



ENKA
Engineering for a Better Future



ENKA IN IRAQ

HISTORY

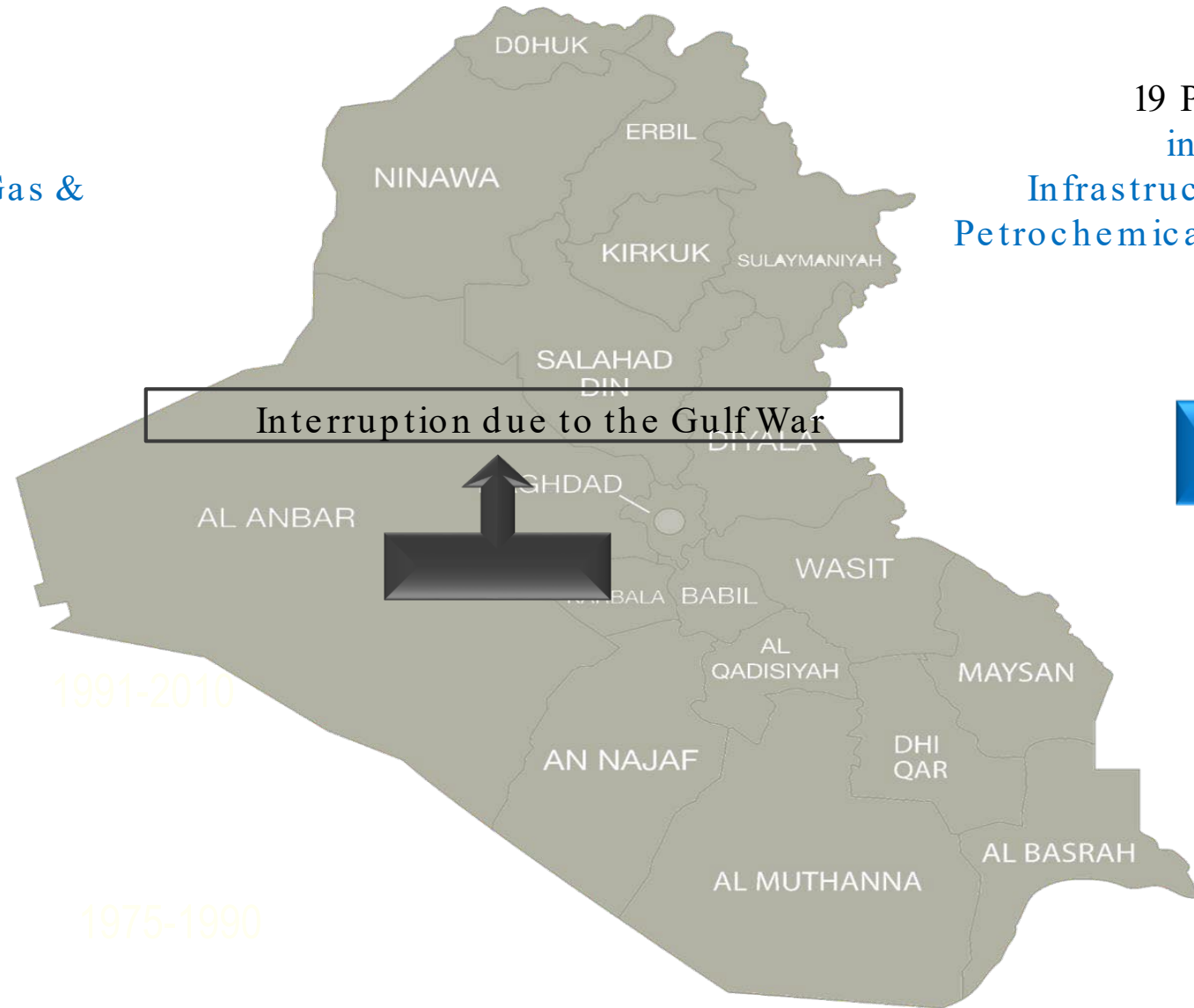


- In 1975, ENKA was awarded its 1st project - Shatt Al Arab Bridge in Iraq.
- ENKA's expansion to Iraq began with the construction of Badoosh, Tasluja and Kerbela Cement Plants in the early 1980s. Other significant activities undertaken by ENKA in the same decade included Baghdad Cigarettes Plant, Iraq-Turkey Crude Oil Pipeline Expansion – Crude Oil Export Project, and Bekhme Dam.
- In 2011, ENKA re-entered Iraq with the Majnoon Oil Field Development and West Qurna-2, Gas Treatment, Power Generation & Distribution projects.
- In 2012 – 2013, ENKA was awarded contracts for Erbil CCPP, Sulaymaniyah CCPP, Al Haydariyah SCPP, and North Rumaila Crude Oil Pump station projects.
- In 2014, ENKA was awarded the EPC contracts for Bazyan SCPP, Besmaya CCPP and the following year, in 2015, contract for Initial Oil Train Project in West Qurna.
- In 2018, Umm Qasr Basra Multi Purpose Terminal (BMT) Container Terminal Yard 5, Quay Wall & Marine Works were started.
- In 2019, contracts for Dhi-Qar and Samawa CCPP and also Produced Water 2 Facility in West Qurna were signed.
