

AN ANALYSIS OF THE SOLAR SERVICE PROVIDER INDUSTRY IN THE WESTERN CAPE

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DECLARATION

By submitting this dissertation electronically, I declare that the entirety of the work contained herein is my own, original work, and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

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ABSTRACT

Scientists agree that the rising electricity usage of the rapidly growing human race to improve its standard of living is negatively affecting the environment. To create a sustainable environment for future generations, renewable and environmentally friendly resources have to be exchanged for the present finite resources. In South Africa, coal plants are responsible for more than 90% of the electricity production. This means that action has to be taken now to start a process of change to sustainable electricity resources.

This study focused on the South African solar industry. Due to the high sun radiation levels, solar technology is one of the renewable energy sources with the greatest potential. The industry is in its infancy, characterised by accelerated growth expectancy and fuelled by factors such as government subsidies, the fluctuations of fossil fuel prices and the increasing focus on economical long-term sustainability. The expected growth necessitates a focus on the market positioning of solar service providers in the Western Cape with the aim of taking full advantage of the opportunities associated with this industry.

The main objective of this study was to determine the current structure of the solar service provider value chain and subsequently areas of improvement to increase growth, stakeholder satisfaction and sustainability.

A literature review was conducted to address the research objective, relevant approaches and the broader electricity industry. Porter's Value Chain approach was used as a foundation for the adaptation to the solar service provider value chain. Porter's Five Forces model was also used as a secondary approach, which analysed the competitive environment of the solar service provider industry in the Western Cape.

The methodology entailed a qualitative research approach in the form of semi-structured interviews. All respondents were general managers or owners of a solar service provider, who were interviewed face to face. The study focused on the entire population of solar service providers in the Western Cape. Seventy-seven different

service providers were targeted, of which 18 were interviewed. The interviews were transcribed and analysed using content and frequency analysis. To guarantee reliability, a pilot study was conducted to ensure that the questionnaire was understood by the respondents. The validity of this study is gauged as high as the entire population was targeted and the results can be broadly generalised.

The findings show that customer service is the foremost value driver for solar service providers. This entails the actual installation of the product as well as the people skills of the installation team. As most customers only have to be served once due to the long life span of the products, marketing also plays an obvious role in attracting new customers.

The most important outcome of this study is the determination and a better understanding of the solar service provider value chain in South Africa. The recommendations, especially with regard to marketing and service elements, could improve the performance of solar service providers. The consequence could be an increase in stakeholder satisfaction and an enhanced usage of solar energy in South Africa. Future research should focus on customers to reveal preferences and opportunities for marketing approaches.

Keywords: value chain; Porter's Value Chain approach; Porter's Five Forces model; solar service provider; South African solar industry; renewable sources of energy; South African energy industry

OPSOMMING

Wetenskaplikes is dit eens dat die snelgroeende mensdom se stygende elektrisiteitsverbruik ten einde hul lewenstandaard te verhoog, die omgewing benadeel. Om 'n volhoubare omgewing vir toekomstige geslagte te skep, sal die huidige beperkte hulpbronne met hernubare en omgewingsvriendelike hulpbronne vervang moet word. In Suid-Afrika is steenkoolaanlegte verantwoordelik vir meer as 90% van die land se elektrisiteitsproduksie. Dít beteken dat daar nou opgetree moet word om 'n proses van oorskakeling na volhoubare elektrisiteitshulpbronne aan die gang te sit.

Hierdie studie konsentreer op die Suid-Afrikaanse sonenergiebedryf. Weens die hoë sonstralingsvlakte wat die land ervaar, is sonenergetegnologie een van die hernubare energiebronne met die grootste potensiaal. Die bedryf staan nog in sy kinderskoene en word gekenmerk deur 'n verwagting van al hoe vinniger groei, wat aangedryf word deur faktore soos staatsubsidies, skommelinge in fossielbrandstofpryse en 'n toenemende klem op ekonomiese langtermynvolhoubaarheid. Die verwagte groei noodsaak 'n ondersoek na die markplasing van sonenergiediensverskaffers in die Wes-Kaap ten einde die geleenthede verbonde aan hierdie bedryf ten volle te benut.

Die hoofdoel van hierdie studie was om die huidige struktuur van die waardeketting van sonenergiediensverskaffers, en gevolelik ook moontlike verbeteringe vir groter groei, belanghebbende-tevredenheid en volhoubaarheid, te bepaal.

'n Literatuuroorsig is onderneem om die navorsingsoogmerk, tersaaklike benaderinge en die groter elektrisiteitsbedryf in konteks te beskou. Porter se waardekettingbenadering het as grondslag gedien vir aanpassing by die waardeketting van sonenergiediensverskaffers. Daarbenewens is Porter se model van vyf kragte as sekondêre benadering ingespan om die mededingende omgewing in die sonenergiediensverskaffersbedryf in die Wes-Kaap te ontleed.

Die studiemetodologie het 'n kwalitatiewe navorsingsbenadering in die vorm van semigestructureerde onderhoude behels. Alle respondenten is algemene bestuurders of

eienaars van 'n sonenergiediensverskaffer en het aan persoonlike onderhoude deelgeneem. Die studie het op die algehele populasie van sonenergiediensverskaffers in die Wes-Kaap gekonsentreer. Die teikengroep was 77 verskillende diensverskaffers, van wie 18 aan onderhoude deelgeneem het. Die onderhoude is getranskribeer en met behulp van inhouds- en frekwensie-analise ontleed. Betroubaarheid is gewaarborg deur middel van 'n loodsstudie om te verseker dat die respondenten die vraelys sou verstaan. Aangesien die hele populasie as teikengroep gedien het en die resultate dus in die breë veralgemeen kan word, word hierdie studie as uiters geldig beskou.

Die bevindinge toon dat kliëntediens die grootste waarde-aandrywer vir sonenergiediensverskaffers is. Dít behels die praktiese installering van die produk sowel as die mensevaardighede van die installasiespan. Aangesien die meeste kliënte weens die lang gebruiksduur van die produktes slegs een maal bedien hoef te word, speel bemarking ook 'n voor die hand liggende rol om nuwe kliënte te lok.

Die belangrikste uitkoms van hierdie studie is die bepaling en beter begrip van die waardeketting van sonenergiediensverskaffers in Suid-Afrika. Die aanbevelings, veral met betrekking tot bemarkings- en dienselemente, kan sodanige verskaffers se prestasie verbeter. Dít kan weer tot groter belanghebbende-tevredenheid sowel as meer sonenergie-aanwending in Suid-Afrika lei. Toekomstige navorsing behoort op kliënte te konsentreer om hulle voorkeure, en dus ook moontlike bemarkingsgeleenthede, te bepaal.

Trefwoorde: waardeketting; Porter se waardekettingbenadering; Porter se model van vyf kragte; sonenergiediensverskaffer; Suid-Afrikaanse sonenergiebedryf; hernubare energiebronne; Suid-Afrikaanse energiebedryf

VORWORT

Wissenschaftler sind sich einig, dass der steigende Bedarf an Elektrizität durch die schnell wachsende Bevölkerung, unsere Umwelt belastet. Um ökologische Stabilität für zukünftige Generationen zu sichern, ist es unerlässlich, die begrenzten fossilen Energiequellen durch erneuerbare und umweltfreundliche Resourcen zu ersetzen. In Südafrika ist der Kohleabbau für mehr als 90 % der Elektrizitätsproduktion verantwortlich. Das bedeutet, die Weichen müssen jetzt hin zur nachhaltig produzierten Elektrizität gestellt werden. Diese Studie konzentriert sich auf die südafrikanische Solarindustrie.

Auf Grund der hohen Sonnenintensität ist Solartechnologie die erneuerbare Energiequelle mit dem größtem Potenzial. Die Industrie steckt noch in den Kinderschuhen, jedoch führen Wachstumserwartungen, Regierungssubventionen und steigende Preise fossiler Brennstoffe zur Focussierung auf die nachhaltige Solarindustrie. Für Solardienstleister am Westkap bedeutet das erwartete Wachstum, sich die Marktposition in dieser Branche zu sichern und die neuen Möglichkeiten zu nutzen.

Das Hauptziel dieser Studie war, die aktuelle Struktur der Solardienstleister zu ermitteln und eine mögliche Verbesserung der Wertschöpfungskette, der Eigentümerzufriedenheit und der Nachhaltigkeit zu generieren. Um das Forschungsziel zu erreichen, wurde eine Literaturrezension der Forschungsmodelle, sowie der Elektrizitätsindustrie durchgeführt. Porter's Value Chain diente als Grundlage um die Wertschöpfungskette der Solardienstleister zu analysieren. Porters Five Forces fungierte als Grundlage um die Wettbewerbssituation der Solarindustrie am Westkap zu analysieren.

Die Forschungsmethodik beinhaltet eine qualitative Befragungsstechnik in Form von halbstrukturierten Interviews. Alle Befragten waren Generaldirektoren oder Inhaber der Solardienstleister, die von Angesicht zu Angesicht interviewt wurden. Die Studie hat sich auf die komplette Solardienstleisterindustrie im Westkap konzentriert.

Siebenundsiebzig verschiedene Dienstleister waren erfasst, achtzehn davon wurden befragt. Die Antworten der Interviews wurden niedergeschrieben und einer Inhalts- und Frequenzanalyse unterzogen. Um Zuverlässigkeit zu gewährleisten, wurde eine Vorstudie durchgeführt um das Verständnis der Befragten sicher zustellen. Die Gültigkeit dieser Studie ist repräsentativ, da die komplette Bevölkerung im Westkap ins Visier genommen wurde und somit die Ergebnisse weit gehend verallgemeinert werden können.

Die Ergebnisse dieser Studie zeigen, dass Kundendienst und ausgebildete Fachkräfte der Schlüssel zum Erfolg in der Solarwirtschaft sind. Durch die lange Lebensdauer des Produktes, werden Kunden meist nur einmal bedient, daher spielt Marketing auch zur Neukundengewinnung eine wichtige Rolle. Die Verbesserungsvorschläge, um Marketing und Service aktivitäten zu optimieren, können die Leistung der Solardienstleister steigern.

Als Folge letztlich könnte eine Zunahme der Eigentümerzufriedenheit und ein höhere Verbreitung der Solartechnologie in Südafrika sein. Zukünftige Forschungsprojekte sollten sich auf die Gewinnung von Neukunden konzentrieren, um die Verbreitung dieser nachhaltigen Energiequelle zu unterstützen.

Schlüsselwörter: Wertkette; Porter's Five Forces; Solardienstleister; südafrikanische Solarindustrie; erneuerbare Energiequellen; südafrikanische Energiewirtschaft

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TABLE OF CONTENTS

CHAPTER 1 INTRODUCTION.....1

1.1.	INTRODUCTION	1
1.2.	RESEARCH APPROACHES TO ANALYSE THE SOLAR SERVICE PROVIDER INDUSTRY.....	3
1.2.1.	The Value Chain Approach.....	3
1.2.2.	Porter's Five Forces Model.....	4
1.3.	THE SOUTH AFRICAN ELECTRIC POWER INDUSTRY	6
1.3.1.	Energy Context.....	6
1.3.2.	Solar Power	7
1.4.	PROBLEM STATEMENT	7
1.5.	OBJECTIVES OF THIS RESEARCH	8
1.6.	RESEARCH METHODOLOGY	11
1.6.1.	Secondary Research	11
1.6.2.	Primary Research.....	11
1.6.2.1.	Population.....	12
1.6.2.2.	Data Collection	12
1.6.2.3.	Primary Research Method Selected	12
1.6.2.4.	Data Analysis.....	13
1.7.	CONCLUSION.....	13

CHAPTER 2 SELECTED RESEARCH APPROACHES15

2.1.	INTRODUCTION	15
2.2.	THE VALUE CHAIN.....	16
2.2.1.	Historical Background.....	16
2.2.2.	The Value Chain Model	16

2.2.2.1.	The fundamentals of value chain analysis	19
2.2.2.2.	The Value Chain Process	20
2.2.2.3.	Innovating the Value Chain.....	22
2.2.3.	Phases for conducting a value chain analysis	23
2.2.3.1.	Point of Entry for Value Chain Analysis	23
2.2.3.2.	Mapping the Value Chain	24
2.2.3.3.	Key Success Factors and Segments in the Target Markets	24
2.2.3.4.	Key areas of Value Chain Analyses.....	26
2.2.3.5.	Benchmark Service Provider efficiency	28
2.2.4.	Strategic Options in the Value Chain	29
2.2.4.1.	The Low-cost Strategy.....	30
2.2.4.2.	The Differentiation Strategy	31
2.2.4.3.	The Best-Cost Provider Strategy	33
2.2.4.4.	Focused Strategies.....	34
2.2.4.5.	Other Applicable Strategies for the Solar Market.....	35
2.2.4.6.	Strategy Options for Competing in a Fragmented Industry	36
2.2.4.7.	Possible application to the solar industry	37
2.2.4.7.1.	Criteria for cost leadership strategy	37
2.2.4.7.2.	Criteria for differentiation strategy.....	39
2.3.	PORTRER'S FIVE FORCES.....	40
2.3.1.	Introduction to the Model	40
2.3.2.	Five Forces Analysis of the South African Renewable Energy Market	42
2.4.	CONCLUSION.....	43

CHAPTER 3 THE GLOBAL AND SOUTH AFRICAN ENERGY AND SOLAR INDUSTRY.....45

3.1.	INTRODUCTION	45
3.2.	DEFINITION OF CONCEPTS AND TERMS USED IN THE STUDY..	45
3.2.1.	General Electricity.....	46
3.2.2.	Climate change.....	46
3.2.3.	Greenhouse Gases.....	48
3.2.4.	Renewable Energy	50
3.2.5.	Green Electricity	53

3.2.6.	Service Provider	54
3.3.	ENERGY INDUSTRY	54
3.3.1.	Global energy context.....	55
3.3.2.	South African energy context.....	56
3.3.3.	Strategy options for South Africa as an emerging Industry.....	59
3.4.	SOLAR INDUSTRY	60
3.4.1.	Global solar industry	60
3.4.1.1.	The global photovoltaic solar industry.....	61
3.4.1.2.	The global thermal solar industry.....	62
3.4.1.3.	The South African Solar Thermal Market.....	63
3.4.1.4.	The South African Photovoltaic Market.....	64
3.4.2.	Energy policy and policy development tools of different solar energy markets.....	64
3.4.2.1.	An overview of policy and development tools for the promotion of sustainable solar energy	65
3.4.2.2.	The Regulations environment and supporting infrastructure in South Africa	66
3.4.2.3.	Market Key Success Factors	68
3.4.3.	Products	70
3.5.	CONCLUSION.....	71

CHAPTER 4 RESEARCH METHODOLOGY72

4.1.	INTRODUCTION	72
4.2.	RESEARCH PROBLEM AND OBJECTIVES	72
4.3.	RESEARCH DESIGN	74
4.3.1.	Type of Research	76
4.3.2.	Secondary Research	76
4.3.3.	Primary Research	77
4.4.	RESEARCH INSTRUMENT	79
4.4.1.	Type of Data	79
4.4.2.	Type of analysis.....	80
4.4.2.1.	Content Analysis.....	81
4.4.2.2.	The frequency analysis.....	82

4.4.3.	The Questionnaire	82
4.4.4.	The Interview	86
4.5.	POPULATION	87
4.5.1.	The Target Population	87
4.5.2.	The Population Frame and Size	88
4.6.	DATA COLLECTION	89
4.6.1.	Ethical Considerations	90
4.7.	DATA ANALYSIS.....	90
4.7.1.	Recording and Managing the Data	90
4.7.2.	Organising the Data.....	91
4.7.3.	Coding the Data.....	91
4.7.4.	Generating Categories, Themes and Clusters.....	92
4.8.	RELIABILITY AND VALIDITY.....	93
4.8.1.	Reliability	93
4.8.2.	Validity	94
4.9.	CONCLUSION.....	95

CHAPTER 5 FINDINGS AND DISCUSSIONS97

5.1.	INTRODUCTION	97
5.2.	PROFILE OF THE SAMPLE.....	97
5.2.1.	Gender profile of interviewees	97
5.2.2.	Employment tenure.....	98
5.2.3.	Job description and responsibility of the participants.....	99
5.2.4.	The Yearly Turnover.....	99
5.2.5.	The Vision and Mission Statement	99
5.2.6.	Sales tendency of the Past Year	100
5.3.	THE SOLAR SERVICE PROVIDER MARKET	101
5.3.1.	The Target Market	101
5.3.2.	The Customer Communication Channels	102
5.3.3.	The Marketing Channels.....	103
5.4.	THE SOLAR SERVICE PROVIDER AND STAKEHOLDERS	104
5.4.1.	The Stakeholders.....	104
5.4.2.	The Type of Relationship to Stakeholders	105

5.4.3.	The improvement of Stakeholder relationships.....	106
5.4.4.	The Legal and Regulatory Framework.....	107
5.4.5.	Service Provided from the Local Government	108
5.5.	THE TYPES OF STRATEGIES FOLLOWED BY SOLAR SERVICE PROVIDERS	108
5.5.1.	The Overall Strategic Direction.....	109
5.5.2.	The Business-Customer Channels	110
5.5.3.	The Top Selling Solar Devices	110
5.5.4.	Perceived Consumer Preferences.....	111
5.6.	THE VALUE CHAIN STRUCTURE.....	111
5.6.1.	Primary Value Chain Activities.....	112
5.6.2.	Secondary Value Chain Activities	113
5.6.3.	The Key Success Activities in the Value Chain	113
5.6.4.	The Supplier Relationship.....	115
5.6.4.1.	The Suppliers for Solar Devices	115
5.6.4.2.	The Supplier Performance Evaluation	116
5.6.4.3.	The Product Collection Method	118
5.6.5.	The Product Operations.....	119
5.6.6.	The After-Service.....	120
5.6.7.	The Supporting Activities	121
5.7.	STRATEGIES FOR MORE UTILISATION OF SOLAR PRODUCTS 123	123
5.7.1.	The Time Span from Order to Installation.....	123
5.7.2.	The Credit Range for Customers.....	124
5.7.3.	The Supplier-Service Provider Working Relationship	125
5.7.3.1.	One-Way or Two-Way Communication	125
5.7.3.2.	The Supplier to Customer Service	125
5.7.3.3.	The Supplier-Service Provider Communication	126
5.8.	THE CURRENT USE OF THE VALUE CHAIN MODEL	127
5.8.1.	The Awareness of the Value Chain Model.....	127
5.8.2.	The Improvement of the Value Chain	128
5.8.3.	The Awareness of Supporting Activities	129
5.8.4.	The Implementation of New Ideas and Business Activities.....	129
5.9.	THE COMPETITIVE SOLAR SERVICE PROVIDER ENVIRONMENT	130
5.9.1.	Porter's Five Forces and the Solar Service Provider Industry	130

5.9.2.	Solar Service Provider Core Competencies	132
5.9.3.	Main Contenders in the Western Cape	133
5.9.4.	Future Development of New Entrants	133
5.9.5.	Future Development of Substitutes	134
5.10.	COMMONALITIES BETWEEN QUESTIONS	134
5.10.1.	The Solar Service Provider Strategy	135
5.10.2.	The Supplier Region	136
5.10.3.	The Annual Sales	137
5.11.	THE PRESENT SOLAR SERVICE PROVIDER	137
5.12.	CONCLUSION	139

CHAPTER 6 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

..... 140

6.1.	INTRODUCTION	140
6.2.	OBJECTIVES OF THE STUDY	140
6.3.	THEORETICAL OVERVIEW	142
6.4.	RESEARCH METHODOLOGY	143
6.5.	SUMMARY OF MAIN FINDINGS	144
6.5.1.	The Stakeholders	144
6.5.2.	The Solar Service Provider Value Chain	144
6.5.3.	The Value Chain Key Success Factors	148
6.5.4.	The Five Forces and Solar Service Providers	149
6.5.5.	Relevant Cross-Sectional Findings	150
6.6.	THE ADVANCED SOLAR SERVICE PROVIDER BUSINESS STRUCTURE	151
6.6.1.	Marketing	153
6.6.2.	The Service	154
6.6.3.	Employee Motivation	155
6.7.	LIMITATIONS OF THE STUDY AND OPPORTUNITIES FOR FUTURE RESEARCH	156
6.8.	CONCLUSION	157

LIST OF REFERENCES 159

APPENDIX A: 176

APPENDIX B: 351

LIST OF FIGURES

Figure 1.1: Porter's Value Chain.....	4
Figure 1.2: Degree of Competitive Forces	5
Figure 1.3: Research Phases	10
Figure 2.1: Porter's Value Chain.....	17
Figure 2.2: The Value Chain Process	21
Figure 2.3: Porter's Five Forces.....	41
Figure 3.1: Risk of climate change damages.....	48
Figure 3.2: Greenhouse gas emission in South Africa.....	50
Figure 3.3: Box type solar cooker	51
Figure 3.4: Domestic-scale solar water heater	52
Figure 3.5: Photovoltaic with tracker.....	53
Figure 3.6: Concentrating Photovoltaic.....	53
Figure 3.7: Global Energy Industry Segmentation	55
Figure 3.8: South African Electricity Resources.....	57
Figure 3.9: PV market segments	61
Figure 3.10: European solar thermal market	63
Figure 3.11: Global yearly sun radiation	68
Figure 3.12: Solar Product Range	70
Figure 4.1: A graphical presentation of the research objectives	74
Figure 4.2: A graphical illustration of the research methodology chapter	75
Figure 4.3: The Primary Research.....	78
Figure 5.1: Gender distribution of the sample	98
Figure 5.2: Yearly Turnover	99
Figure 5.3: Main Focus of Vision and Mission Statements	100
Figure 5.4: Sales Tendencies in 2010	101
Figure 5.5: The Target Market	102
Figure 5.6: The Customer Communication Channels.....	103
Figure 5.7: The Marketing Channels	104
Figure 5.8: The Improvement of Stakeholder Relationships	107

Figure 5.9: The Solar Service Provider's Strategy	109
Figure 5.10: The Business-Customer Channels	110
Figure 5.11: The Top Selling Products	111
Figure 5.12: The Primary Value Chain Service Provider Activities	112
Figure 5.13: The Secondary Value Chain Service Provider Activities	113
Figure 5.14: The Key Success Factors in the Value Chain.....	114
Figure 5.15: The Region of Product Origin	115
Figure 5.16: The Collection Method.....	119
Figure 5.17: The Product Operations.....	120
Figure 5.18: The After Service.....	121
Figure 5.19: The Criteria to employ new Employees	122
Figure 5.20: The Employee Motivation	123
Figure 5.21: The Order Time	124
Figure 5.22: The Customer Credit Range.....	125
Figure 5.23: The Type of Supplier-Service Provider Communication	126
Figure 5.24: The Amount of Supplier-Service Provider Communication.....	127
Figure 5.25: The Management Awareness of the Value Chain Model.....	128
Figure 5.26: The Employee Awareness of the Value Chain Model.....	128
Figure 5.27: Porter's Five Forces in the Solar Industry	131
Figure 5.28: The current Solar Service Provider.....	138
Figure 6.1: The Solar Service Provider Value Chain	146
Figure 6.2: Advanced Solar Service Provider Business Structure	152

LIST OF TABLES

Table 1.1: Research objectives	9
Table 4.1: Summary of Questionnaire Framework	84
Table 5.1: Duration of employment.....	98
Table 5.2: Type of Business Relationship.....	106
Table 5.3: Regional Supplier Performance Evaluation	116
Table 5.4: Elementary Supplier Performance Evaluation	117
Table 5.5: Problems and Solutions with Supplier Relationships	118
Table 5.6: The Value Chain Improvement	129
Table 5.7: The Implementation of New Activities.....	130
Table 5.8: Core Competencies of Solar Service Providers.....	133
Table 5.9: Commonalities with Strategies.....	136
Table 5.10: Supplier Region and Commonalities.....	137
Table 5.11: Annual Sales Commonalities	137

CHAPTER 1 INTRODUCTION

1.1. INTRODUCTION

In today's global electricity environment, awareness of renewable sources of energy is increasing, due to the usage of common energy resources such as coal, gas and nuclear power which are limited. The reserves of crude oil, natural gas, uranium and coal are predicted to end in 40, 66, 84 and 164 years respectively (Energy Business Reports, 2009). Consequently, from an economic point of view it is crucial to start switching to new sources of energy which have the potential to sustainably cover the world's increasing electricity demand (Eberhard, & Williams, 1988).

