

AN ASSESSMENT OF THE ATTRACTIVENESS OF SOLAR POWER INDUSTRY IN KENYA

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**A Management Research Project Submitted In Partial Fulfillment of the
Requirements for the Award of the Masters of Business Administration
Degree of the University of Nairobi**

October 2007

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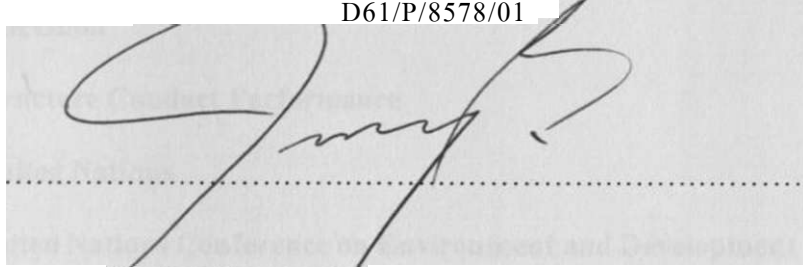
DECLARATION

This Project is my original work and has not been presented for a degree in any other University

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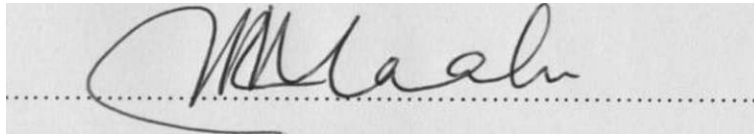
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Date

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This project has been submitted for examination with my approval as a University supervisor

Signature

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LIST OF ACCRONYMS AM) ABBREVIATIONS

GEF	Global Environmental Facility
KF.BS	Kenya Bureau of Standards
KEREA	Kenya Renewable Energy Association
PV	Photovoltaic
TV	Television
SCP	Structure Conduct Performance
UN	United Nations
UN'CF.D	United Nations Conference on Environment and Development
W	Watts

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DEDICATION

Dedicated to my wife Ursula, daughter Caro and sons Steve and Paul for their support, love and understanding.

ABSTRACT

The primary objective of the conceptual argument was to assess the attractiveness of the Kenyan market to the Solar power industry. The research sought to know from the industry players with current operation in Kenya what they thought the level of attractiveness of the Kenyan market was to them. The study was motivated by the fact that the Solar power industry has of late generated a lot of business interest due to high cost of grid based energy sources.

Questionnaires were administered to senior managers/managing directors of the Solar power companies. Out of a total of 10 companies 7 responded, representing a response rate of 70%. Questions on the company characteristics and profile such as the origin and branches operated formed the background information of the population.

Data analysis of the eight factors studied employed the use of statistical tools mainly the mean and the mode, factor analysis and 5 point Likert scale.

The principal research finding was that the level of attractiveness of the Kenyan market to solar power industry is moderate. This is because four of the eight factors (rivalry among industry players, logistics and influence of government policies, bargaining power of buyers' and barriers to entry) received more than 60% rating making the market unattractive. Those that received less than 60% and are considered as weak factors include: threats of substitutes, bargaining power of suppliers, threat posed by new entrants and power play.

CHAPTER 1: INTRODUCTION

1.1 Background of the Study

1.1.1 Analysis of Industry Attractiveness

Organizations of various types have been in existence for a long time. They have been created in order to serve the needs of the societies in which they exist. The key concern of these organizations has been and still is their continued existence and survival over time. For organizations to achieve their goals and objectives, they have to constantly adjust to their environment. This environment is constantly changing and so it makes it imperative for organizations to continuously adapt their activities in order to assure survival (Porter, 1980; Aosa, 1997; Pearce & Robinson, 1997; Hamel & Prahalad, 1999). Organizations have to adjust to meet environmental challenges to avoid experiencing what has been referred to as the *strategic problem* that is characterized by the mismatch of the output of the organization (products and services), and the demands of the market place. Firms have developed and adopted different techniques over time to help them cope with great danger posed by this strategic problem.

A firm's performance and behaviour is affected by who it is competing with and in what sense they compete. The degree of competitiveness of the market refers to the degree to which individual firms in the market have power to influence price or other terms on which their product is sold. Based on market characteristics like degree of product differentiation, presence or absence of entry barriers, mobility, exit and shrinkage barriers economist were able to classify industries (Lipsey, 1987; Kotler, 1998, Porter, 1980, Pearce & Robinson, 1997). Before the 1930s there were two known industry types

monopoly and perfect competition. Then in the 1930s dissatisfaction with these two extremes led to the development and adoption of two other market structures namely monopolistic competition and imperfect competition. This framework is what was used to study industrial economies.

Prior to the 1950s, firms attempted to tackle the strategic problem by using such managerial techniques as long-term planning, budgeting and financial control (Porter, 1980; Pearce & Robinson, 1997, Aosa, 1997). At the time of their use, the level of environmental change was low. The future of the firms was expected to be reasonably similar to the past. Hence it was practical to use past experiences to predict the future (extrapolation). However, as time went by firms realized they were not adequately adjusting to the needs of the environment. The techniques in use failed to solve the emerging strategic problem. Demand was stabilizing, substitutes were being offered as a result of new technological developments and foreign competitors who were invading traditional markets. Porter (1980) says that industry attractiveness is the high potential profitability of an industry that is measured through the long-term return on the capital invested as determined by five forces of competitive pressure. These are the threats of new entrants, rivalry within the industry, threat of substitute products, bargaining power of suppliers and the bargaining power of buyers.

To analyze the attractiveness of an industry, the collective strength of all the five competitive forces in the Porter's model must be assessed. The stronger the forces, the lower the collective profitability for participating firms. The competitive structure of an industry is clearly unattractive from a profit-making standpoint if rivalry among sellers is

very strong, entry barriers are low, competition from substitutes is strong, and both suppliers and customers have considerable bargaining leverage. On the other hand, when an industry offers superior long-term prospects, competitive forces are not unduly strong and the competitive structure of the industry is favourable and attractive (Koch 1995).

The ideal competitive environment from a profit-making perspective is one in which both suppliers and customers are in weak bargaining position, there are no good substitutes, entry barriers are relatively high, rivalry among present players is only moderate and the government influence is less (Thompson and Strickland, 1989). In this regard the investment potential in the industry becomes low and its future is challenged.

1.1.2 The Solar Power Industry in Kenya

Almost two billion people in developing countries which is a third of the world's population have no access to electricity. Fuelwood, agricultural residues, human power and draught animals continue to be the primary energy resources for millions of rural families (Hankins, 2004). Finding alternative sources of energy that are both economical and environmentally friendly is crucial for increasing agricultural productivity and improving the quality of life in rural communities.

Solar electrification has emerged as a leading alternative to grid-based rural electrification in many developing countries. The social uses of solar electricity in Kenya are more closely tied to increased rural TV use, expansion of consumer goods markets, more rural-urban communication, and other processes that increase social and economic interconnection between rural people and their counterparts in national and international urban centers (ESDA, 2003; Jacobson, 2004). These interconnections are facilitated when

rural Kenyans, in most cases from the rural middle class, use solar electricity to power "connective" appliances, including televisions, radios, and cellular telephones. Connective applications are especially prevalent in households with the small solar photovoltaic (PV) systems (<25 W) that are most common in unsubsidized solar markets like the one in Kenya (Hankins, 2004).

Thus, while solar PV is commonly framed as an element in efforts to promote sustainable development through the delivery of lighting services to unelectrified areas, evidence indicates that the development implications of solar electrification in Kenya are closely linked to its role in enabling the use of "connective" devices.

International donor support for rural electrification with solar energy began in the late 1970s, and grew especially rapidly in the years following the 1992 UN Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil. Since then, the Global Environment Facility (GEF) and the World Bank together have leveraged over \$2 billion in support of solar electrification (International Resources Group, 2003). The enthusiasm for solar electrification is not, of course, limited to mainstream institutions like the World Bank and the GEF. Environmental groups such as Greenpeace, the World Watch Institute, and many others are also strong advocates (Dunn, 2000; Greenpeace, **2001**).

