

Report on
The Impact of LPG to the National Energy Grid and Contribution of
Bengal LPG Ltd.

By:
Jannatul Ahsan Sugandha
17304156

An internship report submitted to the BRAC Business School in partial fulfillment of
the requirements for the degree of Bachelors of Business Administration

BRAC Business School
Brac University [June] [2021]

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Declaration

It is hereby declared that

1. The internship report submitted is my own original work while completing degree at BRAC University.
2. The report does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing.
3. The report does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution.
4. I have acknowledged all main sources of help.

Student's Full Name & Signature:

Jannatul Ahsan Sugandha

17304156

Supervisor's Full Name & Signature:

Md. Hasan Maksud Chowdhury

Assistant Professor – Operation Management

BRAC Business School

BRAC University

Letter of Transmittal

Md. Hasan Maksud Chowdhury
Assistant Professor
BRAC Business School
BRAC University
66 Mohakhali, Dhaka-1212

Subject: Submission of internship report on “The Impact of LPG to the National Energy Grid and Contribution of Bengal LPG Ltd.”

Dear Sir,

With due respect, as part of the course requirements “Bus 400” I have prepared the internship report entitled “The Impact of LPG to the National Energy Grid and Contribution of Bengal LPG Ltd.”.

I have given utmost effort to prepare the report. I have tried to put my experiences, learning and the theories to make the report as informative as possible.

It had been a great pleasure to work under your supervision. I sincerely believe that it will fulfill the purpose of the internship and all the requirements.

Sincerely yours,

Jannatul Ahsan Sugandha
17304156
BRAC Business School
BRAC University
Date: June 13, 2020.

Non-Disclosure Agreement

This agreement is made and entered between Bengal LPG Limited and the undersigned student at BRAC University, Jannatul Ahsan Sugandha.

Here I declare that I have not disclosed any confidential or harmful information of the company in this report. This report was made only for academic purpose as a part of my undergraduate degree completion procedure.

This report will not be published and it will only be withheld by BRAC University as a record for my internship completion.

Acknowledgement

I want to express my deepest gratitude to my academic supervisor Md. Hasan Maksud Chowdhury, Assistant Professor of BRAC Business School, who has helped me constantly and always provided solutions to my problems regardless of all the constraints.

I would like to express my deep respect to Engr. Hosney Mobarak Radin (Head of Operations) in Bengal LPG Ltd., for his valuable guidance and supervision throughout the entire work.

I would like to thank Engr. Md. Sabbir Hossain (Senior Operations Executive) in Bengal LPG Ltd. for providing me with the permission to collect the relevant data, administrative support, cooperation and helping me the necessary facilities in collecting the required data for this work.

Executive Summary

As per the degree requirement for BRAC Business School, I took part in internship program where I got to apply my academic concepts into practical world. While being at work and studying, researching and compiling this report, I came to understand various aspects regarding significance of LPG industry.

This report explores on measuring impact of LPG in national energy grid and contribution of Bengal LPG Ltd. My main tasks at hand were operational activities which enabled me to deal with distributors on a day to day basis and gain valuable and interesting insights to provide on this report.

Through cultivating innovations, Bengal LPG Limited envisions business to thrive, ensure economic growth and ultimately serve people with service quality of LP Gas Cylinders. The first chapter of this report comprises introduction of the report that outlines the basic parts. The second chapter discusses some valuable research papers in the topic of the organization and its different activities and approaches. Necessary information on the organization is provided on the third chapter which encompasses my overall internship experience and learning's. The final part of the report consists of the analysis, findings and recommendations for LPG regarding the service quality and customer's perception.

Undoubtedly, Impact of LPG has become the core criteria in judging the performance in energy sector. I believe the insights taken from this report will be helpful for the startup companies of LPG and will take meaningful actions toward enhancing contribution of Bengal LPG Ltd. in national energy grid.

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Chapter: 1

Overview of Internship

1.1 Student Information

Name: Jannatul Ahsan Sugandha

ID: 17304156

Program: Bachelor of Business Administration

Major/Specialization: Marketing

1.2 Internship Information

1.2.1 Company Information

Tenure: February 1, 2021 to May 2, 2021. A total tenure of 3 months.

Company Name: Bengal Group of Industries.

Concern: Bengal LPG Limited.

Department: Operations and Sales & Marketing department of Bengal LPG Ltd.

Address of the company: 68, Richmond Concord (Level-7), Gulshan-1, Dhaka 1212

1.2.2 On-site Supervisor's Information

Name: Md. Sabbir Hossain

Designation: Senior Executive of Operations, Bengal LPG Ltd.

1.2.3 Job Scope

As an intern, I was assigned with the following job responsibilities:

- Communicating and building a good business relationship with the distributors.
- Enlisting the distributors data in excel based on Bangladesh division-wise.
- Analysis the distributorship required papers.
- Check the license validity of distributorship papers.
- Make meeting arrangement schedules with distributors with COO's.

- Assist Senior Executive of Operations in drafting official letters.
- Communicate with the satellite plant and filling stations to know their requirements.
- Putting data of current equipment status of filling stations by phone-calls in excel. For example- storage tank capacity, MT use per month, have discharging pump or not.
- Did market survey regarding price and policy issues of the competitor brand.
- Did SO/DO of the cylinders and keep the record based on their distributorship code.
- Make approved of the selected distributors papers by Managing directors and General Manager.
- Making sure the current status position of the truck of distributor to the Mongla plant destination.
- Making sure how much quantity of cylinders have been loaded based on the truck capacity.
- Submit the SO/DO papers attached with the distributor's bank payment slip to the Bengal LPG Accounts at the end of the day.

1.3 Internship Outcomes

1.3.1 Student's Contribution to the Company

As an intern I contributed to the company through the following works:

1. Doing 24/7 hotline service to the distributors on behalf of the company:

As a hotline service provider of Bengal LPG Ltd., I needed to give the essential information over the phone calls. For example, the required papers details, the updated news from us, plant related information etc. I supposed to response to this questions immediately and politely whatever the circumstances I'm in. Additionally, I need to give the message of required papers details after every phone call to the distributors. Following are the list of required paper details for acquiring a distributorship from Bengal LPG Ltd.-

1. Applicant's Company Profile.
2. Application on the letter head pad to GM, Sales & Marketing.
3. Passport size photographs (Two copies).
4. Photocopy of Trade License (Valid copy).
5. Photocopy of explosive license (Valid copy).

6. Photocopy of NID or Passport of Applicant.
7. Photocopy of TIN Certificate (Valid copy).
8. VAT Reg. No.
9. Bank statement for last six months with satisfactory deposit level.
10. Warehouse's and showroom's (if any) location map, layout, photographs of site and deed (The same as submitted to explosive department for license).
11. Electric Bill Copy (Godown/Showroom).
12. Business Card.

2. Doing phone call survey regarding the price and benefit issues of the competitors:

Being a new entrant in LPG market industry, Bengal LPG Ltd. needed to do a lot of phone survey regarding the price, payment policy issues of the competitors in terms of what are benefits they are giving to their distributors. To set the most affordable price, I needed to survey regarding the price of cylinder, refill and their commission particularly. Based on those data, Bengal LPG Ltd. set their prices as lower as possible to the LPG market.

3. Doing meeting with 4-5 distributors at a time in a day:

Many distributors supposed to come to our office physically to know the terms and condition regarding the price. I have to conduct with all the distributors to give them required information regarding our price policies and issues.

4. Make a bridge between operation and marketing team:

As I started doing my internship in operation team, Bengal LPG Ltd. management team shifted me to the sales team after 3 months later. Therefore, I have a good connection between both sales and operation team. Sales team supposed to make the plans and programs of the cylinder delivery and process and operation teams finally executes the plan. So, I have created a bridge between operation and sales by giving them an important info regarding the sales team plan and operation team could able to create support and manpower backup based on my information.

5. Enlisting distributorship data and checking papers time-to-time:

In a day, lots of distributors call for the distributorship information and send us the papers through courier, email or office. I need to process and give entry of all distributors data in excel. Additionally, I need to check the distributorship papers whether it has been updated or not when the validity date gets over. Based on the paper's updated status, I need to inform them to submit the updated paper as soon as possible over the phone call.

1.3.2 Benefits to the student

During my whole internship period, I have learnt and experienced lot of things which helped me to develop myself and get used to with the professional behavior. Some significant learnings are the followings:

1. Experiencing the corporate behavior and environment:

I had little or no exposure to the corporate sector over the prior four years of my undergraduate studies. However, the internship experience allowed me to put myself in that situation and prepared me for the demanding corporate employment. It was really tough for me to adjust with my schedule of the office hours of 9 a.m. to 5 p.m. The obligations were extensive and I overwhelmed the culture later.

2. Learning corporate etiquettes and communication:

As an intern, I was responsible for maintaining frequent internal and external communication for the organization. Due to the nature of the work, I was able to meet a number of important LPG industry experts. All of my interactions with clients and industry professionals taught me business manners and communication techniques that will help me to develop my career.

3. Gathering work experiences through significant job responsibilities:

As an intern at Bengal LPG Limited, I was able to contribute to the firm by doing some relevant work and taking on certain responsibilities. They were significant and those were personally enriching for me. I learned a lot from my coworkers who were all very open-

mindful and constantly eager to teach me something new. They responded positively to my questions and appreciated my work which fueled my desire to learn more through my work.

4. Learning the methods of client communication and its importance:

In Bengal LPG Ltd., communicating with the distributors was rigorously monitored and give each and every distributor as the highest priority possible how small the monthly consumption unit is. In the initial stage, I attended many distributorship meetings with my supervisor, but later on I attended and managed the distributors by my own. It was a rewarding experience that showed me the value of a client to a company, no matter how tiny the financial contribution to the LPG industry is.

