

EMGT 835 FIELD PROJECT:
*Business Plan for a New Engineering Consulting Firm in
the Electrical Utility Market*

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EXECUTIVE SUMMARY

Author's note: The set forth business plan presented was developed as a hypothetical start-up firm. Despite being a hypothetical business plan, the data and facts are accurate. Due to sensitive and confidential information, some companies' and persons' names and data have been altered.

The thought of starting a business crosses the mind of every engineer at some point in his/her career. Starting ones own business, specifically in the engineering field, is not an easy task. It requires a set of entrepreneurial skills, which not many engineers naturally possess. That is why it is essential to carefully create a business plan before starting a business. The goal of a business plan is setting up business goals along with the strategies needed to make the business goals successful, creating a business structure, forecasting issues that may arise and planning how to resolve them, and, ultimately, determining how much capital funding will be required to start-up the business.

The United States energy industry has been experiencing steady growth for more than ten years. Along with energy market regulatory agencies such as the Federal Energy Regulatory Commission (FERC) and Southwest Power Pool (SPP), electrical utilities must ensure that the electricity provided to customers is 1) reliable, and 2) cost-effective. Due to such regulations, utilities are required to maintain, upgrade, and build new infrastructure to support the current and future power grid.

It is in this growth state that start-up firm so called "GCS" plans to penetrate the energy market.

Objectives

The following are GCS main objectives for the business plan set forth:

1. Obtain a long term business loan for start up expenses and operations for the first six months of the business, and a short-term loan for the third year of operations.
2. Achieve break-even by fiscal year (FY) 2011.
3. Establish a general service agreement with at least one of the potential feasible clients within the first two years of operations.
4. Exceed the sales forecast for the first three years of operations.
5. Establish a strong relationship with clients and achieve a solid customer base.

Mission

GCS's mission is to provide better and more reliable power solutions to clients through strong, dependable, and quality engineering and project management consulting services for power substations and transmission lines.

Keys to Success

- Be indispensable to clients through comprehensive consulting service in the conceptual and detailed electrical and civil design of power substations and transmission lines.
- Keep on-going communication with clients through monthly status reports of current projects.
- Control cost through close monitoring of current projects. Keep invoicing and cash flow under control at all times.
- Follow up to clients and solicit their feed back on successful and unsuccessful proposals.
- Deliver projects under budget and ahead of schedule.

1.0 INTRODUCTION

The field project to be presented below is a detailed business plan for a new engineering consulting firm called GCS. GCS's business intent is to penetrate the growing energy industry in the electrical power substations and transmission lines markets. The area of operations for the firm will be in the states of Kansas and Missouri.

The services to be provided by GCS will be directed at electrical utility companies, which will include of planning, conceptual, detailed electrical and civil design, and project management. For the first three years of operations, GCS plans to provide engineering only services. GCS will consider the EPC (Engineering, Procurement, and Construction) services after the first three years of operations.

The electrical utility market is very fragmented with multiple players competing in the same region. Most of the current infrastructure in the United States is more than 60 years old, which continues to be "patched up" by upgrades and constant maintenance. Due to current state of the power grid in United States, some regulations, such as the Energy Policy Act of 2005 gave FERC (Federal Electrical Regulatory Commission) the responsibility to regulate transmission and power quality reliability, monitoring of energy markets, among others in order to enforce the sustainability of the current power grid. It is because of such regulations that electrical utilities must be able to maintain a reliable and cost effective power grid by maintaining, upgrading, and building new infrastructure. In the state of Kansas and Missouri alone, it is estimated that 1.4 billion dollar will be spent in the power grid during the years of 2009 and 2010.

2.0 DESCRIPTION OF THE BUSINESS

2.1 Ownership

When selecting the type of ownership for GCS, several factors were taken into consideration. The first factor was the level of liability. Since GCS business will be directed to the public and private sectors, there is a higher risk of lawsuits and claims against the firm. In addition, the size of the firm also played part in the decision process. Due to the small size of the business and its nature, it was decided to choose a limited liability company (LLC) as the type of ownership for GCS. The company will be owned and operated by a single owner.

Under a LLC, GCS's Owner(s), also known as member(s), will benefit from not only the tax advantages and management flexibility of a partnership, but also the liability protection of a corporation (16). Unlike a proprietorship (single Owner) or a partnership (multiple Owners) type of ownership, where Owner(s) have unlimited liability for all business debt (even including Owner(s) personal property), the LLC structure will make GCS's members liable to the amount of invested personal or funded capital into the business (15). This provides a great benefit against litigations, claims, and business debts that could arise as the business grows. Another benefit of the LLC type of ownership is the fact that the firm can choose the way it is taxed. GCS can choose paying taxes as a partnership or a corporation. As a partnership, GCS will benefit from the "pass-through taxation" principle. The pass-through taxation will enable GCS Owners to file the firm's profits and losses on their personal tax returns without the burden of separate tax on firm itself (16).

Furthermore, unlike a corporation type of ownership, as an LLC, GCS will have straightforward recordkeeping and paperwork: there is not a need to hold annual meetings or even have a board of directors, and payroll tax is non-existent.

2.2 Start-up Plan

Table 1 below is the total start-up funding for GCS. The start-up funding includes start-up expenses and cash required to purchase office furniture, computers, and miscellaneous office supplies for the business. The start-up funding will be financed via a business loan. In addition to this business loan, GCS's Owner will contribute up to \$15,000 towards the business adding the total funding to \$ 57,850.00.

The total required funding is conservative. It takes into account budgetary pricing for expenses to be incurred in the first six months of the business. Most of the expenses are paid only once, at the start of the business. Such expenses include: legal, website development, and rent deposit. Other expenses, such as, professional liability insurance, and plotter (printer) lease, are paid in advance and are usually semi-annually expenses. The remaining expenses indicated in Table 1 below are paid monthly and are required to keep the business operational.

Furthermore, the total required funding of \$ 57,850.00 for the start-up of the business is being requested in order to GCS has a *guaranteed* positive cash flow at the beginning of the business and be able to sustain such positive cash flow for the first six months of the business despite the projected sales forecast.

Table 1: Start-up Funding

Start-up Expenses	
Legal	\$ 1,000.00
Professional Liability Insurance	\$ 3,750.00
Website Development	\$ 500.00
Rent Deposit	\$ 1,000.00
Advertising	\$ 600.00
Insurance general	\$ 600.00
Operating and office supplies and services	\$ 3,000.00
Postage and freight	\$ 2,400.00
Office rental	\$ 6,000.00
Communications (Telephone + Internet)	\$ 900.00
Utilities	\$ 1,500.00
Proposal materials and expenses	\$ 5,000.00
Plotter Lease	\$ 600.00
Total Start-up Expenses	\$ 26,850.00
Start-up Assets	
Cash Required	
Office Furniture	\$ 3,000.00
Office Computers and software	\$ 8,000.00
Office General Expenses	\$ 5,000.00
Other Current Assets	\$ -
Long-term Assets	\$ -
Total Assets	\$ 16,000.00
Owner's Personal Contribution	\$ 15,000.00
Total Required Funding	\$ 57,850.00

2.3 Facility and its Location

GCS will be located in the Johnson County area, Kansas. The exact business location will be determined in June 2009.

The Owner and operating officer plans to lease 600 square foot business office where the daily business operations will take place.

2.4 Services Description

GCS will offer engineering consulting solutions to electrical utilities and consulting firms across the state of Kansas and Missouri. The services will be divided into the following:

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GCS Business Plan

- Planning

Substation and Transmission Line conceptual design, including: physical layout, feasibility studies, cost estimates, and schedules for “green” field sites and retrofit projects.

- Electrical Engineering Design

Detailed electrical design, including: electrical one-line diagrams, electrical layout, conduit and grounding layouts, control and protection design (AC and DC schematics design), relay setting, lightning protection calculations, battery sizing, grounding system design, bill of materials.

- Civil Engineering Design

Detailed civil design, including: physical layout, site grading, landscaping, foundation design, and steel structures.

- Project Management

Project management, including: schedule, bid document preparation, procurement specification preparation, review, and bid evaluation.

GCS is committed to meet client’s needs on small, medium, and large projects in virtually any substation and transmission line area of electrical utilities. GCS has extensive experience on medium voltage up to extra high-voltage (13.8kV to 500kV). For additional details, refer to Section 6: Management.