The increase in donor support for solar electrification is widely associated with concerns about the environment and especially global climate change as well as rural poverty in developing countries. While concerns about the environment and rural development are central to discourses about the need for solar electrification, market-oriented approaches

have emerged as the primary vehicle for disseminating solar PV systems in developing countries. The single largest trend in international solar policy circles over the past decade has been to shift solar dissemination strategies from heavily subsidized donor projects to private market-based approaches that seek to achieve or at least move toward "full cost recovery" (Covell & Hansen, 1995; Martinot, Chaurey, Lew, Moreira, & Wamukonya, 2002; van der Plas & Hankins, 1998).

Solar photovoltaic technology emerged as an important tool for rural electrification at a time when neo-liberal policies dominated mainstream development thinking. In the late 1980s and 1990s, a period that some have called the age of "market triumphalism" (Peet & Watts, 1993), mainstream development policies emphasized economic liberalization, privatization, and market-based approaches to service provision (Kapur, Lewis, & Webb, 1997). In the energy sector, donor financing for state owned electricity infrastructure was reduced, while efforts to support liberalization, reforms, and private sector participation expanded. In this context, public support for grid-based rural electrification was sharply curtailed in many countries (Dubash, 2003; Karekezi, Kimani, Mutiga, & Ameyia, 2004). Thus, market-based solar electrification grew at a time when publicly financed rural electrification schemes were in decline.

Solar PV, a small-scale technology that can be used to provide decentralized electrical service to individual homes or businesses, is particularly compatible with market-based distribution. In Kenya, despite punishing tax and tariff policies that favour conventional energy resources such as kerosene and other fossil fuels, between 50,000 and 70,000 solar home systems have been installed. This demonstrates how the private sector can

develop a solid market by reaching those rural customers left unserved by a monopolistic power company. To fully exploit the potential of solar energy will require several institutional changes in the energy sector.

This solar market is notable and has served as a model in energy and development policy circles, because it developed with a minimal direct government support and only very moderate inputs from international donor aid groups. Solar sales in Kenya have long been (and continue to be) driven largely by unsubsidized over-the-counter cash purchases of household solar systems (Acker & Kammen, 1996; Hankins, 2000; Hankins & Bess, 1994; van der Plas & Hankins, 1998). This makes Kenya an important example of a growing international trend toward market-based approaches to rural energy service delivery.

1.2 Statement of the Problem

The evolution and emergence of strategic management has led to a new thinking in the area of industry analysis. Porter developed the five-force industry analysis model, which advanced the theory that there are five forces that determine industry attractiveness (Porter, 1979). These forces form the basic characteristics of an industry that shape the arena in which competitive strategy must be set. The strongest competitive force or forces determine the profitability of an industry and so is of greatest importance in strategy formulation. For example, even a company with a strong position in an industry unthreatened by potential entrants will earn low returns if it faces a superior or lower cost substitute product. In such a situation, coping with the substitute product becomes the number one strategic priority.

Kenya has emerged as one of the global leaders, per capita, in the use of renewable energy technology. This is due largely to a growing market for solar PV systems among rural households, with cumulative sales since the mid-1980s in excess of 200,000 PV systems, and current annual sales topping 25,000 units (ESDA, 2003; Jacobson, 2004). Data from a year 2000 survey conducted by the Tegemeo Institute indicated that 4.2% of rural Kenyan households owned a solar system. The same survey found that 4.3% of rural households were connected to the national electrical grid, and other sources indicate that solar sales are growing faster than the rate of new rural grid connections (ESDA, 2003; Jacobson, 2004). In other words, solar electricity has emerged in Kenya as a key alternative to grid-based rural electrification.

Solar advocates commonly make claims about the environmental, rural productivity, and poverty alleviation benefits of solar PV (e.g., Greenpeace, 2001; Kaufmann, 2000; Martinot et al., 2002). Some skeptics challenge these claims, contending that the environmental benefits of solar electrification are minimal, economically productive uses are few and far between, and that, in the absence of large subsidies, solar sales are primarily to the rural elite rather than the rural poor (e.g., Inversion, 1996; Karekezi & Kithyoma, 2002; Leach, 2001; Villavicencio, 2002).

Like any other industry. Solar power industry in Kenya has different forces that takes on prominence in shaping competition in the industry. This industry has an underlying structure, or a set of fundamental economic and technical characteristics, that gives rise to the competitive forces.

According to KEREAA (Kenya Renewable Energy Association), Solar industry players in Kenya face several problems such as; lack of enough government support, counterfeit products, failure by KEBS to enforce standards and lack of relevant syllabi on solar in learning institutions.

1.3 Objective of the Research

The objective of the study was to assess the attractiveness of Solar Power energy in Kenya using Porter's Modified Framework.

1.4 Importance of the Research

The study is considered significant for several reasons;

The policy makers concerned with developing and encouraging the use of alternative power supply will use the findings to come up with informed decisions and come up with policies to make the industry attractive to potential investors.

Company executives in the Solar power industry will use the findings in drafting strategies and plans on the how to operate in the Kenyan market. It will help them understand better strategies mostly applied by competitors to maintain their shares in Kenya or issues related to buyer power. With this knowledge they will be in a better position to steer the business in the right direction.

Investors will also use the information to make decisions regarding investments in the industry. If the Kenyan Solar market is attractive this may be a guarantee of returns to investment hence attracting investors.

The research findings will be of value to the industry players who will have available information on the industry as a whole. Further it will help individual companies to formulate strategies once they know how the industry is performing.

Scholars in the field of strategic management will use the information to understand the state of the industry better. They will be able to differentiate which factors are strong and those that are weaker as far as attractiveness of the Kenyan Solar power industry is concerned. They can also use the information as a reference point to research on the application of Porter's Model to other industries.

Finally the Government will find the information useful in diagnosing the problems affecting the industry and come up with solutions to encourage investments in the industry.

1.6 Overview of the Report

The project report is presented in five chapters:

The report starts off with the introduction, which gives a background of the study, states the research problem, the objectives as well as significance of the study. A review of the literature relevant to the study is contained in chapter 2. Chapter 3 describes the research design that was applied in the study including the selection of the study units, method of data collection and analysis while the results of data analysis and the findings of the study are presented in the subsequent chapter. The final chapter presents the conclusions, recommendations and the limitations of the study and makes suggestions for future research.

CHAPTER 2: LITERATURE REVIEW

2.1 Industry Analysis

When Joan Robinson and Edward Chamberlin developed the theories of imperfect competition in the 1930s, they also provided what appears to be a tight classification for the analysis of industries and industrial economics. Economists had long since recognized pure competition and pure monopoly, and with the addition of two kinds of immediate competition - oligopoly and monopolistic competition - they seemed to have all the bases covered. For much of the next 40 years, economists used this framework to study the industrial economy.

Since the 1930s and 1940s, the traditional approach to analysis of industries was the structure conduct performance (SCP) model (Brown, 1995). As the name implies, the SCP approach holds that there is an important relationship between structure, conduct and performance. According to this approach, firm and industry behaviour depend on industrial structure, so once industrial structure is classified, conduct and performance can be readily deduced. The key components of an industrial structure are the number of firms in an industry, entry and exit conditions and degree of product differentiation. Other important aspects are the extent of vertical integration, the amount and quality of information available to firms, and the amount of risk.

The structure of the industry determines whether firms are price takers (pure competition) or price makers (all other market structures), whether they engage in advertising (firms in pure competition markets do not), whether there is competition or cooperation among

different firms and so on. The important point is that conduct is associated with structure. Finally, conduct determines performance. Three of the most important elements of performance are profitability, economic efficiency and consumer welfare. The various market structure are assumed to perform differently, for example, there are no long run economic profits under pure competition and monopolistic competition; efficiency exists only under pure competition and so on.