5. Learning the importance of maintaining a healthy work environment:

Bengal Group of Industries concerns about the each and every employees particularly. Bengal Group of industries has a rule of 1pm-3pm lunch break time when employees can go outside or can talk with other colleagues in this time. In the Bengal LPG Ltd. head office, there has a nice rooftop where employees can go over there in this break time, can take fresh air after tiring work environment. All these things gives a fresh break from the regular intensive work and they came back with more enthusiasm which is priceless.

1.3.3 Difficulties faced during Internship

There are a few difficulties that I faced during the Internship. They are:

- As Bengal Cement Ltd. and Bengal LPG Ltd. office, both are connected together. So, I will need to interact and mix with all of them for maintaining corporate relationship. Some of the Bengal Cement Ltd. employees check out female workers so negatively that any female would feel embarrassed the way of seeing. Some of them supposed to bully for not wearing dupatta perfectly and makeup issues. This is totally not acceptable behavior from these kind of reputed corporate office. I and all of the female employees who work there, have been agreed and facing these challenging environment. I would recommend those

employees to counsel them in a positive way that they can change their outlook and motive from female employees.

- Bengal LPG Ltd. office interiors and chair-table are not well-furnished or not much quality standard as Bengal cement Ltd. office. It actually portrays the discrimination between the two concerns in one roof. Bengal Group of Industries should focus on the fact to make one equalized level or standard for all the concerns.

Following are the difficulties which I have been faced during my internship period. It could be regarded as negligible in the point of view of enriching the learning and activities from the corporate works.

1.3.4 Recommendations:

The area of improvements that Bengal LPG Ltd. should give more focus on-

- The selection process of internship is lengthy and competitive. It could make easier for the internes and could specify all of the job responsibilities before recruiting.
- Physically searching distributors file takes a long time. But digitizing the files saves time and also improves the quality of the work.
- Bengal Group of Industries at least can give internes specific ID number and card for the better convenience and can give office supplies requisition power for their regular use items that could allow them to feel the more belongings towards the organization.
- Bengal Group of Industries could make the arrangements for a designated counselling unit for the employees who have some specific certain issues by which they can develop their mindset and broaden up their outlooks.

Chapter 2

Organization Part: Overview, Operations and a Strategic Analysis

2.1 Introduction

2.1.1 Objective

The primary objective of this report is to give an overall picture of the impact of Bengal LPG Ltd. in LPG industry and economy. The main purpose of conducting such research is to illustrate a decent influence of Bengal LPG Ltd. in the LPG sector of the economy through outstanding services and performances.

The objective of this chapter is to conduct a strategic analysis of the overall organization which will provide insights about the company and at the same time give an idea about significant departments' policies and practices.

2.1.2 Methodology

Both primary data and secondary data are collected to conduct the strategic analysis of the organization:

1. **Primary Data:** The primary data has been collected from the company profile, brochure and some Bengal LPG's official works research papers. Additionally, it has been sourced from the employees and top management departments as well. I inquired about their department's processes and policies and they responded with consolidated data that assisted me in doing the strategic analysis.
2. **Secondary Data:** For the collection of secondary data, I have searched for LPG related research paper from the internet. I have also used the information from official website of Bengal LPG Ltd. as another source of secondary data.

2.1.3 Scope of the Analysis

I conducted the analysis throughout my internship. I have gone through with numerous departments manually in order to gain an absolute understanding of their practices and procedures.

When key or essential data is unavailable, I had to rely on oral conversations with employees to get the actual understanding for the business practice from their operation.

2.1.4 Limitations

As an intern, I had limited access to several departments for collecting the information. Because of company policy, I had restrictions to learn about distinctive company practices that offers Bengal LPG Ltd. in a competitive advantage in the market.

2.1.5 Significance

Customers and industry experts consider Bengal LPG Limited as one of the best LPG service provider in the country. Being a pioneer of the LPG industry, this strategic analysis will provide an overview of their business model which can serve as a model for aspiring LPG companies of the country. This study will also serve as a foundation for this report, since it will provide a comprehensive understanding of the company's values and how the report's issues matches with the company's practices.

2.2 Overview of the Company

2.2.1 Introduction

Bengal LPG Ltd. is a concern of Bengal Group of Industries. Therefore, Bengal LPG Ltd.'s all of the business operation and activities are associated and manipulated by the Bengal Group of Industries. Bengal is a company of Bengal Group of Industries, which started its operation back in 1969. Bengal Plastics is the largest plastic industry in Bangladesh which is processing more than 3,000 metric ton raw materials per month. It has been enlisted 27 concerns over the period of time of their operation. Bengal Group of Industries took this project for Bengal LPG Ltd. in 2017 and started its operation in May-2021.

2.2.2 Vision, Mission and Core Values

Bengal Group of Industries' vision, mission and values are aligned with such aims that determines the effort to improve the Bangladesh's LPG industry which could have a long-term impact on the country's economy-

Mission:

Bengal Group of Industries' mission is to strive continuously to exceed customers' expectations for achieving unlimited excellence by providing greater value to our customers than our competitors.

Vision:

Bengal Group of Industries vision is to be the best leading company in our industry and to deliver total quality goods and services to all of our customers.

Goals:

Bengal Group of Industries goal is to be the best company in the industry and it is our policy to deliver total quality goods and services to all of our customers. We accomplish this by adopting a set of quality policy throughout the organization.

2.2.3 Core Values

The two core values are the strong pillars of Bengal Group of Industries. They are:

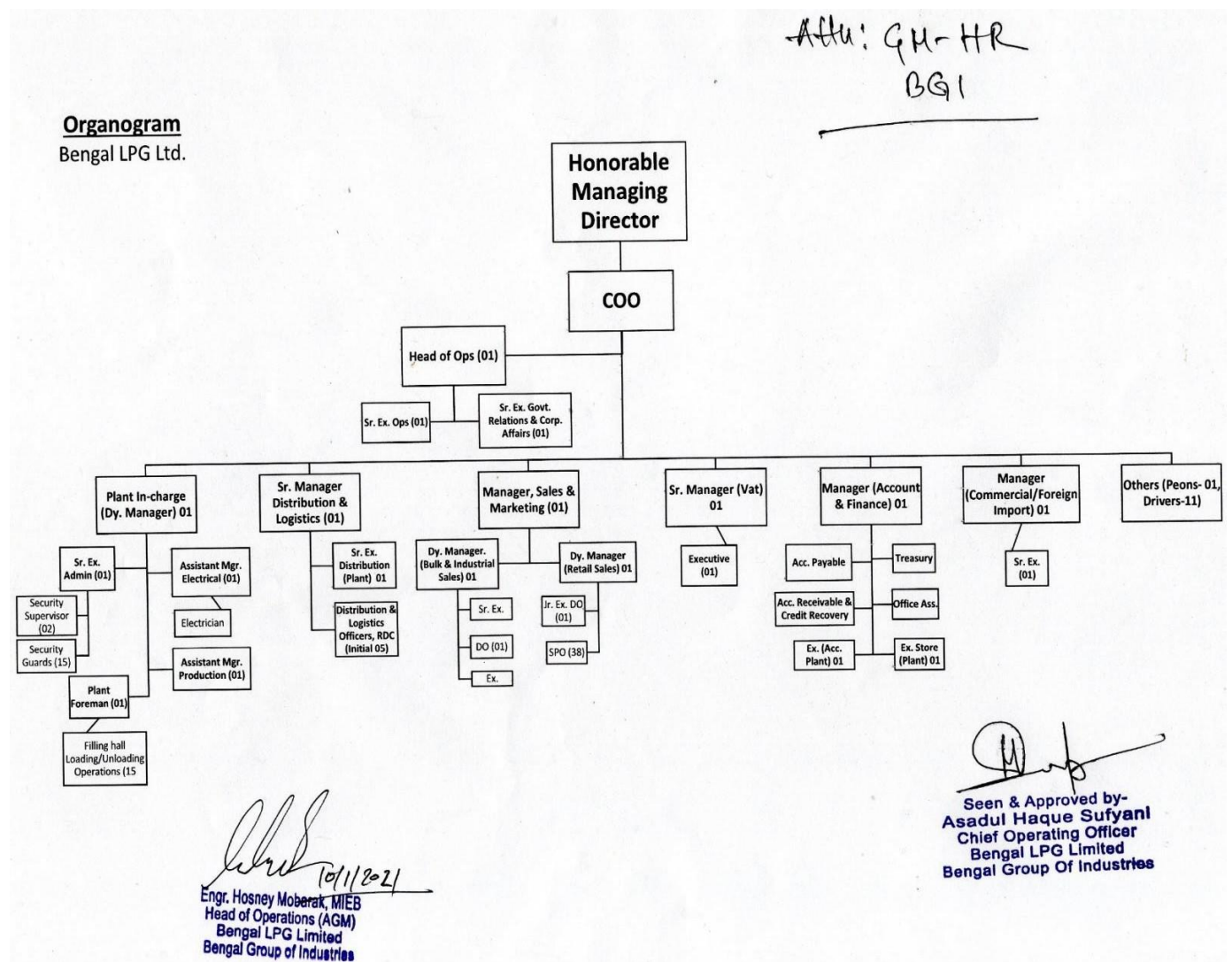
1. Maintain the quality standard of the product and services.
2. Continually looking for new ways to improve by the innovation.

2.3 Management Practices

Bengal Group of Industries has a designated management and HR team that works continuously to help the company to achieve its objectives. The entire team is divided in a way that maintains a balance between efficiency and innovation equally. The company's leaders are constantly looking for effective solutions to eliminate market difficulties. They are also focusing on providing advanced solutions to adjust with the changing market needs.