3.0 MARKETING

3.1 Market Segmentation

GCS services will be provided to the market segments listed below:

- Electrical Utilities: These are the main potential clients. GCS plans to provide engineering consulting solutions to the electrical utility client in the form of conceptual designs, cost estimates, and detailed electrical, structural, civil design, and project management.
- Engineering Consulting Firms: GCS is able to deliver cost effective solutions to substation and transmission line projects through the firm's creativity and innovative solutions. Due to low overhead cost structure, GCS can provide a subcontract services to virtually any engineering consulting firm.

3.2 Target Market Segment Strategy

The target market segment strategy will be directed in the state level (Kansas and Missouri) electrical utility and engineering consulting firm markets. The electrical utility market includes generating, transmission, and distribution utility companies. The engineering-consulting firms include medium to large firms that have a high backlog of work, and are planning to subcontract a part it. Due to the current engineering consulting market, GCS does not plan to seek business from engineering-consulting firms until the after the third year of operations.

3.2.1 Market Needs and Potential Clients

In the electrical utility market, GCS has divided potential clients into two main categories: ultimate and feasible.

Ultimate Clients

The ultimate clients encompass all clients in the electric power generation, transmission, and distribution in Kansas/Missouri states. Such clients range from small to large utilities with a vast variety of needs. The ultimate clients were first chosen based on their client base and the amount of their mega-watt (MW) of generation owned and operated. The client base gives GCS a better understanding of how large the ultimate clients are. The larger the client base, the larger the infrastructure required for the electrical utilities to attend their customer base.

The electrical utility MW owned and operated is also an important factor. It indicates how much the ultimate clients have invested in their infrastructure. The more mega-watt an electrical utility owns, the more investment is required to maintain the infrastructure, and therefore, more need for consulting engineering.

Below is a list of the ultimate clients separated by three main categories:

1) Investor-Owner Utilities (IOUs). IOUs are operated by public corporations with stock traded publicly and owned by shareholders (1). The following are the potential IOU clients:

- Westar Energy Generation (2).
 - Customer base: 675, 000
 - MW of generation owned and operated: 6,500
- Kansas City Power & Light (KCP&L) (6)
 - Customer base: 820,000
 - MW of generation owned and operated: 6,000
- The Empire District Electric Company (7)
 - Customer base: 166,483
 - MW of generation owned and operated: 1,255

2) Municipal Utilities. Municipalities are customer-owned, not-for-profit, public power systems, operated by municipal governments (1).

- Kansas City Board of Public Utilities
 - Customer base: 69,000

3) Rural electric cooperatives (RECs). RECs are non-profit, member-owned electric utilities. Distribution cooperatives deliver electricity directly to consumers. Generation and transmission cooperatives (G&Ts) generate and transmit electricity to distribution co-ops (1).

- Kansas Electric Power Cooperative, Inc. (KEPCo), headquartered in Topeka, has a total of 19 distribution rural electric cooperative members.
- Sunflower Electric Power Corporation, based in Hays, KS has seven distribution rural electrical cooperative members.

Feasible Clients

Investor-Owner Utilities (IOU) and municipal utilities control their own power generation, transmission, and distribution throughout the state of Missouri and Kansas. Due to government regulations such as FERC, these utilities are required to maintain power reliability, and competitive rates. Furthermore, due also to FERC's regulations, and electric power markets such as Southwest Power Pool (SPP), Midwest (MISO), and Southeast, IOUs and municipal utilities are required to maintain, expand, and upgrade their current facilities and build new infrastructure in order to 1) keep up with power demand, and 2) provide reliable and accessible power to their end-user.

Based on the above, the GCS feasible clients include: Westar Energy, KCP&L, The Empire District Electric, and Kansas City Board of Public Utilities. These clients have medium to large customer bases, and most own and operate generation. This translates to hundreds of power substations, and thousands of miles of transmission lines to be maintained, expanded, and upgraded. Along with government and power

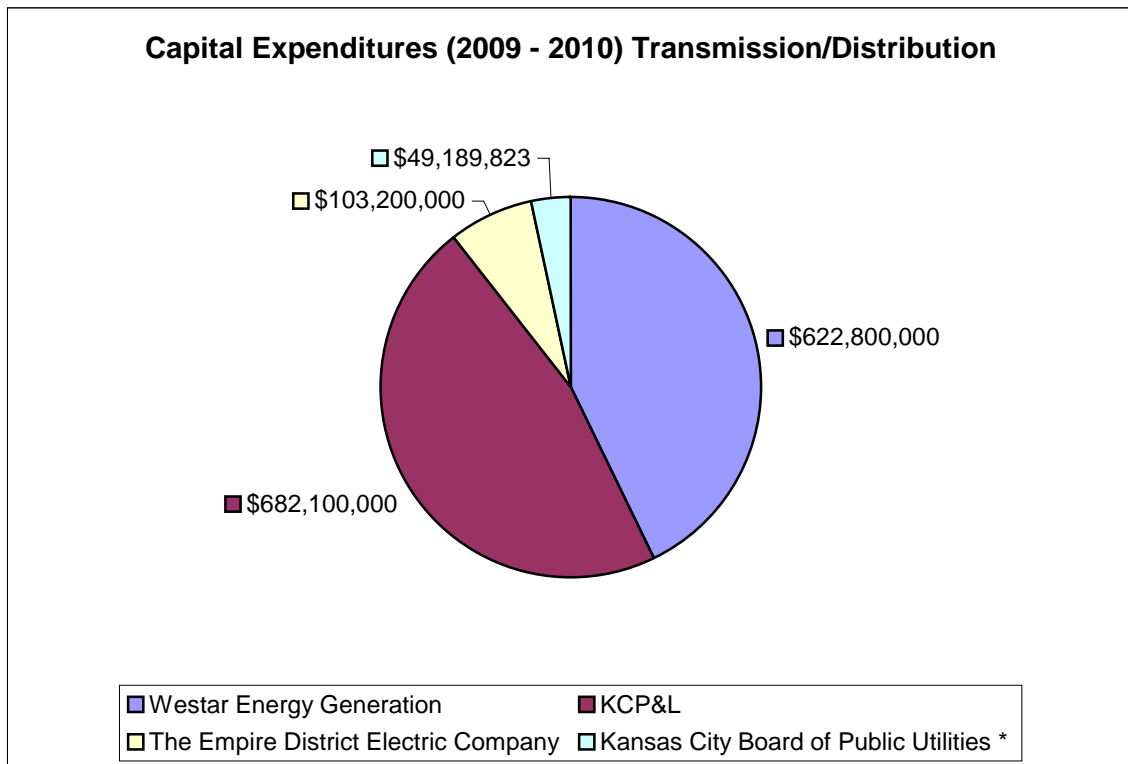
market regulations, GCS sees great potential for consulting business with the potential clients described above.

Feasible Clients - Capital Expenditures

Figure 1 below indicates the estimated capital expenditures from 2009 through 2010 for the electrical utilities that GCS will target as feasible clients. These clients usually have large budgets every year and must spend in order to comply with government regulations and customers needs. Despite the fact that these budgets may increase or decrease depending on available revenue, they provide an excellent indication that GCS will enter a well-financed market with large capital to be spent.

The capital expenditures indicated in Figure 1 indicate a combined budget for maintenance, expansion, upgrades, and new infrastructure for the depicted electrical utilities.

Figure 1



* The indicated capital expenditure for the Kansas City Board of Public Services is for 2009 only.

3.2.2 Market Trends

Electrical Utilities

The trends indicated below show that the electrical utility market is in a growth state. The energy industry along with the electrical utility market have to allocate capital to maintain, expand, upgrade, and build new infrastructure to meet power growth demand, and federal, state, and local regulatory commissions.

- Aging infrastructure. According Westar Strategic Report, “A substantial amount of our [United States] transmission system is 60 to 80 years old” (2).
- Renewable Energy. (5)
- More MW capacity due to increase in demand. (5)
- Retirement of experienced utility personnel.
- Regulatory Agencies
 - KCC – Kansas Corporation Commission (KCC). It regulates rates, service, and safety of electrical utilities. (1)
 - Federal Energy Regulatory Commission (FERC). “FERC has four main functions: (1) regulation the wholesale sales of electricity in interstate commerce, (2) licensing and inspecting hydroelectric projects, (3) regulation of transmission to ensure the reliability of the nation’s transmission system, and (4) oversight of environmental matters related to hydroelectricity projects and major electricity policy initiatives”. (1)
 - Southwest Power Pool (SPP). Mandated by FERC, SPP is responsible for reliable electricity, electricity (transmission lines) infrastructure, and competitive pricing. (1) “The SPP can direct Westar to build needed transmission projects to provide transmission service not only for Westar's native load customers but also for any transmission customer in the SPP region” (2).

