



# Renewable Energy Toolkit for Youth

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## Contact:

AREED  
Energy House  
383 Franklin Street  
Bloomfield, NJ, 07003  
USA  
Tel: +1 973 680 9100  
Fax: +1 973 680 8066  
Email: [eco@energyhouse.com](mailto:eco@energyhouse.com)

Researched and Developed by AREED for the Youth Employment Summit  
Cover Design AREED & Youth Employment Summit

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## Foreword

There are a billion young adults – between the ages of 15 and 24 – in the world today. Eighty-five percent of them live in developing countries where there are few opportunities for productive work. The ILO estimates the global youth unemployment at approximately 66 million. Youth unemployment accounts for around 41 per cent of the globally unemployed 160 million people. Youth unemployment rates are alarmingly high in developing countries. Globally, youth unemployment rates are two to three times higher than adult unemployment rates. The global youth unemployment situation is worsening. Youth unemployment rose by 8 million between 1995 and 1999. The size of the youth population is expected to grow by 116 million, reaching almost 1.2 billion by 2010. Approximately two thirds of this expected increase in youth population is supposed to occur in developing countries.<sup>1</sup>

Millions of new jobs need to be created, and this challenge is likely to be particularly severe in the developing world. In most of these countries, the proportion of young people in the population is much higher than that of developed countries. Moreover, in these developing countries, the percentage of young people in the population is growing significantly. This threatens to exacerbate the already high rates of youth unemployment.

Youth unemployment is now recognized as a global problem and there are global efforts being made to solve it. The Alexandria Youth Employment Summit has launched a decade campaign so that an additional 500 million young adults, especially youth facing poverty, will have productive and sustainable livelihoods by the year 2012. One of the key activities needed to achieve this goal is to spread awareness among youth about the opportunities available to them and to assist them make the most of these opportunities. One such effort is the production of this toolkit, which has been especially designed for those youth that would like to start their own renewable energy enterprises.

Why renewable energy? This is because in addition to solving one global problem of youth unemployment, we also have to look at another, equally menacing global problem. This is the precarious state of the environment. Global warming, climate change, a depleting ozone layer and acid rain – all these threaten to cause irreversible damage to the planet and to all life forms – human, flora, and fauna. This damage is being exacerbated by human activities in the form of huge amounts of carbon dioxide being released into the atmosphere. Investing in renewable energy prevents the release of carbon dioxide into the atmosphere, thereby mitigating climate change. Thus by getting the youth involved in preserving the environment, we have addressed the problem of both youth unemployment and climate change. Youth involvement in the protection of the environment will allow sustainable development to occur.

This toolkit has a series of chapters, each of which serves as a building block towards the creation of a viable and attractive business plan. Drawing up a perfect business plan is crucial as it is the main thing that investors and lenders would be interested in looking at when deciding whether they want to fund the project or not. This toolkit is geared especially for youth as it addresses questions for people with little or no prior business experience.

One of the biggest barriers facing today's youth seeking employment in renewable energy, is the lack of information on the opportunities available and the high cost of technology exchange, which are inhibiting youth in taking advantage of opportunities available. The Youth Employment Summit is actively generating awareness among youth on the options available to them. This toolkit is one of the various means to spread information and awareness among youth on the development of renewable energy enterprises. In addition, other employment barriers faced by youth are mentioned.

Our goal is to ensure that this toolkit reaches as many people as possible and has been especially designed to serve a wide audience. Ultimately our goal is to help youth establish renewable energy enterprises in as many national settings as possible.

Yours Sincerely,



Poonam Ahluwalia  
Executive Director  
Youth Employment Summit

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<sup>1</sup> "Youth and Work: Global Trends": ILO Bureau of Labor Statistics

## Introduction to the Toolkit

If you're a young person wanting to start your own renewable energy business, this toolkit is a must for you. Questions like "How do I get started despite my lack of experience?" and "Where can I get funding?" and "Can I generate revenues?" have been dealt with in great detail.

There is a lot of research and analysis that you must do before drawing up a business plan. Given that you do not have much experience in the world of business, and investors and lenders would be hesitant to give you funds, you should be able to convince them of the soundness of your plan and the need for its implementation. Since you cannot present them with information about prior business successes, you need to be able to show them that your plan is foolproof and that you are intelligent, hardworking, and confident, with a thorough knowledge of the field in which you want to start your business. Convincing investors and lenders that there is hardly any chance of losing money should be your goal when trying to get funding.

You must also remember that before trying to start up your own business, it is always a good idea to gain some professional experience. Lenders would hesitate giving funds to you if you are freshly out of school or college and have no work experience whatsoever. On the other hand, if you have some amount of professional experience, it would improve your chances of receiving funding when setting up your own enterprise. In addition, if you are able to prove to the potential investors your competency as a professional (through descriptions of what your work entailed and how you finished your deliverables) it would add to your potential as an entrepreneur.

This toolkit will show you how to draw up a business plan that is attractive to investors. It will also guide you on whether you should indeed think of starting your own enterprise immediately or whether you should wait for some more time, till you are in a better position to start.

The topics covered in this toolkit range from evaluating objectives to preparing a financial analysis to determining your distribution strategy. In addition to explaining what information is included in a business plan, this toolkit also assists you in compiling the data in an informative and convincing manner that can be used within your business or used to attract financing.

## Chapter 1 Introduction to the Toolkit

### PURPOSE OF THE TOOLKIT

This Toolkit is a step-by-step guide to turning your clean energy business idea into a reality. The topics covered range from defining your personal and business objectives to preparing financial analyses and determining your distribution strategy. In addition to explaining what information is needed in an effective Business Plan, the Toolkit will help you to gather that information, and then to present it in an informative and convincing manner. By the end, you will have a Business Plan you can use to attract financing and to guide the growth of your company.

The Toolkit covers the topics that must be addressed in a Business Plan for any clean energy business, it therefore takes a general approach to developing plans. Each step in the process is designed to make the final product—the Business Plan—as good as it can be, whether you are interested in selling electricity generated from hydropower to a national utility or manufacturing energy-efficient cook stoves.

### HOW TO USE THE TOOLKIT

The first step in developing your business is to write a convincing Business Description. The Toolkit will help you do this and, once it is accomplished, will help you carry out research to test the feasibility of your idea. Thorough research is time-consuming, but it is vital. Research provides clear answers to critical questions like 'Can my customers afford my product or service?' and 'Can I generate revenues?' The final step is to write the formal Business Plan and present it to potential investors, partners and employees.

The Toolkit is designed to be read in its entirety. There are four chapters, each containing material that builds on the content of the previous one. Each chapter requires the entrepreneur to produce written documents that will be used in preparation of the Business Plan. In this way, completion of each chapter brings you a step closer to the final product. By the end of Chapter 3, writing the formal Business Plan will be easy.

A typical Business Plan contains the following elements and chapters:

- Cover and Table of Contents
- Business Description and Executive Summary
- Opportunity Assessment
- Marketing
- Competition
- Operations
- Technology
- Finance
- Schedule
- Risks & Mitigation Measures
- Impacts of Business
- Closing
- Attachments

Once you have worked through Chapter 2 of the Toolkit, the Business Description section of your Business Plan will be completed; by the end of Chapter 3 more than half of the final Business Plan will be finished. The table below explains which sections of the Business Plan are completed in each chapter, and a guide at the bottom of each page helps you keep track of where you are in the process.

<b>Toolkit Chapters:</b>	<b>Business Plan Section Titles:</b>
Chapter 1	Business Description
Chapter 2	Opportunity
Chapter 3	Marketing Competition Operations Technology Finance
Chapter 4	Schedule Impacts Closing and Executive Summary

## PURPOSE OF A BUSINESS PLAN

Starting and managing a business requires motivation, desire and talent. It also requires a great deal of research and planning. Compiling the data and strategy into a Business Plan is the most important step in starting a successful business.

A good Business Plan accomplishes the following:

- ✍ **draws a clear picture** of your business objectives and goals;
- ✍ **provides a thorough overview of the industry** and business you will be entering;
- ✍ **presents your strategy and the financial data** supporting it;
- ✍ **shows the potential strengths and weaknesses** of your business;
- ✍ **gives a timeline of events and financial milestones** against which you can compare your actual results; and finally
- ✍ **gives prospective partners and investors a means of determining whether your business warrants their interest—and their money.**

The primary objective of the Business Plan is to convince lenders and investors to give you financing. Your Business Plan must be written for the specific audience to whom you will eventually present it, and with the aim of persuading that audience that your business warrants their investment. Lenders and investors require a Business Plan in order to evaluate their risks and to assure them that they will get a fair return on their investment.

**Let's get started!**

## HOW TO DESCRIBE YOUR IDEA

If you are starting a new business, there is a lot of research and analysis that must be done before writing the Business Plan. To begin with, you need to be able to describe the basic attributes of your business idea: status of the company, location of the company and operations, product or service being offered, type of customer targeted and, finally, the type of energy resource and technology used.

To get an idea of how advanced you are, write one or two sentences describing the following characteristics of your company (save this exercise as it will be built upon in later chapters):

<p>Exercise 1-1 Describing your company</p> <p>THE COMPANY NAME, ITS MISSION<sup>1</sup> AND A VERY BRIEF HISTORY:</p> <p>LOCATION OF THE COMPANY AND ITS OPERATIONS:</p> <p>PRODUCT OR SERVICE TO BE SOLD:</p> <p>TECHNOLOGY AND RESOURCE TO BE USED:</p> <p>CUSTOMERS:</p>  <p><sup>1</sup> A mission statement describes what you want your company to do and to become—it defines the focus of your business.</p>
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Basically, a Business Plan can be divided into two sections: the Business Description, and everything that follows. The Business Description is the point in the Business Plan at which you say clearly what you want to do. It is the section that should make readers want to continue reading the document, so it must be compelling, thorough and well organized. The sections following the Business Description support your description and give details of how you intend to accomplish what you say you can do. Let's review what should be included in the Business Description:

*The Company:* Provide a brief introduction to your company including basic information such as name, whether it is a new or existing company, when it was founded and its legal form. If the company is already operational, activities to date are described here. This is followed by the company's mission statement. Finally, a description of the management team is written, indicating technical and managerial experience, years working in the field, proposed involvement in the company, and who owns the company.

*Location:* Name the location of your company's headquarters. If the location of operations will be different, state that location as well. If there will be a manufacturing or production plant, or if specific parcels of land or structures will be developed, include descriptions of them.

*The Product or Service:* Describe the product or service you will sell. Is this product sold retail, wholesale or is it manufactured? When writing your description, keep in mind that investors want to know about the customer need that your firm will satisfy. Describe the direct and indirect **benefits** your product or service will provide to its customers. Those benefits are the basic reason why your produce or service will be in demand.

*Energy Technology:* What type of energy technology will your business use and for what purpose? State whether this type of technology has proved viable elsewhere. Also define the scale of the project.

*Customers:* Who will be the customers for your product or service? Make sure the customer you describe is appropriate for the location indicated above. If known, indicate the ability and willingness of customers to pay. State what customers are currently buying to meet the need, indicate costs, and explain why they will

switch to buy your product or service. Describe this in terms of the benefits your product or service will provide.

To learn more about energy technologies and to view examples of business descriptions, read **Annex A—Sustainable Energy Technologies**, and **Annex B—Business Description Examples**.

## WRITING THE BUSINESS DESCRIPTION

Unless you did a perfect job a few pages back, it is time to polish your Business Description. Business descriptions can take many forms, but all of them convey the same basic information about the company, its leadership team, its operations and its customers. An example of how it may be presented follows:

### Business Description

1. **The company:** (Name of company) is a(n) (existing or start-up) business. The company was established in (year) under the laws of (home country) . The company's mission is \_\_\_\_\_ . (Company name) is a \_\_\_\_\_ type of company, meaning \_\_\_\_\_ .

Since it was founded, (company name) has accomplished the following:

\_\_\_\_\_

The management team is comprised of the following people: (include names and experience)

\_\_\_\_\_

The company is owned by \_\_\_\_\_. Its profits are distributed between \_\_\_\_\_.

2. **Location:** Location of operation (country, region, village or nearest village and specific site—in terms of parcels of land as well as specific map location): \_\_\_\_\_. The headquarters is located in \_\_\_\_\_ region/province/department/area of (country name), \_\_\_\_\_ kilometres (km) from (mapped village, town). The business will operate in the following areas, which are \_\_\_\_\_ km from the headquarters:  
(List locations of operation, and indicate any local offices that are to be created)

3. **Product (or) Service:** (company name) will (manufacture, distribute, sell) \_\_\_\_\_ . The main activities include \_\_\_\_\_ . This is a good business opportunity because \_\_\_\_\_ .

4. **Technology:** (this section outlines the technology used in terms of type, size, conversion process, suppliers, etc.) The business will use \_\_\_\_\_ technology and be about \_\_\_\_\_ in size (kilowatts, megawatts, numbers of households served, etc.). The \_\_\_\_\_ technology converts (wind, water, biomass, sunlight) by \_\_\_\_\_ (describe process). This technology (has/has not) been used before in this country.

5. **Energy Resource:** (by type, sources of supply, availability of supply and the competition for the supply): The technology will use (type of resource) which comes from (sources) and will be available to the business because \_\_\_\_\_.

Examples of technology description:

- ⌘ 'The business will use \_\_\_ pressure boilers to convert bagasse to \_\_\_\_\_ of steam and \_\_\_ MW of electricity. Such boilers are in use in \_\_\_ other business in the country. The proposed business will use bagasse from sugar cane processing, obtained from five sugar mills within 18 kilometres of the location. The bagasse will be purchased through a contract between the company and the sugar mill.'
  - ⌘ 'The business will use \_\_\_ hydroelectric turbines to produce \_\_\_ kW of electricity. Turbines of this size and type have not been used before in this part of the country. The proposed business will use water from the \_\_\_\_\_ River, which will be diverted to a canal and delivered to the power house. Rights to use the water will be obtained through the awarding of a concession from the government.'
  - ⌘ 'The business will use \_\_\_ type solar panels connected to \_\_\_\_\_ type water pumps, which will provide irrigation for about \_\_\_ hectares of land for each pump set sold, replacing diesel pump sets. Solar pump sets have been used successfully in a pilot programme of \_\_\_ installations.'
  - ⌘ 'The proposed business will use wind/sunlight available in sufficient quantities in the region. The business will install \_\_\_ and \_\_\_ watt solar panels, and hardware in \_\_\_\_\_ households and businesses. These photovoltaic panels will be of the \_\_\_\_\_ type, which are already supplied by \_\_\_\_\_ and are installed in \_\_\_ other commercial businesses in the country. Solar insolation of \_\_\_ is documented.'
5. **'Customers:** (Company name) will sell its product to (name/type of customer or customers). The targeted customer(s) currently meets this need by purchasing \_\_\_\_\_ at a cost of \_\_\_\_\_. Targeted customers would be willing to buy my product or service because \_\_\_\_\_. The targeted customer is located \_\_\_\_\_ km from our headquarters or field office. There are roughly (number) of customers in our target segment.'

