User Guide for the LPG Financial Model

Introduction

This financial model is intended to be used by an enterprise that is considering entry into the LPG retail sales business. The business would involve the operation of one or more refueling stations with some on-site storage capability.

The model is flexible in the sense that it allows for different business options. For example, the enterprise can either own LPG transport vehicles or pay someone else to transport the LPG. The enterprise can either own the LPG cylinders that customers use or the customers can own them. There is flexibility in how the enterprise is financed and how it adds staff.

To use the model, the user should have basic knowledge of the costs of doing business in their country, including:

- The costs of basic business operations such as labor, accounting, legal, and insurance expenses;
- The cost of LPG-related hardware such as cylinders, burners, storage tanks, refueling stations, and LPG transport vehicles; and
- The cost and conditions of financing, particularly the cost of debt.

Instructions

General Assumptions Page

On the General Assumptions page, enter your assumptions in the places where numbers and text are in **blue**. The numbers currently in those places are just sample numbers in US$ and present costs that are roughly representative of several countries. **Such assumptions may not be applicable in your country, and should be updated to suit local conditions.**

Number of customers

Under Cell D10 (Customer Acquisition), enter the number of customers you expect to add (or will need to add) each year over the next 5 to 10 years or more. The exact number is not critical at the beginning of filling in the assumption page. As you fill in more concrete assumptions, you'll be able to see what happens to your financial position as you adjust the incremental number of customers up or down.

Note that as the more customers are added, the model will increase your capital and operating costs. That's because each refueling station and each transport vehicle can only serve a limited number of customers. If you increase the number of customers beyond the existing capacity of your infrastructure, that will trigger an additional capital cost for your business for adding more infrastructure. You can see this on the Cashflow page under the Investment section showing capital expenditures, the Operations section showing operating expenses, and the Financing section, showing the resulting inflows and outflows of equity and debt. For example, as you add more customers, the amount of capital expenditure required will increase, the resulting revenue as well as equipment O&M will increase, and the mix of equity and debt required to finance those operations changes in response.

While the number of customers drives your infrastructure investment, your incremental infrastructure investments may very well guide your financing strategy in terms of your projections of when you'll need additional infusions of debt or equity (See "Financial assumptions" below). It can be a challenge to determine the number of customers that will be served by each refueling station or by each investment in storage or transportation. In general, we suggest using conservative estimates and keeping the number of customers per infrastructure investment on the low side.

Administrative costs, capital costs and operating costs

Under Cell D28, enter your estimates for general administrative, marketing, and office space expenses. Enter your expected capital and O&M (Operations & Maintenance) costs under the Business Infrastructure heading to the right side of the General Assumptions page. It may require some research on your part to come up with these costs. For transportation, you will need to decide if you are going to own the LPG transport truck(s) or pay another party for the LPG delivery. For example, the transport costs will most likely involve some mix of capital costs (P9) and operating or delivery expenses at (R9). In our sample figures, we assume an investment of $9,000 in an LPG transport vehicle. If you decide to outsource the transport, then your capital cost would drop to zero and your operating/delivery cost would increase. Your choice will also affect your labor costs and whether or not you hire a driver/mechanic and have additional insurance costs.

LPG cost

The buying and selling of the LPG itself will be the most critical part of your business in the long term. The three most important assumptions in that regard will be the LPG purchase price (H17), the LPG inflation rate (H23), and the amount over cost at which you are selling the LPG (H38). Your selling price will need to generate revenues sufficient to cover nearly all your costs – LPG purchases, overall operations, and loan repayments, plus profit.

LPG cylinder ownership assumptions

The model allows for either a cylinder ownership program or a cylinder recirculation program. Under an ownership program, users purchase and own their own cylinders. They bring their cylinder to a refueling station and then take the same cylinder back after it is refilled. Under a recirculation program, users do not own their cylinders but instead bring them to a location to exchange the empty ones for filled ones.

The example in the model involves a recirculation program with the program assumptions under H5. Each cylinder will cost you $12 in this example and it will last 10 years, with 5% of them having to be replaced each year. Similar assumptions are made for the burner. There is typically both an upfront and an ongoing customer fee associated with joining the recirculation program in order for your enterprise to recover the cost of procuring the cylinders. The fee can also cover the cost of burners and ancillary equipment if the enterprise is going to supply those to customers. The cylinder fees can be set at H29 and H30. They can be set to escalate at H31. The burner fees are directly below.

The advantage of a recirculation program is that there will be a lower upfront cost for potential customers, thereby incentivizing them to become customers. In addition, old or unsafe cylinders can be readily taken out of circulation by refueling station staff who inspect each cylinder before refilling it. When customers own their own cylinders, they might continue using them past their safe lifetime because they cannot afford a replacement cylinder. The disadvantage of a recirculation program is that you (the business owner) will need to incur an ongoing capital cost of procuring cylinders yourself. A minor disadvantage is that you must keep some inventory of cylinders and burners in stock for which you are earning no return on investment (See Cashflow page, lines 41 and 46).

