

# THE BANGKOK CITY GAS CONSULTANCY SERVICES



## REQUIREMENT

The PTT Public Co.,Ltd an National Energy State Enterprise wishes for all citizens of the Bangkok to have access to a Natural Gas supply. This represents a considerable challenge, as there is limited experience within PTT to perform this task. PTT Gas Distribution

Formed the Bangkok city gas project team full time individuals to run the project; they then released a Feasibility Study and Basic Design contract. At this point it was important for PTT Gas Distribution to have sufficient technical back up to manage the FEED and provide the relevant level of technical governance and challenge to shape the entire project success. They decided to appoint a suitably competent PMC to provide them with the necessary support and guidance required of such a large and prestigious venture.

## CONSULTANCY

- Design of the gas tariff structure and cost recovery mechanism.
- Recommendation of appropriate metering and regulator designs.
- Production of a marketing plan for future public awareness campaigns.
- Production of a risk management plan.
- Production of basic design engineering work packages for the network.
- Production of enquiry documentation for the conversion contractor and works management plan.
- Presentation of the results

## CONSULTANCY

Marketing study based on sampling of all current gas appliances, with assessments of the existing network load and growth potential.

- The building of an integrated SynerGEE model of the transmission and distribution gas network in Bangkok from the PTT Pipeline' SmallWorld GIS record system and the allocation of demands to this network using customer data from marketing using a customer's address and postcode. This network model provided the basis for all the evaluation of network implications for the current network and future development requirements based on the market study.
- The determination of an optimum number of customers per PTT strategic areas and sector.
- The development of a area-by-area plan by experienced network analysts to enable the conversion from electricity, diesel and oil fuel to be carried out effectively, maintaining supplies to the existing customers whilst providing sustainable supplies to the new natural gas customers as the conversion proceeded. The first 4 strategic areas were provided in detail with an intention diagram identifying the methodology for supply natural gas of the rest of the Bangkok network.



## PROJECT

The benefits of the study include:

- Demonstration that the proposed pipeline route and design meet international standards for the acceptability of risk, in order to reassure potential investors that pipeline safety is managed in an appropriate manner.
- Minimisation of the future risk both of casualties and of loss of supply, using the most cost-effective methods.
- Identification of opportunities for cost savings in pipeline construction and operation without compromising safety.



Figure City Gas Pipeline Laying

The scope include of the development organization and capability of the company to deliver the operations and maintenance function. A recommendation was made to introduce a monitoring regime to identify failure trends within the distribution system, analyse the key causes and identify remedial actions.

PIMS Technologies and alliance consultancy partner from UK based team examined the design philosophy, detailed design of crossings, choice of materials and fittings and cost planning. Although the approach was basically sound, and in accord with international standards, was able to use its wide experience in this field to recommend cost effective changes. Specifically, recommendations were made to introduce internally coated pipeline and demountable pig traps to facilitate future inspection. Design changes to accommodate cyclic fatigue life, and modification of crossing design details were suggested. In addition, an analysis indicated that the construction budget had been underestimated despite taking full account of local costs. However, accounting for all recommendations made by consultancy potential savings of 20% were identified on the overall project cost.

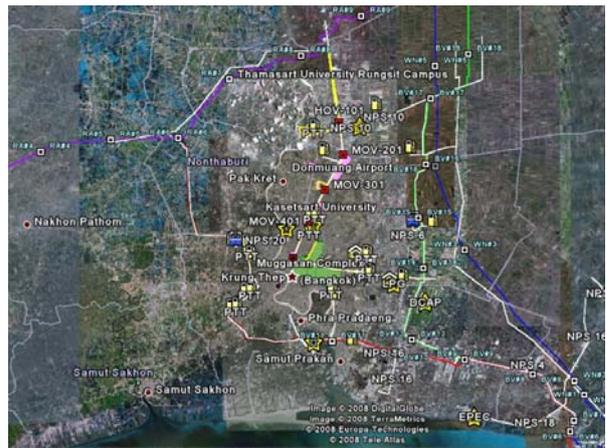


Figure The Bangkok City Gas Network

This would provide base information on performance which could be used to target resources in a cost effective way to reverse an increasing number of failures the network.

*Products:*  
GE Smallworld GIS  
ESRI  
PIMSLIDER  
SQL  
ORACLE  
DELL  
Cisco

*Communication:*  
Multiplexer  
LAN  
WAN

*Applications:*  
Geospatial data  
High consequence analysis  
Inline Inspection analysis  
Risk analysis  
Rehabilitation  
XML