

# A Study on Cost Engineering Department of Energypac Power Generation Ltd.

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Submitted To:

Mohammad Rezaur Razzaq

Director (In Charge)

BRAC Business School



Submitted By:

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BRAC Business School

Submission date: 28 September, 2013

**BRAC University, Dhaka.**

# *Letter of Transmittal*

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**Date: 28 September, 2013**

**Mohammad Rezaur Razzaq**

Director (in-charge)

BBS Department

BRAC University

Subject: **Submission of internship report.**

Dear Sir,

I would like to take this opportunity to thank you for the guidance and support you have provided me during the course of this report. Without your help, this report would have been impossible to complete. With deep gratitude, I also acknowledge the help provided by my supervisor Ms. Sayela Alam, Manager, Business Management Unit for providing me utmost supervision to prepare the report.

To prepare the report I collected what I believe to be most relevant information to make my report as analytical and reliable as possible. I have concentrated my best effort to achieve the objectives of the report and hope that my endeavor will serve the purpose. The practical knowledge and experience gathered during report preparation will immeasurably help in my future professional life.

I would really appreciate it you enlighten me with your thoughts and views regarding the report. Also, if you wish to enquire about an aspect of my report, I would gladly answer your queries.

Thank you again for your support and patience.

Thank you,

Sincerely Yours

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Hasin Sharaf Ahmed

ID # 10364012

Brac Business School

# *Acknowledgement*

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Prosperous conclusion of any course requires support from various personnel and I was fortunate to have that support, direction, and supervision in every aspect from my teacher and EPGL officials.

First of all I would like to thank beyond measure grace and deep kindness of the Almighty Allah.

I like to express my deep sense of thankfulness to my supervisor of Internship Program, Director (in-charge), BRAC University for his frank encouragement as well as guidance in preparing this report. I acknowledge my gratitude to Ms. Sayela Alam, Manager Business Management Unit for her help and valuable suggestion from time to time and for being my supervisor in my organization in achievement of my internship program as well as preparing the report.

I also show my utmost gratitude to all the officials of Energypac Power Generation Limited. The speed and helpfulness of the officers really helped me in obtaining the necessary information in time. I would also like to thank Ms. Mahfuza Khanam, senior engineer of BMU for her kind support.

## *Executive Summary:*

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Energypac started its venture in 1982; it has grown to become the largest Power Engineering Company in Bangladesh and is in fact emerging as a first choice global supplier of electrical equipments. “Energy works wonders” is its motto and it commits to bring about these wonders into the lives of people with the most advanced technology and the least power consumption. Energypac Power Generation Ltd. was founded in the year 1995 and today it has established itself as a major supplier of standby and base load generators, low voltage electrical accessories, Busbar systems and luminaries and fixtures including energy saving lamps in a commitment to conserve energy. The company aims to provide reliable, safe, and environmental friendly power to the industrial, commercial, and residential facilities of Bangladesh and has indeed, succeeded in significantly contributing to the country’s power engineering, management, generation and distribution system.



# Chapter 1:

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## 1.1 Introduction of the Report

I have worked under the cost engineering Department for past three years. My internship program is an educational requirement of MBA Program under an assigned faculty of BRAC Business School of BRAC University, which is a professional degree. MBA students have to do an internship program as a practical orientation to the workplace where he/she can amalgamate the traditional hypothetical knowledge with practical work experience. I have completed my MBA from BRAC Business School with major in Marketing.



## 1.2 Objective of the Report

### Broad Objective

- To utilize the experiences gathered during the internship
- To observe the activities in Cost Engineering department of EPGL.

### Specific Objective

- To demonstrate different aspects of the organization
- To present my observation and suggestions regarding costing process of EPGL.

### **1.3 Methodology**

The data needed to prepare this report has been collected from both primary and secondary sources.

#### **Primary Data Source:**

Primary data has been collected through unstructured personal interviews and discussions with officials of Sales & Commercial department and also from the field visit.

#### **Secondary Data Source:**

The secondary data have been collected through EPGL's official site.

### **1.4 Limitations**

While doing the internship program, I faced some obstacles. These are given below:-

Internship report is one kind of research work. Research work requires enormous time and effort. But the time provide to us is not enough to do the report. Moreover mine was on job training rather than Internship. As I am working in cost engineering Department of EPGL, it's fully prohibited to disclose some information. This affects the quality of the report.

