ABOUT IESL

International Energy Services Limited (IESL), established in 1990, is a specialist energy services company that provides integrated client-focused and cost-effective services in the oil and gas industry.

IESL provides clients with engineering expertise throughout the project lifecycle, from feasibility studies and scope documents to Design Conceptualisation, Man Power Supply, Detailed Engineering Design, Sub Sea Engineering Services (Manifold Design) Construction management and post-construction evaluations. Our objective is to provide integrated, client-driven consulting engineering and design solutions that help companies attain a competitive edge in the market.

IESL has assembled a highly-qualified team of engineers with worldwide experience and capabilities to provide practical solutions to complex problems at all phases of the oil and gas engineering projects. The team of professionals has the best resources and proficiency in delivering fast and accurate results that ensure value addition at every stage of work, contributing to the project’s success.

We have grown to be the foremost choice in the provision of services to the oil and gas sector because of our approach to quality, cost-effective services, teamwork and an unwavering commitment to clients’ satisfaction.
OUR PRINCIPLES AND CORE VALUES

- **Integrity**: To Sustain a reputation for fairness, honesty, efficiency and trust in all our dealings.
- **Collaboration**: Working as a team to achieve shared goals.
- **Innovation**: Generating new ideas and creative approaches to constantly improve our business processes.
- **Client Satisfaction**: To be creative in meeting the evolving needs of our clients and constantly exceeding their expectations.
- **Excellence**: Striving to exceed our goals through Innovation and Learning.
- **Diversity**: Respect for personal differences and values. Non-discrimination on the basis of gender, religion and ethnicity.

WHO WE ARE
QUALITY POLICY
IESL executes its services in line with the requirements of ISO 9001:2008 to the utmost satisfaction of its customers, while ensuring continual improvement of its quality management system.

Health Safety, Security and Environment Policy
It is the policy of IESL, to operate in a manner which prevents injury or illness to her employees/ personnel or harm to her customers, community and the environment in which we conduct our business.
STRUCTURE
The Engineering Division comprises of the following sub divisions;

Onshore & Offshore ( Topsides & Facilities) department
Conceptual / Feasibility Studies, FEED and Detailed Engineering,
Perform as built Services Offshore Structure Installation Design,
Facility De-bottlenecking, Platform Assessments, and Process
Facilities & Skid Design, Technical Writing/Documentation for
Oil & Gas facilities, Refineries & Petrochemical Industries.

Subsea & Geotechnical Projects
Subsea Production Systems, Subsea Umbilical Riser and Flow line
(SURF/URL/UFL), Flow Assurance Studies, Subsea Template Design

Living quarters & Infrastructure
Dam and Ports Design, Road and Bridges Design, Site Development
Planning and Design, and Recreation Planning and Design

Turbo Machinery Project Design

IESL Engineering personnel are proficient in the use of many design
softwares. The Engineers have hands on, and on the job experience
in the use of the following software, among others;

Office Location: Plot 1661 Oyin Jolayemi, Victoria Island, Lagos

- 4-storey Building with 3500m² floor space
- Power Generators
- Conference Rooms with Multimedia Facilities
- Client’s Offices
- IT Servers / Internet Facilities
- Printers, Scanners, Plotters, Copiers
- Messing Facilities
- Pool Cars
- Car Park
- Trained and Effective HSE personnel in place
- Emergency Evacuation Processes in place
- CCTV / Security Personnel

IESL ENGINEERING DIVISION AT A GLANCE

IESL ENGINEERING DIVISION SOFTWARES REPERTOIRE

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We offer cost-effective, state-of-the-art engineering design services to the Oil & Gas, Power Infrastructure, and Transportation sector in Africa. We identify the need to adhere to codes and standards in order to produce quality engineering design deliverables and outputs. We henceforth pride ourselves in the extensive knowledge and application of relevant engineering codes and standards such as ASME, ANSI, API, NFPA, NACE, BS, ASCE, ETC.