Other important considerations are the environmental impact of fossil fuel usage, the volatility of fuel prices and the enhancement of national energy security, which have largely driven a phenomenal global growth in renewable energy generation and will increasingly contribute to future success (Howells, 1999). The necessity to use policy support instruments to promote the acceptance of these technologies is now a generally accepted norm. Different countries and societies, depending on the prevailing socioeconomic environment, need different approaches suitable to their own environment and government to promote the sustainable usage of renewable sources (Sebitosi & Pillay, 2008).

It is hoped that this study will contribute to the development of South Africa's renewable energy industry by analysing the present structure of the solar service provider value chain in the Western Cape. The outcome could contribute to a sustainable long-term development of the downstream industry's value chain. The term "downstream value chain" means that activities which are closer to the customer are analysed, rather than the production site. The main focus of the study is on solar service providers in the Western Cape, who stay in immediate contact with the customer. The service provider

is the last link between the supplier and the final customer, and consequently has to handle the finished developed products of the supplier and find potential customers. The value chain approach is utilised to improve this process.

The study considered the external environment to ensure that the recommendations are suitable and practical. The government is still the most powerful external influence on the solar industry as it must create the base for a successful developing solar industry by providing support. Today, rebates are still the most successful tool for making solar power more attractive and competitive to most conventional energy resources (Steyn, 2000). Solar technology itself is still too expensive to compete directly with present energy sources. Nevertheless, nations all over the world have to start initiating the increased usage of renewable sources to secure future sustainability as present sources are limited (Future Energy, 2012).

The South African electricity provider Eskom launched rebates for solar thermal technology in 2008. These rebates are still available today, in 2012 (Eskom Call Centre, 2012). Consequently, the demand for solar thermal devices has increased substantially with an annual average of 72% in the years of 2008 to 2010. The solar industry structure, especially in the downstream part, is in its infant stage and needs to improve to efficiently satisfy the growing demand (Edkins, Marquard, & Winkler, 2010).

Semi-structured interviews with service providers create in-depth insight into the various value chain activities and the structure. Moreover, all stakeholders and their links to each other are identified and clarified. The generated knowledge about how the service fraction of the Western Cape solar industry is structured and organised can contribute to the understanding and improvement thereof.

An extensive literature review was the first step for this study in forming broad background knowledge about the global environment, domestic electricity, and the solar industry. Based on the fact that no previous investigation about this specific topic in a South African context existed, detailed knowledge was gained through qualitative research. The research methodology aimed to add value by explaining the primary and secondary research processes. The final recommendations and conclusion entail the present structure of the solar service provider value chain. In addition, suggestions

were made to solar service providers in the Western Cape regarding ways to improve revealed key activities of the value chain.

1.2. RESEARCH APPROACHES TO ANALYSE THE SOLAR SERVICE PROVIDER INDUSTRY

The following section provides a brief explanation of two models, namely the value chain model and Porter's Five Forces model. The value chain model represents the primary model of the study. Porter's Five Forces is the secondary model which creates more knowledge for better understanding of the solar industry. Both models are used to systematically analyse the solar service provider industry in the Western Cape and to identify opportunities for improvement.

1.2.1. The Value Chain Approach

Every business consists of several steps in designing, producing, marketing, delivering and supporting its product or service. This approach is called "the value chain model", as every step creates value for the potential customer (Gibbon, 2001). Value chains differ from company to company as business strategies and the internal and external environment differ (Humphrey & Schmitz, 2000). The value chain describes how the whole process from raw material to the end consumer is linked together. The process consists of primary and secondary activities (Hough, Thomson, Strickland & Gamble, 2011).

The fundamental model of Porter's value chain is illustrated in Figure 1.1 and contains primary and secondary activities. Primary activities are inbound logistics, operations, outbound logistics, marketing and sales, and service. Secondary activities are the firm's infrastructure, human resource management, technology and procurement (Humphrey & Schmitz, 2000).



Figure 1.1: Porter's Value Chain

SOURCE: Porter, 1985

Porter's value chain represents the basic model on which the current study is based. The primary research knowledge is collected to adapt the model to solar service providers in the Western Cape solar industry. In addition, key areas for development of the Western Cape solar service provider value chain are identified, and recommendations for improvement in the best interest of all stakeholders are presented.

The downstream activities in the South African solar industry consist of distribution and physical installation of solar devices. There are a large number of wholesalers, as most of them do not operate on a global scale. Some wholesalers have exclusive rights to distribute a specific module make in specific countries (Green Rhino Energy, 2010).

Small installations for residential rooftop applications are directly implemented by local installers and electricians. Module manufacturers and distributors often keep lists of certified installers in the country. This is a very fragmented segment of the value chain with very few companies that operate at national level (Green Rhino Energy, 2010).

1.2.2. Porter's Five Forces Model

Porter's Five Forces of competition is by far the most powerful model to systematically diagnose the principal of competitive pressure. The model evaluates five different

areas, namely rivals, new entrants, substitute products, buyers and supplier bargaining power (Porter, 2007). The model can be seen in Figure 2.3 in chapter 2.

Porter's Five Forces model contributes to understanding of the renewable energy industry, and specifically the solar industry in South Africa. The knowledge of where most competitive pressure comes from assists in providing adequate recommendations in relation to future value chain adjustments (Porter, 2008). The understanding of which of the five competitive forces is stronger, assists in focusing on value chain activities interacting with this force. The improvement of these value chain activities adds more value to businesses as they improve their performance in areas most crucial to their success.

Figure 1.2 illustrates an overview of competitive pressure in the renewable energy industry of South Africa. The highest degree of competitive pressure can be found in rivalry and new entrants, as the market is growing and is expected to grow by 79.8% in the period between 2009 and 2014, which makes it attractive for potential profit. The other three forces are moderate to low (Datamonitor, 2009).

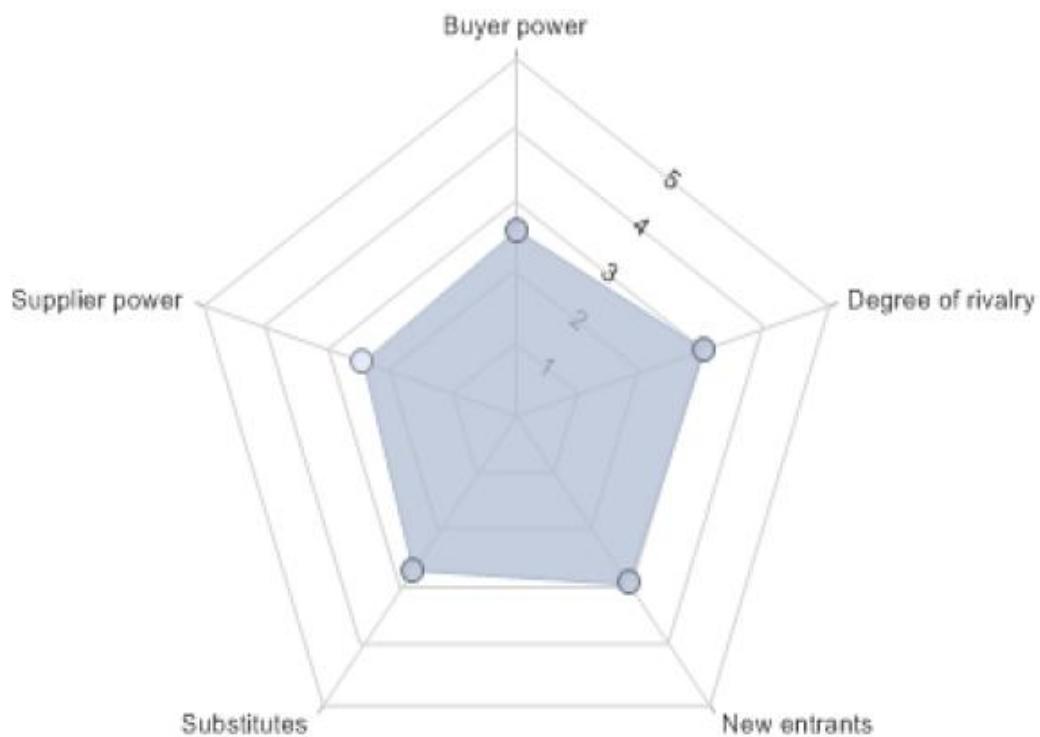


Figure 1.2: Degree of Competitive Forces

SOURCE: Datamonitor, 2009

1.3. THE SOUTH AFRICAN ELECTRIC POWER INDUSTRY

To be able to understand the environment in which the Western Cape solar service providers are operating, it is necessary to have background knowledge about the present electric and solar industry. Furthermore, knowledge about the global energy industry reveals the current global energy situation and can give an indication about what could be possible for South Africa. The second part of section 1.3 discusses the South African solar industry including how other nations promote their solar industry.

1.3.1. Energy Context

The global energy industry created total revenues of \$6,050 billion in 2009 (Datamonitor, 2009). Global electricity demand is predicted to increase by 35% until 2030. More specifically in the BRICS developing nations, it is expected to grow by 65% (ExxonMobil, 2009). The performance of the industry is predicted to speed up, with an anticipated annual growth rate of 13.2% for the five-year period 2009-2014, which will drive the industry to a value of \$11,250.4 billion by the end of 2014 (Datamonitor, 2009).

About 70 % of the total energy supply in South Africa derives from coal. Coal-fired power-stations supply 93 % of electricity production. Given its coal-based energy economy, South Africa is one of the main emitters of greenhouse gases when compared to other developing countries (Pegels, 2010). Since most forecasts indicate that coal will continue to be used in the near future, finding ways of using fossil fuels in a cleaner way is important during the conversion to different energy systems (Winkler, 2006).

Eskom is the state-owned electricity supplier, which is dominating the generation and capacity of energy. Furthermore, only about 70% of South African households are linked to the electricity supply grid, and overcoming energy poverty still remains a strategic development objective. In 2008 South Africa was unable to supply a vast number of households, and since then there have been a number of interventions to increase generation capacity (Edkins, Marquard, & Winkler, 2010).

1.3.2. Solar Power

From an international perspective South Africa has several policy options available to promote renewable electricity, specifically solar power. Generally, there are two possible means of intervention for the government. One way is to regulate the quantity of renewable electricity; the second way is to fix prices through regulating tariffs (Winkler, 2005b).

The "White Paper on the Energy Policy of the Republic of South Africa" from 1998 presented policies which could be seen as drivers of renewable energy deployment in South Africa. The document promoted the inclusion of the Independent Power Producers in South Africa's power generation (Pegels, 2010). Moreover, it emphasised the areas to be dealt with to create a suitable enabling environment for the promotion of renewable energy. The White Paper included financial and legal instruments, technology development, awareness creation, capacity construction and education (Edkins, Marquard, & Winkler, 2010).

To actively encourage and promote the widespread implementation of solar water heating¹, Eskom has rolled out a large-scale solar water heating programme. The government has set a target for renewable energy to contribute 10 000 Giga watt hours (GWh) of final energy consumption by 2013. Solar water heating could contribute up to 23% towards this target. Solar power is one of the most effective renewable energy sources available. Water heating can be responsible for up to 50% of a household's electricity consumption (Eskom, 2011b).

At the moment, there are subsidies for solar thermal technology but no subsidies for photovoltaic solar technology from Eskom (Eskom Call Centre, 2012).

1.4. PROBLEM STATEMENT

The South African solar industry is in its infancy, characterised by accelerated growth expectancy and fuelled by factors such as new governmental subsidies, the fluctuations

¹There are two broad categories of solar power known. The first category is called "solar water heating", where the sun radiation is used to heat water up. The second category uses the sun radiation to produce electricity, which is called "photovoltaic solar power".

of fossil fuel prices and the increasing focus on economical long-term sustainability (Renewable Energy World, 2009). The expected growth necessitates a focus on the market positioning of solar service providers in the Western Cape with the aim of taking full advantage of the opportunities associated with this industry.

This study aims to produce an adapted² model of Porter's value chain for the Western Cape solar service providers. In addition, key areas for development of the Western Cape solar service provider value chain are identified, and recommendations for improvement in the best interest of all stakeholders are presented.

1.5. OBJECTIVES OF THIS RESEARCH

The purpose of this study was to analyse the value chain of selected solar service providers in the Western Cape. It identified constraints and opportunities related to the development of the solar value chain. Moreover, recommendations were made to improve viability and competitiveness of their value chains.

Table 1.1 represents the research objectives of the study. At the top left (in bold outline) is the primary research objective. The secondary research objectives are listed underneath the primary objective (in thin outline). Investigation of the secondary objectives leads to the best possible solution for the primary objective. The source of knowledge provides an indication of whether the objective is examined with primary or secondary research tools.

² The customisation of Porter's generic value chain model to the business activities of Western Cape solar service provider.

Table 1.1: Research objectives

Determine the current structure of the solar service provider value chain and subsequently areas of improvement to increase growth, stakeholder satisfaction and sustainability	Source of knowledge (Chapter section)
Identify stakeholders in the value chain and understand their link and level of involvement	Primary research: 5.4
Determine the types of service providers and their function in the value chain	Primary research: 5.5 Secondary research: 2.2.4; 3.2.6; 3.4.3
Diagnose the current structure of the value chain, including the flow of goods, services and skills	Primary research: 5.6 Secondary research: 2.2
Determine strategies for more utilisation of solar products in the Western Cape	Primary research: 5.7
Determine how solar companies in the Western Cape currently use the value chain model to add value	Primary research: 5.8
Identify the solar competitive advantage and key success factors of the industry	Primary research: 5.9 Secondary research 2.3; 3.4.2.3
Propose how solar companies could make use of the value chain in the future to add value	Primary research: 6.6 Secondary research 3.4.2; 3.3.3

Figure 1.3 represents an overview of the whole research process. It must be noted that all phases and sub-phases are integrated, as one phase directly influences the next.

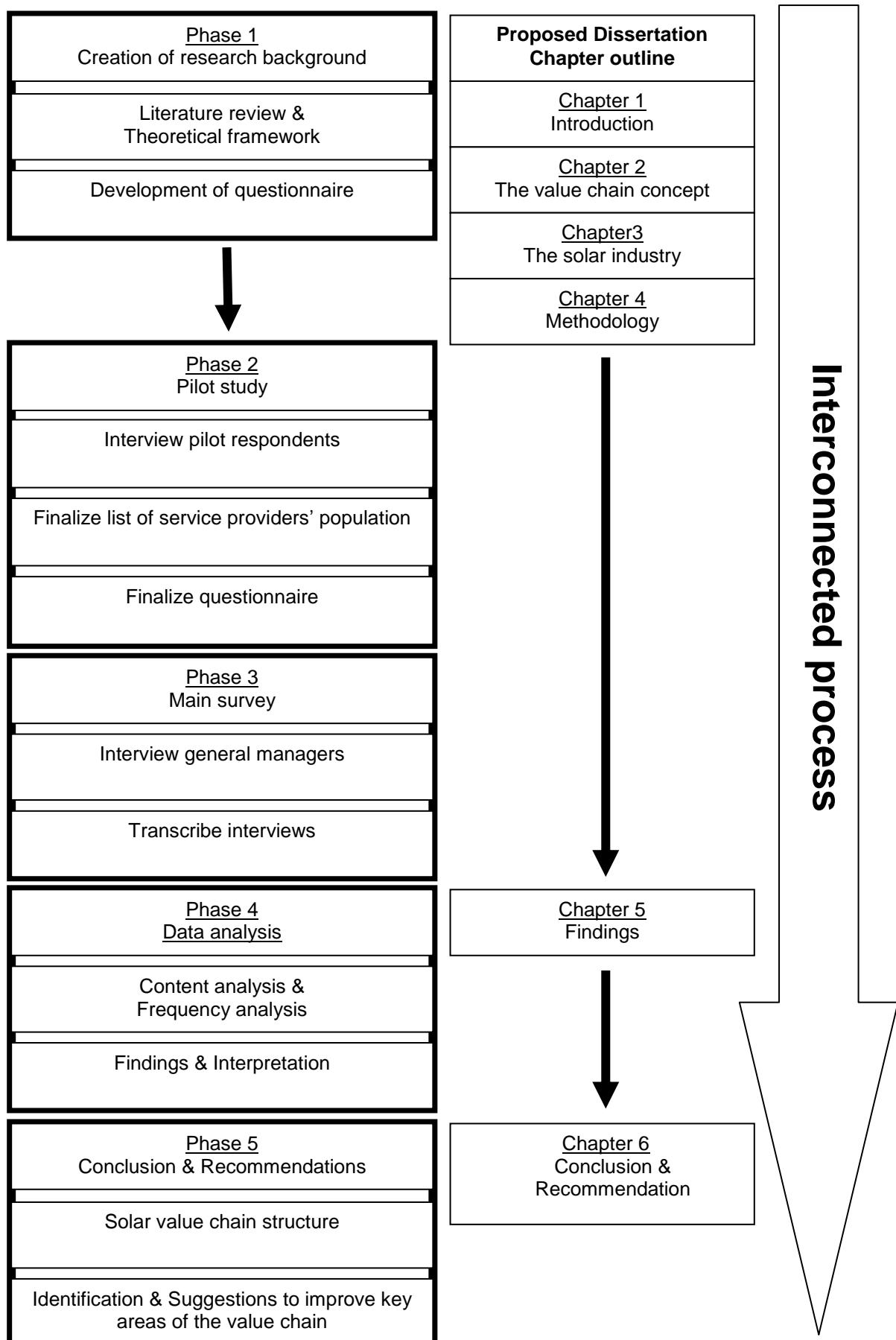


Figure 1.3: Research Phases

1.6. RESEARCH METHODOLOGY

The method used to clarify the objectives included a secondary research method, followed by a primary research process.

1.6.1. Secondary Research

To conduct secondary research, data is used which is gathered and recorded by someone else prior to the current project (Zikmund & Babin, 2010:160). The mediums used were as follows: books, Internet, articles, masters and doctoral dissertations and case studies.

For this study an extended literature review was undertaken to investigate the value chain model and Porter's Five Forces model, and both were applied to the South African context. The second part of this section entails definitions and concepts which are important for the understanding of the study. The topic of general and solar energy in a global and domestic context is examined in the last section.

1.6.2. Primary Research

Primary research is data collected or observed from firsthand experience (Business Dictionary, 2009). The different phases of the primary research of this study were as follows:

1. Preparation of a questionnaire according to objectives
2. Pilot study
3. Adjustment of the questionnaire according to pilot study and objectives
4. Main interviews (recording and notes)
5. Transcription of main interviews
6. Coding of data (content analysis)
7. Coding of data (frequency tables).

A questionnaire was set up according to the primary and secondary research objectives of the study. Every secondary research objective had its own question(s), which

ensured that all information necessary to answer the objective was asked. The study included a pilot study at the beginning of the research. The purpose was to gain initial real-time information about solar service providers in the Western Cape (Hague & Jackson, 1995:66).

1.6.2.1. Population

The target population of this study was solar service providers, who are active in the downstream solar value chain in the Western Cape, South Africa. The service provider could be any type, from an online retailer to a physical location-based shop. Respondents were general managers/owners of the service providers, as they had an all-round knowledge of their companies. The entire³ population of solar service providers in the Western Cape was targeted. Two Internet sites called “Solar Suppliers” and “the official Eskom site” list solar service providers in the Western Cape and represent the population for the main interviews. The main interviews included 18 managers/owners of different solar service providers in the Western Cape.

