

All lies in the infrastructure Part III

As highlighted in the previous part, the increasing production of petroleum products has to have an equal increasing grid of pipeline infrastructure, with an appropriate capacity suitable to transmit the quantities of products to various areas of the country. Therefore, how far does the current transmission pipeline system facilitate/accommodate the transmission process? What are the future expansion plans?

By Yomna Bassiouni

Egypt, known to have one of the largest oil and gas infrastructures in the African continent, holds around 16800 km of gas pipelines, out of which 5800 km are gas transmission pipelines. There has been a continuous funding from the government side, represented in the Ministry of Petroleum, to finance the bulk of implementing this pipeline network, especially the transmission segment, in order to ensure the distribution of oil and gas all over the country. The Ministry, through GASCO and the Petroleum Pipelines Company (PPC), developed transmission systems to fuel the power stations and the growing industrial sector with the needed gas.

Divided into two main categories, gas and liquid pipeline systems, the country's current gas transmission system transports gas from the gas rich coastal area at the Nile Delta to the areas of Upper Egypt, Sinai and Suez and then on to export to Jordan and Israel. Moreover, in order to further serve the demands of a more significant number of industrial, commercial and residential customers, a gas pipeline distribution network has been implemented in the urban and semi-urban areas in the Nile Delta, around the governorates of Cairo, Alexandria and Suez.

The second type is the liquid pipeline system that is currently concentrated between Alexandria (El Max area) on the coast of the Mediterranean Sea and the Gulf of Suez (Sadat area). This type transports a wide variety of products to end-users, such as crude oil for refining; LPG for commercial and domestic users and power stations that burn fuel oil as primary feedstock or dual fuel. The liquid pipelines are associated with many facilities, including storage tanks that are located at different strategic points around the country.

Gas Pipeline Network... Present and Future

Currently, the gas pipeline system transports gas mainly from the fields situated in the areas of the Western Desert and Offshore Mediterranean to domestic demand centers in the Nile Delta and along the west coast of the Gulf of Suez. This pipeline system consists of pipelines, compressor stations and metering stations. Over the years, several parts of this network have been gradually extended to accommodate increased capacity needs.

Although that the current network satisfies, to a significant extent, the local demand, some areas are expected to require major increased demand capacity, based on recent studies.

1) North East Region, Sinai and export through the Arab Gas Pipeline

This area is characterized by the existence of several high demand locations, expected to augment in the future, including Arab Gas Pipeline (the required capacity utilization to be more than doubled over the next five years, from 240 MMscfd to 580 MMscfd), Red Sea Coastel area (with power stations at Nuweiba and Sharm el-Sheikh), South of Arish (military cement and industrial areas) and Sharm El-Sheikh.

In order to prevent the short-term capacity constraints in this region, GASCO is studying plans for some additional pipeline infrastructure that would extend from El Horany and El Tina to Arish. The first pipeline being constructed is extended from El Horany to El Tina via El Gamil over a length of 90 km, while the second is from El Tina to Arish (155 km-length and a future compressor station to be built in Arish). These expansions are scheduled to start their operations in the period between 2009-2011. Moreover, as an attempt to increase flow capacity from west to east, a large diameter pipeline from Idku to Damietta is being planned and will be installed during this year.

2) West of Suez region, supply south to Sokhna area

There are two new demand locations (an existing power station at Hurghada and a new power station at Safaga), located in the south of Sokhna that require the supply of a new pipeline spur.

The present pipeline system, located to the west of the Gulf of Suez, transports gas from the offshore fields of Egypt's north coast to the demand centers further south, along the west coast of the Gulf of Suez. Based on the expansion plans for this area, the pipeline architecture will be extended in the west of Suez

with looped pipelines from Abu Soltan to Sokhna and from Ras Bakr to Ras Shukier along with the extension of current pipeline from Hurghada to Safaga.

3) Upper Egypt region, along the Nile towards Aswan

The gas is delivered to Minya through two main spine pipelines as far as Koraymat. The already existing pipeline system is to be expanded; a pipeline spine is being installed from Minya to Aswan, comprising a single compressor station. But, as demand will be increasing, installation of additional compressor stations will be considered to add to the pipeline system to serve future demands, such as in the areas of Assiut, Sohag, Quena and Aswan. It is worth noting that there are other areas that may have potential flow capacity constraints, such as the supply to the Nobaria power station and a new pipeline that is currently built from Abu Homos to Nobaria to accommodate increased flow capacity and planned to further extend from Nobaria to El Sadat and on to Dahshour. Such expansions are of a great vitality to secure gas supply to Upper Egypt, as they create multiple supply pipelines in this area.

4) West of Cairo region

In this region, there is a pipeline system that is mainly located to the west, and also to the north west of Cairo and transports gas from the offshore fields of the country's north coast to the demand centers in the west and south of Cairo. However, due to the increased demand in Upper Egypt, this system capacity rate has to be expanded to meet this demand, that is the reason why GASCO is currently constructing and planning several pipelines to alleviate any possible capacity constraint and connecting Abu Homos to Nobaria and to Dahshour.