- Codes and Standards
 - National Electric Code (NEC)
 - National Electric Safety Code (NESC)
 - IEEE
 - ANSI
 - NEMA

3.2.3 Market Growth

Electrical Utilities

According to the 2007 National American Industry Classification System (NAICS), electrical utilities in United States had a steep growth until 2007. It is expected that a “steady” growth will continue until 2012. By 2012, the electricity in United States will have a value of \$504.7 billion, which is an increase of 57.2% since 2007, with a “compound annual growth rate of the market in the period 2007-2012 is predicted to be 9.5%.”(5).

United States Electricity Market Value Forecast (Table 2)

Table 2 (5)

Year	Value (in Billion USD)	Growth (%)
2007	321	9.8
2008	365.4	13.8
2009	408.3	11.7
2010	438.4	7.4
2011	470.5	7.3
2012	507.7	7.3
CAGR (2007-2012)		9.5%

Despite the fact that Table 2 above represents a steady growth for the next four years, the data is based on a pre-recession projection. Depending how the U.S. economy recovers from the current recession, the numbers indicated in Table 2 could be less than projected. However, independent from economic factors, power demand will

most certainly continue to increase. And, as demand increases, the need to maintain, expand, and upgrade the power grid infrastructure will, unquestionably, be required.

4.0 STRATEGY AND SALES

4.1 Value Proposition

Value proposition, in simple terms, is defined as what the clients can get for their investment. The value proposition for GCS can be determined by asking the question: “What do the feasible clients value most?” Due to the nature of the electrical utility market, clients’ expectations vary widely, but ultimately, there are four basic areas that most clients look for value:

1. Increase system reliability in the market based on government mandates and customer demand.
2. Provide the best service available to their customers (end-users).
3. Increase the reputation in the market by minimizing power outages, especially in the summer months.
4. Grow the business by acquiring more customers and electric power trading.
5. Increase profitability, and therefore, shareholder’s wealth.

The above enables GCS to establish a value strategy by evaluating each value area above and determining how the firm can fulfill each area. In order to fulfill the clients’ value needs, GCS strategy will be summed up by the following statement:

“Better and more reliable power solutions”

Below is a list of statements that GCS builds on strategic statement from above:

“Clients rely on their systems to create value to their clients”.

“Value can only be created if clients’ customers are satisfied with the services they get”.

“Services can only bring value if clients can depend on them”.

Value proposition statement: *“Value for our clients is directly dependent on the quality of services they receive from us.”*

4.2 Competitive Edge

4.2.1 Evaluative Criteria

“The client’s evaluative criterion is the clue to their expectations. When asked, most clients can tell how they prioritized the criteria “on their last purchase” (4). Since GCS is a start-up firm, feasible clients evaluative criteria becomes a bit problematic. Why would a feasible client purchase GCS services without a “last purchase” as comparison? In order to undertake the “start-up” obstacle, GCS has defined three main areas that clients will evaluate the firm.

First: Price. Clients will see GCS prices being very competitive. GCS price structure will indicate that the clients are getting “more for less”.

Second: Quality. Some clients may be cautioned to the fact that GCS is a start-up firm, and quality is somewhat of an unknown area. Some clients may not opt to do business with GCS until some level of experience has been acquired through projects with other clients. Other clients may decide to only grant projects in a smaller scale in order to see how GCS services are being performed.

Third: Experience. Clients want better and reliable solutions to their needs. Despite the fact that GCS does not have the experience as a firm, GCS’s employees have worked in respected engineering consulting firms in the energy industry for several years.

4.2.2 Main Competitors

The electrical utility business is very fragmented. Clients have their own standards and procedures that must be adhered to by engineering consulting firms.

Clients seldom choose engineering consultants based on a database of possible providers. Instead, clients choose engineering consultants based on a combination of “word-of-mouth” recommendation, reputation, repeated business, and cost.

Below are the main competitors that GCS will encounter. These competitors were determined based on their past and current work in the market where GCS plans to penetrate. These competitors perform most engineering only projects, but they are also capable of performing engineering, procurement, and construction (EPC) projects.

- Company A

Company A will record its 12th successful year of operation in 2009. Company A is listed as the official engineering consultant by 10 electric cooperatives, and it is one of the preferred consulting firm for Kansas Electric Power Cooperative, Inc. Company A knows the cooperative business and clearly understands the client’s needs.

- Company B

Company B has KCP&L and Empire District Electric Company as main clients in their substation and power plant consulting engineering services (10). Located in south Kansas, Company B is an established employee-owned engineering firm with more than 35 years of experience in the electrical utility and industrial industry. Company B provides planning, design, procurement, construction, programming, and field services for projects related to the production and distribution of energy. (10)

- Company C

Company C is a privately held company located in central Kansas, specializing in electrical and control engineering. In the electrical engineering area, Company C provides substation and transmission line engineering through conceptual and detailed design, including protective relaying, power factor correction, substation lighting, grounding, and lightning protection designs. (11)

4.2.3 Competitive Advantage

Competitive Strategy

Since GCS will be a start-up company, one of the competitive strategies will be to provide “cheaper” or “cost effective” solutions. Such strategy was adopted because clients are increasingly concerned about cost of technical services with ever increasing cost of materials, equipment, and construction labor. Clients will look at GCS services as a way to “save money” for their consulting services needs. The “cheaper” competitive strategy is also a way to start building strong client relationships by winning small (under \$50,000) to medium (up to \$500,000) size projects and completing projects under budget and on schedule. Another competitive strategy will be “project flexibility”. The project flexibility principle is based on projects that potential clients, and many engineering-consulting firms, are less inclined to perform due their tiresome and less prominent nature. The flexibility approach will enable GCS to distinguish itself from other competitors by demonstrating to clients GCS’s positive attitude towards *all* their needs.

Competitive Advantage Analysis

Being a start-up consulting firm, GCS will offer unmatched services to our clients through reliability, responsiveness, competence, and empathy. GCS will be committed to provide services to clients through cost-effective solutions with upmost quality. GCS’ competitive advantages will be cost (“cheaper” or “cost effective”) and “project flexibility”. Due to smaller overhead and number of employees than the competition, GCS will be able to provide more cost-effective services to clients, and still provide excellent quality for services. In addition, due to the small number of employees and potential clients, GCS will be able to closely focus on a specific client’s needs and promptly attend to such needs. The flexibility that GCS brings to clients will be evident on the constant monitoring of engineering and management man-hours being spent, project schedule,

project budget, forecasting of activities, and being able to anticipate project scope changes and additions in advance.

4.3 Marketing Strategy

4.3.1 Positioning Statement

GCS provides competitive, cost-effective, and flexible engineering and project management services for the electrical utility industry.

4.3.2 Pricing Strategy

Despite the fact that GCS will start as a single employed owned consulting firm, the pricing strategy had to be determined using a hypothetical future growth of employees. During the first year of operations, the overhead costs are very low, but they are projected to grow with the development of operations. The hypothetical scenario is based on operating the firm with three employees along with direct personnel and general administration burdens. Refer to Appendix A for details.

For GCS services, the billable rate will be set on hourly bases. The billable rate, or fee, will be set at \$60.00 for engineering services and \$90.00 for project management services. The billable rates were determined using budgetary pricing for direct personnel expenses and general overhead and administrative expenses in order to determine the total expected overhead cost. The overhead cost is conservative and is based on the assumption of employing three professionals. Furthermore, the direct labor multiplier listed in Appendix A indicates the direct labor cost (salary) for the three estimated employees working at GCS. The salaries are compatible to industry averages for entry and mid-level engineers.

4.3.3 Promotion Strategy

In the next two years, GCS plans on attracting new clients based on the following promotion strategies:

1) Site visits called “Lunch-and-Learns”: GCS plans to set appointments with feasible clients and explain how GCS can help the client’s business, and how clients can be successful with GCS services.

2) “Cold” calls: Based on the Owner’s past clients’ contacts, “cold” calls will be a way to introduce the firm to potential clients.

3) Become a member of Kansas City, Topeka, and Overland Park Chamber of Commerce. The chambers of commerce offer excellent opportunities for GCS to interact face to face with feasible clients.

4) Internet website: GCS plans to open an Internet website in order to describe its services and competencies. The Internet website will include GCS’s mission, vision, core values, experience, and contact information for the consulting services. The Internet website will serve as a marketing tool where ultimate and feasible clients can find out about the firm’s capabilities. In the long term, the website will serve as a marketing tool by indicating past projects or “success stories”.

