Risk Assessment for two locations in Finland  
- LNG Bunkering Storage Capacity of 20,000m³  
- LNG Bunkering via Bunker Barge and Direct Bunker  
- LNG Import Terminal (Send-out up to 1.76bcm/a)  
- Analysis of FSRU Option  
**Services:** Final Studies included:  
- Review and update of existing Marine Studies  
- Selection and Sizing of all Process Equipment  
- Specification of major equipment  
- Development of FSRU options  
- Comparison of LNG On-Shore vs. FSRU options  
- Comprehensive Safety/Security Analysis  
- Lay-out of the proposed facility  
- CAPEX & OPEX Estimates

**BALHAF LNG EXPORT TERMINAL - YEMEN**

**Client:** Yemen LNG  
**Project Value:** 5.6 Bn US$  
**Execution Period:** 2012  
**Technical Data:** LNG Export Terminal with  
- Production Capacity of 6.7 MTA (APCI C3/MCR)  
- Two 140,000m³ LNG Storage Tanks  
- Marine Structures for LNGCs up to 205,000m³  
**Services:**  
- Design Review  
- Review of Commissioning and Testing  
- Verification of Plant Performance including Gas production; Gas Treatment and Liquefaction Process  
- Site Visit for Verification  
- Preparation of a comprehensive Performance Report for the LNG facility
ELBA ISLAND LNG IMPORT TERMINAL BOILOFF GAS COMRESSOR – GEORGIA, USA

Client: Southern LNG Inc.
Project Value: $12,000,000
Execution Period: 2012

Technical Data: New BOG Compressor Installed
- Capacity - 12 MMSCFD
- Discharge Pressure -1,200 PSIG

Services:
- Detailed Design
- Equipment Selection and Sizing
- Process Simulation using HySys
- 3D Detail Design – CadWorx
- Process Design – PFD and P&ID Development
- HAZID and HAZOP Facilitation
- Design Engineering – Mechanical, Electrical and Civil/Structural
- Procurement Support
- Construction Support
- Process Start-up Safety Review
- Pre-Commissioning/Commissioning Plans
- Operations Procedures
- Construction Trailer Siting Analysis
- Commissioning Management

ELBA ISLAND LNG IMPORT TERMINAL EXPANSION II & III OWNER’S ENGINEERS SERVICES

Project Value: $300,000,000

Technical Data: LNG Import Terminal with additional
- 1 LNG Storage Tank - 160,000m³ (2006) and 1 LNG Storage Tank - 200 000m³ (2009)
- 6 Submerged Combustion Vaporizers, each 185 MMSCFD
- 6 High Pressure LNG Pumps, 4 Cryogenic Compressors, Two Additional Boil Off Re-condensers
- 2 new Unloading Docks with SVT Unloading Arms

Services:
- Special Studies and Design for Increase of unloading capacity to 14 000 gpm, bidirectional unloading/loading capability, and new BOG compressors for BOG management.
- Commissioning assistance for LNG Import Terminal expansion; review and comment on all commissioning plans and procedures, review and comment on all start-up and operation procedures.
- Conceptual Study for Ambient Vaporizer; determination of optimum amount of AAV capacity to install based on actual and project load profile considering technical, commercial and environmental impact
- Feasibility Study to evaluate an increase of the unloading rate from 2 x 50 000 gpm to 2 x 62 000 gpm to unload two Qmax vessels simultaneously.
- Fire Protection Evaluation, including engineering of new firewater system and automation of firewater curtains and monitors,
- Modifications to LNG impoundment areas and trenches, pneumatic ESD system for ship communications,
- Design of marine facilities for security boat
- Conceptual Design for Wobbe adjustment facilities
TECHNICAL AUDIT OF OGC PIPELINE - OMAN

Client: Oman Gas Company S.A.O.C.
Project Value: Confidential
Execution Period: 2009
Technical Data: Technical audit of all Pressure Reduction and Gas Supply Stations

Services:
- Review of Maintenance Procedures and Records
- Inspection of all Stations
- Verification of Maintenance/Calibration Records
- Preparation of Detailed Audit Reports
- Recommendations for Improvements and Further Work
- Statistical Analysis of Maintenance Records
NABUCCO GAS PIPELINE – PIPELINE BRIDGE – ASIA AND EUROPE

Client: Nabucco Gas Pipeline
Project Value: Confidential
Execution Period: 2012
Technical Data: 3800km 56" Natural Gas Pipeline
  • Capacity – 31 bNcm/y
  • Discharge Pressure – 100 barg
  • 14 Compressor Stations
  • 10 Oftake Metering Stations
  • Border Custody Transfer Stations
  • Over 100 Block Valve Stations

Services:
  • Complete Technical Review of Existing Design Documents
  • Project Basis of Design
  • Optimization of System Hydraulics
  • Economic Model Considering Phased Build-Out
  • System PFD’s and PID’s
  • Electrical Single Line Diagrams
  • Project Design Philosophies
  • Process and Mechanical Calculations
  • Optimization of Compressor Station Layouts
  • Station Layout Drawings
  • Compressor Station Piping and Building Plans
  • Measurement Block Valve Station Plans
  • Blowdown and Venting Analysis
  • Noise and Emissions Modelling
  • Pipe Stress Analysis
  • HAZOP/HAZID Report
  • Equipment Specifications and Data Sheets
  • Material Takeoff’s
  • CAPEX Estimate
TECHNICAL DUE DILIGENCE STUDY - POZA RICA, MEXICO

Client: Capital Alliance Private Equity (CAPE II)
Project Value: Confidential
Execution Period: 2008
Technical Data:
- LPG Terminal with
  - 8-point multi-buoy mooring system,
  - 6 LPG storage spheres,
  - 14 truck loading bays
  - 3.5 km ship offloading pipeline
Services: The technical due diligence study performed to define the capability of the contractor to be able to build another LPG Terminal in Nigeria.

MAVERICK, SHIP BASED LNG LIQUIFACTION – HOUSTON, TEXAS, USA

Client: LNG Partners, Houston, USA
Project Value: Confidential
Execution Period: 2007 - 2008
Technical Data:
- Conversion of a LNG Vessel with 88 000m³ storage capacity to a LNG production and storage vessel with a liquefaction capacity of up to 1 MTA of LNG.
Services: Conceptual Study to investigate:
- The gas pre-treatment on board of the LNG vessel for various raw gas specifications.
- LNG liquefaction trains on board of the LNG vessel.
- Transfer of feed gas using STL buoy
- Ship to Ship LNG Transfer using flexible hoses
- Safety Analysis / Safety Review incl. HAZID
- HYSYS Simulations for all relevant Processes including Boil Off Gas
- Equipment Sizing and Selection
- Equipment Arrangement
LNG TRANSSHIPMENT AND STORAGE TERMINAL COMPREHENSIVE STUDY - GRASSY POINT, NL, CANADA

Client: Newfoundland LNG Ltd.