- ENKA in Iraq was honored with international awards for its excellence works:
 - ❖ **Suleymaniyah Power Plant Project** was selected as the **Best Global Project** of the Year 2017 by ENR.
 - ❖ **Initial Oil Train (IOT) Project** was selected as **ENR Global Best Project in 2020** and awarded **Distinction** prize by **British Safety Council** in the **International Safety Awards 2019**.
 - ❖ **Samawa 750 MW Combined Cycle Power Plant – Phase I** Project was selected as **Award of Merit** winner of 2022 by ENR. Also, the project awarded with the **Distinction** prize by **British Safety Council** in **International Safety Awards 2021**.

More than 45 years of operating experience in Iraq with about 33 signed construction contracts ranging from infrastructure works, power plants to oil & gas and petrochemical projects amounting to US\$ 6.4 Billion

HISTORY

24 PROJECTS
including
Infrastructure and Oil, Gas &
Petrochemicals



Interruption due to the Gulf War



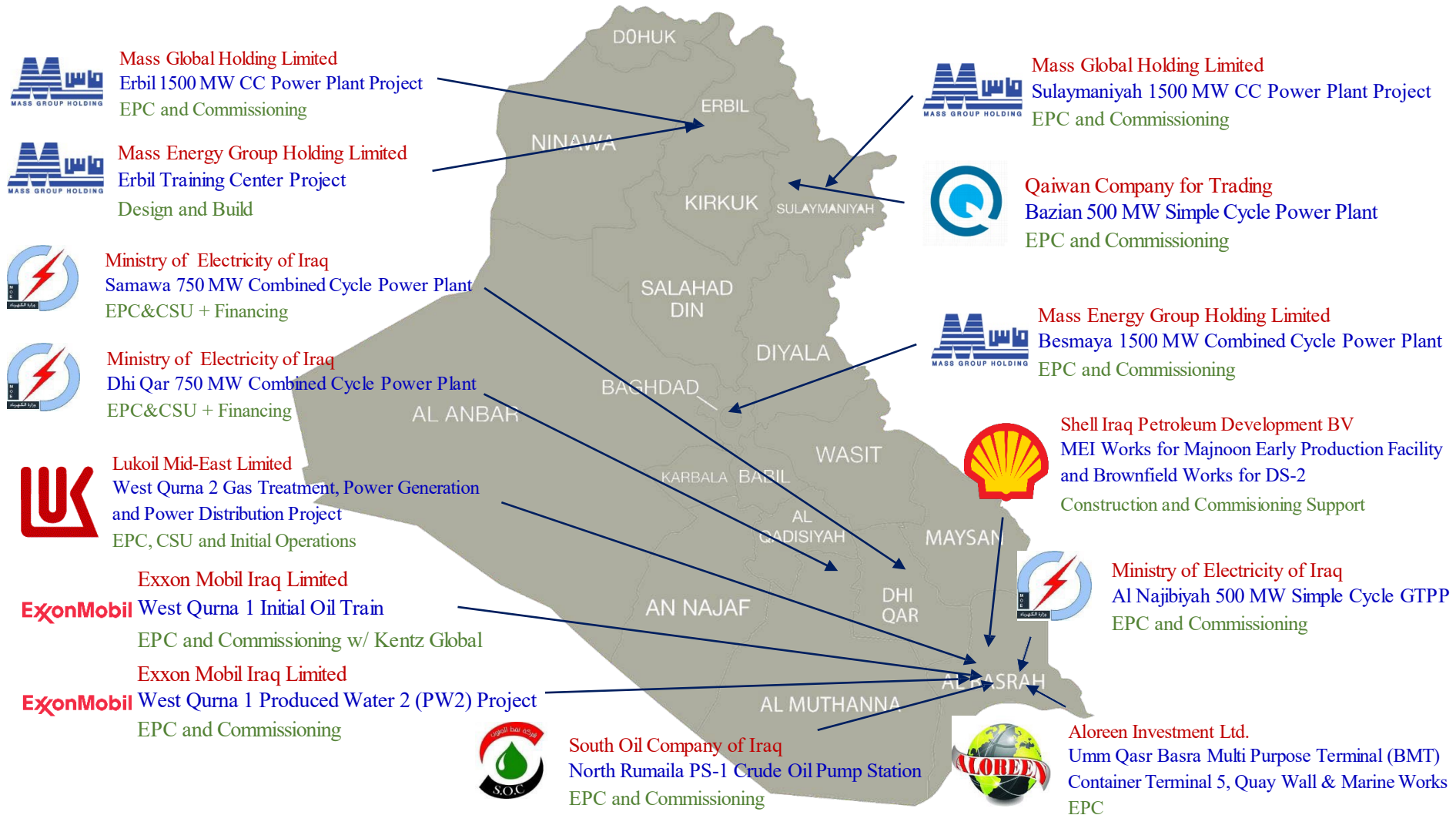
19 PROJECTS
including
Infrastructure, Oil, Gas &
Petrochemicals and Power Plants