4.4 Sales Strategy

As a start-up firm, GCS will market its engineering consulting services to Westar Energy Generation, KCP&L, The Empire District Electrical Company, and Kansas City Board of Public Utilities. Based on the estimated capital expenditures for these utilities through 2010, the market is strong and growing with great of opportunities for GCS. The first year for GCS will, nevertheless, be challenging. Despite the fact that the market is strong, GCS will not have acquired the business relationship clientele needed to be

successful. Therefore, the 2009 mid-year sales forecast is conservative, modest, but very optimistic.

Since GCS will not have the business clientele yet, and the trust in the consulting engineering field, the relationship sales model below indicates how GCS plans to establish the strong relationships with potential feasible clients.

Relationship Sales Model

1. Awareness: GCS will implement the promotion strategy for at least two years of the business.
2. Identity: In order for clients to identify GCS's brand of "better and more reliable power solutions", GCS must finish every project under budget and ahead of schedule.
3. Relationship: By completing the first projects under budget and ahead of schedule, GCS will begin to establish a relationship with clients. Such relationship will eventually lead to repeated business.
4. Community: Clients often interact with other clients on current business practices and successes. By building an early relationship with potential clients, GCS will establish new relationships with other clients.
5. Advocacy: Clients often make referral to other clients about firms/products that succeed. By successfully establishing the GCS brand, trust and strong relationships become vital for clients.

The proposed relationship sales model above indicates how GCS will plan to make feasible clients into advocate clients. The future relationships will depend how effectively GCS manages the relationship sales model and how feasible clients sympathize with the model.

4.4.1 Sales Forecast

The sales forecast below is based on a small portion of the capital expenditures indicated on the 2009-2010 capital expenditure forecast for feasible clients. It is important to note that the capital expenditures shown in Figure 1 of the marketing plan section indicates the ultimate capital, which feasible clients are planning to spend. The indicated capital expenditure includes costs of maintenance of existing facilities, engineering services, EPC contracts, procurement of materials, and construction costs. The sales forecast for GCS is based on a forecasted firm's workload and the firm's ability to perform the projects well.

Service Life Cycle Analysis

The energy market in Kansas/Missouri along with the entire United States has a growing trend. This is evident based on Figure 1 under "Feasible Clients" section and Table 2 under the "Market Growth" section above. Such growth encompasses of three major areas: 1) energy demand, 2) system reliability based government regulations, such as FERC, requiring capital expenditures to upgrade the electrical utility system, and 3) aging infrastructure requiring capital expenditures.

The above points out the inevitable fact that engineering consulting services will be needed in order to design, procure, build new and repair existing utility infrastructure. Such engineering services along with the amount of capital expenditures are indicators that there is enough work that even all GCS's competitors cannot absorb entirely.

The forecast below indicates GCS sales forecast for the first three years of operations. The sales are conservative and are based on current and future projects mandated by FERC, SPP, and current capital expenditures estimates. The sales forecast further assumes that the market is in a growth state and no major changes in the utility market take place.

Figure 2: Sales Forecast

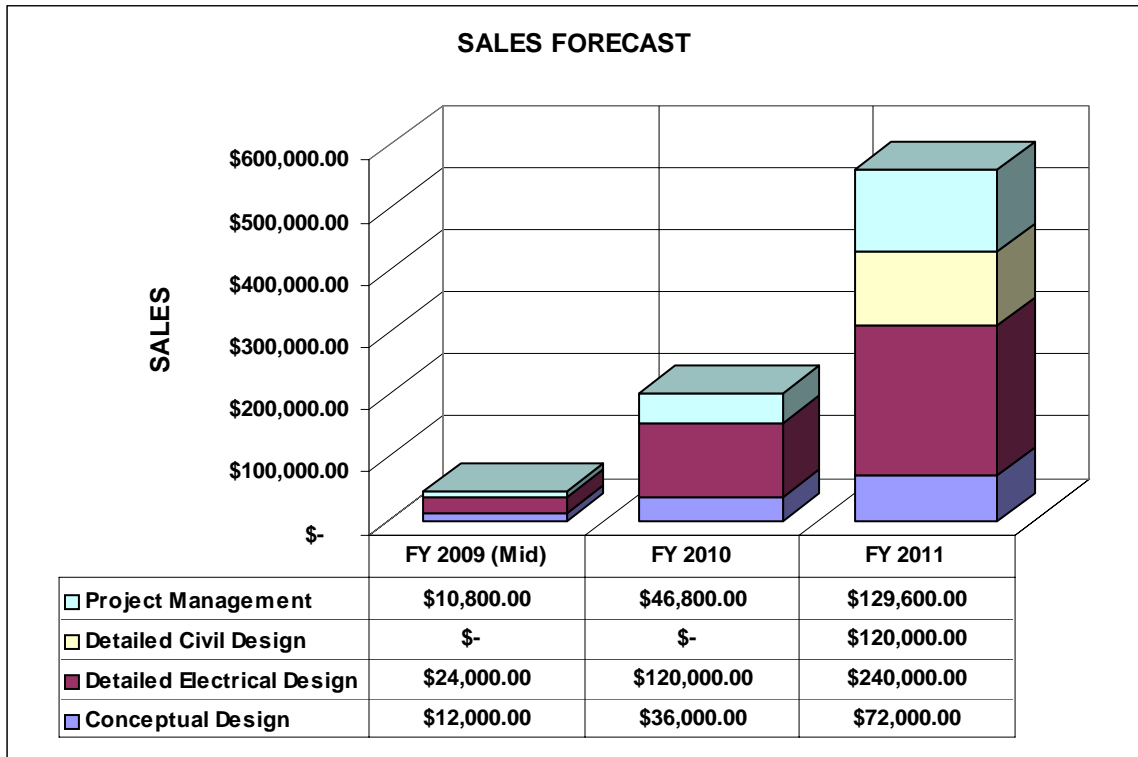


Table 3 below indicates the man-hours forecasted for Figure 2 above for FY 2009 (Mid Year), 2010, and 2011. The man-hours forecasted are based on the marketing strategy, expected capital expenditures for the feasible clients, and the quantity of work that GCS will be able to perform.

Table 3: Man-hours Forecast

Work Type	FY 2009 (Mid Year)			FY 2010			FY 2011		
	Hours	Rate	Total	Hours	Rate	Total	Hours	Rate	Total
Conceptual Design	200	\$60.00	\$12,000.00	600	\$60.00	\$36,000.00	1200	\$60.00	\$72,000.00
Detailed Electrical Design	400	\$60.00	\$24,000.00	2000	\$60.00	\$120,000.00	4000	\$60.00	\$240,000.00
Detailed Civil Design	0	\$60.00	\$0.00	0	\$60.00	\$0.00	2000	\$60.00	\$120,000.00
Project Management	120	\$90.00	\$10,800.00	520	\$90.00	\$46,800.00	1440	\$90.00	\$129,600.00
Total Sales	720		\$46,800.00	3120		\$202,800.00	8640		\$561,600.00

Furthermore, Figure 2 above indicates the total forecasted sales for the first three years of operations for GCS. The sales are divided into four main categories: Project

Management, Detailed Civil Design, Detailed Electrical Design, and Conceptual Design.

Since GCS is comprised of only one employee for the first six months of operations, the sales forecast for FY 2009 is relative small, and all forecasted work is based on 1) firm's Owner past client relationships, and 2) heavy marketing activities for the first three months of operations. In addition, the FY 2009 man-hours indicated in Table 3 above indicate the work to be performed by the firm's Owner for the first six months of operations. It is estimated that the work will be performed in a 40-hour workweek: 15-hours will be spent strictly on marketing and office operating management, and the remaining 25-hours will be spent on engineering and project management activities.

For FY 2010, GCS expects greater growth, especially in projects with high emphasis in detailed electrical design. Such a growth is due to several areas: 1) Capital Expenditures of Feasible Clients, 2) Firm's Owner past relationship with feasible clients, 3) GCS work load output from FY 2009, and 4) Successful bidding on projects. The forecasted workload for FY 2010 indicates approximate 3120 man-hours required to perform the work. Such man-hour forecast will require GCS to hire one additional employee in order to have enough staff to perform the projects. The employee will be an electrical engineer. Most of the engineer's responsibilities will be in the detailed electrical design so that the firm's Owner can focus on marketing activities, conceptual design, project management, and the daily office operations. The electrical engineer will be working a 40-hour week strictly in project design. The firm's Owner will spend 20-hours a week in marketing, conceptual design, and project management activities, and the remaining 20-hours a week in the project design activities.

