

Handbook for Financial and Development Professionals

Chapter 5

Business Planning for Energy Entrepreneurs

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This chapter is directed primarily at energy entrepreneurs and development professionals. It is meant to serve as a training tool through which entrepreneurs and organizations providing assistance to entrepreneurs become familiar with the business plan preparation process. It may prove helpful to financial organizations that wish to provide guidance to entrepreneurs. It consists of the following content:

1. Introduction (why a good business plan is important and the essential ingredients of a business plan)
2. Lender and Investor Points of View
3. Documentation, Analysis, Testing
4. Detailed Outline of a Business Plan
 - Cover
 - Location and Technology
 - Agreements
 - Participants
 - Market
 - Implementation
 - Finance
 - Risks
 - Impact
 - Closing
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1. Introduction

A good business plan:

- Shows that a proposed energy project is a serious initiative, undertaken by capable entrepreneurs who understand and have control of the essential elements that will assure 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 project.

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:

- LOCATION AND TECHNOLOGY**
- AGREEMENTS**
- SPONSORS AND ADVISORS**

- ❑ **MARKET**
- ❑ **IMPLEMENTATION**
- ❑ **FINANCE**
- ❑ **IMPACTS**
- ❑ **RISKS**

- ❑ **LOCATION AND TECHNOLOGY**

In this section of a business plan the project is introduced by its location and the proposed technology to be employed. This description includes the inputs (fuels, labor, etc.), the process (equipment configuration) and the outputs (steam, electricity, etc.) of the project.

- ❑ **AGREEMENTS**

This section of the business plan describes all of the legal agreements, including permits, required to construct and operate the proposed project.

- ❑ **SPONSORS AND ADVISORS**

This section describes the project's sponsors, their commitment to the project, the form of the proposed Project Company and the advisors assisting in the project's planning and implementation.

- ❑ **MARKET**

This section describes the country, its legal and regulatory structure and the customers to whom the output of the project will be sold, including their capacity and willingness to pay.

- ❑ **IMPLEMENTATION**

This section describes the specific steps and schedule to progress the project from its present status to completion and operation.

- ❑ **FINANCE**

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

- ❑ **IMPACTS**

Social and environmental benefits, and any other special features regarding the project are presented here.

- ❑ **RISKS**

This section describes the risks that the project faces and how the project plans to deal with these risks.

In addition to these elements, a business plan contains:

- ❑ **CLOSING**, which describes the project's proposed capitalization plan and what is being requested from lenders and investors;

- COVER, which provides simple but crucial information to help readers understand the document and locate the entrepreneur;
- An executive SUMMARY, which tries to tell the project's " story" in one or two pages;
- A set of ATTACHMENTS, which provide details concerning some of the points made in the business plan.

While certain projects may require additional content most, if not all, project information can fit within this structure.

This toolkit chapter provides a more detailed outline of a business plan as well as sample business plans for a:

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

However, before proceeding with the presentation of a more detailed business plan outline and sample business plans, three other topics are covered:

- Understanding the views and interests of investors and lenders.
- Understanding the requirements of documenting information and preparing financial data.
- Understanding what a business plan is expected to accomplish and how to prepare a business plan that is targeted to a specific audience.

2. Lender and Investor Points of Views

First, it is important to differentiate between lenders and investors.

Lenders (usually bankers) make loans (debt) in the expectation of a very specific set of payments over time. Their requirements are usually well defined as to what conditions must be met in advance and over the course of the loan. *Lenders do not want to bear risks* and they do not generally enjoy any benefits of a project being profitable. Lenders want to be repaid and if the project 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 projects. 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 project succeed and in earning a return on their investment. When they are a significant participant in a project, they tend to establish very specific (and stringent) rules and 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 project, including replacement of the project team.

It may sound as though the interests of lenders and investors are aligned: to get paid. Sometimes this is true, especially when things are going well and especially

in the early stages of a project. However, very few projects go exactly as planned and “course corrections” are needed. Depending on the seriousness of these corrections the interests of lenders and investors may become very different.

Why do Investors Invest? Investors provide equity to a project 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 project 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 project already developed).
- ❑ Sell a product (especially equipment).
- ❑ Form a partnership and thereby grow quickly (similar in appearance but substantively different than 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 is secured by the project proposal – from corporate finance – where all of the activities and assets of a company guarantee a loan – and many do not lend for groups without substantial experience and assets). Learning the interests of banks in advance can save a great amount of time.

What do lenders and investor 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 project fundamentals (raw materials, process, outputs).
- ❑ Risk assumption by others (completion of project 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 3rd parties, buy-back by project, re-financing, dividends).

How do lenders and investors analyze projects? The answer to this question is contained throughout this chapter but in summary lenders and investors look at:

- ❑ Technology (Will it work? Can it be built? Has it worked and been built here? Is it competitive; that is, will it be replaced by something far better before the loan or investment is repaid?)
- ❑ Agreements (for land, fuel, construction, operation and permits).
- ❑ Participants (Who are the sponsors? Who are their advisors? What contractors are involved?)
- ❑ Implementation (What will it take to get from this point in time to the commencement of construction? From construction to operation? What is the management plan? The insurance plan?)
- ❑ Finances (capital cost, revenues, operating costs, depreciation, taxes, debt service plan, cash flow, assets, liabilities and OPM [Other People's Money]).
- ❑ Risks (completion, currency, economic, environmental, finance, force majeure, labor, political, raw material and technology).

3. Documentation, Analysis and Testing

Convincing someone that an entrepreneur can create a rural energy project in a developing country is more difficult than convincing someone that Coca-Cola or dry cell batteries can be sold in the countryside. Coca-Cola and dry cell batteries have been sold for generations, worldwide. What an energy entrepreneur proposes tends to be very new.

As a result of this newness the entrepreneur needs to convince people that there are factors that support the idea and that it is likely that the project will succeed.

Where to Begin

In proposing a rural wind, water, biomass or solar project supplying electricity to a house, a business, a community or a national electric grid, a very good beginning would be to show that one or two similar projects have been approved, financed, built, are operating and collecting revenues. **Investors are not pioneers if they can avoid it.** And most choose to avoid it. Lenders are almost never pioneers. So a good place to begin your documentation process is to answer the question, "Have others done this before?"

This is easiest, of course, if one or two very similar rural projects *have* been built. The entrepreneur needs to do a little research and document what happened and when. While everyone wants to think their project is unique, uniqueness is

definitely not an asset when trying to convince others to make loans or an investment.

If nothing like the proposed project 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”.

For example, similar projects may have been constructed and operated, albeit by the government. This helps reduce any perception that there aren’t qualified contractors or workers; that canals, tunnels or other infrastructure cannot be built; that equipment is unknown and so on. What the entrepreneur does by citing such examples is to confine the “newness” of the transaction to the fact that a business is going to build this project (instead of the government) or that new contracts for the sale of electricity must be put in place or some other narrower issue than “it has never been done before”.

If, separately, another private power project (say diesel-fired in the capital city) has sold electricity to the utility and been paid, then the entrepreneur can use that project to reduce the perception that utility power sales and interconnections are new territory.

There are cases however, where the entrepreneur will be the pioneer (the authors have been involved in a few). In these it must be proved that even though no such project presently exists, the country has passed laws and implemented regulations promoting new projects of the size proposed. The entrepreneur must show that a power purchase arrangement has been put in place by the national utility to purchase the output of such projects even if no such contract has yet been signed. The entrepreneur must demonstrate that there is a market operating outside government programs. 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 what you are told. Does the vice-minister say the same thing as the head of the utility? Are both of them citing published regulations and laws or telling the entrepreneur, “Don’t worry, I know the law is a problem but I will make it happen for you”?

Obviously, some situations give more comfort to certain kinds of investors than others. However, the important point here is for the entrepreneur to demonstrate that he or she **has the important facts clearly established and are poised to work through all the problems that will be encountered**. A business plan is not a statement of dreams that may be realized. It is a roadmap to a specific destination.

What needs to be documented?

All of the information gathered throughout the fact-finding and feasibility analysis process needs to, first, be reduced to straightforward paragraphs that describe the situation. Second, all of the “back-up” documentation (the letters, records, calculations that support the brief paragraph or two) need to be organized in files that are available for inspection by investors or lenders. Third, the most important documents need to be summarized and attached to the business plan itself.

If the entrepreneur has examined the public records that pertain to already authorized projects he or she needs to copy the most important documents, summarize the content of the documents reviewed (contracts, laws, regulations, opinions of counsel) and the conversations had as an attachment to the business plan and prepare a brief paragraph for inclusion in the appropriate place in the business plan (under market or agreements or wherever it is most convincing.)

This is especially important with first of a kind projects that need to explain (with the support of experts, if possible) why the existing laws, regulations etc. are going to support bringing the project to success.

What About High Level Political Support?

The business plan should be clear and objective about the political support a project has and needs. If every project with “top-level” support could be implemented there would be no energy crisis in the developing world. Unfortunately, while having access to the minister, vice-minister and head of the national utility may be required to succeed, it is no guarantee that an entrepreneur will. **Solid regulations, uniform contracts and consistent policies work far better and more sustainably than political connections.** What needs to be documented is the political support the project enjoys *within* the context of a generally understandable “system” of rules and policies that will provide comfort to investors.

Documentation: Start Writing!

