

ICE

**INTERNATIONAL
CONSULTANT ENGINEERS**





INTERNATIONAL CONSULTANT ENGINEERS

Word from the CEO:

“Almost 20 years since the establishment of ICE. We assure our clients that we shall do our utmost to meet all the client expectations, provide the best solutions for the safety and Integrity of the client assets, provide the best engineering and innovative solutions in addition to embracing the best training programs that would meet the clients needs”



Best Regards
Eng. Houssam Sabry

ABOUT US :

ICE was established in 2001 by a group of highly experienced Oil and Gas experts in the areas of Engineering, Assets Integrity Management, Corrosion and Inspection Engineering Management. Throughout the year's ICE has gained the trust of its customers. An excess of 300 successful projects in the MENA region was delivered. ICE has five main Divisions; Engineering Division, Assets Integrity Management Division; Cathodic Protection Division, General Trading Division and Technical Training Division. ICE services cover many industrial sectors including; Oil and Gas, Power Generation, Infra Structure and Industry.

**WE
PROVIDE
INNOVATIVE
INDUSTRIAL
SOLUTION**



www-ice-corrosion.com

www.ice.com.eg

**WE
PROVIDE
FIT FOR
PURPOSE
ENGINEERING
SOLUTION**

Our Vision

“ ICE shall bring innovative solutions for the safe and profitable operation of its customers. The welfare of its clients and the community is our ultimate goal “

**INTERNATIONAL
CONSULTANT ENGINEERS**



Our Mission

“ Provide the end-user with innovative proven engineering solutions to maintain the safety, integrity, reliability and availability of the assets. We aim at providing Assets Integrity and Engineering solutions to establish a safe, sustainable and profitable operations. “



Our Services

CIPS & DCVG Surveys

Cathodic Protection

People Development & Training

Engineering Solutions

Asset Integrity Management

General Trading

**WE
KEEP
YOUR ASSETS
SAFE &
EFFICIENT**



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Our Services



Engineering Solutions

ICE supports its clients for specialized engineering services, we have already supported the major engineering Oil and Gas projects. ICE together with its partners delivers state of the art engineering solutions to cover the following project stages:

 PREFEED

 FEED

 Basic Engineering

 Detailed Engineering



Some specific deliverables and specialized services are as follows: >>>

Process Engineering >

- Basis of Design
- Process Description Reports
- Heat and Material Balance
- Process Simulation
- Process Flow Diagrams
- Piping and Instrumentation Diagrams
- Cause and Effect Diagrams
- Equipment sizing calculations
- Process Data sheets

Materials and Corrosion Engineering >

- Materials Selection Philosophy Reports
- Materials Selection Guides
- Corrosion Control Documents
- Cathodic Protection Engineering
- Corrosion Monitoring Drawings
- Coatings Specifications
- Insulation Specifications
- Pipelines Assets Integrity Studies
- Risk Based Inspection Exercises
- Remnant Life Assessments
- Fitness for Service Studies

Loss Prevention >

- Fire Protection Design Basis
- Fire and Gas Detection and Mapping
- Fire Water Network Layout
- Fire Water System P&ID's and Hydraulic Calculation
- Fire Zone Layouts
- Hazardous Area Classification Layouts
- Fire Alarm Cause and Effects
- Safety Studies
- HAZOP, HAZID and SIL Studies
- QRAs

Piping Engineering >

- Piping Material Specifications.
- Piping bulk material estimation.
- Material Requisitions, Technical bid evaluation & Vendor drawing review.
- Pipe Stress analysis (Dynamic & Static)
- Piping design specifications
- Piping Supports Design
- 3D Modelling
- Plant / Piping Layouts & isometrics extraction from 3D models.
- Post Detail Engineering, Field engineering support and construction assistance.
- Pipe wall thickness calculations as per ASME B31.1, ASME B31.3, ASME B31.4 & ASME B 31.8
- Pipelines full engineering spectrum inclusive of pipelines stress analysis and alignment sheets
- Piping Systems Materials Requisitions