2.3.1 Organogram

Figure 1 shows the organogram of Bengal LPG Limited-



2.3.2 Significant Management Teams

The following hierarchy level of the Bengal LPG Ltd. is the significant management team who control and operate the organization to its vision:

MD & COO: The highest of all Management Teams consists of the Chairman, MD of the Bengal Group of Industries and COO of the Bengal LPG Ltd. controls and operate the overall infrastructure.

Head of OPS: By the supervision of head of operations, the plant and project works are significantly going well with its hundred percent efficiency.

Plant In-charge Mgr.: Plant in-charge manager will control the plant related works and determine the certain aspects of it.

Sr. Mgr. Distribution & Logistics: Senior manager of distribution and logistics department will monitor the distribution of cylinder, industrial sales quantity, road tankers rotation and sales orders.

Mgr. of Sales & Marketing: Manager of sales and marketing will determine the marketing policy and factors and establish the required criteria where Bengal LPG needs to give more focus on and develop and implement based on its adequate placement of need.

Following are the important management board of directors and their works defines there. By the application of their efficiency, Bengal LPG Ltd. gets structured, organized and systemized to give the possible outcome to the LPG industry and economy.

2.3.3 HR Approach

As Bengal LPG Ltd. is a concern of Bengal Group of Industries so that Bengal LPG Ltd. recruitment and policies has been maintained or controlled by Bengal Group of Industries. Here are few key HR approaches of Bengal Group of Industries:

1. Increasing workforce diversity to increase an innovation and creativity.
2. Through job rotation and training, create a culture of continuous learning.
3. Team building can help to develop corporate values in employees in personnel.
4. To ensure long-term viability, focus on talent acquisition and succession planning.

2.3.4 Outcomes of HR Approach

Bengal Group of industries has a very low employee turnover rate because to its current HR approach. They try to create a sense of belonging among its employees through organizing various training sessions and informal events. Throughout the years, they have been successful in their approach.

2.3.5 Key Highlights

Bengal Group of industries consistently tries to motivate the employees to engage in their work through various compensation and awards. Here are a list of them:

1. Chairman/MD/COO's Award
2. High Performer's Award
3. Performance Bonus
4. Excellence Award
5. Achievement Award

2.4 Marketing Practices

As Bengal LPG Ltd. just newly launched in the market and it has started its operation from May-2021 so that the marketing practices and approaches have not been established yet particularly for the each sectors. The newly included head of Sales and marketing team for Bengal LPG Ltd. is trying to include and establish the efficient policies which will provide the solutions to critical marketing needs of the organization with the inclination towards its modern marketing approaches.

2.4.1 Marketing Approach

Here are few key marketing approach of Bengal LPG Ltd.-

1. Focusing on direct consumer communication which incurs low cost but gives greater outcome.
2. Promoting advanced technologized and imported cylinders products through visualizing directly to the customers and distributors.
3. Recruiting creative and innovative personnel who would add and increase value of the market approaches.
4. Building customer relationship and business intelligence to create customer centric business solutions for the LPG market.

Segmentation: Bengal LPG Ltd. has been segmented the rural and urban area people who have limited access to the gas supply. The southern and northern part of the country mostly need the cylinder gas items to prepare their food on regular basis.

Targeting: Bengal LPG Ltd. has targeted mid-income level people those who can afford to buy and consume this product in a regular purpose. As Bengal LPG Ltd. is new in the market in LPG industry so that it has kept its price as much lower as possible. Bengal LPG Ltd. is taking the half price of the cylinder from the customer where the cylinder manufacturing cost is doubled to produce in actual. Being a new-entrant in the market, it is essential to give a premium price to attract and grab new customers from the market.

Promotion: Bengal LPG Ltd. is initially rely on Facebook marketing through Facebook page and group. To increase and reach more customers, it is demonstrating the production and plant videos to make understand the authenticity and engage more customer through the participation and responding to their queries. On the other hand, Bengal LPG Ltd. can do their promotional activities by their other concerns. For example, Bengal LPG Ltd. can sponsor X-banner or hanging card to the stores of Bengal Plastic Ltd. which will catch the eye of other customers and they will think to try or buy the product just by thinking it's a product of Bengal Group of Industries. In the meantime, RTV is the concern of Bengal group of industry so that Bengal LPG Ltd. can give particular TVC videos to telecast only in this channel.

Positioning: To make Bengal LPG Ltd. Positioning in the market, Bengal LPG Ltd. needs to focus on unique criteria which will make differentiate the cylinder products from other competitors. For example, it can demonstrate that it is using high quality imported raw materials which are readily unavailable in the market or hardly use by their competitors. Additionally, it won't be melted in certain heat temperature. If the consumers and distributors get realized the unique product, they will automatically consume it rather taking it from other competitors.

2.5 Financial Performance & Accounting Practices

2.5.1 Financial Performance of Bengal LPG Limited

Following is the financial cost in different sector which has been invested by Bengal LPG Ltd.-

Sl No.	Description	Total (In Lac Taka)
1	Land & Land Development	1556.94
2	Civil Construction with Jetty & Pipeline	2962
3	Machinery and Equipment	8994.55
4	Transport, Manpower and Others	582.45
5	Contingency	422.88
6	Interest	1233.86
	Grand Total Project Cost	15752.68

Investment worth of the Project in terms of-

Description	Total (In Lac Taka)
i) Benefit Cost Ratio (Fin.) @ 15% d.f.	1.059948
ii) Benefit Cost Ratio (Eco.) @ 15% d.f.	1.081065
iii) Net Present Value (Fin.)	9326.65
iv) Net Present Value (Eco.)	12,365.67
v) Internal Rate of Return (Fin.)	22.93%
vi) Internal Rate of Return (Eco.)	25.70%
vii) Payback period	4.01 Yrs: = 5 Yrs. (approximately)

2.5.2 Accounting Practices of Bengal LPG Limited

The designated accounts department for Bengal LPG Ltd. determine the budget for each projects and allocated and distribute based on their analysis. Additionally, they supposed to prepare the voucher on a regular basis as well as the VAT and TAX works done by them. Consequently, based on the daily expenditure, they need to give an entry in the journal to make all the things adjusted and accumulated. At the end of the day, they need to present the overall activities of the accounts to the higher officials so that they can understand in which criteria's, management needs to focus on and mitigate the risk and budget to be more efficient with working capital in LPG industry.

2.6 Operations Management and Information System Approaches

Bengal Group of Industries has a strong IT infrastructure that enables it to offer outstanding digital solutions to the employees and management. Bengal LPG Ltd. is able to give working efficiency due to the prominent IT infrastructure and excellent operations management.

2.6.1 Key Approaches

Here are a few key approaches of the Operations Management and Information System of the company:

1. Providing the excellence quality LPG products all over the country and every doorstep is the key strategic areas of the Bengal LPG Ltd.
2. Using strong network to optimize the company's numerous processes.
3. Allocating Bengal LPG Ltd. financial resources to projects that are consistent with the company's strategic goals.
4. Processing should be decentralized to improve efficiency.

2.6.2 Key Activities of Operation Management

Operation team of Bengal LPG Ltd. supposed to plan and allocate the resources and upcoming activities of other departments. The main purpose of the planning is to make the cylinder items and products in the cost-effective way so that I can minimize some cost from their production and other part of there. The team fixes the tentative schedule for the ongoing and upcoming production and filling of the cylinder products and make the purchase schedule of raw materials based on the production capacity and resources. Finally, the operation department of Bengal LPG Ltd. controls and monitors the overall infrastructure so that it can give its efficient output, balanced and maintained with other department activities.

2.6.3 Key Activities of Information System:

Bengal LPG Ltd. Information system department is initially controlled by the Bengal Group of Industries. All the information system related support are being provided by the mother of all the concerns. Currently, Bengal Group of industries is using oracle software for the data support. Additionally, it responds with instant IT services when any employees face difficulties in accessing the data. However, Bengal Group of Industries has been developed a strong IT system to give user-friendly smooth experience to their employees.

2.7 Industry and Competitive Analysis

As Bengal LPG Limited is newly launched in the market, there are so many competitors are existing to compete and to make positioned itself in the LPG market. The significant competitors of Bengal LPG Ltd. are Bashundhara LP Gas Ltd, Jamuna Spacetech, Totalgaz, Navana LPG, Orion, Omera and many more. All of these competitors have their highest storage capacity, efficient storage, bottling, importation and marketing & distribution capability in the market. Bengal LPG Ltd. will need to compete with all the factors and make itself more outstanding and differentia table to make positioning in the market with other competitors. Bengal LPG Ltd. has some competitive in initial stage–

- Other LPG companies are mainly focusing on B2B customers, whereas Bengal LPG Ltd. is focusing on industrial sectors.
- Bengal LPG Ltd kept cylinders price as much lower than other in the market.
- Bengal LPG Ltd. started its operation with 5000 MT storage capacity which is really huge for as a startup company in LPG sector. Whereas other company started its 2650 to 4000 MT storage capacity with small distribution channel.
- Bengal LPG Ltd. is manufacturing cylinders in their own plant, whereas most of the companies still rely on importing.
- Bengal LPG Ltd. has two road tanker and 600 MT LPG barge in the starting to make smooth distributional channel networks.

Following are the significant competitive factors or advantages of Bengal LPG Ltd. as new-entrant in the LPG market to make itself positioned.