Project Value: Confidential

Execution Period: 2007

Technical Data:
- Terminal to have up to 3 berths for vessels up to 265,000 m³
- 8 LNG Storage Tanks 160,000 to 200,000 m³
- Re-Liquefaction Units for Boil-Off Gas
- Unloading/Transfer rate 15,000 m³/h

Services:
- Process Engineering to provide the technical input for the authority permit application process also called “Comprehensive Study Report”.
- Validate Conceptual Design
- Carried out calculations for all cryogenic processes related to the LNG Trans-shipment and Storage Terminal
- Provide LNG Expertise and General Consulting

COVE POINT LNG IMPORT TERMINAL REACTIVATION – MARYLAND, USA

Client: Dominion Cove Point LNG, LP

Project Value: $120,000,000

Execution Period: 2001 - 2004

Technical Data:
- LNG Import Terminal with
  - Storage Tanks: 4 X 375,000 bbl. LNG
  - Send-out Capability: 1 BSCFD (8 MMTA)
  - Import Facility: 2 ship unloading docks
  - Access tunnel to offshore terminal

Services:
- Cost Estimates and Implementation Planning
- Procurement and Expediting
- Detail Design
- Construction Management
- Commissioning Support
- Start-up Assistance
ELBA ISLAND LNG IMPORT TERMINAL REACTIVATION - GEORGIA, USA

Client: Southern LNG Inc.
Project Value: $100,000,000
Execution Period: 1999-2001

Technical Data: LNG Import Terminal with
- Storage Tanks: 3 X 400,000 bbl. LNG
- Send-out Capability: 675 MMscfd (4 MMTA)
- Import Facility: 1 ship unloading dock

Services: Preliminary Design
- FERC Report 13
- Design Engineering
- Installation of new shell and tube heat exchanger to recondense BOG, cryogenic piping and valves, instrumentation and controls; provided conceptual design, detail design and construction management
- Equipment Expediting
- Feasibility Studies for BTU Stabilization
- Construction Management, Commissioning Support
- Start-up Assistance

ENERGY BRIDGE LNG REGASIFICATION - ALABAMA, USA

Client: El Paso Southern LNG
Project Value: $11,000,000
Execution Period: 2003

Technical Data: Design to regasify LNG on board ship incl. land-based test facility for proof-of-concept, and ship insurance and classification purposes LNG Vaporizer - 500 MMscfd
- 6 HP LNG Pumps - 903 gpm @ 1,429 psi
- 6 Shell & Tube Vaporizers

Services: Conceptual design of ship board LNG vaporization system
- HYSYS model of cryogenic process
- Preliminary process design and cost estimate for shipboard system
- Process engineering for land-based test facility
- Detail engineering for LP LNG pump skid and specification of land-based cryogenic piping
- Start-up Assistance
DUE DILLIGENCE FOR GATE LNG IMPORT TERMINAL - ROTTERDAM, NETHERLANDS

Client: OMV Aktiengesellschaft, Vienna, Austria
Project Value: Confidential
Execution Period: 2007 - 2011
Technical Data:
- 12 bcm/a LNG Import & Regasification Terminal
  - Capacity Increase to 16 bcm send-out
  - Two LNG jetties and four storage tanks.
  - Storage tank capacity 180,000 m³ each
Services:
- Technical Due Diligence Study including:
  - Future build out to 16 bcm/a send-out capacity
  - First construction phase includes two 180,000m³ full containment LNG storage tanks, with final build-out for four 180,000 m³ LNG storage tanks.
  - Terminal Siting on reclaimed land
  - Buried LNG Unloading Lines using PIP with Invar pipes
  - Two Jetties simultaneous unloading of two LNG Vessels

LNG IMPORT TERMINAL CONCEPTUAL STUDY - LATVIA

Client: Colenco Power Engineering AG, Baden Switzerland
Project Value: confidential
Execution Period: 2007
Technical Data:
- Small scale LNG Import terminal for 750 000 tonnes of LNG per annum to supply a new 600 MW Power Plant
  - Jetty for LNG vessels of up to 140,000m³
  - LNG storage capacity of up to 2 x160,000m³
Services:
- Conceptual Study to investigate:
  - The possibility of building a LNG Import & Regasification Terminal in the Port of Riga in Latvia.
  - The LNG terminal will primarily feed natural gas to an adjacent Combined Cycle Power Plant (CCPP) capable of 600 MW electrical output.
  - LNG Vaporization is done utilizing waste heat recovery from the Combined Cycle Power Plant.
  - The Study included calculation of safety and exclusion zones using vapor dispersion and thermal radiation modeling.
  - Evaluation of proposed Sites
FEASIBILITY STUDY FOR TECHNICAL, ECONOMIC & LEGAL ASPECTS OF IMPORT OF LNG TO POLAND

Client: Polskie Górnictwo Naftowe i Gazownictwo (PGNIG)
Project Value: $330,000,000
Execution Period: 2006
Technical Data: LNG Import Terminal suitable for Q-Flex LNG Vessels and up to 7.5 bcm/a send out
Services: Technical & Economical Feasibility Study
- Gas Demand Analysis
- Ground Survey Study including Geological & Seismic Study, preliminary EIA
- Shipping and Climate Study
- Location of LNG Terminal In Poland, Site Selection Study, Safety analysis
- LNG Truck Loading Facilities
- Cost Calculation incl. Vendor Quotations
- Procurement Strategy and Implementation
- Alternative scenario of LNG Delivery using re-gas vessels
- Analysis of Approval Permit Procedure
- Connection to the National Gas Network

FEASIBILITY STUDY ON THE CONSTRUCTION OF LNG IMPORT TERMINAL IN LITHUANIA

Client: Ministry of Economy – The Republic of Lithuania / Achema
Project Value: Confidential
Execution Period: 2008 - 2009
Technical Data: LNG Import terminal for send-out capacity of 5.0 bcm/a in Phase I, 1.5 bcm/a in Phase II. Jetty for LNG vessels of up to 165,000m³, LNG storage capacity of up to 240,000m³
Services: Gas Demand Analysis
- Evaluation of proposed sites
- Shipping and Climate Study
- Preliminary EIA and SIA
- Upgrade of Marine Facilities
- Safety Analysis
- Equipment Sizing & Selection
- Overview of the Lithuanian natural gas sector and the global LNG market trends.
- Survey of the Lithuanian Domestic Law and EU Law.
- Connection pipeline and investigation to upgrade the Natural Gas Transmission system for the additional gas volumes
- Financial analysis and economic feasibility
LNG REGASIFICATION TERMINAL FEASIBILITY STUDY - KRK ISLAND, CROATIA

Client: E.ON Ruhrgas A.G.
Project Value: Confidential
Execution Period: 2006 - 2007
Technical Data:
• Suitability for LNG Vessels up to 250,000 m³
• Send-out rate 10 bcm

Services:
• Comprehensive Site Assessment including Ground Survey, Geological and Seismic Study, Shipping and Climate Study, Terminal and Jetty Layout Optimization, Connection Study for integration into existing regional gas infrastructure, Authority Permit.
• Safety Analysis; assessment of the possible effects of Ethylene Storage Tanks adjacent to the proposed LNG Terminal. Possible scenario development and consequence modeling of vapor dispersion, thermal radiation, vapor cloud explosion/deflagration
• Synergy Study for Energetic Synergies with the adjacent chemical plant