In the 1960s and 1970s, however, a number of economists began to find problems with the SCP approach leading to the birth of the new industrial economics. The most serious problem with the SCP approach is what has been referred to as the *endogeneity* question. 'Endogenous' means determined within the system. In the context of the SCP approach is that performance depends on conduct and structure. However, conduct is assumed to be dependent on structure and this implies that performance is determined by structure alone. The premise that industry structure determines industry performance implies that industry structure is predetermined ("exogenous") and that managers and entrepreneurs only passively respond to the industrial environment. This is inconsistent with what is known about business people: they are constantly trying to shape the industrial environment to fit their needs. For example, large firms may try to drive rivals out of business by offering goods for abnormally low prices, a strategy known as predatory pricing. Another example is limiting pricing. If a monopoly firm keeps its prices low to deter entry, the industry will remain a monopoly, if it charges higher prices, firms will enter, and the monopoly will evolve into an oligopoly. To the extent that this kind of strategic behaviour does exist, industrial structure is a function of the activities of the firms and should not be treated as being exogenous (Porter M.E. 1979).

Another problem with the SCP approach is that it does not say very much about the evolution of industrial markets. This is a key problem because competition is an evolutionary and historic process. By treating industrial structure as given, SCP analysis cannot take into account strategy and the multiple interactions among firms. According to Brown (1995) perhaps the key difference between SCP and the new industrial economies is the focus on strategy versus determinism. Traditional industrial economists believe that existing firms, markets, and production methods are a reasonable approximation of the most efficient adaptation of the existing technology that could be imposed by an external order. The important point is that this approximation comes about automatically without any intervention from policy makers, so there is little role for strategic behaviour by business people. New industrial economists hold a much different world view, instead of being driven by a deterministic force the market economy evolves through the interplay of firms and policy makers, who try to control economic evolution they innovate rather than yield to the industrial environment.

2.2 Industry Structure and Competition

An industry is a collection of firms that offer similar products or services, that is, products that consumers perceive to be substitute for one another (Pearce & Robinson, 1997; Kotler, 1998; Lipsey, 1987; Porter, 1980). Individual industries may differ from each other according to the degree of competition among various buyers and sellers in each market (Lipsey, 1987). Kotler (1998) stated that there are four forms of competition based on the degree of product substitutability. There is brand competition between firms offering similar products and services to the same customers at similar prices; industry

competition between firms making the same product or class of products; form competition between firms manufacturing products that supply the same service and generic competition between all firms competing for the same consumer disposable income.

There are certain characteristics of a market in which a firm operates that are likely to affect a firm's behaviour and performance. To decide who is competing with whom and in what sense they compete, it is necessary to distinguish between the behaviour of individual firms and the type of market in which the firms operate. Economists use the term *market structure* to refer to the latter concept (Lipsey, 1987). The degree of competitiveness of the market structure refers to the degree to which individual firms has power over the market - power to influence the price or other terms on which their product is sold. Factors that have been used to classify industries because they influence behaviour and therefore performance of firms include the number of sellers, degree of product differentiation; presence or absence of entry, mobility, exit and shrinkage barriers. Others are cost structure; degree of vertical integration; and degree of globalization (Lipsey, 1987; Kotler, 1998; Porter, 1980; Pearce & Robinson, 1997).

These markets characteristics give rise to four known industry structure types, namely pure monopoly, oligopoly, monopolistic competition and perfect competition (Kotler, 1998; Lipsey, 1987; Brown, 1995). Pure *monopoly* exists when only one firm provides a certain product or service that is, whenever an industry is in the hands of a single producer. Monopoly can be a result of a regulatory edict, patent, license, scale economies or other factors (Kotler, 1998). A monopoly has the most power over the market compared to other industry structure types. A monopoly has power to influence the

market price. By reducing output it can force the price up and by increasing its output it can force the price down.

The market structure or *perfect competition* is at the opposite extreme of a monopoly. The theory of perfect competition is built on three critical assumptions, one about the behaviour of the individual firm and two about the nature of the industry in which it operates (Lipsey, 1987). The firm is assumed to be *price taker*. This means that the firm is assumed to act as if it can alter its rate of production and sales within any feasible range without its actions having any significant effect on the price of the product it sells. Thus the firm must passively accept whatever price happens to be ruling on the market.

The industry is characterized by *freedom of entry and exit*. This means that existing firms cannot bar the entry of new firms and there are no legal prohibitions on entry or exit. An industry that is perfectly competitive consists of many competitors offering the same product and service (*Homogenous*). Since there is no basis for differentiation, competitor's prices will be the same. Sellers will enjoy different profits rates only to the extent that they achieve lower costs of production or distribution.

Before the 1930s economists mainly studied the two polar market structures or perfect competition and monopoly. Then in the 1930s dissatisfaction with these two extremes led to the development of a theory of a new market structure called *monopolistic competition or imperfect competition*. The theory was developed by British economist Joan Robinson and American economists Edward Chamberlin. (Lipsey, 1987; Brown, 1995) The main

difference between monopolistic and perfect competition lies in the assumptions of homogenous and differentiated products.

Firms in perfect competition sell a homogenous product, which from a practical point of view means a product similar enough across the industry so that buyers cannot distinguish physically among the products sold by different firms in the industry. They thus regard these products as perfect substitutes for each other. Firms in monopolistic competition sell a differentiated product, which from a practical point of view means a group of commodities similar enough to be called a product but dissimilar enough so that buyers can and do distinguish among the products sold by different firms in the industry. Because consumers regard the various products as close but not perfect substitutes, the producer of each has some power over its own price. Monopolistic competition consists of many competitors able to differentiate their offers in whole or part. Many of the competitors focus on market segments where they can meet customer needs in a superior way and command a price premium (Lipsey, 1987).

Brown (1995) argues that *Oligopoly* is an industry structure in which a small number of (usually) large firms compete with each other and produce products that range from highly differentiated to standardized. Each firm has enough market power so that it cannot be a price taker, but it is subject to enough inter-firm rivalry that it cannot control the market completely. There are two forms of oligopoly, pure and differentiated. Pure oligopoly consists of a few companies producing essentially the same commodity. A company in a pure oligopolistic industry would find it hard to change anything more than the going price unless it can differentiate its service. If competitors match on service, then

the only way to gain competitive advantage is through lower costs. Differentiated oligopoly consists of a few companies producing differentiated products. The differentiation can occur along lines of quality, features, styling or services.

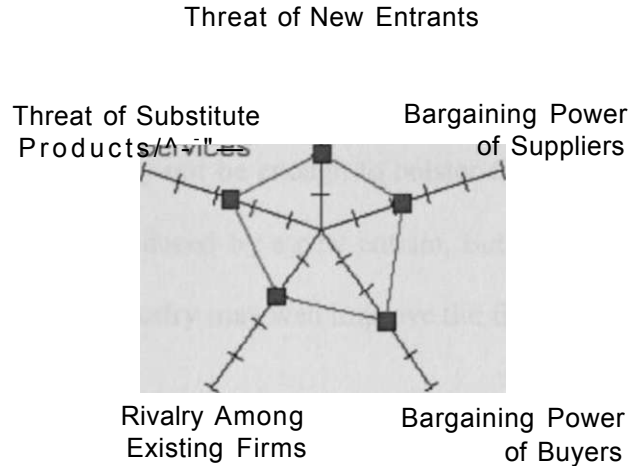
2.3 The Porter's Industry Analysis Model

Porter (1980) argues that every firm competing in an industry has a competitive strategy, whether explicit and that the essence of formulating competitive strategy is relating a company to its environment. Although the relevant environment is very broad, encompassing social as well as economic forces, the key aspect of the firm's environment is the industry or industries in which it competes.