1.6.2.2. Data Collection

The pilot study took place in the first few weeks of the research process. The main interviews were directed to general managers/owners of solar service providers in the Western Cape only. Appointments were made three weeks beforehand via telephone or e-mail. Respondents who agreed to an interview were questioned. The length of the interview was limited to a maximum of 30 minutes. Respondents were interviewed face to face. Interviews were in form of semi-structured interviews with the predetermined questionnaire.

1.6.2.3. Primary Research Method Selected

The semi-structured interview was outlined with an introduction, main part and conclusion at the end. The introduction was to gather general demographic and technological knowledge about the respondent, co-workers and the business. The main part was directed to answering the objectives. The conclusion was about future

³ Most care was taken that the list of solar service providers was up-to-date at the time the research was undertaken (see section 4.5).

perspectives and opportunities. To ensure reliable and valid data, every respondent was presented with the same procedure (ASCD, 2010).

1.6.2.4. Data Analysis

The qualitative data gathered (pilot and main interviews), with semi-structured interviews, was in the form of open-ended responses, which were transcribed. The questions were in exploratory form. The transcribed interviews were coded using a content analysis approach (Colorado State University, 2010).

After the data was coded and common themes were recognised, frequency tables were created to analyse the rate of occurrence of each identified theme (Hague & Jackson, 1995:122). A frequency rate of 60% and higher was categorised as a commonality or similarity. A frequency rate of less than 60 % was classified as a trend or difference.

The interpretation of identified themes and categories confirmed trends, differences, commonalities and similarities of activities in the solar service provider value chain. The interpretation of primary and secondary data helped in the generation of an adjusted value chain model. The value chain was adjusted only with commonalities of more than or equal to a frequency of 60%. The data identified key areas for the development of the Western Cape solar service provider value chain, which involved all themes and categories with more than, and less than, a 60% frequency.

1.7. CONCLUSION

The study thus aimed to produce an adapted model of the value chain for the Western Cape solar service providers. In addition, key areas for development of the Western Cape solar service provider value chain were identified and recommendations for improvement in the best interest of all stakeholders were presented. This chapter presented a broad overview of the research process. Firstly, an outline of the relevant literature was given. Secondly, the research problem and objectives were introduced. Finally, the methodology was illustrated to meet the aims of the study.

However, before addressing the research objectives of the study, the fundamental concepts which the study is based on must be explored. The next chapter explains all research approaches used in this study in depth. The value chain approach forms the main model used in this study, followed by Porter's Five Forces.

CHAPTER 2 SELECTED RESEARCH APPROACHES

2.1. INTRODUCTION

The problem statement and the research objectives, as stated previously in sections 1.4 and 1.5, are the focus of this study. This chapter provides a description of Porter's value chain model followed by details of Porter's Five Forces, which serve as a foundation from which to address the research problem and objectives. Both models assist in gaining a structural understanding of service providers in the South African and Western Cape solar industry, which means that all business activities of solar service providers can be identified by simultaneously taking the external competitive environment into consideration.

As mentioned above, the value chain is the primary model on which this study is based. The model helps to identify and understand all business activities of solar service providers. This section of the chapter includes a general description of the value chain model, followed by key areas in the research process, the value chain process and possible strategic options in the value chain.

The last part of the chapter entails an introduction to Porter's Five Forces and the application to the South African renewable and solar industry. The model demonstrates the extent of competition in five areas, namely, rivals, substitutes, suppliers, new entrants and buyer bargaining power. Information about these areas assists in identifying activities which are essential for sustainable competitive advantage of solar service providers.

2.2. THE VALUE CHAIN

The following section investigates all the aspects of the value chain analysis of this study. Firstly, the general concept is presented, followed by: key areas in the research process; the value chain process; and strategic options. This knowledge contributes to achieving the research objectives.

2.2.1. Historical Background

The value chain model was invented and launched by Professor Michael Porter, who wrote a book called “The Competitive Advantage” in 1985. Shank & Govindarajan (1993) then further improved the analysis and application of value chains. Porter subdivides businesses’ value chain into primary and secondary activities using technological and strategic criteria to move on with the strategic cost analysis (Porter, 2001).

Conventionally, the focus of a value chain analysis is on the links between primary activities and the link which will influence a business’s potency and the channel of suppliers and customers (Semini, Strandhagen & Vigtil, 2005). Today, consulting firms use a variety of analytical approaches appropriate to such levels, so that businesses’ operations are based on value chain analyses. The value chain approach aims to create the best mix of models and activities in the business and not the implementation of new ideas (Porter, 2001).

2.2.2. The Value Chain Model

The value chain model assists in illustrating and understanding all the activities of a business, including the process from the input of “raw material” to the final intended outcome. The general outline and framework is illustrated in Figure 2.1. As demonstrated, production is the best known activity but is only one of many value-adding activities. There are also several activities interconnected within each step of the value chain. Another aspect to mention is the vertical chain, which consists of intra-chain linkages of a two-way nature (Kaplinsky & Morris, 2000:3).



Figure 2.1: Porter's Value Chain

SOURCE: Porter, 1985

The various contacts in a value chain, typically known as "intermediary producers" are responsible for and linked to more than one value chain. In some cases, these secondary or supporting value chains are only responsible for a small percentage of the final outcome. In other cases, secondary value chains have a vast influence on the final output (Flat World Knowledge, 2010). But the contribution to sales at a specific point in time might not cover the whole procedure. The dynamics of a certain market or technology may suggest that a comparatively small (or large) customer/supplier may become a fairly large (small) customer/supplier in the future (Kaplinsky & Morris, 2000:5).

Value chain management requires purifying the process from suppliers to the final customer into strategically relevant activities. Each activity adds value to the consumer and requires a certain investment in resources and research. Once all possible activities are identified, the benefits and costs of each activity must be evaluated to filter the best ones out and to focus on them. Three key factors ensure that the value chain approach is implemented effectively (Richard, 2007):

- A clear identification of the strategy chosen by the company has to be set. This attribute makes sure that the company's value chain activities are in line with the strategy. In fact many organisations today perform badly in this regard, by not being strategically aligned or by including non-value-adding activities (Schroeder, 2003).

Only activities of value creation for the customer should be involved, which creates sustainable competitive advantage. The “pull approach” means that the customer decides which products are produced and not the production site, which contributes immensely to choosing the right activities suitable for the customer. Non-strategic activities should be updated, reduced or outsourced to make sure that all effort goes into activities which contribute to competitive advantage.

- The value chain approach has to focus on sources which enable competitive advantage. After strategic and non-strategic activities have been identified, the organisation has to decide in which strategic activities it can perform better than its rivals. Once these areas are recognised, management has to manage the performance carefully and ensure that they are appropriately resourced.
- The approach has to focus on the relevance of complex linkages and interrelationships. "Internal linkages" are interactions between tasks and activities that form the business's value chain. To use the value chain approach correctly, it has to be understood that all these activities are interlinked. Considering the cost structure of one activity, the consequences for the whole value chain have to stay in focus (Latif, Hoefler & Stocker, 2010). "Interrelationship" means that by changing one activity the whole picture changes. The linkages and interrelationships of activities determine how an organisation balances the demand and supply side.

Continuous economic development requires that not only the business's internal operations are analysed but also information from the external environment has to be collected to fit the business's overall operations perfectly. Taking the external environment into consideration creates the foundation to use a customer-centric approach to fulfil market needs (Rose & Stevles, 2005). This approach focuses on taking the potential customer into consideration with every product/service choice made internally. Moreover, the external environment on the supply and demand side is increasingly playing a more important role by affecting the internal cost structure (Richard, 2007). This development influences the value chain as businesses have to focus more on downstream activities to create a stronger link to the customer.

The value chain model assists in dissecting the solar business at every single step,

which makes it easier to identify problems or specific barriers to increase efficiency. The model makes it easier to understand and explain the industry and how business is done (Porter, 1985:33).

2.2.2.1. The fundamentals of value chain analysis

According to Kaplinsky and Morris (2000:24), to conduct a value chain analysis it is important to consider three key elements which help to understand the collected information and to formulate recommendations:

- Barriers to entry and rent

To gain more knowledge about how businesses generate their returns occurring from design, manufacturing, marketing, coordination and recycling, the value chain model is often used. In general, most of the returns in an industry stream to those businesses which can sustain their competitive advantage. The principle of rent describes the ability of businesses to secure their competitive advantage in comparison to rivals, which means that successful businesses create barriers of entry.

The concept of rent can occur in numerous ways. Most available research and literature today is in the form of general information and entrepreneurial knowledge, and government policies are written in terms of economic rent. The conventional economist argues that economic rent increases on the basis of imbalanced ownership/access or control over a current limited resource (Walter, 2000). Nevertheless, shortages can be produced as businesses try to reach a certain target which could create entrepreneurial surplus for those who create this shortage. This usually occurs when entrepreneurs innovate, generating fresh assortments or circumstances, and this results in higher prices to the customer as the cost of the innovation has to be covered. The higher prices as a result of innovation attract more competition to the market as the higher profits are targeted.

- Governance

A further aspect which assists the use of the value chain model as a diagnostic and not as a heuristic model, is the range of action within the value chain which can be

subjected to governance. A heuristic model is based on a trial-and-error approach; a diagnostic approach on the other hand refers to reliable and valid data when producing results. These actions can mostly be found in human resource management. Most value chains have a similar framework in relation to governance. The appropriate execution of governance guarantees that the relation between businesses along the industry value chain can be organised, instead of being just random (Gereffi, Humphrey & Sturgeon, 2003). It is possible to identify governed value chains when restraints are set in product, process, and logistic skills which have consequences up or down the value chain including several activities.

- Categories of value chains

The modern usage of governance in the value chain assists in determining two different categories of value chains. The first type of value chain is determined by a buyer at the top of the chain who executes the governing role. This chain is buyer driven and can often be found in very labour-intensive industries. Consequently, it regularly can be found in developing countries. The second type of chain is in a market with the manufacturer taking the governing role. This type of value chain can often be found in highly technological industries like the solar industry as the manufacturer has to coordinate the different connections, which is also known as "producer driven". In this chain the producer takes the responsibility to support the suppliers and the final customer (Wiki, 2009). At present, manufacturer-driven chains are an indication of the old "import substituting industrialisation order", whereas buyer-driven chains are more adjusted to the outward-orientated and networked construction systems of the 21st century. It is crucial for the survival of businesses to base their production on the consumer demand to fully satisfy them.

2.2.2.2. The Value Chain Process

The value chain process can be seen as a continuous and dynamic practice. It is crucial to understand that a business's value chain has to be seen as a chain of interlinked activities and not as isolated separated phases. Moreover, each step can only be justified if it creates more value for the end user. The individual firm's competitive position depends on the effectiveness of the chain as an entity and not just as its own isolated position as a link in the value chain (Walters & Lancaster, 2000).

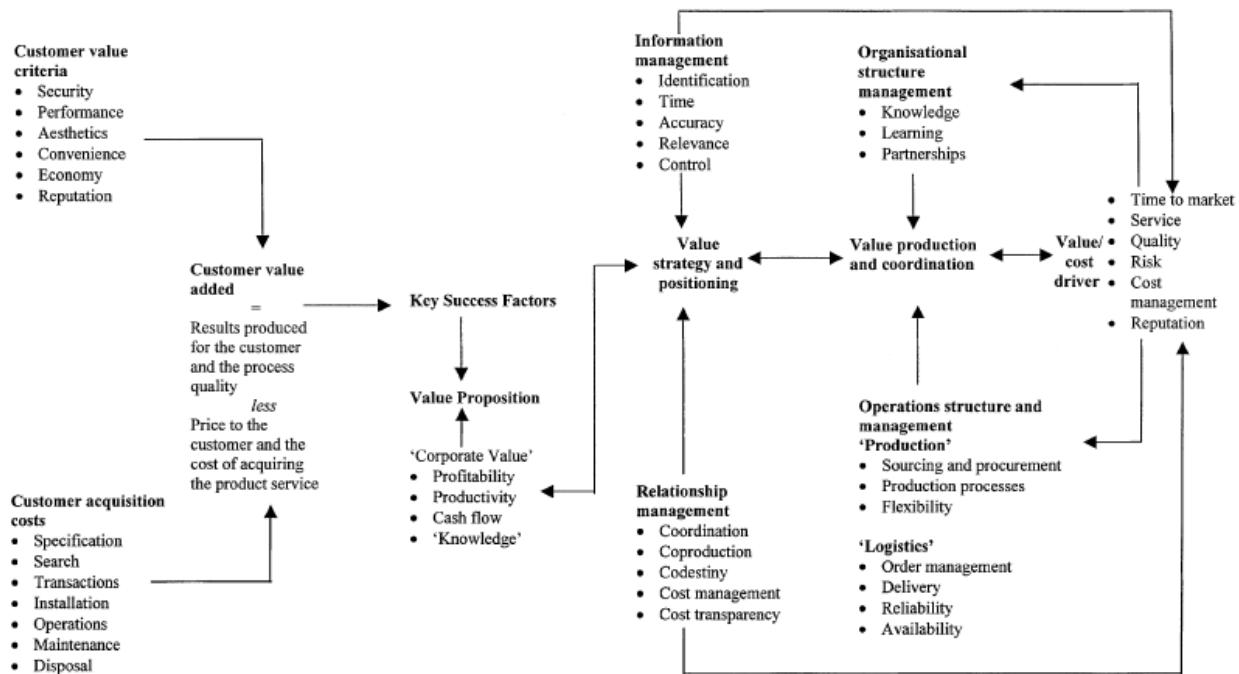


Figure 2.2: The Value Chain Process

SOURCE: Walters & Lancaster, 2000

The process of how the buyer and the production side are interacting is illustrated in Figure 2.2. On the left side is an explanation of how the customer acquires value, and the amount of value the service or product provides. On the right side is the process of how businesses can create value. Both sides combined determine the Key Success Factors and the value strategy and positioning. This knowledge contributes to the value chain analysis, as more understanding of cause and effect of value creation is gained and can be used for the improvement of business activities (Walters & Lancaster, 2000).

It is obvious that expansion is unlikely to occur without development of assets and core competencies. Consequently, this is a way in which the relationship and information management activities may become better organised by identifying value chain constraints and the activities needed to ensure competitive advantage characteristics necessary for strategic success (Walters & Lancaster, 2000).

The overall relationships in the value chain are identified in Figure 2.2. For both current and future perspectives, precise details concerning customer expectations of the value created and the costs to be added are required. Clearly, current customer satisfaction

expectations may change and require an ongoing review of value creation and cost additions (Chiang, 2001). Thus current and future output of the value chain may require the addition of activities only available within the value chain (Walters & Lancaster, 2000).

2.2.2.3. Innovating the Value Chain

For almost every business it is a key capability to innovate, in order to be able to create sustainable competitive advantage, by providing continuous improved and new products and services. Nevertheless, innovation in itself may not be sufficient. If the pace of innovation is less than those of rivals, it may result in a turn down of value adding and market share. In some cases it may also cause declining growth (Tidd, & Bessant, 2009:112). Consequently, by choosing the pace of innovation, straight competitors have to be taken into consideration. This process of calibrating the internal pace can be called "upgrading". Therefore the concept of upgrading is always part of rent as it is a continuous process (Kaplinsky & Morris, 2000:36).

Firms need to examine their capabilities to establish attributes which meet certain criteria. Firstly, attributes should provide value to the final customer. Secondly, attributes should be comparatively exclusive in the sense that few rivals have them. Thirdly, attributes should be difficult to copy, which means an increase of barriers to entry. Consequently the capacity to innovate comes from concentration in these areas and the outsourcing of activities which do not meet these three standards (Keyser, 2006).

The concept of upgrading has to be considered from more than one point of view as the approach may involve adjustments to certain value chain activities within and outside the business. This behaviour may lead to both the creation of new products or processes and the functional improvement of how the present value chain operates. As a result it is possible for businesses to implement four different types of upgrading objectives (Gereffi, Humphrey, Kaplinsky, & Sturgeon, 2001):

- Process upgrading, which increases the efficiency of internal processes such that these are significantly better than those of competitors, both within individual links in the chain and between the links in the chain.
- Product upgrading is the introduction of new products or the improvement of old products to be better than those of competitors. This involves changing new product development processes both within individual links in the value chain and in the relationship between diverse chain links
- Functional upgrading is the increase in value adding by changing the mix of activities performed within the firm or moving the focus of activities to different links in the value chain.
- Chain upgrading means moving to a new value chain by, for instance, going into a new country.

2.2.3. Phases for conducting a value chain analysis

Today, it is complicated to fully understand and analyse global producers and the exchange of goods and services as it is becoming increasingly complex and diverse. Almost every business has a different value chain with diverse or similar activities, which can be influenced by the industry, target market and the national or local context. As a result there is no set scheme of implementing the value chain approach. Every chain has different features, whose uniqueness and wider importance can only be efficiently captured and analysed through an understanding of the broader problems which are affecting the process. In South Africa these problems could be the intervention of the government or missing subsidies from the government. The following key areas can only be seen as a guideline where each point has to be adjusted to the industry and the business's type (Kaplinsky & Morris, 2000:50).

2.2.3.1. Point of Entry for Value Chain Analysis

Value chains are complex, and particularly in the middle tiers, individual firms may feed into a variety of chains. Which chain is the subject of enquiry is therefore dependent on

the point of entry for the research topic. For instance, the concern can be reflected from several perspectives, namely, retailers, autonomous buyers, key producers, service providers, sub-suppliers or commodity producers (Value Chain Group, 2010). In all scenarios, it depends on the perspective to classify the connections and which of these needs to be examined in more detail. Consequently, depending on the service or product of the business, the value chain differs and each specific business has its own prime activities which are crucial for its success (Brown, Bessant, & Lamming, 2000:45).

2.2.3.2. Mapping the Value Chain

After the identification of the value chain, the challenge is then to put facts and values to the variables which are examined. Therefore, the choice of the research objectives indicates the primary issues of investigation. In fact most value chain analysis is based on a tree construct by mapping the input and output relations. This map contains the majority of primary activities, namely the physical stream of commodities along the chain, the flow of services, consultants and skills along the chain, the employment of customs, destination of sales, imports and exports, and to which area (Kaplinsky & Morris, 2000:54). Generating this type of data helps to create more understanding of the individual value chain which is under investigation.

2.2.3.3. Key Success Factors and Segments in the Target Markets

In today's business environment most firms tend to be market pulled. On the other hand, highly government-protected and low competitive markets are market pushed which means the producer and not the buyer determines products and services (Paul & Donnelly, 2002:132). The fact that most markets are privatised means that the part of the industry value chain which is closer to the customer is crucial to investigate to ensure efficient contact with the customer. Solar service providers are situated closest to the customer in the solar industries value chain, as they stay in direct contact with the target customer. Consequently the service provider can collect information about customer needs and wants and pass this on to the producer as he stays in daily face-to-face contact. Through experience the service provider knows what the customer prefers and what not, which he can pass on to manufacturers who can use the

knowledge to improve the products of the future (Ketchen, Rebarick, Tomas, Hult, & Meyer, 2008).

The measuring of market size and market growth also contributes to a successful analysis. To some degree this depends on the main focus of the study. It is important to subdivide the final market in the value chain into diverse market segments. This study is of an exploratory nature, which makes the market size factor less relevant. Nevertheless, the market characteristics are significant as it is important for the final recommendations to know what the consumer demands. The market for this study focuses on private customers and public institutions. The exact characteristics are discussed in more depth in chapter 4 (Methodology) in Section 4.5.1. Modern markets include a number of key characteristics which must be analysed to realise value chain dynamics. The vital characteristics are as follows (Kaplinsky & Morris, 2000:59):

- They are segmented. Each market should have its own individual market qualities, at the same time considering market size and growth, which in the end has to be documented (Kaplinsky & Morris, 2000:59). The market growth of the solar industry can be seen as one of the reasons why this study adds value to the solar industry. Due to the enormous growth in recent years, solar service providers have to adjust their activities to meet the present demand successfully.
- The characteristics of the market are known as the Key Success Factors (KSFs). Normally, price will be a comparatively vital KSF in low income end markets, but it is not the only factor which is important for success. Consumers will also demand differentiation, quality and branding (Cooper, 1994). On the other hand, non-price KSFs in high income market segments are comparatively more significant, with innovation, customisation and quality being most significant. In middle markets of the industries value chain, it is possible that suppliers provide products and service for different tiers of the bottom part of the value chain (Brown *et al.*, 2000). The KSFs for solar service providers in the Western Cape were revealed through the primary qualitative research.
- The trend in the business world is to increase market segmentation to maximise customisation. Each segment has its own KSFs which have to be adjusted as

consumer preferences are changing (Brown *et al.*, 2000). As the solar industry especially for private households is relatively young, the segmentation is limited. However, solar service providers can differentiate activities like marketing according to the target customer, for instance private or public.

- The Critical Success Factors in markets can be categorised in two different groups, firstly the “order qualifying” group (means that the manufacturer has to achieve these in order to be able to compete in the market), and secondly the “order winning” group (describes the important factors that lead to success and enable it to charge a premium price).

2.2.3.4. Key areas of Value Chain Analyses

One advantage of value chain analysis is that it evaluates in more depth than a normal business-level analysis. A focused centre of attention on the competitiveness of single producers, or even a chain of manufacturers, might not show the real reason for their success in markets. The reason is that each producer needs a point of entry into market segments, which creates connections between businesses. The way in which intermediaries are linked to each other has an effect on the ability of other business to enter certain market segments and affects the ability of producers to upgrade (Gereffi, 2001). The information about the ways in which dissimilar manufacturers are linked into diverse final market segments is of specific importance to value chain analysis. These connections have the capability to characterise value chains of two different types, namely producer-driven or buyer-driven. The key areas for most value chain analysis are as follows (Gereffi & Kaplinsky. 2001):

- The classification of the important purchasers in a specific chain is the first step. In the South African solar industry, solar service providers are highly fragmented. The service provider has to decide where he orders the product parts from to assemble the finished product. The majority are sourced from Europe, China and South Africa. As there is no distinct market leader, there are no main purchasers (Bennett. 2011).