STUDY OF THE FEASIBILITY OF INTERCONNECTION BETWEEN MALTA & EUROPE IN THE FIELD OF ENERGY - MALTA

Client: Government of Malta (MRA)
Project Value: $135,000,000
Execution Period: 2006-2007
Technical Data:
• 16” Subsea Gas Pipeline from Sicily to Malta
• LNG Import and Regasification Terminal for 0.85 bcm/a Send-out and berthing of LNG Vessels up to 65 000m³
• HVDC Cable from Sicily to Malta

Services:
• Techno-Economic Feasibility Study
• Gas Demand Analysis
• Techno-economic analysis of required Infrastructure, CNG & Subsea Gas Pipeline
• Techno-economic Specification of Gas-fuelled Thermal Supply Options
• Techno-economic Specification of HVDC Cable Interconnection
• Analysis of Safety and Exclusion Zones,
• Preliminary EIA
FEASIBILITY STUDY FOR LNG TERMINAL - ALBANIA

Client: TAP ASSET S.p.A., Roma
Project Value: $525,000,000
Execution Period: 2006
Technical Data: LNG Import Terminal suitable for Q-Flex LNG Vessels and up to 6.8 bcm/a send-out capacity
Services:
- Ground Survey Study including Geological & Seismic Study
- Analysis of Approval Permit Procedure
- Shipping and Climate Study
- Assessment of Prospective Site as an LNG Re-gasification Terminal
- Terminal and Jetty Layout Optimization
- On Site Power Plant and Utilization of Waste Heat for LNG Vaporization
- Connection study for Integration into existing regional gas infrastructure incl. synergies with Underground Gas Storage
- Cost Estimate of entire Facility
- Procurement Strategy and Implementation Planning

LNG REGASIFICATION TERMINAL PRE-FEASIBILITY STUDY - ITALY

Client: TAP ASSET S.p.A., Roma
Project Value: $500,000,000
Execution Period: 2007 - 2008
Technical Data: LNG Regasification Terminal with
- Storage Tanks: 2x160,000 m³
- Send-out Capability: 8 bcm/a
- Underground crossing of main roads and rail tracks via microtunnels between unloading dock and partially buried storage tanks
Services: Comprehensive Feasibility Study including:
- Terminal Location Analysis and Site Assessment; Geotechnical Analysis, Environmental Analysis, Existing Infrastructure Review/Analysis, Marine Analysis, Land Use and Zoning
- Conceptual Design
- Spill Scenarios, Spill Containment, and Exclusion Zones
- Cost Estimate, CAPEX
LNG PEAK SHAVER MODERNISATION AND CAPACITY INCREASE - STUTTGART, GERMANY

Client: EnBW  
Project Value: $12,000,000  
Execution Period: 2007  
Technical Data:  
- LNG Tank with 30,000 m³ capacity  
- Liquefaction Plant with 50,000 t/a  
- Regasification with 100,000 m³/h  
Services: Conceptual Study included:  
- Replacement of Submerged Combustion Vaporizers  
- New Gas Pre-treatment using Molecular Sieve with Pressure Swing Absorbers  
- Replacement of LNG Pumps with Capacity Increase  
- Wobbe Adjustment  
- Safety Analysis and new Concept for Fire Protection  
- Calculation of CAPEX and OPEX for Investment Decision

LNG PEAK SHAVER UPGRADE - ROANOKE, VA, USA

Client: Roanoke Gas Company  
Project Value: Confidential  
Technical Data: Liquefaction capacity of 1.11 MMSCF per day, storage in a single storage tank with an equivalent capacity of 200 MMSCF, and vaporize up to 30 MMSCF of natural gas per day to the pipe line.

Services:  
- Fire Protection and safety analysis  
- Engineering, Procurement and Construction of instrument and safety upgrades in the plant  
- Engineering, Procurement and Construction of a new glycol water system with capacity increase for the vaporization system  
- Engineering, Procurement, and Construction of new piping and controls for two shell and tube vaporizers.
# Our key team members

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ralf Schwimmbeck</td>
<td>CEO &amp; Owner</td>
<td>Ralf Schwimmbeck is the President and Owner of MEI. He is an expert on project management, cost estimates and procurement, due diligence studies, economic analysis and feasibility studies for complex and large scale energy infrastructure projects. He worked in World Bank between 1997 and 2001 as an Oil and Gas Specialist responsible for Project Assessment, Due Diligence and Economic Analysis. He has University degrees in Mechanical Engineering and Economy, both from the University of Munich. He has over 22 years of experience in Oil &amp; Gas industry internationally, having worked in over 40 countries.</td>
</tr>
<tr>
<td>Robert Smith</td>
<td>Managing Director</td>
<td>Robert Smith is the Managing Director of MEI and responsible for Project Execution and Planning within MEI. He is a licensed professional engineer in various States of America. He is an expert on LNG Facilities site selection and layout design. He has international experience, having worked in USA as well as in Europe. He has 24 years of experience in Oil &amp; Gas industry. He was the Project Manager and Design Engineer for reactivation of 675 MMSCFD (5.4 MM TPA) Elba Island LNG Import Terminal (one of the 4 LNG Terminals in USA) that has been successfully completed in 2001 and operating currently. He was also the Engineering Manager and Terminal Design Specialist of reactivation of 1 BCFD (8 MM TPA) LNG Receiving Terminal in Cove Point that has also been successfully completed in 2003 and operating currently. He was Engineering Manager for technical services and special studies for all Expansion Phases for Elba Island.</td>
</tr>
<tr>
<td>Rea Huston</td>
<td>Vice President, Principal Process Engineer</td>
<td>Rea Huston is the Vice President and Principal Process Engineer of MEI. He has Bachelor of Chemical Engineering from Auburn University, Auburn, Alabama. He is a Licensed Professional Engineer in various States of America. He has international experience, having worked in USA as well as in Europe. He has 34 years of experience in process engineering for LNG and Chemical Facilities. He was the Senior Process Engineer for land based test facility for Energy Bridge. He was engineering manager in numerous Projects for LNG Regasification Terminals, LNG Peak Shavers and small to medium Liquefaction Plants.</td>
</tr>
<tr>
<td>Rob Seebohm, PhD</td>
<td>Principal Process Engineer</td>
<td>Rob Seebohm is a Principal Process Engineer of MEI. He has B.Sc. and Ph.D. degrees in chemical engineering from the University of London. He has over 40 years of experience in research and development of cryogenic equipment and engineering of LNG facilities. He has extensive experience in process design, construction, start-up and operations of LNG facilities. He has worked in Europe as well as the USA, and has a working knowledge of French, German and Spanish. He is an authority in Safety Analysis; Safety Calculations, Technical Reviews and Process Calculations. He is an expert in LNG facilities design, construction, and plant optimization. He was instrumental in the refurbishment and re-activation of the LNG import terminals on Elba Island, Georgia and at Cove Point in Maryland, USA. He is the principle technical advisor on all MEI LNG projects.</td>
</tr>
<tr>
<td>Name</td>
<td>Title</td>
<td>Background</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Alan Sheppard</td>
<td>Principal Mechanical Engineer &amp; Lead Business Dev.</td>
<td>Has Bachelor of Mechanical Engineering from Auburn University, Auburn, Alabama. Licensed Professional Engineer. International experience worked in USA and Europe.</td>
</tr>
<tr>
<td>Mike Prestage</td>
<td>Senior Operations Specialist</td>
<td>Has vast experience in the start-up, operation, and maintenance of LNG and Natural Gas Facilities.</td>
</tr>
</tbody>
</table>

Alan Sheppard is a Principal Mechanical Engineer at MEI. He has Bachelor of Mechanical Engineering from Auburn University, Auburn, Alabama. He is a Licensed Professional Engineer. He has international experience, having worked in the USA as well as in Europe.