HIGHLIGHTS

14 SIGNATURE PROJECTS **IN THE LAST 10 YEARS**

A TOTAL VALUE OF CONTRACTS **> US\$ 4 BILLION**



FEATURED PROJECTS

Project	Business Line	Location	Commence Date	Completion Date
West Qurna 1 (WQ1) Produced Water 2 Facility Project	Oil & Gas, Petrochemicals	Basra	2019	2023
Samawa 750 MW Combined Cycle Power Plant (Phase 1)	Power Plant	Samawa	2019	2021
Dhi Qar 750 MW Combined Cycle Power Plant (Phase 1)	Power Plant	Nasiriyah	2019	2021
Port of Umm Qasr - BMT Container Terminal Yard 5, Quay Wall & Marine Works	Infrastructure	Basra	2018	2021
West Qurna-I Initial Oil Train (IOT) Project	Oil & Gas, Petrochemicals	Basra	2015	2020
ISBL IOT8 Tie-In	Oil & Gas, Petrochemicals	Basra	2018	2019
Besmaya 1,500 MW Combined Cycle Power Station	Power Plant	Baghdad	2014	2018
Sulaymaniyah 1500 MW Combined Cycle Power Plant Project	Power Plant	Sulaymaniyah	2013	2016
North Rumaila Crude Oil Turbo Pump Station (PS-1) Project	Oil & Gas, Petrochemicals	Basra	2013	2016
Bazyan 500 MW Simple Cycle Power Plant	Power Plant	Sulaymaniyah	2014	2016
Erbil 1,500 MW Combined Cycle Power Plant Conversion	Power Plant	Erbil	2012	2015
Erbil Training Center Project - EPCC	Building Works	Erbil	2013	2015
Najibiyah 500 MW Simple Cycle Power Plant	Power Plant	Basra	2013	2015
West Qurna-2, Gas Treatment, Power Generation & Distribution Project	Power Plant	Basra	2011	2014
Majnoon Oil Field - MEI Works of CPF and and Brownfield Works for DS-2	Oil & Gas, Petrochemicals	Basra	2011	2013
Al Haydariyah 500 MW Simple Cycle Power Plant	Power Plant	Al Najaf	2012	2013
Um-Qasr Rail Tanker Off-Loading Cement Silos Feeding Project	Infrastructure	Um-Qasr	1989	1990
Falluja White Cement Plant	Infrastructure	Falluja	1988	1990
Bekhme Dam	Infrastructure	Bekhme	1986	1990
Kubaisa Cement Plant	Infrastructure	Kubaisa	1986	1987
Tasluja Cement Plant	Infrastructure	Tasluja	1981	1987
Baghdad Cigarettes Plant	Infrastructure	Baghdad	1985	1989
Nahrawan Industrial Estate Water Supply Scheme - EPC	Infrastructure	Baghdad	1984	1986
Habur Bridge Iraqi-Turkish Border - EPC	Infrastructure		1984	1986
Kerbela Cement Plant	Infrastructure	Kerbela	1984	1986
Badoosh Cement Plant	Infrastructure	Badoosh	1980	1985
Iraq-Turkey Crude Oil Expansion Project	Oil & Gas, Petrochemicals		1983	1984
Kerbela Water Pipeline and Pumping Station - EPCC	Infrastructure	Kerbela	1982	1983
Tasluja Water Pipeline and Pumping Station - EPCC	Infrastructure	Tasluja	1982	1983
Shatt Al Arab Bridge - EPC	Infrastructure	Basra	1975	1979



WEST QURNA I PRODUCED WATER 2 (PW2) FACILITY

PROJECT LOCATION

Basra - Iraq

CLIENT

ExxonMobil Iraq Limited

CONSTRUCTION PERIOD

December 2019 – April 2023

PROJECT VALUE

US\$ 70 Million



PROJECT DESCRIPTION

ENKA was awarded the contract by ExxonMobil Iraq Limited (EMIL) in December 2019 for the engineering, procurement, construction and commissioning of the new Produced Water 2 Facility (PW2) located within the West Qurna-1 oil field near the city of Basra in Iraq. The PW2 Project is to produce 210,000 barrels of water per day of outlet stream treated produced water in order to meet the forecasted amount of produced water across West Qurna 1 Degassing Stations 6, 7 and 8. The end user of the new facility is the Basra Oil Company (BOC) of Iraq. The project includes the detailed engineering, procurement, construction, and commissioning of three water treatment trains, one produced water tank, one local equipment room, transfer pumps and all associated systems. The treated produced water is to be sent to the Water Injection Storage Tank that feeds the High-Pressure Water Injection Pump System for injection wells.