2.7.1 SWOT Analysis

Strength <ul style="list-style-type: none">• High Storage Tank Capacity• Strong dealer community.• Strong distribution network.• River way transport way.• Have many investors in hand.	Weakness: <ul style="list-style-type: none">• Not focusing in Rural and urban areas demand.• Lower willingness to marketing of products by management.• Lack of using technologies• LPG consumption population density is low in targeted areas.
Opportunities: <ul style="list-style-type: none">• Identify projects that will illustrate the viability of developing rural markets.• Replacement of Natural Gas• Wood and diesel displacement are reduced.• Power generation.	Threats: <ul style="list-style-type: none">• Lower access in LPG distribution network in rural areas.• Strong competition• Chance of getting less expensive alternative sources.• Poor regulation enforcement and lack of a safety culture

2.7.2 Overall Assessment

Based on the competitive analysis for Bengal LPG Ltd. we can assess that Bengal LPG Ltd. holds a strong competitive advantages in the industry and have a potentiality to consolidate the position in the near future.

2.8 Summary and Conclusions

2.8.1 Summary

From this chapter, we may describe the company's overall structure and get an understanding of the company. From the starting of the Bengal LPG Ltd. operation, it is operating efficiently to become one of the best market leaders in LPG industry. Its business plan is based on the innovative and consistent methods which is coming from significant efforts from the numerous departments within the organization.

2.8.2 Conclusion

To conclude, I would like to state that the aspiring LPG companies of the country should take ideas and suggestions from Bengal LPG Ltd. that could able to such outstanding initiative as a new-entrant in LPG industry. . LPG companies of the country should be inspired by the persistent persuasion of Bengal LPG Ltd. towards innovation and efficiency despite the challenges of Bangladesh's economy has brought in its way.

2.9 Recommendations

After conducting a strategic analysis of the organization here are a few recommendations from my part:

- **Allocate and Design Each department's work in structured way-**

As a startup company in LPG industry, the working areas are not supposed to be organized and structured in their way. Because of the lack of the manpower facilities, one particular department member's need to work for other department. As the branding and corporate sales department is not established yet so that operation team members need to work in the sales team or need to engage himself about branding works for Bengal LPG Ltd.

- **Increasing presence in the areas outside of the country-**

As cylinder items mostly use in rural or urban areas, Bengal LPG Ltd. should focus on reaching the potential customers who would buy the product after knowing the existence of this brand in the market. Bengal LPG Ltd. can go for mass marketing so that they get to know about the product.

Chapter 3

Project Part: The Impact of LPG to the National Energy Grid and Contribution of Bengal LPG Ltd.

3.1 Introduction

3.1.1 Background

3.1.1.1 Objective of the Report

- Demonstrate the current energy balance of Bangladesh and impact the LPG in national energy grid.
- Determine the contribution of the Bengal LPG Ltd. in the industrial and household sector.
- Compare the LPG with national energy grid components in terms of their demand, import and price.
- Illustrate the Bengal LPG Ltd. manufacturing process and its distribution to the market.
- Identify the sector-wise adequate and potential consumption sectors of LPG industry.
- Identification of the increasing demand of LPG in year wise.
- To produce and generate some recommendation for Bengal LPG Ltd. to develop or improve the performance to give better to the national energy grid.

3.1.1.2 Introduction to LPG

It is a compressed gas that consists of flammable hydrocarbons (such as propane and butane) and used especially as fuel or as raw material for chemical synthesis.

The term "Liquefied Petroleum Gas" refers to any material having a certain amount of vapor pressure that will be allowed for commercial propane and is being composed predominantly of any of the following hydrocarbons, or mixtures any of them: propane and butanes.

3.1.1.3 Types of LPG

LPG refers to the liquefied Petroleum Gas which is consisted of propane and butane. It is also a mixture of flammable hydrocarbon gases that contains propane, butane and iso-butane. The actual gas mixture varies depending on whether it is produced from refinery gases or associated gases. However, LPG can be sold commercially to domestic and industrial customers in four grades-

LPG- Butane/Commercial butane: It contains mainly of n-butane, iso-butane and the butylene. As per British Standard (BS4250), "Commercial butane must include the hydrocarbon which is a mixture of butanes and butylene and doesn't contain any harmful quantities of nauseating substances and will be free from mechanically entrained water."

LPG- Propane/Commercial Propane: It is mainly consisted of propane and/or propylene.

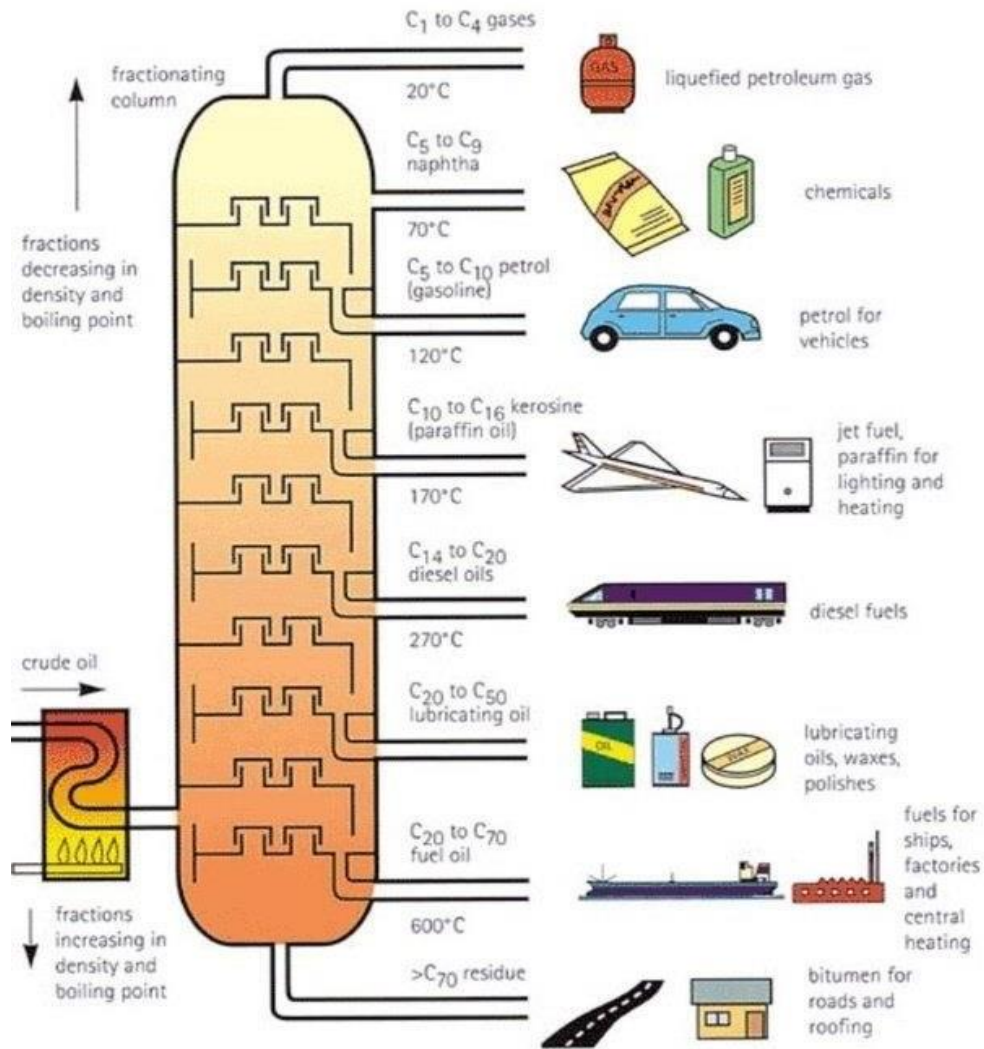
LPG mixture: It consists a variable amount of all C3/ C4 hydrocarbons.

High Purity Propane: It contains about 95% of these single hydrocarbons.

