

Pivoting projects – NGC leverages technology to deliver first international project in Ghana



While the COVID-19 pandemic was a spanner in the works for most industries and sectors, engineering and construction projects were particularly impacted due to legislated or logistical restrictions.

The National Gas Company of Trinidad and Tobago Limited (NGC) was one of the many companies facing project setbacks due to the pandemic. In 2020, the Company had several ongoing construction and upgrade projects, which were forced into temporary suspension. NGC was also due to embark on a new design-build project in Ghana – the first international venture of its kind for the state company.

Prevailing circumstances notwithstanding, and while domestic lockdowns put local projects on hold, NGC determined that it was still possible to deliver the project in Ghana through a combination of technology, resourcefulness and manpower flexibility.

Project background

In 2007, then Prime Minister the Honourable Patrick Manning announced that Trinidad and Tobago would make its technical expertise available free of charge to certain energy-producing West African nations.¹ This 'Africa Initiative' – as it came to be called – prompted a series of exchanges, study tours and delegation visits over the next decade, as those West African nations sought to learn from the Trinidad and Tobago experience.

NGC and its subsidiaries were among the entities hosting tours and sharing expertise with visiting energy delegations. It was eventually determined that there were significant opportunities for The NGC Group to play a more active role in the development of emerging industries on the African continent.

Within this collaborative framework, and in furtherance of NGC's thrust to commercialise its expertise in gas-based development, NGC entered into a technical services contract with Integrated Logistics Bureau Limited of Ghana in 2020. The scope of this contract was the design, procurement, construction, installation and commissioning of a pressure regulator skid package for the existing Takoradi Distribution Station (TDS) in Ghana.

Pressure regulating stations are utilised by natural gas transmission companies. Natural gas is usually transported through pipelines at high pressure. However, at supply points to end users of natural gas, that pressure must be stepped down or regulated to meet the requirements of the specific user and their facilities. Pressure regulating stations are therefore strategically important to service delivery and natural gas supply reliability. In the case of the TDS, supply through the facility feeds an important power generation plant. NGC's contract to deliver a pressure regulator skid package at the TDS was therefore a critical one.

Prior to the onset of the pandemic, delivery of such a project in Ghana would have involved site visits to assess as-built conditions, and collaboration with teams on the ground in Ghana to finalise design specifications and direct oversight and management of local contractors during the construction installation and commissioning phases.

COVID-19 made all this challenging and could have derailed the project completely, were NGC not agile enough



to adapt to the new reality and initiate remote management of the project.

Pivoting project management

In December 2020, with COVID-19 restrictions making travel between Trinidad and Tobago and Ghana impossible, NGC's Projects Team turned to virtual platforms to execute those tasks that would usually require on-site presence.

The team used virtual meeting tools and relevant software applications to gather data, review designs, and collaborate with their Ghanaian counterparts who were on-site and eventually complete a design that secured the necessary approvals. The project leveraged technology to progress engineering workflows, using 3D-computer-aided design to communicate the design and test options for improvement. Microsoft SharePoint was used to share technical drawings with the client and to facilitate documentation of comments, input, review, and quality control. Site data was supplemented by online videos, which served to provide another level of quality assurance on the as-built specifications that would guide the project.

One of the key project drivers was to coordinate all activities to support a planned turnaround in the third quarter of 2021. To ensure the project was kept on schedule, the teams from both NGC and Ghana had to conduct regular virtual meetings from different time zones to transition from design to procurement and construction. This demanded flexibility in working hours for team members, and true dedication to the project outcomes. Cultural bridges were also required to foster mutual understanding and optimal work relationships. Additionally, the Supply Chain team worked on different options to identify sources of materials and expediting options to achieve onsite target dates. This was complicated by changes in scope arising from the progression of detailed engineering design activities.

Notwithstanding these and other challenges related to remote management, the project is progressing with fluidity due to the willingness of all stakeholders to collaborate and adjust schedule expectations. The project is ongoing and is currently in the construction phase, with NGC providing virtual oversight of the Ghanaian contractors through online platforms. The estimated completion date for the project is March 2022.

Positive takeaways

NGC has several positives to take away from this project thus far.

In the past, NGC has purchased third party services to manage some of its major projects. Over the years, having built up the requisite capabilities in-house, the Company recognised the value to be derived from marketing expertise. This has consequently been one of the avenues for income generation being actively explored in recent years. Once completed, the TDS project will represent the first time that NGC has executed a project of this type outside of Trinidad and Tobago, and it will provide a template for future external projects.

In fact, between the start of the Takoradi project and the present, NGC has sought additional opportunities in other countries by tendering for projects that could benefit from similar types of services. Moving forward this will remain part of the Company's portfolio of service offerings.

Although the compelled transition to a virtual environment presented its challenges, there were positive cost benefits. The establishment of virtual platforms for exchange and data retrieval systems was estimated to cost some US\$15,000. However, that expenditure was considerably less than what would have been incurred to send a team of engineers to Ghana on multiple occasions. Also avoided were the additional opportunity costs of not having human resources available at NGC for other project duties.

For NGC, this experience is strengthening its project management capability, particularly in an evolving industry where blended work environments are becoming the norm. The team is gaining invaluable first-hand experience in terms of gathering and analysing data remotely and with greater efficiency; navigating cultural divides while managing team dynamics in online settings; and leveraging technology in place of traditional project management tools and methods to achieve desired outcomes. Refinement of these skill sets will enhance NGC's value proposition to potential partners and build a case to support any future bids to manage projects in other countries – whether in person, remotely or a combination of both.

Importantly, the TDS project is firmly establishing NGC as an international energy player, building its brand capital and opening the door for other companies in The NGC Group to enter international energy service markets. The attendant outcomes of internationalisation, brand recognition and portfolio diversification are strategic goals that will help secure The Group's long-term sustainability in the transitioning global energy industry.

¹ <https://ngc.co.tt/wp-content/uploads/2018/08/gasco-news-july-2018-vol28-no2.pdf>