He has 27 years of experience in mechanical and process engineering for LNG and Chemical Facilities. He is formally trained in HAZID and HAZOP facilitating. He has been the lead mechanical engineer for numerous projects at Oil & Gas Facilities, LNG Import Terminals, and LNG Peak Shaving Plants. Current responsibilities include Business Development, Health Safety Environmental Coordination, and Project Management for MEI.

Mike Prestage is a Senior Operations Specialist with vast experience in the start-up, operation, and maintenance of LNG and Natural Gas Facilities.

From “hands-on” experience at the beginning of his 42 plus year career to his previous position in management, he has developed a broad range of technical knowledge and expertise in all disciplines in the Natural Gas Industry. He was a member of the original start-up team for the Elba Island LNG Import Terminal Facility in 1977.
<table>
<thead>
<tr>
<th>Client</th>
<th>Project Description</th>
<th>Scope and Type of Contract</th>
<th>Project Value (USD)</th>
<th>Time</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VGS Group</td>
<td>FLNG Regasification Terminal in Kakinada, India</td>
<td>Consulting and project development services for LNG Terminal in India</td>
<td>Confidential</td>
<td>2013 - ongoing</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>The project included:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Validation of LNG terminal throughput of 3.6 MTPA at 110 barg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Validation of process design on FRU and transfer of LNG between FRU, FSU and LNGC.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Development of shipping schedule based on 3.6 MTPA.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Review of BOG handling system for normal and LNGC transfer operations.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Sizing of Sub-Sea Pipeline</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lakhanavi Limited</td>
<td>Kerawalapitiya LNG Import Terminal Colombo, Sri Lanka</td>
<td>Feasibility Study for the proposed location of the Kerawalapitiya LNG Import Terminal.</td>
<td>$180,000,000</td>
<td>2012</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>The project included:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Technical review of existing Marine Studies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Selection and Sizing of all Process Equipment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Specification of major equipment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Development of FSRU options</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Comparison of LNG On-Shore vs. FSRU options</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Comprehensive Safety Analysis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Lay-out of the proposed facility</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• CAPEX&amp;OPEX Estimates</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Implementation Planning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yemen LNG</td>
<td>Balhaf LNG Export Terminal</td>
<td>Preparation of a comprehensive Performance Report for the existing Balhaf LNG Export Terminal in Yemen.</td>
<td>5.6 Bn US$</td>
<td>2012</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>The project included:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Design Review</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Review of Commissioning and Testing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Verification of Plant Performance including Gas production; Gas Treatment and Liquefaction Process</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Site Visit for Verification</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Client</td>
<td>Project Description</td>
<td>Scope and Type of Contract</td>
<td>Project Value (USD)</td>
<td>Time</td>
<td>Remarks</td>
</tr>
<tr>
<td>-----------------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>----------------------</td>
<td>------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td><strong>Europe</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Nabucco         | Nabucco Gas Pipeline System                                                          | Owners Engineer for Technical Integrity Review for entire System  
• New Design Basis  
• Typical Compressor Stations  
• Equipment Specifications  
• Blow-Down Venting Calculations  
• Pipe Stress Analysis  
• HAZOP/HAZID  
• CAPEX/OPEX Estimate  
• Review of Implementation Plan                                                                                     | 14 Bn US$            | 2010/11    |                          |
| Nabucco         | Nabucco Gas Pipeline System   
Iraq Feeder Line  
~780 km 48" with two Compressor Stations   | Local FEED Engineer for Iraq Feeder Pipeline including:  
• FEED for Compressor Stations  
• FEED for AGI’s (Metering, BVS etc.)  
• Stations Lay-outs  
• Equipment Specifications  
• CAPEX/OPEX Estimate  
• Procurement Documents for EPC/M                                                                                       | 1.2 Bn US$           | 2010/11    |                          |
| EnBW Karlsruhe   | Owners Engineer for a Dunkirk LNG Import Terminal in France                          | Owners Engineer for Technical Due Diligence including:  
• Complete Risk Analysis  
• Review of Equipment sizing  
• Review of CAPEX/OPEX  
• Review of Implementation Plan  
• BOG Management Study                                                                                               | 1.35 Bn US$          | 2009       |                          |
| OMV Vienna Austria | Owners Engineer for Gate LNG Import Terminal in Rotterdam                           | Owners Engineer for Technical Due Diligence including:  
• Review of new Technologies which were proposed such as PIP unloading lines  
• Review of Equipment sizing  
• Review of CAPEX/OPEX  
• Review of Implementation Plan                                                                                       | $900,000,000         | 2007-2009  |                          |
| Iberdrola Spain  | Conceptual Study for a Nitrogen Ballasting System for the Isle of Grain LNG Import and Regasification Terminal in Great Britain | Study includes:  
• Review of existing studies  
• Conceptual Design for Wobbe adjustment options for import of various types of LNG  
• Cost Estimate, CAPEX & OPEX  
• Economic / Financial Analysis  
• Implementation Plan  
• Risk Safety Analysis                                                                                               | $14,000,000          | 2008       |                          |
<table>
<thead>
<tr>
<th>Client</th>
<th>Project Description</th>
<th>Scope and Type of Contract</th>
<th>Project Value (USD)</th>
<th>Time</th>
<th>Remarks</th>
</tr>
</thead>
</table>
| EnBW Karlsruhe, Germany     | Conceptual Study for a Near Shore Liquefaction Plant in Nigeria                      | Due Diligence Study includes:  
  * Review of existing studies  
  * Proof of Concept for Floating Storage and Liquefaction  
  * Cost Estimate, CAPEX & OPEX  
  * Implementation Plan  
  * Risk Safety Analysis                                                                                             | Confidential        | 2008  |         |
| Ministry of Finance Lithuania | Feasibility Study for a LNG Import and Regasification Terminal in Lithuania           | Study includes:  
  * Review of existing studies  
  * Conceptual Design for on-shore and off-shore locations for 7.5 bcm/a  
  * Shipping Study  
  * Review of Regulatory Framework  
  * Legal Requirements for Permitting  
  * Cost Estimate, CAPEX & OPEX  
  * Economic / Financial Analysis  
  * Implementation Plan  
  * Risk Safety Analysis                                                                                             | $480,000,000        | 2008  |         |
| ENBW Stuttgart, Germany     | Study of an Expansion Turbine with utilization of electric power and cold energy     | Study includes:  