3.1.1.4 Properties of LPG

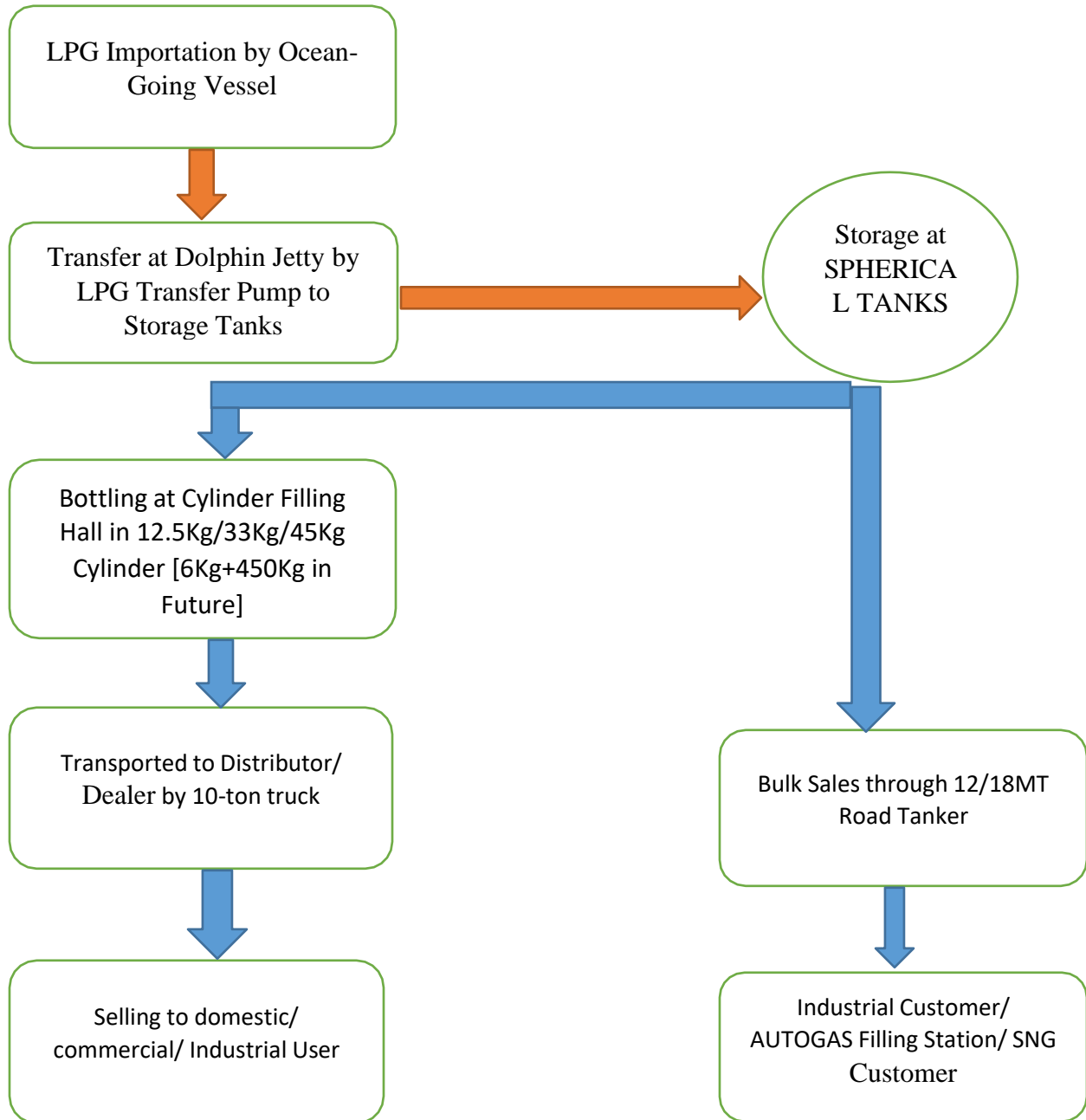
The caloric value or heat combustion can be defined as the amount of heat is being exposed when an adequate unit of quantity of fuel supposed to get burned under the certain condition. Flammability limits creates when gaseous fuels gets mixed with air in in certain properties which stays between two-well defined limits. Relative density stays within 0.50-0.52 for propane and 0.56-0.59 for butane. Cubical expansion occurs when temperature increases in liquid LPG. For LPG, the flash point is very low, containing -76°F for normal butane. Understanding of the vapor pressure of a gas is essential in order to be able to specify the design conditions for the pressurized system. The higher vapor pressure forms by propane but it requires stronger storage vessels which are more expensive than butane.

3.1.1.5 LPG Manufacturing Process



The LPG process starts with natural gas processing and crude oil refining. Liquefied petroleum gas (LPG) is created by extracting it from the raw natural gas stream during the natural gas processing and crude refinery processes. Propane and butane are the primary LPG constituents produced, with trace amounts of other natural gas liquids. LPG is easier to store and transport once it has been liquefied by pressurization.

3.1.1.6 LPG Process Flowchart



3.1.1.7 Comparison of LPG with National Energy Grid components in terms of their Import, Demand and Price:

LNG: Bangladesh is expected to increase its imports of liquefied natural gas (LNG) from the spot market as demand rises and the price of super-chilled fuel falls. Imports are maintained in accordance with increased demand while costs remain low. In 2019, Bangladesh imported 3.89 million tons of LNG from Oman and Qatar under two long-term contracts. Liquefied natural gas (LNG) is produced in Bangladesh.

The country's gas-guzzling industries, factories, and gas-fired power plants consume a higher volume of LNG. With the completion of the needed natural gas transmission network in March, the country's LNG imports are expected to rise even more. The government has already eliminated the bottlenecks for full utilization of its two floating, storage, and re-gasification units (FSRUs).

The country's potential usage of LNG might be in the transportation sector, resulting in one of many favorable economic externalities. LNG is classified medium in terms of overall affordability because the price of LNG is slightly higher than the current local gas price.

CNG: Because of its availability and affordability, CNG demand has been growing at an exponential rate in recent years. In Bangladesh, public passenger transportation has been converted to compressed natural gas (CNG). Financial incentives such as sales tax and tax exemptions, low-interest loans should be provided to bus operators. To encourage them to buy new OEM and retrofitted CNG buses, with incentives recovered preferably from higher private car road taxes. Although CNG will have greater initial expenditures than diesel, it will have lower operational costs due to the lower fuel cost of CNG compared to petrol or diesel. The Bangladesh Road Transport Corporation (BRTC) has put in place measures to enhance natural gas utilization. In addition to government policies and private businesses are importing CNG-only passenger buses because the operating costs are very low.

LPG: Demand of Liquefied Petroleum Gas (LPG) in Bangladesh is very high. In the public sector 19,228 MT of LPG are bottled in 2018-19, out of which 12,832 MT is obtained as byproduct from processing of crude oil in Eastern Refinery and 5321 MT from is extracted from natural gas in Kailashtila gas field. LPG is imported by only private sector. Around 681,036 MT of LPG is imported and marketed by private sector entrepreneurs in 2018-19. So public and private sector

both are combining to do the marketing of 700,264 MT of LPG in 2018-19, which is meeting a certain portion of LPG demand of the country. Considering the rising demand for LPG, government has decided to enhance LPG bottling facilities for marketing more imported LPG. For this purpose, two LPG bottling plants having capacity of 100 thousands MT per annum, will be set up in the coastal area. Of them, one plant will be installed by Bangladesh Petroleum Corporation (BPC) and the other in public private partnership with BPC.

Renewable Energy: Renewable energy resources helps Bangladesh to achieve energy security and reduce its reliance on natural gas. Biomass is currently the largest renewable energy resource in use due to its extensive non-commercial use mainly for cooking and heating. In Bangladesh, biomass accounts for 27% of overall primary energy consumption. The country has a lot of potential for solar power generation. Furthermore, due to the depletion of non-renewable fossil fuel supplies, the use of renewable energy has grown in popularity around the world. Renewable energy is environmentally friendly for the climate. Renewable energy resources used in Bangladesh may be classified into three major types- (i) traditional biomass fuels, (ii) conventional hydropower, (iii) new-renewable resources (e.g. solar PV, wind, biogas etc.) of energy.

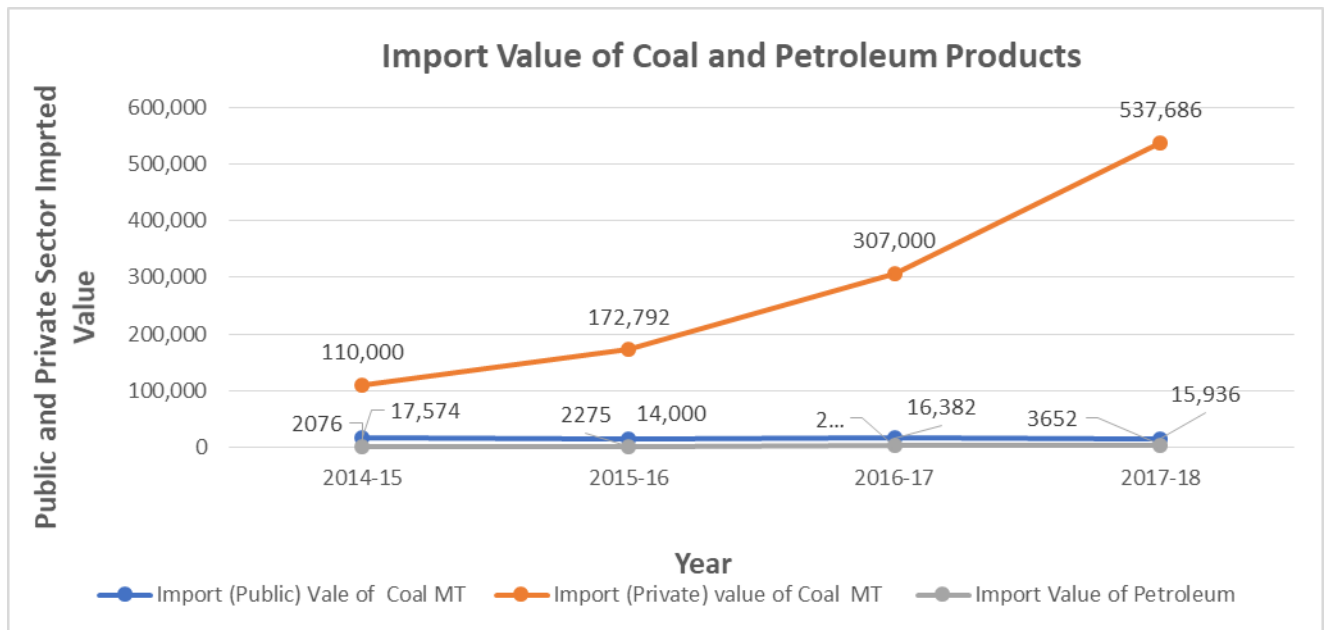
Electricity generation plan from Renewable energy source (MW)

Technology	Achievement up to 2016	2018	2019	2020	2021	Total
Solar	200	350	250	300	250	1470
Wind	2.9	150	350	300	300	1153
Biomass	0	6	6	6	6	30
Biogas	5	0.5	0.5	0.5	0.5	7
Hydro	230	1	1	2	2	236
Total	437.9	507.5	607.5	608.5	558.5	2896

Petroleum: Petroleum constitutes a major share of fuel costs for power production and dependence on it has increased overtime. Costs for diesel and HFO have been increased significantly over the years at a rate of 58% and 47.6% respectively between 2010 and 2017. A

large number of newly established power plants are based on imported petroleum which caused a huge import bill. There is a plan to reduce dependence on petroleum-based power plants.