Specific examples:

- ☞ 'The proposed business will sell its electricity to \_\_\_\_\_, the national utility under a power purchase agreement.'
- ☞ 'The proposed business will install a local area grid and sell its electricity to the Village Cooperative, which will provide electricity to the 150 households in the village of \_\_\_\_\_.'
- ☞ 'The proposed business will sell pump sets to farmers within the \_\_\_\_\_ region of the country. Between \_\_\_ and \_\_\_ pump sets will be sold each year.'
- ☞ 'The proposed business will sell small-scale solar electric systems to \_\_\_ households and businesses per year in the \_\_\_\_\_ region. It is estimated that \_\_\_ systems will be sold in the first three years.'
- ☞ 'The proposed business will install \_\_\_\_\_ solar home systems and collect monthly fees from these households through a network of local collection agents.'

**CONGRATULATIONS!! You have completed the first version of your  
Business Description**

## Chapter 2 Fact-finding

### **Chapter 2: Fact-finding**

Introduction  
 Self-Evaluation  
 Gathering Information  
 Market Factors  
 Customers  
 Competition  
 Business Relationships  
 Energy Resource and Technology  
 Summarizing What Has Been Learned

### **INTRODUCTION**

Turning a business idea into a company requires that the following questions be addressed:

- ? How is my company's product/service different from that of competitors?
- ? What is my company's competitive advantage? In other words: What characteristics give my company a good chance for success in a competitive market?
- ? How will my product be marketed and distributed most successfully?
- ? Who will supply the product or parts?
- ? What is the market and who are the target customers?
- ? How much money will be required to start and operate the business?
- ? How will the money be used?
- ? How will the business make money?
- ? Why will it succeed?

At this point, the answers to all of these questions are not known with certainty—they are **assumptions**. That is appropriate for this stage in a company's development. As you go forward with the Business Plan and with the company itself, the focus will be on **testing these assumptions**. Every successful test should be considered a milestone in the development of your company. Testing assumptions is how you determine that your idea is truly viable.

This chapter will elaborate on the Business Description written in Chapter 1 and add the next section of the Business Plan—the Opportunity. It will also indicate ways in which you can gain insight into your own motivations for starting a company, and will set reasonable expectations you should have of your new business.

### **SELF-EVALUATION**

#### ***Personal Objectives***

Why are you starting this business? Is it to produce a regular income, to create a valuable infrastructure project you can sell, to build a company that will grow and take on many projects, or to gain experience?

It is important to know why you want to start a business, since different objectives imply different business strategies or altogether different types of businesses. For example, building a rural energy services company supplying a product or service to many households is a way to create regular income. That type of business can be grown over time. Alternatively, if your business objective is to develop an energy project and then sell it for a one-time payment, a hydroelectric project supplying power to the national grid would be a better idea.

Think about your goals, and then review the following list of typical business objectives. As you develop the business idea, consider the basic guidelines provided next to each objective and how you can integrate those strategies into your plan.

<b>Exercise 2-1 Personal Objectives</b>	
<b><u>Objective</u></b>	<b><u>Project Planning Impact</u></b>
Create a valuable business over time by growing it slowly	Use all available income to reduce debt and maintain the project's operating condition. Look for loans not investment partners. Be careful about the financial health of the company. Place emphasis on a smaller, easier to complete first project. Reduce pay out to owners and use cash flow to attract and reward key members of the team and for working capital to grow business.
Produce a regular income	Include a salary line in operating expenses. Keep debt to a minimum and thereby increase cash flow available for regular dividends to owners. Requires more equity and less debt.
Earn a one-time fee or lump-sum payment	Increase the value of the project with minimum cash outlays. Line up buyers early. Evaluate options for the best time to sell.
Improve the well-being of a particular community	Incorporate local training and capacity building into project cost. Include 'buy-in' options to transfer responsibilities to local residents. Incorporate social benefits into businesses (e.g. community water pump or solar refrigerator for community clinic).
Gain experience	Partner with an experienced firm, sacrificing a larger ownership stake for the chance to gain experience quickly and move on independently.
Be involved day-to-day	Include a position within the team, provided your qualifications match needs. If appropriate and needed, include a salary line in operating expenses.
Be involved only part-time	Include each position and salary required within the team. Recruit a qualified general manager. Organize reporting relationships but place emphasis on plan and policy approval combined with reporting systems, all of which must be funded. Consider owner-engineer or project manager to protect owner's interests.

### ***What Are Your Strengths and Weaknesses?***

Business development and implementation are tasks for entrepreneurial personalities. There are many variables in business development and implementation—an ill-suited personality can spell doom for a good idea and lead to great frustration. Entrepreneurs need to take stock of their personality and their skill sets.

What are the characteristics that define an entrepreneur? This is a highly speculative and subjective topic—and certainly not a test—but some patterns seem to emerge:

- ⚡ Entrepreneurs are usually given high marks for high energy level and determination; independence and resourcefulness; originality; curiosity; and flexibility.
- ⚡ Self-confidence and courage are attributes which are given lower but still important marks. Entrepreneurs tend to be self-demanding, self-starting and thorough.

Of course a person who does not possess all of these entrepreneurial characteristics can be successful in developing an energy business. The crucial step for the entrepreneur is to understand his or her weaknesses and to use the choice of project and team to balance the equation. For instance, a central supply business selling to the grid through a power purchase arrangement is a more straightforward type of business than installing household solar systems in hundreds of locations. Also, some entrepreneurial shortcomings (e.g. a dislike of negotiation, a lack of long-term experience with the technology) can be overcome by choosing a certain type of business partner or hiring the right kind of advisor.

Now it is time to evaluate your personal strengths and weaknesses. This will help you to define the gaps that must be filled by your business team.

<b>Exercise 2-2 Self-evaluation</b>
-----------------------------------------

**Answer the following questions (be honest!):**

- ⌘ What are my strengths and skills? (Examples include hard worker, good people skills, and technical capacity)
  
- ⌘ What financial resources can I bring to a new business?
  
- ⌘ Why do I think this will work for me?
  
- ⌘ What is going to be the hardest part for me? (For example, writing a Business Plan, finding a location, accessing finance, or finding an honest partner)
  
- ⌘ Why would these activities be hard for me?
  
- ⌘ Can I overcome these obstacles? How?

### **What Skills Will Your Business Require?**

Before you can start a business, certain skill sets must be acquired. All successful businesses have included people with the necessary skills. Even if the skill sets do not exist at this stage, it is important to know what skills the team will need to establish your business successfully.

- ⌘ **Marketing and Sales:** Identify customers for the product or services of the business and develop a pricing, advertising and promotion strategy to attract them. A person needs to determine and make use of the business's competitive advantage.
- ⌘ **Operation:** Operate and maintain the business in a cost-effective manner.
- ⌘ **Distribution:** Select the most efficient and effective method of delivering your product or service to customers.
- ⌘ **Financial Planning:** Estimate the financial requirements of a business and prepare a mix of financing alternatives, including financial analyses such as Cash Flows, Income Statements and Balance Sheets (explained in later chapters).
- ⌘ **Management:** Oversee and coordinate all of the participants in the business, with respect to the company's mission, performance, schedule and budget.
- ⌘ **Permitting, Legal and Regulatory Matters:** Understand and comply with the relevant rules and regulations governing your business.
- ⌘ **Negotiations:** Reach agreements with all of the parties with whom the business interacts—contractors, customers, government authorities, employees.
- ⌘ **Bank and Investor Relationships:** Raise debt and equity and build business relationships that result in cost effective capital sources for the project.
- ⌘ **Management Reporting (Monitoring and Evaluation):** Maintain a system of performance measurement and evaluate performance against original plans and benchmarks. Confer with lenders, investors and stakeholders regarding performance against this plan.
- ⌘ **Pre-operational** (these requirements are for grid-connected projects only)
  - ⌘ **Design:** Spell out the requirements of a physical project or product and correlate available resources to achieve desired performance.
  - ⌘ **Engineering:** Prepare the detailed civil, mechanical, structural and electrical specifications of a product or project and supervise its physical implementation in a way that achieves desired performance at reasonable cost.
  - ⌘ **Procurement:** Buy equipment, products and services needed to implement a project in a cost-effective manner.
  - ⌘ **Construction:** Prepare the site, install equipment and prepare for operations in accordance with project specifications, budget and schedule.

Whether proposing to produce electricity for sale to a national grid, or to start a small business providing energy services to individual households and businesses, **the quality of the business team** will most likely be *THE* critical element of the business on which partners, lenders and investors will base their decisions. For some investors, it will be absolutely essential that the team include someone with very direct experience—successful experience—in a closely related activity. For others, it will be important that the team has substantial money at risk in the business from the very beginning. These requirements may not be as crucial for some parties, but these will tend to be early stage lenders and investors who will provide small amounts of money on the basis of 'one step at a time'. The message here is clear—you must assemble the best possible team to plan and implement the best possible business. As lenders and investors are reviewing your Business Plan they will be evaluating the business team by looking for answers to the types of questions given in Exercise 2-3. Go through the questions now, and answer them for your business idea.

**Exercise 2-3****Does Your Business Team Have All the Skills?**

**Technical:** Are there specific engineering or mechanical challenges that require specific technical skills on the team on a permanent basis? What are those challenges and skills? Can these needs be met through a contract relationship or must one of the core team be an expert?

**Operation:** How complicated is the day-to-day management? Are there many employees and partners to oversee?

**Financial:** What are the financial aspects of the business? How will the ongoing financial requirements be met over the life of the business? Can a chief financial officer be hired later or should the team include a financial expert from the outset? What are the accounting practices?

**Negotiations and Sales:** Will there be a need to regularly update the terms and conditions of ongoing business relationships with suppliers and customers? Will the business always be seeking new customers and relationships or will this be a one-time event?

**Legal:** Will the regulations and contractual relationships governing the business be fixed or will they change over time, requiring regular attention?

**Political:** Will regulations and policies affecting performance be evolving and require attention and lobbying?

**Funding:** What is the minimum amount of funding needed to complete work underway and make the business attractive to lenders and investors? How much has the team spent already (time and money) and on what? What, realistically, will be needed to complete all of the tasks identified? Then, how much cash equity is needed to assure that the team retains a substantial portion of ownership and control? How much cash equity does the team have? Is that enough to be credible when negotiating with lenders and investors? Is there an early stage financial source available to supply these funds? What will the team be giving up and gaining by taking a financial partner?

**Entrepreneur Skill, Experience and Resources:** Of the qualifications needed for the team, what skills does the team possess? Are there partners who round out this skill set? Are there advisors who can be hired to assure that all the skills needed are represented? Does the team have an experience base that will 'impress' lenders and investors? If not, is there an addition to the team that could solve this problem? Is it possible to contract with an experienced party as part of the team? If not, how does the entrepreneur propose to convince lenders and investors that all the skills and experience needed are at hand? Does the team have the time and money needed to complete the work identified?

**GATHERING INFORMATION = FACT-FINDING**

The goal of your Business Plan is to convince the reader that your business objectives and strategy will succeed. In order to do this, you need to know as much as possible about your potential customers and existing competition, by acquiring as much accurate and specific information about them as possible. The type of customer and market assessment you will do depends on the type of business that you're pursuing. The research for developing a small power station selling to a utility is different from that required to develop a company selling solar dried food to retailers. Collecting information on customers and competition requires physically going into the area in which you wish to operate and collecting the data. Additional information can be found in libraries or by telephone. The list below gives some ideas.

**Customer Data Collection Methods:**

- ✍ Phone interviews
- ✍ Face-to-face
- ✍ Mail surveys
- ✍ Large group meetings
- ✍ Desk studies ? information gathering sources include existing studies, libraries, trade magazines

**Competition Data Collection Methods:**

- ⌘ Store visits
- ⌘ Test goods
- ⌘ Competitor reports
- ⌘ Desk studies ? information gathering sources include the Internet, trade magazines, libraries, chambers of commerce, boards of trade

**Sources of Market and Political Information:**

- ⌘ Magazines: The Economist, Foreign Affairs
- ⌘ Library
- ⌘ Internet—USAID and UN websites

Successfully collecting market data is difficult and time consuming. For instance, research shows that only 5 per cent of people surveyed respond to mail surveys. Travelling through villages asking questions can also take a long time and the validity of the responses is often questionable. However, it is still essential that adequate market research be completed to convince a lender, investor or partner that the business concept has been analysed and that you can demonstrate why this business will work. There are several tactics for collecting information. For example, a great deal of information can be gathered by visiting or telephoning competitors and asking them about the product or services they offer, what they charge, their guarantees, etc.

A successful method for organizing customer information is to develop a questionnaire. A questionnaire allows you to ask a sample of your potential customers the same questions in order to draw reasonable conclusions about their demand for your product or service. It is likely that a lender or investor will ask you how you determined that your customers would be willing and able to purchase your product. Don't forget to cite resources used in fact-finding. A sample questionnaire is included as **Annex C** of the Toolkit.

The types of information that must be gathered can be divided into four categories, all discussed in detail in the following pages:

1. **Market factors and trends:** What is currently affecting the proposed area of operations or product? Consider macro-economic trends, energy plans and trends, government policy, and legal and regulatory issues. Summarize the major trends in the marketplace.
2. **Customers:** To whom will you sell your product or service, and why will they purchase it? Compile demographic statistics such as how they **will and can** pay for your product or service ('ability and willingness to pay'), where they live, source and amount of income, age, etc. As always, consider the direct and indirect benefits the customers will obtain from your product or service. Why will the customer be better off buying your products?
3. **Size:** Estimate the total size of the target market for your product or service both in terms of numbers of customers and gross sales and units of product or service sold (from competitors if necessary).
4. **Competition:** Compare competitors' products or services with those you are proposing in terms of quality, price, service, warranties, image, etc. Be sure to describe your direct competition, but don't forget your indirect competition. Your indirect competitors are the businesses that sell a product that is not the same as yours but could be used as an alternative by your customer. For example, if you want to sell solar lanterns for lighting to households near your village and they are currently using kerosene, an analysis of the kerosene market must be completed. Include estimates of their market share (do all customers buy from them, why or why not?) and your sense of their financial health (are they profitable or about to go out of business?).