SAMAWA 750 MW COMBINED CYCLE POWER PLANT

PROJECT LOCATION

Samawa - Iraq

CONSTRUCTION PERIOD

Phase 1: March 2019 - June 2021

Phase 2: 34 months from the start

CLIENT

Ministry of Electricity of
Iraq

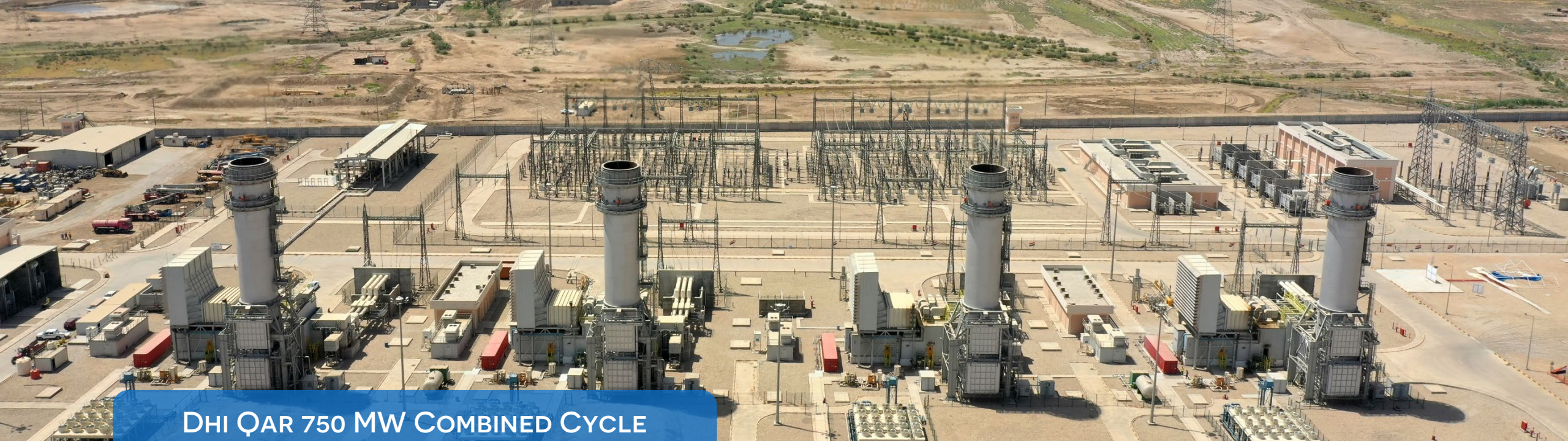
PROJECT VALUE

US\$ 562 Million

PROJECT DESCRIPTION

ENKA entered into a consortium agreement with General Electric (GE) on January 3rd 2017, to undertake works on the Samawa Combined Cycle Power Plant project which was awarded to GE by the Ministry of Electricity of Iraq under a prime contract dated February 5th 2017. The contract, which was awarded on an Engineering, Procurement and Construction (EPC) basis, includes design works, manufacturing, deliveries to site, construction and assembly works, operation, commissioning, start-up and testing.

The gas turbines and generators and their off-base auxiliaries supplied by the Client were to be installed and commissioned by the GE-ENKA consortium in simple-cycle mode and then converted to combined-cycle through the addition of a steam tail (the "Add-On") and associated equipment.



DHI QAR 750 MW COMBINED CYCLE POWER PLANT

PROJECT LOCATION

Nasiriyah - Iraq

CLIENT

Ministry of Electricity of Iraq

CONSTRUCTION PERIOD

Phase 1: March 2019 - June 2021

Phase 2: 34 months from the start

PROJECT VALUE

US\$ 561 Million

PROJECT DESCRIPTION

ENKA entered into a consortium agreement with General Electric (GE) on January 3rd 2017, to undertake works on the Dhi Qar Combined Cycle Power Plant project which was awarded to GE by the Ministry of Electricity of Iraq under a prime contract signed on February 5th 2017.

The contract, which was awarded on an Engineering, Procurement and Construction (EPC) basis, includes design works, manufacturing, deliveries to site, construction and assembly works, operation, commissioning, startup and testing.

The gas turbines and generators and their off-base auxiliaries supplied by the Client were to be installed and commissioned by the GE-ENKA consortium in simple-cycle mode and then converted to combined-cycle through the addition of a steam tail (the "Add-On") and associated equipment.



PORT OF UMM QASR – BMT CONTAINER TERMINAL YARD 5, QUAY WALL & MARINE WORKS

PROJECT LOCATION

Basra - Iraq

CONSTRUCTION PERIOD

Dec 2018 – May 2021

CLIENT

Aloreen Investment
Ltd.