For the FY 2011, GCS expects the workload to more than double the previous FY 2010. This is due to similar reasons forecasted for FY 2010: 1) Estimated capital expenditures from feasible clients, 2) GCS's Owner's past relationship with feasible

clients, 3) GCS work output in previous FY 2009-2010, and 4) Successful project bidding. There is also one more factor which adds to the FY 2011 sales forecast: *repeated business*. GCS expects at least 50% of the work forecasted for the FY 2011 to be repeated business acquired as a result of projects performed in previous FY 2009 and FY 2010.

Furthermore, as indicated in Figure 2 and Table 3 above, GCS expects one additional service to be added to the total sales mixture of services: civil engineering design. Due to the expected project mixture and complexity of projects for FY 2011, GCS expects civil engineering services to be added as one of the design deliverables to clients. The civil engineering services will be required in order to support conceptual and detailed electrical engineering design work for the year. Since civil engineering work will be added to GCS's services, GCS expects to hire one civil engineer to staff for the civil and structural activities for the FY 2011.

Therefore, FY 2011 workload will be divided as follows: The civil engineer will spend 40-hours a week on all civil engineering project designs, the electrical engineer will spend 10 hours a week coordinating design issues and project scope of work directly with clients, and 30 hours a week on electrical engineering project designs, and the Owner will spend 30-hours a week in marketing and project management activities, and 10-hours a week in the support of general project design activities.

5.0 FINANCES

5.1 Assumptions

The assumptions listed below are conservative, and are based on best estimates of how potential clients will behave and where the market is heading.

Key Assumptions:

- The market is still growing, and growth is expected for the next two years.
- Clients will pay on time.
- Fixed costs will not increase more than 5% per year.
- The firm will win approximately 50% of all bided projects.
- Competitors will not capture additional market share within the first two years of operations.

Again, the assumptions above are conservative and established in order to conduct the financial analysis for the firm for the first three years of operations. Nevertheless, it is important to note that two assumptions above are critical to the firm's success. The first is fixed costs increase limit to 5% per year. The projected fixed costs for the firm translate to approximately 52% of the total firm's overhead cost. If the fixed costs for the firm were to increase by more than 5% a year, the firm would be faced with two options: raise project fees charged to clients or decrease profit margin. The second critical assumption is the firm's expected 50% or more success on bided projects. If the firm would not be able to win 50% or more of all bided projects, sales revenue would be drop, and the firm would be required to either cut staff, or decrease the employees' compensation.

5.2 Break-even Analysis

Figure 3 below is the break-even analysis for the GCS. Refer to Appendix B for additional details. The break-even analysis is based on three factors: 1) total expected revenue, 2) total expected fixed cost, and 3) total expected cost for the first three years of operations. Furthermore, the main purpose of the break-even analysis is to project how long it will take for the firm to offset its expenses against its revenue. Once the firm successfully offsets its expenses against its revenue, the firm has reached the “break-even point”. In Figure 3 below, the break-even point for GCS is indicated by the intersection between the total revenue curve and total cost curve. Any generated revenue beyond the break-even point is considered to be *profit*. The break-even analysis was also used to aid GCS in the projected start-up funding. For instance, if GCS’s break-even point is not reached until much later than expected, GCS must assure that the firm never runs out of *cash* before the break-even point is reached. If the firm runs out of cash before the break-even point is reached, it will no longer be able to operate.

For the break-even analysis illustrated in Figure 3, the total revenue was determined based on the total expected billable man-hours for the first three years of operations (12480 man-hours) *times* the selling price for the firm’s services. For simplicity purposes, the average selling price for the firm’s services was used in order to calculate the total estimated revenue. According to the firm’s pricing strategy, the selling price for services, or fee charged to clients will be \$60.00/hour for engineering services and \$90.00/hour for management services. Therefore, the average sales price becomes \$75.00/hour. The total estimated revenue is then calculated to be \$ 936,000.

Next, the total fixed costs were calculated. It is important to note that the total fixed costs are based on budgetary costs of insurance premiums, equipment, rent, utilities, etc. The total fixed costs include the start-up funding (Table 1 from Start-up Plan) and total fixed costs for FY 2009 (mid year), FY 2010, and FY 2011. Therefore, the

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total fixed costs sum up to \$ 341,650.00. Table 4 below indicates the total fixed cost break-down for the first for the first three years of operations.

Table 4: Fixed OH Costs

TOTAL FIXED COSTS			
Administration and indirect salaries	\$ -	\$ -	\$ 25,000.00
Operating and office supplies and services	\$ 3,000.00	\$ 12,000.00	\$ 12,000.00
Postage and freight	\$ 2,400.00	\$ 9,600.00	\$ 9,600.00
Office rental	\$ 6,000.00	\$ 12,000.00	\$ 12,000.00
Communications (Telephone + Internet)	\$ 900.00	\$ 1,800.00	\$ 1,800.00
Utilities	\$ 1,500.00	\$ 6,000.00	\$ 6,000.00
Maintenance and repairs	\$ 2,400.00	\$ 9,600.00	\$ 9,600.00
Insurance general	\$ 600.00	\$ 1,200.00	\$ 1,200.00
Advertising	\$ 600.00	\$ 1,200.00	\$ 1,200.00
Travel	\$ 2,000.00	\$ 8,000.00	\$ 8,000.00
Proposal materials and expenses	\$ 5,000.00	\$ 10,000.00	\$ 10,000.00
Entertainment	\$ 800.00	\$ 1,600.00	\$ 1,600.00
Incidental Cost	\$ -	\$ 2,500.00	\$ 5,000.00
Payroll Taxes (Assume 15%)	\$ 1,800.00	\$ 17,250.00	\$ 36,000.00
Finance Cost	\$ 8,200.00	\$ 16,400.00	\$ 32,300.00
Depreciation	\$ 2,300.00	\$ 2,300.00	\$ 2,300.00
Legal	\$ 1,000.00	\$ -	\$ -
Website Development	\$ 500.00	\$ -	\$ -
Rent Deposit	\$ 1,000.00	\$ -	\$ -
Plotter Lease	\$ 600.00	\$ -	\$ -
Office Furniture	\$ 3,000.00	\$ -	\$ -
Office Computers	\$ 8,000.00	\$ -	\$ -
Office General Expenses	\$ 5,000.00	\$ -	\$ -
Subtotal	\$ 56,600.00	\$ 111,450.00	\$ 173,600.00
TOTAL \$ 341,650.00			

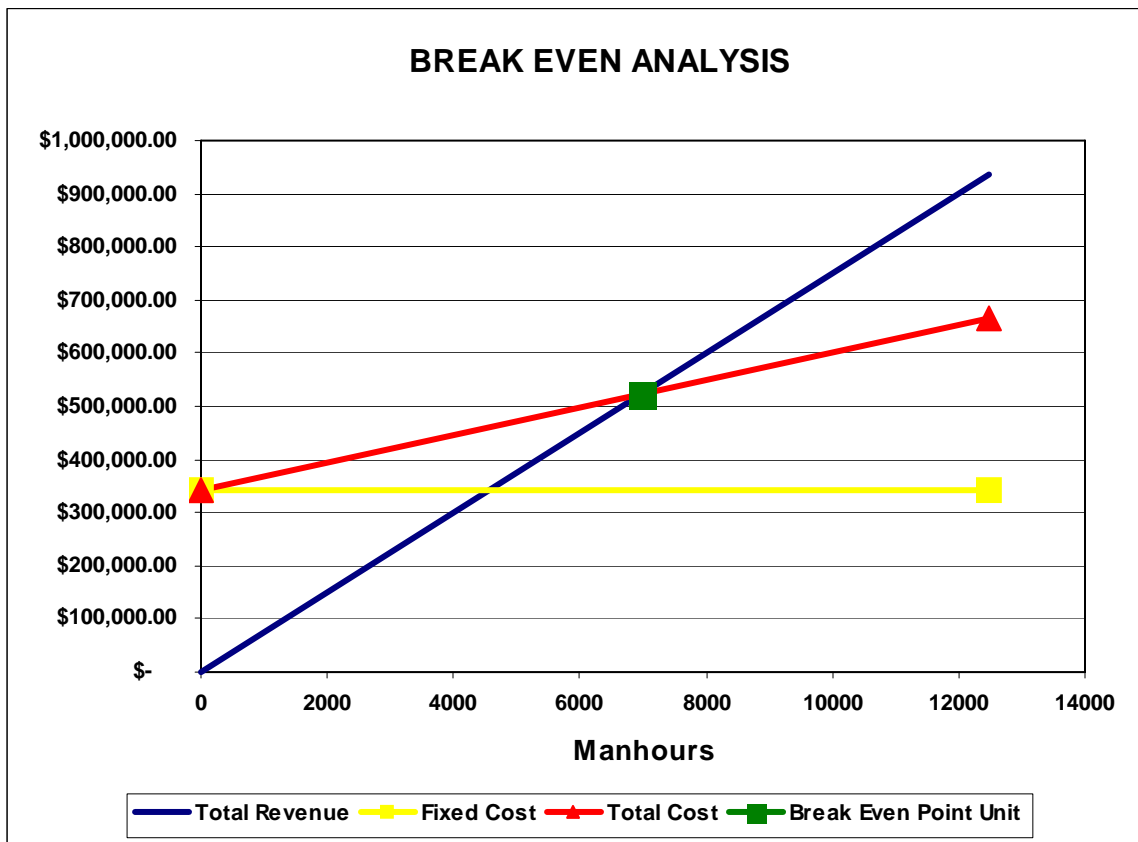
Once the total revenue and fixed costs are determined, the final step on the break-even analysis is to determine the total costs for the firm. The total costs for the firm are the sum of the total fixed costs and total variable costs (17). The total variable cost is defined as the product of the expected unit sales (in man-hours) and the variable unit cost per unit (in dollars). The expected unit sales is determined directly from Table 3: Man-Hours Forecast, which totals 12,480 man-hours. The variable cost per unit is calculated using 1) average direct labor salary cost *times* the variable cost multiplier ($1 + \text{direct personnel burden of } 25.5\% \text{ of the direct labor}$). Refer to Appendix A for additional