## **Chapter 2:**

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### **2.1 Back Ground of the Organization**

Energypac Power Generation Ltd. was founded in the year 1995 and today it has established itself as a major supplier of standby and base load generators, low voltage electrical accessories, Busbar systems and luminaries and fixtures including energy saving lamps in a commitment to conserve energy. The company aims to provide reliable, safe, and environmental friendly power to the industrial, commercial, and residential facilities of Bangladesh and has indeed, succeeded in significantly contributing to the country's power engineering, management, generation and distribution system.

CIPP, one of the core businesses of Power Gen, has earned the company a total of 162MW gas engine power plant projects on turnkey basis. A total of 173.31MW of our Diesel generators within the range of 30Kw and 1400Kkw are in trouble free operation nationwide.

Our recently formed Oil & Gas Division in association with world reputed Companies like Parker Drilling Company, Messina Incorporated, Emme Gas etc. , aims to provide service and support to Oil & Gas Exploration, Production, Transmission and Distribution sector of Bangladesh including CNG refueling station etc. Energypac Power Generation Ltd has taken up another recent project of importing and marketing China's largest selling brand, JAC automobiles.

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### **2.2 Power Generation Division**

Power Generation Division of EPGL was newly formed inside the organization in 2009 although the operation incepted in 1995. In the beginning it had only one product which is Diesel Engine Generator. In the course of time the division has experienced spectacular growth in terms of its product category, range, manpower, knowledge, and revenue. The aim of this division is to provide reliable, safe, and environmental friendly power to the industrial, commercial, and residential facilities.

The division covers the activities throughout the country having offices in the divisional headquarters. It has 207 full time employees of which 95% are of technical background. The division is significantly contributing to the country's power engineering, management, generation, and distribution system.



- Power Generation
- Power Distribution
- Engineering, Procurement and Construction (EPC)
- Operation and Maintenance (O & M)
- Spare Parts Support
- Complete solution of CNG conversion and refueling
- Oil & Gas logistic support

### **2.3 Major Activities**

Specific Activities of Power Generation Division can be broadly categorized as:

- Sales and Marketing of power generating equipment.
- After Market Care
- Project Solution
- Independent Power Producer (IPP)
- EPC
- Production
- Assembly
- Manufacturing
- Workshop services for engine overhauling & maintenance



## **2.4 Product & Services**

1. FG Wilson brand Diesel Engine Generator.
2. Perkins brand Engine.
3. Guascor brand Gas Engine Generator
4. Rolls-Royce brand Gas Engine Generator
5. MTU brand Gas Engine Generator
6. Rolls-Royce brand HFO Generator
7. Broad Chiller
8. Bay Boiler
9. ETP(Effluent Treatment Plant)
10. Bi-fuel conversion
11. Air/Gas Compressors
12. Vacuum Pumps
13. Gas Boosters
14. eg brand Trickle Charger
15. eg brand industrial charger
16. eg brand MDB & SDB
17. eg brand trailer
18. eg brand canopy
19. eg brand CNG compressor control panel
20. eg brand over/under voltage relay
21. eg brand VDTC (voltage dependant timer circuit)
22. eg brand motor control centre(MCC)
23. eg brand distribution control systems(DCS)
24. eg ATS( Automatic Transfer Switches)
25. Plant Performance Improvements Services
26. Engineering solutions
27. Operation and Maintenance (O&M) & Service and Maintenance (S&M)
28. Parts & Service.

## **2.5 Operation & Maintenance (O&M)**

PGD does the operation & maintenance of plants equipped with diesel and/or gas generators. The customers are usually contracted for long term to be served with the manpower, parts & service including load management. It is the responsibility of PGD to

1. Ensure smooth functioning to the plant by all possible means.
2. Prevent approaching faults & reduces downtime.
3. Ensure the optimum performance of the plant with better reliability & availability.
4. Reduce unscheduled Parts consumption

Currently there are seven plants under O&M contract. Total size of the plants is 99.40 MW.