SCOPE

Lump Sum Turn Key

PROJECT DESCRIPTION

The contract for the BMT Umm Qasr Yard-5 quay wall and marine works include engineering, design, procurement, transport and logistics, and construction.

The scope of the project includes the design and construction of quay wall structure; dredging; bedding layer; concrete block fabrication and installation; cope unit construction; marine fixtures and accessories installation and backfilling behind quay wall. Under the contract, a block work quay wall is to be installed at the end of the basin. The length of the main quay wall is approximately 611 m.

The works under the Part-1 of the project were %100 complete. The Part-2 of the project consisting of activities pertaining to land side crane beam and bored piles have been completed in May 2021.



Distinction prize
by **British Safety
Council** in the
**International
Safety Awards**
2019

WEST QURNA | INITIAL OIL TRAIN PROJECT

PROJECT LOCATION

Basra - Iraq

CONSTRUCTION PERIOD

August 2015 – February 2020

CLIENT

ExxonMobil Iraq Limited

PROJECT VALUE

US\$ 202 Million

PROJECT DESCRIPTION

ENKA was awarded a contract by ExxonMobil Iraq Ltd. (EMIL) for a new oil processing facility to increase production at its West Qurna 1 Oil Field in Iraq.

The scope of works included a front end engineering design, detailed design engineering, procurement, fabrication, construction, commissioning and start-up of the facility, comprising crude heating and crude desalting, flare system, fire protection, required utilities, stand-by power generation, instrumentation and controls, telecommunications and interfaces with neighboring facilities. The facility was designed in a modularized concept.

The main pipe-rack modules were designed, manufactured and assembled by ENKA at ship & module yard in Gemlik - Turkey.



BESMAYA 1,500 MW COMBINED CYCLE POWER STATION

PROJECT LOCATION

Baghdad - Iraq

CONSTRUCTION PERIOD

October 2014 – February 2018

CLIENT

Mass Group Holding Limited

PROJECT VALUE

US\$ 569 Million

PROJECT DESCRIPTION

The Baghdad Electrical Power Station - Besmaya Project was an EPC contract undertaken and executed by ENKA, on a lump sum turnkey basis, including engineering, procurement, construction, commissioning, start-up and performance testing.

The contract, signed between ENKA and Mass Energy Group Holding Ltd., comprised the first phase of the project, namely a 1,500 MW gas fired Combined Cycle Power Plant including all the infrastructure and utilities to serve also the future extension of the plant capacity to 3,000 MW. Phase-1, configured as 2 blocks of 2 x 2 x 1 combined cycle (1,500 MW), was designed and built to make 1,000 MW available for commercial operation on simple cycle mode by the end of 2016 and to add 500 MW with steam cycle by the end of 2017.

The combined cycle part of the plant consists of 4 Heat Recovery Steam Generators, including surface type condensers, 2 nominal rated 250 MW steam turbine generators, 2 wet type mechanical draft cooling towers, all the requisite equipment and systems for a safe, reliable and efficient combined cycle power generating facility.



SULAYMANIYAH 1,500 MW COMBINED CYCLE POWER PLANT

PROJECT LOCATION

Sulaymaniyah - Iraq

CONSTRUCTION PERIOD

July 2013 - July 2016

CLIENT

Mass Group Holding Ltd.

PROJECT VALUE

US\$ 434 Million

PROJECT DESCRIPTION

The existing simple cycle Sulaymaniyah Gas Power Station had been developed by MGH - Mass Group Holding Ltd. with a capacity of 1,000 MW with eight GE - 9E gas turbines. Through the use of steam turbines manufactured by GE, the combined cycle gas turbines conversion added 500 MW installed capacity to the plant, making an overall capacity of 1,500 MW. The Sulaymaniyah Combined Cycle Power Plant Project was designed to work on two types of fuel – natural gas as the primary and diesel as the secondary source and to utilize the exhaust heat produced by the existing Sulaymaniyah Gas Power Station.

The major works under the contract were the design, engineering, procurement, shipment/ delivery, installation construction, interconnection, pre-commissioning, commissioning and start-up of eight Heat Recovery Steam Generators, two nominally rated 250 MW GE Steam Turbine Generators, two GSU Transformers, two 40-cell Air Cooled Condenser systems and all other Balance of Plant equipment to convert the simple cycle plant into two blocks of 4x4x1 combined cycle configuration, as well as demonstrating parallel operation with the grid at the required net output, performance testing, training of the operating and maintenance personnel, and preparation of the integrated operation and maintenance manuals.



CRUDE OIL TURBO PUMP STATION (PS-1)

PROJECT LOCATION

Basra - Iraq

CONSTRUCTION PERIOD

December 2013 – April 2016

CLIENT

South Oil Company
(SOC) of Ministry of Oil

PROJECT VALUE

US\$ 59 Million

PROJECT DESCRIPTION

ENKA was awarded the EPC contract for the Crude Oil Turbo Pump Station by South Oil Company.