Sometimes these buyers are situated closer to final market segments, mainly in non-durable customer goods industries which are buyer driven. In other segments,

the most important buying choice may perhaps be executed by the systems assemblers. Yet other markets could be even more fragmented. There are dissimilar categories of key trading institutions. The main types are:

- Independent purchasers, generally selling to small-scale retailers;
 - Wholesale businesses purchasing in huge quantities;
 - Large businesses in key linkages of the chains which purchase in huge quantities and who set the regulations which administrate integration in the final markets;
 - Retail chains purchasing in huge quantities.
- Purchasers will frequently have strategic opinions about detailed sources of supply. In fact, some buyers prefer certain ethnic groups as is the case in Chinese areas. The reason for the evolving of such preferences is the ease of conducting business on the basis of culture and language. It is important for the person who wants to conduct business to know about these criteria (Hamel & Pralahad, 1994). Solar service providers and customers in South Africa who prefer to order South African-made solar products are a good example.
 - The management of supply chains has always helped to improve the competitive position in the market. The success of the management often influences the relationship between suppliers and buyers (Finance News, 2010). The extent of this influence is also affected by the number of suppliers with whom buyers negotiate or do business with, as the control decreases with more suppliers (Saxenian, 1996). In general it involves the development of very close and trusting relationships with fewer suppliers which makes it possible to spend more time in this one relationship. As solar service providers in the Western Cape are relatively small, they only have a few suppliers, which make close relationships very important.
 - After the key buyers are recognised by taking all the possible variables into consideration, the next phase is to recognise the KSFs which are performed by these buyers. Often these KSFs develop as buyers compete in their target market, which creates the necessity for suppliers to adjust to these KSFs to be accepted by buyers.

- Another important aspect is the role of the buyer which becomes increasingly more powerful. Historically most of the manufacturers in an industry operated on a small scale, but the focus on buyers is growing as value chains are becoming more buyer-driven.

In relation to the points mentioned above, the topic of supply chain upgrading which is part of the value chain governance becomes more important. Sometimes buyers decrease their efforts to get the best product or service possible and increase their supply network and work towards gradually improving trust relationships. On the other side, where the supplier ability could be insufficient, it is possible for the buyers to pass first-hand information about market developments to the suppliers (Morris, 2001). This process is possible by staying in close contact with the supplier or by utilising buying agents in the target area. It is of importance to recognise the factors which encourage and the ones which block value chain upgrading (Giuliani, & Pietrobelli, 2000).

2.2.3.5. Benchmark Service Provider efficiency

The first steps of the analysis reveal how producers interact with their target markets (solar service providers). In the next phase it is necessary to analyse the efficiency of all important players in the value chain, which is called "benchmarking". The key areas of successful benchmarking are as follows (Kaplinsky & Morris, 2000:64):

- Benchmarking is linked to broader problems; it is rarely significant in isolation. It has to be put against the challenges which face the business. In general, the ability of businesses to execute these KSFs must be measured and analysed (Industrial Restructuring Project, 2000). The KSFs differ for every business, even in the same industry. In order to achieve these market drivers it requires effort and practice and most probably they will be replicated by rivals. It is possible to benchmark the practice itself and the outcomes.
- Another important point is to choose whom to benchmark against, which entails the difficulty of actually recognising the similarities which can be benchmarked. There are several common options to benchmark against, namely the historic performance of the business itself; the performance of businesses doing highly comparable

things; the performance of businesses in the same area, but not making the similar products; or performance of businesses in other areas, but with similar processes (Industrial Restructuring Project, 2000). Generally, the approach of benchmarking would be most effective if the businesses were the same, which can rarely be found. As the majority of solar service providers in the Western Cape have the same size and turnover, however, benchmarking is a very useful tool.

- The next key area is to decide what has to be benchmarked. Two types of benchmarked figures are significant, the first being which kind of activities to benchmark. Generally, benchmarking has been utilised for activities including the physical alteration of inputs (Reh, 2010). Today, this factor loses importance as the service industry is growing immensely and different types of input are used and only incorporate a fraction of the costs. As a result it should be considered to use more than one factor to benchmark which could include the comparative processes in design, marketing and office performance (E Service Expert, 2009). Secondly, the difference between practice and performance should be emphasised. One of the most common mistakes in businesses today is that they do not gather the appropriate data to get the desired results. In the case of solar service providers, marketing is one activity which should be benchmarked as it forms part of the recruitment of new customers.
- The last key area is to organise the benchmark data. In relation to the quality and quantity of the analysis data necessary, the most effective approach to benchmarking is to go to numerous comparative businesses providers, and to gather a variety of quantitative and qualitative data.

2.2.4. Strategic Options in the Value Chain

This section creates an understanding of the different strategy options available to businesses, namely low cost, differentiation, best-cost provider, focused, direct selling, outsourcing and vertical and horizontal integration along the value chain (Hough *et al.*, 2011).

2.2.4.1. The Low-cost Strategy

The cost leadership strategy is generally the easiest of the generic strategies to comprehend, since its aim is to minimise the company's costs and to maximise turnover. This strategy deals with the internal activities of business, focusing on the efficient employment of capital and human resources (White, 1986:217). Cost leadership provides another important benefit for the company, which is the possibility to set market prices which can be at or lower than the industry average. In addition companies with the low cost approach are expected to obtain higher margins (Porter, 1998a:36).

Porter states that companies pursuing the cost leadership strategy are likely to perform above the industry average due to the ability of setting the prices at lower or equal levels in comparison to the next competitors in the industry (Porter, 1998b:13). He also says that there can only be one cost leader in the market. Moreover, Porter emphasises the fact that it is important for companies to achieve a real low-cost advantage in production before lowering the price to the end customer (Eng, 1993).

Faulkner and Bowman focus on the arguments and ask the question: On which bases can a company attract customers when supplying an average product at an average price? The argument is that cost leadership is a feature that is fairly invisible to the customer and cannot therefore of itself create sustainable competitive advantage, as it cannot make the sale and give enough reason to purchase (Faulkner & Bowman, 1992). Another question lies behind Porter's statement regarding the capability of companies to acquire higher profits when setting lower prices. They question the possibility of keeping high profitability when asking for the lowest price. (Faulkner & Bowman, 1992) Later in their article, Faulkner and Bowman cite the work of other experts who found empirical proof of the simultaneous existence of more than one cost leader on the market, which contradicts Porter's assertion that the market can have only one cost leader (Porter, 1990).

2.2.4.2. The Differentiation Strategy

A differentiation strategy seeks to differentiate the business's product offerings from rivals in ways that will appeal to a broad or a market niche of buyers (Expertise Marketing, 2011). This strategy has high potential to create sustainable competitive advantage as customer demands are similar but still different in preferences, which creates the possibility for businesses to find their own position in the market (Hough *et al.*, 2011).

The shareholder value model states that the timing of the use of specialised knowledge can build a differentiation advantage as long as the knowledge stays unique. This model suggests that customers buy products or services from a business to have access to its unique knowledge. The advantage is static, rather than dynamic, because the buy is a one-time event (Ball, 2004). The unlimited resources model employs a large base of resources that allows an organisation to outperform competitors by practising a differentiation strategy. An organisation with more resources can manage risk and maintain profits more easily than one with fewer resources. This deep-pocket strategy provides a short-term advantage only. If a firm lacks the capacity for continual innovation, it will not sustain its competitive position over time (Porter, 1980:35).

Differentiation opportunities can occur in activities everywhere in a business's value chain. The following are possible areas (Porter, 1998a:14):

- Supply chain activities with a spill-over effect on the final product or service. Solar service providers which source from well-known producers add more value from the beginning of their value chain (Solar Vision for the Future, 2010).
- Product R&D activities that aim at improved product designs and performance features, expanded end uses and applications, more frequent first-on-the market victories, wider product variety and selection, added user safety, greater recycling capability, or enhanced environmental protection.
- Production R&D and technology-related activities that permit custom order manufacture at a competitive cost; make production methods safer for the

environment; or improve product quality, reliability, and appearance. Many manufacturers have developed flexible manufacturing systems that allow different models and product versions to be made on the same assembly line. Being able to provide buyers with made-to-order products can be a potent differentiating capability. Service providers could source from these manufacturers which would result in more customised solar offers (Solar Vision for the Future, 2010).

- Distribution and shipping activities that allow for less warehouse and on-the-shelf stock outs, quicker delivery to customers, more accurate order filling, and lower shipping costs.
- Marketing, sales, and customer service activities that result in superior technical assistance to buyers, faster maintenance and repair services, more and better product information provided to customers, better training materials for end users, better credit terms, quicker order processing, or greater customer convenience.

Differentiation strategies are likely to work most effectively in market circumstances where (Porter, 1998a:20):

- Buyer needs and uses of the product are unlike. Diverse buyer preferences present competitors with a bigger window of opportunity to do things differently and set themselves apart with product attributes that appeal to particular buyers. Solar service providers have several suppliers and manufacturers with different offers to choose from (Dess, 1994). Moreover, the service offered can also be used to differentiate them. Solar service providers have the opportunity to provide the customer with superior after-sales service, which could give them a differentiation advantage (Werner, 2010).
- There are various ways to differentiate the product or service and various buyers perceive these differences as having value. Moreover, there is plenty of room for retail competitors to stock different styles and quality of merchandise.
- Hardly any rival firms are following a similar differentiation approach. The most excellent differentiation approaches involve trying to appeal to buyers on the

foundation of attributes that rivals are not emphasising (Dess, 1994). A differentiator encounters less head-to-head rivalry when it goes its own separate way in creating uniqueness and does not try to out-differentiate rivals on the very same attributes.

- Technological change is fast-paced and competition turns around rapidly evolving product features. Consequently, rapid product innovation and frequent introductions of next-version products not only provide space for companies to practise separate differentiating approaches but also heighten buyer interest (Frey, 2010).

2.2.4.3. The Best-Cost Provider Strategy

Best-cost provider strategies intend to give customers more value for their money. The objective is to deliver superior value to buyers by satisfying their expectations on key quality, features, performance and service attributes. Moreover, the strategy aims to beat their expectations on price (Porter, 1998b:15).

A company realises best-cost status from an ability to incorporate attractive or upscale characteristics at a lower cost than rivals. The attractive characteristics can take the form of appealing features, good-to-excellent product performance or quality, or attractive customer service (Abbay, 2004). When a business has the resource strengths and competitive capabilities to incorporate these upscale characteristics into its product offering at a lower cost than rivals, it is the low cost provider of an upscale product. From a competitive positioning standpoint, best-cost strategies are a hybrid, balancing a strategic emphasis on low cost against a strategic emphasis on differentiation (Porter, 1998b:16).

The competitive advantage of a best-cost provider is its capability to include upscale characteristics at a lower cost than rivals whose products have comparable characteristics. A best-cost provider can use its low-cost advantage to under price rivals whose products have similar upscale characteristics. To achieve competitive advantage with a best-cost provider strategy, it is critical that a company has the resources and capabilities to incorporate upscale characteristics at a lower cost than rivals (Lynch, 2000:132). Firstly, it must be able to incorporate attractive features at a lower cost than rivals whose products have similar features. Secondly, manufacture a good to excellent

quality product at a lower cost than competitors with good to excellent product quality. Thirdly, develop a product that delivers good to excellent performance at a lower cost than rivals whose products or services also entail good to excellent performance. Lastly, provide attractive customer service at a lower cost than rivals who offer comparably attractive customer service (Porter, 1998b:16).

The target markets for best-cost provider are value-conscious buyers, buyers that are looking for attractive extras at an attractively low price. Value-hunting buyers often form a very sizeable part of the overall market. In general, value-conscious buyers are willing to pay a fair price for extra features, but they shy away from paying the luxury price for unnecessary features (Hough *et al.*, 2011). The South African solar industry is in an infant stage which makes it unusual to have low-cost providers as the technology is not mature enough. Consequently, the best-cost provider strategy is the only price-focused strategy applicable for the solar market in South Africa (SESSA, 2001).

2.2.4.4. Focused Strategies

The factor that sets focused strategies apart from low-cost leadership or broad differentiation strategies is concentrated attention on a narrow part of the total market. The target segment can be defined by geographic uniqueness, by specialised requirements in using the product, or by special product attributes that appeal only to niche members (Porter, 1998b:25).

A focused strategy keyed to differentiation aims at securing a competitive advantage with a product offering cautiously designed to appeal to the exclusive preferences and needs of a narrow, well-defined group of buyers (Small Business Marketing Plans, 2007). The successful utilisation of a focused differentiation strategy depends on the existence of a buyer segment that is looking for special product attributes or seller competences and on a firm's ability to stand apart from rivals competing in the same target market niche (Porter, 1998:26).

A focused strategy intended to secure a competitive edge based on either low cost or differentiation becomes increasingly attractive as more of the following conditions are fulfilled (Galbraith & Schendel, 2006):

- The target market niche is big enough to be profitable and offers good growth potential.
- Industry leaders do not see that having a presence in the niche is crucial to their own success, consequently focusers can often escape battling head-to-head against some of the industry's main and strongest competitors.
- It is difficult for multi-segment competitors to maintain capabilities to meet the specialised needs of buyers comprising the target market niche and at the same time satisfy the expectations of their mainstream customers.
- The industry has many different niches and segments, thereby allowing a business to pick a competitively attractive niche fitting to its resource strengths and capabilities. Also, with more niches, there is more room for focusers to avoid each other in competing for the same customer.
- Few other rivals, if any, are attempting to specialise in the same target segment: a situation that reduces the risk of segment overcrowding.
- The business has a reservoir of customer goodwill and loyalty that it can draw on to help block ambitious challengers looking to interfere in its business.

The advantages of focusing a company's entire competitive effort on a single market niche are considerable, especially for smaller and medium-sized companies that may lack the breadth and depth of resources to tackle going after a broad customer base (Galbraith & Schendel, 2006).

2.2.4.5. Other Applicable Strategies for the Solar Market

The following strategies are directed to marketing activities. Direct selling is a method of marketing and retailing consumer goods directly to the customer that relies neither on direct mail, product promotion nor on fixed retail outlets. The majority of direct sellers are home-based business owners, who can be separated into three types of direct sellers, namely person-to person, multilevel (network) marketing, and party plans

(Brady, Crittenden, Crittenden & Grant, 1998). Person-to-person selling involves face-to-face contact where a company representative offers a demonstration of the product/service and typically goes with a catalogue usage. Multilevel marketing uses the individual-selling element of the person-to-person sale, but also includes bonuses based on recruiting additional salespeople. Party plans involve product demonstrations/sales to groups of consumers (Brady *et al.*, 2008).

For the improvement of the business structure, the following strategies can be used. Firstly, outsourcing is the transfer of control of a process or product to a supplier. Outside suppliers are able to focus on this business and have better equipment and technology, and will outperform the process with better control, quality, and cost. Companies outsource parts or components that are not one of their critical core processes for economic gain or better quality (RCG University, 1999).

Secondly, vertical integration is the process of a business to expand along the value chain. Most businesses are to a degree vertically integrated in order to capture more stable value. As the whole industry develops, vertical integration becomes more feasible. However, no group in the world solar industry covers the whole value chain today, whilst there are many highly specialised companies upstream and in the more service-oriented downstream segment (Green Rhino Energy, 2010).

2.2.4.6. Strategy Options for Competing in a Fragmented Industry

The solar service provider industry in South Africa is highly fragmented (Bennett. 2011). There are no market leaders and in the Western Cape alone, 77 different service providers were identified. According to Hough *et al.* (2011) there are five strategies which can help to compete in such a market. Three of the five strategies are applicable to the South African solar service provider industry and are as follows:

- Specialising by product type. The product types which are offered by solar service providers range from solar water (pool) heating over photovoltaic systems to small solar devices like light bulbs. The service provider could differentiate himself by specialising in only one product type. By specialising in one type, the service

provider could become the industry expert, which creates more trust from the consumer's side.

- Specialising by customer type. The possibility for solar service providers to target different customer groups is high. Potential target customers vary from residential areas over governmental institutions to public institutions like hotels and hospitals. Specialisation in one target group has the advantage that the solar service provider gains more knowledge about the requirements the customer has and consequently can satisfy them better than competitors.
- Focusing geographic area. As most solar service providers are relatively small, the reach is limited. However, service providers can focus on certain areas in their community. Security estates are one opportunity to focus on, as residents communicate with each other which could lead to more customers. After the service provider is well known in one area, he can move on to the next one. Moreover, the marketing budget is limited, which gives more reason to focus on area.

2.2.4.7. Possible application to the solar industry

The following section is focused on the examination of the three cost and differentiation drivers in the solar market and the possible simultaneous employment of two strategies.

2.2.4.7.1. Criteria for cost leadership strategy

Porter states that the selected cost strategy of a business is dependent on the cost performance of its value creation and components. Furthermore, the cost performance of an activity is affected by the cost drivers which symbolise the different factors affecting the final cost of a product and service (Porter, 1998b:64). This section focuses on the three cost drivers which are applicable to the solar industry, namely learning, integration, and location (Hrab & Yamkina, 2011). These cost drivers were selected from ten initially presented by Porter which are: economies of scale, learning, the pattern of capacity utilisation, linkages, interrelationships, integration, timing, discretionary policies, location, and institutional factors (Porter, 1998b:70). The choice

of the three cost drivers is set by the higher likelihood of obtaining sufficient results. The following items cover these three areas:

- Learning

The learning ability of solar service providers can advance their labour effectiveness, technology employment, scheduling, and decrease their spending on construction of new facilities. It is significant to keep in mind that learning is rather the gathering of little progresses than the quick breakthrough (Hrab & Yamkina, 2011). With the maturity of an industry the learning curve decreases (Schuette, 2008). Therefore, based on the fact that the South African solar industry is still very young, learning plays a crucial role for all parties involved.

- Vertical Integration

The level of a solar company's vertical integration can significantly cut the final costs of the solar products and services. Firstly, a vertically integrated solar company has additional control over the value chain activities and consequently, can diminish the transportation and buying expenses (Corporate Communication, 2010). Secondly, a vertically integrated company abolishes reliance on the suppliers, as well as avoiding the risks of poor bargaining power skills of an organisation towards the suppliers or purchasers. Thirdly, a solar company will benefit from the economies of joint operations. However, despite all the possible benefits that vertical integration can bring, there are a few disadvantages such as a company's incapability to outsource certain activities, even if it makes financial sense (Hrab & Yamkina, 2011).

- Location

Location is the third driver that may have a direct consequence on the cost declines. The moving of some facilities or some activities to another location can decrease the cost of labour, logistics, and input materials. Certain solar companies are willing to move to another location because they receive special and beneficial tax rates. In other cases the infrastructure in another location may be more suitable or better developed (Panel Business, 2011). Despite the main advantages, companies may take more

aspects into consideration before moving to another location, because while saving costs on labour, the expenses of other activities might increase (Hrab & Yamkina, 2011).

2.2.4.7.2. Criteria for differentiation strategy

The drivers for individuality establish the degree of strategic differentiation. They cause the unique characteristics of various activities. Porter has defined a number of major drivers of uniqueness as follows: policy choices, linkages, timing, location, interrelationships, learning and spill-over, integration, scale and institutional factors. The decision was made to use the same ones as chosen for the cost leadership strategy, namely learning, integration and location (Hrab & Yamkina, 2011). The choice was made because of their ability to investigate the matter in more detail. Porter described the potential benefits of the listed drivers as follows:

- Learning

The continuous learning process integrates uniqueness into different activities. For example, learning significantly contributes to the accomplishment of a certain level of quality of a product or service (Hrab & Yamkina, 2011).

- Vertical Integration

The extent of vertical integration can affect the uniqueness of an offering for solar service providers since companies which are vertically integrated possess higher control over the performance of various departments and value chain activities. Vertical integration may not only reduce the dependency and vulnerability towards third parties but also start performing operations and activities previously carried out by buyers (Lambertini & Rossini, 2004). However it is worth mentioning that in some cases the de-integration may be beneficial, in case the performance of some activities may be done more cheaply and effectively by subcontractors and suppliers (Hrab & Yamkina, 2011).

- Location

The physical location of the company or its branch may create a unique offering. For instance, the solar service provider could be positioned closer to the customer or be more easily accessible, which creates differentiation to other customers (Schmela, 2011).

2.3. PORTER'S FIVE FORCES

The following section presents an overview of Porter's Five Forces model and how it is used in this study. The model is then applied to the South African renewable energy market.

2.3.1. Introduction to the Model

The Five Forces model of competition is a highly powerful model to systematically diagnose the principle of competition pressure. As can be seen in Figure 2.3, the model measures the strengths of five different areas, namely rivals, new entrants, substitute products, buyers and supplier bargaining power (Porter, 1980).