Coal: In Bangladesh, there are around 3100 million tons of coal (bituminous coal) reserves, equal to 85 Tcf gas. It has been discovered so far from five coal field- Barapukuria, Khalaspir, Phulbari, Jamalganj, and Dighipara. There are enough opportunities for more coal mines to be revealed if exploration efforts are undertaken around the world. Coal from four deposits (118-509) out of the discovered mines.

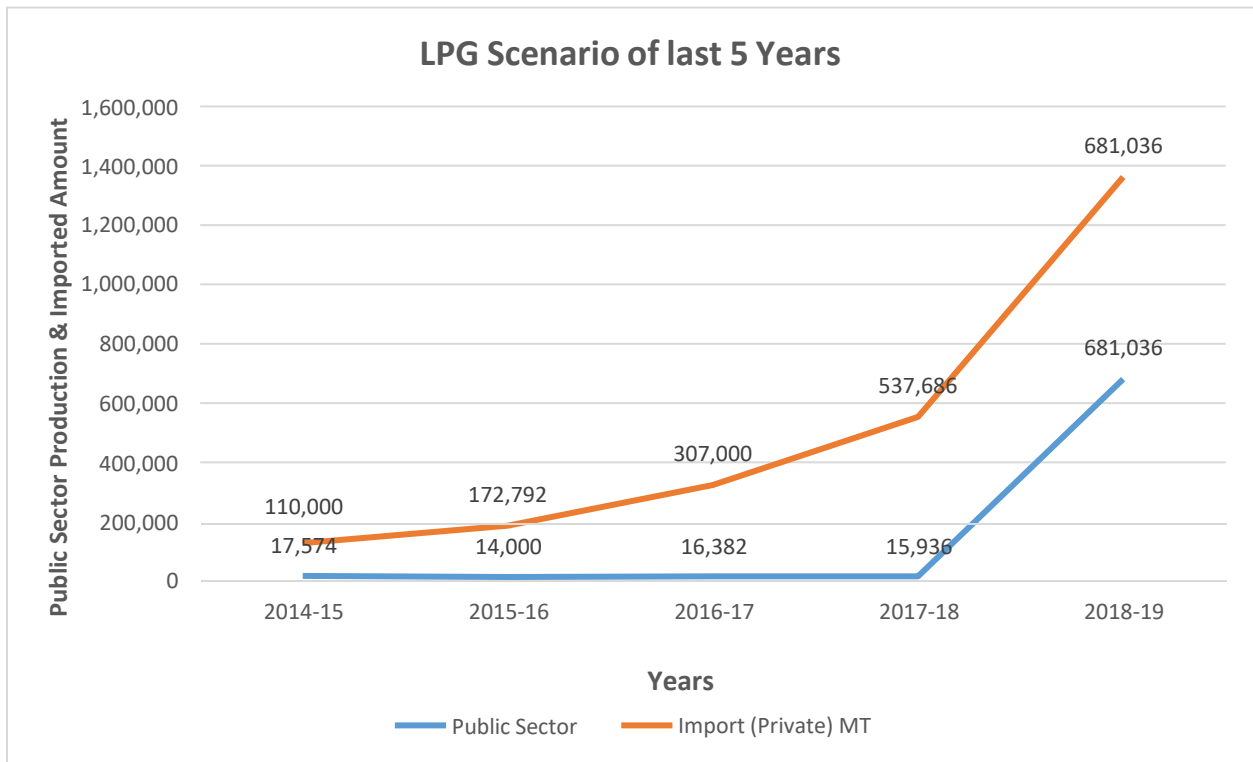


3.1.1.8 Demand of Liquefied Petroleum Gas (LPG) in Bangladesh

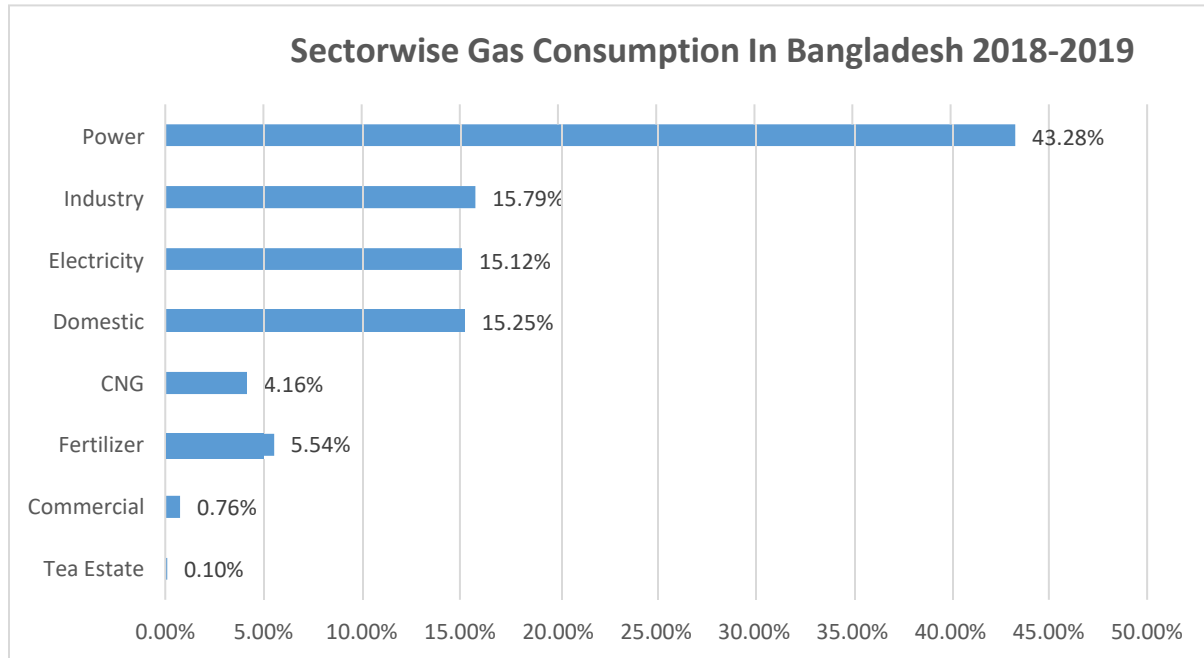
The demand of LPG is increasingly high in Bangladesh. It has been estimated that the public sector 19,228 MT of LPG are bottled in 2018-19, out of which 12,832 MT has been acquired as by-product from the processing of crude oil in Eastern Refinery and 5321 MT has been extracted from natural gas in Kailashtila gas field. LPG is imported by only private sector. Around 681,036 MT of LPG is being imported and marketed by private sector entrepreneurs in 2018-19. Therefore, both public and private sector are contributing to do the marketing of 700,264 MT of LPG in 2018-19, which is subsequently meeting a certain portion of LPG demand of Bangladesh. Considering to the fact of rising demand of LPG, government has planned to develop LPG bottling facilities

for marketing more of the imported LPG. For this reason, two LPG bottling plants with each having capacity of 100 thousands MT per annum, will be set up in the coastal area. Consequently, one plant will be placed by Bangladesh Petroleum Corporation (BPC) and the other in public private partnership with BPC.

LPG Public and Private Demand scenario of last 5 year



3.1.1.9 Sector wise Gas Consumption in Bangladesh (2018-19)



A Total of 965 BCF gas was produced in 2018-19

3.2 Methodology

After attending a number of distributorship meetings and attempting to understand their business patterns, I discovered that distributors evaluate the impact of cylinders in using two criteria. They are as follows:

1. The profitability of purchasing a cylinder.
2. The benefits, they will get from the company.

A cylinder has a long life time and it changes hands in time to time. First time cylinder purchaser will think about how much profit he will when he resell it and he supposed to compare it with the open market where per cylinder exchanges 4-5tk. First time cylinder purchaser will calculate his profitability and tentative time duration of getting it back from the market.

As distributors supposed to purchase in large quantities so that they expect for the extra benefits from the company. Other LPG companies like Omera, Bashundhara make arrangements

for the credit system whereas Bengal LPG Ltd. make incentive facilities those who will purchase in large quantities and fill up the targeted demand. For example, Bengal LPG Ltd. will give an Asian country visits complimentary tour to their prioritized distributors to make them feel more special and reward them with such honor.

3.3 Findings and Analysis

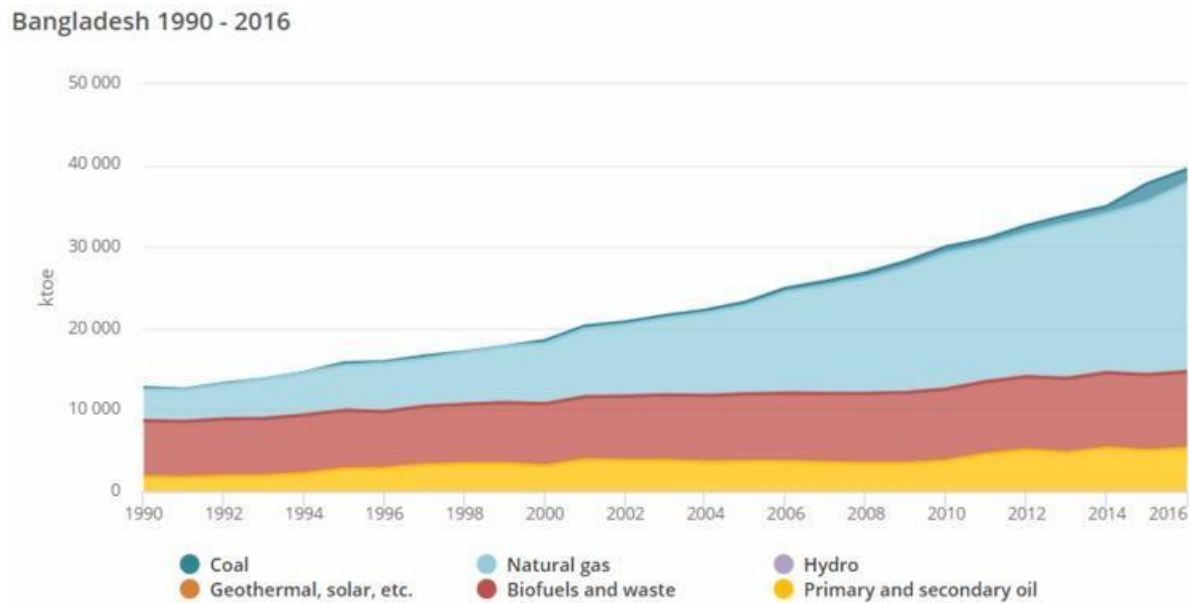
3.3.1 Impact of LPG in National Energy Grid

Energy is indispensable for attaining goals of socio-economic development of a country because of its role in increasing production and improving standards of life of the people. In Bangladesh, the economy is characterized by traditional to transitional mode of production and hence the energy intensiveness of its economy is still low. A transition from subsistence level of economy to development threshold would require a matching transition to mechanized modes of production, which will require comparatively, higher energy inputs.