details. Therefore, the total variable cost per unit is approximately equals to \$ 26.04. Thus, the total variable cost for GCS is equal to \$ 325,030.77. Subsequently, the total costs are equal to \$ 666,680.77 (\$341,650.00 + \$ 325,030.77).

Refer to Appendix B for complete calculation.

Figure 3 below indicates the break-even analysis in graphical form.

Figure 3: Break Even Analysis



The breakeven point unit for GCS is \$ 523,405.08, or 6,979 billable man-hours. It is expected that GCS will reach the break-even point in the third quarter of 2011. Due to the conservatism in the total fixed costs and total variable costs, there is good probability that GCS will reach the break-even point sooner.

5.3 Projected Income Statement (Profit and Loss Statement)

Appendix C shows the projected income statement for the firm for the first three years of operations. The income statement reflects the performance during the three years of operations (15). For the FY 2009 (half year), the firm's net sales are low and total operating costs are high. In addition, there are start-up costs totaling \$ 42,850.00, which add to the total operating costs. Therefore, the total net profit is projected to be negative \$ 31,500.00.

For FY 2010, despite expected sales revenue be higher than FY 2009 (mid year), the income statement indicates negative net income totaling \$ 29,400.00. This is not alarming and it is due to several factors. The first factor is that there is a staff increase expected during this year. The staff increase is needed in order to support the expected workload (projects) for the year. Without the additional staffing, the expected net sales would decrease. However, the additional staffing creates more burdens, such as: decreased gross profit and increased direct personnel expenses, which directly affects the net income. Despite the fact that FY 2010 is predicted to be negative, the net income/sales ratio (-14.5%) versus FY 2009 (-67.31%), indicating that the firm is steadily recovering from its start-up expenses, and the small expected sales revenue from the previous year.

For FY 2011, the net sales are positive totaling \$ 100,625.00. It is important to note that the high positive net income coincides with the expected break-even analysis indicated in Figure 3. It is also important to note that although more staff is added during this year along with higher burdens (gross profit is decreased and the direct personnel expenses are increased), the business has a projected profitable year.

5.4 Projected Cash Flow

Refer to Appendix D for Cash Flow Statement. The cash flow statement represents the cash projection (inflow and outflow) for GCS for the first three years of operations. For FY 2009, firm's cash flow is \$28,650.00. This is only due to two factors: 1) Loan proceeds (business loan) and 2) Owner contribution of \$15,000. Based on the fact that the firm is a start-up business, it is critical that a positive cash flow is established at the start of operations. Despite a conservative estimated sales forecast, it is realistic to expect that the total cash sales for the first year of operations (\$ 46,800.00) could vary; therefore, jeopardizing the cash flow for the first six months of operations. It is also important to note that since FY 2009, the firm has estimated a long term loan (loan proceeds) re-payment of \$ 8,200.00 every six months. The loan re-payment is estimated based on an interest of 9.0% (prime rate at 3.25% as of April 1, 2009), which is typical for higher risk loans, such as a start-up firm. Such loan repayment was added to the cash flow as a long term expense.

For FY 2010, the firm's cash flow is positive totaling \$ 16,550.00. Despite a much higher estimated net income than the previous year, GCS expects the positive cash flow to shrink as the year progresses. This is due to current and future expense obligations that require cash. Without some positive cash into the business by the end of FY 2010, the cash flow for the beginning of FY 2011 is expected to be negative. Therefore, in order to support the firm's operational expenses for the FY 2011, a short-term loan is expected to be taken during the third quarter for FY 2010. The total loan proceeds totals \$ 15,000.00. The short term loan will enable GCS to start the FY 2011 with a positive cash flow. The short-term loan is scheduled to be paid within the first six months of FY 2011 at an estimated interest rate of 6%.

For FY 2011, the cash flow is expected to be positive totaling \$ 119,475.00. Similar to the income statement, the positive cash flow supports the expected break-even analysis indicated in Figure 3.

5.5 Projected Balance Sheet

Refer to Appendix E for Balance Sheet Statement. The balance sheet for the firm represents a “snapshot” of the financial situation on the last day of each fiscal year (15). It is important to note that accounts payable and accounts receivable are set up based on net 30 payment terms, and all pre-paid expenses are paid at the beginning of each fiscal year. Such expenses include professional liability insurance and worker’s compensation. Moreover, the fixed assets for the firm have a straight-line depreciation method, which is simple and widely used by many consulting firms (15).

Lastly, the net worth for the firm, also called Owner’s equity, has a growing trend for all fiscal years. This indicates that the firm’s operations are expanding, which requires more investment into the business.

6.0 MANAGEMENT

6.1 Management Team

GCS will initially have one employee who is also acting as the Owner and operating manager. The Owner will be responsible for all marketing, selling, operations, and principal electrical designer. Once a stable project workflow is established, the Owner plans to hire an electrical lead designer, drafter, and a civil engineer.

The firm's Owner graduated from the University of XYZ with a Bachelor of Science in Electrical Engineering in 2002. He is currently pursuing a Masters of Science in Engineering Management from the University of Kansas with anticipated graduation in May 2009.

The Owner has worked as an Electrical Designer Engineer for five years and as a Project Engineer for two years in the T&D Division of a Global Energy Corporation. As an Electrical Design Engineer, his responsibilities included electrical design for power generation, transmission and distribution substation projects consisting of conceptual, electrical equipment sizing and arrangement, rigid bus, lightning protection, grounding and raceway, control and protection (AC and DC schematics, wiring, panel layout, relay settings, etc.) and lighting for 20+ projects across seven electrical power utilities throughout United States. Substation projects range from medium voltage (13.8kV) to EHV (500kV).

As a project engineer, the Owner was responsible for cost estimates up to \$15M, project schedule and budget, procurement of electrical equipment, including equipment technical specifications, construction sub-contracts (union and non-union labor), bid-evaluation, outage coordination and schedule, and assisting Clients with permitting needs. The Owner has also been responsible for overall project design quality control and design coordination among drafters, civil and electrical engineers.

The Owner is a registered Professional Engineer in the state of Kansas, and he is currently pursuing a professional engineer license in the state of Missouri.

6.2 Management Team Gaps and Personnel Plan

GCS will be soliciting and marketing design-only engineering projects with non-civil design element for FY 2009 and FY 2010. This is because GCS does not yet have the required staff to take on projects with civil engineering design. Until the workload increases significantly (expected FY 2011), GCS will focus on design-only work strictly related to electrical physical and controls design.

According to the sales forecast in Figure 2, the estimated man-hours amount requires GCS to hire additional staff in order to meet the expected workload. Below is GCS's personnel plan for the first three years of operating the firm.

In addition to the Table 5 below, GCS plans to hire an administrative assistance in the beginning of FY 2010 in order to facilitate contract administration, and the daily office needs.

