

ENGlobal Corporation (ENGlobal) recognizes the importance of Refining related projects to our clients and therefore can provide a dedicated project team with proven ability to complete work on schedule, within budget and to a high degree of accuracy. ENGlobal engineers have performed the conceptual engineering and detail design of numerous grass roots units and upgrade projects.

Valero Energy Corporation – Ardmore, OK

Sour Crude

Project scope included: front end engineering, AFE cost estimates, detail engineering, detail design, procurement, and construction management. ENGlobal's scope also included replacement of naphtha hydrotreater reactors and installation of chloride scrubber, installation of cat feed hydrotreater, 4th reactor and 3rd hydrogen make up compressor, a sulfur recovery unit including tail gas treating unit, two asphalt loading spots and loading pump, installation of a new 13.2 KVA power feed with step down transformers and MCC, and all associated piping, valves, instrumentation and controls.

Valero Energy Corporation – Ardmore, OK

Flue Gas Scrubber & Waste Heat Recovery

Project scope included: front end engineering, AFE cost estimates, procurement and field support. The units included: two CO boilers, a flue gas scrubber, dearator, demineralizer, boiler feed water pumps, two steam turbine generators, hydrogen unit modifications, DCS upgrade, and all associated piping, valves, instrumentation and controls.

Coffeyville Resources – Coffeyville, KS

Ultra Low Sulfur Diesel

Project scope included: front end engineering, detail engineering, AFE cost estimates, detail design, procurement, and construction.

Project included a grass root 23,000 bpd HDS unit including a new flare, revamp of the existing 24,000 bpd HDS unit, revamp of the Unifiner, a grass root 60 LTPD Sulfur Plant, a grass root 20 MMSCFD hydrogen plant, the addition of an amine contactor, a 3rd cooling tower bay, a new feed line and its associated pumps, a 12.47 KV power distribution system, and all associated outside battery limits including piping, valves, instrumentation and controls.



Frontier El Dorado Refining Co. – El Dorado, KS Crude/ Vacuum Unit Revamp OSBL Project

Frontier El Dorado Refinery is expanding the flow capacity of their Crude/Vacuum Unit. ENGlobal has been selected to provide the engineering and design of the Crude/Vacuum Unit revamp modifications.

ENGlobal is providing the following services: project management, detail engineering and design, project scheduling, procurement assistance, and progress reporting for completion of the Crude/Vacuum Unit revamp.

Revamp modifications include: installation of new pumps, exchangers and heaters, vessel and piping modifications and installation of a new pipe support structure for all the new unit process and utility piping mains, and completing as much of the installation, as possible, prior to the planned turnaround, which creates a challenge and requires a high level of project and design experience and expertise, which ENGlobal is known to have.

ENGlobal has logged 18 million manhours without a lost time injury.

ENGlobal has built a solid reputation for being able to consistently manage refining projects effectively.

Detailed Engineering Activities:

- Process Flow Diagrams/Process Control Design
- Design Pressure/Temperature Diagrams
- Piping & Instrument Diagrams
- Pump/Compressor Design
- Mass Transfer Equipment Rigorous Design
- Heat Exchanger Rigorous Design Rating
- Operating Procedures and Training
- Equipment Specifications
- Startup Assistance

Services:

- Process Feasibility/Development Studies
- Process Design Packages
- Appropriation Grade Estimates
- Process Simulations
- Rigorous Equipment Design
- Hydraulic Network Studies
- Relief Systems Design/Studies
- Detailed Engineering and Design
- HAZOP Facilitation/Scribe/Participation
- Process Consulting



Procurement & Expediting Services:

- Inquiries & Preparation of RFQs
- Pre-Bid Meetings
- Bid Analysis and Recommendations
- Prepare & Issue Purchase Orders
- Expedite Orders
- Make Progressive and Final Payments
- Shop and Field Inspections
- Tracking and Reporting

Construction Management:

- Scope
- Contractual Requirements
- Client Requirement
- Turnkey Design and Construction
- Cost Control
- Field Engineering
- Scheduling, Estimating, Expediting
- Inspections
- Health & Safety
- High-Tech Maintenance



Fields of Expertise:

- Refining Operation
- Petrochemical
- Agricultural Chemicals
- Plastics and Rubber
- Commodity Chemicals
- Specialty Chemicals
- Materials Handling
- Pulp & Paper Manufacturing
- Batch Processes



Process Tasks:

- Feasibility and Debottlenecking Studies
- Preparation of the Process Design Packages
- Preparation of Appropriation Grade Estimates
- Simulations, Material and Energy Balances
- Equipment Specifications and Rigorous Design
- Process Control Design
- P&ID Review Facilitation
- Operating Procedures & Testing
- Relief System Design/Studies
- Hydraulic Network Studies
- PSM Studies and PHA Follow-up
- HAZOP Facilitation/Participation

Process Tools:

- Aspen Plus
- ChemCad
- Hysys
- SimSci Pro-II
- Visual Flare
- Visual Network
- STX (Shell & Tube Rigorous Design/Rating)
- ACX (Air Cooled Rigorous Design/Rating)
- B-JAC (Shell & Tube Thermal Design/Rating Module)
- BRE Tswet Pro-Sim
- WinSim



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ENGlobal Offices:

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LA: Baton Rouge, Lake Charles

OK: Tulsa, Cleveland, Blackwell
Canada: Calgary, Alberta

CORPORATE OVERVIEW

ENGlobal Corporation has very quickly become one of the fastest growing engineering firms in the United States. The core company was established in 1985; however, the **ENGlobal** name was born in December, 2001 with the merger of Industrial Data Systems Corporation ("IDS") and Petrocon Engineering, Inc., whose roots date back to 1977. Today, the combined corporation provides a full range of engineering and systems services in all segments of the petroleum, gas, chemical, power, and petrochemical markets.

TOTAL SOLUTIONS

ENGlobal Corporation is a group of companies focused on providing innovative, cost effective engineering services to the petroleum refining, petrochemical, pipeline and process industries. We provide total solutions from wellhead to refinery, from our own backyard to projects around the world. The **ENGlobal** companies have been meeting our clients' needs and exceeding their expectations for many years. We're proud of our history, confident in today's market environment and enthusiastic about our future. We invite you to become a part of it.

ENGlobal provides **innovative, cost-effective solutions**. This has been our primary focus from our days as a small, local engineering and design company to our current position as an internationally recognized firm. We provide **total solutions** to our customers' needs...whether responding with a single individual for an in-plant assignment to handling large EPC projects (Engineering, Procurement and Construction).

ENGINEERING SERVICES

ENGlobal is a multi-discipline professional engineering firm that includes project controls, information technology, procurement and construction management services along with our core engineering competencies. We have a long and successful track record of providing quality and value to our customers. Services range from feasibility studies to conceptual and detailed engineering services and extends through to total responsibility for turnkey projects and project financing.

QUALITY

ENGlobal establishes a clear definition of project requirements at the outset, measuring ourselves against those goals and maintaining open lines of communication with our clients through completion. Our reputation for superior project execution is recognized throughout the industry



SAFETY

Our safety record has won national recognition and delivers lowered costs and on-time completion to our clients. Our goal is not only to prevent accidents and control losses but also to instill a culture of care and compliance.

Our safety record EMR stands at the low value of 0.67, which testifies that our safety policy is not only sound, but also enforced. The total incident recordable rate (TRIR) for the corporation is 0.00.

REPUTATION AND RECOGNITION

We are actively earning an outstanding reputation for delivering improved quality and decreased costs to our clients and the industry is beginning to take notice. Some of the recent recognition we have received includes:

- *ENR – Engineering News Record Magazine*
 - **Top 500 Design Firms in the US for over 11 years**
 - **Top 10 Design Firms in Petroleum**
 - **Top 5 Design Firms in Pipelines**
 - **Top 10 Design Firms in Refineries & Petrochemical Plants**
 - **Top 10 in Cogeneration**
 - **Top 50 'Pure' Designers**
- *The Zweig Letter Hot Firm List: – #2 of 100*
 - **The 100 Fastest-Growing USA A/E/P & Environmental Consulting Firms**
- *Occupational Hazards Magazine*
 - **Safest Companies in America**
- *Business Week Magazine*
 - **Nation's Top Price-Performing Micro-Cap Companies**
- *The Houston Chronicle Newspaper*
 - **Houston's Leading Companies - #20 of 100**
 - **Most Revenue Growth - #1 of 100**
 - **Best Market Return - #2 of 100**

OUR CLIENTS:

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| • Alon | • Marathon Ashland |
| • AtoFina | • Motiva |
| • Citgo | • Pennzoil |
| • ChevronTexaco | • Placid Refining |
| • Coffeyville Resources, LLC | • Premcor |
| • ConocoPhillips | • Shell Oil |
| • ExxonMobil | • Sinclair |
| • Frontier Refining Co. | • Sunoco |
| • Giant Refining | • Valero |

Global Thinking...Global Solutions

Refining