Each of these categories is now discussed in more detail, to assist you in gathering your own data.

## MARKET FACTORS

The proposed business must be aware of, and take into account, market factors in the target area and in the region or country. The likelihood of a business succeeding is determined not just by factors under its control. It is important that general market factors—economic, commercial, political, social, and environmental—instil confidence in the stakeholders needed to run a business (lenders, investors, suppliers, contractors, insurers, etc.). The most important general market factors that need to be favourable for an investor or lender are the following:

- ⚡ **Energy policy:** meaning the overall interest in and energy-related activities of government or international communities. Are there plans to extend the electric utility grid into your area of operations? When? By whom? How will they fund this activity? Are there plans to undertake or develop other non-grid connected energy projects in the operations area? Are there international or government supported programmes under way? What impact will these have on the business's ability to sell its product? Are there plans to change the current energy sale and purchase policy (perhaps switching from a power purchase agreement (PPA) to a wholesale market)? When is this to take place? What is the long-term outlook for the energy industry or proposed product/service?
- ⚡ **Macro-economic:** inflation, general economic stability and growth, currency stability, and employment growth. While these conditions need not be perfect, it is important to assess the general trend of the economy (improving versus declining) and the general perception of the regional and world economic community. Sometimes—and this is very frustrating for an entrepreneur to hear—it is just better to put an idea aside and wait until conditions improve.
- ⚡ **Commercial factors:** are the rules for doing business, establishing a company, making investments, recovering investments and importing goods and services clear? What are the appropriate banking, investing and trading laws and regulations? Is there a history of businesses, such as the proposed one, being successfully implemented from a commercial perspective? Are in-country banks and investors involved in such businesses? Is there a 'commercial discipline' based on the general principles of socially responsible entrepreneurship and return on investment (versus top-down planning and state implementation)?
- ⚡ **Politics:** in the broadest sense of the term. Are laws and regulations transparent and enforced in a reasonable manner? Is power transferred between political parties or factions in an orderly and predictable manner? Are policies transferred from one political appointee to another or does every appointment of a minister or election mean that a business is back to the beginning of the development process? Is corruption—payoffs, favours and conflicts of interest—part of the process of starting a business? Is there political support for the proposed business? Is it needed and will it be helpful (sometimes it is not)? What evidence exists of this political support, if needed and helpful, at the national or local level?
- ⚡ **Social factors:** will the target area benefit from the proposed business? What are the needs in the area? Is the business compatible with local conditions and plans? Is there social support for the business or product/service? How is this support demonstrated?
- ⚡ **Environmental factors:** there may be requirements for environmental impact assessments (for grid connected projects), otherwise this information is important to the types of investors that are interested in energy projects and not to the viability of the project. In other words, this can act as a positive characteristic of the business and should be included in the 'Impacts' section of the final Business Plan. What is the environmental impact of your product/service? Does the product/service have a positive environmental impact? Is it displacing wood burning, kerosene and/or candles? Is carbon use being mitigated?
- ⚡ **General:** what is the trend in your industry? Is demand increasing or decreasing? What is the total size of your market?

Every business has its own characteristics. It is important to determine, at the earliest possible point, the complete list of permits required and conditions to be met to obtain approvals. It is not necessary to acquire them at this stage, but if they are necessary and not available it may be the end of the business idea. The following questions should be addressed to the appropriate government agency:

- ⚡ Must the business be registered? With what entity or entities? Must share capital be at a certain level?

- ⌘ What are the requirements to obtain environmental permits and approvals? Must the consent of local communities and neighbours be obtained? Must a formal environmental impact assessment be prepared? Is there a public hearing or consultation process?
- ⌘ What permits and approvals are needed to use natural resources, undertake construction, operate a business, interconnect with the electric grid or build a local grid and sell energy (e.g. generation and training permits or, if a spot market, permission from regulatory entity)?
- ⌘ What licenses, permits or authorizations are needed to import equipment? What tariffs apply?
- ⌘ Are there health and safety procedures to be followed? Must these be documented?
- ⌘ Must the owners and managers register and report activities concerning their participation in the business?
- ⌘ Must permission or a concession be obtained to provide energy services 'off the grid'?
- ⌘ Has the opinion of an independent qualified advisor been obtained to document that the list of permits and their requirements is complete?
- ⌘ What, if any, restrictions exist to securing international investors? Can dividends be repatriated to investors?

The following exercise will help you focus your business idea and will help you organize some of the information you are gathering. It covers the following topics:

- ⌘ Existing and Proposed Energy Plans and Projects
- ⌘ Macroeconomic Conditions
- ⌘ National, Local Laws and Permits
- ⌘ Research Materials Used

<b>Exercise 2-4</b> <b>General Market Conditions</b>
---------------------------------------------------------

### Existing and Proposed Energy Plans and Projects

Type of Clean Energy (e.g. solar, energy efficiency, biomass)	Description (current and future uses and development plans)
<b>E.g. Solar</b>	<i>Example: International Funded solar energy project to begin January 2003 that will donate half of the cost of equipment to the customer.</i>
Type of traditional energy to be replaced (e.g. petrol, gas, diesel)	
National grid? (if no, specify nearest location of use)	
Other Notes	

**Macroeconomic Data**—see **Annex D** for country-specific macro-economic information.

Country Size	
Population	
Per Capita GDP (in US\$)	
Per Capita Income (in US\$)	
Exchange Rate / US\$	
Inflation (Annual)	
Interest Rates: Local Currency Deposits	

What has been the performance of the national currency in the past five years?	
What has been the performance of inflation in the past five years?	
Unemployment (urban data)	
Total Installed Grid Capacity (MW)	
Percent of Population Served by the Grid	
Per Capita Energy Consumption	
Energy Related Carbon Emissions, if applicable (mt)	
Local regulations for start-up energy companies (briefly describe legal norms and standards that apply to the energy sector, including taxes and incentives—such as subsidies—to small and medium enterprises):	

**Laws, Regulations and Required Permits**

**Permits Needed to Start a Business:**

Title	Issuer	Process and Requirements	Comments

**Permits or Permissions Needed to Study a Project or Undertake a Feasibility Study:**

Title	Issuer	Process and Requirements	Comments

**Permits Needed to Obtain a Concession or Right to Use Natural Resources:**

Title	Issuer	Process and Requirements	Comments

Permits Needed to Construct:

Title	Issuer	Process and Requirements	Comments

Permits Needed to Assure Environmental Compliance:

Title	Issuer	Process and Requirements	Comments

Permits Needed to Produce, Sell or Distribute Energy:

Title	Issuer	Process and Requirements	Comments

Permits Needed to Operate a Project:

Title	Issuer	Process and Requirements	Comments

Other Permits:

Title	Issuer	Process and Requirements	Comments

**Research Materials used**

Region name researched:	
Author, source and date of energy studies:	
Author, source and date of economic studies:	
Author, source and date of social studies:	

**CUSTOMERS**

For energy businesses there are basically two types of customers: businesses selling products or services to *multiple customers* (households and other businesses) and businesses serving a *single or a small number of customers* (national utility or a large industrial company). There are far more types of energy businesses with multiple customers. The following is a list, by product or service, giving examples of businesses that serve multiple customers:

- ✍ Solar home systems for individual households.
- ✍ Solar hot water systems for individual households.
- ✍ Energy-efficient cook stoves for households or to be sold wholesale.
- ✍ Energy efficiency lighting products for sale to individuals, industries or wholesale.
- ✍ Small wind turbines for a household or community.
- ✍ Community water pumping or mini-hydro.
- ✍ Alternative cooking briquettes for sale to individuals or wholesale.
- ✍ Food products made from solar drying, cooking or freezer technologies for sale to individuals or wholesale.
- ✍ Products produced from technologies that use alternative energy as the input (such as nuts, oils, etc.) for sale to individuals or wholesale.

**Businesses Selling to Multiple Customers**

The rationale for these types of businesses is that the product or service will be sold directly to a household or wholesale to another business such as a supermarket or export market. In all of these cases it is imperative to conduct market research that will prove that a market exists for your product (now as well as in the future) and that you are capable of carving out a niche for your business. As already mentioned, **Annex C** provides a questionnaire that can be used for conducting research for multiple customers in an effective manner and should be completed by all prospective entrepreneurs.

The primary goal of customer research is to collect data to prove to your audience that customers are willing and able to pay for your product or service. One way to do this is to find out what they are doing now to meet their needs and how much they pay for it. Then ask yourself, how will their life change if my business meets this need? Is it more or less expensive than what they previously used? Is it as reliable, available, and accepted? Would my new service or product require a major behaviour change for the customers? If so, what systems do I have in place to make that change easier for them? Will my product or service be technologically complicated for the end-user?

Answering the following questions will help you to address these issues:

**Customer Questions**

Types of customer targeted (individual, household, local government or community that may sell to households or individuals, industry)	
Total estimated number of customers to be interviewed (e.g. 100 households, 5 communities, 20 industries)	

What is the average customer's source of income?	
Does income generation fluctuate through the year?	
What do customers spend most of their income on?	
How much do they spend on energy needs?	
How do they meet their energy needs?	
How do they meet their water needs?	
How are the customers currently filling the need your business hopes to meet?	
How much does it cost?	
Are they satisfied with the other source?	
How much are they willing to pay for your product or service?	
What sort of behaviour change, if any, would be required for customers to use your product?	
How will your business ease the behaviour change for them?	

### Business Selling to a Single Customer

The second category is a business serving a single (or a few) customer(s) usually under a contract for service. Examples of such customers are electricity utility companies and large industrial firms with a significant demand. These types of businesses generally do not require significant research of potential customers because the single most important element in determining whether or not the business idea will work is to find and secure the buyer, rather than to assess demand. The most common type of agreement between businesses and these types of customers is a power purchasing agreement (PPA). PPAs are contracts under which the buyer (usually the local utility or industrial facility) formally commits to purchase a specific amount of electricity at an agreed rate for a stated period of time.

Most PPAs cover payment for the purchase of capacity and energy separately. 'Capacity' is the assured supply of the project (measured in kilowatts or megawatts) being sold to the utility or industrial firm. 'Energy' is the actual output of the project, measured in kilowatt-hours or megawatt-hours actually produced and delivered. As electricity utility companies become more competitive through the elimination of monopolies, long-term PPAs are being replaced with Wholesale Market Mechanisms, which buy the energy output from projects based on its price compared to other energy projects supplying the same electricity system (or grid) at the same time. Regardless of the size of the utility or industrial customer, it must be established that this customer can and will pay for the capacity and energy provided. Many utility companies are technically bankrupt and depend on government subsidies to meet their obligations. These companies (and others) tend to be very poor payers. It is therefore essential to determine that the buyer of energy and capacity can and will pay for the service provided over the life of the contract. The basic message here is this: just because the buyer is a large company do not assume that it will be a good payer.

Some of the things to check are as follows:

- ⌘ What is the potential client's core business?
- ⌘ Is information about it public or private?
- ⌘ What is the buyer's net worth (the excess of its assets over their liabilities)?
- ⌘ How much money does it owe (compared to its gross revenues and its total assets), and how has this changed in the last 5 years?
- ⌘ What is its revenue and profit performance over the last few years?
- ⌘ How well is its core business doing?
- ⌘ What is its track record in borrowing and paying back loans?
- ⌘ How much has it been able to borrow in the last five years? In the case of a utility owned by the government, has this debt been guaranteed by the government or is the credit of the utility itself good enough?
- ⌘ In order to make a reliable assessment of your buyer's ability to pay, you may contact local banks or the local World Bank or IFC office. Local offices of well-respected international accounting firms or bilateral chambers of commerce are also good sources of information.
- ⌘ If you are dealing with a private company that does not publish information, ask the company to supply information and ask them to let you speak with their bank.
- ⌘ What is its credit rating?
- ⌘ Has it been involved in any similar projects? What do these other projects have to say about its performance?
- ⌘ How secure might a potential contract with these large customers be?
- ⌘ What external factors may negatively affect the company's or utility's profitability?

## COMPETITION

Whether proposing a rural energy business supplying electricity to a house, business, community or national grid, or starting a business selling fruit dried by the sun, a smart and easy way to conduct research is to find one or two similar businesses that have received financing or are operational and collecting revenues and study them. **Investors are not pioneers if they can avoid it.** Most choose to avoid it and lenders are almost never pioneers. So a good place to begin in the business development process is to answer the question, “Have others done this before?”

This is easiest, of course, if one or two businesses similar to the one you are proposing *have* been started. You need to do some research and document what happened to your competitor (and when). While everyone likes to think that is to her business is unique, uniqueness is definitely not an asset when trying to convince others to make loans or an investment.

If nothing like the proposed business has been built—and all too often this is the case—then the entrepreneur needs to build as many arguments as possible to reduce the perception of ‘pioneering risk’ (when an investor funds a business for the first time).

For example, similar businesses may have been constructed and operated, albeit by the government or through an NGO programme using grant funds. This helps to reduce any perception that there are no qualified contractors or workers; that equipment is unknown, and so on. By citing such examples the entrepreneur confines the “newness” of the transaction to the fact that a private company is going to build this business (instead of the government).

**There are cases, however, where the entrepreneur will be the pioneer** (the authors have been involved in a few). In these cases it must be proven that even though no such business presently exists, there is demand for the product or service, and that sales and profits will be realized. Is this easy to argue from this starting point? No. Can it be done? Yes—through thorough documentation, step-by-step market research and cross checking of the validity of your assumptions.

The most effective way to define your competition is to think of similar businesses that compete for your customer’s money. When thinking of competitors, it is essential to consider both your direct and indirect competition. Remember, direct competitors are those that sell exactly the same type of product or service as your business, indirect competitors are those that sell a product or service that provides the same benefit for the customer.

For this section, information must be gathered regarding the numbers of competitors and details of their operations and financial stability. Completing this task will help you to understand your competitor’s strengths and weaknesses, the potential demand for your product and this information will eventually be used to develop your competitive advantage and build barriers between your business and your competitors.

Figuring out who are competitors can be done in several ways. One of the simplest is to consider the situation from the customer’s point of view and to think of all of the possible ways in which customers can solve their purchasing need. A way to learn about competitors while developing your business strategy is to keep records of them. Put together a file on each of your competitors and include copies of their advertising and promotional materials. Continue to add to the file and review it often—it will help you when you are determining your strategy for attracting customers.