  * Conceptual Design for replacement of existing gas pressure reducing station with expansion turbine to utilize the cold energy in the cold-box  
  * Cost Estimate, CAPEX & OPEX  
  * Implementation Plan                                                                                              | $1,500,000          | 2008  |         |
| Colenco Power Engineering AG, Baden Switzerland | LNG Import Terminal Conceptual Study, Latvia                                         | LNG Import and Regasification Terminal located at the Port of Riga in Latvia to supply a new 600 MW Power Plant with a Jetty for LNG vessels of up to 140 000m³. LNG storage of up to 2 x 160,000m³.  
  * LNG Vaporization utilizing waste heat recovery from the Combined Cycle Power Plant.  
  * Calculation of safety and exclusion zones using vapor dispersion and thermal radiation modeling.                 | Confidential        | 2007  |         |
| EnBW Karlsruhe, Germany     | Owners Engineer for a Liongas LNG Import Terminal in Rotterdam                     | Technical Due Diligence including:  
  * Complete Risk Analysis  
  * Review of Equipment sizing  
  * Review of CAPEX/OPEX  
  * Review of Implementation Plan  
  * BOG Management Study                                                                                              | $800,000,000        | 2009  |         |
<table>
<thead>
<tr>
<th>Client</th>
<th>Project Description</th>
<th>Scope and Type of Contract</th>
<th>Project Value (USD)</th>
<th>Time</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENBW Stuttgart, Germany</td>
<td>Study for Modernization and Capacity Increase of a LNG Peak Shaver Plant</td>
<td>Study includes:</td>
<td>$25,000,000</td>
<td>2007</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Study includes:</td>
<td>- Review of existing studies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Study includes:</td>
<td>- Conceptual Design for replacement of existing gas pre-treatment using mole-sieve technology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Study includes:</td>
<td>- Replacement of vaporizers and HP LNG pumps, increase of liquefaction capacity.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Study includes:</td>
<td>- Cost Estimate, CAPEX &amp; OPEX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Study includes:</td>
<td>- Implementation Plan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OÖF Austria</td>
<td>Feasibility Study for a LNG Peak Shaver Facility</td>
<td>Study includes:</td>
<td>$46,000,000</td>
<td>2008</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Study includes:</td>
<td>- Conceptual Design for a LNG Peak Shaver with a satellite LNG storage and regasification facility</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Study includes:</td>
<td>- Cost Estimate, CAPEX &amp; OPEX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Study includes:</td>
<td>- Economic Analysis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Study includes:</td>
<td>- Implementation Plan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Study includes:</td>
<td>- Risk Safety Analysis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MRA Malta</td>
<td>Interconnection Study for supplying the Island of Malta with Natural Gas via Off-shore pipeline or LNG</td>
<td>Study includes:</td>
<td>$115,000,000</td>
<td>2007</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Study includes:</td>
<td>- Review of existing studies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Study includes:</td>
<td>- Conceptual Design for off-shore gas pipeline from Sicily to Malta with a capacity of 0.8 bcm/a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Study includes:</td>
<td>- Conceptual Design for a new LNG import terminal with 0.8 bcm/a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Study includes:</td>
<td>- Cost Estimate, CAPEX &amp; OPEX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Study includes:</td>
<td>- Implementation Plan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Study includes:</td>
<td>- Risk Safety Analysis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TAP Asset S.p.A.</td>
<td>Pre-Feasibility Study for LNG Terminal in Italy</td>
<td>Comprehensive Pre-Feasibility Study including:</td>
<td>$500,000,000</td>
<td>2007</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Study includes:</td>
<td>- Terminal Location Analysis and Site Assessment; Geotechnical Analysis, Environmental Analysis, Existing Infrastructure Review/Analysis, Marine Analysis, Land Use and Zoning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Study includes:</td>
<td>- Review of existing studies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Study includes:</td>
<td>- Conceptual Design of LNG Terminal incl. Wobbe Adjustment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Study includes:</td>
<td>- Definition of Spill Scenarios, Spill Containment, and Safety &amp; Exclusion Zones</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Study includes:</td>
<td>- Cost Estimate, CAPEX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Study includes:</td>
<td>- Implementation Plan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Client</td>
<td>Project Description</td>
<td>Scope and Type of Contract</td>
<td>Project Value (USD)</td>
<td>Time</td>
<td>Remarks</td>
</tr>
<tr>
<td>--------</td>
<td>---------------------</td>
<td>-----------------------------</td>
<td>---------------------</td>
<td>------</td>
<td>---------</td>
</tr>
</tbody>
</table>
| TAP Asset S.p.A. | Feasibility Study for LNG Terminal in Albania | Comprehensive Site Assessment & Feasibility Study including:  
- Ground Survey Study including Geological & Seismic Study  
- Analysis of Approval Permit Procedure  
- Shipping and Climate Study  
- Assessment of Prospective Site as an LNG Re-gasification Terminal  
- Terminal and Jetty Layout Optimization  
- On-Site Power Plant and Utilization of Waste Heat for LNG Vaporization  
- Connection study for integration into existing regional gas infrastructure incl. synergies with Underground Gas Storage  
- Cost Estimate of entire facility  
- Procurement Strategy and Implementation Planning  
- Environmental due diligence | $525,000,000 | 2007 |  |
| TAP Asset S.p.A. | Conceptual Study of Underground Gas Storage in Albania | Provided conceptual study including the following:  
- Site Survey, location feasibility analysis  
- System Concept Design  
- Process Description and Philosophies  
- Cost Estimate | Confidential | 2006-2007 |  |
| PGNiG, Warsaw | Feasibility Study and Technical and Economic Conditions for LNG Imports to Poland | Investigation into aspects of LNG receiving terminal in Poland, including analysis of gas flows and pipeline routing connecting infrastructure to gas network  
Provided Feasibility Study including  
- Preliminary Analysis  
- Site Selection Study  
- Gas Demand Analysis  
- LNG Transport Considerations  
- Full Shipping Study  
- Conceptual Design Study  
- Scenarios for Alternative LNG Delivery i.e. Regas Vessel  
- Wobbe Adjustment Facilities  
- Financial Analysis  
- Social Economic Analysis of Project  
- Connection to the National Gas Network incl. integration with UGS | $330,000,000 | 2006 | MEI has performed the study together with PwC |
<table>
<thead>
<tr>
<th>Client</th>
<th>Project Description</th>
<th>Scope and Type of Contract</th>
<th>Project Value (USD)</th>
<th>Time</th>
<th>Remarks</th>
</tr>
</thead>
</table>
| E.ON-Ruhrgas AG | Safety Study of LNG Re-gasification Terminal in Europe    | Safety Study for the Ethylene Storage Tanks adjacent to the proposed LNG Re-gasification Terminal including the following:  
  - Assessment of the possible effects of Ethylene Storage Tanks adjacent to the proposed LNG Terminal. NFPA 59A, Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG), 2006 Edition has been used as a basis.  
  - The study included the possible scenario development and consequence modeling of Vapor Dispersion, Thermal Radiation, Vapor Cloud Explosion/ Deflagration | Confidential        | 2006 |         |