ENKA provided full detailed engineering, procurement, construction, commissioning scope for the new pumping station of two 13 MW gas turbine driven turbo pump units delivering oil 6,100 m³/hr at a pressure of 685 m at the 42" discharge, fuel gas booster compressing and regulation station, compressed air system, crude oil drain tank, waste water tank, low voltage power distribution and control system, a station shelter complete with overhead cranes for maintenance.

The project was designed to a high level of operational intelligence and reliability due to being a critical facility for oil exports from a giant oil field. The plant was designed under strict oil and gas standards and specifications (API) with appropriate design margins and redundancy requirements.



BAZYAN 500 MW SIMPLE CYCLE POWER PLANT

PROJECT LOCATION

Sulaymaniyah - Iraq

CLIENT

Qaiwan Company for Trading, General Contracts, Oil Services & General Transport Ltd.

CONSTRUCTION PERIOD

September 2014 – March 2016

PROJECT VALUE

US\$ 222 Million

PROJECT DESCRIPTION

The Qaiwan Group awarded ENKA, the Bazyan Simple Cycle Power Plant Project on an EPC turnkey basis.

The power capacity of the plant is 500 MW generated by four GE-9E-3 gas turbines, an air insulated switchyard of 132kV, fuel gas conditioning system, three Distillate Fuel Oil tanks, each of 15,000 m³ capacity, a water treatment plant and all Balance of Plant systems, to be completed with all accessories, including piping, wiring, instrumentation controls and panels and all other facilities and required capabilities.

The scope of the work covered all engineering, design, procurement, manufacturing, shipment/ delivery, construction, installation, testing, interconnection, pre-commissioning, commissioning, start-up, demonstration of parallel operation with the grid at the required net output and performance testing activities as well as preparation of operation & maintenance manuals and classroom training of the operating and maintenance.



ERBIL 1,500 MW COMBINED CYCLE POWER PLANT

PROJECT LOCATION

Erbil - Iraq

CLIENT

Mass Group Holding Ltd.

CONSTRUCTION PERIOD

April 2012 – October 2015

PROJECT VALUE

US\$ 488 Million

PROJECT DESCRIPTION

ENKA executed the design, procurement, installation and start-up of eight Heat Recovery Steam Generators, two nominally rated 250 MW Steam Turbine Generators, two GSU Transformers, two 40-cell Air Cooled Condenser systems and all other equipment, to convert the simple cycle plant into two blocks of 4x4x1 combined cycle configuration, including all civil and erection works.

Erbil Combined Cycle Power Plant project was designed to work on two types of fuel – natural gas as the primary and diesel as the secondary source and utilizes the exhaust heat produced by the existing Erbil Gas Power Station.

The Erbil 1,500 MW Combined Cycle Power Plant project was Iraq's the first conversion project from simple cycle to combined cycle and the first combined cycle power plant in the country.



NAJIBIYAH 500 MW SIMPLE CYCLE POWER PLANT

PROJECT LOCATION

Basra - Iraq

CONSTRUCTION PERIOD

May 2013 – May 2015

CLIENT

Ministry of Electricity of
Iraq

PROJECT VALUE

US\$ 271 Million

PROJECT DESCRIPTION

The project comprised engineering, procurement, construction, commissioning and start-up, for a 4 x 125 MW Power Generation Plant, to operate in simple cycle mode of operation with three types of fuel, heavy fuel oil, natural gas and light distillate oil, complete with all balance of plant systems, to support the safe and efficient operation of Combustion Turbine Generators units.

The scope of the services provided by ENKA included: complete basic and detailed design and engineering of the plant, utilizing in-house resources, supply of all balance of plant systems and equipment, all civil works unloading, metering and fuel treatment systems, Auxiliary Boiler System, 400 kV and 132 kV GIS Systems with step-up transformers, MV and LV Substation with auxiliary transformers, cabling, instrument and plant air supply systems, Black Start and Emergency Diesel Generators fire protection, detection, alarm and extinguishing systems, water storage, pre-treatment and demineralization plant, waste collection and treatment system, power plant distributed control system, construction of buildings, supply of spare parts, and start-up and commissioning of the plant on a lump sum turnkey basis.



WEST QURNA 2 PGP & POWER DISTRIBUTION SYSTEM

PROJECT LOCATION

Basra - Iraq

CLIENT

LUKOIL Mid-East Limited

CONSTRUCTION PERIOD

December 2011 – July 2014

PROJECT VALUE

US\$ 387 Million

PROJECT DESCRIPTION

ENKA performed the full front-end engineering design, detailed engineering, procurement, construction, commissioning, start-up and performance testing scope of works for the West Qurna 2 Power Generation Plant & Power Distribution System project, utilizing in-house resources on a lump sum turnkey basis.