Now that you know your competition, complete the following exercise

<b>Exercise 2-5</b> <b>Competitors</b>
-------------------------------------------

1. Who are your five nearest direct competitors? What do they do?
2. Who are your indirect competitors? What do they do?
3. How are their businesses: steady? growing? declining?
4. What have you learned from their operations? from their advertising?
5. What are their strengths and weaknesses?
6. How does their product or service differ from yours?
7. From where/whom do they source their product?
8. What is the sales price of their product or service?
9. How far is the nearest competitor from where you hope to sell your product or service?

### **BUSINESS RELATIONSHIPS**

In the first part of this chapter we discussed the types of skills that a business needs to succeed. These can be acquired either by hiring someone as an employee or through a contractor or supplier relationship. Remember some relationships can be solidified later, but it is not advisable to wait to find suppliers and contractors.

Good suppliers and contractors have choices as to the markets they serve. Availability and reliability of suppliers is crucial for both large and small businesses. Whether a company needs to buy 50 photovoltaic panels a month, 20 water pumps a year, 300 batteries every six months, ceramic liners for gasifiers and stoves, or a 25 MW hydroelectric turbine generator set, sources of supply are crucial. A components inventory and supplier network needs to be established as soon as practical and back-up sources identified. The inability to get replacement or spare parts in time can destroy a company trying to establish itself in the marketplace.

Suppliers will provide quotes for credible business proposals. Getting as much fact-finding and feasibility analysis work documented as possible, and presenting it well, will therefore get the attention of suppliers and contractors. Be cautious not to commit to purchasing anything until the financing is secured. The exercise at the end of this section suggests calling several possible suppliers and determining their availability, terms, costs, etc.

For businesses with a single client, lenders and investors will want to avoid 'Completion Risk'—meaning that once construction has commenced, the lenders and investors want assurances that the project will be completed and will commence operation. Contracts known as EPC (engineering, procurement and

construction), EPC-lump sum, Fixed Price or Turnkey are attractive to lenders and investors. Under an EPC contract, a contractor will handle all of the tasks needed to design and build a project according to a set, pre-quoted, price and will deliver the project fully operational. In these cases, the completion risk belongs to the EPC contractor and is secured by a performance bond. The EPC Contractor, in turn, contracts with sub-contractors and coordinates all the tasks involved. As an alternative to this, the business team itself can act as the prime contractor (the role of the EPC), hiring all the engineering, procurement and construction contractors. However, it needs to demonstrate conclusively that the project will be completed and that funds exist to handle cost overruns. A third choice is for the business team to hire a Project Management firm to coordinate the project. Once again, overruns need to be funded and completion assured.

On a larger project it is often a requirement that an operating and maintenance company be employed to run the project once construction is completed. Complete the Supplier Relationship questions on the following page to organize your research.

**Exercise 2-6  
Supplier Research**

Write down a component inventory—what you need to purchase to sell your product.

**Component Inventory:**

What types of materials or products do you need to purchase for the sale of one product?

From which possible suppliers? Where are they located?

Which currency do they accept?

Write down possible suppliers and contact them to understand their terms, availability and process.

**Supplier 1: supplies** \_\_\_\_\_

Name: \_\_\_\_\_

Location: \_\_\_\_\_

Product type(s): \_\_\_\_\_

Sales price: \_\_\_\_\_

What are the payment conditions? (30-day credit, 90-day credit, in advance):

Payment is made in what form? (cheque, wire, money order, dollars, local currency)

When can the product be shipped? How long will it take to arrive?

**Supplier 2:     *supplies*** \_\_\_\_\_

Name: \_\_\_\_\_

Location: \_\_\_\_\_

Product type(s): \_\_\_\_\_

\_\_\_\_\_

Sales price: \_\_\_\_\_

What are the payment conditions? (30-day credit, 90-day credit, in advance):

Payment is made in what form? (cheque, wire, money order, dollars, local currency)

When can the product ship? How long will it take to arrive?

**Supplier 3:     *supplies*** \_\_\_\_\_

Name: \_\_\_\_\_

Location: \_\_\_\_\_

Product type(s): \_\_\_\_\_

\_\_\_\_\_

Sales price: \_\_\_\_\_

What are the payment conditions? (30-day credit, 90-day credit, in advance):

Payment is made in what form? (cheque, wire, money order, dollars, local currency)

When can the product be shipped? How long will it take to arrive?

## ENERGY RESOURCES AND TECHNOLOGY

This Toolkit deals with four types of natural resources—wind, water, biomass and sunlight. The goal of this section is to explain how you must prove to partners and investors that the technology you plan to use is proven and appropriate, and that the resource exists in sufficient quantities.

When an investor or lender reads your Business Plan it must be clear that you have answered the following questions and that the sources of your information are reliable.

### Energy Resources

- ⚡ **Water:** What data exists regarding the flow of water and the 'head' (proposed elevation drop)? For how long has this data been collected? By whom? How has it been documented? Has the water data been independently evaluated? Have seasonal and year-to-year variations been estimated? Have the site conditions been studied and integrated with the water data? What documentation exists to prove that sufficient water resources exist?
- ⚡ **Biomass:** What is the proposed biomass source? Has the biomass source been evaluated for its energy content (BTU/joule), moisture levels, collection, transport and storage characteristics? What quantities of this biomass source are available? Are there seasonal variations? How have the energy characteristics and quantities been documented? Has this biomass source been used before in this region in the manner proposed?
- ⚡ **Sunlight:** What solar insolation data exist for the proposed project area? Have solar panels and balance of systems been installed in the project area? Is there any documentation of performance? Are there seasonal variations or extended periods of sub-optimal performance? How is the information documented?
- ⚡ **Wind:** What wind speed measurements have been made? What data exist? For what period of time? Are the measurements site specific, using reliable equipment and accepted techniques? Have the results of these measurements been examined by a qualified and independent professional? What documentation exists to prove that sufficient wind resources exist?

### Technology

Having established that natural resources exist in sufficient quantities, the next step is to determine if the wind, water, biomass or sunlight can be converted into energy at the proposed project site on the scale envisioned. In other words: Is the technology appropriate given the business assumptions?

- ⚡ What type of technology will be used?
- ⚡ Has this particular technology been used with this particular energy resource (e.g. rice husks)?
- ⚡ Is the technology available at the targeted location? If not, can it be imported?
- ⚡ Have suppliers of the basic conversion technology—wind turbine manufacturers, hydro turbine manufacturers, biomass conversion equipment manufacturers and PV systems integrators—reviewed the wind, water, biomass and sunlight data and confirmed that their equipment can produce the desired energy output?
- ⚡ What other components are needed to assure energy output?

It is not enough that sufficient natural resources exist and that the technology is available. In the case of water and biomass energy projects, the right to use these resources must be assured, generally through a contract<sup>2</sup>, with either fuel suppliers or with the government (e.g. through a concession for water rights).

- ⚡ **Water:** What agreements are needed to secure the use of water at the proposed project site? Will a payment be required? What are the conditions of such a contract? For example, what percentage of water flow is allowed to be diverted? What is the term of the contract? What is the expiration date of this contract if the project is not operational within the term? What other related contracts are required?
- ⚡ **Biomass:** What is the length and what are the terms of the proposed contract(s)? What percentage of the project's biomass requirement will be met by this contract(s)? What assurances exist that the biomass supply will be continuous? What is the financial condition of the supplier and the underlying soundness of the industry<sup>3</sup>? What penalties exist for the buyer and seller for non-performance? What backup and supplementary supplies are available and on what terms?

<sup>2</sup> It is possible to buy biomass in an open market at the then current 'spot' price but most lenders and investors are uncomfortable with the uncertainty this implies.

<sup>3</sup> For example, a sugar mill may be able to supply all the bagasse needed for a cogeneration project, but the mill may not be competitive due to factors linked to the world market for sugar rather than productivity within the mill itself.

In order for a business idea to become an opportunity, the choice of technology and energy resource must be justified. Answer the applicable questions above and verify the technical information from a qualified technical source. Suppliers may be a source for this information or may be able to direct you to other sources.

**Is the information in this chapter too much to ask for?** There is little point in proceeding with planning a business until this degree of specificity exists. At this point all exercises should be complete and ready to be assembled into the first two sections of the Business Plan.

#### **SUMMARIZING WHAT HAS BEEN LEARNED**

What have you learned thus far? Chapter 1 was an introduction to a Business Description, which is the section of the Business Plan where you convince your reader that this is an excellent business opportunity. You should be improving your Business Description throughout the entire Business Plan writing process. This chapter started by explaining characteristics often found in an entrepreneur— an exercise that was provided to help you assess your own qualities. Next, the reasons for collecting sufficient amounts of high-quality data were outlined, followed by a list of the types of data to collect (market, customers, competition, business relationships, and technology). At this point you should stop reading and collect as much data as possible pertaining to your idea. Then, you can move on to the final section of this chapter and compile your information into a comprehensible format that will be incorporated into the final Business Plan.

Before starting on your Business Plan, complete the checklist on the next page to identify gaps where information still needs to be collected. For each question, put a checkmark next to items that have been completed. For items that are incomplete write what needs to be done and when it will be completed.

**Fact-finding Checklist**

Has information on energy plans and other energy projects at the national/regional/local level been collected?

- ☞ All the information has been collected. \_\_\_\_
- ☞ The following information is still needed. \_\_\_\_\_

Have data on the macroeconomic, legal and political situation been researched?

- ☞ All the information has been collected. \_\_\_\_
- ☞ The following information is still needed. \_\_\_\_\_

How much is known about the quantity of natural resources—wind, water, biomass, sunlight—proposed to be used?

- ☞ All the information has been collected. \_\_\_\_
- ☞ The following information is still needed. \_\_\_\_\_

Has the information on what is required to obtain the exclusive use of water or biomass for the project been gathered?

- ☞ All the information has been collected. \_\_\_\_
- ☞ The following information is still needed. \_\_\_\_\_

Is the information regarding the use of the land on the site(s) known?

- ☞ All the information has been collected. \_\_\_\_
- ☞ The following information is still needed. \_\_\_\_\_

Have all the permits needed been identified?

- ☞ All the information has been collected. \_\_\_\_
- ☞ The following information is still needed. \_\_\_\_\_

Is the research completed on whether the technology is appropriate?

- ☞ All the information has been collected. \_\_\_\_
- ☞ The following information is still needed. \_\_\_\_\_

Have customers been identified? Have their particular characteristics (in terms of ability and willingness to pay) been assessed?

- ☞ All the information has been collected. \_\_\_\_
- ☞ The following information is still needed. \_\_\_\_\_

Has information on possible direct and indirect competition been collected?

- ☞ All the information has been collected. \_\_\_\_
- ☞ The following information is still needed. \_\_\_\_\_

Has an examination been made of the skills needed to implement this project and has this been compared with the skills and experience of the project team?

- ☞ All the information has been collected. \_\_\_\_
- ☞ The following information is still needed. \_\_\_\_\_

Now you are ready to assemble all the relevant information into the first two sections of the Business Plan.

What should be included in these sections? Answers to the exercises and issues raised throughout the chapter should be organized in a convincing way and presented in each section of the study. One way to organize this is explained here. **Annex B** also provides examples. *Remember*, this is a research document thus far, there is no analysis of the demand for your product or service or the business opportunity until Chapter 3.

### Business Plan Outline

1. **Title page:** Business Name, physical and postal address, founder's name and contact information, and the date.
2. **Business Description:** review the Business Description from Chapter 1 in the light of the additional data collected (especially on customers and technology). Update the description and ensure that the information presented is convincing and sufficiently detailed. Remember everything following this part of the Business Plan is intended to prove why this Business Description represents a good idea. Your description should cover information about the following:
  - ☞ Company
  - ☞ Location
  - ☞ Product or Service
  - ☞ Technology and Resource
  - ☞ Customers

In addition to what you have already written, add two new topics based on information and instructions provided in this chapter.

- ☞ **Market Factors:** For example permits acquired or needed, country specific business, legal, social and environmental factors.
  - ☞ **Business Relationships:** Who are the potential equipment or product suppliers? Contractors? What are the required business relationships with the equipment or product suppliers or contractors? What are the terms for purchasing from equipment or product suppliers? Cost of freight and shipping?
3. **Opportunity:** write a section including information about your customers and competition. The goal is to illustrate that this is a good business opportunity.
    - ☞ *Customers:* explain who will buy your product or service and why. This section can be completed using the exercises in the 'Customers' section and completed questionnaires (**Annex C**, for example) and turning the data into a written document. Be clear and convincing. The goal is to show that you understand your customers' ability and willingness to pay.
    - ☞ *Competition:* turn the exercise in the 'Competition' section into a written document. The result should be an overview of your direct and indirect competition.

**Congratulations!**  
**You have completed the first two sections**  
**of your Business Plan.**

<b>Chapter 3</b> <b>Feasibility Analysis</b>
-------------------------------------------------

**Chapter 3: Feasibility Analysis**

Introduction  
 Feasibility Defined  
 Opportunity Analysis  
 Market Analysis  
 Analysis of Competition  
 Operations Planning  
 Technical Details  
 Introduction to Financial Analysis  
 Putting it Together

**INTRODUCTION**

The purpose of a Feasibility Analysis is to assess the viability of a business. In Chapter 1 you collected information about your business idea and wrote your first draft of the Business Description. Chapter 2 explained why data collection was important before writing a Business Plan and then provided methods for gathering vital information. In this chapter you will analyse the data from Chapter 2 in order to determine if the business will work. This will help you to see if your expected revenues will fall short of, meet or exceed your costs. To address this issue, you will develop a marketing plan, operational strategy, schedule, and initial financial calculations.

**FEASIBILITY DEFINED**

What are the characteristics that indicate an energy business is feasible?

**When land, fuel, technology, team, customers and permits are available and when putting these ingredients together makes financial, social and environmental sense, then a business is feasible.**

Determining the feasibility of a business doesn't guarantee that it will be funded or implemented—too many other things outside of your control can go wrong—but it does set the stage for presenting the business to reasonable people for technical and financial participation. The goal of a Feasibility Analysis is for you to demonstrate that the pieces of the business can be put together well enough to present it to others.

**OPPORTUNITY ANALYSIS**

In Chapter 1 you defined your potential customers and gathered information about them. This included details of their location, income, ability to pay, needs, and usage. The goal of this section is to prove that there are sufficient customers willing and able to buy your product. In order to prove this, it is necessary for you to analyse the data you collected and then draw reasonable conclusions. The following exercise takes you through the process:

1. How much do potential customers currently pay to meet the need you will fill? List the need.  
 \_\_\_\_\_ per \_\_\_\_\_ for \_\_\_\_\_

Example: US\$10 per month for candles, kerosene and battery charging.