The vigorous plans of the Ministry to expand its gas pipeline networks should put into considerations some factors that may challenge/hinder the execution of these plans, such as security of supply, project schedule and efficiency of operation.

As a matter of fact, it is vital for any strategic pipeline system to operate with a suitable level of redundancy, such as in the event of unforeseen conditions (loss of containment of a pipeline, shut down whilst repair, damages to pipeline/compressor station...etc); gas delivery is not adversely affected. Therefore, a way to back up supply flow can be achieved through pipeline redundancy. The current pipeline network has several pipeline sections; more than one pipeline transporting gas to demand centers. In other words, in case of the shut down of any pipeline, there are always other pipelines to deliver gas. Also, redundant pipelines allow more variability of flow, and have the ability to increase line pack storage, potentially allowing an optimization of a system and accommodating large swing in diurnal supply rate.

This back up solution is clearly present in the planned pipeline network from Nobaria to El Sadat and on to Dahshour.

A pipeline duality/ ring main is an indispensable back up for securing supply flow. For instance, a subsea pipeline connecting Sharm El Sheikh with the pipeline to Safaga on the west of the Gulf of Suez and the pipeline connecting Safaga with Queft could provide a level of redundancy.

From another perspective, another benefit of such pipeline duality is to secure the exports to the Arab pipeline in the case of flow interruptions in the single East Gas Pipeline from Arish to Taba.

The second factor that should be well considered is the punctuality of each project schedule. Too many projects are competing in a very constrained market place for materials and equipments that is why punctuality is important. Also, delivery times for pipelines facilities such as compressors can extend to two years and even more, hence, advance planning is fundamental to make sure that the delivery dates would never be missed.

Finally, time accuracy can never be separated from the high quality. Here comes the third factor, which is the efficiency of operations. There are potential opportunities available to create an increasingly efficient gas pipeline network by utilizing sophisticated network analysis to develop an architecture able to operate at maximum efficiency and employing real time transient modeling to optimize compressor and network operation.

To be continued..

Factors of Success

ACT Model summarizes Organizational Success

Many organizations develop great vision/mission statements yet are unable to implement them. After researching a number of organizations with particular concentration on Gulf countries, we have determined that there are three major cornerstones that an organization must have in place; Organizational Alignment, Open Communication, and Functional Trust (ACT) in order to succeed

By Rimon W. Bitar, Executive Vice President, Linkage MENA

Organizational Alignment refers to focusing the attention of all members of an organization towards the achievement of a common goal, such as increase in sales, profitability, or productivity. It can be argued that the single most important alignment goal is customer satisfaction, which leads to the increase of sales, profit and productivity.

One of the best examples of alignment is the story of two bricklayers. One was asked what he was doing. He replied, "I am laying bricks." The second was asked the same question and he replied, "I am building a mosque."

The difference in the answers is alignment. In the second reply, the bricklayer was given an insight into the total scope of the project. The first was not.

Question: Which of the two bricklayers do you think will be more productive?

Open Communication requires that everyone in an organization have the freedom to communicate both horizontally and vertically. Both horizontal and vertical communication must be focused on a common objective; customer satisfaction.

One of the most important mistakes many organizations make is the assumption that communication with employees is completed when management tells them what is expected of them. In order for communication to be effective, there must be a feedback mechanism in place so employees can contribute to the decision making process.

Without a feedback mechanism, the management of the organization is forced to make important decisions without knowing or understanding the real-time conditions of the market place.

Imagine two armies, one where the commanding officers issue orders with no input from the soldiers on the front line. The second army requires feed back on such issues as the position of the enemy, weather conditions, casualties, and supply needs.

Question: Which of the two armies will be the most successful?

Functional Trust does not just exist; it is earned on customer expectations that have been met on both an interpersonal and business levels. Successful organizations trust their employees and empower them to make decisions based on satisfying customers. When organizations empower their employees, they do so with the understanding that, from time to time, an employee will make a mistake. When such a mistake occurs, management uses the experience to create a learning environment.

Nordstrom, a successful department store in the U.S., encourages their employees to accept returned merchandise with no questions asked. Other department stores require extensive, time consuming paperwork before they will accept returned merchandise.

Question: Which department store is more customer-focused?

One of our well-known telecom clients is an excellent example of how ACT worked for them. This client determined that their five-year goal should be to become one of the top ten global telecom companies. Working together with us, senior leadership developed the goals, strategy and tactics required to proceed with their five-year plan.

Senior management then "aligned" divisional leaders so they would buy into the plan. Each division's senior leadership created a specific departmental plan that was aligned with the over-all corporate plan. These departmental plans were then "communicated" to all employees. In the process management successfully built a strong culture of "trust" within the organization.

There is a very important element that also must be understood to ensure success; consistency. Too often management announces elaborate programs designed to result in customer satisfaction. They then assume that everything will fall into place without on-going, aggressive support.

By ACTing you are building and supporting a leadership culture in your organization.

This means that everyone within the organization is responsible for leadership within his or her specific area.

This is the first in a series of articles discussing alignment, communication and trust.