Much of your information has been developed in the fact-finding and feasibility analysis phase of planning and implementation. Now the entrepreneur needs to identify the key points and express those points **clearly and succinctly**. Giving a reader all the information you have gathered may demonstrate how thorough you are but you may also bore them to death, causing them to set aside your document in favor of one that is easier to understand. Over-analyzing a project creates a similar problem (“Paralysis through Analysis”).

Project Documentation Example

One dimension of a project that must be documented is the laws and regulations that govern its construction and operation. The entrepreneur needs to show a comprehensive grasp of **all** the issues that must be addressed, **all** the rules that apply and **all** the relationships needed to achieve approvals. If fifteen approvals are needed from local, regional and national government the project will succeed once all fifteen are obtained. **There is no second-place prize** for obtaining fourteen and “forgetting” one.

The business plan needs to demonstrate that these issues covered: For example, what laws and regulations govern the use of water? The generation, transmission and sale of electricity? The construction of the project? The registration of the project company? The use or crossing of public property for construction? Environmental permits and requirements? Public meetings?

Having done that, it is not enough to just have a well-organized project. Business Plan readers need to know the larger picture concerning the country, the energy sector and any other sector that might influence the probable success of the proposed business. Is the country stable? What is the state of the economy? What are the prospects for the future? Is it a good place to do business? According to whom? What is the state of its key industries? What is the state of the energy sector? How does it operate now? Are there changes expected? What are the forecasts concerning the demand for and supply of energy?

Detailed Outline Of An Energy Business Plan

Cover and Table of Contents

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

Executive Summary

Section 1 – Location and Technology

In this section of the business plan the site of the project is described, as is the proposed technology. This description includes the inputs (fuels, labor, etc.), the process (equipment configuration) and the outputs (steam, electricity, etc.) of the project.

- ❑ Project location and Setting
- ❑ Inputs (Fuel or natural resources)
- ❑ Process
- ❑ Outputs

Section 2 – Agreements

In this section of the business plan all of the legal agreements, including permits, required to construct and operate the proposed project.

- ❑ Site Control
- ❑ Pre-construction
- ❑ Construction
- ❑ Operations and Maintenance
- ❑ Sale of Output
- ❑ Permits

Section 3 – Sponsors and Advisors

This section describes the project's sponsors, their commitment to the project, the form of the proposed Project Company and the advisors assisting in the project's planning and implementation.

- ❑ Sponsors (the development team)
- ❑ Advisors

Section 4 – Market

In this section, the country, its legal and regulatory structure and the customers to whom the output of the project will be sold are described.

- ❑ Country
- ❑ Local
- ❑ Legal and Regulatory
- ❑ Customers

Section 5 – Implementation

This section describes the specific steps and schedule to progress the project from its present status to completion and operation.

- ❑ Plan (management, insurance, construction, operation, permitting, other)
- ❑ Schedule
- ❑ Resources Required

Section 6 – Finance

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

- ❑ Capital Cost
- ❑ Revenue
- ❑ Cost of Goods Sold
- ❑ Operating Costs
- ❑ Overhead (Sales, General and Administrative Costs)
- ❑ Indicative Financing Plan
- ❑ Interest on Debt
- ❑ Depreciation
- ❑ Taxes
- ❑ Principal Payments
- ❑ Basic Assumptions Summary
- ❑ Pro Forma Financial Projections - Summary
- ❑ Financial Indicators
- ❑ Sensitivity Analysis
- ❑ Pro Forma Financial Projections – Detailed
- ❑ Balance Sheet

Section 7 – Impacts

Social and environmental benefits of the project's implementation, and any other special features of the project, 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

Section 8 – Risk Factors

This section describes the risks that the project faces and how the project plans to deal with these risks.

- ❑ Country
- ❑ Project
- ❑ Change in Law
- ❑ Force Majeure

Closing

The Closing section of this business plan summarizes the projects' 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

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Next this chapter of the Toolkit will present two typical business plans for a clean energy project. However, BEFORE beginning that presentation it is important that we remind ourselves what are the key elements that determine whether or not a project makes sense.

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

It doesn't guarantee that a project will be funded or implemented – too many other things outside the project's control can go wrong -- but it does set the stage for presenting the project to reasonable people for technical and financial participation. And that is the goal of work prepared BEFORE writing a business plan: for the entrepreneur to know that the pieces of the project can be put together well enough to present the project to others. Generally speaking, a renewable energy project makes sense and is feasible when:

1. Natural Resources – wind, biomass and sunlight -- are available in sufficient quantity.
2. Contractual rights to use these natural resources as fuel have been obtained
3. Land needed for the project has been secured and access to the site assured.
4. The permits needed to design, build and operate the project have been approved or will be obtained in a timely manner.
5. The available natural resources can be converted to energy using available proven technology that qualified contractors are prepared to supply, install and operate.
6. The energy to be produced can be transmitted and sold to one or more credit worthy customers.
7. The project is compatible with the local and country energy plans for energy service delivery.

8. The commercial, political and social setting of the project will instill confidence in suppliers, contractors, investors, lenders and insurers.
9. The project team has sufficient experience and skills to design, build and operate the project.
10. Qualified suppliers, contractors, insurers and consultants are available and have expressed commitments to the project.
11. Reasonable estimates have been made of all revenue, capital and operating costs, including contingency allowances.
12. Project revenues are sufficient to pay operating costs, repay proposed loans and provide adequate returns to investors.
13. There is local or international interest in providing loans and investment capital.

It is the job of the entrepreneur to have all of these issues clearly within his or her control BEFORE beginning to write a business plan for 3rd party review.

- ☐ **Sample Business Plan – Grid Connected**
- ☐ **Sample Business Plan – Off-grid**

Business Plan

River Number One 2.6 MW Hydroelectric Project

Date: June 2000

Project Sponsor Contact Information:

Philip LaRocco, River One Development Group
383 Franklin Street, Cordoba City, Cordoba 07003

Email: phil@energyhouse.com

TEL: 1.973.680.9100, FAX: 1.973.680.8066

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Confidentiality and Disclaimer Statement: The information contained in this business plan is confidential and the property of the sponsors. This business plan is not an offering of securities. This business plan contains statements and assumptions about the future that may or may not come true and cannot be relied upon. This document should not be given to others or copied without the project sponsor's permission

Executive Summary

The Project is a proposed 2.65 MW run-of-river hydroelectric project in the _____ Province of the Republic of _____. The Project will provide 1.55 kW of guaranteed capacity and 18.1 million kWh per year for sale to the national utility under a 5 year power purchase agreement.

The Project will be constructed in an area that has ample, documented hydrological resources. The Project will provide peaking capacity and energy through an efficient high-head hydroelectric installation comprised of a reservoir, an open canal and a tunnel connected to a penstock and a powerhouse. The Project will connect to the tail of the national interconnected system through a 3-km transmission line. The project would use three Pelton style hydroelectric units.

The River One Project involves four parcels of land, which are owned or under the control of the project sponsor. The project will be built under an EPC contract. The EPC contract and bid documents have been completed. Two qualified companies have expressed interest and are in the process of bidding. Construction will be supervised by Smith and Jones, Consulting Engineers, on behalf of the Project Company. Operations and maintenance will be provided by a subsidiary of the successful EPC contractor or by a subsidiary of the national utility, which is operating a similar project for a private sector generator.

Three national permits are required to build and operate the Project: Water Use Permit, Energy Generation Permit and Environmental Permit. All three permits have been obtained. One local permit, to improve a public road used in site access, is pending.

The Project Company, Rio One Hydroelectric Project is owned by River One Development Group comprised of S&C Consultants, a fifteen year old civil engineering firm, Thomas Higgins, Esq., and E&Co (USA).

The implementation plan for the Project contains the following key milestones and dates:

- ❑ Complete the negotiation and enter a final contract with the EPC contractor (4 months).
- ❑ Complete term sheet, due diligence and document preparation for construction and permanent debt (7 months).
- ❑ Complete equity agreement and closing with shareholders (7 months)
- ❑ Execute power purchase agreement with the national utility (3 months).
- ❑ Final land payment on Parcel #3 of the project site.(1 month).

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Construction can commence immediately after the completion of these events; operations can commence 12 months later.

The following data summarize the financial aspects of this business plan:

Capital Cost - \$3,450,000

Indicative Financial Plan – 50% Debt at 12% interest, 1 year capitalized interest and seven year repayment with equal principal payments yearly.

Sponsor's equity - \$415,000

Equity to be obtained - \$1,310,000

10 Year Equity IRR – 19.16%

Lowest Year Debt Service Coverage Ratio – 1.7 times

Seven year Average DSCR - 2.1 times

At the present time the sponsors are seeking \$1,310,000 in equity financing for the project and \$ 1,725,000 in debt.

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RIVER ONE 2.65 MW HYDROELECTRIC PROJECT Business Plan

Section 1 - LOCATION AND TECHNOLOGY

The project's 2.65 MW of capacity would be located in the _____ Province of the Republic of _____, 190 km from the capital, at the confluence of River

One and River Two (see map). Water data for the province and the River One and River Two have been accurately collected for more than twenty years. These data were reviewed and tested by an independent hydrology engineer as part of the feasibility study of this project.

The Project is located in a forested and largely uninhabited area, near a protected area. Access to the area is presently on an unpaved road that contributes to local erosion. The Project's construction will improve the road quality and access in the area.

Independent engineering, environmental and social analyses have verified site and surrounding conditions as acceptable and estimated the costs, benefits and consequences of the project. These results are recorded in the document "Feasibility Analysis-River One Hydroelectric Project" prepared by Smith and Jones, consulting engineers.