2. How many customers said they would be willing to purchase your product or service? What is the total market size?  
 \_\_\_\_\_

Example: 75 households (equal to 25 per cent of those interviewed) said they could afford my product. There are 1 000 households in the proposed area of operation.

3. How much do potential customers say they can afford to pay for your product or service?  
 \_\_\_\_\_ per \_\_\_\_\_ for \_\_\_\_\_

Example: US\$12 per month for a 50-watt solar home system for 3 years. This is equal to a total of US\$432 without interest for providing the system on credit.

From the estimates you have, you can project your **total potential sales**. Start by multiplying the percentage of customers that said they would buy your product by the total number of households or

customers in your area of operation. The result is an estimate of the number of customers to whom you can sell. It makes sense that not everyone in your area of operation is a potential customer, and it is important to have an idea of what percentage of nearby residents might buy your product.

Then, multiply that estimate of your potential customers by the average price customers would pay for your product to obtain a rough estimate of your **total potential sales**. This is a very early estimate but it will be useful later on, when we discuss pricing in the next section.

**Total Potential Sales** estimate: \_\_\_\_\_

## MARKET ANALYSIS

Many people associate marketing only with advertising. Though advertising is a part of marketing, there are other important elements in a marketing strategy besides promotion, including pricing, placement (distribution) and product. Collectively, these are called 'the four P's,' and every new business has to have a strategy for each 'P'. Since you have already decided on the product, this section covers pricing, placement (distribution) and promotion.

### **Pricing**

How much to charge for a product or service is a difficult question. If priced too low, you give up potential revenue that would help pay your expenses. If priced too high, your customers may buy from a competitor. There are several ways to determine an appropriate price for your product, but keep in mind that businesses change their prices often as market conditions change.

The first thing to do is to compute the costs of your business—overhead, labour, capital equipment—so that you have an idea of how much you need to earn to avoid being in debt. The point where your company is neither losing money nor making a profit is called the 'break-even point'. It is an important milestone in the development of a new company.

Below you will find definitions of terms that you need to know to develop your price and eventually to prepare your financial analyses. Lenders and investors will expect you to be familiar with these terms:

#### Cost of Goods Sold

The Cost of Goods Sold, also called the Cost of Sales, refers to the cost to you of purchasing materials or products from suppliers for resale or manufacturing. The cost of freight and delivery charges should also be included in this estimate.

#### Operating Expenses

Operating expenses include the following:

- ✍ Labour expenses, which are the hourly fees or salaries paid to employees of your company. Payroll taxes and benefits, such as medical insurance or vacation time, should be included here.
- ✍ Professional services, which are fees paid to people who do not work for the company, e.g. contractors, consultants, attorneys, accountants, etc.
- ✍ Overhead expenses, which are all of the recurring costs incurred in operating the business. Typically they include all or some of the following:
  - Rent
  - Utilities
  - Vehicles
  - Travel and Entertainment
  - Maintenance and Repair
  - Equipment leases
  - Supplies
  - Packaging and Shipping
  - Insurance
  - Permits and Licenses

#### Capital Costs

This is the amount of money required to purchase equipment to start and maintain operations for a period of time. It also will be used to determine how much Depreciation your company will incur each year on equipment that lasts longer than a year. Depreciation simply means that an item of capital equipment—e.g.

a machine, a piece of furniture, a computer, a building, etc.—loses value over time. For example, a computer you buy today for US\$500 is worth less than US\$500 after three years. Depreciation, which is an amount listed in your company’s financial reports, accounts for that gradual erosion of value.

If you are starting a new business, Capital Costs generally include office equipment, manufacturing equipment, vehicles, etc. Remember to keep receipts for all of your equipment purchases so you are able to calculate your depreciation expenses. This is important for your accounting records and for tax purposes.

The following exercise will help clarify the total costs of starting and running your company. It will provide you with insight into what is often called your ‘cost structure’.

**Exercise 3-1  
Business Expenses**

**Calculating your Operating Expenses**

1. List your labour expenses per month and annually

Staff Name	Cost per month	Cost per year
<b>Total</b>		

2. List your professional expenses per month and annually:

Professional Service	Cost per month	Cost per year
E.g.: Accountant		
<b>Total</b>		

3. List your overhead expenses per month and annually

Expense	Cost per month	Cost per Year
<b>Rent</b>		
<b>Utilities</b>		
<b>Vehicles</b>		

<b>Travel and Entertainment</b>		
<b>Maintenance and Repair</b>		
<b>Equipment leases</b>		
<b>Supplies</b>		
<b>Packaging and Shipping</b>		
<b>Insurance</b>		
<b>Licenses and Permits</b>		
<b>Other</b>		
<b>Total</b>		

List items of capital equipment necessary to start the business and their costs:

<b>Item name</b>	<b>Cost</b>
<b>Total</b>	

**Calculating your Cost of Goods Sold**

What is the average total purchase cost of your products based on quotes from suppliers you contacted?  
 Or what is the average cost of materials if you manufacture your product or service?

\_\_\_\_\_

E.g.: US\$350 for a 50-watt solar home system.

List the Cost of Goods Sold per month and then annually—ensure that this correlates with your assumptions and findings in the Opportunity Section.

Equipment Name/Type	Amount purchased per month	Cost per month	Cost per year
<b>Total</b>			

Insert the total of labour, services and overhead items here: US\$ \_\_\_\_\_

Insert the cost of the goods sold here: US\$ \_\_\_\_\_

Add the two numbers. Your eventual sales price must cover at least this amount, but remember loan and interest payments, depreciation and taxes are not built into this number.

**Sales Projections**

The next price-related element to be developed is an estimate of the amount of your product or service you expect to sell during the first 5 years. The aim is to be able to define, for example, how many systems you will sell per month and then show why this is reasonable. The projected sales for at least the first 5 years of business (depending on when your business will be profitable and has repaid any debts) must also be calculated.

Start with your estimate for the ‘Total Potential Sales’ from the ‘Opportunity Analysis’ section above. Since it would be impossible to sell to the whole market within the first year of your company’s life, estimate realistically how many products you think you can sell each month for the first year.

If you have little direct experience in doing what your company will do, competitors can, once again, be a good source of information when making these estimates. Refer back to any notes from conversations with competitors in Chapter 1. Their figures can be used as a starting point or a measuring stick. For example, if a direct competitor is selling 150 products per year, it would not be reasonable to assume your business will sell 600 per year. Other sources of information are suppliers and target customers.

Like many estimates in this chapter, it is possible, even likely, that your sales estimate will not be accurate. That is to be expected—the aim here is to get you to think critically about your market and your company, and to gather enough information for you to make sound business decisions.

**Task:** Think about how many products you can sell per month for the first year and annually thereafter. Base your projection on number of staff, availability of stock and parts, customer demand, and seasonal changes in your business.

You are now ready for the fun part! Pricing. Four methods of pricing are presented below with examples of when they should be employed. Examine these pricing strategies, and determine a price for your product or service. It is likely that the sales price you choose will change as you complete the Business Plan, however use this price as a starting point.

#### Cost-plus Pricing

This type of pricing computes the total cost of the product or service to your business, which includes cost of materials, purchases, labour, overheads, etc., and then adds a desired profit margin to determine the sales price. This method has the advantage of being simple, but it does not take into account what your competitors are charging. The following is an example:

Cost of Goods Sold (PV module plus balance of system):	US\$400
Cost of labour (installation included):	US\$50
Overhead:	US\$50
Total Cost:	SU\$500
Desired Profit (15%)	US\$75
Required Sales Price:	US\$575

#### Competitive Pricing

If there is a significant amount of competition in the market it is wise to keep the price of your product near the market price. Research has already been completed on each competitor, so the price of your product should be known. Does this price cover your Cost of goods sold and overheads? If not then your business structure is not feasible. Some research should also be done into the willingness of the customers to pay more for the product. Under what conditions would they pay more?

#### Markup Pricing

Some manufacturers, wholesalers and retailers simply add a set amount (the markup, usually expressed as a percentage of cost) to the cost of a product to reach the final price.

#### Value-Based Pricing

Value-based pricing is a useful strategy if your customer is going to either save money or be able to earn more money as a result of the product or service you provide. In other words, the customer will find financial gains in your product or service. The easiest way to price using a value-based strategy is to estimate the amount of money your product will enable the customer to save or earn, and then price your product below that amount so that the customer has a financial incentive to buy from you.

For example, if you sell solar power systems for homes, and the electricity produced from your solar panels powers a sewing machine that enables someone to generate US\$10 per week in revenue, that would help you set your price. Of course you would want to charge less than US\$10 per week for your product, but how much less would be your decision. If you sell into a competitive market, if you want to get more customers quickly, if you want to generate favourable word-of-mouth for your product or service or if your costs are fairly low relative to how much revenue the customer generates from your product, then you should charge lower prices.

Here are three basic rules about pricing:

1. Prices must be set to cover costs. Never price 'below cost'.
2. The simplest and most effective way to help you lower sales prices is to lower costs.
3. Prices must be evaluated and changed as necessary to reflect constant changes in cost, demand, changes in the market, and responses to competition.

After you have come up with a sales price, you are now ready to determine your Gross Margin and Markup using the following important formulas:

#### Gross Margin

The gross margin is defined as the difference between total sales and the Cost of Goods Sold during a given time period. Use estimates for your first year of business. The Gross Margin must be sufficient to cover all of your business expenses (the costs of labour, services, overhead and promotion) and hopefully also provide you with a profit.

The gross profit margin can also be expressed as a percentage. Simply subtract Cost of Goods Sold (which is the same as 'cost of sales') from total sales and divide that number by total sales.

$(\text{Total Sales} - \text{Cost of Sales}) / \text{Total Sales} = \text{Gross Margin}$ .

Profit Margin, also called Net Margin, is similar to Gross Margin with one important difference. To find your Net Margin, you subtract all of your business's expenses from your total sales. The remainder is your profit, which you can either reinvest in the business, distribute to the company's owners as dividends or both. Profit Margin also can be expressed as a percentage:

$(\text{Total Sales} - \text{Total Expenses}) / \text{Total Sales} = \text{Net Margin}$ .

#### Markup

This number is also similar to Gross Margin, but slightly different. The difference between Gross Margin and Markup is that the Gross Margin is computed as a percentage of your total sales, whereas Markup is computed as a percentage of the price you paid for the goods.

$(\text{Total Sales} - \text{Cost of Sales}) / \text{Cost of Sales} = \text{Markup}$

You can make some assumptions from these calculations. For example, if your business requires a 40 per cent margin in order to make a profit then your average Markup will have to be 66.7 per cent. So, although the two calculations refer to the same monetary value, they are two very different concepts with different meanings. If you assume the two are the same it will be impossible to reach your expected profits.

Margin: \_\_\_\_\_

Markup: \_\_\_\_\_

#### **Placement (distribution)**

Now that you have a sense of how many products you will sell in a given period, you should consider how you will distribute them to your customers. Distribution is the process of moving your product from the manufacturing site to the customer. The distribution channel you choose will depend on your projected sales and the characteristics of your business. Consider competitors' distribution strategies as a starting point and decide if they would be right for your business or if something else would be more appropriate. Examples of some distribution channels for energy businesses are:

Direct Sales: The simplest and most effective way to distribute if you are selling directly to customers is to have your business sell the product. An example is selling solar water heaters directly to households for cash or credit.

Salespeople: Salespeople will sell your product or service on your behalf. They often sell a variety of products and divide their time between them. This is also an effective way to distribute a product. An example includes selling a newly designed freezer using solar panels to a solar PV company's in-country distributor.

Wholesale Distributors: A manufacturer sells a product to a wholesaler who in turn sells it to a retailer for further distribution to customers. Selling solar dried food products to an export company which in turn sells it to a retail chain is an example of this distribution channel.

Retail Distributors: Another highly effective channel if the end-user is the general public, retail distribution involves selling bulk product directly to a retail store. An example is selling dried food to a grocery store.

At this point in the business planning process you should do some research on the distribution channel(s) of interest. Specifically, find out how you would go about distributing your product. For example, if you plan on selling to a retail chain, call a few and find out their criteria and process for accepting new products. Talk to competitors, both direct (those doing what you do) and indirect (those selling a complementary product).

When selecting the distribution strategy best suited for your business, consider the channels used by your competition, the successes and failures, personal strengths and weaknesses and the location of your business and customers. Transportation methods and costs are critical issues to think about.

Task: Think in detail about how to best serve your customer given your abilities and constraints. Clearly develop the idea for your distribution channel and strive for a higher quality of service compared with your competitors. You will have to describe this in writing in the Feasibility Analysis.

### **Promotion**

Once you have considered and researched various distribution channels, the next step is to develop a promotion strategy for selling your product. The primary goal of promotion is for the public to learn about the benefits your product or service would provide.

For example, if your company sells solar power systems, in your promotion you should emphasize all the ways customers can benefit (lighting, etc.) from having solar panels. Promotional materials and advertising should be focused on customer benefits. This is a strategy that many entrepreneurs ignore, choosing to promote their company and their product rather than promoting the ways their product benefits the customer. Those entrepreneurs rarely succeed.

There are several standard options for promotion. Each should be considered, and then you should decide what sort of promotion mix would give you the most benefits for the costs involved. Examples of some marketing strategies are described below:

Advertising: This is loosely defined as any promotional activity you pay for. It includes print advertisements, radio interviews, television advertisements, or billboards.

Packaging: If you are selling your product retail, you should think about its packaging. Does the product need to be packaged to attract customers? If so, what do you say on the packaging?

Marketing Materials: This includes materials such as brochures, handouts, and mailing pieces.

Sales Promotions: Strategies used to support the message such as demonstration events, special sales, discounts, contests, and awards.

Another related issue is designing a logo. Companies often create logos to differentiate their products from those of competitors. Design a few logos and test them on friends and family—insist on an honest opinion!

Every company must have a marketing plan and must consider marketing as a priority. If you are starting a new business or expanding the products or services offered, it is always advisable to plan a marketing effort or event to launch the new business. For example, plan an event where you will demonstrate your product and hand out brochures or offer discounts, or organize a raffle with a free product as the prize. Appropriate day-to-day marketing differs from company to company and country to country. Some experimentation may be necessary to devise an appropriate marketing strategy for your business. Testing various options is often more efficient and less costly in the long run.

Marketing is extremely important, but it can be costly. Consider in great depth which types of marketing are necessary, and why and how the marketing will influence the customer to buy the product or service. Try to keep the costs down.

