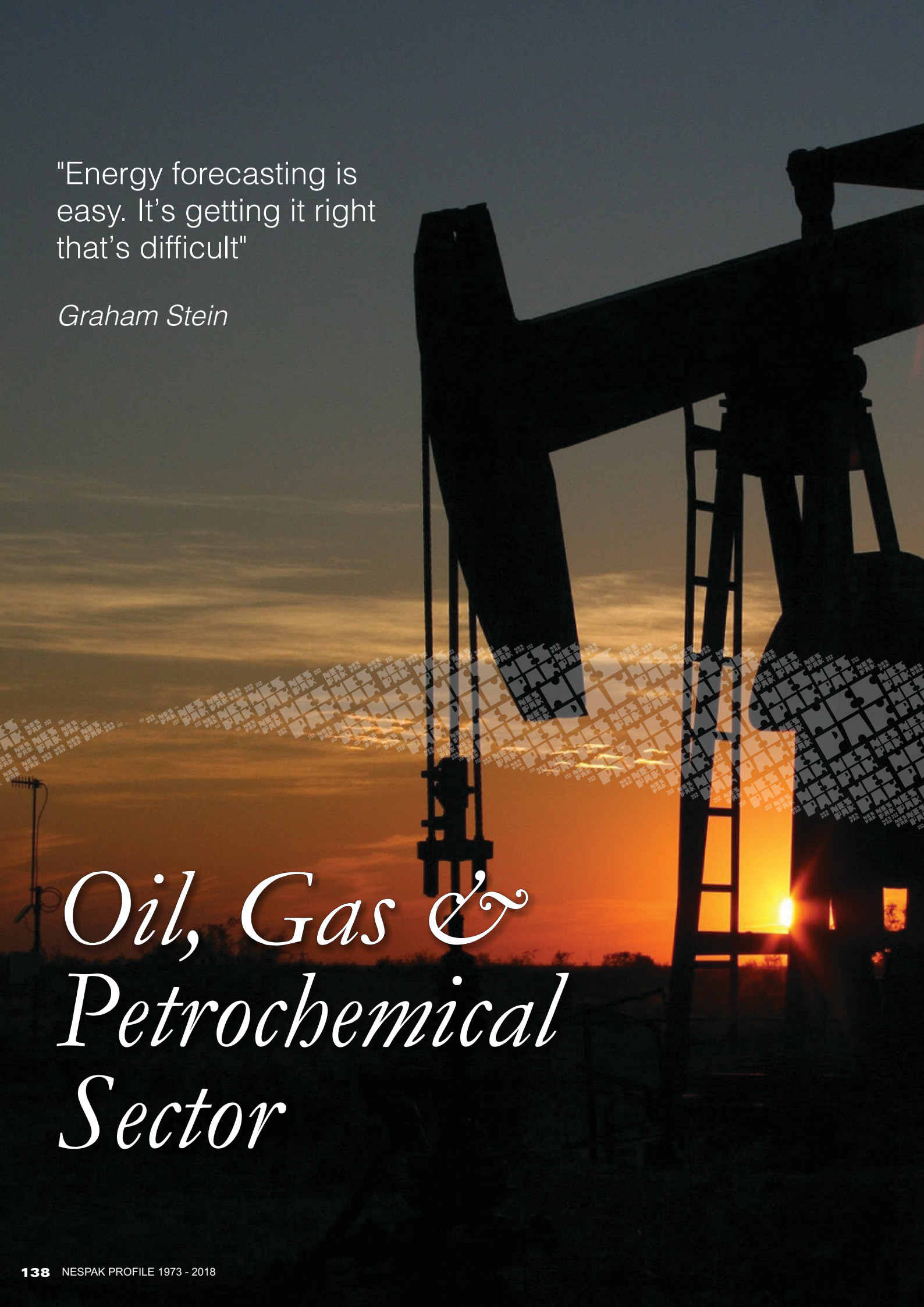


"Energy forecasting is easy. It's getting it right that's difficult"

*Graham Stein*



*Oil, Gas &  
Petrochemical  
Sector*

In the face of the energy crunch in the world in general and Pakistan in particular, the Oil, Gas and Petrochemical Sector has assumed great importance in the present times. Keeping in view the significance of this sector, NESPAK has formed a team of highly qualified and experienced professionals for rendering services for more than 44 projects in Pakistan and overseas.