Civil Engineering >

- Structural Design- AISC, BS, EURO, & API codes
- Developing Design criteria, Specifications and Standard drawings
- Structural GA Drawings & MTO
- Structural Fabrication drawings
- Foundation Design or Reaction forces on foundations
- 3D Modelling
- Lifting, Transportation, Seismic, Wind, Fatigue, Vibration and In-place analysis reports for Modular constructions



Electrical Engineering >

- Structural Design- AISC, BS, EURO, & API codes
- Developing Design criteria, Specifications and Standard drawings
- Structural GA Drawings & MTO
- Structural Fabrication drawings
- Foundation Design or Reaction forces on foundations
- 3D Modelling
- Lifting, Transportation, Seismic, Wind, Fatigue, Vibration and In-place analysis reports for Modular constructions



Mechanical Engineering >

- **Mechanical Equipment Data Sheets (inclusive of static and machinery)**
- **Rotating Equipment Specs**
- **Static Equipment Specs**
- **Rotating and Static Equipment Material Requisition**
- **Technical Bid Evaluation (based on both CAPEX vs OPEX for Rotating Equipment)**
- **Static equipment Fabrication Drawings.**

Instruments and Control >

- **I&Cs Bulk MTO**
- **Specification for Field and Online instruments**
- **DCS, PLC, ESD Engineering**
- **Preparation of Datasheets and Material Requisitions**
- **Cable Tray Layouts**
- **3D Modelling of Instrument, Junction box, Cable tray**





ICE provides high expertise with wealth of experience in the following areas:

- 🔥 **Assets Integrity Management Systems Development**
- 🔥 **Assets Integrity Management Gap Analysis**
- 🔥 **Assets Integrity Risk Assessments**
- 🔥 **Assets Integrity Management Audits**
- 🔥 **Risk Based Inspection**
- 🔥 **Corrosion Engineering**
- 🔥 **Corrosion Control Documents preparation**
- 🔥 **Corrosion Risk Assessment Studies**
- 🔥 **Corrosion Rate Modelling**
- 🔥 **Materials and Corrosion Audits**
- 🔥 **Integrity Operating Windows**
- 🔥 **Deadleg Studies**
- 🔥 **Corrosion Circuits/Loops studies**
- 🔥 **Failure Investigation Exercises**
- 🔥 **Materials Selection for the Oil and Gas Industry- Issuance of Materials Selection Reports and Materials Selection Drawings/Guides**



-  **Corrosion Monitoring systems design, site surveys and analysis**
-  **Vibration Dynamics and Noise Analysis**
-  **Corrosion Under Insulation Assessment and Control Services**
-  **Atmospheric Corrosion Surveys and Control Services**
-  **Coatings and Painting Consultancy**
-  **Remnant Life Assessment/ Assets Life Extension Studies**
-  **Fitness for Service (Levels I,II and III)**
-  **Pipeline Integrity Management Solutions**
-  **Preservation, mothballing and Chemical Injection Studies and Services**
-  **Boilers Integrity Management Studies and Assessment**
-  **Inspection Planning and Management**
-  **People Development and Training:**

- **Assets Integrity Management Training**
- **Corrosion Control Training**
- **Materials Selection Training**
- **Inspection Engineering Training**
- **Corrosion Under Insulation Training**
- **Cathodic Protection Training**
- **CIPS and DCVG Training**
- **Coatings and Painting Training**
- **Corrosion Inhibition and Monitoring Training**
- **Corrosion Management Training**
- **RBI Training**