The Project will provide peaking capacity and energy through an efficient high-head hydroelectric installation comprised of a reservoir, an open canal and a tunnel connected to a penstock and a powerhouse. The design of the installation is consistent with a similar installation in a nearby valley with similar geo-technical conditions.

A powerhouse would be built near the town of _____ with an intake in the River One. Firm capacity of 1.55kW and 18.1 million kWh of energy will be sold to the national utility through a fifteen-year power purchase agreement. The project would connect to the tail of the national interconnected system through a 3-km transmission line. The project would utilize three Pelton turbines manufactured by _____.

Section 2 – AGREEMENTS

□ Site Control

Four parcels of land are required for the project, as well as a site access through a poorly maintained public road. Three of the required parcels of land are owned by the Project Company. A final installment payment of \$100,000 is to be made on these parcels. The fourth parcel of land has granted an irrevocable use permit for 40 years, which can be renewed for an additional twenty years. The fee for this permit has been included in the project's annual operating expenses.

□ Pre-construction

Pre-construction work has been undertaken by the project sponsors and a team of technical, legal and financial advisors. With one exception all of these contracts have been completed. The exception is an engineering services contract with Smith and Jones, Consulting Engineers. Under this contract S&J is supervising the preparation and negotiation of the EPC contracts. It is anticipated that Smith and Jones will serve as the owner's engineer during the construction process. Funds for this contract are included in the project's capital cost estimate.

□ Construction (EPC)

The project will be constructed under a lump-sum, turnkey engineering, procurement and construction contract. Preliminary estimates have been received from two credit-worthy and experienced firms, who have each agreed to provide appropriate performance bond and insurance policy coverage.

□ Operations and Maintenance

The project will enter a 10-year operating contract with either the successful EPC or with the national utility. All are experienced operators of hydroelectric projects of the size of this project. The initial construction (EPC) contract will provide for equipment spare parts and the financial plan provides ample funds for major maintenance.

□ Sale of Output

Capacity and energy will be sold to the national utility, which provides a general letter of credit guaranteeing its financial obligations under the power purchase agreement. The national utility has six similar power purchase arrangements, all indexed to foreign currency, and the utility has met all of its obligations under these agreements. Although the utility is yet to achieve sustainable financial performance it is able to regularly borrow at commercial rates, both domestically and internationally, and has steadily improved its operating performance during the last three years. The utility is being prepared for partial or total privatization; thus the pressure to improve operating performance and the need for guarantees, first, that the contract will be honored by any successor company and, second, letter of credit support for payments. All of the essential terms and conditions of the power purchase agreement are completed.

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□ Permits

Required permits and government approvals have been obtained; only the approval of the detailed design of a road access cutting across public property remains in process. Following is a list of the pertinent permits and approvals:

- Final permit to draw and use water from River One – Approved December 7, 1999 by The Ministry of Natural Resources and Environment. Approved by Congress under the Small Energy Projects Regulation, which also provided approval for the generation and environmental permits.
- Permit to produce, transmit and sell electricity. – Approved May 15, 2000.
- Environmental approval and national permit to construct project – Environmental Impact Assessment on May 1, 2000 and construction permit approved May 10, 2000.
- Temporary road access permit and permission to improve a public road– Submitted May 15, 2000; approval pending.

The Project has obtained an opinion from its legal advisor that these constitute all of the permits required to commence construction.

Section 3 – SPONSORS AND ADVISORS

The sponsors of the project are an experienced civil engineering firm, an experienced business manager and two investors with prior experience in similar projects.

The Project Company, Rio One Hydroelectric Project is owned by River One Development Group comprised of S&C Consultants, a fifteen year old civil engineering firm, Thomas Higgins, Esq., and E&Co (USA).

- S&C Consultants is a fifteen year old civil engineering firm with 16 full-time employees. It has been involved in more than ten projects of a similar nature. The firm presently owns 51% of the Project Company.
- Thomas Higgins, Esq. has been managing businesses for twenty years directly and through a management company (TH Investments, Inc.). Mr. Higgins and THI own 20% of the project company and provide legal and general management expertise.
- E&Co (USA) is an investor in the Project Company. E&Co. brings substantial experience in hydro investing, forestry, biomass and greenhouse gas related issues. E&Co owns 29% of the project company.

Clark and Hjerthen are the project's legal advisors. Energy House Capital Corporation is the project's financial advisor. Merrill, Coopers, Waterhouse, PC are the sponsor's public accountants and auditors.

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Section 4 – MARKET

- Country

The Republic of _____ is a stable democracy. Orderly transitions in government have taken place for more than thirty years. One party dominates national politics in the executive branch but three major parties shared power successfully in the legislative branch of government. The currency of _____ is the _____, which has traded in the 10:1 to 11.5: 1 range with the US\$ for the last five years. The population of _____ is 11.2 million, growing at a rate of 2.3% per year. GDP per capita is \$1175 nominal and \$4800 in comparative purchasing power. The EIU Country Risk Service gives _____ an overall B- rating (A being the highest and D the lowest). This service rated political risk an A, economic policy and economic structure risk at B- and C- respectively (the latter being the result of substantial restructuring underway in the transport and telecommunications area) and Liquidity risk as a C (an improvement from the previous rating). Real GDP has grown by 3.5%-4.3% these last three years and inflation (consumer prices) has averaged 3.5%. The electricity system has 534 MW of installed capacity and last year generated 2,921 GWh of energy. Those figures are projected to be 1,400 MW and 7,700 GWh in 10-12 years.

□ Legal and Regulatory Framework

The Energy Law of 1997 which mandated the creation of a private sector generation of electricity for sale to the national utility under long term power purchase contracts, governs the energy sector. The key features of this law and its implementing regulations and bylaws are the following:

- Separation of energy generation, energy transmission and energy distribution within the national utility. Eventual sale of distribution assets is forecasted in the law. More than one distribution company will be formed from the assets spun off in this manner.
- Transmission will be governed by a state-owned company, which will have no other function. Transmission costs will be recovered through a surcharge to energy purchases and sales.
- Distribution companies must contract for firm capacity from the national utility generation company, which in turn will contract with independent power producers (IPPs) such as the Project. These contracts (both between IPPs and the national generation company and between the generation company and the national distribution company) must be entered in a transparent manner and cover at least five years of the projected capacity needs of the distribution company. There will be penalties for capacity not delivered by generators or not covered by the Distribution Company.
- A National Energy Commission will oversee the operation of the Market.

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- Generators using renewable sources of energy --- wind, hydro, biomass, solar --- will receive up to a 10% price premium on top of the standard offer included in the power purchase agreements available to all generators of electricity.
- Renewable energy projects will receive a 5-year income tax holiday and will be exempt from import duties on equipment.
- Rural electrification will be supported through a per household investment by the government, regardless of the mode of electricity service. In other words,

the government will support an investment of \$200 per household (subject to adjustment by the National Energy Commission) to promote rural electrification. On-grid extensions will be the responsibility of the national distribution company serving a particular area. Off-grid hook-ups will be on the basis of applications by energy service companies to provide services to a defined area (between 1000-5000 households). Upon approval of a 5-year off-grid service territory concession companies are responsible for direct marketing to households within the area. Companies are required to provide performance bonds or other security and will be paid the \$200 hook-up fee upon installation and verification of the provision of service.

□ Customer

Firm capacity is being sold to the national utility, which provides a general letter of credit guaranteeing its financial obligations to purchase firm capacity and energy from generators such as the Project. Payments are guaranteed within 15 days of a month-end statement being delivered to the national utility.

Section 5 – IMPLEMENTATION

The project will require 12 months to complete from the issuance of a Notice to Proceed to the designated EPC (engineering, procurement and construction) contractor by the Sponsors. The following events, estimated to require seven months from the date of this business plan, must be completed in order to issue such a Notice to Proceed.

- Complete the negotiation and enter a final contract with the EPC contractor (4 months).
- Complete term sheet, due diligence and document preparation for construction and permanent debt (7 months).
- Completion of equity agreement and closing (7 months)
- Execution of final power purchase contract (3 months).
- Final land payment on Parcel #3 of the project site.(1 month).

Section 6 – FINANCE

- Basic Assumptions

Required Investment

The total capital cost of the Project is expected to be under \$3.45 million, which is \$1,337 per kW. This estimate includes all costs up to the date project operations commence, including interest capitalized during the construction period. This estimate is the result of an independent assessment prepared for the feasibility analysis, confirmed by preliminary quotes from two qualified turnkey contractors.

The estimated capital cost is comprised of the following:

	US \$	
Land	275,000	8.0%
EPC	2,125,000	61.6%
Taxes (VAT)	71,600	3.5%
Legal and Financing	85,000	2.5%
Pre-construction	215,000	6.2%
Sponsor's fee	200,000	7.2%
Working capital	65,000	1.9%
Insurance	77,800	2.3%
IDC (interest during construction)	207,000	6.0%
Contingency	128,600	3.7%
Total	\$3,450,000	100.0%

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Capacity and Energy Output

The Project will provide 2,580 kW of “nameplate” capacity. At an 80% plant factor this equates to 2,064 kW of firm capacity. Because of significant penalties for

failure to deliver firm capacity the project sponsors have chosen to only contract for 75% of this amount in the early years of the project. Thus, all the financial projections are based on selling only 1,548 kW of firm capacity to the nation utility's distribution company. Based on twenty years of water data the project will comfortably produce 18.1 million units of energy (kWh) per year.