3.3.2 Energy Balance in Bangladesh

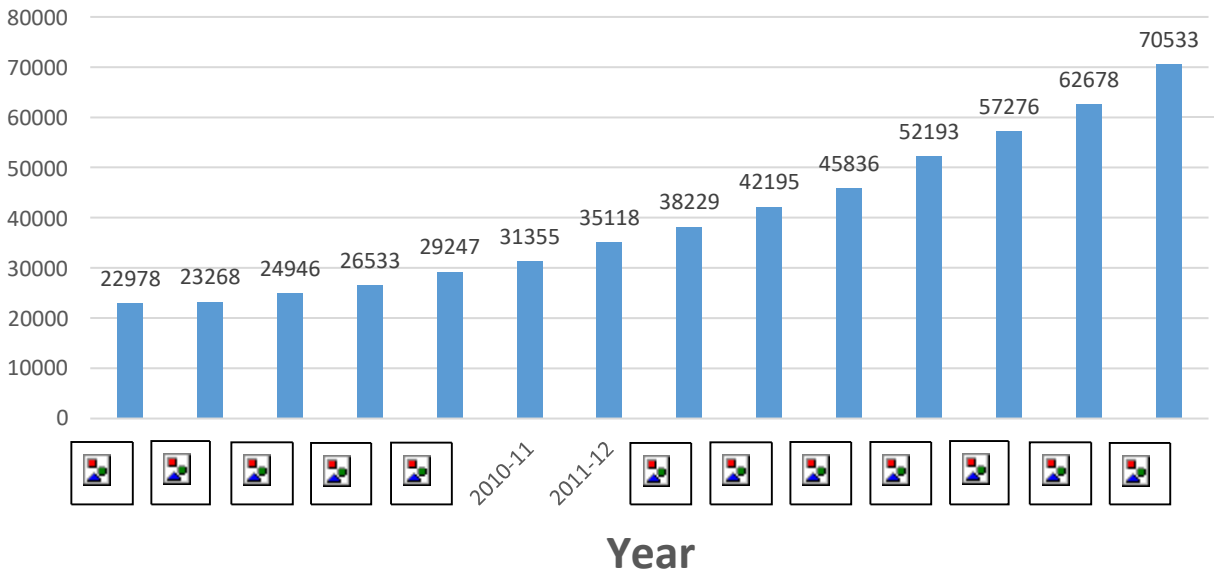
Biomass, natural gas, oil and coal are the important sources of energy in this country. But Bangladesh has a very limited energy reserve that small amount of oil, coal and countable natural gas reserves. The power sector in Bangladesh is highly dependent on fossil fuels as natural gas and coal are the important sources for power generation in the country. About 62.9% of generated electricity comes from natural gas while 10% is from diesel, 5% comes from coal and 3% of heavy oil and 3.3% is of renewable sources.

3.3.3 Production of Energy in Different sectors

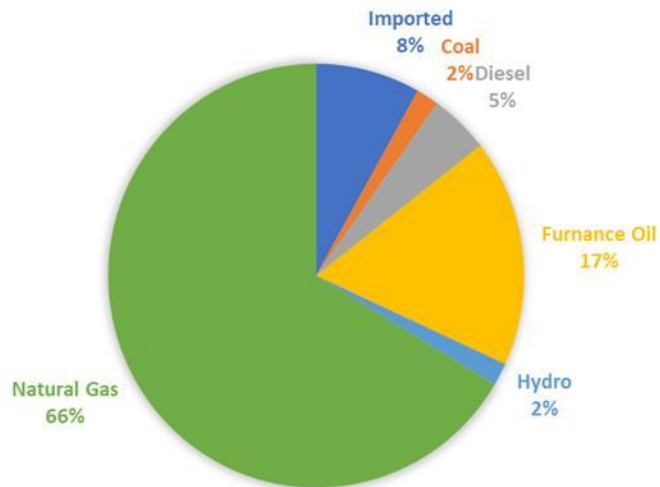


As shown in the figure above, Bangladesh's energy production from both distinctive oil items and biofuels, is nearly consistent along the past two decades. Whereas, natural gas is gaining more dependency and accelerating since the early 2000.

Net Energy Generation (2005-2018) in GWh



ENERGY GENERATION FROM DIFFERENT SOURCES IN FISCAL YEARS 2016-2017



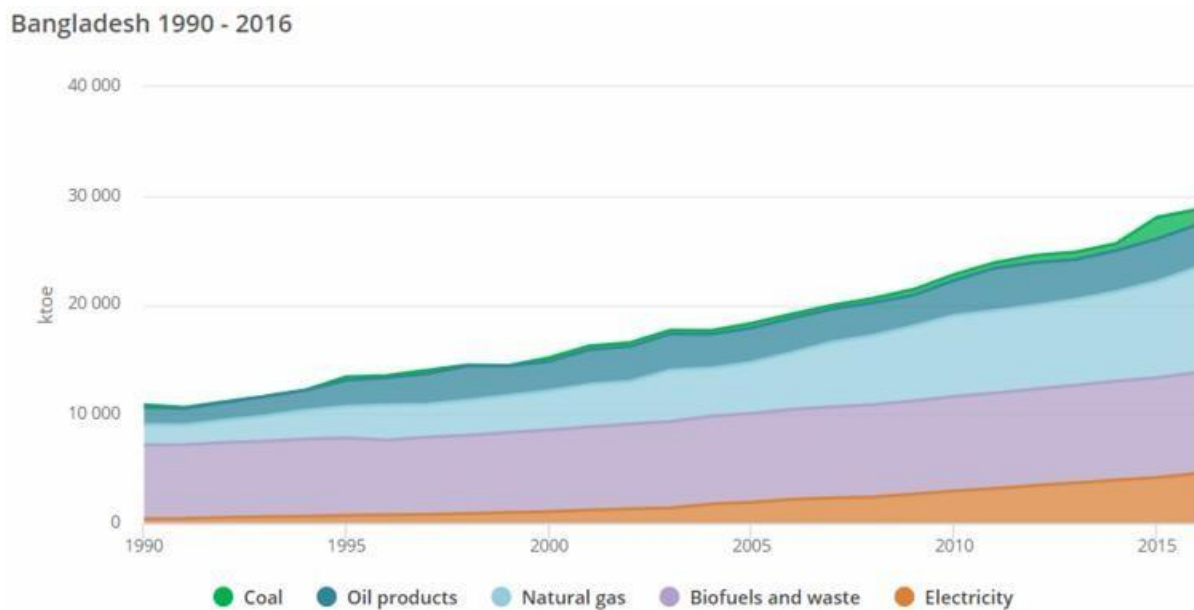
3.3.4 Consumption of Energy in Different sectors

Primary consumed energy is calculated as 62% of biomass, 25% of natural gas, 12% of imported oil and 1% for both coal and hydropower.

Bangladesh's Primary Energy Consumption since 1975-2017 in Mtoe

Year	1975	1985	1995	2000	2005	2010	2015	2016	2017
Rate	2.0	4.1	9.2	11.7	16.1	21.6	31.1	31.9	33.0

Bangladesh's Total Energy Consumption 1990-2016



The majority of Bangladesh's total primary consumed energy goes to natural gas, solid biomass and waste, which are followed by oil, coal & hydro.