Table 5: Personnel Plan (13)

	FY 2009 (Mid Year)	FY 2010	FY 2011
Owner and General Manager	\$ 12,000.00	\$ 60,000.00	\$ 90,000.00
Project Engineer/Electrical Lead	\$ -	\$ 55,000.00	\$ 60,000.00
Electrical Engineer	\$ -	\$ -	\$ -
Civil Engineer	\$ -	\$ -	\$ 55,000.00
Drafter	\$ -	\$ -	\$ 35,000.00
Total Payroll Expenses	\$ 12,000.00	\$ 115,000.00	\$ 240,000.00

7.0 SUMMARY OF CONCLUSIONS

Starting a business, especially in engineering consulting is a challenging endeavor. In today's economic uncertainty, new ventures seem to be unwelcomed in many markets. However, it is critical to recognize that the energy industry, specifically in the transmission and distribution markets is thriving. In today's power market, "buzz" words such as sustainability, echoes the need for more power infrastructure.

The business plan for GCS demonstrates a strong power market, which is expected to grow for many years to come. The marketing strategy indicated in the business plan demonstrates that GCS is able to effectively penetrate the current market with two important competitive edges: "cost-effectiveness" and "flexibility". For the first six month of operations, business is expected to be difficult. Sales will be low and expenses will be high, which is typical for start-up firms. For the second year, business is expected to improve, as sales forecast are expected to be higher than the previous year. For the third year of operations, the projected net income and cash flow indicate that the business will break even, and profits are projected by the end of the year.

Nevertheless, it is essential to realize that capital funding is a great obstacle for start-up firms. Banks and other financial institutions are less inclined to write a business loan for firms that have virtually no *actual* assets, which is the case of GCS. Another obstacle for start-up firms, such as GCS, is to accurately estimate the total start-up costs. If start-up costs are estimated too high, the probability that a bank will finance the business loan reduces. If the start-up costs are estimated too low, the firm may run out of money, which will force the firm to either obtain a second loan, or close the business.

Moreover, the break-even analysis for a start-up firm is an *estimated* projection with several assumptions embedded into the numbers. Such assumptions must be taken into consideration in order for the business to make a profit. Even if the break-even

analysis is successfully achieved, start-up firms usually have to spend a lot of cash in the first years of operations; thus, Owners should not be expecting the “stars” in the beginning.

As a final note, it is important to mention that accounting practices and financial statements are a cumbersome and tricky practice difficult to master at the beginning of operations, as it is common for owners and operating managers to become too busy focusing on clients rather than the firm’s bookkeeping. Therefore, it is strongly recommended that an accountant be hired to administer the firm’s financial statements and general bookkeeping tasks in order to keep the business on the right track.

8.0 SUGGESTIONS FOR ADDITIONAL WORK

Future work for this business plans includes a more detailed analysis how the firm can remain sustainable into the electrical utility market if the assumptions and sales forecast presented turn out differently. For instance, if sales forecast were not met, what actions would the firm take? Most definitely, a different marketing strategy would need to be developed to mitigate a diminished sales forecast that could impair the business from going forward.

Another area that should be investigated is in the renewable energy industry. In the coming years, renewable energy appears to be heading into a multi-billion dollar industry with remarkable growth. A start-up firm with employees with background in renewable energy projects could create an unmatched competitive advantage against its competitors.

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10.0 APPENDICES

APPENDIX A: Fee Determination

ANNUAL OVERHEAD SUMMARY	
Direct Personnel Expenses	
Number of direct labor employees	3
	Average Cost Per Employee
Vacation (10 days a year)	\$ 2,884.62
Holiday (7 days a year)	\$ 2,019.23
Sick Leave (5 days a year)	\$ 1,442.31
Incentive pay	\$ -
Payroll Taxes	\$ -
Sub-Subtotal (average of 3 employees)	\$ 19,038.46
Professional Liability Insurance	\$ 7,500.00
Workmen's compensation	\$ 12,000.00
Medical Insurance	\$ 15,000.00
Sub-Subtotal	\$ 34,500.00
Subtotal	\$ 53,538.46
General OH & Admin. Expenses	
Administration and indirect salaries	\$ 25,000.00
Consulting fees	\$ -
Operating and office supplies and services	\$ 12,000.00
Postage and freight	\$ 9,600.00
Office rental	\$ 12,000.00
Communications (Telephone + Internet)	\$ 1,800.00
Utilities	\$ 6,000.00
Maintenance and repairs	\$ 9,600.00
Insurance general	\$ 1,200.00
Advertising	\$ 1,200.00
Travel	\$ 8,000.00
Proposal materials and expenses	\$ 10,000.00
Entertainment	\$ 1,600.00
Business Taxes and licenses	\$ -
Interest	\$ -
Incidental Cost	\$ 10,000.00
Subtotal	\$ 108,000.00
Total Overhead	\$ 161,538.46
DIRECT LABOR MULTIPLIER	
Estimated Total Billable Direct Labor (DL) per year	

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Management Salary	\$ 90,000.00	\$ 43.27 per hour
Engineering Salary		
Electrical Engineer	\$ 60,000.00	\$ 28.85 per hour
Civil Engineer	\$ 60,000.00	\$ 28.85 per hour
Subtotal	\$ 210,000.00	
OH Cost		
		<u>% of DL</u>
Direct Personnel Expenses	\$ 53,538.46	25.49%
General OH & Admin. Expenses	\$ 108,000.00	51.43%
Subtotal	\$ 161,538.46	76.92%
Multiplier = OH Cost / Total Billable DL		= 1.77
DIRECT LABOR MULTIPLIER		
Management Hourly Fee + 15% Profit	\$ 88.04	= \$ 90.00 per hour
Engineering Hourly Fee + 15% Profit	\$ 58.69	= \$ 60.00 per hour

APPENDIX B: Break Even Analysis Calculation

BREAK-EVEN CALCULATION			
Expected Unit Sales in Man-hours	12480		¹
Variable Costs per unit (in \$)	\$	26.04	²
Selling Price Per Unit (in MH)	\$	75.00	³
Fixed Costs (OH Costs in \$) including start-up cost for FY 2009, FY 2010, and FY 2011	\$	341,650.00	
Break Even Point Unit		6,978.7	
Break Even Point	\$	523,405.08	
Total Variable Cost	\$	325,030.77	
Total of All Costs	\$	666,680.77	
Total Revenue	\$	936,000.00	
Profit	\$	269,319.23	
¹ Expected Unit Sales for mid-2009 and 2010			
² Variable Costs per unit (in \$) Calculation			
Average Salaries (DL)	\$	20.75	
Direct Personnel Expenses	25.49%		of DL
Variable Cost Multiplier = 1 + 0.2549			
Variable Cost = Variable Cost Multiplier x Average DL			
Variable Cost per unit	=	\$	26.04
³ Selling price is the average salary cost			

APPENDIX C: Projected Income Statement (Profit and Loss Statement)

PROJECTED INCOME STATEMENT			
	FY 2009 (mid)	FY 2010	FY 2011
Sales Revenue			
Engineering	\$ 36,000.00	\$ 156,000.00	\$ 432,000.00
Management	\$ 10,800.00	\$ 46,800.00	\$ 129,600.00
Total Sales Revenue	\$ 46,800.00	\$ 202,800.00	\$ 561,600.00
Cost of Sales			
Wages	\$ 10,200.00	\$ 97,750.00	\$ 204,000.00
Total Cost of Sales	\$ 10,200.00	\$ 97,750.00	\$ 204,000.00
Gross Profit	\$ 36,600.00	\$ 105,050.00	\$ 357,600.00
Operating Expenses (excluding depreciation and amortization)			
Direct Personnel Expenses			
Professional Liability Insurance	\$ 2,500.00	\$ 5,000.00	\$ 8,750.00
Workmen's compensation	\$ 4,000.00	\$ 8,000.00	\$ 14,000.00
Medical Insurance	\$ 5,000.00	\$ 10,000.00	\$ 17,500.00
Subtotal	\$ 11,500.00	\$ 23,000.00	\$ 40,250.00
General Administration Expenses			
Administration and indirect salaries	\$ -	\$ -	\$ 25,000.00
Operating and office supplies and services	\$ 3,000.00	\$ 12,000.00	\$ 12,000.00
Postage and freight	\$ 2,400.00	\$ 9,600.00	\$ 9,600.00
Office rental	\$ 6,000.00	\$ 12,000.00	\$ 12,000.00
Communications (Telephone + Internet)	\$ 900.00	\$ 1,800.00	\$ 1,800.00
Utilities	\$ 1,500.00	\$ 6,000.00	\$ 6,000.00
Maintenance and repairs	\$ 2,400.00	\$ 9,600.00	\$ 9,600.00
Insurance general	\$ 600.00	\$ 1,200.00	\$ 1,200.00
Advertising	\$ 600.00	\$ 1,200.00	\$ 1,200.00
Travel	\$ 2,000.00	\$ 8,000.00	\$ 8,000.00
Proposal materials and expenses	\$ 5,000.00	\$ 10,000.00	\$ 10,000.00
Entertainment	\$ 800.00	\$ 1,600.00	\$ 1,600.00
Incidental Cost	\$ -	\$ 2,500.00	\$ 5,000.00
Payroll Taxes (Assume 15%)	\$ 1,800.00	\$ 17,250.00	\$ 36,000.00
Finance Cost	\$ 8,200.00	\$ 16,400.00	\$ 32,300.00
Depreciation	\$ 2,300.00	\$ 2,300.00	\$ 2,300.00
Legal	\$ 1,000.00	\$ -	\$ -
Website Development	\$ 500.00	\$ -	\$ -
Rent Deposit	\$ 1,000.00	\$ -	\$ -
Plotter Lease	\$ 600.00	\$ -	\$ -
Office Furniture	\$ 3,000.00	\$ -	\$ -
Office Computers	\$ 8,000.00	\$ -	\$ -