He developed the five-force industry model that advanced the theory that there are five forces that determine competition in an industry (Porter, 1970). These factors jointly determine the intensity of competition in an industry. Porter argued that even though there are other factors, like the fluctuations in economic conditions over a business cycle, which could influence profitability, they could only do so in the short run. The five competitive forces form the basic characteristics of an industry that could shape the arena in which a competitive strategy must be set.

Figure 1.0 Porter's Five-Force Model

Industry Attractiveness



Source: Porter (2004), Competitive Strategy, pg 4

Porter defined industry attractiveness as the high potential profitability of an industry measured in terms of long term return on invested capital. The industry attractiveness was determined by the degree of competition in the industry, which was in turn influenced by the collective strength of the forces. The collective strength of the forces also defines the strategic challenge facing companies in an industry. If collectively they are strong vis a vis the industry players, then the industry is not attractive and vice versa.

The first force is threat of entry where new entrants to an industry often have the desire to gain market share and as a result can cause a drop in an industry's product prices. Besides they can cause incumbent members to be inflated leading to a decline in profitability.

The second factor is threat of substitute products. Porter argued that a substitute product could perform the same function as the firm's product. These substitutes can reduce the returns of the rival firm. The competitive position of a firm's product vis a vis its substitutes depend on an industry's collective action. For example, increased advertising done by one member firm may not be enough to bolster the firm's competitive position against a substitute that is produced by a new entrant, but heavily sustained advertising done by all members of an industry may well improve the firm's position.

Bargaining power of buyers is yet another factor. Buyers can influence the pricing decisions that are made by a firm/industry. They can increase the demand for higher quality commodities thereby playing competitors against each other. The more the purchased products are standardized the stronger the bargaining power of buyers because of the wide choice of similar products that each consumer has to choose from. It is also important to note that buyers are normally less price sensitive when the quality of the products that they sell is dependent on the quality of the products that they buy.

The fourth factor is rivalry among existing firms intense rivalry can result in price competitions, advertising battles, new products and increased customer services or warranties. Rivalry can be initiated by an increase in a firm's market share relative to others due to the firm's aggression in its attempt to tap opportunities or improve its product positioning.

The last factor is bargaining power of suppliers. If an industry's products have high price elasticity, then the bargaining power of suppliers of its resources may increase because they can threaten an industry with an increase in price or a decrease in the quality of the

raw materials being supplied. This is normally the case when the suppliers are well organized or when the companies in an industry are not major buyers of those resources that are necessary to them.

Pearce and Robinson built upon Porter's theory and postulated that designing viable strategies for a firm requires a thorough understanding of the firm's industry and competition which involves defining the industry boundaries and structure, competitive analysis and operating environment (Pearce & Robinson, 1997). They go on to define the industry structure as comprising of the industry concentration, which is the extent to which industry sales are dominated by only a few firms. It also involves the economies of scale, which are the savings that companies in the industry can achieve due to increased volumes, product differentiation or the extent to which customers perceive products/services offered by different firms in the industry as different from one another, and barriers to entry. Barriers to entry are tangible or intangible obstacles that a firm must overcome in order to enter the industry.

2.4 Empirical Studies on Industry Attractiveness in Kenya

In Kenya, various studies have been conducted on industries of which most focused on competition and competitive strategies used by firms in the industry while few studies have been done on industry attractiveness, for example Mutia (2002), which sought to assess the level of attractiveness of the Kenyan market to international airlines concluded that the market is fairly attractive to international airlines as regards passenger business.

Waithaka (2001), in his analysis of funeral industry attractiveness to funeral service providers in Nairobi established that the industry is still young and most companies in this sector are less than five years old and they are either owned under sole proprietorship or partnership with major operations in Kenya and Tanzania. He concluded that the key motivating factor is high anticipated profits and to a small extent the desire to ease funeral transport problems.

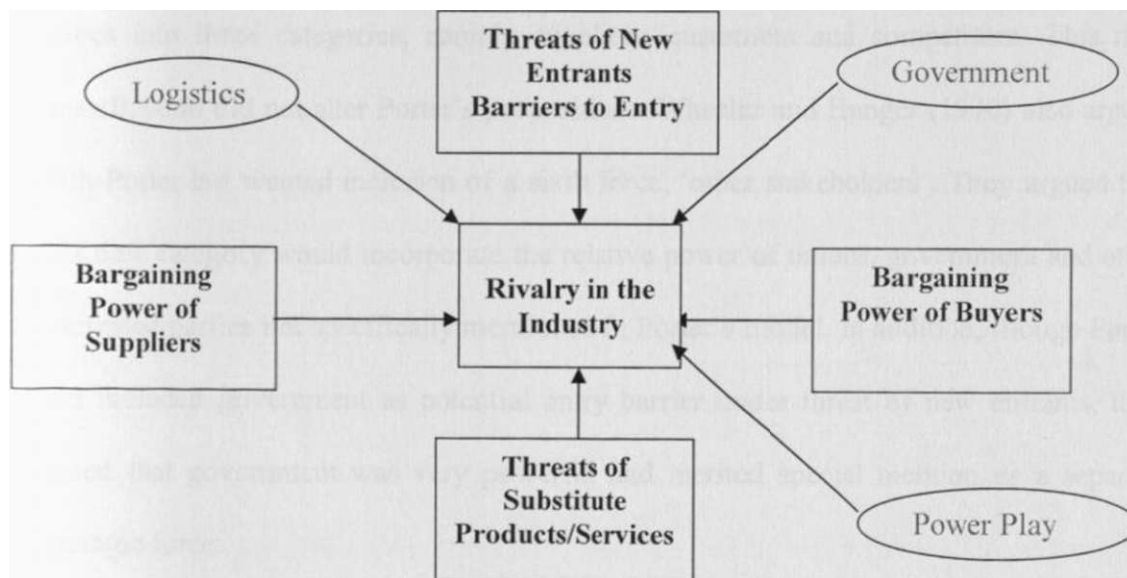
Other related researches carried out in the post liberalization era document that the reform process has led to stiff competition in key sectors of the Kenyan economy (Mohammed, 1995, Kombo, 1997). Since its liberalization in October 1994, the petroleum sub sector in Kenya has become very competitive (Abekah, 1999). To survive in such a competitive environment, the firms in the industry have had to adjust their strategic responses by developing various competitive strategies (Wamathu, 1999). The same was found to be true of the motor vehicle industry in Kenya (Mohamed, 1995) where companies in the industry adjusted their marketing mix elements in order to cope with increased competition from dealers of reconditioned and used imported motor vehicles.

2.5 The Modified Porter's Model

This study used the 8-force industry analysis model as a guide in trying to define the industry structure of the Solar Power industry. The 8-force model is a modification of Porter's five-force industry analysis model discussed earlier. Porter's five-force model was advanced in developed country contexts, which are rather different from developing country ones. An issue that arose later is whether strategic management models

developed in other countries can be applied in Africa. It has been postulated (Osigweh, 1989; Hussey, 1990; Austin 1991, Aosa. 1997) that management is sensitive to the context in which it is practiced. This suggests that strategic management models advanced in developed countries where strategic management originated may not be directly applicable to Africa.

Figure 2.0 Porter's modified Model



Source: Aosa, E. (1997). Porter's Industry Analysis Model in the Kenyan Setting
Moi University Business Journal, Issue 1, Vol. 1, No. 1, pp. 4-5.

Austin (1991) argued that the basics of managerial work were the same all over the world. The differences in developing countries lay in the context in which managers operated and the special challenges they faced. Hussey (1989) had earlier suggested that environmental and organizational differences across countries might affect the way strategic management was practiced. Osigweh (1989) stressed the importance of being sensitive to environmental influences. He suggested that studies carried out in one culture could not be assumed to apply in other cultures unless that was shown to be the case through research.