We offer a complete range of engineering design services to meet client’s needs at every stage of the design process as shown:

- Offshore Solution
- Subsea Solution
- Onshore Solution
- LNG Production / Recovery
- Gas Production / Extraction
- Offshore Drilling
- Offshore Production
- Subsea Manifold
- Gas Storage
- Process & Waste Management
- Refining Petrochemical
- Pipeline Solution
- Feasibility Assessment & Conceptual Design
- Basic Feed Design
- Detailed Engineering
1. FEASIBILITY STUDIES/CONCEPTUAL

IESL performs feasibility studies to determine optimal design/cost considerations for the development and transportation of oil and gas resources. These studies usually include:

- Determination of technical alternatives
- Overall route and system optimization, including profile and hydraulic study
- Estimation of capital cost and operating costs
- Definition of the main features and functional requirements of the project
- Investment appraisal and economic evaluation
- Recommendation of preferred solution (with economic considerations and benefits)

2. FEED/BASIC ENGINEERING

IESL performs feasibility studies to determine optimal design/cost considerations for the development and transportation of oil and gas resources. These studies usually include:

- Process design
- Technical dossier (specifications, calculation notes, general drawings) incorporated in the call to tender for turnkey contracts and long lead items supply.
- Evaluation of tenders

3. DETAILED ENGINEERING

IESL has performed this role on many major projects. IESL in 2008/2009 undertook two major projects detailed engineering projects with technical support from Doris Engineering, Paris. Since then IESL has undertaken several detailed engineering projects for both Onshore and Offshore facilities. Prominent projects include: MEREM GGCP Platform, Somain NWP Platform, Somain LQP Platform, EGINA FPSO, OFON2 Tie-in Project, etc.

Greenfield Facilities Project

A thorough knowledge of HAZOP requirements ensures that our designs not only comply with government required procedures, but also allows operators of existing platforms to upgrade facilities for compliance. With IESL vast experience, achieving compliance is never an issue.
System design utilizing Electrical Transient Analysis Program (ETAP) for:

- Load and Power Analysis
- Short Circuit Analysis
- Protective Device Coordination Analysis
- Generator/Utility modeling/sizing
- Transmission line modeling
- Motor Starting modeling
- Cable sizing routing and tray/duct bank/vault Analysis
- Transient System Analysis
- Harmonic Analysis

Brownfield Modification - Applicable for Onshore/Offshore

IESL has experienced engineers with capability to perform Brownfield modifications (Re-design, De-Bottlenecking, Follow-up Engineering and reconstruction) of existing facilities in offshore/onshore installations. This include: Agbami FPSO, AKPO, FPSO, Ovade-Ogharete Gas plant, Gbaram-Ubie, etc.

Electrical Design and Operability Analyses

System design utilizing Electrical Transient Analysis Program

When a project calls for instrumentation, IESL designs a variety of pneumatic/electronic control & safety systems—such as emergency shutdown (ESD), water flood and steam flood facilities, platform safety, subsea completion, and compression control. IESL produces all drawings and reports required to ensure that control systems meet government standards and procedures, including responses to MOC (management of change) documents, safe charts for functional analysis and evaluation, and permitting packages (MMS).

Fire & Gas Design and Operability Analyses

Conceptual and operational Fire & Gas System design:

- Specifications
- System design and procurement
- Field installation and operational inspection
- Test & Commissioning

Instrumentation

Our engineers also perform field surveys to evaluate existing systems, verifying that the system complies with industry safety standards—such as the American Petroleum Institute (API) RP14C and RP75. Following evaluation, we recommend and implement the required system changes to ensure compliance.

Years of experience and refined work methods help to reduce the cost and time in designing and constructing control & safety systems. Whether we are designing new systems or evaluating existing ones, safety always comes first.
Structural Design

Fixed Offshore Structure Design
- Caissons and Braced Caissons
- Wellhead or Well Protector Platforms
- Production Platforms; Jackets and Decks
- Modules

Offshore Structure Installation Design
- Loadout Analysis
- Transportation Analysis and Tie-Down Design
- Lift Analysis and Lifting Eye Design
- Flotation Analysis
- Jacket Upending Analysis
- Pile Driveability Analysis
- Installation Rigging Design
- Installation Appurtenance Design
- Bear Clamps, Spreader Bars, etc.

Platform Assessments
- Damage Assessment
- Assessment for Increased Platform Loading, Additions
- Repair Procedure Development

Pile Design for Prefabricated Decks
- Steel
- Timber

Compressor Vibration Analysis and Stiffening Design

Appurtenance Design
- Boat landings
- Riser Guards
- Deck Extensions
- Conductor Additions, Helipads
- Drilling Templates

Process Equipment Skid Design

Subsea Template Design

Third Party Verification (CVA)

Pipeline Design Assistance
- Laydown Sleds (PLEM/PLES Design)
- Anchors and Anchor Clamps, including SCR Anchor Clamps
- Helical Strake Arrestor Clamp
- Net Guards
**Land Based Facility Design**
- Equipment and Building Foundations
- Tank Foundations, Ringwall Design
- Pipe Supports