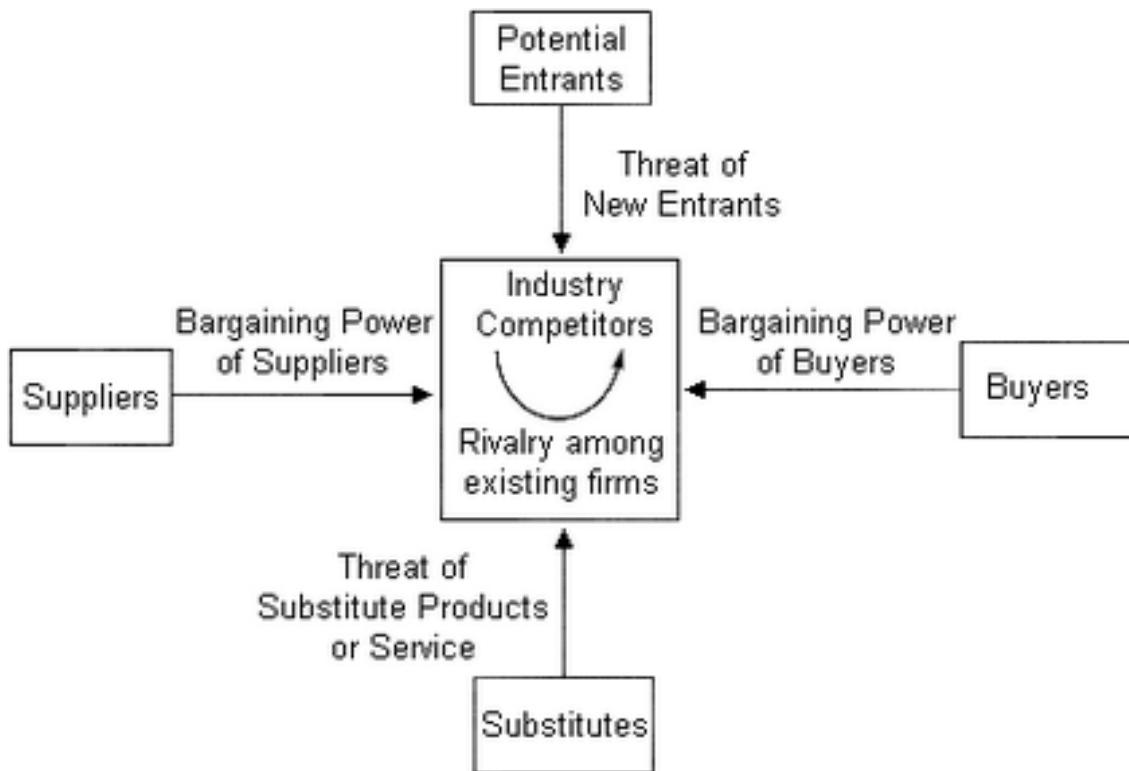


Figure 2.3: Porter's Five Forces

SOURCE: Porter, 1979

In today's business world, competition is the most well-known driver for industries to develop. Companies within an industry try to gain a competitive advantage in all stages of the value chain to be superior to rivals. Consequently, the higher the competitive pressure in an industry the faster is the development. In general, consumers can expect more value from industries with a high degree of competition as companies try to give consumers more reason and value to buy their products or service to be superior to rivals (Porter, 2008).

Another important point to mention is the difference in the institutional context between developed and emerging economies which affects the Five Force model. As the model was developed in relation to developed nations, some adjustments have to be made to use it in emerging economies like South Africa. In developed market economies, the complexity of legal, financial and regulatory institutions is relatively well developed, which makes the Five Forces model measures more reliable. In emerging economies, on the other hand, institutions are still in formation which relates to transaction costs, capital flows and legitimate norms of rivalry. Therefore, for the South African context, it is important to note that Eskom is a state-owned electricity supplier, which has

monopolistic power in the market. The free market development of new technologies like renewable sources of energy can possibly be hindered. This higher level of uncertainty makes it necessary to observe and take these points into consideration by using the Five Forces model in emerging countries like South Africa (Morris, 2001).

The Five Forces model contributes to understanding the renewable energy industry in South Africa, as the knowledge about where most competitive pressure comes from assists in providing adequate recommendations in relation to future value chain adjustments. The understanding of which of the five competitive forces is stronger assists in focusing on value chain activities interacting with this force. The improvement of these value chain activities adds more value to businesses as they improve their performance in areas most crucial to their success.

2.3.2. Five Forces Analysis of the South African Renewable Energy Market

The following section provides a brief overview of the Five Forces in the renewable energy industry of South Africa.

Buyer power in the renewable energy market is generally assessed as weak. Buyers in this market are mostly individual consumers, although there is also a demand for renewable energy from the industrial and commercial sectors (Research and Markets, 2011). The high number of buyers in this market, coupled with their small size, diminishes the impact on market players of losing one consumer and weakens buyer power considerably. At the moment, consumers have little choice of electricity retailer (Datamonitor, 2009).

The supplier power in the industry is weak. Renewable energy retailers that are vertically integrated possess very little power as the number of retailers is relatively high (Companies and Markets, 2010). For those that operate only in the retail market, including electricity generation companies that offer retailers wholesale electricity, is the power higher. Supplier power is likely to be stronger for pure retailers than for the integrated companies (Datamonitor, 2009).

The threat of new entrants is moderate to high. Double-digit market growth in the renewable energy market makes it attractive for new entrants to enter. Nevertheless, the barriers to market entry are significant as buyers need considerable capital to invest in building or acquiring renewable energy generation capacity, which means it is difficult to find buyers who are willing to pay the initial investment for solar devices (Research and Markets, 2011). Government regulation is another immense barrier in the market. Eskom, the state-owned generator and distributor of electricity, is the dominant incumbent. Eskom makes the entry more difficult, as every product has to be SABS approved, which is a long and expensive process (Datamonitor, 2009).

The threat of substitutes in the market is assessed as moderate. The most direct substitute for renewable energy is electricity produced in fossil-fuel or nuclear power stations, which are the cheapest form of electricity. Although traditionally cheaper than renewable sources of energy, oil and gas prices are now unpredictable and have been rising at exceptional rates in recent years, making them less attractive as primary energy sources (Research and Markets, 2011). Renewably-generated electricity, like non-renewable, is also threatened by the direct use of energy sources such as coal and gas. Switching costs are intense, as users may need to buy different equipment in order to start using gas rather than electricity (Datamonitor, 2009).

The overall level of rivalry as assessed by the Five Forces model is moderate to high. Competition is amplified by high sunk costs and low level diversity between players. The rate of new entrants is high, which accelerates rivalry in the market. Nevertheless, rivalry is not extremely high as Eskom dominates both the generation and distribution of electricity. Rivalry is further eased by rapid double-digit market growth (Datamonitor, 2009).

2.4. CONCLUSION

The aim of this chapter was to provide the reader with more knowledge about the two models used in this study. The models serve as a foundation to systematically analyse the Western Cape solar service provider industry. The primary model is the value chain, which facilitates a better understanding of all phases of activities of a service provider. It also assists the identification of opportunities and threats for future development. The

secondary model, Porter's Five Forces, serves as a tool to gain more insight into the solar industry in the Western Cape. Knowledge of where most competitive pressure appears from helps to identify areas and activities most crucial for the success of a solar service provider.

Having dealt with the models the study is based on, in particular the value chain model and Porter's Five Forces, chapter 3 aims to gain an in-depth insight into the global and South African energy and solar energy industries. This knowledge is then taken into consideration in the final recommendations of the study.

CHAPTER 3 THE GLOBAL AND SOUTH AFRICAN ENERGY AND SOLAR INDUSTRY

3.1. INTRODUCTION

Whereas chapter 2 examined relevant knowledge in relation to the models this study is based on, this chapter provides in-depth information about the South African energy and solar industry.

The first section addresses the definition of concepts and terms important for the understanding and purpose of this study. The second section provides information about the global and South African general energy industry. The last section presents background knowledge of specifically the global and South African solar industry.

This knowledge is necessary to understand the present development of solar service providers in the Western Cape. Moreover, to know the present industry situation assists in identifying opportunities and suitable recommendations for future improvement as industry factors can be taken into consideration. Knowledge of the general and solar industry helps to adjust the value chain model to solar service providers in the Western Cape, as it is crucial to know the external environment to create appropriate suggestions. Although this study focuses on the Western Cape solar service provider value chain, background information for the global and South African solar industry is given to gain a better understanding of the concept.

3.2. DEFINITION OF CONCEPTS AND TERMS USED IN THE STUDY

To understand the concept of renewable sources of energy, specifically solar power, it is necessary to have a broad understanding of why these sources of energy have gained importance in recent years. Basic knowledge about the fundamental concept is

crucial in being able to draw relevant conclusions about the future potential development of the solar service provider value chain. The following section entails definitions of electricity terms, climate change in South Africa, Greenhouse Gases and Renewable energy.

3.2.1. General Electricity

The following section provides a brief explanation of the most important electricity terms. "Amperage" (Amp) supplied by an electrical service is the stream rate of "electrical current" that is available. Basically, the voltage level provided by an electrical service, combined with the Amp capacity rating of an electricity device indicates how many electrical devices or services can be utilised at the same time (The Physics, 2001). If the house has a 100 Amp low rate obtainable it is possible to run 10 electric devices with each 10 Amp usage to the same time. Furthermore, if the house only has 70 Amp available it is only possible to run 7 devices with 10 Amp each simultaneously (Inspectapedia, 2007).

The definition of "Volt" is when a current of one Amp dissolves one Watt. To simplify the matter, Volt can be seen as the water pressure in a water pipe electrical system. The ability to handle more pressure in the pipe means that the conductor is able to handle more energy and can deliver more to the end user than before (Nasa Science, 2000). For example, a 15 Amp 120V electrical service is only able to deliver half the amount of electricity compared to a 15 Amp 240V electrical service. In general, at a constant current Ampere level, Volt is the unit which measures the electrical strength (Inspectapedia, 2007).

The amount of electricity used by units is measured in Watts, which is the rate of electricity utilisation. The formula is: Watts = Volts x Amps. This formula shows how Watts relate to Volts and Amps (Inspectapedia, 2007).

3.2.2. Climate change

The definition of "climate change" is a long-term change in the average weather in a given area (Rainforest Facts, 2006). The climate of the world varies from one decade to

another, and a shifting climate is natural. Nevertheless, there is anxiety that the human industrial and development actions of the past two centuries were the foundation for changes over and above natural deviation (SA Weather Service, 2010).

Climate change is the natural cycle that the earth and its atmosphere are accommodating due to the change of the amount of energy received from the sun. The climate moves through warm and cold stages, and one cycle can take hundreds of years. Human beings cause this change to happen at a more rapid pace which threatens all types of life on earth. Forecasts predict that the temperature in Southern Africa will increase by 2°C over the next century (SA Weather Service, 2010).

Figure 3.1 summarises possible consequences in relation to the level of temperature rise till the year 2100. As can be seen, the higher the temperature increase, the more dramatic the consequence for each reason (Winkler, 2005a):

- Reason 1 relates to the threats to the whole system on earth including the possible extinction of species, the loss of unique habitats and coastal areas and the bleaching of coral.
- Reason 2 is extreme climate events which will occur more strongly and more frequently all over the world.
- Reason 3 is linked to the distribution of impacts. The rapid increase of temperature will increase the imbalance of fresh water in certain regions. Net market sector losses are predicted for many developing countries, as the ability to adapt is limited.
- Reason 4 is global aggregate impacts, which state that the majority of human beings will be affected negatively due to a temperature increase.
- Reason 5 is related to large scale and high impact events, such as the melting and collapsing of ice sheets which add substantially to an increase in sea level.

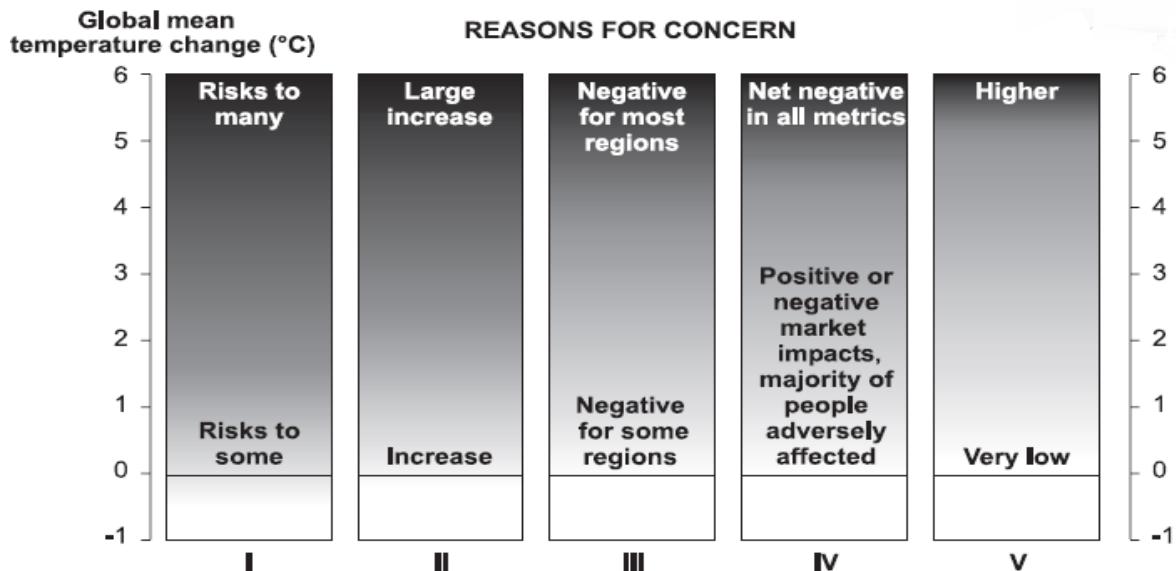


Figure 3.1: Risk of climate change damages

SOURCE: Winkler, 2005a

Regional impacts in developing countries like South Africa have been studied by the Intergovernmental Panel on Climate Change, and revealed that poor countries are most vulnerable to the consequences of climate change (The Nature Conservancy, 2011). The reason for this is the relatively high sensitivity to climate disruption and limited capacity to adapt, and more limited resources with which to mitigate the impacts. Human society has to face and adapt to new risks and pressures on food scarcity, water resources, physical infrastructure and from extreme events like floods, droughts and severe storms (Tyler, 2009).

3.2.3. Greenhouse Gases

The global climate balance is driven by energy from the sun. Different gases in the atmosphere act to trap the energy from the sun and consequently warm the earth. These gases are termed "greenhouse gases" and the process is called "the greenhouse effect" (Biology Online, 2010). Continuous solar radiation drives the climate system, atmospheric chemistry as well as general life on earth. About 30% of the incoming solar power is mirrored back to space. The other 70% is absorbed by the surface of earth. This energy heats the planet and the atmosphere and makes life possible (Ramanathan & Feng, 2009).

Human activities over the last 200 years have increased the concentration of greenhouse gases in the atmosphere. The interference of human beings causes an imbalance, which makes it difficult to predict the consequences (SA Weather Service, 2010). The main gases causing the greenhouse effect are Carbon Dioxide (CO₂), Methane (CH₄) and Nitrous Oxide (N₂O). The common activities contributing to the emission all over the world are as follows (Environmental Issues, 2011):

- Burning natural gas, coal and oil including gasoline for automobile engines. The South African mining sector is a huge contributor in the country.
- Certain factories produce long-lasting industrial gases that do not occur naturally, yet contribute to the enhancement of the greenhouse effect.
- Deforestation also contributes to global warming. Trees use carbon dioxide and give off oxygen in its place, which helps to create the balance of gases in the atmosphere. The advancing destruction of forests creates an imbalance.
- Population growth is another factor in global warming. As more people use fossil fuels for heat, transportation and manufacturing, the level of greenhouse gases continues to increase. As more farming occurs more greenhouse gases enter the atmosphere.

As can be seen on Figure 3.2, the highest percentage of gas emission in South Africa, over the last years originated in the energy sector with 62% (Department: Environment affairs and Tourism of the Republic of South Africa, 2009). In world rankings South Africa is ranked as 13th of the most polluting nations and number 1 of the developing and emerging nations. The gas CO₂ was (with 76% contribution) the most common greenhouse gas in South Africa. The fact that 93% of South Africa's energy is generated with coal is the main reason for this bad ranking (Letete, Guma & Marquard, 2009).

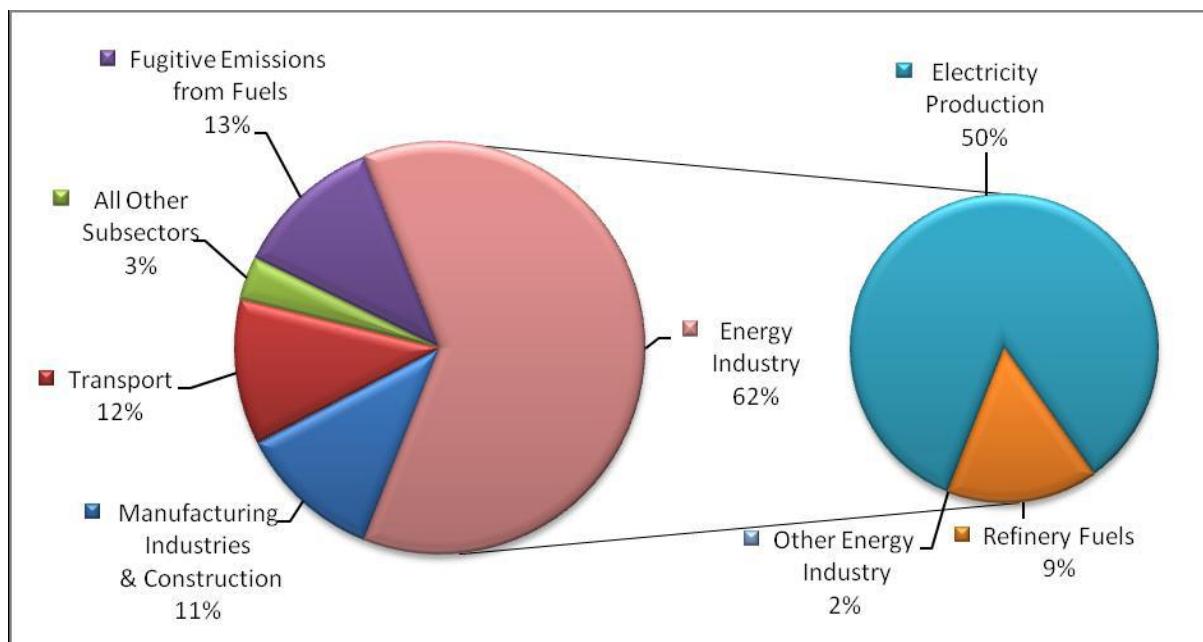


Figure 3.2: Greenhouse gas emission in South Africa

SOURCE: Department: Environment affairs and Tourism of the Republic of South Africa, 2009

3.2.4. Renewable Energy

Renewable technologies are known as clean sources of energy and the best possible use of these resources minimises environmental impact, produces minimum secondary wastes and is sustainable (Renewable Energy Article, 2011). This is based on current and future economic and societal needs. The basic definition of renewable energy is that it is "natural energy which does not have a limited supply. Renewable energy can be used again and again, and will never run out." (Clean Energy Ideas, 2010).

The main source of all energies is the sun. Heat and light energy are the primary sources of solar power. The environment absorbs and transforms these two types of energy in many different ways. The flow of wind energy and biomass are the result of such transformation and are part of the renewable energy concept. These types of renewable energy will play an important role in the future to decrease the emission of greenhouse gases and to reduce global warming (Panwar, Kaushik, & Kothari, 2011).

Solar power can be subdivided into three subcategories, namely solar thermal application, solar thermal power and solar photovoltaic systems (Solar Energy, 2010). Firstly, solar thermal energy is the most popular form of renewable sources of energy and is available in both direct and indirect forms. Today, it is possible to use solar thermal energy in many different ways. One application is presented in Figure 3.3 in form of water heating. A family of four people can be served from a domestic sized water heater. The average South African household uses 40-50% of its electricity consumption for water heating. Moreover, the usage of such devices will contribute to a more sustainable future as it is a significant improvement for the environment (Panwar, Kaushik, & Kothari, 2011).

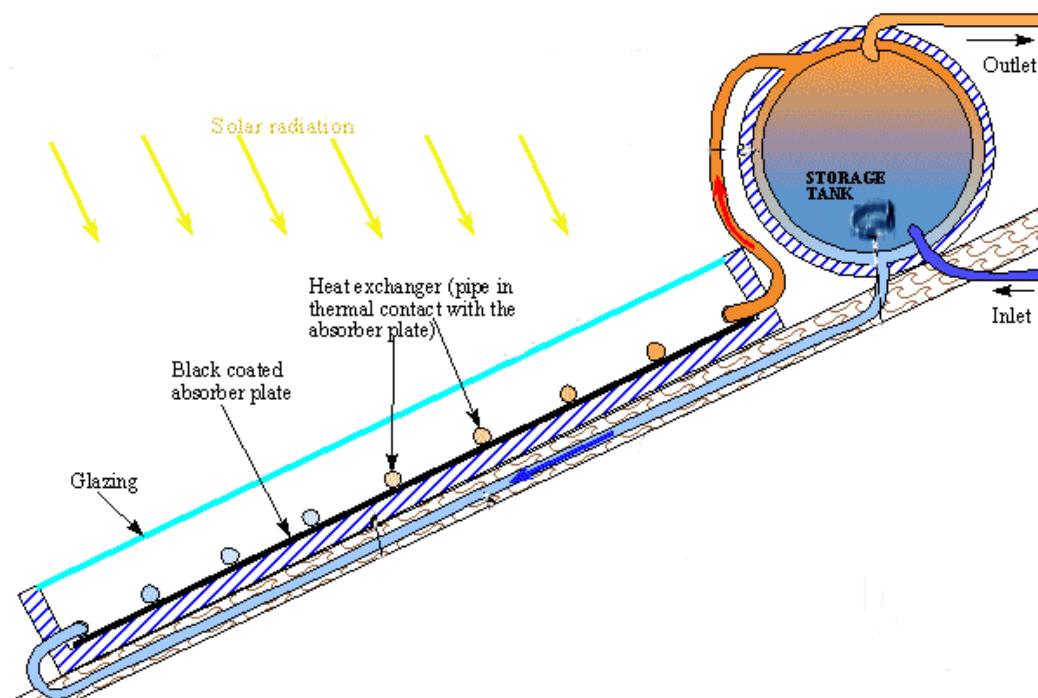


Figure 3.3: Box type solar cooker

SOURCE: Panwar, Kaushik, & Kothari, 2011

Secondly, the solar thermal electricity power system is a tool that converts the solar radiation into energy. The transfer process from sun radiation to electricity can be seen in Figure 3.4. This type of power generation is also called "Concentrated Solar Power" (CPS). The major module of any solar thermal system is the solar collector. Solar energy collectors are a special kind of heat exchanger that converts solar radiation energy to internal energy of the transport medium (Panwar, Kaushik, & Kothari, 2011).

