

Galkynysh Gas Field, Turkmenistan

(Reference: Hydrocarbon Technology)



Key Data

Owner: State Consern (SC) Turkmengas

Location: 75km south-east of the provincial capital Mary

Investment: \$8.5bn

Current Production Capacity: 30 billion cubic meters (bcm) of gas per year

Total Reserves: 14 trillion cubic meters

Commissioned: September 2013

Main Contractors: Petrofac, consortium of LGI and Hyundai Engineering and China National Petroleum Corporation (CNPC)





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Galkynysh Gas Field (formerly South Yoloten), discovered in 2006, is a name assigned to a cluster of gas fields: South lolotan, Osman, Minara and Yashlar. Galkynysh is touted to be one of the biggest gas reserves in the world.

The gas field is owned by State Consern (SC) Turkmenogas, the state-owned National Gas Company of Turkmenistan. Production commenced in September 2013, marking completion of the first phase of field development.

Each of the existing three gas treatment plants at the field has a capacity to treat ten billion cubic metres (bcm) of gas per year, which is expected to increase to 40bcm per year by 2015.

The front end engineering design (FEED) was carried out by Petrofac with an investment of \$100m. Up to 60 contractors and more than 14,000 employees are involved in the project's development.

Location and reserves of the Galkynysh gas field

Galkynysh is located 75km south-east of the provincial capital Mary in Turkmenistan and about 400km south-east of the capital Ashgabat.

The field is expected to hold gas reserves of more than 14 trillion cubic meters.

Financing Turkmenistan's gas project

The gas field is being developed with an investment of \$8.5bn. The first phase of development was funded through loans provided by the Chinese Development Bank and revenues of the owner.

Korea Finance Corporation (KoFC) provided \$240m for the gas desulfurisation plant built by LG International and Hyundai E&C.

The second phase of the project, which is under consideration, will also be funded by the China Development Bank. It is expected to come online in 2018.

Galkynysh gas field development



"The gas field is owned by State Concern (SC) Turkmengas, the state-owned National Gas Company of Turkmenistan."

The field development commenced in 2010 following an initial front end engineering and design (FEED) phase.

The project site covers an area of 1.06 million square meters. Up to six percent of the feed gas from the field contains hydrogen Sulphide (H₂S).

Sales gases from the three gas desulfurization plants are co-mingled, metered and exported via a common export pipeline to China.

The development works included construction of gas treatment and sulphur handling facilities along with well pad facilities, surface gathering facilities, infrastructure and utilities, condensate processing and storage facilities, roads, water supply stations and 100km of export pipelines.

Key players involved with the Galkynysh gas project

The engineering, procurement, construction and commissioning (EPCC) contracts for the three treatment plants at the gas field were awarded to Petrofac (\$3.4bn), consortium of LGI and Hyundai Engineering (\$1.48bn) and China National Petroleum Corporation (CNPC, \$3.13bn). Gulf Oil and Gas FZE won a \$1.15bn EPC contract to develop the production wells.

"Production commenced in September 2013, marking completion of the first phase of field development."

The utilities and offsites, including commissioning works for the central gas processing facility and civil, mechanical, electrical and instrumentation works and installation of the 100km long export sales gas pipeline, were carried out by Tekfen Engineering. The company also carried out the detailed design and engineering works for the 1,300m² central control building.

Doosan Vina designed, fabricated and shipped high tech pressure vessels and heat exchangers for the project.



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A boundary security system and terrestrial trunked radio (TETRA) communication system at the project site was provided by Beijing Satellite Science and Technology (BSST), an affiliate of Tri-Tech.

MENARD was awarded the contract to perform soil improvement works using dynamic compaction at the project site. The pre-fabrication and painting works for the project were carried out by Penta Global. Panelized system buildings, pre-engineered steel buildings and containers covering an area of about 35.724m² were constructed by IC& Holding.

Approximately 1,800km of specialized, armoured and hydrocarbon resistant, low voltage (LV) power cables for Petrofac's new processing plant at the project site were supplied by Nexans, under a contract awarded in August 2011.

Emerson process control systems (PCS) and safety instrumented systems (SIS) for CNPC's processing plant were provided by Nanjing Recon Technology.