**Civil Design**
- Retaining Walls
- Drainage
- Small Buildings

**Vessel Design**
- Hull Design
- Lay Barge Stinger Design
- Tensioner Machine Support Design
- Reel Design and Reel Skidding Design, FEA Design
- Vessel Appurtenance Design
- Vessel/Barge Strengthening Design
- Production Equipment Support Frame for FPSO’s

**Offshore/Onshore Pipeline Services**

**Pipeline Design**
- Conceptual Design
- Cost Estimating
- Permitting
- Detailed Design of Pipelines
- Routing
- On-Bottom Stability
- Cathodic Protection
- Pipeline Crossings
- Materials
- Spanning Analysis
- Deepwater Design
- Detailed Design of Riser Systems
- Conventional Risers
- Steel Catenary Risers
- J-Tube Risers

**Consulting**
- Hydraulic Analysis/Optimization (Oil, Gas and Multiphase Flow)
- Right-of-Way Coordination and Permitting
- Line Sizing
- Installation Stress Analysis (Onshore and Offshore)

**Specification Development**
- Materials
- Construction

**Pipeline Related Facilities**
- Pump Station Design
- Launcher’s / Receivers
- Oil and Gas Metering
IESL has vast and varied experience working in the Nigerian Oil and Gas Sector. Some of our recent works include
PROJECT TITLE: GBARAN- UBIE PHASE II

Client: SHELL

Project scope: The scope of the EPC CONTRACT (Package 2) includes the review of the detailed design package; residual Engineering Procurement, Construction/Installation, pre-commissioning, commissioning and hand-over of the pipelines and inter-site cables. This excludes the new on-plot facilities at the CPF and Remote sites manifolds.

EPC Contractor: MORPOL

Local Engineering Contractors: International Energy Services Limited
PROJECT TITLE: UPGRADE OF TEMA REGULATING & METERING STATION

Client: West African Gas Pipeline Company (WAPCo)

Project scope:

Front End Engineering Detail design Upgrade of the Regulating and metering station at TEMA.

• Improve the gas handling capacity of Tema metering station from 70 MMSCFD to 130 MMSCFD.
• Upgrade the power generation by adding an additional 100Kva gas generator to the station.
• Install a new gas chromatography unit for gas specification measurement at Tema.
PROJECT TITLE: OUTSTANDING ENGINEERING WORKS ON GPP I AND II

Client: PAN OCEAN

Project scope: Completion of outstanding Engineering works on GPP II, de-bot-tle neck and modification works on existing GPP and as to inte-grate both GPP I & II Gas plant facility, and the design of LPG storage tanks.
PROJECT TITLE: EGINA FIELD DEVELOPMENT
PROJECT FPSO Design

Client: TOTAL

Project scope: General Project Management, Procurement, 3D Modelling of modules, detailed engineering design covering Piping, Process, Mechanical, Electrical, Instrumentation, Structural, Safety and Telecom

EPC Contractor: Samsung HHI

Local Engineering Contractors: International Energy Services Limited
PROJECT TITLE: ERHA NORTH PHASE 2 PROJECT

Client: EEPNL/CAMERON

Project scope:
System engineering involving generation layout drawings, system block diagrams and other system type documentation.
Detailed engineering support for the manifolds and foundation designs, such as 3D modeling of manifold/ foundations, engineering analysis and provide calculations, structures of 2 and 6 slots production manifolds and the ok water injection manifolds.
Participate in detailed engineering support of jumper kits including modeling and drawings of the jumper components, jumper kit assemblies, etc.
PROJECT TITLE: ETAN FPSO FEED PROJECT

Client: AGIP/BWO OFFSHORE

Project scope: The scope of the Etan Field project is to develop a leased FPSO having a processing capacity of 60,000 BOPD and storage capacity in the range of 0.6 to 1 million barrels of processed oil. Also includes water injection, gas treatment, export capabilities with Tandem configuration for Offloading FPSO.
PROJECT TITLE: NPDC LACT & METERING UNITS
PROJECT FEED

Client: Nigeria Petroleum Development Company

Project scope: The scope involves the design of 12 LACT (Lease Automatic Custody transfer) & Metering unit with capacities ranging from 25000bpd to 60000bpd at NPDC Flow stations.
PROJECT TITLE: DSO Offshore PROJECT

Client: Chevron Nigeria
EPC Contractor: HHI- Hyundai Heavy Industries
Local Engineering Contractors: International Energy Services Limited

Project scope:
Scope is to design a gas compression Platform (GGCP) in the Meren Field and a Non Associated well head platform (NWP) in the SonThe details are as shown in the table below:

A. The GGCP scope involves
- 120 MMSCFD Capacity
- 2 x 50% Gas Compression Trains
- 2 x 100% Solar Centaur 40 Turbine Generator Sets
- 1 Essential power generation package
- 1 x 40T Platform Crane Utilities
- Flare system designed to handle flare volumes of entire Meren 1 complex (170 mmscfd).
- Bridge connected to Meren 1 PP SONAM Non-associated Gas Well Platform.