Task: Make a list of strategies you will consider, of their desired outcomes and of how each strategy will achieve the result. Think of a competitor's strategy and evaluate its success. Research the costs—call some media sources, printing companies, etc. Do not estimate the costs yet, as the figures must be incorporated into your early stage financial analysis. Put together a plan for testing whether the marketing plan works before rolling out a large production.

## **ANALYSIS OF COMPETITION**

Lenders and investors want to make sure that you are going to be able to sell your product or service.

Two ways for them to accomplish this are **(a)** to test how reasonable your assumptions in the 'Opportunity Analysis' section are and **(b)** to look at how you define your competitive advantage. For the purposes of this Business Plan, competitive advantage should be thought of as certain skills, aptitudes, assets and/or strategies that will give your company a unique advantage in its market.

Remember, competitors can be both direct (they sell the same product or service as you) or indirect (different product or service that meets the same customer need).

The competition section of the Business Plan should start by introducing your primary competition. Discuss the products or services they offer, their location, price, management and skills, history and marketing strategy. If there are several competitors, it isn't necessary to discuss all of them—just say how many there are, select a few, and then compare your business with theirs. This analysis can easily be done in a chart that presents the information clearly. Again, compare your prices, distribution, quality of the product, skills and management, and marketing strategy. The following exercise gives an example of the type of chart that can be used.

Exercise 3-2  
Competitive Advantage

**Write your business name in the first column. Define up to three of your primary competitors and list them in the first three columns. Discuss the strengths and weaknesses of your company compared to each competitor for each of the assets and skills defined.**

ASSET/SKILL	YOUR COMPANY	COMPETITOR #1	COMPETITOR #2	COMPETITOR #3
Management	<b>E.g. The president of the company has been in this line of work for 15 years. Dedicated support staff.</b>	<b>E.g.. Started business with only 2 years experience and all other managers are new to the company.</b>		
Technical Capacity				
Product(s)				
Distribution Channel				
Price(s)				
Promotion				
Advertising				

## **OPERATIONS PLANNING**

The 'Operations' section of your Business Plan will describe how you intend to implement your business strategy. Furthermore, it presents the structure of the business in terms of management and employees and their functions. At the end of this section, lenders and investors should be able to describe how your business will achieve its mission, from both a day-to-day sales and longer-term perspective.

### ***Operations***

The 'Operations' section can be as complex as your business. If you will have only a few employees and one or two locations, this section is simple. If you have 50 employees and several locations then this section will be more detailed. The goal is to describe to lenders and investors what each department of your business will do. Depending on the type of business, the headings below can be used for this purpose. Remember, one employee may fill more than one role or position in the company. Under each heading list key functions, names of personnel, responsibilities of each person and their relevant work experience.

### ***Product Development***

Regardless of whether you manufacture or purchase your product, you need to give a clear presentation of the process by which the product is developed or acquired. You have already collected data about suppliers. This is the place to describe how your business will interact with them. Use the information from the 'Business Relationships' section of the Fact-finding study (Chapter 2). In addition to describing the process, state how many people work in the department and their skills.

### ***Manufacturing***

If you will make your product rather than purchase it, describe the manufacturing process here. Present the process step-by-step in order to keep the description simple. Say where you get your materials from, how long it takes, what are the costs, what are the skills involved, and who are your staff. Describe your manufacturing facilities and include the costs of the entire process.

### ***Stock and Distribution***

Once you have purchased or manufactured your product where will you store it and what are the details for distributing it? Will you own or rent a warehouse? How much stock do you expect to have on hand? Some of this section can draw from the distribution strategy you developed earlier in this chapter.

### ***Offices and Sales***

The method by which customers will interact with your business is an important part of your Business Plan. Much of the information on your strategy for reaching customers was developed in the 'Marketing' section, you must now give details of how you will actually make that possible.

Will you have one office centrally located or several? What is the purpose of your office? Who will work there and what will they do? Will your sales team go to customers' houses to make sales? If yes, will you have company vehicles? How many? How often will your sales people be in the field? How will revenues be collected? How often? At the point of sale, monthly or in advance? Also, what sort of system will you have in place to account for sales and to manage your company's revenues and expenses?

### ***Technical***

This part only needs to describe how your technical team will operate. What do technicians do? How will they reach and interact with the customers? How often? How many customers is each technician expected to service? How long does it take for the technician to complete an average job?

The question of product guarantees is also an issue that relates to operations and to the marketing of your product. Will you offer support or maintenance to customers after the initial sale? Will you charge for this service? How will customers contact you? Does your supplier (if any) guarantee the product?

### ***Organization Structure***

This part of the Business Plan should be straightforward and simple. It should include an organization chart with a short introduction, and short biographies of the core management team. The organization chart should include all department heads and managers, with names and titles, and only the number of support staff for each department. Be sure to include the names of the managers or department heads or if they have not been hired and include a sentence saying when they will be hired.

Full resumés or CVs should be included as the attachments to the Business Plan. If you have a Board of Directors or advisors, a paragraph should be included about each of them as well. The Business Description of the Business Plan gives information about the management team in order to reaffirm that your team has the necessary skills to run the business successfully.

**Task:** Draw up an organizational chart indicating positions that are filled, positions to be filled before starting operations, and positions to be filled over time. Write a draft of your Operations Plan—what will each department or division do, and what do they require to do this job.

## TECHNICAL DETAILS

From a technology standpoint, an energy-business idea is feasible when natural resources are available in predictable and sufficient quantity and can be converted to energy using available proven technology. The only mention of the technological aspects so far has been in the Business Description where you described the type of resource and technology to be used and other minor details. The ‘Technology’ section of the Business Plan defends the technology choice. It addresses the following questions: Is machinery available for the type of energy technology your business will use? What is the acquisition process? Why is the project of the designated size, and how will all of the important processes (e.g. collection, transport and storage of fuel) be handled? How will the handling and conversion of fuel to energy happen? How will the energy be distributed to customers? Describe details of the type of energy resource to be used and, if possible, review what types of resource data exist and who compiled it during what period of time.

This section should provide a more thorough description of the technology, going into detail about how the technology and process will actually work. If the type of business you are proposing has been implemented and successful **and** if the technology itself is simple and proven, then this section will be short. For example, if your business distributes solar home systems and the PV technology is proven, this section would only include details of the types of panels and balance of system components being offered, the costs, supplier guarantees, etc. Then a paragraph affirming that the solar insolation is sufficient in the location of operation to charge the battery a certain number of days per year.

For a more elaborate business with a more complex technology process, such as a hydroelectric or biomass cogeneration project, the ‘Technology’ section will be extremely important to investors because they will use it to evaluate their risks. As stated previously, lenders and investors do not want to be pioneers, so if your company is proposing an energy project of a type that has not been implemented on a commercial basis either locally or successfully, then this section must provide a thorough explanation of how the technology will work.

Lastly, when the success of the business relies on a new or risky technology working, it is often necessary to have an expert analyst conclude that the proposed technology and energy resource will reach the business objectives. This analysis is typically included as a technical annex to the Business Plan.

## INTRODUCTION TO FINANCIAL ANALYSIS

In earlier sections you calculated your Cost of Goods Sold, Overhead Expenses and Capital Cost in order to help you determine the sales price of your product. In your Business Plan, however, the marketing section will not be as detailed—it will state what you will charge customers and then describe your marketing and distribution. The financials (i.e. financial statements) used to support your pricing decision will be included in the ‘Finance’ section of your Business Plan. For the Feasibility Analysis the only necessary financial information is a report of how much money you need to start your business, a description of what that money will be used for, and your businesses revenue projections in the form of an Income Statement<sup>4</sup>. The final Business Plan will include more figures and financial statements, such as a Balance Sheet and Cash Flow Statement, explained in Chapter 4. In addition, **Annex E** provides an introduction to basic financial terms and concepts.

### *How Much Money Do I Need?*

Once the ‘Marketing’ and ‘Operations’ sections are complete, it should be clearer what capital goods need to be secured and what people need to be hired to start the business. Put together a list of the items to be

<sup>4</sup> If your business sells several types of products or services a revenue section should be included in addition to an Income Statement to clearly present how you generate your revenues and over what period.

purchased and their costs as well as a figure for operating expenses, employee salaries, professional fees, and taxes per month. Remember, planning and pre-operations need to be covered by invested capital, whereas the operating expenses need to be covered by revenue.

There is a relatively simple way to determine how much capital you need. First (using the table below), you must estimate all of your costs before you will receive cash from customers. These costs will include the payment of salaries and contractors and the purchase of goods needed in the planning of your enterprise, in its Pre-operations or Construction Phase and during its Operating Phase until revenues cover the daily-weekly-monthly expenses. You will borrow some of this money and you will put some of this money in as equity, but you need to know how much is required. Entrepreneurs too often simply estimate the cost of buying their product and equipping their facilities and forget that bills need to be paid until cash comes from customers. The amount of this 'Working Capital' requirement can be crucial in the success or failure of a business. Bear in mind that you must have sufficient funds to pay your bills until the customers pay you, which may be 30, 60 or even 90 days after you bill them. For instance, you may order equipment, furnish your office, and market your product for 6 months before your first sale. It will then take another 8 months to sell enough products to break-even. Furthermore, when you borrow funds you are required to at least begin paying interest within about 6 months. It is possible to use borrowed funds to cover initial operating costs.

## Working Capital Requirement

Phase	Costs
✍ <b>Planning:</b>	
✍ <b>Pre-operations/construction:</b>	
✍ <b>Operating:</b>	
<b>Total:</b>	

There is a simple way to see if you are borrowing enough using the Cash Flow Statement, one of the key financial statements that businesses rely on to give managers and investors a clear summary of what is happening at the company. You will learn about the Cash Flow Statement in Chapter 4, and you will then be able to play with your borrowing figure to see the effect on your payments, and profit or loss.

Financial statements—of which the most important, the Income Statement, is introduced here—are not as complicated as they might seem. Although they can be intimidating at first, you'll soon see that they are straightforward and extremely useful for getting up-to-the-minute information on your business's situation, for making projections, and for communicating with others.

**Income Statement:**

The purpose of an Income Statement is to present the business's performance during a given period in an organized fashion. To do this, the Income Statement lists the company's total revenue as its first line and then subtracts different expenses until arriving at profits, or 'the bottom line.' If profits are negative, then the business generated a loss during the period.

On the way from the top of the Income Statement to the bottom (from total revenue to profit), you will find your Gross Margin (the same as the one you computed earlier in the chapter), and 'Operating Income,' which is another important measure of a company's health. The Income Statement contains the information listed below, given here with definitions of each of the items:

Gross Revenues: All of your business's dollar sales for the listed period of time. Also referred to as Gross Sales, Total Revenue or Total Sales.

Returns: The cost to your business of any damaged or returned products.

Net Revenues: Difference between Gross Revenues and Returns. Sometimes called Net Sales.

Cost of Goods Sold: The cost to you of purchasing materials or products from suppliers for resale or manufacturing. Commonly referred to as Cost of Sales.

Gross Profit: Calculated by subtracting Cost of Goods Sold from Net Revenues.

Gross Margin: Calculated by dividing your Gross Profit by Net Revenues.

Operating Expenses: All of your business costs including labour, capital equipment expenses, overhead, professional services, promotional costs, etc.

Net Operating Income: Calculated by subtracting Operating Expenses from Gross Profit. This represents your earnings before you deduct Interest, Taxes and Depreciation. It is a number investors will be looking at to see if your business's core costs are paid for by revenue.

Depreciation: Even though Depreciation is listed on your Income Statement like a regular expense, it is not the same sort of expense as salaries or rent. Depreciation is a method for re-valuing your capital goods (machines, vehicles, buildings, etc.) as they lose value with age. To determine the dollar-amount of Depreciation, take the original cost of the asset, spread out that cost over a number of years (see below) and, for each year, list that amount as your Depreciation expense. One benefit of Depreciation is that it reduces the profit your business ends up reporting, which reduces the amount that the business has to pay in income taxes.

The number of years over which you depreciate your capital assets is up to you. Generally, it is between 10 and 30. The number of years should be the same as your estimate of the 'useful life' of the asset. For solar-powered water pumps this could be 10-20 years. For a cogeneration business it could be 15-30 years.

Interest: Calculate the interest paid on loans over the given period of time. When putting together a forecast, this estimate is rather rough, but it should be finalized before presenting to a potential lender or investor.

Taxes: calculate all Taxes the business must pay including employee and income taxes. At the business start-up level it is therefore only important to provide an 'allowance' for income taxes from the business on a simplified basis.

Net Profit (or Loss): Also called Net Earnings or Net Income, this is the total profit after Interest, Taxes and Depreciation are subtracted from Operating Profit.

Net Margin: Divide the Net Profit by Net Revenues to understand how much profit you are making in comparison to your sales. This is expressed as a percentage.

**Example of an Income Statement**

Company Name  
Income Statement  
For the period from DATE to DATE

<b>Gross Revenues:</b>	
Returns	
<b>Net Revenues</b>	
Cost of Goods Sold:	
<b>Gross Profit:</b>	
Gross Margin: (percentage)	
<b>Operating Expenses:</b>	
Labour:	
Professional Services:	
Overhead:	
Rent	
Utilities	
Vehicle	
Travel and Entertainment	
Maintenance and Repair	
Equipment leases	
Supplies	
Packaging and Shipping	
Insurance	
Licenses and Permits	
Other	
<b>Total Operating Expenses:</b>	
<b>Net Operating Income</b>	
Depreciation	
Net Profit Before Interest	
Interest	
Net Profit Before Taxes	
Taxes	
<b>Net Profit (or Loss)</b>	
<b>Net Margin: (percentage)</b>	

The above Income Statement is for the first year of operations. An income statement for what you expect (or 'project') to achieve in the coming years must also be completed. This type of Income Statement is called a Pro-forma Income Statement. The pro-forma statement should be presented in the same format but with additional columns for each year. Title the column according to the year.

Preparing financial projections is tricky because you must make assumptions about the future. Lenders and investors usually want to see your business grow but, for most businesses, that is not as simple as just increasing revenues each year. You must ask yourself what will be the ratio of increased expenses to increased revenues. For example, if you want to sell 150 units in year 1 and 250 units in year 2 how many more employees will you have to hire or how many additional vehicles will you need to purchase? Perhaps, your business will get more efficient in the future so you will not need to increase your expenses the same each year.

Task: Complete a worksheet detailing the funds you require, draw up an Income Statement for your business for year 1 and a Pro-forma Income Statement for years 2 through 5. Include these in your Feasibility Analysis.