## SCOPE OF SERVICES

In this Sector, NESPAK offers consultancy services in the following areas:

- Liquid petroleum products storage facilities
- Liquefied Petroleum Gas (LPG) and chemical storage facilities
- Cross-country transfer pipelines
- Airport fuel hydrant facilities
- Marine loading/unloading facilities

Implementation of projects on Build, Operate and Transfer (BOT)/ Build, Operate and Own (BOO) basis and Engineering, Procurement and Construction (EPC) contracts.

Feasibility/Technical studies detailed design, preparation of tender documents and construction management of storage tanks, pumping stations, in-plant piping. Long distance/cross-country transfer pipelines, marine loading, unloading facilities, e.t.c.

- Thermal stress analysis of pipelines
- Surge analysis of network
- Radiographic tests of welds
- Hydrostatic pressure tests
- Distributive and non-distributive tests
- Special services including valuation, monitoring of site works, design vetting, quality, e.t.c.

## EXPERIENCE

Since its inception in 1973, NESPAK has provided services on more than 37 projects in this Sector. Detail of experience and expertise offered by NESPAK in the Oil, Gas and Petrochemical Sector is summarised below:

**Fuel Oil Storage and Handling Facilities:** Planning, design and site supervision for development of fuel oil bulk storage and

handling facilities for nine projects in Pakistan (storage capacity 20,000 to 75,000 m<sup>3</sup>).

**Pipeline Crossings Over Rivers:** Design and site supervision for 13 pipelines (46 cm to 91 cm diameter) crossings over rivers. The works included design of supporting bridges, pipe supports, expansion loops and anchors.

**Oil Unloading Facilities at Marine Terminal:** Design review and quality assurance services for construction of oil unloading facilities at FOTCO Oil Terminal, Port Qasim (capacity 9.0 million tonnes per annum). The project included 3.9 km, 92 cm diameter pipeline from the terminal to onshore for further extension to oil marketing companies.

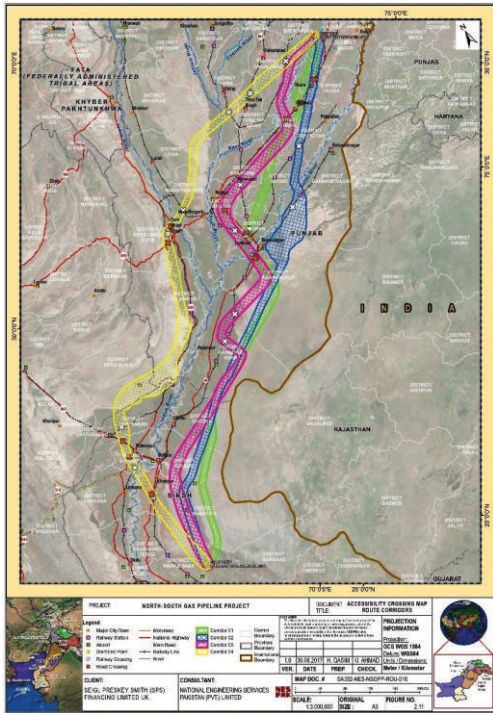
**LPG Handling and Storage Facilities:** Consultancy services for the development of professional services for the development of LPG unloading and storage facilities at the Port Qasim area, Karachi (storage capacity 4,500 tonnes for Engro Pak Tank Terminal Limited).