To switch to a scenario in which the customers own their cylinders and burners, simply zero out H7-H13 on the General Assumptions page.

Staffing assumptions

Under heading Personnel on the bottom right side of the General Assumptions page, enter your expected personnel and staffing expenses. If you expect the company to grow over time, you can add additional employees in any year you choose. In the sample, the company starts operations with 3 employees, adds an additional employee in Year 2 and another one in Year 3. Make sure to coordinate your employee estimates with your capital and operating costs. For example, if you decide not to invest in an LPG transport vehicle and to pay another party for the transport, then you will not need to hire a driver. The “Gross Up” column under Personnel is a percentage adder to the salary for employee benefits. The sample figure is 25%, but it can be set at whatever level you want or is customary in your country.

Financing assumptions

Financing assumptions are contained under the Sources and Uses ("S&U") section of the General Assumptions page. This summarizes the capital requirements prior to beginning operations. We have included several potential line items for pre-operations capital costs, as well as space to add others. Like the operating assumptions, we recommend being conservative and conducting your own research to adapt these assumptions to your individual situation.

There are three forms of financing this model allows: equity, term debt, and line of credit. The equity and term debt are built to cover Investment costs in pre-operations. The line of credit is structured as a revolving facility able to be drawn on in the event of negative cashflows, particularly in the early years of operations. The Line of Credit maximum amount is calculated automatically, as is the Term Loan amount. To drive the financing of the model, simply input an amount in the Equity amount (L41) and fill out the other key terms accordingly, including: length of term and interest rates on both Term Loan and Line of Credit and Principal Amortization style for the Term Loan. You may follow the resulting Financing cashflows under the Financing section of the Cashflow page. There are also separate S&U Summary, Line of Credit, and Term Loan calculation tabs to assist you in tracing the financial impact of your scenarios.

You may set the Equity amount as low as zero, but **it is recommended to enter no more Equity amount than the total amount of capital costs pre-operations, excluding the Capital Reserve.** It will not impact the results because the model is built such that this will cancel out, with the unnecessary additional equity amount recycling back out immediately. But it is not a realistic scenario, so there is a built in check in cell M7 that will alert you to double check the Equity amount when this occurs.In addition, any financing gap can be tracked in cell L31 as well as on the S&U Summary page.

Inflation assumptions

The model allows for costs to escalate over time. There is no overall inflation rate in the model. Rather, different rates can be entered for different parts of the operation. For example, the escalation rate for LPG is set at H23. The model also allows for the LPG retail price to be set as a function of the wholesale price that pay for the fuel (M16), so that as your cost of LPG increases, your retail price automatically increases. We included a separate escalation rate for LPG was warranted because of the potential for volatility in that price compared to other aspects of the operation.

Cashflow page

After you have entered all your assumptions, go to the Cashflow page to see the financial performance of your LPG business over 15 years. It is structured as a fairly standard Statement of Cashflows, with sections on Investment, Operations, and Financing, leading to a net cashflow line item, as well as project level ("unlevered") and equity level ("levered") results.

You can change around the General Assumptionsnumbers and see how the cash flow is affected. The most sensitive numbers will be the buying and selling prices of LPG. Other variables with high sensitivity include number of customers, labor cost, and mix and cost of financing

The overwhelming source of revenue for your enterprise, aside from the investment capital, will be LPG sales. There issome revenue from the cylinder recirculation program fees, but this is small compared to the LPG sales revenue. So setting the retail price of the LPG will be a paramount decision for your business.

In our example, the main expense for the enterprise, at least initially, is labor (Inside Line 34 on the Cashflow page). But if LPG fuel prices increase, then yourLPG purchases can easily become the most expensive part of the operation (Inside Line 45 on the Cashflow page). Investments in transportation, refueling stations and storage are major expenses in Year 1 (Inside C58-C68) and in some later years, while marketing remains a moderately high expense over time (Inside Line39), as does debt service (Inside Line 72).

Results page

A Results page isprovided which offers a summary of results for a given set of assumptions in table form. Key results are nominal project cashflows over the project life, the net present value (NPV) of those cashflows at a particular discount ratethat is chosen in cell C18, and internal rate of return (IRR) at both a project level (i.e., assuming no debt, referred to as "unlevered") and equity level (i.e., after debt is considered, referred to as "levered"). The capital investment, plus net income from operations, less net financing cashflows, less equity, equals net cashflow to equity (D21) over a 15-year time horizon.

A value for the ongoing operations of the business at the end of 15 years (a "terminal value") is not included in this analysis in an effort to be conservative. To the extent operations were stable and profitable at that time, it is reasonable to assume at least a modest amount of ongoing value. To the extent the business is demonstrating strong profitable growth at that time, the ongoing value may be significant. However, the opposite case is also true. Thus we recommend viewing such value as possible upside, rather than base case scenario, and ensure that the business works under conservative assumptions as a base case first, without relying on upside in the long-term future.

This document is an output of the DfID-DECC-EPSRC funded project "Sustainable Thermal Energy Service Partnerships Project" – STEPs. More information on the STEPs project can be found on:
STEPs website: http://stepsproject.net/