| E.ON-Ruhrgas AG | Synergy Study of LNG Re-gasification Terminal in Europe   | Synergy Study for LNG Re-gasification Terminal adjacent to the chemical plant. The study included:  
  - the use of the cooling potential of LNG re-gasified by the proposed new LNG terminal to offset the demand for cooling water from the sea by the adjacent plant,  
  - the use of the heating potential of the warm process cooling water from the adjacent chemical plant for re-gasifying LNG,  
  - the shared use of a new electric power co-generation plant,  
  - the use of exhaust heat from power generation to produce steam to replace adjacent chemical plant’s fuel oil boilers, and  
  - Fuel switch from imported diesel to natural gas available for the process heaters. | Confidential        | 2006 |         |
<table>
<thead>
<tr>
<th>Client</th>
<th>Project Description</th>
<th>Scope and Type of Contract</th>
<th>Project Value (USD)</th>
<th>Time</th>
<th>Remarks</th>
</tr>
</thead>
</table>
| E.ON-Ruhrgas AG | Site Assessment and Pre-Feasibility Study of LNG Regasification Terminal in Europe | Suitability for LNG Vessels up to 285,000 m³, Send-out rate 8 MMTPA (10 bcm/annum) Provided Comprehensive Site Assessment and Pre-Feasibility Study Including the following:  
- Ground Survey Study  
- Ground Residual Contamination Study  
- Geological Study including Seismic Study  
- Assessment of Prospective Site as an LNG Re-gasification Terminal  
- Shipping and Climate Study  
- Terminal and Jetty Layout Optimization, Marine Study  
- Site Layout  
- Vapor Dispersion & Thermal Radiation Analysis  
- Connection study for integration of the LNG Re-gasification terminal into existing regional gas infrastructure  
- Synergy Study between LNG plant and adjacent chemical plant | Confidential | 2005-2006 |          |
| South America & Mexico | GHD S.A. Pre-Feasibility Location Study for FSRU Terminal | Consulting and project development services for LNG Terminal in Chile The project included:  
- LNG FSRU Terminal, including offshore platform (82.5mX44.0m) with two parallel berths.  
- FSRU Storage Capacity: 135,000m³ to 170,000m³  
- Re-gasification Capacity: 10,000,000 m³/d  
- LNG Arms Transfer rate: 5000m³/h  
- Natural Gas Pressure To The Pipeline: 80bar | Confidential | 2013 - ongoing |          |
| North America – USA & Canada | HDR Alaska North Slope LNG Project | Liquefaction Natural Gas Engineering Due-Diligence in Alaska, USA The project included:  
- Cost Estimate  
- Process Technologies  
- Schedule  
- Suggested Future Build-Out  
- Code Compliance and Permitting  
- Suggested Design Modifications | Confidential | 2013 - ongoing |          |
<table>
<thead>
<tr>
<th>Client</th>
<th>Project Description</th>
<th>Scope and Type of Contract</th>
<th>Project Value (USD)</th>
<th>Time</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>UIL Holdings Corp.</td>
<td>LNG Plant (2) Modernization Engineering Services</td>
<td>Engineering and Project Management for revitalization of two of two active LNG Peak Shaver Facilities Connecticut, USA</td>
<td>Confidential</td>
<td>2012 - ongoing</td>
<td>The project is currently underway – estimated completion is 2022</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The project included:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Upgrading both facilities to increase service life by an additional 25 years.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Specifying and installing (4) new 120 MMSCFD Submerged Combustion Vaporizers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- New Emergency Generator sizing and installation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Replacing plant control systems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Installation of new LNG pumps</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Installation of new purification skid (11MMSCFD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Installation of new cooling tower</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Environmental permit assistance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roanoke Gas Company</td>
<td>FEED for BOG Compressor Replacement Roanoke, Virginia</td>
<td>Replace Existing BOG Compressor with new Capacity – 1.279 MMSCFD Discharge Pressure – 550 PSIG.</td>
<td>Confidential</td>
<td>2012-14</td>
<td>The project is currently underway – estimated completion is early 2014</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EPC CONTRACTOR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Equipment selection and sizing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Process simulation utilizing HYSYS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Process Design - PFDs and P&amp;IDs development</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Preliminary Piping Plans</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Cost Estimate and Project Planning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Southern LNG, Inc.</td>
<td>Integration Study for Elba Island LNG Liquefaction and Export Terminal Savannah, GA</td>
<td>Integration Study for adding LNG Liquefaction and Export capabilities to an operational Import Terminal.</td>
<td>Confidential</td>
<td>2012</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>The project included:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Ship Loading Study</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- BOG Vapor Handling Calculations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- LNG Surge Analysis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Pipe Stress Analysis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- General Arrangement Study</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 10-Year Weather Envelope Study</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Vapor Dispersion and Thermal Radiation Calculations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Firewater Conceptual Design</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Firewater System Hydraulic Analysis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Utilities Study</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Client</td>
<td>Project Description</td>
<td>Scope and Type of Contract</td>
<td>Project Value (USD)</td>
<td>Time</td>
<td>Remarks</td>
</tr>
<tr>
<td>---------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------</td>
<td>---------------------</td>
<td>--------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Southern LNG, Inc.</td>
<td>Detailed Design for the addition of a New BOG Compressor at the Elba Island Import Terminal Savannah, GA</td>
<td>Preparation of Detailed Design Documents for the installation of an additional BOG Compressor at the Elba Island LNG Import Terminal, Georgia, USA</td>
<td>$12,000,000</td>
<td>2012-13</td>
<td>The facility is built and currently in operation.</td>
</tr>
<tr>
<td>Southern LNG, Inc.</td>
<td>Elba Island LNG Import Terminal Savannah, GA</td>
<td>Owners Engineer for Expansion III:</td>
<td>Confidential</td>
<td>2010/11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Owners Engineer for a Floating LNG Regasification Unit with ambient vaporizers</td>
<td>- Bi-directional Unloading/loading lines</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Confidential for Technical Due Diligence including:</td>
<td>- Capacity Increase for Unloading</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Owners Engineer for a Floating LNG Regasification Unit with ambient vaporizers</td>
<td>- BOG Management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Confidential for Technical Due Diligence including:</td>
<td>- Expansion of Fire Protection System</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Owners Engineer for a Floating LNG Regasification Unit with ambient vaporizers</td>
<td>- Site Layout</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Confidential for Technical Due Diligence including:</td>
<td>- Safety Analysis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Devonshire Backyard Farm</td>
<td>Owners Engineer for LNG storage and heating facility in Maine</td>
<td>Owners Engineer for Concept and Detailed Design including:</td>
<td>Confidential</td>
<td>2010/11</td>