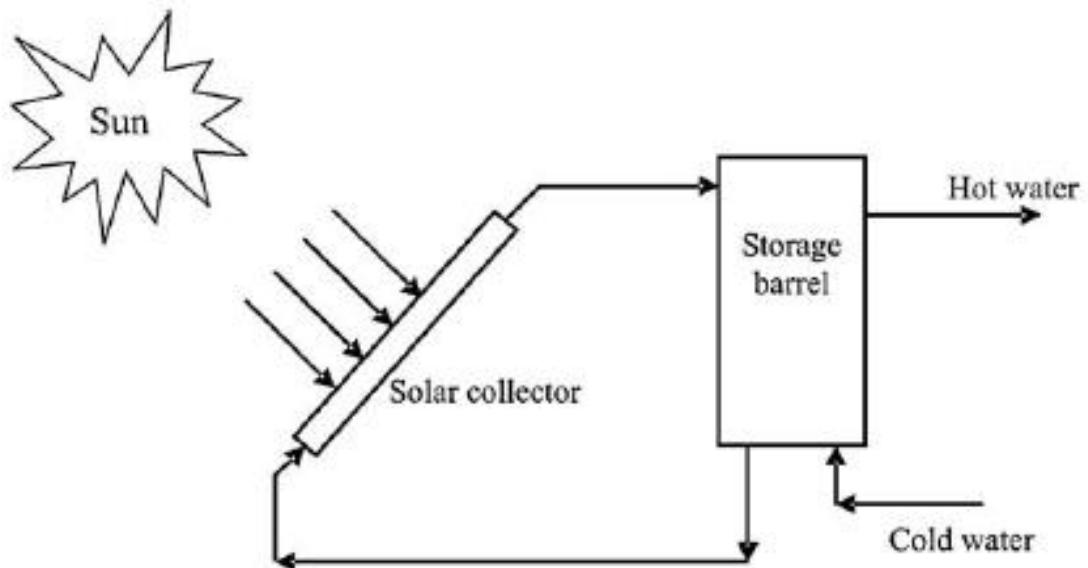


Figure 3.4: Domestic-scale solar water heater

SOURCE: Panwar, Kaushik, & Kothari, 2011

Lastly, photovoltaic (PV) cells are used for the direct sun radiation conversion to electricity, this effect is called "the photovoltaic process". The efficiency of the PV effect depends on the interaction rate of photons within the device. The sun's heat activates the photon which causes energy as they start to swing and move. In the end positive and negative ones are separated and the recombination of these two produces electricity (Solar Server, 2010). The photovoltaic devices produce electricity without any harm to the environment and without noise. At the moment the production cost of devices is still high but is starting to come down rapidly, and sunlight is free (Panwar, Kaushik, & Kothari, 2011).

The photovoltaic solar technology can be divided into another three subcategories, namely the photovoltaic with tracker, concentrating photovoltaic and fixed photovoltaic. The photovoltaic with tracker can be seen in Figure 3.5, which means that the panel can follow the movements of the sun (Polar Power, 2009).

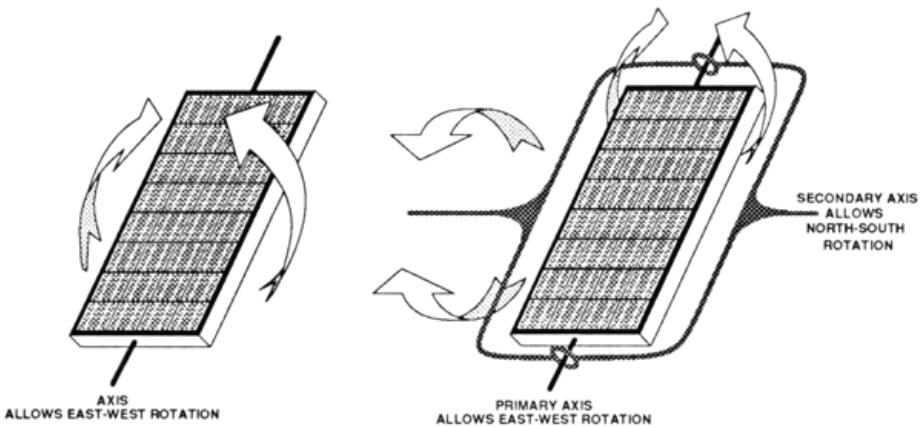


Figure 3.5: Photovoltaic with tracker

SOURCE: Polar Power, 2009

The concentrating photovoltaic is illustrated in Figure 3.6. The technology concentrates the sunlight on one point where the sunlight is bundled. At this point the most energy is accumulated and through a technological process is converted into electricity. The fixed photovoltaic is the common solar panel which can be installed on the roof of a house (New Energy News, 2010).

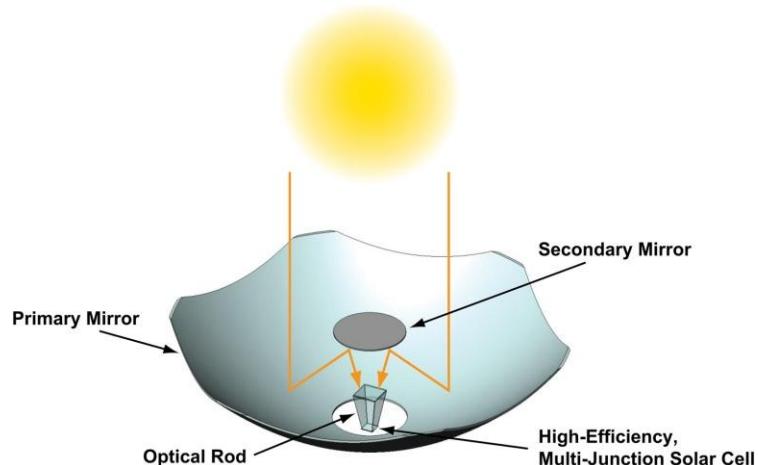


Figure 3.6: Concentrating Photovoltaic

SOURCE: New Energy News, 2010

3.2.5. Green Electricity

The present most common way to produce electricity is from coal, oil or nuclear power plants which emit a huge amount of carbon dioxide into the atmosphere. The expression "green electricity" describes electricity produced from sources which do not cause these impacts upon the environment. Every type of electricity generation will

have some impact, but some sources are much greener than others (Green Electricity Marketplace, 2007).

3.2.6. Service Provider

A "service provider" is an organisation that provides some kind of communication service, storage service or processing service or any combination of the three. Examples are local or long distance telephone companies, Internet service provider, application service provider and storage service provider (PCMAG, 2011). The solar service provider is an application service provider as it acts as a connection between production companies and customers. The solar service provider can be in any form namely, Internet based, store based, catalogue based or only visiting customers. As stated, the South African and specifically the Western Cape solar industry, is in an infant stage with enormous future potential which means it could rapidly change. Consequently, solar service providers have to learn to cope with this change and adapt their business processes. This study contributes to this development.

The main area of operation for the regular solar service provider includes three main activities. Firstly, solar power is the most comprehensive flagship service for customers who want solar-generated electricity without capital costs. Secondly, production assurance services are for customers who already own systems but would like scheduled service and maintenance in addition to solar monitoring capabilities. Lastly, solar energy monitoring offers monitoring and the option for service dispatch for existing systems (Sunedison, 2010).

3.3. ENERGY INDUSTRY

To be able to understand the environment in which the Western Cape solar service providers are operating, it is necessary to have background knowledge of the present electricity industry. Furthermore, knowledge about the global energy industry reveals the current global energy situation and can give an indication of what would be possible for South Africa. The following section includes an overview of the global and South African energy context.

3.3.1. Global energy context

To get a better understanding of the importance of increasing the usage of renewable sources, a few facts about predictions of the global energy usage should be known. The global energy demand will be about 30% higher in 2040 than in 2010, as economic output more than doubles and prosperity expands across a world whose population will increase to almost 9 billion people. Moreover, the need for energy to make electricity will remain the single biggest driver of demand. By 2040, electricity generation will account for more than 40% of global energy consumption. Therefore it is crucial for a sustainable future to increase the implementation of renewable technology (ExxonMobil, 2012).

The global energy industry created total revenues of \$6,050 billion in 2009, demonstrating an annual rate of change of -0.1% for the period 2005 to 2009. The performance of the industry is predicted to speed up, with an anticipated annual growth rate of 13.2% for the five-year period 2009 to 2014, which will drive the industry to a value of \$11,250.4 billion by the end of 2014 (Datamonitor, 2009).

The industry had shown strong growth in recent years until it fell into a steep decline in 2009, but recovered in 2010 entirely. As can be seen in Figure 3.7, the major energy consumer in the world is America followed by the rest of the world, Asia-Pacific and Europe (Datamonitor, 2009).

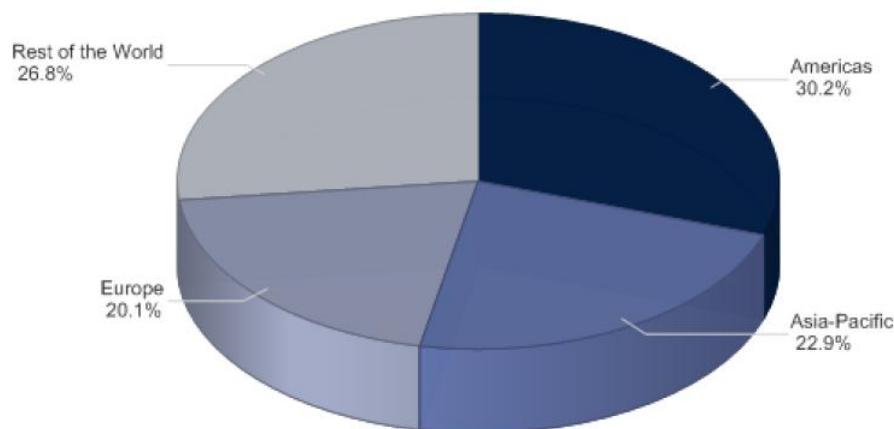


Figure 3.7: Global Energy Industry Segmentation

SOURCE: Datamonitor, 2009

The major energy challenges that the world is facing today are as follows (MBendi, 2011):

- The population is increasing in number and desired living standard, which creates demand for inexpensive, clean, and reliable sources of energy.
- Present non-renewable energy resources such as crude oil, natural gas, uranium and coal are expected to be used up in 40, 66, 84 and 164 years respectively. The predictions are at the present rate of usage.
- To find a balance between decreasing the carbon dioxide emission and at the same time satisfying the increasing electricity demand.
- To switch to renewable sources of energy to prevent disasters such as Fukushima and to maintain a good environment for future generations.
- To assure the safety of residential areas close to energy plants.
- Energy saving / reduction.
- To educate elite professionals who are able to improve the present situation enormously and to educate the population about energy-saving opportunities.

3.3.2. South African energy context

The South African industry is extremely energy driven: 0.28 toe (tons of oil equivalents) was used to generate 1000 dollars (calculated according to rates for the year 2000) of the GDP (Gross Domestic Product) in purchasing power parity in 2005, while the standard for the OECD (Organisation for Economic Cooperation and Development) countries is 0.18 toe. The energy and electricity sectors are dominated by coal as the primary energy source (DME, 2006). Figure 3.8 shows the total primary energy supply for the year 2004 which was 5240 Petajoule (10^{15} Joules).

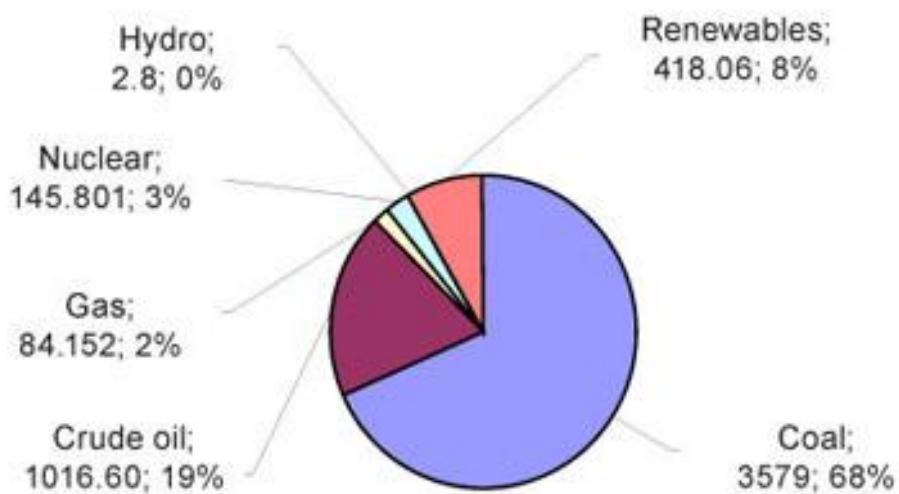


Figure 3.8: South African Electricity Resources

SOURCE: DME, 2006

The energy sector in South Africa is historically dominated by mining and a high intensity demand sector. After 1994 with the governmental change in South Africa the electricity industry shifted from only supply to more demand related. There was also more concern regarding how to create easier access for the poor. The highest increase in recent years can be documented in the industrial sector. Nevertheless, the overall trend is towards service industries, which includes increased inefficient use due to the lower cost (Winkler, 2006).

South Africa's energy consumption is relatively high in comparison to other middle income developing countries. Overall primary energy supply per unit GDP in 2004 was 11.7 MJ/\$, compared to 7.9 MJ/\$ for Asian and 6.7 MJ/\$ for Latin American countries (IEA, 2006). It is important for South Africa to create more energy awareness in order to relatively decrease consumption in coming years. The government is currently preparing and implementing actions to become more energy efficient and to promote renewable energy sources. Government and businesses have approved an energy-efficiency strategy included in the White Paper (Department of Minerals and Energy, 2004). The plan is to reduce energy consumption by 12% to 2014 below the projected energy consumption. Many interventions have been taken into consideration, which

revealed that the best options are demand side management and better end use energy efficiency (Winkler, 2006).

The average price of electricity before the electricity crisis in 2008 was R0.25/kWh. The reason Eskom put forward for finally increasing the prices was that more money was needed to recover incurred building costs and to be able to satisfy future demand (Eskom, 2011a). Nevertheless, in the end Eskom was not able to fully implement their expansion programme. The programme of Eskom entails only about 150MW renewable energy, but 10GW from coal and 1.2GW from the Ingula pump scheme (Davidson, Hirst, & Moomaw, 2010).

The National Energy Regulator has since granted an electricity price rise of 31.3%, which incorporates a 2 cents/kWh environmental levy, and 24.8% for 2010/2011, while another two 25% increases are expected for the following two years. Nevertheless, the renewable sources are expected to get a portion of the new revenues for a better future development (Edkins, Marquard, & Winkler, 2010).

Recently, doubts have been expressed concerning South Africa's coal reserves, originally estimated at 55 billion tons. The Department of Minerals and Energy is performing an investigation to estimate the actual reserves, in the meantime using a temporary estimate of 38 billion tons (Winkler, 2006). If the concluding estimate is true, the initial estimates were overestimated by 45%. If the current consumption rates are to be followed the reserves would last for the next 200 years. However, it is predicted that with growth rates of 3% to 5%, the reserves would continue for only another 40 to 50 years. This observation calls for an increased effort to diversify the nation's electricity generation schemes. South Africa so far does not have solar or wind power-generated electricity on the national electricity grid (DME, 2002).

Nevertheless, there are local cases in which these technologies have been used. The challenge is to phase out environmentally degrading generation schemes in favour of renewable energy while retaining the industrial and competitive edge provided by inexpensive electricity. The long-range energy and alternative planning (LEAP) model was used for South Africa to analyse the short to long-term effects on the environment keeping in view the national socioeconomic framework (Scorgie, Paterson, Burger,

Annegarn & Kneen, 2004). The long-term mitigation study also proves the need to diversify towards renewable methods of electricity generation to account for a sustainable national future (Department of Environment Affairs and Tourism South Africa, 2007).

3.3.3. Strategy options for South Africa as an emerging Industry

South Africa has recently been nominated to join the BRIC nations in order to form BRICS. This achievement is based on several factors such as economic performance and political stability (All Africa, 2011). As an emerging country certain characteristics can be recognised in most industries (Hough *et al.*, 2011):

- As the market is in its infancy, there is speculation about how it will develop in the future.
- Most of the technological know-how was developed from companies or industries in first-world countries.
- The evolving consumer demand is hardly predictable which makes the launch of new to the market products difficult.
- Many potential buyers expect first-generation products to be rapidly improved, consequently they delay the purchase for later models.
- Strong experience/learning curve effect enables price cuts in the near future.

South African companies competing in such industries, including the solar industry, have certain strategic directions, which are advisable. The following strategic directions are helpful in improving the strategy of solar service providers but cannot be used in isolation. For an optimum strategy these firms should use the following actions as a guideline (Hough *et al.*, 2011):

- Push to improve the product quality by adding more value to the product than competitors.

- Consider merging with or acquiring another firm to gain expertise and pool resource strength.
- As technological uncertainty clears, the company should try to capture first-mover advantage, for instance by offering new service tools.
- Acquire or form alliances with companies that have related or complementary expertise.
- Pursue new customer groups and entry into new geographical areas.
- Make it cheap and easily accessible for first-time buyers to try the products.
- Use price cuts to attract the next layer of more price-sensitive customers.
- As the product becomes familiar and known, shift advertising focus to product education.

3.4. SOLAR INDUSTRY

This section gives an overview of the current situation of the global solar industry. The second part discusses the South African solar industry and how other nations promote it, the status quo of the South African market and market drivers which could lead to more sustainability.

3.4.1. Global solar industry

The global solar industry is subdivided into the photovoltaic (PV) and thermal solar industries.

3.4.1.1. The global photovoltaic solar industry

The PV market for terrestrial applications may be divided into four major segments as can be seen in Figure 3.9 namely consumer, off-grid, remote industrial and developing countries and on-grid (Hoffmann, 2006).



Figure 3.9: PV market segments

SOURCE: Hoffmann, 2006

The solar industry has basically developed in the past from consumer products and remote industrial applications. The contributions of the market segments have shifted towards grid-connected systems, followed by installations in developing countries.

The various shares of the four PV market segments are illustrated in Figure 3.9. The first three market segments are applications, where PV solar energy is either the most cost-efficient solution or the only solution for the needs of the customer (Mitchell, 1995). Grid-connected systems today are only economically feasible for the customer in relation to market support programmes. These market support programmes have been implemented as tools for industrial policy in Japan, Germany, and the USA for the development of the manufacturing industry in these countries (Hoffmann, 2006).

The present worldwide capacity at the end of 2006 was 5.737 Megawatt (MW) where 588 MW was used for off-grid applications. The European Union is responsible for more

than half of the installed PV with 3.220 MW of which 112 MW is off-grid. By taking these figures over the population, the EU becomes the region with the highest per capita usage with 6,533 Watt per capita (Wp/capita), mainly because of Germany which creates 34,8 Wp/capita. Japan produces 13,4 Wp/capita, but both Germany and Japan are as good as the global leader Luxembourg 50,54 Wp/capita (EPIA, 2006).

3.4.1.2. The global thermal solar industry

Solar is one of the best growing renewable energy resources today. Solar thermal utilises the heat from the sunlight to produce heat energy or to generate electricity. The contribution of solar PV to world power generation is only about 0.25%. The contribution to solar CSP (concentrated solar power), the form of solar thermal used for electricity generation, is less than 0.01% (Renewable Energy World, 2009).

After a strong performance in 2008 when the European market expanded by 60% the solar industry is expecting further growth in the near future. The European Solar Thermal Industry Federation new numbers suggest that future growth will happen in spite of the bad economic condition all over the world (Global Solar Energy Council, 2010). The solar thermal heating devices have increasingly gained popularity after 2008 in more countries than ever before. In the EU and Switzerland, the solar thermal market increased in size by over 60% to 3.3 Gig watts-thermal of new production, in other words, to 4.76 million m² of collector area (Renewable Energy World, 2009).

In countries like Spain, Italy and France the demand for thermal devices has increased enormously. The biggest increase was recorded in Germany which had more than doubled its demand. Austria still leads per-capita in Europe, with a total capacity in production of 273 kilowatts-thermal (kWth) per 1000 inhabitants (Renewable Energy World, 2009).

Europe, as the strongest area in the world in relation to the usage of solar power, has a clear long-term upward trend. In the time span between 2003 and 2009 the amount of produced solar thermal electricity has tripled, as can be seen in Figure 3.10. The Figure indicates that the renewable electricity generation (Kw) and the volume of installations in square meters has increased in the time span from 2003 till 2009. This continuous

ascending trend gives an indication that the industry will continue to flourish in the future (ESTIF, 2010).