Revenue

The Project has negotiated a 15-year contract to sell its 1,548 MW of capacity at \$10.76 per kW per month. This contract can be extended for an additional five years. Energy sales are based on the newly established national utility rate of \$37.70 per MWh. Forecasts by the National Energy Commission for the next five years all show average rates of \$40 per MWh or more. In combination these energy and capacity revenues are estimated to produce first full year operating revenues of \$881,000, after the deduction of appropriate value-added taxes and transmission taxes. This equates to total revenue (capacity and energy) of \$.049 per kilowatt-hour. Revenues are denominated in US dollars although paid in equivalent local currency, which can be freely exchanged.

Operating Costs

Operating and maintenance costs, including the provision of a fund for major replacements and the payments to transmit energy to the national grid will cost \$130,000 per year, which equates to \$.007 per kilowatt-hour. Operating costs include:

O&M Costs, including land rent	60,000
Maintenance	5,000
Transmission Costs	11,000
Insurance	12,000
Administration	36,000
Other Costs	6,000
Total Costs	130,000

Useful Life and Depreciation

With scheduled maintenance and replacements, the Project will have a useful life

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in excess of thirty years. For tax purposes the asset will be depreciated over 20 years, reflecting a combination of the rates for civil works, equipment and infrastructure such as the powerhouse building. Under Government of _____ regulations governing projects such as River One, 80% of the full cost of the project, including interest during construction, can be depreciated.

Taxes

Separate from Income Taxes and Import Duties, Value-added taxes (VAT) will be paid on construction materials and equipment. These payments will be offset against net VAT collected (and passed through to the Government of _____) on the sale on energy in the early years. VAT and transmission taxes combine to total 16% of revenues. Because of the offset and pass-through nature of these costs, these amounts are not shown on the pro forma financial statements.

Income taxes will be paid on Net Income After Depreciation and Interest. A five-year tax holiday is provided under the energy law for renewable energy projects such as River One. The marginal tax rate is 25%.

□ Indicative Financing Plan

This business plan has been organized on a 50%-50% split between debt and equity. Debt is assumed to be at 12% annual interest over a period of 7 years, with interest accrued for the construction year. Equal principal payments will be made each year. Debt service coverage ratios will not be less than 1.5 times in any given year and will average 2.0 times over the seven years. Equity is assumed to be all common shares, with annual distributions made to shareholders once all debt service requirements have been met.

□ Pro Forma Financial Projections (first 4 operating years)

Project Year	0	1	2	3	4
Fiscal Year	2001	2002	2003	2004	2005
Capital Expenditure	(3,450,000)	0	0	0	0
Revenues	0	881,446	891,669	902,046	912,578
Operating and Maintenance	0	130,000	136,500	143,325	150,491
Net from operations	0	751,446	755,169	758,721	762,087
Overhead	0	0	0	0	0
Net before Interest, Depreciation and Taxes	0	751,446	755,169	758,721	762,087
Interest	0	192,214	162,643	133,071	103,500
Net before Depreciation and Taxes	0	559,231	592,526	625,650	658,587
Depreciation	0	138,000	138,000	138,000	138,000
Net before Taxes	0	421,231	454,526	487,650	520,587
Taxes	0	0	0	0	0
Net Income	0	421,231	454,526	487,650	520,587
Add back: Depreciation	0	138,000	138,000	138,000	138,000
Less: Principal	0	246,429	246,429	246,429	246,429
Net Cash Flow	(3,450,000)	312,803	346,098	379,221	412,159

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□ Financial Indicators

10 Year Internal Rate of Return on Equity = 19.16%

Debt Service Coverage Ratio – lowest year (Year 1) = 1.7 times

Debt Service Coverage Ratio – average for seven years = 2.1 times

□ Sensitivity Analysis

If no debt available (all equity deal)

15.90% IRR

If 60% debt is available	20.42% IRR 1.7 DSCR average
If no tax holiday	14.00% IRR 1.8 DSCR average
If 10% higher capital cost	15.02% IRR 1.9 DSCR average
If 10% lower capital cost	24.15% IRR 2.3 DSCR average

- Pro Forma Financial Projections and Basic Assumptions – Detailed – are presented on ATTACHMENT A.

Section 7 – IMPACTS

The social and environmental benefits of this project include the following:

- The project replaces the need for additional fossil fuel capacity additions to the national electric grid.
- The siting and dam construction for the project meets national and international standards.
- No displacement of people would occur as a result of the project.
- While trees would be cut during the construction phase of the project a reforestation program would replace these by a factor of ten.
- The project will employ no fewer than 45 local workers during the construction period.
- The project will permanently improve access to the area and reduce erosion through the upgrade of presently unpaved roads.
- Through the use of water as fuel, combined with tree planting the project will avoid over 6250 tons of carbon dioxide emissions per year. This number will be slightly offset during the construction period because of the concrete and transportation impacts of construction.

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Section 8 – RISKS

This business plan poses the following risks to lenders and investors:

- Hydrology and weather

Based on 20 years of data this risk is mitigated by conservative estimates of water flow but weather patterns, especially increases in violent storms and hurricanes, are noteworthy.

- Construction

Utilizing a turn-key EPC approach with a qualified and insured contractor mitigates the risk that construction will not be completed or that substantial cost over-runs will occur.

- Operation

Utilizing a local, experienced and well-established contractor mitigates the risk that operating interruptions will occur.

□ Technology failure

Strong manufacturer warranties, substantial experience with this proven technology and excellent operator credentials mitigates the risk that the turbines or generators, controls or interconnection equipment will fail.

□ Accidents and business interruption

The project's insurance program covers loss of revenue during interruptions and replacement due to major accidents.

□ Failure to achieve capacity and energy output

Careful and conservative estimates have mitigated the risk that basic capacity and energy forecasts will not be met.

□ Creditworthiness of capacity and energy buyers

Capacity payments will be guaranteed by a letter of credit from a reputable bank..

□ Changes in law, policy, regulation (including taxes)

The present energy law was in design for four years, debated and approved by three different sessions of the Congress, is endorsed by all major political parties and represents a pattern in the region. The prior energy law was in force for 15 years with all of the obligations under that law met, including tax and import duty incentives.

□ Sponsor or management change

The present implementation plan for the project is self-managing once the conditions set forth in Section 7 are met. The sponsors will maintain an equity position in the project and will enter agreements with shareholders and lenders to provide for replacement management under appropriate circumstances.

□ Foreign exchange conversion of dollar-denominated contract

The Republic of _____ has had the free conversion of currency at transparent rates, without limitation, and the transfer of amounts off-shore for more than 10 years.

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- Expropriation of assets

Though considered unnecessary by the sponsors, risk insurance is available to cover this eventuality.

CLOSING

The sponsors of the Project are proposing a 50-50 debt-equity capitalization of this project, which is supported by the projections included in this business plan. At the present time the sponsors are seeking expressions of interest and direct negotiations with lenders and investors for:

- \$1,310,000 in equity, which will secure a significant majority ownership in the project and its resulting cash flow, with exit mechanisms to be discussed.
- \$1,725,000 in loans for a seven-year period, dollar denominated at an effective interest rate of 12%, with a one-year capitalized interest period and equal principal payments.

ATTACHMENTS

Pro forma financial projections.

Sponsor information and financial reports.

Executive summary of the Smith and Jones Feasibility Study and other technical studies.

EIU Report (1st Q 2000) on the Republic of _____.

Summaries and approval letters on all permits.

Term sheet of the proposed power purchase contract.

Business Plan

SunSpot Inc Household, Business and Productive Use Solar (PV) Project

Date: April 2000

Project Sponsor Contact Information:

Christine Eibs Singer
383 Franklin Street, Bloomfield, NJ USA 07003
Email: chris@energyhouse.com
TEL: 1.973.680.9100, FAX: 1.973.680.8066

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Confidentiality and Disclaimer Statement: The information contained in this business plan is confidential and the property of the sponsors. This business plan is not an offering of securities. This business plan contains statements and assumptions about the future that may or may not come true and cannot be relied upon. This document should not be given to others or copied without the project sponsor's permission

PAGE 2

Executive Summary

Sunspot proposes a 5000 household and business solar electrification project in the five northern provinces of the Republic of _____. The Project will provide household and business electricity through the installation of 10-60 watt systems and the collection of monthly fees for the service provided. The Project will also provide a line of income generation equipment tied to solar energy sources through a joint venture with an established small enterprise creation organization.

The Project will be implemented in areas that have ample, documented solar insolation and will build on demonstration and pilot projects that have established consumer acceptance, willingness and ability to pay. The Project will provide households and businesses with a cost-effective substitute for current energy sources (batteries, candles, paraffin). The Project will be implemented through a network of sales and service points (affiliated with and located at existing businesses) combined with a network of technicians for installation and routine maintenance. The Project will be managed from _____, which is located in Province #1 and central to all the provinces being serviced.

The Project Company, Sunspot, is owned by three local entrepreneurs (each with 18.3% for a total of 55%) and E&Co (USA).

The implementation plan for the Project contains the following key milestones and dates:

- ❑ Complete the identification and contracting with the last 2 of the seven local entrepreneurs (2 months).
- ❑ Complete documentation on a \$1.592 million debt package to be drawn down in \$315,000 to \$332,000 increments to support the purchase an installation of systems over the next five years (3 months).
- ❑ Identify and close on \$200,000 worth of equity (5 months).