**Plants under O&M Service**

|                                    |      |    |
|------------------------------------|------|----|
| Meghna Energy Ltd.                 | 10.9 | MW |
| City Power Generation Ltd.         | 5.1  | MW |
| ASM Chemical Industry              | 10.2 | MW |
| Energypac Confidence Power Venture | 11.2 | MW |
| Unique & Everest Power Plant Ltd.  | 53.3 | MW |
| Samuda Power Ltd.                  | 8.7  | MW |
| Everest Power Ltd.                 | 25.5 | MW |



## 2.6 Engineering, Procurement & Construction (EPC)



EPC stands for Engineering, Procurement and Construction. Power Generation Division is extensively involved in the engineering, procurement and construction (EPC) of the power plants on turnkey basis. A customer who wants only to invest money giving all the responsibilities to other company to build and commission the power plant are served with the EPC works.

## 2.7 Parts & Services



### Parts & Service

Power Generation Division does the sales and marketing of genuine parts from the principals. These parts cover all ranges of FG Wilson brand diesel generators, Rolls-Royce, MTU & Gauscor brand gas engine generators. Power Generation Division also does the sales and marketing of all ranges of spare parts of Perkins brand diesel engines.



## Chapter 3

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### **3.1 Nature of the Job**

I have been working under costing engineering department as an engineer since 22 September 2010. During this period I have learned a lot of things and stuffs. My core responsibilities are as follows:

1. Daily query checking in TIF web based application.
2. Preparing DG Spare Parts MRP based on Air or Sea ship against urgent query.
3. Maintaining Offer Ledger and feedback collection from SnS dept.
4. Maintaining the spares inventory via E-cap software and forecasting for future need.
5. Preparing foreign & local requisition and submitting to SCM dept through e-approval as well as doing follow-up for emergency spares support.
6. Instant spares support/ delivery to local customer, Zonal- Chittagong & Telecom sector by concerning other depts.

#### **1. Daily query checking in TIF web based application**

One of my core responsibilities is to check the web based Trade Inquiry Form (TIF) which is prepared by our sales team after getting the query from the client. It is the most advanced and updated systems developed by our technically sound IT team. Whenever a new query is generated instantly it comes to us and after checking all the criteria's my responsibility is to submit the offer the sales team via TIF. There are various heads under it which are located separately in the web portal. The heads are TIF for diesel engine, gas engine, spare parts, lift & elevator, project & solution, service.

My major responsibility is to focus on the TIF for spare parts for both diesel & gas generators and submit the offer by providing the basic information that are required to generate the sale. These are:

- (a) Tax terms & conditions
- (b) Payment

- (c) Delivery
- (d) Validity

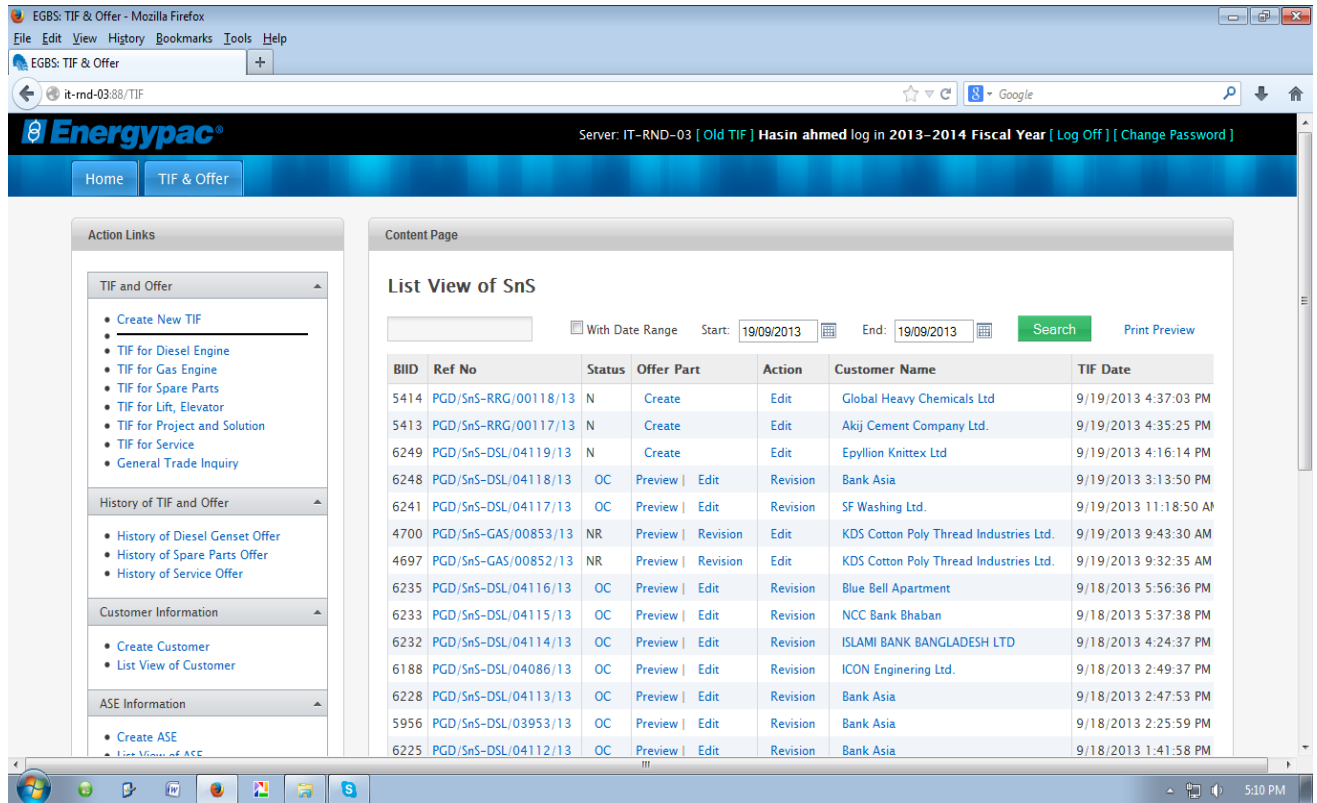


Figure: Sample screen shot of web based TIF

## **2. Preparing DG Spare Parts MRP based on Air or Sea ship against urgent query**

Preparing the MRP of DG spare parts based on the standard cost sheet of Air & Sea shipment whenever any urgent query raised. Beside this my duty is to communicate with the principles to collect the price and the delivery time if any spare part is not available in our stock at that time. After getting the feedback from our principal next job is to prepare the cost calculation and analysis and decide whether we will go for air or sea shipment. If it is a urgent query and customer wants the support immediately I submit the requisition to SCM to arrange the product within shortest period of time. Moreover, if the parts are unavailable at our principal's stock then we go for local source and purchase the genuine parts from our competitors.

## **3. Maintaining Offer Ledger and feedback collection from SnS dept**

After successfully submitted the offer my prime job is to maintain the Maintaining Offer Ledger and feedback collection from SnS department to ensure the sale on time. The offer ledger includes:

- Offer List by Date Range
- Offer Ledger of Diesel Generator
- Offer Ledger of Gas Generator
- Offer Ledger of Spare Parts
- Offer Ledger of Lift, Elevator
- Offer Ledger of Service
- Offer Ledger of Project and Solution

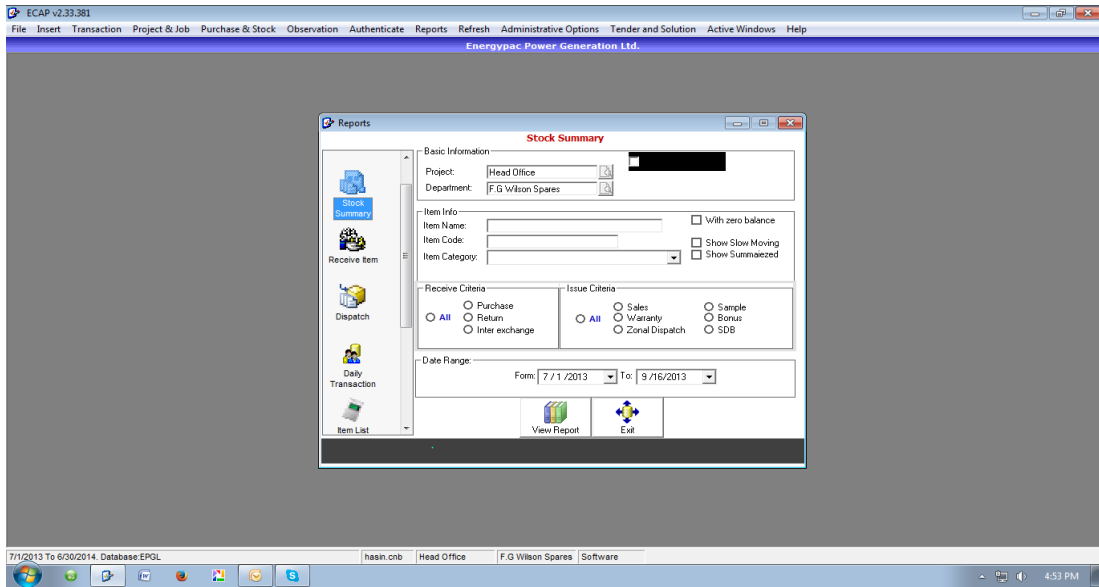
## **4. Maintaining the spares inventory via E-cap software and forecasting for future need**