-  **Technical Competence assessment, gap analysis and Personnel**



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Our Services



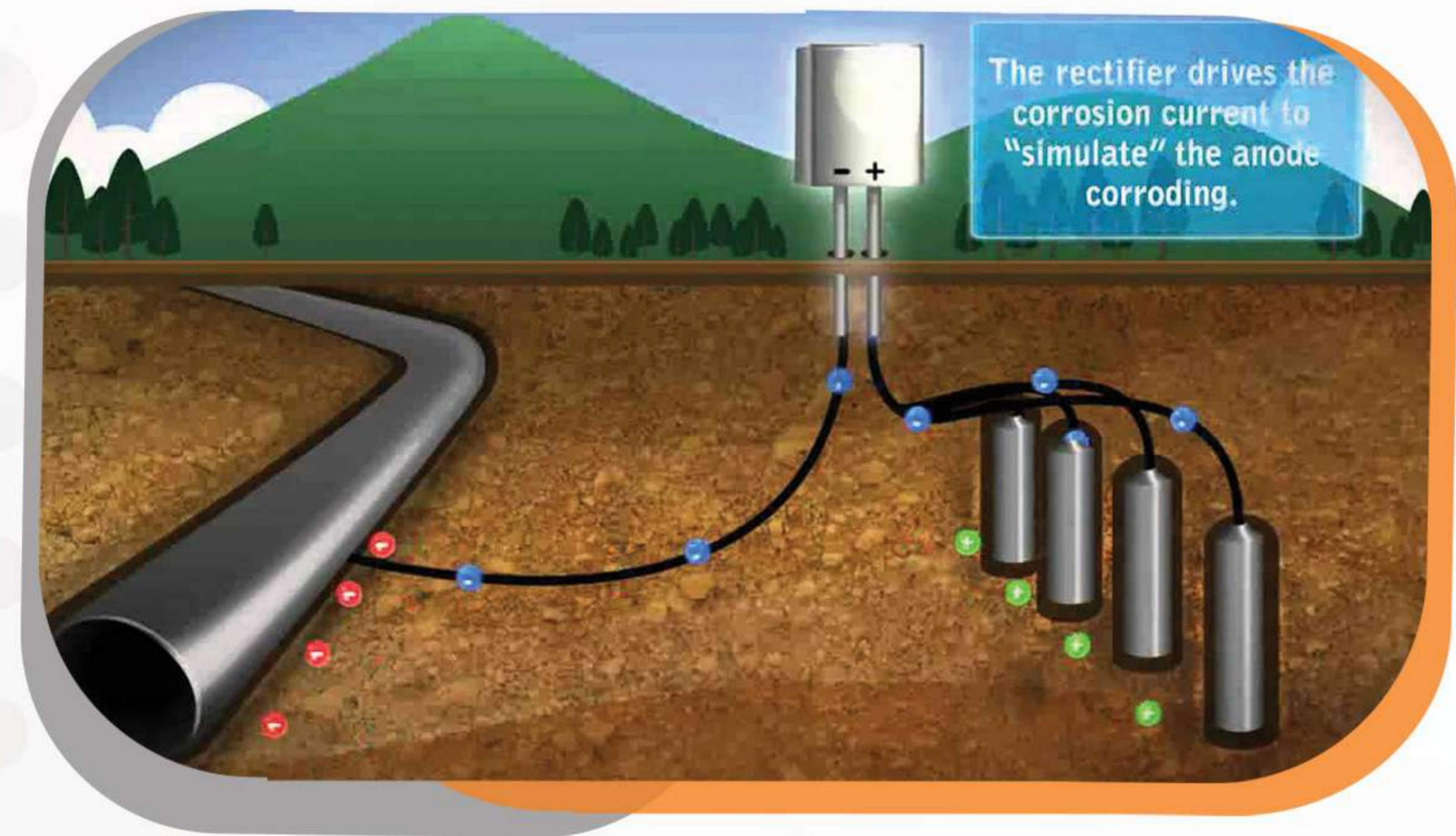
CATHODIC PROTECTION

Cathodic Protection is ICE's historic division. During 20 years of market presence, ICE Became Egypt's market leader in Cathodic Protection. ICE has delivered an excess of 300 cathodic protection projects,

this covers the following >>>

1. Offshore and On-shore Oil and Gas Facilities
2. Power Plants
3. Pipelines
4. Tank Farms
5. Export Jetties
6. Fertiliser Plants
7. Steel Industry
8. Shipping Industries

ICE has certified NACE CP4 staff members and delivers full cathodic protection services.