<td>The facility is built and currently in operation.</td>
</tr>
<tr>
<td></td>
<td>Confidential for Concept and Detailed Design including:</td>
<td>- Concept / Detailed Design</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Owners Engineer for Concept and Detailed Design including:</td>
<td>- Equipment sizing/specification</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Confidential for Concept and Detailed Design including:</td>
<td>- Review of CAPEX/OPEX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Owners Engineer for Concept and Detailed Design including:</td>
<td>- Commissioning and Start-up</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Confidential for Concept and Detailed Design including:</td>
<td>- Safety Studies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Client</td>
<td>Project Description</td>
<td>Scope and Type of Contract</td>
<td>Project Value (USD)</td>
<td>Time</td>
<td>Remarks</td>
</tr>
<tr>
<td>------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------</td>
<td>---------------------</td>
<td>--------------</td>
<td>---------</td>
</tr>
<tr>
<td>Southern LNG, Inc.</td>
<td>Owners Engineer for Elba Island LNG Import Terminal Savannah, GA</td>
<td>Expansion III Project to 2.1 BCFD send-out capacity, technical assistance for expansion project at LNG import terminal at Elba Island, Savannah, GA. One - 200,000m³ LNG Storage Tank, additional SCV’s, High Pressure LNG Pumps, Cryogenic Compressors, New Unloading Docks, Additional Boil-Off Re-condenser</td>
<td>Confidential</td>
<td>2007-2009</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Additional Studies for:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Wobbe Adjustment Facilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Feasibility of Ambient Vaporizers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Increase of LNG Unloading Line to adopt to Qmax Vessels</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Fire Protection Evaluation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Expansion of Fire Water System</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LNG Partners, Houston, TX</td>
<td>Owners Engineer for Maverick Ship Based LNG Liquefaction</td>
<td>Conversion of a LNG Vessel with 88,000m³ storage capacity to a LNG production and storage vessel with a liquefaction capacity of 500,000 tons of LNG per annum. Provided owner’s engineering services for the project. Project included: The gas pre-treatment on board of the LNG vessel for various raw gas specifications. LNG liquefaction trains on board of the LNG vessel. Transfer of feed gas using STL buoy Transfer of LNG ship to ship using flexible hoses</td>
<td>Confidential</td>
<td>2007-2008</td>
<td></td>
</tr>
<tr>
<td>Client</td>
<td>Project Description</td>
<td>Scope and Type of Contract</td>
<td>Project Value (USD)</td>
<td>Time</td>
<td>Remarks</td>
</tr>
<tr>
<td>------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------------------</td>
<td>------------</td>
<td>---------</td>
</tr>
</tbody>
</table>
| Southern LNG, Inc.           | Elba Island LNG Import Terminal Savannah, GA                                                                                                                                                                         | Conceptual Study for Utilization of Ambient Vaporizers  
- Analysis of Ambient Vaporizer Systems  
- Calculation of required units  
- Design of Tie-in of Ambient Vaporizers in the existing plant  
- Economic Analysis with CAPEX & OPEX Estimates  
- Site Layout  
- Safety Analysis                                                                                              | Confidential         | 2008       |         |
| SCE&G                        | Bushy Park and Sally LNG Facilities. Design Study and Owners Engineer for Wobbe Adjustment Facility for two LNG Peak Shavers in South Carolina                                                                                      | Design Study including:  
- Selection of Methodology for Wobbe adjustment  
- Conceptual Design for ASU integration  
- Procurement of Equipment and Construction Works  
- Cost Estimate, CAPEX  
- Implementation Plan                                                                                           | Confidential         | 2008-2009 |         |
| Newfoundland LNG Ltd.        | Owners Engineer for LNG Transshipment and Storage Facility Power generation, Grassy Point, Newfoundland, CANADA                                                                                                    | Power generation facility to be located adjacent to the proposed Grassy Point Liquefied Natural Gas Transshipment and Storage Terminal located at Grassy Point, Placentia Bay.  
- Electrical power output 150 MW  
- Maximum Build-out 600 MW  
- Power Generation Efficiency 55%  
- Combined Cycle Power Plant (CCPP), also known as Combined Cycle Gas Turbine (CCGT), technology                                                                 | Confidential         | 2007       |         |
| Newfoundland LNG Ltd.        | Owners Engineer for LNG Transshipment and Storage Facility Comprehensive Study, Grassy Point, Newfoundland, CANADA                                                                                            | Grassy Point LNG Transshipment and Storage Terminal with 3 LNG berths, 8 LNG storage tanks, and BOG re-liquefaction system  
- Process engineering to provide the technical input for the authority permit application process also called “Comprehensive Study Report”.  
- Validation of Conceptual Design  
- Calculations for all cryogenic processes related to the LNG Transshipment and Storage Terminal  
- Provision of LNG Expertise and General Consulting                                                                 | Confidential         | 2007       |         |
<table>
<thead>
<tr>
<th>Client</th>
<th>Project Description</th>
<th>Scope and Type of Contract</th>
<th>Project Value (USD)</th>
<th>Time</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCE&amp;G</td>
<td>Bushy Park LNG Facility, BOG Cooling Tower, South Carolina</td>
<td>Engineering services to prepare bid package to replace cooling water piping for boil-off gas compressors</td>
<td>Confidential</td>
<td>2007</td>
<td></td>
</tr>
<tr>
<td>US Pipeline</td>
<td>Commissioning Support for Cove Point LNG Import Terminal, Maryland.</td>
<td>Provided commissioning personnel to provide assistance during warm-up and cool down of approximately 3 miles of LNG transfer piping.</td>
<td>Confidential</td>
<td>2007</td>
<td></td>
</tr>
<tr>
<td>Roanoke Gas Company</td>
<td>Installation of New Liquid Level Gauge on Tank, Roanoke LNG Peak Shaving Facility - Roanoke, Virginia</td>
<td>Installed new Enraf displacer type level transmitter for the LNG storage tank. This particular model has both level and ten (10) point density profile capability displayed from a control room panel.</td>
<td>Confidential</td>
<td>2007</td>
<td></td>
</tr>
<tr>
<td>Southern LNG, Inc.</td>
<td>Elba Island LNG Import Terminal Commissioning Support, Savannah, GA</td>
<td>Expansion II Project to 1.2 BCFD send-out capacity, commissioning assistance for expansion project at LNG import terminal at Elba Island, Savannah, GA. One - 160,000m³ LNG Storage Tank, Three – 185 MMSCFD Submerged Combustion, Vaporizers, Three High Pressure LNG Pumps, Two Cryogenic Compressors, Two new Unloading Docks with SVT, Unloading Arms, One Additional Boil Off Re-condenser. Commissioning Support including the following: - Review and comment on all commissioning plans and procedures - Evaluation of the fire hazards and fire protection systems - Review and comment on all start-up and operation procedures - Provide assistance during start-up and commissioning - Provide assistance to operations staff.</td>
<td>$150,000,000</td>
<td>2005-2006</td>
<td>The LNG terminal extension part is completed and currently in operation</td>
</tr>
<tr>
<td>Client</td>
<td>Project Description</td>
<td>Scope and Type of Contract</td>
<td>Project Value (USD)</td>
<td>Time</td>
<td>Remarks</td>
</tr>
<tr>
<td>--------</td>
<td>---------------------</td>