B. The NWP involves
- 300 MMSCFD Capacity
- 9 Well Slots (increased to 12 slots)
- Well Testing Equipment
- Chemical Injection
- 1 x 20T Platform Crane
- 2 x 100% main power generation
- 1 Essential power generation package
- Utilities
- LQ with helideck to be installed on separate jacket with bridge connection to NWP.
PROJECT TITLE: ENGINEERING DESIGN FOR OFON 2

Client: TEPNG
EPC Contractor: Ponticelli
Local content Partner: IESL

Project scope:

Engineering works without being limited to piping, 3D model, equipment and structure engineering:

• On OFDI Platform (including OFP1/OFDI Bridge)
• On OFD2 platform
• On OFD3 and OFD5 Platforms
• On AMENAM Platforms
• On ODUDU ODPI Platform
PROJECT TITLE: AGBAMI FPSO DESIGN ENGINEERING SUPPORT SERVICES

Client: Star Deep Water Petroleum Limited (Chevron Nigeria Limited)

Project scope: Engineering support for Agbami Project includes:
- Test Separator Optimization
- Life Boat Area Extension
- Stabilization Column Balancing
- Detailed Design For Additional support offshore Bunk
- Piping modification
- Closed drain support
PROJECT TITLE: OFON 2, OFP2 DETAILED ENGINEERING DESIGN

Client: TOTAL UPSTREAM NIGERIA LIMITED (TEPNG)

Project scope:
Engineering and detailed design for Topsides, Drain, Main, Mezzanine and upper Decks. It includes the design and engineering of a new central processing platform (OFP2) with: Oil treatment and new export pumps, Gas compression systems, Gas Dehydration, Seawater/produced water treatment and injection system Utilities, HP and LP flare systems, Multiphase intrafield flowlines, Gas lift pipelines, Water Injection pipelines, Gas export pipeline.
PROJECT TITLE: USAN FPSO DETAILED ENGINEERING DESIGN

Client: TEPNG - Total Exploration & Production Nigeria

Project scope:
- Engineering and detailed design for Helideck and support
- Detail Engineering of P1 Laydown area
- Detail Engineering of Module P4 and S6
- P4 Future Module
- Project Management and Coordination
PROJECT TITLE: USAN OPERATING MANUAL PRODUCTION

Client: TOTAL EXPLORATION & PRODUCTION NIGERIA (TEPNG)

Contractor: Impaqt Conseil (France)

Project scope:

The present Scope of Work includes the Description of the USAN Facilities made up of a Floating Production Storage and Offloading unit (FPSO) with 25,000 tons topsides, 180 kbopd processing capacity, 185 MMScf/d Gas re-injection capacity. Accommodation facilities for 130/180 persons, Power Generation of 3 x 30MW (ISO), 2 millions barrels storage capacity and oil export offloading buoy; Umbilicas, Flowlines and Riser system (UFR) comprising of 63 km flowlines and 71 km Umbilicas and Subsea Production System (SPS) made up of 8 manifolds, 23 Producer wells, 9 Water Injector wells and 10 Gas Injector wells.
PROJECT TITLE: NOPL- Northern Option Pipeline Project Operating manual

Client: TEPNG
Contractor: Impaqt Conseil (France)
Sub - Contractor: IESL

Scope of work includes Writing of system description, Operational Procedure, Degradation mode, Normal Operation, System criticality, Shutdown Philosophy, Control Philosophy, Normal Start-up, Emergency Start-up Procedure, Safety Systems for the Northern Option Pipeline (NOPL) gas pipeline to transport gas from TEPNG (Obite facility) in order to distribute to other customers (NGC facility) in the eastern domestic gas (DOMGAS) market network.

Modules/system include Pig Lunching system, Open drain system, HPU Unit, Leak detection system, Cathodic protection, Gas Power Generation, Electrical Distribution, Insulation/Heat tracing, Telecom, HVAC, Gas metering Skid