Wiseman and Macmillan (in Aosa, 1997) accepted Porter's model but grouped the five forces into three categories, namely suppliers, customers and competitors. This new classification did not alter Porter's propositions. Wheeler and Hunger (1990) also argued with Porter but wanted inclusion of a sixth force, 'other stakeholders'. They argued that this new category would incorporate the relative power of unions, government and other interested parties not specifically mentioned in Porter's model. In addition, though Porter had included government as potential entry barrier under threat of new entrants, they argued that government was very powerful and merited special mention as a separate strategic force.

Palvia et al (1990) revisited the issue of the forces that drive competition in an industry. They acknowledged Porter's propositions and adopted Wiseman and Macmillan's classification of these forces. However, they argued that these forces were major determinants of industry competition in free market competitive economies. Developing countries did not have such economies and therefore in these **countries** porter's model needed adaptation. New forces needed to be added to the model to reflect the extra

challenges present in these countries. They suggested the addition of two other forces to the model, government and logistics. They pointed out that government in developing countries played very significant and dominant roles in the economy. In addition, inadequate infrastructure is a problem that plagues many businesses.

While agreeing that the model suggested by Palvia et al holds true for Kenya. Aosa (1992) stated that the model is incomplete in one important respect. Aosa found that managers in Kenya complained of external interference and unfair treatment while carrying out their activities. There were reports of obstruction and illegal competition. All these factors cannot be attributed to government alone. He pointed out that in developing countries, individuals in high government positions could wield such power that they could flout government policies and controls at will. They did this when they individually stood to gain. It was his position that such individuals form a formidable strategic force and should be added to those suggested by Palvia et al to better reflect industry challenges in Kenya.

Porter's model, modified for purposes of this study has eight forces. To the original five forces, three new ones have been added: government, logistics and power policy. Aosa was of the view that the new model provides a more complete exposition of the additional challenges that have to be taken into account in formulating strategies for companies in Kenya. The researcher therefore feels that the 8-force model will provide a more comprehensive framework for defining the structure of the Solar power industry in Kenya. Organizational survival in any industry is dependent on the ability of the organization to adapt to a changing environment. For an organization to achieve its

objectives, it needs to provide goods and services that are demanded by the market. The modified Porter's model provides an illustrative framework portraying the situation in Kenya where power play, Logistics and Government control every facet of the economy.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Research Design

The study employed descriptive census survey to assist the researcher in identifying the factors that attract investors to Solar Power industry in Kenya. According to Mugenda and Mugenda (1999), descriptive research attempts to provide a description of variables from members of the population.

This research design was deemed appropriate for this study as the researcher had information on the forces determining the attractiveness of Solar power industry.

3.2 Population

The population for the study composed of all firms registered to carry out the provision of Solar power services in Kenya, however ten companies which have been identified by KERECA as active industry players were selected for the study. A census survey was carried out due to this low number of the target population.

3.3 Data Collection Method

The survey mainly used primary data that was collected using a semi-structured questionnaire served on respondents (managing directors) through personal interviews. This method was appropriate as provided detailed information including other supplementary information through probing which gave the respondents a chance to give

other information that they considered relevant. It also gave respondents liberty in expressing their definition of a situation that was presented to them.

The response rate for personal interviews is also higher than that of either mail or telephone interviews (Churchill, 1987).

The questionnaire is divided into three parts:

Section A - Company profile - overall picture of the company in terms of ownership, number of employees, number of products and annual turnover. The first section is structured to obtain information on the company profile.

Section B Questions were categorized under each of the factors in the modified Porter's model as well as other related factors which can explain the nature of the industry.

Section C - In this last section respondents were given a chance to give their overall assessment of how they think each factor is important in determining the nature of the industry and the level of attractiveness.

3.4 Data Analysis

Completed questionnaires were edited for completeness to ensure accuracy and consistency of information obtained. Data was summarized and tabulated using defined characteristics like origin of the company, number of branches operated and the year they started operating. The responses were coded to facilitate statistical analysis by use of descriptive statistics such as frequency tables to give visual display of the score given to

the items under each of the factors. Measures to tendency such as the arithmetic mean and the mode were used.

The mean helped show the average score per factor by summing up the score on each item under a factor and dividing by the number of items. The higher the mean was among items in a factor, the stronger was the factor in creating unattractiveness of the Kenyan market, because it meant its effect was rated as high or very high or very high and thus strong, and the stronger a factor is, the unattractive the market is. The mode was used to show how the items scored in terms of aggregate, therefore revealing the items which scored highest, which in turn was taken as the major items or variables which to a large extent influence the effect of a factor in determining attractiveness.

The question format used for most of the questions was based on the 5-point Likert scale whereby respondents were asked to assess their agreement or importance they attached to various variables under each factor in determining the level of attractiveness of the Kenyan market to Solar power companies. Respondents were also given an opportunity to assess a situation by answering question that required a Yes or No answer or by ticking what they felt was relevant depending on the question. For purposes of this research the following Likert scale was used: very High/Strongly Agree-1, High/Agree-2, Moderate/Neither Agree-3, Low/Don't Agree-4 and Negligible/Strongly Disagree-5.

Based on the 8- force industry analysis model, variables that have the ability to influence strategy in an industry were identified. Analysis was done using SPSS to determine the key factors, which influence attractiveness in the industry.

CHAPTER FOUR: ANALYSIS, FINDINGS AND DISCUSSIONS

4.1 Profile of Respondent Firms

An analysis and findings based on the respondent's answers to the questions dwelling on the company profile such as origin, number of branches operated and number of employees was done. Frequency tables were used to tabulate the responses given.

4.1.1 Company origin and Ownership

This sought to know the origin of the company in order to give a general impression of where the company is operating. Basically, the origin was divided into three continents- Africa, Europe and Asia as all the Solar power company origin could be fitted into these areas.

Table 1 (a) Company by Origin

Origin	Total respondents
AFRICA	4
ASIA	2
EUROPE	1
TOTAL	7

Source: Research Data

Table 1 (b) Company Ownership

	Frequency	Percent
Local	5	71.4
Both local and foreign	2	28.6
Total	7	100.0

Source: Research Data

Of the 7 Solar power companies that responded, 5 or 71.4% are locally owned in Kenya. While 2 or 29.6% are both foreign and locally owned.

4.2 Assessment of the Industry Attractiveness

The respondents' views regarding various factors used as a basis to determine the attractiveness of the Kenyan market to Solar power companies was analyzed and the findings per each factor presented below. A summary of the findings, which includes the rating per each variable (frequency tables) under a factor as well as the mean and mode scores, was presented alongside factor analysis.

4.2.1 Barriers to Entry

These are barriers a firm must overcome to enter an industry. The new entrants tend to bring into an industry new capacity and substantial resources that threaten the market position of the current players. However the extent of this threat depends on the existence of barriers that currently exist and the retaliatory action by current players. Barriers may

be general across some industries or may be peculiar to an industry, and their strength (ability to deter entry of new entrants) differs between industries.

In the Solar power industry some of the major barriers include the high operating costs, competitor alliances and partnerships which tend to consolidate the market position and price wars which tend to reduce profitability hence deters prospective entrants. Specific government regulations like the high tax levied on Solar products offer concessions to the market which a new entrant cannot afford. Economies of scale and access to the market are also portrayed as having considerable influence to the new players. The above variables were used in the study and the results are as shown below:

Table 2 (a) Barriers to Entry

Rate the effect of the following	V. High	High	Moderate	Low	Negligible	Total
Start-up costs	1	4	1	0	0	6
Competitor alliances	1	3	1	2	0	7
Operating costs	3	2	1	0	0	6
Price wars	3	4	0	0	0	7
Govt, regulations	1	4	2	0	0	7
Economies of scale	1	1	4	1	0	7
Access to Market	0	2	5	0	0	7

Source: Research Data

From the above table the effects of all the factors: start-up costs, operating costs, price wars, competitor alliance, economies of scale, access to market and government regulation were heavily scored in the moderate to high hence they are all high indicators of the barriers to entry.