Implementation can commence immediately after the completion of these events.

The following data summarize the financial aspects of this business plan:

- ❑ Capital Cost - \$2,600,00 over 5 years.
- ❑ Indicative Financial Plan – Five yearly debt tranches of between \$315,000 and \$332,000, which will finance 70% of the installed cost per customer. An eight year debt schedule is proposed with a one year moratorium on principal and interest and a 13.44% interest rate for seven equal annual payments.
- ❑ Sponsor's equity - \$150,000
- ❑ Equity to be obtained - \$200,000
- ❑ 10 Year IRR on net cash flow after debt service 27%

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- ❑ Lowest Year Debt Service Coverage Ratio – 1.46 times. 12-year average DSCR – 2.0 times
- ❑ At the present time the sponsors are seeking \$200,000 in equity financing for the project and offering either a 35% common share interest in the project company or a 15% common share ownership combined with a preferred dividend of 15% for year 4-12.

- At the present time the sponsors are seeking a \$1,592,000 debt arrangement with drawdowns as follows:
 - Year 1 = \$332,000
 - Years 2-5 = \$315,000
 - Secured by the household installation and pledges of the shares of the present owners and agreements to debt service covenants before cash distributions.

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Sun Spot Business Plan

Section 1 - LOCATION AND TECHNOLOGY

The project will be located in three of _____ 21 provinces. The sponsors have been operating in all three of these provinces for more than 5 years. Headquarters is located in Province #1. Sales and Distribution Centers are located in Provinces #2 and #3. These are located within 60 km of headquarters on year-round traveled roads. Each province contains more than 15,000

unelectrified homes in areas not expected to be grid electrified in the next 20 years. Headquarters and each provincial sales and distribution point can each service 2000-4000 customers (this business plan is built of 5000 in total). Through a network of nine local entrepreneurs, seven of whom are trained and operating (contracts with the final two are being completed now and training will commence shortly).

The project will use polycrystalline photovoltaic panels and balance of system components (battery, inverter, controller, wiring, brackets and power points) field tested by Sunspot through its previous activities: the sale and installation of 325 systems for cash and the installation of 75 pilot fee-for-service households. Sunspot will offer three major products of 30, 40 and 50 watts but will also offer smaller packages and a deluxe 60-watt package. Each is profiled in an attachment to this business plan.

The Republic of _____ enjoys year-round solar insolation levels more than adequate to guarantee peak performance of the PV systems purchased by Sunspot for the world's leading manufacturers, including _____ and _____, with whom Sunspot has been dealing for more than 3 years.

Section 2 – AGREEMENTS and KEY BUSINESS ARRANGEMENTS

- Site Control – headquarters, sales and service locations are controlled through ownership or lease arrangements. The major space requirement for the project is a location to assemble components (in headquarters). Individual local entrepreneurs (at the village level) house their Sunspot operation within existing stores or locations under their control and agree not to house competing products.
- Pre-implementation – these activities have been undertaken by the sponsors under a shareholders agreement prescribing contribution of cash and time by Sunspot's owners. These activities, which have cost in excess of \$75,000 include the development of standard customer contracts and marketing materials; the identification and training of local (multi-village level)

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entrepreneurs; and, the configuration and pilot installing of 75 fee-for-service systems and associated installation, maintenance and collection systems. Under the existing shareholder agreement the sponsors have committed to an additional \$75,000 of time and cash.

- Marketing -- The sponsors with the support of the NGO _____ have undertaken marketing. Sunspot has sold, for cash 375 systems over the last five years, which led to the development and testing of the fee for service approach (See Customers). The primary marketing and sales tools consist of village presentations, household demonstrations of various products and follow-up visits on market day to secure customer sign-up.

In a related activity – and potential growth sector – Sunspot has entered a three-year agreement with _____, an NGO specializing in small enterprise development through the provision of training, equipment and financing. Under this agreement Sunspot will modify certain equipment to be solar powered. These will include equipment presently powered with small gasoline-petrol engines, with batteries charged at remote locations and manually powered devices. Equipment for shelling, de-husking and sewing are the first line of products being modified and tested. Under this agreement Sunspot will provide the energy component and limit its price to a 20% mark-up.

- Customers enter a three-year standard contract and pay the initial installation fee.
- Installation – is undertaken by Sunspot technicians who are paid on the basis of installations made. The full cost of installation is paid by the new customers up front (\$20 to \$30) as a statement of their commitment to the product and service.
- Operations and Maintenance – is performed by Sunspot technicians in concert with training of customers on appropriate use of the product installed. Battery replacements are the responsibility of customers, thus assuring a motivation to protect their investment well.
- Collection – takes place at the seven (soon to be nine) central points and at key locations in the province. Household collections are not part of the collection process or agreement.
- Permits -- Required permits and government approvals have been obtained. These include: (1) general license to do business; (2) permit to enter financial agreements extending more than one year; (3) registration as a company including or contemplating foreign ownership; and, (4) permit to import goods and services in excess of AMOUNT per year. The Project has obtained an opinion from its legal advisor that these constitute all of the permits required to commence construction.

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Section 3 – SPONSORS AND ADVISORS

The sponsors of the project are three sole proprietors who have joined together to form Sunspot:

- _____, an electrical contractor with 20 years experience.
- _____, a distributor of hardware and appliances in the countryside.
- _____, a consultant and professor of business management.

A fourth shareholder is E&Co (USA) an early stage investor in such companies. Sunspot is presently constituted as a stock corporation. Each of the individuals holds 18.3 % of the shares and E&Co holds 45% of the shares. Each of the four has a seat on the board of directors. _____ is the general manager and expects to be involved in the company full-time for at least the next five years. The articles of incorporation, bylaws and shareholder agreement are summarized in attachments to this business plan.

Section 4 – MARKET

□ Country

The Republic of _____ is stable. Orderly transitions in government have taken place for more than ten years. One party dominates national politics in the executive branch but three major parties share power successfully in the legislative branch of government. The currency of _____ is the _____, which has traded in the 10:1 to 11.5: 1 range with the US\$ for the last five years. The population of _____ is 11.2 million, growing at a rate of 2.3% per year. GDP per capita is \$675 nominal and \$1900 in comparative purchasing power. The EIU Country Risk Service gives _____ an overall C rating (A being the highest and D the lowest). This service rated political risk an A, economic policy and economic structure risk at B- and C- respectively (the latter being the result of a need for substantial restructuring underway in the transport and telecommunications area) and Liquidity risk as a C-. Real GDP has grown by 2.5%-3% these last three years and inflation (consumer prices) has averaged 8.5%. The electricity system has 534 MW of installed capacity and last year generated 2,921 GWh of energy. Those figures are projected to be 1,400 MW and 7,700 GWh in 10-12 years but there is significant uncertainty about the government and the national utility to finance such an expansion and very significant skepticism about the national utility's ability to undertake any grid expansions whatsoever. There are estimated to be 350,000 unelectrified homes in the country.

□ Legal and Regulatory Framework

The Energy Law of 1997 which mandated the creation of a private sector generation of electricity for sale to the national utility under long term power purchase contracts, governs the energy sector. The key features of this law have NOT been implemented. They are:

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- Separation of energy generation, energy transmission and energy distribution within the national utility. Eventual sale of distribution assets is forecasted in

the law. More than one distribution company will be formed from the assets spun off in this manner.

- Transmission will be governed by a state-owned company, which will have no other function. Transmission costs will be recovered through a surcharge to energy purchases and sales.
- Distribution companies must contract for firm capacity from the national utility generation company, which in turn will contract with independent power producers (IPPs)
- A National Energy Commission would oversee the operation of the Market.
- Generators using renewable sources of energy --- wind, hydro, biomass, solar --- will receive up to a 10% price premium on top of the standard offer included in the power purchase agreements available to all generators of electricity.
- Renewable energy projects would receive a 5-year income tax holiday and will be exempt from import duties on equipment. Significant for the proposed project this has not been enacted and would substantially improve financial results.
- Rural electrification will be supported through a per-household investment by the government, regardless of the mode of electricity service. In other words, the government will support an investment of \$200 per household (subject to adjustment by the National Energy Commission) to promote rural electrification. On-grid extensions will be the responsibility of the nation distribution company serving a particular area. Off-grid hook-ups will be on the basis of applications by energy service companies to provide services to a defined area (between 1000-5000 households). Upon approval of a 5-year off-grid service territory concession companies are responsible for direct marketing to households within the area. Companies are required to provide performance bonds or other security and will be paid the \$200 hook-up fee upon installation and verification of the provision of service. Significant for the proposed project this has not been enacted and would substantially improve financial results.

□ Customers

Five years experience by Sunspot as well as market research demonstrates that between 7.5% and 10% of households can afford to buy Sunspot products for cash and another 10% to 12.5% can afford to buy Sunspot products if 18 to 36 month financing is offered. Thus, no more than 20% of the market (350,000 homes nationwide, 50,000 in the three large provinces that are Sunspot's target market) could afford a cash or credit scheme. By offering monthly service at various prices (from as low as \$5 per month to \$20 per month) Sunspot can reach 55% of the market, a figure that would grow to 75% if and when the government household entitlement plus concession program is implemented.

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Section 5 – IMPLEMENTATION

Seven of the needed nine sales and service centers are implemented; two are nearing completion of contracts and the commencement of training. The purpose of this document is to secure the financing needed to implement Sunspot's plan.