**LPG Unloading Facility:** Design review and quality audit services as well as supervision, testing and commissioning and issuance of completion certificate of the LPG unloading facility at Port Qasim for Progas Pakistan Limited, Karachi. The project included 3 km long 10 inches diameter LPG Liquid Unloading Line and 8 inches diameter Vapour Return Line.

**Crude Oil Pipeline:** Planning, design and site supervision for crude oil pipeline for Al-Khobar Desalination Plant, Kingdom of Saudi Arabia (capacity 60,000 barrels per day).

**Hydrant Refuelling Systems:** Planning, design and site supervision for hydrant refuelling system at the Jinnah International Airport, Karachi (32 hydrants at 16 positions) and at Allama Iqbal International Airport, Lahore (32 hydrants at 21 positions).

**Integrated Liquid Chemical Storage Facilities:** Design vetting and quality assurance services for Integrated Liquid Chemical storage facilities at EPTL, Port Qasim.



## North-South Gas Pipeline Project

NESPAK was engaged for rendering consultancy services for the North-South Gas Pipeline Project. NESPAK scope of services includes feasibility study, project planning, tender documentation, satellite imagery, map digitisation, global positioning survey and map analysis. NESPAK is also preparing the Route Corridor Study Report for this Rs. 260 billion project awarded by M/s Seigl Preskey Smith Financing Limited, UK.

## Gas pipeline crossing over River Sutluj near Uch Sharif

NESPAK has been tasked with the design and construction supervision of 36 inches diameter gas pipeline crossing over River Sutluj near Uch Sharif. The pipeline will boost Pakistan's natural gas system as it provides the main transmission line from Sindh to Punjab. The project has been awarded by the Sui Northern Gas Pipelines Limited.



## Liquid Cargo Terminal

NESPAK carried out detailed design, design vetting, construction supervision, quality audit, testing and commissioning and issuance of completion certificate for the Rs. 700 million Liquid Cargo Terminal at Port Qasim in 2009. This edible oil terminal comprises a jetty including platform, trestle, catwalks, breasting dolphins, mooring dolphins, product pipelines, utility pipelines, office and operation buildings and interchanges with steel raised platform and allied equipment. It is capable of handling ships having size of 15,000 to 35,000 dead weight tonnage (DWT).

## 412MW Rousch Combined Cycle Power Plant Project



NESPAK prepared concept report and tender documents for conversion of fuel oil storage and distribution system from furnace oil to HSD for 412MW Rousch Combined Power Plant at Sidhnaï in 2005.



## Kadanwari Gas Pipeline Overhead Crossing at River Indus



NESPAK carried out modifications in design of 1.5 km long gas pipeline crossing structure across the River Indus upstream of Kotri Barrage to allow a 780 mm diameter pipeline as well as an additional 405 mm diameter pipeline and supervised its construction in 2005. The purpose of the project was to facilitate the transportation of natural gas to various parts of the country from the Kadanwari Gas Field in Sindh.

## Expansion of Fauji Marine Oil Terminal

This oil terminal at Kadire Creek, Port Qasim, Karachi comprises an all-weather jetty capable of berthing ships up to 75,000 DWT, a 4 km long trestle and 3 marine loading arms of 16 inches diameter. The trestle, which is designed to accommodate 6 product pipelines, allows vehicular access to the Terminal through a 3.5m wide road suitable for 12-tonne axle load trucks. Two product pipelines handling heavy furnace oil, diesel and crude oil have been laid. Fire protection at the jetty is ensured by a most-modern and sophisticated Automatic Fire Sensing/Extinguishing System. NESPAK provided project planning, detailed design, design review and construction supervision services for this Rs. 300 million expansion project in 2005.

## Bhit Field Development Project

NESPAK undertook geotechnical studies and survey for the Bhit Field Development Project in 2003. Located at Bhit Jabal near Sehwan Sharif, District Jamshoro, Sindh, the project was completed at a cost of Rs. 17 billion. The main purpose of the project was to process the natural gas in the area.