Table 2 (b) Mean and Standard Deviation

Effect of the following	Mean	Mode	Std. Deviation
Start up costs	1.8571	2	.69007
Alliances by competitors	2.5714	2	1.13389
Operating costs	1.5714	1	.78680
Price wars	1.5714	2	.53452
Access to Market	2.4286	2	.53452
Government regulations	2.7143	3	1.11270
Economies of scale	2.5714	2	.97590

Source: Research Data

Start-up costs, competitor alliances, government regulations, access to market, and economies of scale had more than 1.6 as mean score, while operating costs and price wars had less than 1.6 but more than 1.5 meaning that they were all generally rated as moderate to very high.

From the above analysis the overall assessment for all the items under barriers to entry based on the mean score was above average(1.5) meaning that this factor (barriers to entry) could be regarded as a strong one when it comes to deciding whether it to invest in

Kenya or not. Prospective new entrants therefore have to address this factor before entering the Kenyan market. Judging from the mean scores as well as the high ratings of the variables on the Likert scale, it appears as though barriers to entry are strong in the Kenyan market since the effect of most of the variables has been highly rated.

4.2.2 Rivalry within the Industry

All firms in an industry compete against each other for market dominance through use of aggressive tactics. In the Solar power industry some of the tactics employed by rivals included pricing, promotion, Product enhancement, customer service, e-commerce as well as use of alliances with other Solar power companies. To assess the level of rivalry among the industry players in Kenya, an analysis of the variables mentioned above was carried out.

Table 3(a) Rivalry within the industry

	Very high	High	Moderate	Low	Negligible	Total
Rate intensity of competition	1	6	0	0	0	7
How has competition affected profitability?	0	3	2	0	0	5

Source: Research Data

All the respondents agreed, the stiff competition was prevalent in the industry and rated its intensity as high to very high. A high number of respondents (3 or 42%) also said that competition as moderate while the remaining 2 respondent which is also 29% did not rate

competition has adversely affected profitability while 2 respondents or 29% overall rated the effect of competition on profitability.

Table 3 (b) Rivalry within the industry

	Strategies used by competitors	Strategies used to beat competitors
	No. of respondents	
Pricing	5	5
Promotion	5	5
Distribution	0	3
Product Enhancement	0	5
Customer service	0	6
E-commerce	2	4
Alliances and partnerships	0	3

Source: Research Data

Of the strategies used by the competitors pricing and promotion were indicated as the major ones while strategies used to beat competition include mainly the use of pricing, improving customer care as well as promotion, product enhancement and e-commerce to boost their global reach. With the increased competition in the market, most of the respondents agreed that this has affected their profitability highly.

Table 3(c) Rivalry within the industry Mean and Mode scores

Item	Mean	Mode
Pricing	4.00	5.00
Promotion	4.00	5.00
Distribution	4.00	4.00
Product Enhancement	4.00	5.00
Customer Service	4.00	6.00
E-commerce	3.00	4.00
Alliances and partnerships	1.20	3.00

Source: Research Data

On the mean score, the intensity of competition, the negative effect of competition on profits and overall assessment of threat of competition scored over 4.0, meaning they were rated highly. The mode scores on the same items was equally high (5.0 for all) indicating that they were thought to be major determinants of the competition in the industry.

4.2.3 Bargaining Power of Buyers

This is the ability of buyers to influence prices of the firm's outputs. Buyers compete with the industry by forcing down prices, bargaining for higher quality or more services and playing competitors against each other all the expense of industry profitability.

Table 4(a) Bargaining Power of buyers

Customer Influence on:	V. High	High	.Moderate	Low	Negligible	Total
Pricing	1	3	3	0	0	7
Distributor Location	0	6	0	1	0	7
Adoption of e-commerce	1	0	3	3	0	7
New product development	1	2	4	0	0	7

Source: Research Data

Pricing, distributor location and new product development are factors that received very high to moderate rating meaning that they have negative impact on buyers bargaining power; adoption of e-commerce was rated moderate to low indicating that buyers can use it to their advantage in placing their orders online and making price comparisons.

Company Power over buyers	V. High	High	Moderate	Low	Negligible	Total
Prices charged	0	5	2	0	0	7
Terms of Sale	1	3	3	0	0	7

Source: Research Data

In terms of company power over buyers, based on prices charged the rating was high to moderate while on terms of sale the rating very high to moderate, this illustrates that respondents felt that these two factors are used by solar power companies to reign on their consumers.

Table 4(b) Mean and mode score

Buyer power over Solar powers	Mean	Mode
Pricing	2.28	2.00
Distribution/Location	2.28	2.00
Adoption of e-commerce	3.00	3.00
New Product development	2.42	3.00

Source: Research Data

The mean scores on the assessment of buyer power over company reveals that all the items scored below the average score of 4.0 meaning that respondents heavily rated them low. The mode reveals that the predominant score was 3.0 thus also revealing that most of these items were lowly rated.

4.2.4 Bargaining Power of Suppliers

Suppliers can exercise power in an industry by threatening to raise prices or reducing the quality of purchased goods and services. This can happen in the case of a monopolist or the market is oligopolistic. In an industry where suppliers are strong they can drastically reduce a firm's profitability. In the Solar power industry suppliers exert their power on various aspects such as payments terms for goods delivered, the service levels offered, location of their business which can substantially increase the cost of supplies as well as the sales contract terms between them and the Solar power companies. The company ability to survive will to an extent be determined by the power of the suppliers in that market. The following is the scenario in Kenya as revealed by the findings.

Table 5(a) Bargaining Power of suppliers

Rate your power over suppliers in respect to:	V. High	High	Moderate	Low	Negligible	Total
Payment terms	2	2	2	0	0	6
Service levels	0	2	3	1	0	6
Business location	2	1	2	1	0	6

Source: Research Data

Payment terms and supplier location are rated as high to very high with payment terms having (4 or 66%) response rate while company location has (3 or 50%) response. However service levels is rated moderate to low (4 or 66%) indicating that the company has no power of the customer choice and preferences in terms of services provided.

However the overall negative effect of supplier influence on profitability was scored mainly between high and moderate with (5 or 71%) rate it as high while (2 or 29%) said the negative supplier effect on profitability is moderate. The overall company power over suppliers was rated heavily on the moderate to low scale (6 or 90%).

Table 5 (b) Bargaining power of Suppliers Mean & Mode score

Rate your power over suppliers on the following		
Item	Mean	Mode
Payment terms	2.00	2.00
Service Levels	2.83	3.00
Business Location	2.33	1.00
Supplier Influence		
Overall negative influence on profitability	2.42	2.00
Overall Solar power company influence over suppliers	3.14	3.00

Source: Research Data

On the mean scores, Solar power company influence over suppliers on payment terms, service levels and their location rated below average (less than 4.0), an indication that they were rated low and hence the company power over suppliers is low. The mode score for the same items were also rated low (all of them below 4.0), an indication that most of the respondents felt that their power over the suppliers was neither low.

On the overall supplier influence over profitability, mean score was 2.42 meaning the respondents felt it was between moderate and low while the mode score was 2.0 meaning that it was low. The mean score on the overall influence of Solar power company over suppliers the mean score was 3.14 while the mode score was 3.0. This means that the respondents felt their influence was a moderate and most of them scored their influence as moderate to low.

From the above analysis it would appear the bargaining power of suppliers over Solar power industry in Kenya is low or weak.

The factor analysis indicated that supplier power in Kenya is mainly on the service levels they offer the Solar power industry. This means suppliers can dictate terms to buyers on this aspect, but however not to a great extent.

