Challenges Facing Fuel Switching In Latin America Remain

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Compared to the U.S., electricity is more expensive and often dirtier in Latin America and the Caribbean. That’s because many public and private power producers in those regions have historically relied on diesel or fuel oil for power generation. Recently, however, the surge in availability of low-cost liquefied petroleum gas ("LPG or propane"), thanks to abundant U.S. shale formations, has generated a boom in “fuel switching” (i.e., the conversion of “old fuel” power plants so that they can use cheaper, cleaner natural gas fuels).

LPG is a particularly attractive solution for many power generators because projects can be quickly implemented. There’s no need for U.S. government approval for exporting LPG as there is for liquefied natural gas ("LNG") and compressed natural gas ("CNG"). Additionally, existing LPG vessels are readily available for transportation and storage, which means LPG projects can be completed in as short as 15 months. LPG is also particularly suitable for many Latin American and Caribbean generators because it’s cost-effective even for smaller markets, not requiring large-scale generation to justify the expense.

Despite many advantages, LPG fuel-switching projects raise a host of challenges for industry participants. This article addresses some of the legal and commercial issues encountered in LPG conversion projects, which generally consist of three principle components: (1) conversion, or repowering, of diesel-consuming or fuel oil-consuming turbines to allow for consumption of LPG; (2) development of LPG delivery infrastructure from the point at which LPG vessels dock in the destination country to the power plant’s turbines; and (3) purchase of long-term LPG supply.

This article begins by identifying key issues encountered in each phase of a fuel-switching project, then describes the typical cost structure for fuel-switching projects and concludes by describing a fuel-switching project currently under construction in the U.S. Virgin Islands.

Turbine Repowering Issues

Major turbine manufacturers such as General Electric Co. typically handle the work related to repowering existing turbines so they can consume vaporized LPG. A key structural question is which
party will contract with the repowering contractor and manage that work. Should it be the plant owner or the LPG infrastructure developer?

There are benefits and downsides to both options. If the plant owner contracts directly with the repowering contractor, then the plant owner won’t be able to hold the LPG infrastructure developer solely responsible for the project. The plant owner also will lose some of the benefits of a fully integrated fuel-switching solution, such as avoiding a dispute in which the developer and contractor blame each other for a defect or delay.

If the LPG infrastructure developer contracts directly with the repowering contractor, then the plant owner and developer negotiate whether the developer will provide: (1) a full wrap of the repowering contract, becoming fully responsible for the performance risk of the contractor; or (2) a more limited, back-to-back arrangement in which the developer manages the repowering project, but passes through to the plant owner any repowering performance risk not addressed specifically by the repowering subcontract.

LPG Delivery Infrastructure Issues

Following is a description of some of the key issues that arise when designing and contracting for the LPG storage and delivery infrastructure components of fuel-switching projects:

- Storage capacity and minimum inventory requirements: A plant owner must consider how much LPG storage capacity should be built and how much LPG should be maintained in inventory on a day-to-day basis. This will depend in part on the probability that fuel supply will be interrupted, for example, by adverse weather conditions or shipping route disruptions.

- On-site vs. near-site storage: Some proposed solutions may involve bifurcated storage solutions with the supplier keeping some fuel on site and some at a nearby terminal or vessel.

Project Flexibility

- Ability to scale project to accommodate future expansion: Owners often prefer solutions that build in the possibility of future capital expansions to allow for delivery and storage of additional LPG quantities based on future increases in demand.

- Desirability of preserving historical infrastructure: Owners may wish to maintain historical fuel oil or diesel storage in place as a backup when LPG is unavailable for force majeure or other reasons.

- Design redundancy: Plant owners will want a solution that allows for 100 percent availability, without the need for a maintenance downtime allowance.