In order to keep track on the present stock status I used to use E-cap which is very helpful software to see the current stock, purchase quantity & sales quantity and also forecasting of spare parts that are required in near future. As I am looking after the diesel spare parts its very important to maintain the keep balance of all the materials required for our valuable client as per emergency. Through E-cap I do the following:

### **(a) Stock Status**

- Store Ledger
- Stock Summary
- Receive Item

- Dispatch
- Daily transaction
- Item list
- Sample history
- Item transaction
- Interchange details



ECAP v2.33.381 - [Store Summary]

File Insert Transaction Project & Job Purchase & Stock Observation Authenticate Reports Refresh Administrative Options Tender and Solution Active Windows Help

Energypac Power Generation Ltd.

Preview

--- F.G Wilson Spares

Energypac Power Generation Ltd. 9/16/2013

Stock Summary Report

Head Office

Duration From : 7/1/2013 To : 9/16/2013

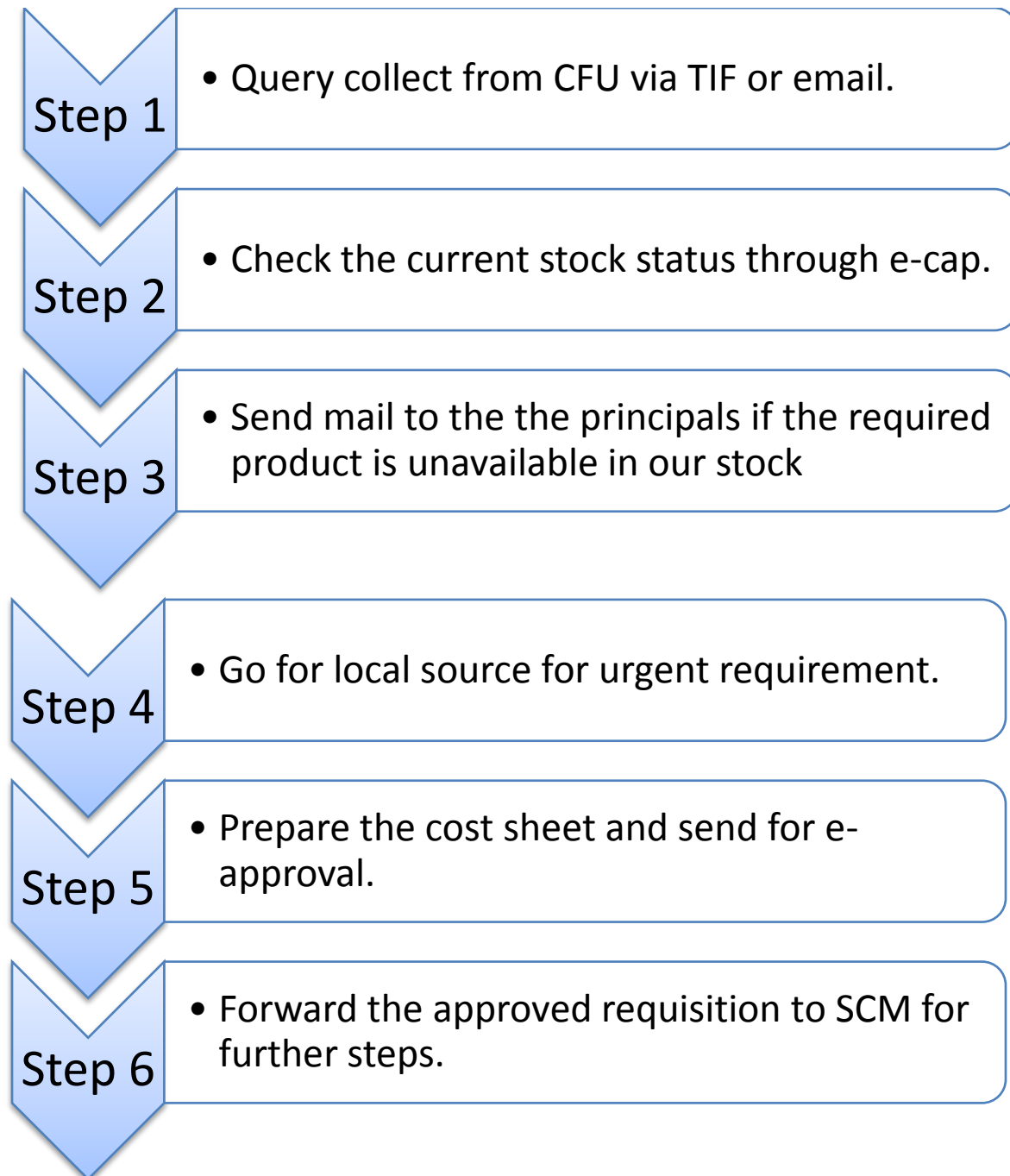
F.G Wilson Spares CATEGORY: All

| Sl | Item Code   | Product Description | Opening |          |        | Receive |        |       | Issue    |                |        |       |    |         |            |   |   |
|----|-------------|---------------------|---------|----------|--------|---------|--------|-------|----------|----------------|--------|-------|----|---------|------------|---|---|
|    |             |                     | Balance | Purchase | Return | Zonal   | Adjust | Sales | Warranty | Zonal Dispatch | Sample | Bonus | DM | Par.Ret | Adjustment |   |   |
| 1  | 10000-00052 | Kit_Joint/Gasket    | 1       | 0        | 1      | 0       | 0      | 0     | 0        | 1              | 0      | 0     | 0  | 0       | 0          | 0 | 0 |
| 2  | 0620076-1   | Piston Kit          | 8       | 0        | 0      | 0       | 0      | 0     | 0        | 0              | 0      | 0     | 0  | 0       | 0          | 0 | 0 |
| 3  | 10000-00051 | Atomiser            | 8       | 0        | 0      | 0       | 0      | 0     | 0        | 0              | 0      | 0     | 0  | 0       | 0          | 0 | 0 |
| 4  | 10000-00053 | Big End Bearing     | 8       | 0        | 0      | 0       | 0      | 0     | 0        | 0              | 0      | 0     | 0  | 0       | 0          | 0 | 0 |