If financing (debt and equity) existed today Sunspot could be operational in all seven sales and service points within weeks and fully operational in nine locations within 2-4 months.

Section 6 – FINANCE

- Basic Assumptions
 - Sunspot will install 5000 systems over five years. Sunspot has the capacity to contract for and install 1000 systems in the first year as a result of its previous pilot program.
 - Systems will range from 10-60 watts but the dominant share of product offerings will average 40 watts.
 - Average cost for fully installed systems, excluding installation cost paid directly by customers, is \$450 for the first year and \$425 thereafter.
 - Average revenue will be \$14 per month (\$168 per year).
 - Operating costs, comprised of both fixed and variable costs, will begin at \$150,000 per year and grow to \$300,000 per year, including contingency allowances.
 - Sunspot's agreement with _____ to provide solar energy sources for productive use equipment has been estimated conservatively for this business plan, at 600 watts per year growing to 4000 watts per year, with a 20% mark-up.

Required Investment

The estimated capital cost is comprised of the following:

- PV systems to be installed: \$1,592,500 as follows
 - Year 1 = 1000 systems at \$475 or \$475,000, financed 70% with debt (\$332,500).
 - Year 2-5 = 1000 systems per year at \$450 or \$450,000 per year or \$1.8 million over 4 years (70% debt).
 - \$150,000 sponsors start-up equity contribution
 - \$200,000 in additional start-up equity
 - Total project = \$2.6 million

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Useful Life and Depreciation

Sunspot's installations, excluding batteries, have a useful life of 15-20 years, backed by component warranties. For tax purposes installations will be depreciated at 10% per year. Customers will replace batteries.

Taxes

Separate from Income Taxes and Import Duties, Value-added taxes (VAT) will be paid on construction materials and equipment. These payments will be offset against net VAT collected (and passed through to the Government of _____) on the sale of energy in the early years. VAT and transmission taxes combine to total 16% of revenues. Because of the offset and pass-through

nature of these costs, these amounts are not shown on the pro forma financial statements.

Income taxes will be paid on Net Income After Depreciation and Interest. A five-year tax holiday is provided under the energy law for renewable energy projects but has yet to be implemented. The marginal tax rate is 20%.

□ Indicative Financing Plan

Debt—Sunspot’s business plan is built on the financing of 70% of the cost of customer installations through debt. This indicative financing plan is supported by debt service coverage projections. The terms proposed for each of five tranches of loans are the following

- 8 year term
- Amounts per tranche \$315,000 to \$332,500
- No principal or interest in Year 1 after borrowing
- Equal annual payment in Years 2-8 after borrowing
- Interest at 13.44% based on a 12% nominal rate, adjusted upward to account for interest and principal grace period.

Equity – Sunspot requires a minimum of \$200,000 in start-up equity to implement this business plan in addition to the sponsor’s commitment. Sunspot is offering two options for investors:

- (1) a 35% common shareholding
- (2) a 15% common shareholding combined with a fixed 15% preferred dividend for years 4-12.

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Pro Forma Financial Results –

Year	0	1	2	3	4	5	6
Income Statement							
Revenue		175,560	353,600	531,000	708,000	882,000	882,000
Operating Cost		150,000	200,000	250,000	300,000	300,000	300,000
<i>Net from Operations</i>		25,560	153,600	281,000	408,000	582,000	582,000
Interest		0	44,688	82,787	116,302	144,618	167,035
Depreciation		47,500	92,500	137,500	182,500	227,500	227,500
<i>Taxable Income</i>		-21,940	16,412	60,713	109,198	209,882	187,465
Taxes (at 20%)		0	3,282	12,143	21,840	41,976	37,493
<i>Net Income</i>		-21,940	13,130	48,571	87,358	167,906	149,972
Cash Flow							
Add back depreciation		47,500	92,500	137,500	182,500	227,500	227,500
Less principal		0	31,526	65,630	104,318	148,206	197,991

payments							
Capital Investment	150,000	475,000	450,000	425,000	425,000	425,000	0
Amounts Borrowed	0	332,500	315,000	315,000	315,000	315,000	0
Net Cash Flow	-150,000	-116,940	-60,897	10,440	55,540	137,200	179,481
IRR on net cash flow	26.7%						

Debt Service							365,026
		-	76,214	148,417	220,620	292,823	
Available to Pay Debt Service							544,507
Coverage		25,560	150,318	268,857	386,160	540,024	
		NA	1.97	1.81	1.75	1.84	1.49

Debt Service-12 years Available	2,555,184
DSCR, # Times	1.98

<i>Equity Investor Options</i>							
35%	19.0%				19,439	48,020	62,818
		(150,000)	(50,000)	3,654			
15%	15.0%				8,331	50,580	56,922
		(150,000)	(50,000)	1,566			
# units		1000	1000	1000	1000	1000	0
Cumulative		1000	2000	3000	4000	5000	5000
Average cost per unit	100%	475	450	450	450	450	0
Amount Borrowed (%)	70%	70%	70%	70%	70%	70%	70%
Average revenue per unit/month	\$14.50	\$14.50	\$14.50	\$14.50	\$14.50	\$14.50	\$14.50
Loan Term/years/equal annual		7					
Loan Interest Rate(12% + 1 year grace)		13.44%					
		150000	200000	250000	300000	300000	300000

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Operating Cost

Other Revenue/watts		600	2000	3000	4000	4000	4000
Average Sales Price/watt		13	14	15	15	15	15
Margin		20%	20%	20%	20%	20%	20%
Revenue:		175,560	353,600	531,000	708,000	882,000	882,000
Fee for Service		174,000	348,000	522,000	696,000	870,000	870,000
Other		1,560	5,600	9,000	12,000	12,000	12,000
Amounts Borrowed		332,500	315,000	315,000	315,000	315,000	
Cumulative Borrowings		332,500	647,500	962,500	1,277,500	1,592,500	1,592,500
Outstanding Debt		332,500	615,974	865,343	1,076,025	1,242,820	1,044,828

- Financial Indicators
 - 12 Year Internal Rate of Return on net cash flow = 26.7%
 - Debt Service Coverage Ratio – lowest year = 1.46 times
 - Debt Service Coverage Ratio – average for twelve years = 1.98
- Sensitivity Analysis
 - Revenue decrease of 10% = IRR to 16.5%
 - Revenue increase of 10% = IRR to 36.8%
 - 60% of investment financed = 24.4%
- Pro Forma Financial Projections and Basic Assumptions – Detailed – are presented on ATTACHMENT A.

Section 7 – IMPACTS

The social and environmental benefits of this project include the following.

- The project replaces the need for additional fossil fuel capacity additions to the national electric grid and the extension of the grid.
- The project will employ no fewer than 30 local workers.
- The project will avoid carbon dioxide emissions (to be measured, verified and perhaps converted to revenue).
- The project will replace kerosene, dry cell and remotely charged batteries.
- The project will improve quality of life in 5000 households and afford income and education opportunities while avoiding the health consequences of kerosene.

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Section 8 – RISKS

This business plan poses the following risks to lenders and investors:

- Customer Non-payment – will be addressed through a proven collection notice (2 times), re-possession and re-marketing program.
- Technology failure – will be addressed through regular O&M and customer training.
- Grid Extensions – are highly unlikely during the project period if at all, although procedures exist to remove and re-market systems in the event a grid extension occurs.
- Competition – is unlikely in the immediate market area on a direct basis, as there are 300,000 unelectrified households outside out three-province territory and no Sunspot-like firms operating. Other competition from petrol sets and mini-grids, as well as wind-PV hybrids are uneconomic (in the case of petrol and mini-grids) and unlikely in the case of hybrids (as Sunspot may consider such a combination also). The major competitive risk would be give-away programs direct to our customer base, which is extremely unlikely.

CLOSING

The sponsors are seeking to identify interested banks and investors for a multi-year, multi-tranche loan program. Cash flow and existing owner shares as well as covenants to prohibit cash flow distributions until coverage requirements are met would secure bank loans. The sponsors are seeking what would evolve to be a long-term and highly profitable relationship.

The sponsors are also seeking an early stage equity investors and offering a significant position in a growing company.

ATTACHMENTS

Pro forma financial projections.

Sponsor information and financial reports.

Executive summary of pilot program results.

EIU Report (1st Q 2000) on the Country.

Summaries of bylaws, articles of incorporation and shareholder agreements.

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Group Exercise #1

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Project – River One - a \$3.45 million HYDROELECTRIC project to build a 2.65 MW run-of-river project to generate over 18 million kWh of electricity per year.

Proposal Under Consideration – to invest \$250,000 to make payments on behalf of the project prior to the commitment of all the capital needed from others. See project update, below.

Please identify:

- Three to five of the strengths and weaknesses of this project.
- Major risks to be understood by an investor providing this early stage funding of \$250,000.
- Your recommendation on proceeding or not proceeding.

UPDATE

Your group has received the River One Business Plan plus the following update on the project:

1. Of the capital cost of US\$ 3,450,000, only 60% of the debt and 30% of the equity has been committed. None of this equity is available at this time.
2. US\$250,000 must be paid in the next 30 days for:
 - (a) engineering services: US\$ 50,000
 - (b) a security deposit on the energy and capacity sale contracts: US\$ 100,000
 - (c) final land payments: US\$ 100,000
3. In return for US\$ 250,000 the Project Company is offering your group:
 - (a) an equity interest equal to US\$250,000
 - (b) a 25% additional cash flow

Group Exercise #2

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Project - the conversion of an operating SUGAR MILL to include a high efficiency energy component (approximate total project cost - \$50 million).