CP Codes and References >

There are numerous codes and references that shall be referred to when dealing with cathodic protection among these are:

In industry cathodic protection is applied to: >>>

- 🔥 NACE SP 0169
- 🔥 NACE SP 0176
- 🔥 NACE SP 177
- 🔥 NACE SP 575
- 🔥 BS 7361 PART I
- 🔥 DnV RP B 401
- 🔥 API 651
- 🔥 J. Morgan, "Cathodic Protection"
- 🔥 A.W. Peabody, "Control of Pipeline Corrosion"



Application of Cathodic Protection >>>

- 🔥 CP Techniques
- 🔥 Sacrificial and Impressed Current CP
- 🔥 Sacrificial Anodes
- 🔥 Mg Anodes
- 🔥 Zinc Anodes
- 🔥 Sacrificial Anode Backfill
- 🔥 Impressed Current Anodes
- 🔥 Fe Si Anodes
- 🔥 MMO Anodes
- 🔥 DCVG Surveys
- 🔥 Storage Tank Cathodic Protection

Learn More >>>





People element in Assets Integrity management is the most challenging element in Assets Integrity. It is people who operate the plant, so inspection, design and manage the technical integrity and provide the final assurance.

This activity is of prime importance to assess the Technical Competence of the personnel who are directly engaged in Assets Integrity Management. ICE starts the competence review through establishing a clear Technical Competence Matrices for each job group and function, then technical competence gap exercise is done. Bridging those gaps both short term and long term is provided as a very effective solution.

Furthermore, ICE can bridge the gaps in people's competence. ICE through its training arm can put a detailed plan for the development of human capital both technically and in terms of management.

Materials and Corrosion Engineering >

- 🔥 Basics of Cathodic protection
- 🔥 Introduction to Material Selection for Oil and Gas
- 🔥 Introduction to CIPS & DCVG
- 🔥 Introduction to paintings, coatings & insulation
- 🔥 Introduction to corrosion inhibitors & corrosion monitoring
- 🔥 Assets Integrity Management
- 🔥 Corrosion Under Insulation
- 🔥 Cathodic Protection Design



E learning & E commerce >

Build E-commerce business “Basic – Intermediate – Advanced”
How to create your online courses

Security & Loss Prevention >

- 🔥 Investigation techniques “Wicklender – Zulawski”
- 🔥 Crises management
- 🔥 Create your business plan
- 🔥 Security management
- 🔥 TSR “transportation security requirements”
- 🔥 FSR “Facility security requirement” certified from TAPA
- 🔥 Developing your Emotional intelligence
- 🔥 Critical thinking
- 🔥 Negotiating your leadership success
- 🔥 Implementing supply chain management
- 🔥 Loss prevention professional techniques “handling shrinkage & waste