- Delay liquidated damages: A plant owner will want a liquidated damages mechanism to enforce promised project completion dates and to be made whole for any costs caused by late completion. This issue will be exacerbated if a plant owner has entered into power sales or other off-take arrangements based on a presumed fuel-switching completion date.
- Allocation of risks for cost overruns: There is a tension between plant owners that desire maximum cost certainty and developers that offer prices based on imperfect information who do not want to be bound to those prices when assumptions change. Models range from: (1) pass-through of construction costs, plus a management fee that decreases as the budget is exceeded to (2) enforceable not-to-exceed prices, subject to limited carve-outs.

- Allocation of force majeure and change-in-law risk: In the not-to-exceed cost model, developers will want flexibility to shift the price cap in response to unforeseen events outside of their reasonable control and to be excused for related project delays. These events customarily include force majeure and changes in law.

- Comprehensive warranty vs. pass-through of subcontractor warranties: Plant owners will prefer a comprehensive, or “full wrap,” warranty in which the developer stands behind its subcontractors’ work. Developers will likely prefer only to pass through the warranties they receive from such subcontractors.

- Transfer of title and risk of loss: From the plant owner’s perspective, title and risk of loss to LPG should transfer from the supplier to the plant owner as close to the power plant as possible. Further, metering and sampling locations will need to be agreed so that quality and quantity of LPG delivered can be verified.

- Credit support: Credit support is a critical issue that varies on a project-by-project basis, depending on the identity of the parties. Developers may expect to receive a security interest in plant assets and will have particular credit exposure if a plant owner’s payment of project costs is amortized over the fuel supply delivery term.

**Fuel Supply Issues**

Following is a description of some of the key issues that arise when contracting for the LPG supply component of fuel-switching projects:

- Fuel purchase obligations: A developer may prefer a take-or-pay regime whereby the plant owner would pay for a minimum quantity of LPG each month or year, regardless of whether the plant uses any fuel during the applicable period. A plant owner may resist any obligations tied to purchase of fixed LPG quantities and instead prefer a compromise approach in which the plant owner designates an exclusive LPG supplier and commits to using LPG as the exclusive or primary fuel.

- Fuel nomination procedures: Some plant owners may be unable to give binding LPG nominations, or requests, with significant advance notice, depending on their off-take arrangements, but may be capable of providing nonbinding estimates to guide a supplier’s operations.

- Effect of supplier failure to deliver: In the event of a supplier’s failure to deliver, parties often either develop a liquidated damages regime based on the plant owner’s likely estimated losses or allow for the plant owner’s recovery of actual, direct damages.
Definition of force majeure: When defining the scope of events that will excuse each party’s obligation to perform, a plant owner will want to include plant outages and problems downstream as events that excuse its purchase obligation; a developer will want to include problems at LPG production facilities or delivery vessels as events that excuse its delivery obligation.

Cost Structure

The cost structure of fuel-switching projects consists of three key components: (1) capital costs, (2) LPG supply costs and (3) operations and maintenance costs. Capital costs are either paid upfront to the developer or financed over time in the form of a premium paid during the supply term. If the latter structure is used, the infrastructure will likely be owned initially by the supplier, and the definitive agreements will address future title transfer matters. The price of LPG supply is customarily an index price, plus a premium to account for transportation and other costs. Operations and maintenance costs can be charged on a fixed-fee basis or on a cost-plus basis.

Recent Project Example

International trading firm Vitol Holding BV and the U.S. Virgin Islands Water and Power Authority are currently working toward completion of the first publicly disclosed LPG conversion project. Vitol and WAPA entered into a turnkey master agreement for supply of LPG in conjunction with the design, construction and operation of the infrastructure required to receive, store, vaporize, measure and deliver LPG in vaporized form to the inlets of turbines located at power plants on the islands of St. Thomas and St. Croix. This project is set to reduce fuel costs by approximately 30 percent and reduce carbon dioxide and other harmful emissions.

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Disclaimer: Sutherland Asbill & Brennan served as lead commercial counsel to Vitol in the U.S. Virgin Islands LPG conversion project and has been involved in every major publicly announced LPG fuel-switching project in Latin America and the Caribbean to date.

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