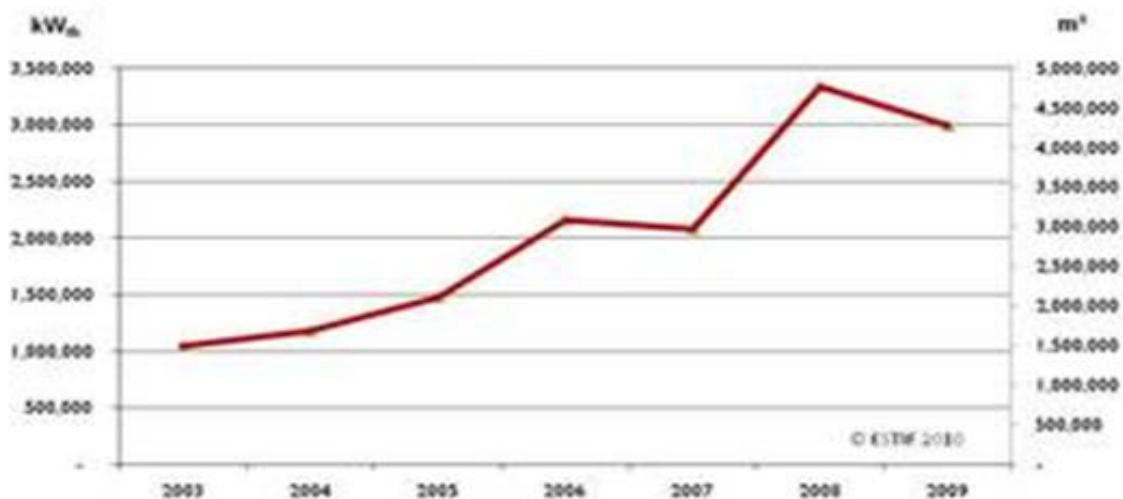


Figure 3.10: European solar thermal market

SOURCE: ESTIF, 2010

3.4.1.3. The South African Solar Thermal Market

A recent study launched by the World Bank called the "Renewable Energy Market Transformation" study, has identified the potential of Solar Water Heating (SWH) in the present and even more for the future (Conningarth Economists, 2004). The study predicts that, based on the targets of the White Paper, SWH could contribute 23% of the targets until 2013. The South African domestic water heating market is still dominated by electrical storage heaters. Less than 1% of homes in South Africa have solar water heaters, although conditions are favourable (DME, 2005). Another study conducted by the UNPD concludes that 30% - 40% of household consumption is caused by water heating, which includes a saving potential of 70% (Holm, 2005).

The solar thermal market in South Africa is becoming increasingly competitive with an increasing number of rivals. Through governmental subsidies, the concept of solar thermal energy is becoming attractive for customers and suppliers/producers (Keyway, 2011). This development is another indication that global companies believe in the future prospects of the South African industry. However, to get a trading license from the official governmental institution is relatively difficult, which blocks the potential

development of the market (Dongjie, 2011). Until today, no company in South Africa produces geysers which can be connected to solar thermal devices (APS Solar, 2011). Consequently, all geysers are sourced from overseas which adds to costs and decreases control over supply chain management. Nevertheless, a few service providers have started to produce solar water heating panels (Joburg, 2011).

3.4.1.4. The South African Photovoltaic Market

Currently there are no subsidies for this technology, which makes it too expensive and not competitive enough to present sources of energy (Joburg, 2011). It takes more than seven years to amortise the initial investment in the panels by saving electricity. The fact that the majority of South African residents cannot plan ahead to stay for so many years in one place, makes this option highly unattractive (Addinall, 2011).

Moreover, to use PV panels as the only renewable energy source is not recommended, since the electricity is supplied only during the day and not at peak electricity periods in the morning and evening (Sunny, 2011). One successful way to completely incorporate PV solar power is to use a nationwide two-way grid, where households can spend the non-used generated electricity into the grid and receive money for every Kw (Sun Gen, 2011).

Another point is that the market structure for PV supply is very weak in South Africa as major firms do not yet see a reason to invest money for further development (Bennett, 2011). In general, service providers do not receive any training regarding the products they receive from producers overseas. The after-service also creates difficulties as ordering new parts can take up to a week (Damon, 2011).

3.4.2. Energy policy and policy development tools of different solar energy markets

The following section discusses how other countries have successfully promoted the use of solar generating technology. The second part of this section explores barriers to and supporting tools for the solar industry in the South African economy. Market drivers

and key success factors of the global solar industry which help to improve the South African situation are also identified.

3.4.2.1. An overview of policy and development tools for the promotion of sustainable solar energy

From an international perspective South Africa has several policy options available to promote renewable electricity, and more specifically, solar power. The best support politicians can give is to set short and long-term targets. The aim of this target should be a pre-determined percentage increase per year of renewable energy usage of the South African electricity supply (Green Power, 2011). The final outcome should be that a certain percentage of South Africa's electricity is produced by renewable sources of energy with an ascending tendency. In markets where the importance of protecting the environment is not yet recognised, such targets are vital. The draft White Paper on Renewable Energy is such a target. It suggests that an additional 10 000GWh of renewable energy contribution should be achieved over a ten year period. No subsequent paper has been released (Winkler, 2005b).

To realise such a target, several policy options are available. Generally, for the government there are two means of intervention. The first is the regulation of the amount of electricity produced by setting targets. The second option is to set fixed prices through tariff regulation (Winkler, 2005b).

The electricity feed-in tariff uses the price as the policy instrument. The government sets a price for renewable electricity, usually differentiating tariffs between different technologies. Tariffs are placed by an electricity feed-in law and are granted for a specific period of time (Menanteau, Finon, & Lamy, 2003). The electricity feed-in law also involves distributors buying all renewable electricity in their area.

The portfolio standard is the policy instrument that sets straight the quantity targets for renewable energy production. This policy means that the government sets certain targets called Renewable Electricity Portfolio Standard (REPS), but without details of how to reach these targets (Winkler, 2005b). The REPS agreement includes three fundamental key points (Winkler, 2005b):

- The government sets targets in the form of purchase requirements for the amount of electricity distributed, for each distributor as a percentage of sales.
- Resource eligibility, which means that appropriate renewable electricity technologies include: small hydro, wind, solar thermal, solar PV, biomass, landfill gas for power generation, wave and tidal.
- Trading of credits which are economic instruments that can be used to allow distributors to accomplish the target at a minimal cost, and consequently increase the flexibility of the policy.

A renewable energy obligation is another method of setting the amount of electricity produced. The quantity of electricity generation is made irrelevant through the obligation. The price is determined through bidding of competitors on the Kwh (Menanteau, Finon, & Lamy, 2003).

3.4.2.2. The Regulations environment and supporting infrastructure in South Africa

In the early 2000's extensive research by the government was conducted to assess the renewable energy potential in South Africa. The publication called the "White Paper on Renewable Energy (2003)" presented the outcomes with the aim of achieving 10 000 GWh of renewable energy by 2013. However, the targets for solar and wind energy were very low. The majority was generated through a mix of landfill gas (6%), sugar bagasse (59%), solar water heating (13%), hydro (10%), other biomass (1%) and only 1% wind, and no solar PV or concentrated solar power (Republic of South Africa, 2004). The main objectives of the White Paper are (Winkler, 2005b):

- Increasing access to affordable energy services.
- Improving energy governance.
- Stimulating economic development.

- Managing energy-related environmental impacts
- Securing supply through diversity.

The low price of electricity was and still is the biggest problem for the development of renewable sources. So far it is not possible for renewable technologies to compete with an electricity price of approximately R0.5/ kWh or less. Even with support from the Renewable Energy Feed-In Tariff (REFIT), the subsidies available were not enough to promote the renewable energy technologies (Edkins, Marquard, & Winkler, 2010).

After 2005 when the Kyoto Protocol was confirmed, the financing of carbon was planned to be a successful promoter of renewable energy in South Africa. The anticipated development did not happen, although there was increasing climate mitigation awareness in the country. In fact, an environment levy of 2 c/ kWh on all electricity generated from non-renewable sources was established by the government. The extra income generated through the extra levy is planned to be enough to reach the targets set by the White Paper of 10,000 GWh by 2013 (Edkins, Marquard, & Winkler, 2010).

However, there are still enormous administrative barriers for renewable energy projects. Financers are still hard to come by; the time taken to process licences has been very long and too many agencies are involved; and Environmental Impact Assessment's (EIA) can be a difficult manageable process. Since the publication of the REFIT which guaranteed a decrease in barriers, very little has happened.

The launch of REFIT has given renewable energy a new push in South Africa, as it plans to abolish financial barriers. However, there is still criticism and a high level of risk and uncertainty about the future of investing in renewable technology. Based on these barriers, the forecasts for 2013 are not as good as expected. Another factor which pushes renewable electricity at the moment is the constantly increasing electricity price (Edkins, Marquard, & Winkler, 2010).

After the blackouts in 2008, solar water heaters increased employment, as Eskom's subsidies were already available. The launch of the REFIT program and the increased

use of solar thermal application indicate a successful future for renewable energy in South Africa (Edkins, Marquard, & Winkler, 2010).

3.4.2.3. Market Key Success Factors

The following section discusses the market drivers, which can lead to a sustainable future for the South African solar industry. One of the basic factors needed for the industry to prosper is a good amount of sun radiation. As can be seen in Figure 3.11 the amount of yearly radiation for South Africa is excellent. In comparison, Germany (as the world-leading solar nation) has far less yearly radiation, which gives another indication of South Africa's potential.

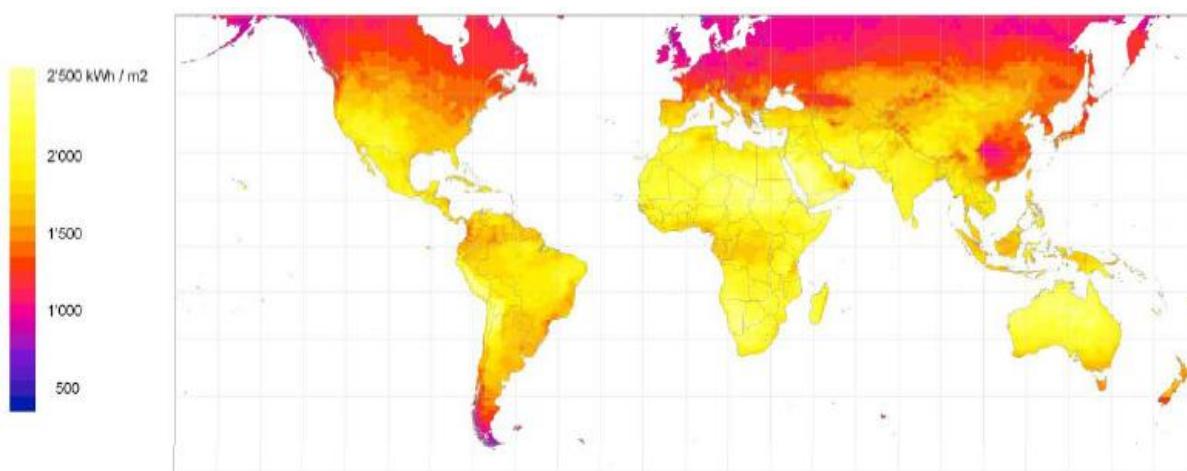


Figure 3.11: Global yearly sun radiation

SOURCE: Solar Feed-in Tariff, 2008

The solar electricity industry is known to be a fairly young industry. This entails a supply chain which is extremely inconsistent, as there are a large number of different technologies and a particular absence of companies that cover the whole value chain. As the industry becomes more mature, it will see more consolidations and fewer technologies.

Besides the fact that companies in the industry vary in organisation and structure, similar characteristics for businesses can be identified (Green Rhino Energy, 2010).

- Firstly, the product parameters are of high importance and include the following sub factors:
 - Technology differentiation is important as it provides more features than just price to compete on. To offer a product or service that is technologically differentiated can be of huge advantage for firms. The most popular and most promising factor is the efficiency of energy generation.
 - Another factor which is important for success is the technology strategy. Companies should have a product portfolio with the latest technology.
 - Product quality and certification from independent bodies such as the TÜV (association for technical inspection) is no longer a unique feature; it is a requirement to gain consumer trust. Independent institutions like the TÜV verify and assure product quality through tests.
- Secondly, the production capability has to be quickly adjustable to higher levels as the demand for infant technologies can skyrocket in a very short time period.
- Thirdly, a firm's cost structure has to be under strict control for sustainable existence. Cost advantages can be achieved through economies of scale and technological advancement.
- Fourthly, to reduce the risk of supply chain processes and to gain more control over quality, vertical integration can be used. Building stronger partnerships with partners in the chain or integrating vertically is vital to ensure success.
- The financial strength of the business is always a good back-up for future development and sustainability.
- The ability of a company to communicate the value to the customer is the final key success factor, as the customer needs to be informed about the offer. Brand strength and access to distribution channels also form part of this.

3.4.3. Products

End-products are systems that produce energy from solar radiation. The choice of technology usually depends on the size of the installation and the annual solar irradiance at the site (Green Rhino Energy, 2010). As can be seen on Figure 3.12, a certain electricity demand will result in the recommendation of a different photovoltaic solar technology. Depending on the electricity need, a suitable solar technique can be chosen.

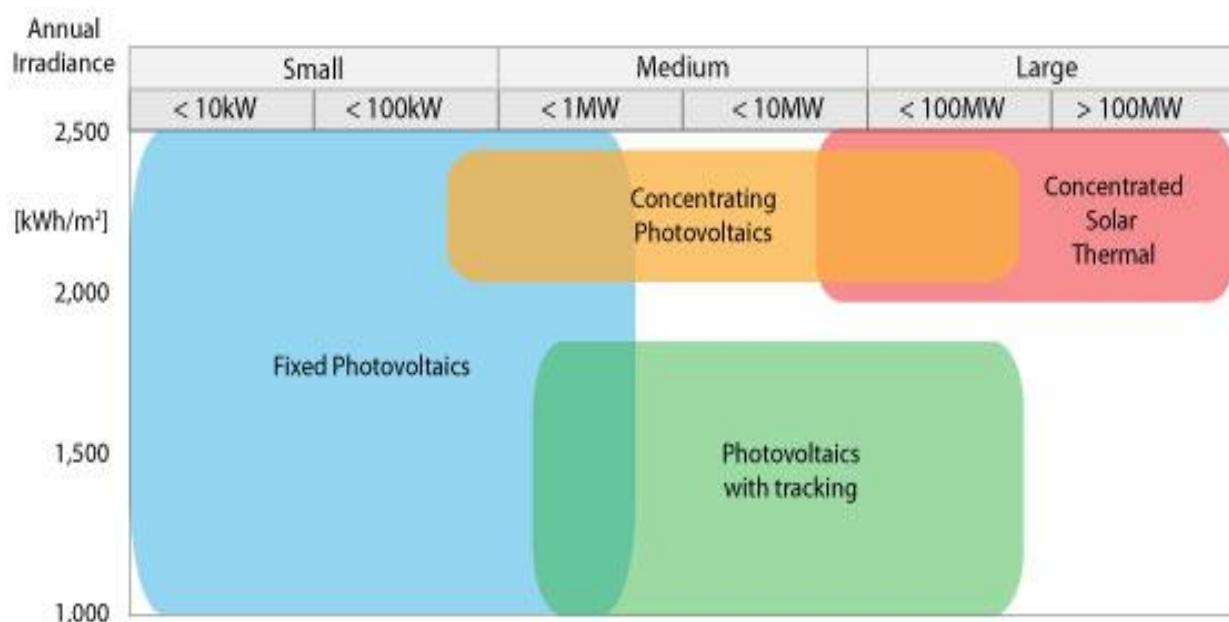


Figure 3.12: Solar Product Range

SOURCE: Green Rhino Energy, 2010

Solar service providers in South Africa commonly have the following product and installation varieties, namely Solar Geysers (Solar Thermal), Solar Batteries and Chargers, Solar Inverters (Transformer), Solar Lighting (PV), Solar Panels (PV), Solar Pool Heaters (Solar Thermal), Solar Gadgets (PV and Solar Thermal) (Solar Suppliers, 2011). It is clear that a review of the value chain will add additional value to the product and identify key success factors for service providers.

3.5. CONCLUSION

The purpose of this chapter was to provide the reader with a systematic background to the global and South African general energy and solar industry. The background information assisted in analysing the current value chain structure of solar service providers, as more knowledge about the environment was gained. Awareness of the external environment is crucial for appropriate recommendations for successful future development.

Having collected all the background information for this study, chapter 4 focuses on the research design and methodology of the study. This describes how the results of the study are produced.

CHAPTER 4 RESEARCH METHODOLOGY

4.1. INTRODUCTION

Whereas chapters 2 and 3 were devoted to gaining in-depth knowledge about the energy markets and the specific models the study is based on, this chapter is focused on the design and implementation of the research process itself.

This chapter outlines the methodology to achieve the objectives stated below. The methodology describes the detailed research process, which creates better understanding of the study itself and the outcome. The research objectives cover the areas of investigation, while the research design describes secondary and primary aspects of the research. The research instrument and population illustrate who and where the respondents are and how they are going to be surveyed. The section on data analysis explains the process and interpretation of the data collected.

4.2. RESEARCH PROBLEM AND OBJECTIVES

The problem statement gives an indication of what a researcher is trying to achieve in the proposed study. It is important for the whole research process to have a good definition of the research problem as it functions as guidance for all later actions (Cline & Clark, 2010). As stated in chapter 1, the purpose of this study is as follows:

- The South African solar industry is in its infancy, characterised by accelerated growth expectancy and fuelled by factors such as new governmental subsidies, the fluctuations of fossil fuel prices and the increasing focus on economical long-term sustainability (Renewable Energy World, 2009). The expected growth necessitates a focus on the market positioning of the solar service providers of the Western Cape

with the aim of taking full advantage of the opportunities associated with this industry.

The study thus aims to produce an adapted⁴ model of Porter's value chain for the Western Cape service providers of solar thermal devices. In addition, key areas for development of the Western Cape solar service provider value chain will be identified and recommendations for improvement in the best interest of all stakeholders will be proposed.

After the overall research problem is identified, research objectives have to be formulated to specify which knowledge has to be gathered to solve the research problem. The defined and explicit research objectives state why this study was carried out (Hague & Jackson, 1995:25). The objectives describe the scope of the research effort and specify what information needs to be addressed by the research process. The objectives give the research process explicit direction which helps to focus on the core areas (Struwig & Stead, 2001).

Figure 4.1 represents the objectives of the study. At the top (bold outline) is the primary research objective. The secondary research objectives are listed underneath the primary objective (thin outline).

⁴ The adaptation of Porter's generic value chain model to the business activities of Western Cape solar service provider.

Determine the current structure of the solar service provider value chain and subsequently areas of improvement to increase growth, stakeholder satisfaction and sustainability

Identify stakeholders in the value chain and understand their link and level of involvement

Determine the types of service providers and their function in the value chain

Determine the current structure of the value chain, including the flow of goods, services and skills

Determine strategies for more utilisation of solar products in the Western Cape

Determine how solar companies in the Western Cape currently use the value chain model to add value

Identify the solar competitive advantage and key success factors of the industry

Propose how solar companies could make use of the value chain in the future to add value

Figure 4.1: A graphical presentation of the research objectives

4.3. RESEARCH DESIGN

The research design is the overall research framework of how the study is conducted, often referred to as the blueprint of a research study. The research design creates more understanding of how this study is undertaken (Tull & Hawkins, 1993:55). Based on this context Figure 4.2 was developed. As can be seen, each step builds up on the previous step, which finally leads to the data analysis and consequently to the findings and recommendations of the study. The final outcome of all steps is directed towards the fulfilment of the research objectives (Welman & Kruger, 2002:34).

The basic methodology consists of certain pillars which are crucial for the success of any study. The pillars entail the type of study, the target population, the data collection method, the research instruments and how the collected data is analysed (Hair, Bush & Ortinau, 2000:35). As can be seen on Figure 4.2 this study incorporates the following steps which form the structure of this chapter: Introduction, research problem and objectives, research design, the outlay, research instruments, research population, data collection, data analysis and conclusion.

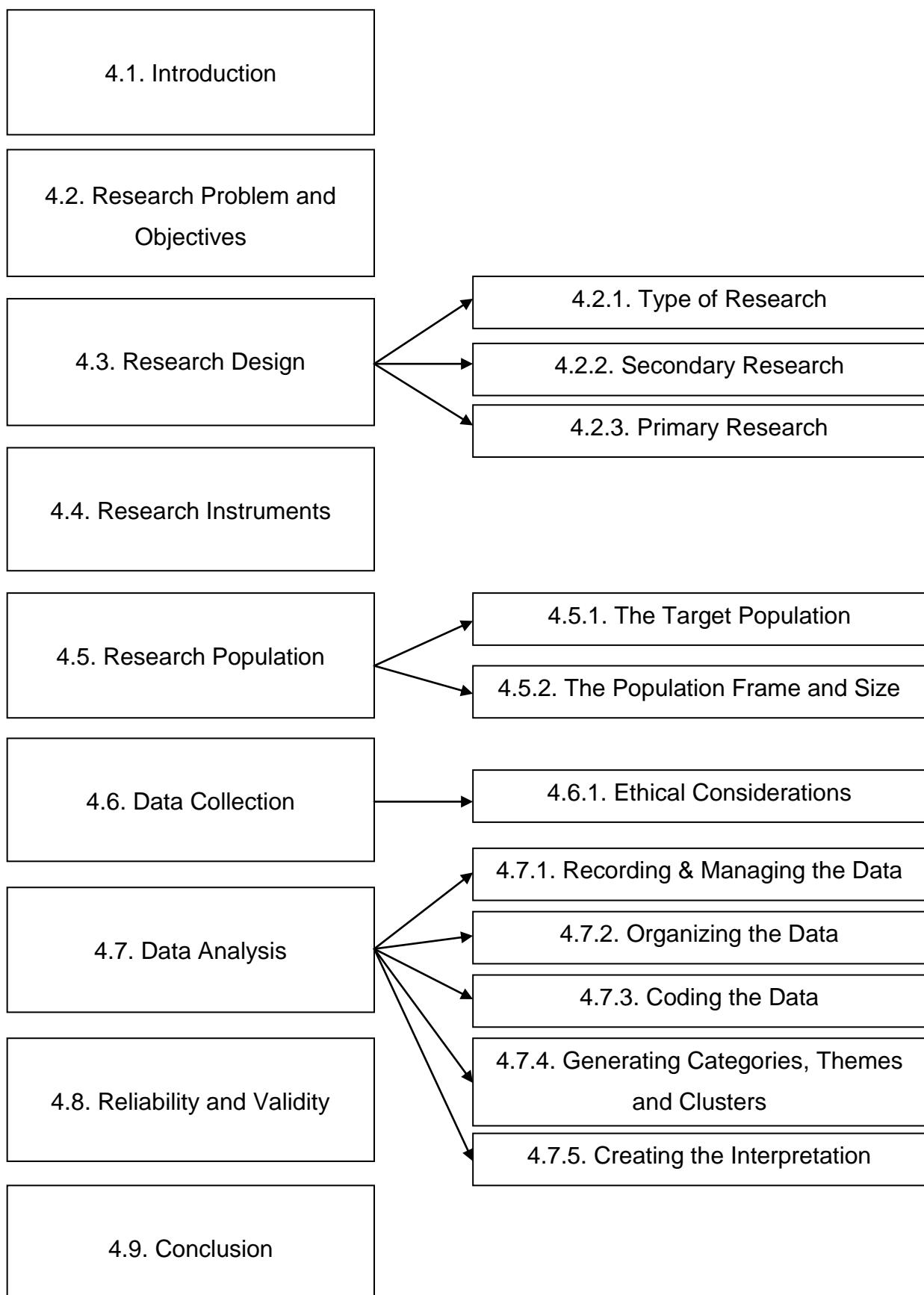


Figure 4.2: A graphical illustration of the research methodology chapter

4.3.1. Type of Research

This is an exploratory and descriptive study of a value chain analysis of solar service providers in the Western Cape solar industry. The study is in exploratory form, as no similar research has been conducted. The descriptive characteristics of the study are based on the fact that the whole solar service provider population of the Western Cape is targeted and consequently conclusions can be drawn to the entire population (Cooper & Schindler, 2003).