4.2.5 Threat of Substitutes

In any industry there are substitute products competing against each other for market share. The threat of substitutes is to limit the potential returns by placing a ceiling on the prices firms in the industry can profitably charge. In the Solar power industry the substitute products are electricity, gas and kerosene. The extent of that threat (and hence their strength or weakness) is analyzed below.

Fable 6 (a) Threats of substitutes

Rate the substitutes	Very close	Close	Not close	
Hydro electricity	3	3	1	7
Gas	0	5	2	7
Kerosene	1	1	5	7

Rate of the threat of substitutes to profits						
	V. high	High	Moderate	Low	Negligible	Total
Hydro Electricity	3	1	3	0	0	7
Gas	0	1	2	4	0	7
Kerosene	0	0	3	4	0	7

Source: Research Data

The major substitutes were identified as hydro electricity, gas and kerosene, however, most of the respondents rated their threat mostly close to not close (hydro electricity 4 or 57%, gas 7 or 100% kerosene 6 or 90%), meaning that they considered them as major substitutes to Solar energy. This is supported by the fact that their effect on the Solar powers' profitability was rated as mainly high to moderate by 5 Solar power companies representing 71% of the total companies studied.

Table 6(b) Threat of substitutes mean and mode scores.

Item	Mean	Mode
Hydro Electricity	2.00	1.00
Gas	3.42	4.00
Kerosene	3.57	4.00

Source: Research Data

On the mean score the threat of the two items (gas and kerosene) and their effect on profitability was almost 4.0, meaning they were moderate. Hydro electricity scored 1 on

the mode score, meaning the respondents considered them negligible as far as power to substitute Solar power is concerned, but gas and kerosene received a mode of 4.0 which portrayed them as moderate substitutes.

All the substitute means of energy seemed not to pose any threat to Solar powers in Kenya because the Pearson correlation was negative. These cannot therefore be used to describe threat of substitute products to the Kenyan Solar power industry. Therefore it can be adduced that there is really no threat of substitute products in Kenyan market as far as international Solar powers are concerned.

4.2.6 Government Influence, Logistics and Power play

The government, through its various policies and regulations, determined to a great extent business performance in a country. Logistics is also a major influence since most companies are located in towns while their consumers are located in the rural areas. Power play by the powerful individuals in government is also considered to be impacting upcoming industries in developing countries. The Solar power industry in Kenya is no exception and the effect of the same key and relevant policies and their effects on Solar power business in Kenya have been analyzed.

Table 7 (a) Government influence. Logistics and Power play

Effect of the following on the company	Very high	High	Moderate	Low	Negligible	Total
Economic climate	1	3	3	0	0	7
Safety and Security	2	2	3	0	0	7
Taxation	3	1	1	2	0	7

Source: Research Data

The bulk of the scores for the many of the variables under government influence, logistics and power play were rated as very high to moderate, meaning that their effect on company operations was considered high. Economic climate and Safety and security was ranked highest (7 or 100%) while taxation had (4 or 57%).

Table 7(b) The Government influence mean and mode scores

Item	Mean	Mode
Economic climate	4.00	4.00
Safety and Security	3.67	4.00
Taxation	3.90	4.00

Source: Research Data

In the mean scores all the 3 factors had more than 3.5 mean score, meaning that they felt that the importance of government policies was moderate. The mode score reveals that all the items of 4.0, meaning that most of the respondents rated them as moderate meaning that they are considered relevant to some extent.

4.3 Relationship between the Factors and their Variables

To explain the extent to which each is explained by the items loading or scores, the study employed the use of the method of explained variance. Generally factors with highest percentage of explained variance provide the most parsimonious representation of the items. This means that this factor can be used fairly exclusively to dimension studied i.e. the attractiveness of the Kenyan market to Solar power companies. Therefore the factor with the highest percentage of variance will be taken as the one with the highest relative strength of explaining what Solar powers consider as important in assessing the attractiveness of the Kenyan market.

The reason is to find out which factor is the most prominent in determining the attractiveness of the Kenyan market, since all the factors cannot have the same influence. Companies in this industry will thus be able to know the factor(s) they should address first when devising their strategies.

Table 8 statistical presentation of the relationship (explained variance)

Factor	% of variance	Frequency
Barriers to entry	82.3%	6
Rivalry within the industry	70%	5
Threat of substitutes	47%	3
Bargaining power of buyers	60%	4
Bargaining power of suppliers	55%	4
Government influence , Logistics and Power play	60%	5

Source: Research Data

From the above it can be seen that barriers to entry and rivalry in the industry had the highest percentages of explained variance (82.3% and 70%). As a result these factors can be used to determine what aspects really determine the attractiveness or non attractiveness of the Kenyan market to Solar power companies.

4.4 General Constraints Faced by Industry Players

Industry players selected from the list (poor infrastructure, insecurity, poor state of economy, lack of skilled personnel and low purchasing power) constraints that they face and provided the following information.

Table 9 General constraints Mode and Mean

Constraints	Mode	Mean	Total
Poor infrastructure	7	1.00	7
Insecurity	7	1.00	7
Poor state of the Economy	4	0.57	7
Lack of skilled personnel	1	0.10	7
Low purchasing power	7	1.00	7

Source: Research Data

The above analysis illustrate the ranking of other factors that are considered as general, poor infrastructure, insecurity and low purchasing power are rated highest with a mode of 7 while poor state of economy is also considered as strong with a mode of 4. Lack of skilled personnel received a mode of 1 meaning that it does affect the operations of Solar power companies on a day to day basis.

CHAPTER 5 SUMMARY, RECOMMENDATIONS AND CONCLUSIONS

5.1 Summary of Findings

The primary objective of the study was to assess the level of attractiveness of Solar power industry in the Kenyan market. The study sought to establish from the current players what they thought about the Kenyan market. The reason for taking this study was because the Solar power industry has generated a lot of interest because of the high cost of hydro electricity. The study focused on senior manager/general managers of the Solar power companies. The response rate was 70%, which was considered adequate for the study.

The study found out that four out of the eight factors used were rated above average (percentage score of 60 and above) meaning they were perceived as strong or very strong (hence making the Kenyan market unattractive) while the rest were rated as average, implying that they were felt as weak factors, thus making the Kenyan market moderately attractive. Those found to be strong include rivalry amongst the existing Solar power companies, logistics and influence of government policies, bargaining power of buyers and barriers to entry. The factors found to be weak are the bargaining power of buyers, the bargaining power of suppliers, threat posed by new entrants and power play.

5.2 Conclusion

This study concludes that the Kenyan market is fairly attractive to Solar power companies. It can therefore be said that the level of attractiveness is moderate. This is because out of the eight factors studied, four were rated as having high effect on Solar power operations, meaning that they made the Kenyan market unattractive for potential investors while the rest were rated as having long effect on the business, thus making the market attractive. It may thus be said that those Solar power companies whose operations have been severely affected negatively by the strong factors have had to pull out, while those exploiting the weak factors to their advantage have remained and continue to thrive.

5.3 Limitations of the Research

This study was not without limitations that included the following.

Lack of resources was a major constraint to the study. The researcher had to move from one office to another in person and this needed huge resource outlay in the form of money and time.

There was some lack of general grasp or conception of the issue under study by some respondents. Some found it hard to comprehend the concept of industry attractiveness, so the researcher had to take a lot of time explaining.

The study confined market attractiveness to Porters model. However this cannot be said to be exhaustive as there could be other factors that can be used to ascertain attractiveness.

The composition of the items or variables under each factor may not have been exhaustive. The study has assumed certain variables to be used under each factor, however, these may not be all the variables determining a factor and therefore the danger of some key factors having been omitted is real. This could make the study not to be very representative, as all relevant variables have not been taken into account.

The Solar power industry is dynamic and subject to changes. What could define attractiveness today may not be applicable in the few years to come. So the study cannot be said to determine attractiveness in the long term.