Proposal Under consideration - to invest \$250,000 to complete detailed engineering and various contracts.

Please identify:

- ❑ Three to five strengths and weaknesses of this project.
- ❑ The major risks to be understood by an investor providing this early stage \$250,000.
- ❑ The conditions under which such a project might be attractive to a later stage investor or lender.

❑ Legal and Regulatory Context

The Energy Law of 2000, which mandated the creation of a Wholesale Market for the production, distribution and sale of electricity, governs the energy sector in Cordoba. The key features of this law and its implementing regulations and bylaws are the following.

- ❑ Separation of energy generator from energy distribution companies. Common ownership is not permitted.
- ❑ Transmission will be governed by a state-owned company, which will have no other function. Transmission costs will be recovered through a surcharge to energy purchases and sales.
- ❑ Distribution companies must contract for firm capacity from generation companies. These contracts must be bid in a transparent manner and cover at least five years of the projected capacity needs of the distribution companies. There will be penalties for capacity not delivered by generators or not covered by distribution companies.
- ❑ Energy will be dispatched by an independent Wholesale Market Administrator (WMA), an independent, non-profit body governed by a board composed of generators (independent power producers), distribution companies, brokers and the transmission company. Government and citizen observers will participate in a non-voting capacity.
- ❑ A National Energy Commission will oversee the operation of the Wholesale Market.
- ❑ Direct, negotiated contracts for the sale of energy are permitted. For projects under 5 MW it is also permitted to sell energy to the local Distribution Company at a rate equal to the average energy price paid during the prior year.
- ❑ The WMA will dispatch energy on an hourly basis. Generators will bid to the WMA the energy it wants to sell at a price equal to the cost of fuel and

operations. Energy will be dispatched in the order from the least to the most expensive. All energy sold in a given hour will be paid the price of the most expensive unit of energy sold in that hour. All prices will be denominated in US dollars but paid in local currency equivalent funds.

- ❑ Generators using renewable sources of energy --- wind, hydro, biomass, solar --- will receive up to a 10% price dispatch preference. In other words if a renewable project bids (based on cost) \$.040 per kWh it will be dispatched before a thermal plant with a bid of \$.037 and be paid the rate of the most expensive unit of energy dispatched during that hour.
- ❑ Renewable energy projects will receive a 5-year income tax holiday and be exempt from import duties on equipment.
- ❑ Rural electrification will be supported through a per household investment by the government, regardless of the mode of electricity service. In other words, the government will support an investment of \$400 per household (subject to adjustment by the National Energy Commission). On-grid extensions will be the responsibility of the Distribution Company serving a particular area. Off-grid hook-ups will be on the basis of applications by energy service companies to provide services to a defined area (between 1000-5000 households). Upon approval of a 5-year off-grid service territory concession companies are responsible for direct marketing to households within the area. Companies are required to provide performance bonds or other security and will be paid the \$400 hook-up fee upon installation and verification of the provision of service.

For the last two years the Jones Engineering Company has been organizing a project to convert the Dulce Sugar Mill from low pressure boilers that supply steam for sugar processing to high pressure boilers that will supply process steam and produce electricity for sale to the local utility. Jones Engineering has completed the following tasks:

- ❑ Prepared a feasibility study based on preliminary engineering from a local consultant.
- ❑ Entered contracts with the host sugar mill (to supply bagasse and purchase steam and electricity) and the local electricity Distribution Company.
- ❑ Entered a memorandum of understanding and begun negotiations with the proposed EPC (engineering, procurement, and construction) contractor.
- ❑ Created and registered a project company.

In order to complete the negotiations of the EPC contract and meet its timing commitments to the sugar mill, Jones Engineering must spend \$250,000 to complete the following tasks.

- ❑ Prepare an environmental assessment and complete the permitting process.
- ❑ Have the prior engineering estimates and the EPC estimates examined and verified as reasonable by an independent engineer.
- ❑ Prepare an offering memorandum and negotiate terms for both debt and equity.

While Jones is not prepared to bring in a development partner or sell the project to an experienced development company, he is prepared to offer a sizeable equity share in the project company and a share of development fees to an entity providing a \$250,000 investment at the present time.

A financial analysis of the project concludes that if the \$250,000 in tasks are successfully completed, the Jones Company can reasonably expect to earn a development fee of \$2 million for the project and retain a carried interest of \$3 million. Jones has spent \$1 million of its own funds (and in-kind services) to reach this point but cannot afford additional expenditures.

The feasibility analysis of the project, prepared by Jones, noted the following facts and issues:

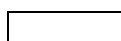
- The sugar mill has been successfully competing in this industry for over 20 years, has long established relationships with sugar growers and has above average performance in terms of quantity of sugar processed and profitability.
- The sugar industry has been surviving on thinner profit margins as demand for the product has slowed worldwide and the domestic market has been stagnant.
- The sugar mill completed a modernization five years ago and sees this project as another step in that process. Although it is willing to supply fuel (bagasse) to the project it is not willing to become involved in the construction and operation of a sophisticated power plant. An arrangement based on the sugar mill supplying the bagasse and receiving process steam and a royalty has been reached.
- Excess capacity and energy will be substantial and will be sold to the local electricity Distribution Company utility via a 3-year capacity purchase contract. The utility has a need for additional supplies and an expressed interest in using biomass such as bagasse rather than relying on imported fossil fuels.
- The local electricity utility has entered and honored similar capacity contracts. The utility has not sold any assets or issued any debt in the last three years.
- Energy will be sold into the Cordoba Wholesale Market. Energy sales are denominated in US dollars but paid in local currency equivalent.
- The proposed technology has been implemented in a dozen similar projects worldwide but only one such project has been implemented in this country.

Jones Engineering has negotiated an EPC (engineering, procurement, construction) contract with a well-established international firm, experienced in constructing three similar facilities but none in this country. The contract provides for a fixed price, “turn-key” project (delivered completed and fully operational to an operating company) with the EPC providing six months supervision and training for the operating company, which Jones Engineering is considering to organize and staff. As an alternative, Jones Engineering is considering requesting proposals from experienced operating companies.

The national development bank has tentatively offered a debt package to cover 60% of project cost (over a 12-year period at a commercially attractive local currency interest rate). One of the equipment suppliers has offered a package that would cover an additional 15% of project cost, but on a shorter term (five year) and expensive (16%) dollar/euro denominated basis. Returns on equity (15 years) are 18%, taking into account the carried interest and development fees of Jones Engineering. The facility will have a useful economic life of 25-30 years

provided regular maintenance is well performed and capital replacements occur every 5 years. The financial analysis includes allowances for both these costs.

Revenues	Days	MW Sold		2	3	4	5	6
	173.0	21	85946.4					
	96.0	45	103104					
	59.0	45	63295.2	2004				
	328.0	MWh	252345.6	252345.6	252345.6	252345.6	252345.6	252345.6
		Rev	844784.4	903855.8	962473	1019096	1071734	1117845
		Rev/C\$	3.34772	3.582	3.814	4.038	4.247	4.430
		Rev/\$	0.06722					



	1	1 in \$	2	3	4	5	6	7
	C\$ 000	US\$,000						
Energy Sales	844,785	16,964	903,856	962,473	1,019,096	1,071,734	1,117,845	1,154,217
O&M Costs	323,275	6,491	365,499	413,570	468,322	514,763	583,678	662,257
Payment to Host Mill	39,691	797	42,467	45,221	47,881	50,354	52,521	54,230
<i>Net from Operations</i>	<i>481,818</i>	<i>9,675</i>	<i>495,890</i>	<i>503,682</i>	<i>502,893</i>	<i>506,617</i>	<i>481,646</i>	<i>437,730</i>
Other Income	96,438	1,937	110,412	126,243	144,590	165,200	190,081	215,828
<i>Gross Profit</i>	<i>578,256</i>	<i>11,612</i>	<i>606,302</i>	<i>629,925</i>	<i>647,482</i>	<i>671,817</i>	<i>671,727</i>	<i>653,558</i>
Depreciation	95,613	1,920	95,613	95,613	95,613	95,613	95,613	95,613
<i>Net/ebit</i>	<i>482,643</i>	<i>9,692</i>	<i>510,689</i>	<i>534,312</i>	<i>551,869</i>	<i>576,204</i>	<i>576,113</i>	<i>557,945</i>
Interest	240,001	4,819	227,554	215,736	200,375	182,209	165,231	144,213
<i>Net</i>	<i>242,642</i>	<i>4,872</i>	<i>283,135</i>	<i>318,576</i>	<i>351,494</i>	<i>393,995</i>	<i>410,882</i>	<i>413,731</i>
Taxes (after 5 year holiday)	0	0	0	0	0	0	100,666	101,364
<i>Net</i>	<i>242,642</i>	<i>4,872</i>	<i>283,135</i>	<i>318,576</i>	<i>351,494</i>	<i>393,995</i>	<i>310,216</i>	<i>312,367</i>
Depreciation	95,613	1,920	95,613	95,613	95,613	95,613	95,613	95,613
Principal	107,831	2,165	131,337	155,144	173,194	164,602	192,551	225,465
Cash Flow	230,423	4,627	247,411	259,045	273,912	325,007	213,278	182,516

debt service coverage	1.66	1.66	1.69	1.70	1.73	1.94	1.88	1.77
ebit/\$	9,692		9,458	9,127	8,695	8,374	7,722	6,898
C\$ Rate	49.8		54.0	58.5	63.5	68.8	74.6	80.9
equity in and cash flow/\$	-10000	4,627	4,582	4,425	4,316	4,723	2,859	2,256
		irr	-5.3%	17.4%	28.8%	35.5%	37.9%	39.2%
			2 year	3 Year	4 Year	5 Year	6 Year	7 Year