| 5  | 10000-00054 | BIG END BEARING     | 9       | 0        | 0      | 0       | 0      | 0     | 0        | 0              | 0      | 0     | 0  | 0       | 0          | 0 | 0 |
| 6  | 10000-00058 | Kit_Joint / Gasket  | 17      | 0        | 0      | 0       | 0      | 0     | 1        | 0              | 0      | 0     | 0  | 0       | 0          | 0 | 0 |
| 7  | 10000-00071 | Head Gasket         | 2       | 0        | 0      | 0       | 0      | 0     | 0        | 0              | 0      | 0     | 0  | 0       | 0          | 0 | 0 |
| 8  | 10000-00096 | Nozzle              | 11      | 0        | 0      | 0       | 0      | 0     | 0        | 0              | 0      | 0     | 0  | 0       | 0          | 0 | 0 |
| 9  | 10000-00097 | O- Ring             | 10      | 0        | 0      | 0       | 0      | 0     | 0        | 0              | 0      | 0     | 0  | 0       | 0          | 0 | 0 |
| 10 | 10000-00100 | Oil Pump            | 3       | 0        | 0      | 0       | 0      | 0     | 0        | 0              | 0      | 0     | 0  | 0       | 0          | 0 | 0 |
| 11 | 10000-00102 | Kit_Piston/Ring     | 3       | 0        | 0      | 0       | 0      | 0     | 0        | 0              | 0      | 0     | 0  | 0       | 0          | 0 | 0 |
| 12 | 10000-00103 | Piston Ring Kit     | 8       | 0        | 0      | 0       | 0      | 0     | 3        | 0              | 0      | 0     | 0  | 0       | 0          | 0 | 0 |
| 13 | 10000-00105 | Joint               | 16      | 0        | 0      | 0       | 0      | 0     | 0        | 0              | 0      | 0     | 0  | 0       | 0          | 0 | 0 |
| 14 | 10000-00108 | Rockshaft Assy.     | 3       | 0        | 0      | 0       | 0      | 0     | 0        | 0              | 0      | 0     | 0  | 0       | 0          | 0 | 0 |
| 15 | 10000-00116 | Kit_Joint / Gasket  | 5       | 0        | 0      | 0       | 0      | 0     | 2        | 0              | 0      | 0     | 0  | 0       | 0          | 0 | 0 |
| 16 | 10000-00251 | Controller          | 5       | 0        | 0      | 0       | 0      | 0     | 0        | 0              | 0      | 0     | 0  | 0       | 0          | 0 | 0 |
| 17 | 10000-00252 | Installation Kit    | 5       | 0        | 0      | 0       | 0      | 0     | 0        | 0              | 0      | 0     | 0  | 0       | 0          | 0 | 0 |