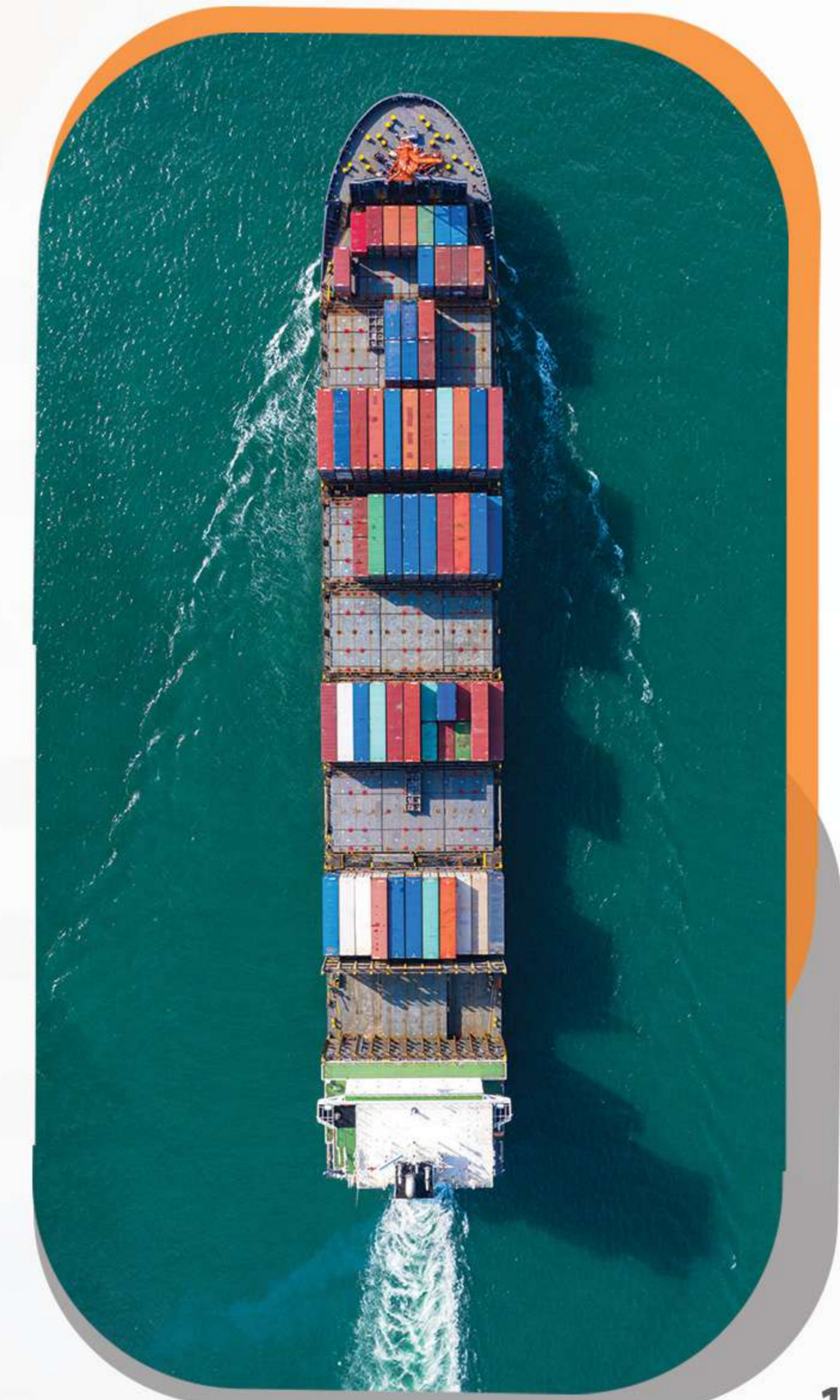
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ICE works hand-in hand with International partners to complement its services, ICE is hence the sole representative in the Arab Republic of Egypt for the following companies:

- 🔥 **Metegrity**- Assets Integrity Management Software Providers- Canada
- 🔥 **Polcor- Greece**, Manufacturer of Marine Anodes
- 🔥 **CEPAI**, the largest valves, field instruments and control valves supplier in China with superior quality and supplies mainly for the US, Canada and the MENA region major International Oil Companies.
- 🔥 **Ozler**, which is a world leader in the manufacture of scaffolding and formwork systems.
- 🔥 **H2O Biofouling Services**, based in the Netherlands. H2O is specialised in the solutions of fouling control of all seawater intake industrial systems .
- 🔥 **CORTEC**, a world leader in corrosion control through volatile inhibitor, ICE is the service provider for the Corrologic systems.
- 🔥 **Stone Oil and Gas Engineering Company**- Canada, where through a collaboration agreement, ICE shall provide Engineering support services to jointly execute the engineering projects.