The specific content of the plant consisted of three (3) GE MS6001B Heavy Duty Dual Fuel Gas Turbine Generators - Simple Cycle - 42 MW each, a Fuel Gas Treatment Plant (45,000 Nm³/hour capacity) and a compression system included with fuel gas buffer storage, a liquid fuel unloading, storage and distribution system; 33kV/132kV GIS switchgear, power management system, a water treatment plant; firefighting and protection systems, utilities' networks; all associated balance of plant, buildings and infrastructure.

The project has a high level of operational intelligence and reliability, compared to a standard power plant, due to its being the sole source of electric power for a giant oil field.



MAJNOON OIL FIELD – MEI WORKS OF CPF

PROJECT LOCATION

Basra - Iraq

CLIENT

Shell Iraq Petroleum Development BV

CONSTRUCTION PERIOD

July 2011 – December 2013

PROJECT VALUE

US\$ 247 Million

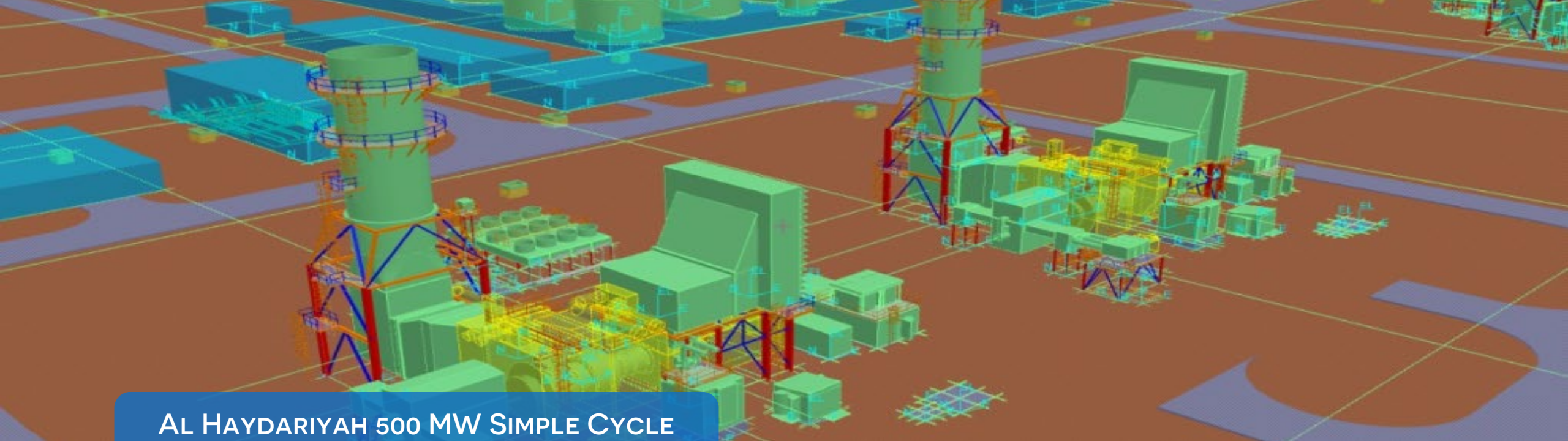
PROJECT DESCRIPTION

Central Processing Facility of Early Production Phase (Greenfield)

- 100,000 bpd capacity with 2 trains
- ENKA scope: Mechanical, Piping, Electrical, Instrumentation works, Pre-commissioning, Commissioning Support

DS-2 Mechanical Works (Brownfield)

ENKA signed another contract with Shell, to take over the rehabilitation brownfield work at existing Degassing Station DS-2, in order to restore current capacity of 65k bpd to the original design inlet of 100k bpd and further debottleneck the process, in order to increase the production capacity to 120k bpd. The project consisted of implementation of all rehabilitation and upgrading work packages.



AL HAYDARIYAH 500 MW SIMPLE CYCLE POWER PLANT

PROJECT LOCATION

Al Najaf - Iraq

CONSTRUCTION PERIOD

April 2012 – December 2013

CLIENT

Ministry of Electricity of Iraq

PROJECT VALUE

US\$ 2,5 Million USD

PROJECT DESCRIPTION

Basic & Detailed Design and Engineering of a 4 x 125 MW Simple Cycle Power Generation Plant with all Balance of Plant (BOP) systems to support safe and efficient operation of the whole Power Plant.

The produced number of engineering documents was approximately 1,050 including engineering specifications, operation descriptions, operation and maintenance instructions and technical requisitions.



BEKHME DAM

PROJECT LOCATION

Mosul - Iraq

CONSTRUCTION PERIOD

Sep 1986 – Dec 1993

CLIENT

State Commission for
Dams – SCD Ministry
of Irrigation of Iraq

PROJECT DESCRIPTION

Construction of civil works including supply and erection of the hydraulic steel structures for the Bekhme Dam Project and turn-key housing complex comprising of 350 villas and 17 social facilities such as Guest House, Restaurant, Club House, Supermarket, Dispensary, Kindergarten, School, Mosque, Bank, Post Office, Laundry and Offices.