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Office General Expenses	\$ 5,000.00	\$ -	\$ -
Subtotal	\$ 56,600.00	\$ 111,450.00	\$ 173,600.00
Total Operating Expenses	\$ 68,100.00	\$ 134,450.00	\$ 213,850.00
Earnings Before Interest and Taxes	\$ (31,500.00)	\$ (29,400.00)	\$ 143,750.00
Taxes (Assume 30%)	\$ -	\$ -	\$ 43,125.00
Net Income	\$ (31,500.00)	\$ (29,400.00)	\$ 100,625.00
Net Income / Sales	-67.31%	-14.50%	17.92%

APPENDIX D: Projected Cash Flow Statement

PROJECTED CASH FLOW			
	FY 2009 (Mid)	FY 2010	FY 2011
Beginning Cash Balance	\$ -	\$ 28,650.00	\$ 16,550.00
Cash Inflow (Income)			
Cash sales	\$ 46,800.00	\$ 202,800.00	\$ 561,600.00
Long Term Loan proceeds	\$ 42,850.00	\$ -	\$ -
Short Term Loan proceeds	\$ -	\$ 15,000.00	\$ -
Owner contributions	\$ 15,000.00	\$ -	\$ -
Total Cash Inflow	\$ 104,650.00	\$ 217,800.00	\$ 561,600.00
Total cash available	\$ 104,650.00	\$ 246,450.00	\$ 578,150.00
Cash Outflow (Expenses)			
Wages	\$ 10,200.00	\$ 97,750.00	\$ 204,000.00
Payroll Taxes (Assume 15%)	\$ 1,800.00	\$ 17,250.00	\$ 36,000.00
Professional Liability Insurance	\$ 2,500.00	\$ 5,000.00	\$ 8,750.00
Workmen's compensation	\$ 4,000.00	\$ 8,000.00	\$ 14,000.00
Medical Insurance	\$ 5,000.00	\$ 10,000.00	\$ 17,500.00
Administration and indirect salaries	\$ -	\$ -	\$ 25,000.00
Operating and office supplies and services	\$ 3,000.00	\$ 12,000.00	\$ 12,000.00
Postage and freight	\$ 2,400.00	\$ 9,600.00	\$ 9,600.00
Office rental	\$ 6,000.00	\$ 12,000.00	\$ 12,000.00
Communications (Telephone + Internet)	\$ 900.00	\$ 1,800.00	\$ 1,800.00
Utilities	\$ 1,500.00	\$ 6,000.00	\$ 6,000.00
Maintenance and repairs	\$ 2,400.00	\$ 9,600.00	\$ 9,600.00
Insurance general	\$ 600.00	\$ 1,200.00	\$ 1,200.00
Advertising	\$ 600.00	\$ 1,200.00	\$ 1,200.00
Travel	\$ 2,000.00	\$ 8,000.00	\$ 8,000.00
Proposal materials and expenses	\$ 5,000.00	\$ 10,000.00	\$ 10,000.00
Entertainment	\$ 800.00	\$ 1,600.00	\$ 1,600.00
Incidental Cost	\$ -	\$ 2,500.00	\$ 5,000.00
Taxes	\$ -	\$ -	\$ 43,125.00
Legal	\$ 1,000.00	\$ -	\$ -
Website Development	\$ 500.00	\$ -	\$ -
Rent Deposit	\$ 1,000.00	\$ -	\$ -
Plotter Lease	\$ 600.00	\$ -	\$ -
Office Furniture	\$ 3,000.00	\$ -	\$ -
Office Computers	\$ 8,000.00	\$ -	\$ -
Office General Expenses	\$ 5,000.00	\$ -	\$ -
Subtotal	\$ 67,800.00	\$ 213,500.00	\$ 426,375.00
Long Term Loan payment (at 9% rate)	\$ 8,200.00	\$ 16,400.00	\$ 16,400.00

EMGT 835 Field Project
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Short Term Loan payment (at 6% rate)	\$	-	\$	-	\$	15,900.00
Subtotal	\$	8,200.00	\$	16,400.00	\$	32,300.00
Total Cash Outflow (Expenses)	\$	76,000.00	\$	229,900.00	\$	458,675.00
Cash Balance	\$	28,650.00	\$	16,550.00	\$	119,475.00

APPENDIX E: Projected Balance Sheet Statement

PROJECTED BALANCE SHEET				
	Start Balance	FY 2009 (Mid)	FY 2010	FY 2011
Current Assets				
Cash	\$ 57,850.00	\$ 28,650.00	\$ 16,550.00	\$ 119,475.00
Accounts Receivable	\$ -	\$ 7,800.00	\$ 16,900.00	\$ 46,800.00
Prepaid Expenses		\$ 6,500.00	\$ 13,000.00	\$ 22,750.00
Total Current Assets	\$ 57,850.00	\$ 42,950.00	\$ 46,450.00	\$ 189,025.00
Fixed Assets				
Equipment (computers and printers)	\$ -	\$ 13,000.00	\$ 10,400.00	\$ 5,200.00
Less Depreciation		\$ (2,600.00)	\$ (2,600.00)	\$ (2,600.00)
Total Equipment		\$ 10,400.00	\$ 7,800.00	\$ 2,600.00
Furniture	\$ -	\$ 3,000.00	\$ 1,500.00	\$ 750.00
Less Depreciation		\$ (300.00)	\$ (300.00)	\$ (300.00)
Total Furniture		\$ 2,700.00	\$ 1,200.00	\$ 450.00
Total Fixed Assets	\$ -	\$ 13,100.00	\$ 9,000.00	\$ 3,050.00
TOTAL ASSETS	\$ 57,850.00	\$ 56,050.00	\$ 55,450.00	\$ 192,075.00
Current Liabilities				
Accounts Payable	\$ -	\$ 9,966.67	\$ 8,683.33	\$ 12,925.00
Payroll Taxes Payable (Assume 15%)	\$ -	\$ 1,437.50	\$ 3,000.00	\$ 3,000.00
Accrued Wages Payable	\$ -	\$ 8,145.83	\$ 17,000.00	\$ 17,000.00
Short-Term Bank Loan Payable	\$ -	\$ -	\$ -	\$ -
Other	\$ 15,000.00	\$ -	\$ -	\$ -
Total Current Liabilities	\$ 15,000.00	\$ 19,550.00	\$ 28,683.33	\$ 32,925.00
Long-Term Liabilities				
Long-Term Notes Payable	\$ 42,850.00	\$ 35,327.00	\$ 20,281.00	\$ 5,235.00
Short-Term Notes Payable	\$ -	\$ -	\$ -	\$ 15,900.00
Total Liabilities	\$ 42,850.00	\$ 35,327.00	\$ 20,281.00	\$ 21,135.00
TOTAL LIABILITIES	\$ 57,850.00	\$ 54,877.00	\$ 48,964.33	\$ 54,060.00
NET WORTH	\$ -	\$ 1,173.00	\$ 6,485.67	\$ 138,015.00
TOTAL LIABILITIES AND EQUITY	\$ 57,850.00	\$ 56,050.00	\$ 55,450.00	\$ 192,075.00