## PUTTING IT TOGETHER

Below is a list of characteristics your business should have. Before going to the next chapter, review them and make sure each one is addressed by the information you have gathered so far in this process.

### **A renewable energy business makes sense and is feasible when:**

1. The energy product produced can be sold to one or more credit-worthy customers.
2. A strategy has been developed to meet sufficient demand for the product or service.
3. A practical and efficient marketing and operation plan has been developed.
4. The business is compatible with local and country energy plans for energy service delivery.
5. The commercial, political and social setting of the business will instil confidence in suppliers, contractors, investors, lenders and insurers.
6. The team has sufficient experience and skills to design, build and operate the business.
7. Qualified suppliers, contractors and consultants are available and have expressed interest in the business.
8. Natural resources—wind, water, biomass, and sunlight—are available in predictable and sufficient quantities.
9. The available natural resources can be converted to energy using available proven technology.
10. Contractual rights to use these natural resources (water and biomass) can or have been obtained.
11. Land needed for the business (manufacturing site or generation site) can or has been secured and access to the site assured.
12. All the permits needed to design, build and operate the business can be obtained in a timely manner.
13. Reasonable estimates have been made of all revenue, capital and operating costs, including contingency allowances and taxes.
14. Revenues are sufficient to pay operating costs, repay loans and provide adequate returns to investors.
15. There is local or international interest in providing loans and investment capital.

*'When land, energy resource, technology, team, customers and permits are available and when putting these ingredients together makes financial, social and environmental sense, then a business is feasible.'*

The purpose of this chapter was to take the facts gathered in Chapter 2 and your business ideas and to then demonstrate that they are appropriate and feasible. It should now be clear whether you can sell your product for a competitive price and sell a sufficient quantity to be profitable. The next step is to continue putting all of the information together in a coherent, organized fashion that can be shared with lenders, investors and partners.

The final step in the feasibility study is to present the information in a Business Proposal. This will form the backbone of your formal Business Plan, to be completed in Chapter 4.

The Business Proposal should be organized as follows:

- a. Cover and Table of Contents
- b. Business Description—take from Chapter 2, review and improve if necessary.
- c. Opportunity—take from Chapter 2, but explain why the customers outlined in your Business Plan will be willing and able to purchase your product or service.
- d. Marketing—what is the price of your product or service and how did you arrive at this figure, what is your proposed distribution process and how will you market your product or service.
- e. Competition—state who are your competitors, what they do and how you will compete against them.
- f. Operations—present the organizational structure of your business and say what each of its departments does.
- g. Technology—describe the technology and energy resource including the process, appropriateness and track record.
- h. Finance—detail the funds required to start and run the business and provide an Income Statement and Pro-forma Income Statement.

**CONGRATULATIONS!**  
**YOU HAVE COMPLETED A BUSINESS PROPOSAL**

<b>Chapter 4</b> <b>The Business Plan</b>
----------------------------------------------

**Chapter 4: Business Plan**

Introduction  
 Lender and Investor Points of View  
 Financial Planning  
 Schedule of Activities  
 Risks and Mitigation Measures  
 Impacts  
 Summary of What Has Been Learned  
 Detailed Outline of an Energy Business Plan

**INTRODUCTION**

The Business Plan is the fundamental road map for any new business. This chapter presents the remaining topics to be included in your final Business Plan and provides a structure for presenting the material in a coherent form to potential lenders, investors and partners.

To reiterate, a good Business Plan does the following:

- ⚡ Shows that the proposed business is a serious initiative, undertaken by capable entrepreneurs who understand and have control of the essential elements that will ensure success.
- ⚡ Increases the chances that an entrepreneur will be able to attract investors, lenders, partners, strategic allies, suppliers and key staff.
- ⚡ Forces the entrepreneur to collect, in one place, all of the thinking and research that has gone into the development of a proposed business.

**LENDER AND INVESTOR POINTS OF VIEWS**

It is important to differentiate between lenders and investors.

Lenders (usually bankers) make loans (debt) with the expectation of receiving a very specific set of payments over time. Their requirements are usually well defined in terms of conditions that must be met in advance and over the course of the loan. *Lenders do not want to take risks* and they do not generally enjoy any benefits of a business being profitable. Lenders want to be repaid and, if the business cannot make that repayment, they want to know that others will make the payment or that assets of equivalent value are available to reimburse them.

Investors make equity investments in businesses. They expect a higher return than lenders and are willing to take more risk, but this should not be confused with being risk-takers. They are equally clear about what they are willing to do or not do. Their interests are in seeing a business succeed and in earning a return on their investment. If they become significant participants in a business, they tend to establish very specific (and stringent) targets to make sure that things are going well. When things are not going well, investors often have the ability to make significant changes in a business, including replacement of the management team.

**It may sound as though the interests of lenders and investors are the same: to get paid. Sometimes this is true, especially when things are going well and especially in the early stages of a business. However, very few businesses go exactly as planned and ‘course corrections’ are needed. Depending on the degree of correction, the interests of lenders and investors may become very different.**

Why do Investors Invest? Investors provide equity to a business for a variety of reasons. It is important that entrepreneurs understand the goals and objectives of investors before going too far in discussions. Investors provide equity to:

- ⚡ Produce income in the form of cash dividends (often in a particular pattern as in the case of an investment fund that has promised returns to its investors over a specific time period).
- ⚡ Achieve capital growth (with or without specific time constraints; a traditional equity investor-partner is involved over the life of a business whereas a fund investor, as noted above may have a contractual obligation to liquidate its investment in 6, 8 or 10 years).
- ⚡ Enter a market (and thereby avoid the start-up and market research costs and problems of entering a market alone, preferring instead to join forces with a business already developed).
- ⚡ Sell a product (especially equipment).
- ⚡ Form a partnership and thereby grow quickly (similar in appearance but substantively different from making an investment to enter a market).

In contrast, why do lenders make loans? The list of reasons tends to be shorter, but it is equally important, especially in a new field such as renewable energy, to understand the motives of a lender. Taking it for granted that all lenders make loans because that is an important part of their business and a source of profits, there are other reasons to consider. Lenders make loans (provide debt) to:

- ⚡ Build relationships with clients who will be a source of future business.
- ⚡ Enter new business areas that can expand their loan portfolio profitably and provide a competitive advantage to the bank.
- ⚡ Contribute to economic and social growth and thereby stimulate greater lending activity.

It is important to note that many banks simply do not lend for ‘projects’ (bankers separate project finance—which includes loans secured by the infrastructure project itself—from corporate finance—in which the activities and assets of a company guarantee a loan—and many do not lend to groups without substantial experience and assets). Being aware of the interests of banks in advance can save a great deal of time.

What do lenders and investors look for? There are different degrees of emphasis placed on the following factors, but both lenders and investors look for:

- ⚡ Strong sponsor (experience, credibility, skills, commitment of time and money).
- ⚡ Solid business fundamentals and assumptions (raw materials, process, outputs).
- ⚡ Clear competitive advantage and business strategy.
- ⚡ Risk assumption by others (completion of business both from the standpoint of time and money, insurance for accidents, guarantees of performance of equipment).
- ⚡ Clear legal and regulatory framework (energy sector, banking and investment sectors, tariffs, taxes, and incentives).
- ⚡ Country stability (political, economic and disasters, especially climate driven).
- ⚡ Exit mechanisms (for bankers: repayment backed up by security and guarantees; for investors: sale of assets or shares to third parties, buy-back by business, re-financing, dividends).

## FINANCIAL PLANNING

In Chapter 3 you took the first step in preparing the Financial Statements to be included in your Business Plan—the Income Statement and Pro-forma Income Statement. Now it is time to prepare the Balance Sheet and Cash Flow Statement, the two remaining elements of your financial analysis.

### **Balance Sheet**

The balance sheet is a financial presentation of what your business owns and what it owes at a specific date. It differs from the Income Statement in that it is like a snapshot of your assets and debts at a given point in time, whereas the Income Statement measures the flow of money in and out of your company over a given period.

Anything that your business owns is an Asset and anything your business owes is a Liability. The Balance Sheet traditionally splits a page into two columns, one for Assets and one for Liabilities. Broadly speaking, assets are anything that will create future financial benefits for the company.

The company’s assets are presented in order of **liquidity**, which is defined as the ease by which the asset can be converted into cash without a loss in value. For example, cash your company has in the bank would

be listed before a building your company owns, because cash is a liquid asset and real estate is not. More generally, assets are divided into three categories:

<u>Current Assets:</u>	includes any items that can be converted easily into cash over the next 12 months. Examples include cash, inventory, short-term investments and accounts receivable (which is the amount of money you are owed by customers, partners, etc., but that has not yet been paid).
<u>Non-Current Assets</u>	any items that cannot be easily converted into cash within 12 months. May include land, buildings, equipment, furniture, and vehicles. Non-Current Assets are also referred to as Fixed Assets.
<u>Long-term Investments:</u>	any commitments the company has made in terms of long-term investments. For example, if you own equity in another company, or if your company has made a loan to another company, that would be listed here as an asset.
<u>Total Assets:</u>	The total of your company's Current and Fixed Assets.

Liabilities are promises or commitments by your business to pay some amount at some future date. Similar to the Assets section, the Liabilities section of the Balance Sheet is presented in the order in which the liabilities come due. It includes:

<u>Current Liabilities:</u>	debts and monetary commitments payable within the next 12 months. This includes accounts payable (money you owe to suppliers and employees), short-term debt, interest and taxes.
<u>Non-Current Liabilities:</u>	debts and monetary commitments payable over a period longer than 12 months, including taxes.

The Liabilities column also has a section called Owners' Equity. The Owners' Equity section keeps track of how much money the founders have contributed to the business, and also keeps track of how much money the company has earned and then put back into the business. Money invested by the founders is called 'Contributed Capital,' and money generated by the business and reinvested in the company is called 'Retained Earnings.'

<u>Owners' Equity:</u>	this is the owners' investment in the company. Break into separate lines if there are multiple owners or shareholders. Also include a line for Retained Earnings if necessary.
------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

It is imperative that your company's Total Assets equal your Total Liabilities plus Owners' Equity. This is commonly known as the Balance Sheet Equation.

### **Total Assets = Total Liabilities + Owners' Equity**

Although it might sound complicated, it's actually quite simple. For example, if you invest US\$1000 in your company, the value for Contributed Capital in the Owners' Equity section will be US\$1000, but, on the Asset side, the value for cash will also be US\$1000. Thus the equation holds, and the balance sheet 'balances'. In another example, if you take out a loan to buy equipment, the Liabilities side will show the value of the loan and the Assets side will show the value of the equipment. Again, the balance sheet balances.

An example of a balance sheet is given below.

**Company Name**  
**Balance Sheet**  
**DATE**

<b>Assets</b>		<b>Liabilities</b>	
<b>Current Assets</b>	<b>Value (\$)</b>	<b>Current Liabilities</b>	<b>Value (\$)</b>
Cash		Accounts Payable	
Accounts Receivable		Short-term Debt	
Inventory		Interest Payable	
Short-term Investments			
Other		Other	
<b>Total Current Assets</b>		<b>Total Current Liabilities</b>	
<b>Non-Current Assets</b>		<b>Non-Current Liabilities</b>	
Building		Long-term debt	
Equipment		Taxes Payable	
Land		Other	
Long-term Investments			
Other			
<b>Total Assets (Current + Non Current)</b>		<b>Total Liabilities (Current + Non Current)</b>	
		<b>Equity</b>	
		Contributed Capital	
		Retained Earnings	
<b>Total Assets</b>		<b>Total Liabilities + Owners' Equity</b>	

### **Cash Flow Statement**

You now have all the information needed to prepare a Cash Flow Statement, which is basically designed to explain the change in your company's cash amount during a given period. In some ways, the Cash Flow Statement is similar to the Income Statement—both measure flows of money over time. But the Cash Flow Statement specifically deals only with cash transactions the company has completed. Money that the company owes but has not yet paid will not appear on the Cash Flow Statement, but will often appear on the Income Statement.

It is recommended that you prepare two Cash Flow Statements. The first should be monthly and should cover a year of operations. A monthly Cash Flow Statement illustrates when you generate revenue and whether or not you can pay your expenses each month. The second Cash Flow Statement should be annual and cover a five-year period or a period long enough to show that assets are used or that loans are paid. An annual Cash Flow Statement shows that you can pay your debts and gives a lender or investor an idea of how your business grows and what return they can expect for their money.

The easiest way to compile your first Cash Flow Statement is to look at your Income Statement and start with your Net Profit (or loss). Then:

**Add back Depreciation:** For the Income Statement, you deducted Depreciation but it was not a cash expense, so it must be added back to calculate your cash flow.

**Add back Debt Payments:** Deduct payments on loans because they were cash outlays.

**Net Cash Flow:** The total of Net Profit plus Depreciation and minus Debt Payments.

**Internal Rate of Return:** This calculation measures the extent to which investors earn money for their initial investment. The simplest way to calculate this is using Microsoft Excel or other software. The concept is explained in more detail below.

Example of a Cash Flow Statement:

Company Name

Statement of Cash Flows  
From DATE to DATE

<u>Cash Flow</u>	<u>Amount</u>
<b>Net Profit/Loss (From Income Statement)</b>	
<b>Add back Depreciation Expense (From Income Statement)</b>	
<b>Subtract all Debt Payments</b>	
<b>Net Cash Flow</b>	
<b>Internal Rate of Return</b>	See below

### ***Internal Rate of Return***

The point of completing a Cash Flow Statement is that it helps you determine your company's Internal Rate of Return (IRR). IRR measures how much financial return you make on your company's investments. IRR is a critical number, because if your company's IRR is less than the interest rate it pays for loans, clearly the business will not be able to pay its debt. If your IRR is higher than the interest rate you pay on loans, that's very good.

Based on cash flow projections it is relatively easy—with the aid of a financial calculator or spreadsheet software—to determine the business's IRR. See **Annex E** for a guide.

**Combined with a few pieces of additional information it will be possible to decide whether or not a business is generally sustainable from a financial perspective.**

Once you know the business's IRR, answer the following questions:

- ⚡ What is the current interest rate charged for loans in the local market?
- ⚡ What is the current or projected interest rate for loans from outside the current market?
- ⚡ What are investors demanding as a rate of return to make their funds available to business as equity?

If a business's IRR is 16 per cent and the cost of borrowing money in the local market is 20 per cent then there is little reason to borrow in the local market unless a large portion of the business capital will come from the entrepreneur or others who are willing to receive a low rate of return.

