

Al-Zour Refinery Project (ZOR), Kuwait

(Reference: Hydrocarbon Technology)

Key Data

Project Type: New refinery

Operator: Kuwait National Petroleum Company (KNPC)

Refining Capacity: 615,000 barrels a day of Kuwait Export Crude (KEC) or 535,000 barrels a day of mixed heavy crudes

Estimated Investment: KWD 6.7bn (approximately \$23bn)

Start of Construction: 2015

Expected Completion: 2018

Contractors: Amec, Honeywell, and Van Oord



Kuwait National Petroleum Company (KNPC) plans to start construction of a new multi-billion grass root refinery in the Al-Zour area, 90km south of Kuwait City, in 2015.

Known as the Al-Zour Refinery project (ZOR), it will primarily supply 225,000 barrels a day of low sulphur fuel oil (LSFO) to local power plants. It will also produce jet fuel, kerosene and naphtha feedstock for petrochemical plants.

The ZOR project and the Clean Fuels project (CPF) are the two biggest projects being implemented as part of KNPC's 2030 strategy. The new refinery



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will account for 43% of the country's refining capacity, and will be the largest in the Middle East.

It will also be one of the largest refineries in the world when it comes online in 2018.

The Supreme Petroleum Council (SPC) approved the project in February 2012 and the approval from the Kuwait-Environment Public Authority (K-EPA) has also been granted. Site preparation works started this year.

The new refinery will be designed to process 615,000 barrels a day of Kuwait export crude (KEC) or 535,000 barrels a day of mixed heavy crudes. Overall investment for the project is estimated to reach KWD6.7bn (\$23bn).

Al-Zour Refinery project details

Main facilities at the refinery include three atmospheric residue desulphurisation (ARDS) units featuring two trains each, three crude distillation units (CDU), three diesel hydrotreating units (DHTU), two naphtha hydrotreating units (NHTU) and two kero hydrotreating units (KHTU).

Other facilities include two saturated gas processing plants, a heavy oil cooling (HOC) unit, a hydrogen recovery (HR) unit, a hydrogen compression (HC) unit and four trains of hydrogen production units (HPU).

The project further includes the installation of a sour water stripper (SWS) unit comprised of three trains, three amine regeneration (AR) plants, three sulphur recovery units (SRU) and tail gas treating units (TGTU).

Other installations include a hydrocarbon flare system, four sulphur pelletising systems integrating two circular storage tanks and sulphur conveying systems, two acid gas flares, and four sulphur storage tanks.

Associated project activities will include the installation of a sulphur pelletising system, a steam generating unit, air systems, water treatment systems, a



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cooling water unit and high voltage (HV) substations to receive power from the Al-Zour South Power Station (AZPS).

Project activities also involve feedstock and product supply pipelines, and construction of various channels, a basin for a future jetty, a barge dock, and roads.

Technology licensors

"The Al-Zour Refinery project (ZOR) will primarily supply 225,000 barrels a day of low sulphur fuel oil (LSFO) to local power plants. "

The technology licensor for the CDUs, AR plants, HR, HC and SWS units is Flour, while Chevron Lummus Global will license technology for the ARDS units.

Technologies for the DHTUs, SRU and TGTU will be licensed by Shell Global Solutions. The technology licensor for the NHTUs, HPU and KHTUs is Haldor Topsoe.

Contractors involved

Amec was awarded the £330m (\$528m) Project Management Consultancy (PMC) contract for the refinery. Honeywell will provide its proprietary Experion PKS integrated control and safety system (ICSS) to serve as the main control system.

Van Oord was awarded a contract in March 2014 to carry out dredging works at the project site. Up to 65 million cubic meters of sand is expected to be dredged.