Our Services



CIPS and DCVG survey

- 🔥 Used to determine the status of a buried pipeline
- 🔥 Is made using reference electrodes, data logger and processor
- 🔥 Can detect the location and severity of corrosion
- 🔥 Can detect locations of coating deterioration



PROJECTS



The following is a sample of some projects, ICE has delivered an excess of 300 projects to major clients representing all Industrial sectors:

Cathodic Protection Sectors >

[Check out our full updated list of projects](#) >>>



JOB DESCRIPTION	YEAR	CLIENT	LOCATION
Corrosion Monitoring Services	2019	Mansoura Petroleum	EGYPT
Corrosion Monitoring Services	2019	Ethydco	EGYPT
Corrosion and NDT services for Gas Pipelines	2019	Solvay	EGYPT
MIDTAP Jetty Cathodic Protection Retrofitting	2020	EPROM	EGYPT
Pipelines Coating Defects Repair	2020	Rashpetco	EGYPT
NPC Engineering Services	2020	Petrojet	EGYPT
CIPS and DCVG for Western Desert 1440 Km Pipelines	2020	Bapetco	EGYPT
Karam Test Separator Advanced NDT	2020	Bapetco	EGYPT
Supply of CP Materials	2020	KPC	EGYPT
Supply of CP Materials	2020	Petrojet	EGYPT

Engineering Projects >

JOB DESCRIPTION	YEAR	CLIENT	LOCATION
New Crude Distillation Unit Fired Equipment Engineering Scope	2020	Petrojet Nasr Petroleum	EGYPT
New Crude Distillation Unit Materials Piping inclusive of: - Piping Design - Piping Stress Analysis - 3D Modelling Engineering Scope	2020	Petrojet Nasr Petroleum	EGYPT
Provision of 40 Engineering Consultants to work as part of Petrojet's EPC team	2020	Petrojet Nasr Petroleum	EGYPT
Hot Box Drum (pressure vessel), Finite Element Analysis	2020	Petrojet Midor	EGYPT
Structural Steel Engineering	2020	Petrojet MDF	EGYPT

Assets Integrity Management >

JOB DESCRIPTION	YEAR	CLIENT	LOCATION
Risk Based Inspection (RBI)	2020	Petrojet/NPC	EGYPT
Materials Selection for Downhole Casings and Equipment	2018	Dana Gas	UAE
Materials Selection for Wastani Fields	2020	On-Spec	EGYPT
Corrosion Monitoring for Mansoura Fields	2020	Mansoura Petroleum	EGYPT
Pipeline Integrity Survey Campaigns	2020	UGDC	EGYPT

Our Cathodic Protection Products



ICE manufactures and supplies the following CP Materials worldwide:

- Transformer Rectifiers
- Sacrificial Anodes
- Reference Electrodes
- Impressed Current Anodes
- Test Stations
- Petroleum and Metallurgical Coke Breeze
- Junction Boxes
- CAD welding consumables and equipment
- Pin Brazing Equipment and consumables
- Handycaps
- Splicing Kits
- Insulating Kits
- Monolithic Joints
- Cables



Check out our full updated list of products



Some of our honourable clients



First



ABB



COOP



Enppi



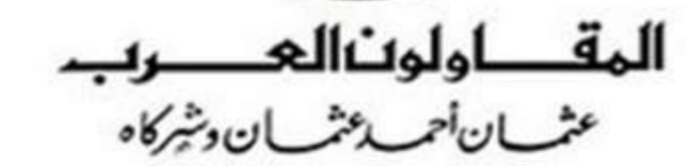
Petroleum Marine Services Co.



Liquefied Natural Gas
Egyptian LNG



Some of our honourable clients



**INTERNATIONAL
CONSULTANT ENGINEERS**



“Keeping your Assets Safe and Reliable”



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Engineering Solutions

People Development & Training

Cathodic Protection

Asset Integrity Management

General Trading