There are cases where lower-interest loans are available. Generally, concessionary finance programmes by governments or institutions offer loans at 'below-market' interest rates. Also, companies sometimes offer low-interest financing on the sale of their equipment or services. Such financing can serve to lower your company's 'hurdle rate,' which is the IRR a business needs to meet to be feasible.

When is a business not feasible from a financial perspective?

- ⚡ If a business has a negative IRR.
- ⚡ If a business's IRR is too low for even the entrepreneur to invest his or her available cash.
- ⚡ Assuming the entrepreneur does not have all the capital required, if the business IRR is too low to attract other equity investors to supply cash.

You should read **Annex E—Basic Concepts of Financial Analysis** for a review of the terminology and methods presented here.

### ***The Hardest Task***

This is the stage of analysis where many well-intentioned entrepreneurs refuse to see the reality staring at them from the numbers they have prepared. If your IRR is too low, the business idea, as it stands, is probably not viable. There is hope in 'financial engineering', higher revenues than estimated, lower costs, eliminated contingencies, subsidy programmes, lower loan costs, value increases and so on. It is OK (and normal) to refine estimates, but there is a point at which only the entrepreneur can determine if he or she is deluding himself or herself. It is easy to change assumptions and improve the IRR. There is an old saying that statistics do not lie; only statisticians do. Notwithstanding the ability to manipulate data—and with the help of spreadsheets it is as easy as 'point and click'—the entrepreneur needs to decide if refining the estimates and financial plan really makes sense.

At this point in the business analysis **there should be a great deal of room for error**. If the business is just barely financially feasible, if the business absolutely depends on convincing others to make loans and equity investments, if the business estimates have been gone over and over mostly to make the result better, if the entrepreneur has sought the opinion of others and it is still a very close call, then **continuing with the business is probably a bad use of the most valuable commodity an entrepreneur has: his or her time**.

## **SCHEDULE OF ACTIVITIES**

If you've made it this far, the rest of the Business Plan is easy. Now it's time to put together a schedule, or timeline, of when you will implement the business strategies. The key milestones, such as hiring employees, receiving approvals for permits, acquiring stock, expansion activities and reaching profitability should be included here. Again, be thorough but keep it clear and simple.

A schedule helps you and your audience to understand how the business is planning to accomplish the goals and deliverables presented throughout the document. It shows that you have thought through the implementation, that you are organized and that you understand how to launch operations. A simple approach is to divide the schedule into the following categories: Planning, Pre-operations/Construction and Operations.

Start a draft timeline using the following table. Include a description of each activity under each category. Estimate a date when the activity will be pursued.

Category	Activity	Timeline
Planning		
Pre-Operations/ Construction		
Operations		
Expansion		

**RISKS AND MITIGATION MEASURES**

Every business, start-up or expansion has risks. This section of the Business Plan should present the risks and appropriate mitigation measures. A mitigation measure is a strategy for how your business will address a risk. Not every risk can be avoided and it is important to demonstrate that you are aware of this and have thought of how you will attempt to protect your business. There is no benefit in hiding risks, as lenders and investors will do their own research, called ‘due diligence’, and uncover them anyway. By not including them the investor may think the risks have not been considered, which may make the entrepreneur seem less knowledgeable. Types of risks facing an energy business are given below. For a more detailed analysis, see

## Annex F—Final Risk Checklist.

- ⚡ Country: Does the country have a history of political stability? Are regulations transparent and enforceable?
- ⚡ Management Team: Does the management team have adequate experience in the proposed line of business?
- ⚡ Operations: Is the depth of the operating team sufficient to support the financial assumptions?
- ⚡ Construction Completion: If construction time overruns the completion date, what are the legal implications outlined in the contracts?
- ⚡ Technology: Is the technology proven?
- ⚡ Competition: How will the business compete against another business selling the same product in the same region?
- ⚡ Suppliers: If the supplier falls through, how many back ups are there?

## IMPACTS

For energy businesses, this section of the Business Plan should highlight the positive impacts of the business. Many lenders and investors are looking to invest in businesses that are very profitable. Others, however, are looking for profitable businesses that benefit the environment or community. For example, delivering energy services to households which lack reliable access to such services may improve their quality of life. Improved cook stoves are more efficient than traditional metal stoves and use less charcoal or wood, thus helping to conserving these non-renewable resources. There are lenders or investors that will support businesses that have positive impacts, so it is advisable to highlight those impacts in your Business Plan. They can be competitive advantages for your company as you seek funding.

The impacts of the business should be analysed from a social, environmental and economic perspective. Social impacts affect the customers or people of a community or region. Examples can be income generation, reduced time fetching water or wood, access to education or reading, etc. Economic impacts are a result of an increase in income to the customers or community. An example is selling a lantern or solar home system to shop owners so that they can stay open in the evening and thus increase their sales. Finally, positive environmental impacts are those that preserve the environment. All renewable energy businesses have environmental benefits because the technology used is environmentally-friendly relative to traditional energy operations. Projects and services that offset or reduce dependence on wood or charcoal preserve forests and combat desertification, providing an important positive environmental impact.

It is not necessary for every business to have each of these three impacts. However, any positive social, environmental or economic impacts should be clearly expressed in the Business Plan as they are an asset.

## SUMMARY OF WHAT HAS BEEN LEARNED

The aim of this Toolkit has been to break the Business Plan into building blocks to make the task of writing it less daunting. This chapter has introduced the final necessary elements of the Business Plan and all sections of the Business Plan and their contents have been covered. It is now time to compile all your written material into the Business Plan..

The final step is to review the outline of the Business Plan format below, and compile your information into a descriptive, organized document that can be presented to possible lenders, investors or partners. **Annexes G, H, I and J** provide helpful examples and information to assist you in this final stage.

## DETAILED OUTLINE OF AN ENERGY BUSINESS PLAN

A good Business Plan is built on solid information. That information can be organized in many different ways but the essential ingredients remain the same. These are listed and then described in more detail below. While certain businesses may require additional content, most business information can fit within this structure.

- ✍ COVER and TABLE OF CONTENTS
- ✍ EXECUTIVE SUMMARY
- ✍ BUSINESS DESCRIPTION
- ✍ OPPORTUNITY
- ✍ MARKETING
- ✍ COMPETITION
- ✍ OPERATIONS
- ✍ TECHNOLOGY
- ✍ FINANCE
- ✍ SCHEDULE
- ✍ RISKS
- ✍ IMPACTS
- ✍ CLOSING, which describes the business's proposed capitalization plan and what is being requested from lenders and investors
- ✍ A set of ATTACHMENTS, which provide details concerning some of the points made in the Business Plan

### Cover and Table of Contents

- ✍ Business Title, Location, Technology, Size
- ✍ Contact Information
- ✍ Contents by Section and Page Number
- ✍ Disclaimer and Confidentiality Statement

### Executive Summary

*This tells the business's story in one page, providing a brief introduction of what's to come. It should present the most compelling aspects of your company and make potential investors want to learn more.*

#### Section 1—Business Description

*In this section of the Business Plan the product or service to be sold is described as well as the location. The goals for starting the business are presented. Finally, the business structure—retail, wholesale, manufacturing, project development—should be explained, as well as the ownership structure. How are profits to be distributed? Any permits or licenses that have or need to be acquired should also be presented. The section need not be long or detailed, concentrate rather on making it clear and concise. The Business Description completed in the Feasibility Analysis can be used in the Business Plan.*

- ✍ Business location and Setting
- ✍ Product or service to be offered
- ✍ Goals and Objectives
- ✍ Business legal and ownership structure
- ✍ Permits and licenses

#### Section 2—Opportunity

*Describe the customers that will buy your product or service and explain why they will do so. The goal of this section is to prove that there are sufficient customers that are willing and able to buy your product.*

#### Section 3—Marketing

*This section gives a detailed presentation of the strategy for selling the product or service. It should have been completed in Chapter 3 and presented in the Feasibility Analysis. Include the following:*

- ✍ Pricing Strategy
- ✍ Distribution Plan
- ✍ Advertising and Promotion

#### Section 4—Competition

*This section provides the opportunity to explain why there is and will continue to be demand for your product or service in light of the competitors. It is also extremely important for you to understand your competition and it helps you learn about the market. Use the section created for the Feasibility Analysis, including the following:*

- ✍ Names and description of competitors
- ✍ Strengths and weaknesses
- ✍ Competitive advantage

#### **Section 5—Operations**

*This section describes how the business will operate. It describes your organizational structure and then how each department will operate. Again use the completed section from the Feasibility Analysis.*

- ✍ Organization Structure
- ✍ Operations

#### **Section 6 –Technology**

*This section describes in detail the technology and energy resource to be used. Explain the process, appropriateness and track record. Use section completed in Feasibility Analysis.*

#### **Section 7—Finance**

*In this section all of the financial features of the business are presented. The most important financial assumptions of the business are shown, the proposed financial plan is described and an analysis is made of the impact of various changes to the basic financial assumptions.*

- ✍ Worksheet of funds required
- ✍ Income Statement
- ✍ Balance Sheet
- ✍ Cash Flow Statement

#### **Section 8—Schedule**

*Present a schedule and timeline of major milestones to be reached.*

#### **Section 9—Risk Factors**

*This section describes the risks that the business faces and how the business plans to deal with these risks. Include the risks with possible mitigation measures.*

#### **Section 10—Impacts**

*Social, economic and environmental benefits of the business's implementation, and any other special features of the business, are described in this section.*

- ✍ Local employment
- ✍ Economic activity stimulated
- ✍ Improvements to physical assets
- ✍ Social benefits
- ✍ Protection of environmental quality
- ✍ Pollution avoidance or elimination
- ✍ Greenhouse gas (carbon) benefits

#### **Closing**

*The Closing section of the Business Plan summarizes the business's proposed capitalization plan and what is being requested from lenders and investors.*

#### **Attachments**

- ✍ Complete financial statements
- ✍ Summary of technical and market studies
- ✍ Copies of authorization letters and permit approvals
- ✍ Detailed background and financial information about the sponsor

**Annex G** includes sample Business Plans for a:

- ✍ Grid-connected hydroelectric business;
- ✍ Solar enterprise selling both product and services to rural communities; and,
- ✍ Company providing income generating equipment dependent on energy supplies and efficiency.

**You are done with the Business plan.  
Congratulations and Good Luck!**

<b>Annex: Current Barriers to the Adoption of Youth Led Renewable Energy Enterprises</b>
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Youth face several barriers when trying to set up renewable energy enterprises. These are:

- ✍ Lack of technical or commercial skills: Youth lack the skills and experience that are essential for setting up and managing renewable energy projects. These skills include marketing, financial management, and technical knowledge. A lack of knowledge in the communities about how to run renewable energy projects is a problem, but also the broader problem of a low quantity and quality education in many countries – especially in rural areas of developing countries is a problem as well. Low access to technology for youth and rural communities also make them poorly prepared to use technical equipment necessary for the projects.
- ✍ Lack of information: Limited availability of and access to existing information necessary to run youth led projects is a stumbling block that local communities and youth worldwide experience. Youth lack knowledge of the market potential for renewable energy, of the benefits of using renewable energy services for customers, of projects elsewhere that are successful in building up a business in renewable energy, of potential partners and of the process of setting up such projects. These are all essential components of information needed for the youth projects to be successful and competitive. The reason that this information is hard to gather in local communities is that there are no easily accessible sources. The information is scattered among various sectors for example private and public companies, development assistance, NGO's and academia around the world. This information is increasingly available via the Internet, where major knowledge resources are hosted, and in large institutions around the world. Local communities have only very limited access to the Internet and libraries in rural areas are often of poor quality and quantity.
- ✍ Lack of access to technology: Renewable energy technologies and technical assistance to support the youth projects are limited due to the current relatively small market for renewable energy services. Furthermore, there is a serious lack of new and innovative technologies needed to manage and market the renewable energy businesses in many countries facing poverty. Even if the technology is available, there is often no place for the youth to go and learn how to use the technology and the software needed.
- ✍ Lack of youth involvement: Young people generally have the energy, the vision and the belief to get involved with new projects but they need to feel that they can make a contribution and that they are trusted and supported. In the majority of countries there is a lack of infrastructure to support youth employment projects, and youth are not given the necessary coaching, trust and an enabling environment to make viable contributions to the local economy. Youth are often thought of as unreliable, frivolous children instead of the serious, ambitious young adults seeking ways to contribute to society and prove their worth. The youth in the rural areas have little opportunity to gain information on the potential of being in the business of renewable energy services.
- ✍ Lack of institutional capacity for training and supporting the promotion of renewable energy: Throughout the world, because of lack of financial resources and because of the barriers cited above, there is a lack of institutions serving youth that have expertise in renewable energy technologies and business development.
- ✍ Lack of credit: Funding of renewable energy projects is a problem because of a lack of dedication from commercial banks, utilities, and development banks to finance renewable energy activities. Without credit, a wonderful and potential project to preserve the environment backed by talented and hardworking people will get dropped. It is often impossible for youth to get funding for a highly potential project because banks and foundations do not believe in the credibility of these citizens.

## **“What Works”**

The promotion of youth led renewable energy enterprises will tackle jointly the issues of youth unemployment as well environmentally sustainable development. The rural youth needs an enabling environment for the successful and continued implementation of renewable energy. Thus they need to be equipped with the skills that could enable them to set up viable and sustainable enterprises. To create this enabling environment, a variety of measures need to be taken. These include dissemination of information on renewable energy – its potential in providing income generating activities for youth – and other issues such as creation of business plans to market renewable energy, and access to technology and technical know-how. This will build the much-needed institutional capacity to develop renewable energy enterprises.

In addition, the energy and dynamism of youth needs to be tapped. Development agencies have in the past succeeded in empowering women as a group previously disadvantaged and prejudiced against, to one that is universally accepted as effective change and development agents. This can be observed in such innovative solutions as micro-credit systems that focus on women as the main implementers. Youth need to be given similar attention. They need to be coached and trained in all the relevant areas for setting up and successfully running renewable energy enterprises. Youth involvement in community based initiatives, taking into account the different cultural factors, gives added value to grassroots development. Empowering youth helps reach a wider spectrum of the communities.

In order to promote off-grid renewable energy, close and continuous engagement with local community members is essential. Thus if the stakeholders (i.e. the local community members) are the ones who are developing and operating these enterprises, it will ensure viability, sustainability and effective operation of these autonomous renewable systems. This community involvement, however, will be far more effective if these local groups stand to gain economically if the systems are properly installed and stay operational. Local enterprises that manage the acquisition, operation and maintenance of the systems, and who will receive monthly fees from the families that opt for these systems, are the best champions to engage their communities in using the renewable energies systems to satisfy their basic electricity needs.