

# Hanas LNG Plant

## Operations, Maintenance & Management



Operator/ Client: Ningxia Hanas New Energy Group  
Project/ Location: Hanas LNG Plant/ Yinchuan, Ningxia Province, China  
Scope of Services: Operations, Maintenance & Management

**Hanas LNG** is a mid-scale LNG Plant located in Yinchuan, Ningxia Province, China, south of inner Mongolia. It was established to help guarantee growing demand and sustainable energy supplies in the region while also promoting the development of China's clean energy industry.

The Plant Gas Feedstock is supplied by PetroChina from the Sebei Gas field and the Changqing Oil field through the second West-East Gas Pipeline. The LNG is distributed by a fleet of Trucks to end users in the western region.

**Ningxia Hanas New Energy Group** commissioned Aramis to undertake diversified Project Management, Technical and Operations Assurance services during the development phase of the plant.

Thereafter, Hanas engaged Aramis in plant Operations, Maintenance and Management services during 3 years initial operations to ensure plant performance, integrity, and personnel competency under a risk reward sharing contract.

### **The largest Natural Gas liquefaction Plant in China (2012)**

**Location:** Yinchuan, Ningxia, China



## Hanas LNG Plant at a glance

- ▲ 2 Trains x 400,000 tons per annum
- ▲ Gas Pre-treatment units
- ▲ Air Products' Single Mixed Refrigerant liquefaction process
- ▲ BOG recompression
- ▲ Utilities, Off-sites and General Facilities
- ▲ 50,000 m3 LNG Storage Tank
- ▲ LNG Truck Loading



During the construction phase of the LNG Plant, Aramis was engaged by Hanas into various Project Management and Operations Assurance Services.

Having gained a thorough knowledge and understanding of the plant equipment and processes, carried out comprehensive Operations, Maintenance, and Competence readiness reviews, developed and implemented the necessary Information Management Systems (CMMS, EDMS, TCMS) to support the plant operations, managed and supervised the plant commissioning, trained & assessed the client O&M team, Aramis was then requested by Hanas to undertake an Operations, Maintenance & Management of the LNG Plant under a risk-reward sharing contract.

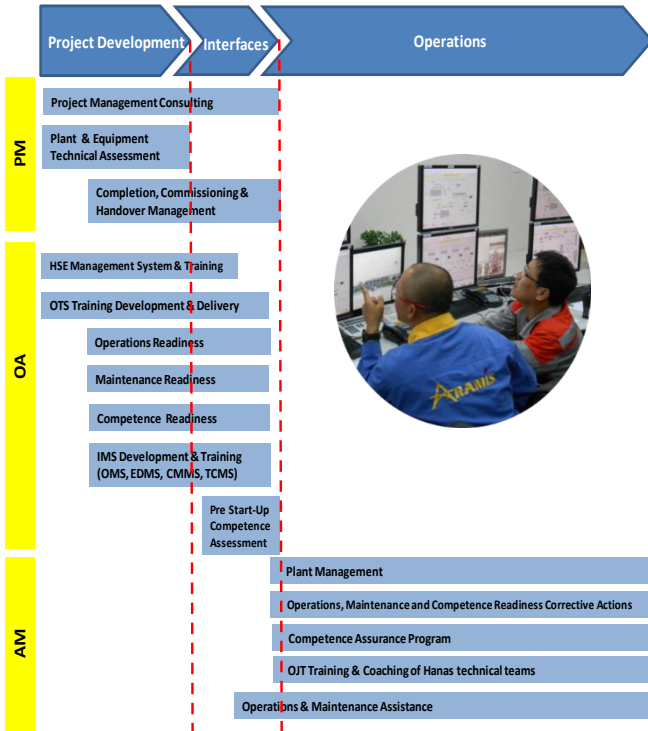
The scope of this integrated contract included:

- Operations Readiness Corrective Actions (development of full Operations Management System, business processes, workflows and procedures for operations, logistics & procurement).
- Maintenance Readiness Corrective Actions (development of maintenance business processes , workflows and procedures).
- Competence Readiness Corrective Actions (development of a comprehensive Training and Competence Assurance Program for Hanas O&M personnel; continuous on-the-job training & assessment of Hanas personnel after start-up).
- Management and supervision of Plant Start-up and Performance Tests (by EPCM Contractor) on behalf of Client up Plant Initial Acceptance.
- Assignment of an experienced LNG O&M team to assist Client's and EPCM Contractor's crews from gas-in to start-up and initial operations.
- Selection of a Plant General Manager for Hanas LNG.
- Assignment of a senior Management Team to manage the plant on behalf of client (Operations, Technical Services, Safety, Competency Development).
- Assignment of an experienced LNG O&M Team to supervise , train, coach and continuously assess Client's team (competency based incentive scheme).

The contract incentive scheme was based on KPI's:

- Production Performance
- Plant Availability
- Effectiveness of transfer of Know-How

The O&M contract included a Service Level Agreement to cater for ad hoc engineering services required for the LNG Plant: Project Engineering Management (Modifications/Upgrades), Process & Safety studies, Training, Reliability, Inspection/Integrity, Technical Analysis, Turnarounds Preparation, etc...



O&M Management Positions (*)	Duration (est.)	Conditions for End of Assignment
Plant Manager	Long Term	N/A (Selected by Aramis & directly appointed by Hanas)
Operations Manager	1-2 years	Competent Hanas Production Manager and Maintenance Manager
Technical Services Manager	2-3 years	Competent Hanas Technical Services Manager. Management / Leadership development + suitable Technical training.
Competences Development Manager	1 year (Part time assistance after 1 year)	Competent Hanas Training & Competences Manager. Fully implemented Competence Assurance Program (incl. managers), Fully Developed Plant Succession Plan.

O&M Assistance Team	Duration						
	M 1-3	M 4-6	M 7-9	M 10-12	M 13-15	M 16-18	M 19-21
Senior Shift Supervisor (1)	1	1	1	1	1	1	
Senior Shift Supervisor (2)	1	1	1	1	1		
Senior Shift Supervisor (3)	1	1	1	1	1		
Senior Shift Supervisor (4)	1	1	1	1	1		
Senior Panel Operator (1)	1	1	1	1	1	1	
Senior Panel Operator (2)	1	1	1	1	1		
Senior Panel Operator (3)	1	1	1	1	1		
Senior Panel Operator (4)	1	1	1	1	1		
Senior Field Operator (1-2)	2	2	2	2	2		
Senior Field Operator (3-4)	2	2	2	2			
Senior Field Operator (5-6)	2	2	2	2			
Senior Field Operator (7-8)	2	2	2				
Maintenance Coordinator	1	1	1	1	1	1	
Senior Instrument Engineer	1	1					
Senior Mechanical Engineer	1	1	1	1			
Senior HSE Officer	1	1					
Case	Best		Base		Worst		