			2 year	3 Year	4 Year	5 Year	6 Year	7 Year
			\$ & C\$	\$	C\$			
Capital Cost		Debt	14%, 10Y	25.1	0	25.1		
		1/C\$	ears					
EPC	35.0	Debt 2/\$	12%, 10	10.7	10.7	0		
			Years					
M&E, finance consultant, legal, admin	1.2	Subdebt/\$	18%, 4	2.0	2	0		
			Years					
Finance Fees	0.7	Equity		10.2	5.4	4.8		
Development Fee	1.5			48.0	18.1	29.9		
Contingency	3.0							
	41.4							
					Depreciation	Formula Based		

IDC	9.9%	4.1			\$Cost	95613.2
Sunk Development Costs		2.5	\$	C\$	@80% X	
		48.0	18.1	29.9		

	\$C =	Cordoba Dollars						

Group Exercise #3

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Project - a \$25 million RURAL ELECTRIFICATION project to serve 50,000 or more households.

Proposal Under Consideration – to spend \$250,000 to scale up and test a comprehensive marketing scheme that would serve as Phase 1 of the \$25 million project.

Please identify:

- Three to five of the strengths and weaknesses of this project.
- Major risks to be understood by an investor providing this “Phase 1” funding of \$250,000.
- Conditions under which such a project might be packaged to be made attractive to a later stage investor or lender.\

Legal and Regulatory Context

The Energy Law of 2000, which mandated the creation of a Wholesale Market for the production, distribution and sale of electricity, governs the energy sector in Cordoba. The key features of this law and its implementing regulations and bylaws are the following.

- Separation of energy generator from energy distribution companies. Common ownership is not permitted.
- Transmission will be governed by a state-owned company, which will have no other function. Transmission costs will be recovered through a surcharge to energy purchases and sales.
- Distribution companies must contract for firm capacity from generation companies. These contracts must be bid in a transparent manner and cover at least five years of the projected capacity needs of the distribution companies. There will be penalties for capacity not delivered by generators or not covered by distribution companies.
- Energy will be dispatched by an independent Wholesale Market Administrator (WMA), an independent, non-profit body governed by a board composed of generators (independent power producers), distribution companies, brokers and the transmission company. Government and citizen observers will participate in a non-voting capacity.

- A National Energy Commission will oversee the operation of the Wholesale Market.
- Direct, negotiated contracts for the sale of energy are permitted. For projects under 5 MW it is also permitted to sell energy to the local Distribution Company at a rate equal to the average energy price paid during the prior year.
- The WMA will dispatch energy on an hourly basis. Generators will bid to the WMA the energy it wants to sell at a price equal to the cost of fuel and operations. Energy will be dispatched in the order from the least to the most expensive. All energy sold in a given hour will be paid the price of the most expensive unit of energy sold in that hour. All prices will be denominated in US dollars but paid in local currency equivalent funds.
- Generators using renewable sources of energy --- wind, hydro, biomass, solar --- will receive up to a 10% price dispatch preference. In other words if a renewable project bids (based on cost) \$.040 per kWh it will be dispatched before a thermal plant with a bid of \$.037 and be paid the rate of the most expensive unit of energy dispatched during that hour.
- Renewable energy projects will receive a 5-year income tax holiday and be exempt from import duties on equipment.

Rural electrification will be supported through a per household investment by the government, regardless of the mode of electricity service. In other words, the government will support an investment of \$400 per household (subject to adjustment by the National Energy Commission). On-grid extensions will be the responsibility of the Distribution Company serving a particular area. Off-grid hook-ups will be on the basis of applications by energy service companies to provide services to a defined area (between 1000-5000 households). Upon approval of a 5-year off-grid service territory concession companies are responsible for direct marketing to households within the area. Companies are required to provide performance bonds or other security and will be paid the \$400 hook-up fee upon installation and verification of the provision of service.

For the last four years Solelectric SA has been providing solar home systems (photovoltaics or PV) to villages in various locations throughout Rural District #1 (which is very large and contains 80,000 unelectrified homes).

Solelectric has been selling systems for cash and has developed a relationship with a micro-credit NGO so that it now has experience in selling systems on installment credit. Solelectric obtains these products from different suppliers (domestic and international) in the market and thereby has been able to keep its prices competitive. Solelectric's experience on both cash and credit transactions has been good. Solelectric's success has been aided by an approach that involves a partnership with local businesses so problems (involving maintenance, revenue collection, faulty components) are handled quickly.

Most recently Solelectric SA has installed systems in a village using a different approach. In this village Solelectric provides the system and support services and the households pay a monthly fee, just as you would to a local electricity distribution company, if one existed in Rural District #1. Thus far the experience has been satisfactory and Solelectric's local partner has been able to collect fees,

provide service and, where payment has not been made, repossess and re-market the equipment.

The national government and the state-owned utility have been under intense pressure to electrify Rural District #1 but the cost of extending the electricity grid is prohibitive. What they have proposed instead is a two-phase project of decentralized electrification using solar panels.

In Phase 1 Solelectric would electrify 400 homes in three villages. Solelectric would offer a range of products, from small and inexpensive PV portable lanterns to large household PV systems. These products would be offered on the basis of (1) an all cash price, (2) a price including pre-arranged credit or (3) a fee-for-service price (in which case Solelectric continues to own the system). In addition, the government would contract with Solelectric to install public lighting and community electricity services (with TV-VCR combinations and small, WHO-quality vaccine refrigerators).

The government would pay Solelectric for its start-up costs in this Phase 1 and would provide a cash subsidy of \$400 per household --- much less than the cost of grid extension -- to allow a substantial portion of the population to afford the products. Solelectric would be responsible for procuring, installing and servicing equipment.

In Phase 2 the government would offer a concession for all of Rural District #1 on a competitive bid basis but with substantial credit to any bidders who have direct experience in the region and experience with the comprehensive cash-credit-fee for service approach.

Solelectric's CEO is concerned about the following issues:

- Whether combining cash, credit and fee-for-service in the same market will confuse and disorganize the buyers.
- Whether the bidding process for Rural District #1 will be as described by the government (with credit for experience by Solelectric). If not, a better-financed or influential bidder might push Solelectric aside.
- Whether Solelectric will be able to establish channels of product supply and service in a way that will allow a smooth transition from the Phase 1 scale to a 50,000 household scale.

One idea under consideration is to form a partnership with a major international supplier of PV systems. The advantages are that Solelectric would not need to source most of the \$250,000 for Phase 1 capital and it would be positioned with a strong partner to bid on Phase 2. The disadvantages are that an international supplier will demand great amounts of control to become involved in Phase 1, whereas if Solelectric completes Phase 1 without such a supplier partnership it will (1) significantly increase its value and its ability to maintain control and (2) eliminate the potential problem of being tied to a single supplier (which may or may not be competitive in the future).

As an alternative to taking an industry partner Solelectric is seeking a \$250,000 financial investor to allow Solelectric to implement Phase 1 without being “tied” to one supplier.

The return on investment (Phase 1, all equity) is over 20% as a result of Solelectric receiving the start-up funding through the government contract. In Phase 2, which will be sufficiently robust to warrant in-country lending and leasing relationships, returns on equity exceed 35%.

SUMMARY

Phase 1 (in US\$)

400 Household Pilot	0	1	2	3	4	5
Capital Out	\$ (200,000)					
Set-up Costs	\$ (50,000)					
Unit Cost (400 Households)	\$ (625.00)					
<i>Cash and Credit</i>		156250				
Customers		\$ 76,250				
Government (at \$400 per household)		\$ 80,000				
<i>Fee for Service</i>						
Customers		24000	24000	24000	24000	24000
\$71,774.69	NPV	\$ 71,775				
Government (At \$400 per household)		\$ 80,000				
CASH FLOW	\$-250,000	\$308,025				
IRR	23%					

Phase 2 Summary (in Local Currency)

Total Sales Revenue		5,752,495	13,321,775	24,442,509	37,081,841	63,939,030
Total Cost of Sales		4,355,732	9,721,332	16,932,962	24,888,248	42,130,727
Total Gross Margin		1,396,763	3,600,442	7,509,547	12,193,593	21,808,303
% of Sales		24%	27%	31%	33%	34%
Total Operating Cost		6,146,526	5,452,303	6,564,839	7,706,990	8,986,241
Net Income Before Taxes		-4,749,763	-1,851,860	944,708	4,486,602	12,822,062
Net Income After Taxes		-3,087,346	458,708	2,924,628	4,896,212	8,743,950
Revenues include Government Contribution						
Cashflow (nominal)		(4,533,643)	(127,205)	2,472,190	4,554,363	8,377,620
Net CF ADJUSTED DOWNWARD BY 30%		(4,533,643)	(89,044)	1,730,533	3,188,054	5,864,334
NPV @20%		1,055.787				
5 Year IRR (adjusted Cash flow)		40.8%				

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