5.4 Recommendations for Further Research

The research feels that the following aspects need further research

Other factors that determine attractiveness as of Solar power business in Kenya have not been fully addressed by the research. The use of Porters model may not be sufficient to bring out all the factors that determine attractiveness of the Kenyan market. An investigation therefore needs to be done of what factors may determine the attractiveness of the Kenyan market to industry players by use of other models.

A more detailed analysis of Solar powers profitability and market shares may be necessary in order to determine how these aspects affects the investment decisions to operate in Kenya.

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APPENDIX 1: LIST OF INDUSTRY PLAYERS

The following ten companies have been identified by KEREA as actively operating in the Solar power industry in Kenya:

1. Kenital Solar
2. Chloride Exide
3. Tele sales
4. Solar World
5. Samnyung
6. Hensolex
7. Stillstone
8. Strategic Solar
9. Suntopway and
10. Davis&Shirliff

APPENDIX 2: LETTER OF INTRODUCTION

September 2007

Dear Sir/Madam,

I am a post graduate student in the School of Business, University of Nairobi. I am conducting a management research on the assessment of the attractiveness of solar power industry in Kenya.

In order to undertake the research, you have been selected to form part of the study. This letter is therefore to request your assistance in collecting information to enable me carry out the research. The information you give will be treated with strict confidentiality and is needed purely for academic purposes.

A copy of the final report will be available to you upon request. Your assistance and cooperation will be highly appreciated.

Yours Sincerely,

Caxton Munyoki

MBA Student

Mr. J Maalu

Supervisor (Dpt of Bus Admin)

Lecturer, School of Business

APPENDIX 3: QUESTIONNAIRE

University of Nairobi

School of business

Department of Business Administration

Note: The information in this questionnaire will be treated confidentially and will not be used for any other purpose other than academic.

COMPANY INFORMATION

1. Company Ownership Local [] Foreign [] Both []
2. Origin of the Company African [] Europe [] Asia [] Other specify []
3. Number of employees Local [] Foreign [] Total []
4. Year your operations started in Kenya []
5. Number of branches operated []
6. How many Companies were there in Kenya when you started operating? []

THREAT OF NEW ENTRANTS

7. How many have entered since then? []
8. Do you think there are still possibilities of new entrants coming in? Yes []
No []

9. How would you rate the following aspects as being barriers to entry into the industry in Kenya? Tick as appropriate.

	V. High	High	Moderate	Low	Negligible
a) Start up costs	[]	[]	[]	[]	[]
b) Alliances by competitors	[]	[]	[]	[]	[]
c) High operating costs	[]	[]	[]	[]	[]
d) Price wars	[]	[]	[]	[]	[]
e) Government regulation	[]	[]	[]	[]	[]
f) Economies of scale	[]	[]	[]	[]	[]
g) Access to market	[]	[]	[]	[]	[]

10. Would you say new entrants are a big threat to your profitability?

Yes [] No []

11. To what extent can you say they have reduced profitability?

V. High	High	Moderate	Low	Negligible
[]	[]	[]	[]	[]

12. How would you rate the continued threats of entry by new operators?

V. High	High	Moderate	Low	Negligible
[]	[]	[]	[]	[]

RIVALRY IN THE INDUSTRY

13. How would you rate the intensity of competition in the industry?

V. High	High	Moderate	Low	Negligible
[]	[]	[]	[]	[]

14. Which of the following strategies do your competitors use? Tick as appropriate

- a) Pricing/Fee []
- b) Promotion and advertising []
- c) Use of e-commerce []

15. Which strategy (ies) do you mostly apply so as to beat competitors?

- a) Pricing []
- b) Promotion []
- c) Distribution []
- d) Product enhancement []
- e) Customer service []
- o E-commerce []
- g) Alliances and partnerships []

16. Has competition affected your performance in Kenya negatively?

Yes [] No []

17. If yes, how would you rate the effect of competition on your profitability?

V. High	High	Moderate	Low	Negligible
[]	[]	[]	[]	[]

BARGAINING POWER OF BUYERS

17. Do you think customer exercise purchasing powers over you? Yes [] No []

18. To what extent do you think customer tastes/preferences have influenced your decision on the following?

	V. High	High	Moderate	Low	Negligible
a) Pricing decision	[]	[]	[]	[]	[]
b) Distribution/location	[]	[]	[]	[]	[]
c) Adoption of e-commerce	[]	[]	[]	[]	[]
d) New product development	[]	[]	[]	[]	[]

19. Do you think you have some powers over your customers? Yes [] No []

20. Please rate your power over customers on following aspects;

	V. High	High	Moderate	Low	Negligible
a) Prices charged	[]	[]	[]	[]	[]
b) Terms of sale	[]	[]	[]	[]	[]

22. How would you agree with the assertion that your buyers exercise a lot of power in your decisions? Strongly Agree [] Neither [] somehow [] Disagree [] Don't know []

BARGAINING POWER OF SUPPLIERS

23. Do you think suppliers exercise powers over you? Yes [] No []

24. If yes, how would you rate your influence over your suppliers on the following?

	V. High	High	Moderate	Low	Negligible
a) Payment terms	[]	[]	[]	[]	[]
b) Service levels	[]	[]	[]	[]	[]
c) Business location	[]	[]	[]	[]	[]

25. Do you think supplier's actions have an effect on your profitability?

Yes [] No []

26. Is the effect positive or negative? _____.

27. Please rate the negative supplier effect on your profitability

V. High	High	Moderate	Low	Negligible
[]	[]	[]	[]	[]

28. How would you rate your power over suppliers?

V. High	High	Moderate	Low	Negligible
[]	[]	[]	[]	[]

THREAT OF SUBSTITUTES

29. Of the following forms energy, please rank them in terms of them being substitutes to your products;

Very Close - 1 Moderate- 2 Not close -3

Hydro-Electricity [] Gas [] Kerosene []

30. How would you rate the threat of these substitutes to your firm's profitability?

	V. High	High	Moderate	Low	Negligible
a) Electricity	[]	[]	[]	[]	[]
b) Gas	[]	[]	[]	[]	[]
c) Kerosene	[]	[]	[]	[]	[]

31. Has the presence of these substitutes affected the prices you charge?

Yes [] No []

32. Has the presence of substitutes affected your profitability negatively

Yes [] No []

33. If yes, has the effect been negative or positive?_

34. Please rate the effect of substitutes on the prices you charge;

V. High	High	Moderate	Low	Negligible
[]	[]	[]	[]	[]

35. Please rate the effect of substitute Energy on your profitability?

V. High	High	Moderate	Low	Negligible
[]	[]	[]	[]	[]

GOVERNMENT, LOGISTICS AND POWER PLAY

36. Do you think government policies affect your operations in Kenya? Yes [] No []

37. If yes, is the effect negative or positive?

38. How would you rate the effect of the following aspects of government policies on your company operations?

	V. High	High	Moderate	Low	Negligible
a) Economic climate	[]	[]	[]	[]	[]
b) Safety and security	[]	[]	[]	[]	[]
c) Taxation	[]	[]	[]	[]	[]

39. Overall how would you rate the effect of government policy in the industry?

V. High	High	Moderate	Low	Negligible
[]	[]	[]	[]	[]

40. What general constraints do you face in your operations in Kenya? Tick as appropriate

- a) Poor infrastructure []
- b) Insecurity []
- c) Poor state of the economy []
- d) Lack of skilled personnel []
- e) Low purchasing power []

41. Please rank the factors below in order of how you feel they affect Solar Power industry performance in Kenya. 1-Most important 5- Least important

- a) Barriers to entry into the industry []
- b) Rivalry among competitors in the industry []
- c) Power of buyers/clients []
- d) Power suppliers []
- e) Threat of substitute products electricity, gas & kerosene []
- 0 The government policies in the country []

Please use this space below if you would like to comment further or make suggestions for improvement (attach additional sheet if required).

Many thanks for completing this questionnaire.