<td>---------------------------</td>
<td>---------------------</td>
<td>------</td>
<td>---------</td>
</tr>
</tbody>
</table>
| Paiute Pipeline Company | NFPA Fire Protection / Safety Study Fallon, Nevada | NFPA 59A, Chapter 9, Fire Protection and Safety evaluations of the H.G. LAUB LNG plant. Services including:  
- Vapor dispersion calculations,  
- Thermal radiation calculations,  
- Emergency shutdown system,  
- Fire control and leak control,  
- Fire protection water systems,  
- Fire extinguishing equipment,  
- Maintenance of fire protection equipment,  
- Personnel safety. | Confidential | 2005 | |
| Roanoke Gas Company | ESD System Upgrade - Roanoke LNG Peak Shaving Facility - Roanoke, Virginia | Upgrade the ESD System based on the recommendations from NFPA study. EPC CONTRACTOR  
- Instrumentation design  
- Detail engineering  
- Procurement  
- Construction  
- Commissioning  
- Start-up | Confidential | 2005 | The facility is built and currently in operation |
| Roanoke Gas Company | LNG Fire Protection and Safety Evaluation Roanoke, Virginia | Fire Protection Evaluation with respect to NFPA 59A Section 9.1.2 Services including:  
- Vapor dispersion calculations  
- Thermal radiation, and  
- Review of fire protection devices. | Confidential | 2005 | |
| Confidential | Synergy Study Between Proposed LNG Import Terminal and an Oil Refinery Plant, | Evaluation of synergies between proposed LNG Import Terminal and an Oil Refinery Plant next to the proposed LNG facility. Provided engineering consultancy services including evaluation of processes that could be shared and quantifying the potential costs benefits to both facilities. | Confidential | 2005 | |
| Northern Indiana Public Service Co. (NIPSCO) | NFPA Fire Protection Evaluation, Rolling Prairie, Indiana | NFPA 59A, Chapter 9, Fire Protection and Safety evaluations  
- Vapor dispersion (DEGADIS) and thermal radiation (LNGFIRE3).  
- LNG spill control and hazard detection systems. | Confidential | 2004-2005 | |
<table>
<thead>
<tr>
<th>Client</th>
<th>Project Description</th>
<th>Scope and Type of Contract</th>
<th>Project Value (USD)</th>
<th>Time</th>
<th>Remarks</th>
</tr>
</thead>
</table>
| Roanoke Gas Company | Refrigeration Study, Roanoke, Virginia | Refrigeration Study of the liquefaction process at the Roanoke LNG Plant.  
- Refrigeration upgrade from two to four component mixture to allow a decrease in fuel to net ratio and increase liquefaction daily.  
- Refrigerant analysis  
- HYSYS simulations | Confidential | 2004 | |
| Dominion Cove Point LNG, LP | Cove Point LNG Import Terminal Re-Activation, Maryland. | LNG Import Terminal with send-out 8 MMTA (1000 MMSCFD), offshore terminal (two ship berths), access tunnel to offshore terminal, 8 LNG unloading arms  
Performed detailed design, construction management, commissioning support and start-up assistance | $120,000,000 | 2001-2003 | The facility is built and currently in operation |
| El Paso Global Gas | Energy Bridge Project for Shipboard Re-Gasification of LNG | LNG Vaporizer - 0.8 MMTPA (100 MSCFD)  
Developed process concept to vaporize LNG onboard ship for direct transfer of high pressure gas via moored buoy to shore via undersea pipeline. Design process systems for land-based proof-of concept and test facility to simulate onboard processes for ship classification and insurance requirements. The services include the following:  
- Conceptual process design for shipboard vaporization system  
- Process design of land based, ship simulation, test facility  
- Start-up assistance of land-based test facility | $20,000,000 | 2001-2003 | |
<table>
<thead>
<tr>
<th>Client</th>
<th>Project Description</th>
<th>Scope and Type of Contract</th>
<th>Project Value (USD)</th>
<th>Time</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Southern LNG, Inc.</strong></td>
<td>Reactivation of Elba Island LNG Import Terminal, Savannah, Georgia</td>
<td>LNG Regasification Terminal, send-out 5.4 MMTA (675 MMSCFD), 5 LNG unloading arms. Provided Feasibility Design, Preliminary Engineering, Conceptual Design and assistance during construction and start-up including: - Feasibility Study for Reactivation of LNG Terminal - Preliminary Engineering for Reactivation - Feasibility Study for BTU Stabilization Facility - Preliminary Engineering for Send-Out Modifications including specifications for high pressure LNG pump and new submerged combustion LNG vaporizers - Conceptual and Detail Design of Boil-Off Gas Recondenser - Engineering Assistance during Construction - Assistance During Start-Up</td>
<td>$100,000,000</td>
<td>1999-2001</td>
<td>The facility is built and currently in operation</td>
</tr>
<tr>
<td><strong>Cherokee County Cogeneration Partners , LP</strong></td>
<td>Design and Installation of LNG Liquefaction - Vehicle Fuel Facility , Gaffney, South Carolina</td>
<td>Design and install a skid mounted LNG vehicle fuel production facility utilizing pipeline gas and liquid nitrogen for liquefaction. 2 Mscfd pipeline gas molecular sieve pretreatment systems, 46,000 gal pressurized storage for LNG vehicle fuel product. EPC CONTRACTOR - Process design - Detail engineering - Project schedule and cost control - Construction - Commissioning - Start-up - Performance testing</td>
<td>Confidential</td>
<td>1997-1998</td>
<td>The facility is built and currently in operation</td>
</tr>
<tr>
<td><strong>VECO Canada</strong></td>
<td>Front End Engineering Design (Feed) of LNG Peak Shaving Facility – BC, Canada</td>
<td>LNG peak shaving facility. 3 BCF storage, 17 MSCFD liquefaction, 400 MSCFD send-out at 2100 psig. Provided process design and preliminary engineering - Engineering consulting - Process Design - Preliminary Facility Layout - Piping design - Equipment specifications - FEED documents</td>
<td>$85,000,000</td>
<td>1997-1998</td>
<td>The facility is built and currently in operation</td>
</tr>
<tr>
<td>Client</td>
<td>Project Description</td>
<td>Scope and Type of Contract</td>
<td>Project Value (USD)</td>
<td>Time</td>
<td>Remarks</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>----------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------</td>
<td>---------------------</td>
<td>--------</td>
<td>-----------------------------------------------------------</td>
</tr>
<tr>
<td>Chattanooga Gas Company</td>
<td>Modifications to LNG Vaporization &amp; Vent Systems. Chattanooga, Tennessee</td>
<td>Improve send-out capability by replacement of two BS&amp;B Uniflux Vaporizers. New vaporizer system includes a 60 MMSCFD Shell and Tube Vaporizer utilizing a helical coil glycol/water heater system. Enhance boil-off recovery system by redesign of the cryogenic vapor piping system Provided • FEED design • Process Design • Specifications • Detail Engineering • Project schedule and cost control • Construction • Commissioning • Start-up</td>
<td>$1,584,000</td>
<td>1996</td>
<td>The facility is built and currently in operation</td>
</tr>
<tr>
<td>Nikkiso</td>
<td>Nikkiso LNG Pump Test Facility, Las Vegas, Nevada</td>
<td>Design and build new LNG pump testing facility: • Front end engineering design • Design Engineering • Procurement • Construction • Start-up Included: • LNG pumps • Boil-off compressors • Refrigerant compressor • Instrumentation • New Bristol DCS system</td>
<td>Confidential</td>
<td>1995-1997</td>
<td>The facility is built and currently in operation</td>
</tr>
<tr>
<td>North Carolina Natural Gas Corp.</td>
<td>LNG Peak Shaving Facility, Bentonville, North Carolina</td>
<td>Design and installation of new green-field LNG peak shaving facility. 1 BCF above ground LNG storage tank, Molecular sieve pretreatment, 5 MSCFD liquefaction with mixed refrigerant, 2 high pressure in-tank LNG pumps, and 60 MSCFD send-out submerged Combustion vaporizer. Provided • FEED • Design Engineering • Procurement • Construction • Start-up</td>
<td>$17,000,000</td>
<td>1984-1986</td>
<td>The facility is built and currently in operation</td>
</tr>
</tbody>
</table>
MEI Savannah

138 Canal Street, Suite 501
Pooler, Georgia 31322
USA

Phone: +1-912-355-8001
Fax: +1-912-355-0065

www.mei-consult.com
info@mei-consult.com