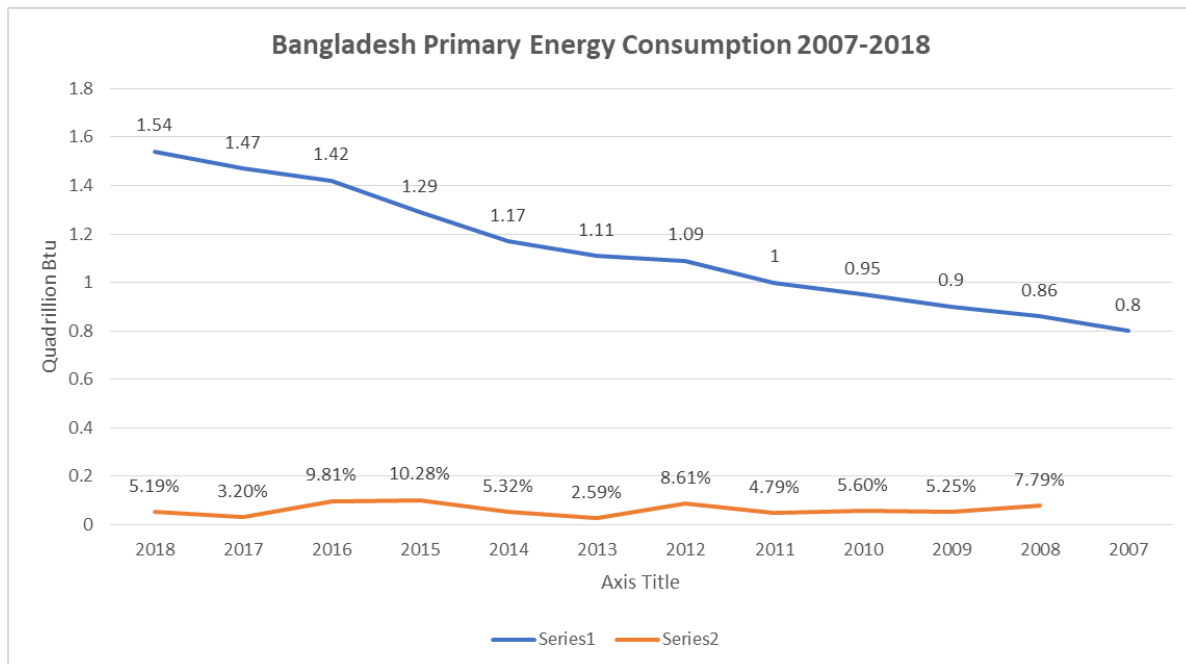
Bangladesh's Primary Energy Consumption by Fuel 2016-2017 in Mtoe

	Oil	Natural Gas	Coal	Nuclear	Hydroelectric	Renewables	Total
2016	6.7	22.7	2.2	--	0.2	0.1	31.9
2017	7.5	22.9	2.3	--	0.2	0.1	33.0

3.3.5 Primary Energy Supply

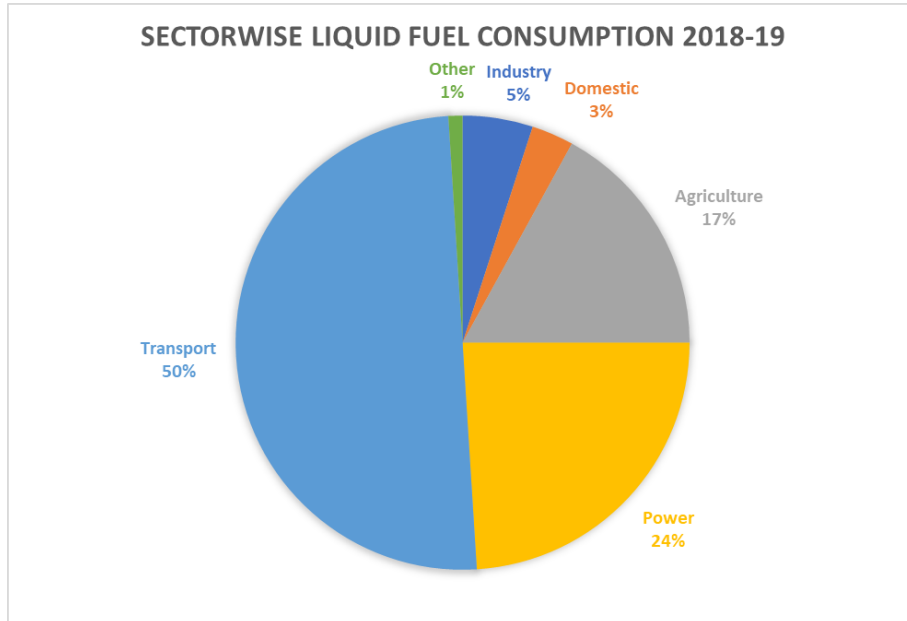
Bangladesh's power sector is heavily reliant on fossil fuels, natural gas and coal, serving as the country's primary power generation sources. Natural gas accounts for 62.9 percent of Bangladeshi electricity generation, diesel accounts for 10%, coal for 5%, heavy oil for 3%, and renewable energy accounts for 3.3 percent.

Bangladesh used 1.54 quadrillion btu of primary energy in 2018. Primary energy consumption increased significantly from 0.48 quadrillion btu in 1999 to 1.54 quadrillion btu in 2018. It shows that it is growing at an annual rate of increase that peaked at 10.28 percent in 2015 and then dropped to 5.19 percent in 2018.



3.3.6 Final Consumption

In Bangladesh, the transportation sector accounts for half of all liquid fuel consumption. While the power sector accounts for 24%, agriculture accounts for 17%, domestic accounts for 3%, industrial accounts for 5%, and other accounts for 1%.



3.3.7 Contribution of Bengal LPG Ltd. in National Energy Grid

As a first moving company of this sector Bengal LPG Ltd. (BELPGL) is a leading the LPG industry with its capacity, innovation and distribution. BELPGL began its activities since origin with 5000MT storage capacity limit in Mongla initially in southern part of the country where there is limited Flammable gas access.

To serve the nation demand, BELPGL has invested in logistics as well. Road tanker for bulk carrying capacity and cylinder carrying truck and two number of 600 MT LPG barge for the distribution network. BELPGL will be the utmost leader to serve the nation in LPG industry. BELPGL is working minutely to reduce the cost in value chain through innovation. BELPGL is the pioneer in the business and ready to deliver the best service to the customer and all partners with premium service where splendid piece of brain work behind. It is not only potential to remain number one in market share only rather to create new category in the industry is the main challenge. BELPGL is continuously working hard to bring new initiative to the industry which will differentiate it from others in competition and bring the wellness to the industry and will lead to the customer satisfaction in long run. Country's economy will grow along with motto delivered from Bengal group "Safe the time with affordable Bengal LP Gas".

3.3.8 Impact of Bengal LPG Ltd. in National Energy Grid

By contributing 5000 MT LP Gas from Bengal LPG Ltd to the national energy grid, the total energy infrastructure is accelerating and improving in a positive way in various sectors. Whereas, the current total need of LP Gas energy is around 650000 MT per year. Industrial sectors are being able to give their hundred percent efficiency level because of the availability of the Bengal LPG Product to the market. The transport sectors are also flourishing as well because the Bengal LP Gas availability in the filling stations. Bengal LPG limited is also covering the rural and urban areas LP gas need successfully. The other energy grid elements consumption is getting balanced because of the availability and affordability of Bengal LPG Ltd product in the market in national energy grid.

3.3.9 Earning and Employment

To eliminate the unemployment from the country, Bengal LPG limited is contributing the huge number of economic support in total country's employment infrastructure. BELPGL has appointed a huge number of plant supervisors and incharge to maintain the security and safety of the Plant which is located at Mongla, Bagerhat. Additionally, BELPGL has an operation, management, marketing and accounts department where many people are contributing their ideas and excellence to make BELPGL better. In the hierarchy level, each member is contributing efficiently to the economy of Bangladesh. Without each member's significance, it would not be possible for BELPGL to implement the total infrastructure to the economy. To conclude, BELPGL will create direct employment opportunities by their operation and it will make a positive impact to several hundred people. By this time, many people of our country can be employed through trading and transport of LPG.

3.4 Summary and Conclusions

3.4.1 Summary

Bengal LPG Limited has been benefiting the LPG business economy by enhancing their profitability and operating capability by providing excellence quality LP Gas to meet their needs. It has built some devoted distributorship channel base that will help to accelerate the country's economy.

3.4.2 Conclusion

LPG is one of the cleanest fuels available to domestic, commercial and industrial users. The public utilities in the energy sector in Bangladesh are in a deep financial crisis, partly due to an inappropriate tariff structure, problems with maintenance, system loss and low collection rates. At the same time, consumers' access to electricity and gas is constrained, while load shedding reduces the quality of the power supply. Bengal LPG Ltd. will contribute and lead the significance part to the in LPG industry upcoming years. Its mission is to deliver the premium LP Gas and service at an affordable price. However, Bengal LPG Ltd. has made their total system of operation in perspective of consumer mind and implemented those ideas according to it. However, Bengal LPG limited will develop and sustain with their innovation, execution and production in upcoming years in LPG industry in Bangladesh.

3.5 Recommendations

LPG, a flexible, floating form of gas supply with external risk, has yet to be established as a safe mode in Bangladesh. Following are some recommendations for improving LPG consumption in the light of the rising energy crisis.

- Assessment of LPG market demand and target markets for local and foreign direct investment in LPG capacity creation.
- Sectors will be prioritized for LPG allocation and development over time.
- Liquid fuel and energy tariff adjustments that are focused on the customer and follow the global trend.
- National LPG policy, including sourcing, tariffs, retail distribution, and market management, as well as investment guidelines, will be included in the Government of Bangladesh's seventh five-year plan.
- Because LPG is a relatively new form of production in Bangladesh, the affected industries must be well aware of the technicalities before LPG is fully implemented.
- LPG customers are subjected to a monopoly controlled by the private sector, which needs to be rationalized through government involvement, allowing for logical cooperation between the private and public sectors in LPG processing and distribution.
- The existing pipe gas network could be utilized for high-rise building gas supply to reduce LPG distribution costs.
- To benefit the majority of people at the bottom of the economic scale, auto gas may be authorized for public transportation rather than private transportation.
- BERC should be concerned in tariff setting and control as well as auto gas licensing.
- Being cost-effective in gas consumption, whether through a prepaid meter or a full transition to LPG, as consumption in a typical two-burner pipe gas consumes more than 4000 MCF at a significantly lower cost than 12, 20, and 30 KG of LPG cylinders.

- Bengal LPG Ltd. should concentrate on rural areas most.
- Need to export the items to get ahead.
- Bengal LPG Ltd. can establish more RDC points and mother plants to cover all over the areas of Bangladesh.

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