7/1/2013 To 6/30/2014 Database:EPGL hasin.cnb Head Office F.G Wilson Spares Software 5:08 PM

## **5. Preparing foreign & local requisition and submitting to SCM dept through e-approval as well as doing follow-up for emergency spares support**

When I found that any spare parts is going to be sold by next 1 month and so I immediate place the requisition to SCM through e-approval process and follow the issue continuously via e mail to the concern department. The process is as below:





## 7. Checking the spare parts with the help of parts searching software

As I am engineer its my responsibility is to check all the spare parts related to all the ranges of generators into the most advanced and reliable software called compass. Through this software I can search all the parts along with detailed information and picture which help me to get as idea about the parts and give me a clue about what will be its approximate price in local market.

The screenshot displays the FGWilson Compass v2008B software interface. The left pane shows a hierarchical tree of parts under the heading 'FGBF1393 PERKINS ENGINE'. The selected item is 'PPL033989 - Cylinder Block, Liners & Main Bearing Kit'. The right pane shows a technical drawing of the cylinder block assembly with numbered callouts (1-8) and a detailed view of a piston and ring assembly. Below the drawing is a table with the following data:

| Item | Parts No. | Qty. | Description             | Cut Out | Cut In |
|------|-----------|------|-------------------------|---------|--------|
| 1    | 936-063   | 1    | CYLINDER BLOCK ASSEMBLY |         |        |

The bottom status bar shows the date '2013-09-19', the time '17:12:55', and the page number 'Page 1 from 1'. The system tray at the bottom right shows the time '5:12 PM'.

## Chapter 4

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### 5.1 RECOMMENDATION

After going through the above project work over EPGL we found, Energypac is currently one the market leaders in power generation & distribution sector. But considering Bangladeshi consumers, we would like to draw their attention over some of the following facts.

→EPGL is the market leader in power generation sector for both government and public in Bangladesh. But it still far away for EPGL to go beyond the boundary of the country and put its steps in the global market. EPGL can easily catch this enormous market by using its resources and making a history for the country.

→ There is not specific job for my department whereas I have to do the job of sales, store, costing and specially SCM parallel at the same time.

→ As there are only 8 persons in my department and its really a tough job to support all the department from a single point and thus job efficiency decreases. It would be very helpful for us if our top management consider the situation and add more people to the department.

## Chapter 5

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### CONCLUSION

EPGL has been assisting clients to save energy & operate more cost effectively for years, implementing energy efficiency projects across its industrial & commercial customer base. With energy price rising, global warming & greenhouse gas emission issues requiring competent responses from the government & business Sectors, EPGL has increased its collaboration with Bangladesh government.