Due to the Gulf crises and the war this project had been stopped indefinitely since August 1990, when 32% of the work progress had already been completed.

CEMENT PLANTS

1988-1990



Falluja White Cement Plant

Operations Management and Maintenance of 1,000,000 tons capacity white cement plant. Additionally, provision of Maintenance Planning and Management Team.

1986-1987



Kubaisa Cement Plant

Turn-key Construction of Internal Railway Concrete Silo Bulk Loading and Unloading Facilities Bag Loading and Unloading Facilities Heavy Oil Unloading Facilities.

1981-1985



Tasluja Cement Plant

All civil and building works and operations management and maintenance of cement plant with the capacity 1,000,000 tons/ year

1981-1985



Kerbela Cement Plant

All civil and building works of cement plant with the capacity 1,000,000 tons/ year and works related with 100 percent extension of the cement plant. Additionally, provision of electro-mechanical system control and consultancy services were provided.

1980-1985



Badoosh Cement Plant

All civil and building works and operations management and maintenance of cement plant with the capacity 1,000,000 tons/ year



IRAQ – TÜRKİYE CRUDE OIL PIPELINE EXPANSION

PROJECT LOCATION

Turkey - Iraq

CONSTRUCTION PERIOD

Mar 1983 – Oct 1984

CLIENT

BOTAS Transportation by
Pipelines Inc., Turkey State
Organization for Oil
Projects - SCOP, Iraq

PROJECT DESCRIPTION

Design and construction of expansion project to increase the capacity of existing 40", 1000 km crude oil line from 35 million tons/year to 50 million tons/year. Construction of 80 km of pipeline loop with 30" and 40" diameters. Replacement of pumps and motors at existing stations.

Modification of dispatching center.

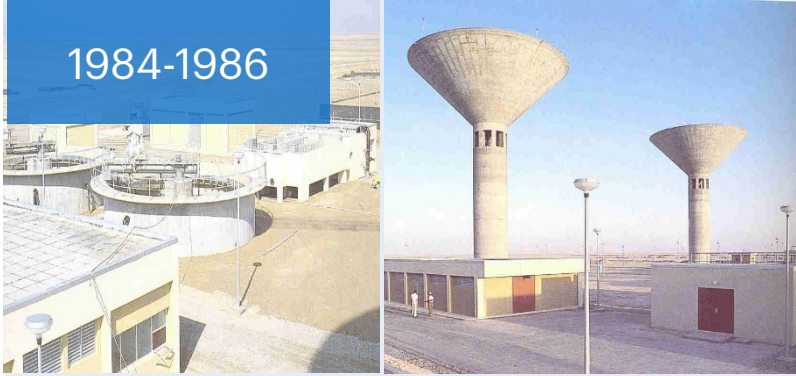
Extension of the metering stations and addition of the 4th metering station.

Construction of five new pump stations complete with high voltage substation.

Tie-in of new stations to existing pipeline.

WATER & BRIDGE PROJECTS

1984-1986



Nahrawan Industrial Estate Water Supply Scheme

Complete design and construction of a water treatment plant and one pumping station

1982-1983



Kerbela Water Pipeline and Pumping Station

Complete design and turn-key construction of 70 km. drinking water pipeline and a pumping station for transmission of 400 m³/h of water

1982-1983



Tasluja Water Pipeline and Pumping Station

Complete design and turn-key construction of 23 km. drinking water pipeline and a pumping station for transmission of 400 m³/h of water

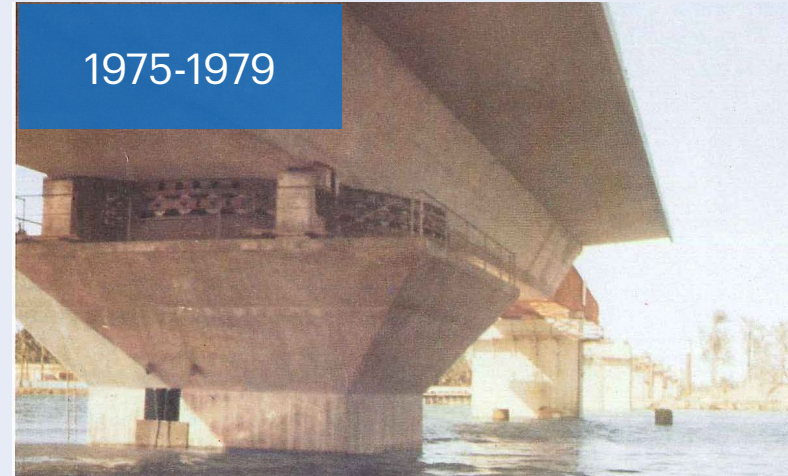
1984-1986



Habur Bridge Iraqi-Turkish Border

Design and construction of a bridge 315m in length having 9 equal spans of 35m

1975-1979



Shatt Al Arab Bridge

Construction of a 761 m. long prestressed concrete bridge

ENKA

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