The method used to clarify the objectives includes a secondary data analysis followed by the primary research process. The research schemes utilised to realise this study were qualitative. Based on the fact that this study investigated a relatively unfamiliar field, qualitative research gives the opportunity to gain detailed insight into the area studied (Zikmund & Babin, 2010:129).

4.3.2. Secondary Research

Data was used which was gathered and recorded prior to the current project. The purpose of secondary research in this study was to gain more knowledge about the solar industry and the value chain model. Advantages were that the availability and the acquisition were faster and less expensive. Disadvantages were possible outdated information, variation in definition terms and different units of measurements. Disadvantages were limited by cross-checking the data, which means to compare similar data used within this study (Bryant & Wortman, 1978).

The external mediums which were utilised to address the research problem were books, academic journals, solar industry magazines, Internet articles, master and doctoral dissertations and case studies. Information that included internal data of the South African solar industry were used, which were generated by Datamonitor, the Department of Environment Affairs and Tourism of the Republic of South Africa, University of Cape Town Research Centre and the South African Department of Energy and Minerals. Moreover, several online databases were used: EBSCOhost Research Databases, Labour Library, SA Media, SA ePublications, Sabinet Online and Science Direct. To explore the mentioned databases the following research terms were used:

value chain, service provider, renewable sources of energy, solar power, Western Cape.

The secondary data provided information to explore the topic of solar power and the general electricity generation. An overview of the South African solar and general electricity industry is provided. In addition, a definition of electricity terms and values is given to clarify the understanding of the study. Lastly, a detailed report of the South African solar industry is presented including market key success factors and possible external supporting factors. This information serves as the foundation on which the study is based.

4.3.3. Primary Research

Primary research consists of data collected or observed from firsthand experience (Business Dictionary, 2009). In this study, primary research was used to adapt Porter's Value Chain model and identify key areas for future success of solar service providers in the Western Cape. The primary research was in qualitative form which addresses objectives through techniques that allow the researcher to provide sophisticated interpretations of phenomena without depending on numerical measurement. It focuses on in-depth inner and new insight (Zikmund & Babin, 2010:129). The different phases of the primary research of this study are as follows (Figure 4.3):

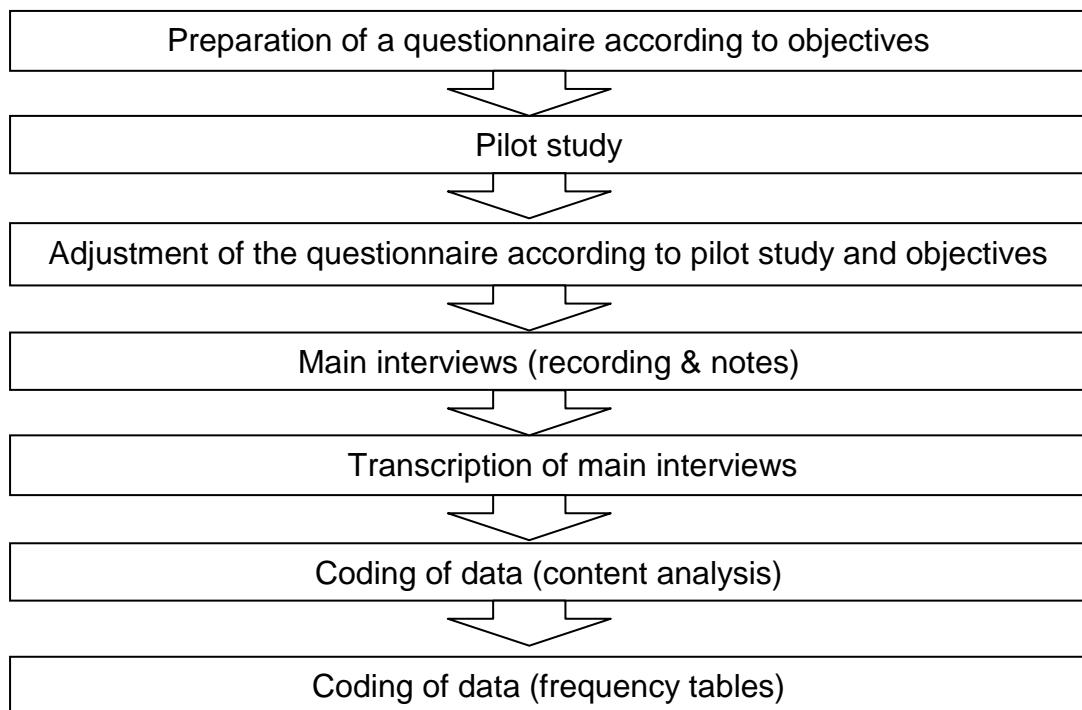


Figure 4.3: The Primary Research

A questionnaire was set up according to the primary and secondary research objectives of the study. Every secondary research objective has its own question(s), which assured that all knowledge necessary to answer the objective was asked (Frary, 2004).

The study includes a pilot study at the beginning of the research process. A pilot study is a small-scale research project that collects data from respondents similar to that which was used in the real study. Pilot studies can also be used to fine-tune the research objectives (Zikmund & Babin, 2010:62). The purpose was to gain initial real-time information about the South African and Western Cape solar industry. Moreover, it helped the researcher to be more specific in the following secondary and primary research.

The knowledge gained through the pilot study (about the industry and possible future developments) was used to improve the questionnaire for the main interviews. The final direction of the study was set after the specific information about the questions which had to be asked to gain this knowledge was known. It is only possible to ask the right question if the purpose of the question is known (Babbie & Mouton, 2003:112).

For this study, a qualitative research approach was used in the form of semi-structured

interviews. The main interviews were conducted and based on the conclusions drawn from the literature review and the pilot study. The semi-structured interviews entailed questions with open- and closed-ended questions. The interviews were audio-taped and transcribed verbatim (Zom, 2004).

Particularly detailed information was needed to identify and adapt the solar service provider value chain in the Western Cape. The managers of solar service providers were interviewed face to face. The advantage of semi-structured interviews was that the direction was not lost and the prepared framework assured that all questions were asked (Zom, 2004).

4.4. RESEARCH INSTRUMENT

The following section explains the research instrument used in this study, which was a semi-structured interview guide. Firstly, general descriptions of the types of data which were created of the questionnaire are presented. Secondly, the type of analysis used to generate the data from the questions is stated. Lastly, the interview guide and the interviews are described in detail.

4.4.1. Type of Data

There are four different types of data, all of which have different measurement characteristics. The type of data determines how the answers to the questions can be analysed. The application of each data type can be seen in section 4.4.3 in Table 4.1. A description of the various data types and their characteristics is as follows (Struwig & Stead, 2001:165):

- Nominal Data

In exploratory research, nominal data is probably more widely collected than anywhere else. With nominal data, information is collected on a variable that is natural or can be grouped by design into two or more groups that are mutually exclusive and collectively exhaustive. The counting of categories in each group is the only possible arithmetic operation when a nominal scale is employed. Most

questions of the questionnaire generated nominal data, as the answers are categories or themes.

- **Ordinal Data**

Ordinal data includes the characteristics of nominal scale plus an indicator of order. Ordinal data is possible if the transitivity postulate is fulfilled. By “postulate” is meant that: If (a) is greater than (b) and (b) is greater than (c), then (a) is greater than (c). Consequently, the use of ordinal data implies a statement of greater than or less than, without stating by how much. This type of data was not very often generated, as the questions asked for categories and themes without any order.

- **Interval Data**

Interval data has the same characteristics as nominal and ordinal data plus that it incorporates the concept of equality of interval. For instance, the distance between 1 and 2 equals the distance between 3 and 4. When a scale is interval, the arithmetic mean is used as the measurement for central tendency. Nevertheless, it is not possible to state that 1 and 2 are twice as much than 3 and 4 as there is no zero. Only question 5.4 of the questionnaire created interval data, as the question was in form of a scale measurement.

- **Ratio Data**

Ratio data incorporates all the characteristics of the previous types of data, plus the absolute zero or origin. Ratio data represents the actual amounts of variable. Measures of physical dimensions such as weight, height, distance and area are examples. In exploratory research, this criterion is only rarely met. However, ratio data was the second most generated data in this study. Several questions asked for information like the turnover of the solar service provider.

4.4.2. Type of analysis

The following section explains the different analysis methods used in this study, namely content and frequency analysis. Content analysis was used to transform the raw interview data into an appropriate form for further analysis and recommendations. The frequency method was used to further interpret the data.

4.4.2.1. Content Analysis

Content analysis measures the semantic content or the “what” aspect of a message. Its breadth makes it a flexible and wide ranging tool that can be used as a methodology or as a problem-specific technique. Content analysis follows a systematic process, starting with the selection of an unitisation scheme (Cooper & Schindler, 2003:462):

- Syntactical units are illustrated by words which are the smallest and most reliable units.
- Referential units may be objects, events or persons to which an expression refers. For instance, someone could refer to a person as classic.
- Propositional units use several frameworks. It is possible to show the relationship between the actor, the mode of acting and the object.
- Thematic units are higher level abstractions inferred from their connection to a unique structure or pattern in the content. A response to a question about the working conditions could refer to the past, the present and the future.

The data to be content analysed includes material of interest like: books, chapters, historical documents, speeches and interviews. Any recorded activity with its syntax and semantics is subject to measurement and analysis. Therefore, it can be used to analyse written, audio and video data (Graneheim & Lundman, 2003).

The first step in analysis required that the units developed reflected the objectives for which the data was collected. The categories which were selected were keywords and referential units. The first pass through the data produced a few general categories or themes. These categories were mutually exclusive and contained only one concept dimension. Since most first responses evolve only through specific actions, the second step was to use propositional units. This identified headings and themes for the specific actions acknowledged earlier (Cooper & Schindler, 2003:463).

After these headings and themes were identified the content analysis was complete and the new data was ready for further analysis. This approach was used for all open-ended questions of the interview, with the purpose of reducing the transcribed interviews to usable data for further analysis. The outcome and the application are discussed in section 4.7 of this chapter.

4.4.2.2. The frequency analysis

Frequency distributions summarised and compressed data by grouping it into classes and recording how many data points fell into each class. That is to say, they showed how many observations on a given variable had a particular attribute (Carson, Gilmore, Perry & Gronhaug, 2001:172).

The frequency distribution is the foundation of descriptive statistics. It is a prerequisite for both, the various graphs used to display data and the basic statistics used to describe a data set (mean, median, mode, variance, standard deviation, and so forth). Frequency distributions are generally used to describe both nominal and interval data, though they can describe ordinal data (Carson *et al.*, 2001:173).

A frequency distribution was constructed for virtually all possible data sets. They were especially useful whenever a broad, easily understood description of data concentration and spread was needed (Carson *et al.*, 2001:172). Regardless of whether manual or automated methods are used to prepare a frequency distribution, it is usually necessary to code data numerically to facilitate further data analysis (Carson *et al.*, 2001:175).

This study made use of the frequency approach by measuring the occurrence of certain themes and categories in the results of the content analysis of the transcribed interviews. This process is described in more detail in section 4.7 of this chapter.

4.4.3. The Questionnaire

The questionnaire was set up according to the final research objectives, based on the literature review and the pilot study (See Appendix B). Firstly, the questionnaire captured accurate information from respondents. Secondly, it provided structure to the

interview. Thirdly, it presented a standard form on which facts, comments and attitudes could be written down. Lastly, it facilitated data processing as answers were recorded in a common way on each questionnaire (Hague & Jackson, 1995:66).

The semi-structured questionnaire is a flexible tool allowing probing to find out the reasons for a certain answer (Hague & Jackson, 1995:64). This technique was used to collect qualitative data by setting up a situation that allowed a respondent the time and the scope to talk about their opinions on a particular subject (Sociological research skills, 2008).

The opening section provided the interviewee with an overview and information about the purpose of the study. The interviewer was introduced and the procedure explained (Willis, 2007:229). Moreover, the respondent was informed about the intended use of the data. The methods to keep information confidential were discussed and permission to tape record the interview was asked.

Section two of the interview was directed at the main themes identified in the literature review (Willis, 2007:229). The main themes were identified in the research objectives, namely the adaptation of Porter's value chain and the identification of key success areas. The guide allowed freedom to probe into answers and adapt to the situation in order to gain additional insight.

The closing section was about future perspectives and opportunities. The main issues discussed during the interview were summarised and the interviewees were motivated to add more of their relevant knowledge (Willis, 2007:229). Furthermore, future action was mentioned, by asking each interviewee for availability of additional telephonic questions. Lastly, the respondent was thanked for his or her time.

The questionnaire forms the heart of the study, as the final outcome can only be as good as the information gathered (Malhotra & Birks, 2000). To create more logic and more background knowledge about the questionnaire in Appendix B, Table 4.1 was created. Column one states the purpose of the group of questions and column two the number. Column three states the type of questions, which were open-ended, closed-ended as well as scale measurement. The type of analysis can be seen in column four.

The last column shows the type of data which was created by the specific question.

Table 4.1: Summary of Questionnaire Framework

Purpose of Question	Number of Question	Type	Type of analysis	Type of Data
General information	1.1	Closed-ended	Frequency analysis	Nominal
	1.2	Closed-ended	Content + Frequency analysis	Ratio
	1.3	Closed-ended	Content + Frequency analysis	Nominal
	1.4	Closed-ended	Content + Frequency analysis	Ratio
	1.5	Open-ended	Content + Frequency analysis	Nominal
	1.6	Closed-ended	Content + Frequency analysis	Ratio
Service provider market	2.1	Closed-ended	Frequency analysis	Nominal
	2.2	Closed-ended	Frequency analysis	Nominal
	2.3	Closed-ended	Frequency analysis	Nominal
Identify stakeholders in the value chain and understand their link and level of involvement	3.1	Open-ended	Content + Frequency analysis	Nominal
	3.2	Closed-ended	Frequency analysis	Nominal
	3.3	Open-ended	Content + Frequency analysis	Nominal
	3.4	Open-ended	Content + Frequency analysis	Nominal
	3.5	Open-ended	Content + Frequency analysis	Nominal

Section 4:	4.1	Closed-ended	Content + Frequency analysis	Nominal
Determine the types of service providers and their function in the value chain	4.2	Closed-ended	Content + Frequency analysis	Nominal
	4.3	Open-ended	Frequency analysis	Ordinal
	4.4	Open-ended	Content + Frequency analysis	Nominal
Section 5:	5.1(a)	Open-ended	Content + Frequency analysis	Nominal
Determine the current structure of the value chain, including the flow of goods, services and skills	5.1(b)	Open-ended	Content + Frequency analysis	Nominal
	5.2	Open-ended	Content + Frequency analysis	Nominal
	5.3	Open-ended	Frequency analysis	Nominal
	5.4	Scale measure	Frequency analysis	Interval
	5.5	Open-ended	Content analysis	Nominal
	5.6	Open-ended	Content analysis	Nominal
	5.7	Closed-ended	Content + Frequency analysis	Nominal
	5.8	Closed-ended	Frequency analysis	Nominal
	5.9	Open-ended	Content + Frequency analysis	Ratio
	5.10	Closed-ended	Frequency analysis	Nominal
	5.11	Closed-ended	Content + Frequency analysis	Nominal
	5.12	Closed-ended	Content + Frequency analysis	Nominal
Section 6:	6.1	Closed-ended	Frequency analysis	Ratio
Determine	6.2	Closed-ended	Frequency analysis	Ratio
	6.3	Closed-ended	Frequency analysis	Nominal

strategies for more utilisation of solar products in the Western Cape	6.4	Open-ended	Content + Frequency analysis	Nominal
	6.5	Closed-ended	Frequency analysis	Nominal
	6.6	Closed-ended	Frequency analysis	Ratio

Section 7:	7.1	Open-ended	Frequency analysis	Nominal
	7.2	Open-ended	Frequency analysis	Nominal
Determine how solar companies in the Western Cape currently use the value chain concept to add value	7.3	Open-ended	Content + Frequency analysis	Nominal
	7.4	Open-ended	Frequency analysis	Nominal
	7.5	Open-ended	Content + Frequency analysis	Nominal

Section 8:	8.1	Closed-ended	Frequency analysis	Nominal
	8.2	Open-ended	Frequency analysis	Nominal
Identify the solar competitive advantage and key success factors of the industry	8.3	Open-ended	Frequency analysis	Nominal
	8.4	Open-ended	Content + Frequency analysis	Nominal
	8.5	Open-ended	Content + Frequency analysis	Nominal

4.4.4. The Interview

Respondents were interviewed face to face in the form of semi-structured interviews, which assisted with the adoption of the service provider value chain and the identification of key areas. The interview consisted of an introduction, the main part and the conclusion (Willis, 2007:229).

At the start of the research process, a pilot study was undertaken in the form of semi-

structured interviews. The interviews had the same form as the main interviews of the study mentioned above. This approach provided more clarity about the exact direction of the study and reduced the risk of heading in the wrong direction (Zikmund & Babin, 2010:62). This approach assisted the researcher to gain real-time knowledge about the solar industry and to finalise the questionnaire (Willis, 2007:235).

The semi-structured interview is especially effective with busy executives and management. Basic market intelligence, such as trends in technology, industry structure, market demand, competitive activity, and similar information can be generated through the interviews. The open structure ensures that unexpected facts or attitudes can be pursued easily (Kumar, Aaker & Day, 2002).

Furthermore, a positive rapport between interviewer and interviewee evolves, which makes it possible for the interviewer to observe feelings and emotions. Complex questions can be discussed and clarified, as the interviewer can repeat or explain the question (Sociological research skills, 2008).

4.5. POPULATION

The objective of most research projects is to obtain information about the characteristics or parameters of a population. A population is the aggregate of all the elements that share some common set of characteristics (Malhotra, 2004:314). This study made use of the entire population to adapt Porter's value chain and to identify key success areas for solar service providers in the Western Cape.

4.5.1. The Target Population

The target population is the collection of elements or objects that possess the information sought by the researcher and about which inferences are to be made. Defining the target population involves translating the problem definition into a precise statement of who should and who should not be included in the sample. The target population is defined in terms of elements, sampling units, extent, and time (Malhotra, 2004:315).

The target population of this study was solar service providers who were active in the solar value chain in the Western Cape, South Africa. The service provider could be any type, from an online retailer to a physical location-based shop. Respondents were general managers/ owners of the service providers, as they had an all-round knowledge of their company. The target market of selected solar service providers consisted of private customers (private households and businesses) and public institutions (hospitals; schools; city halls, etc.).

4.5.2. The Population Frame and Size

A sample frame is a representation of the elements of the target population. It consists of a list or set of directions for identifying the target population. Errors can occur if the list does not include certain elements of the population (Malhotra, 2004:316).

The sample size refers to the number of elements to be included in the study and also gives an indication of how projectable the findings are to the entire population (Cooper & Schindler, 2006:166). The population list of the present study was created through a variety of sources. Firstly, the official Eskom web page lists 55 service providers situated in the Western Cape. Secondly, an Internet site called “Solar Suppliers” lists 33 solar service providers in the Western Cape, which are partly the same, but it also identifies different ones to those on the Eskom web page. These lists identified all service providers who could be contacted to be interviewed. In addition, information of more service providers was gathered during the interviews to update the sampling list. The final population list included 77 different solar service providers, all of whom were contacted to take part in this study. In the end, the main interviews included 18 managers/ owners of solar service providers in the Western Cape, who had agreed to be interviewed.

The pilot study included a sample of 5 respondents who had in-depth knowledge about the industry. One of the respondents was an industry expert from the renewable energy research department at the University of Cape Town. The other 4 respondents were industry experts of solar companies from all over the world, who were doing or wanted to do business in South Africa. The mix of respondents would assure access to a broader variety of knowledge, which provided more certainty with the direction of the

research.

Some service providers of the solar industry population might be excluded, as new ones have entered or old ones have left the market, since the Internet site was updated. Another subtraction has had to be made as not all service providers in the Western Cape would be interviewed, consequently a projection of results to the whole of South Africa solar industry is limited (Zikmund & Babin, 2010:404).

4.6. DATA COLLECTION

The pilot study took place in the first few weeks of the research process. Appointments were made 3 weeks beforehand via telephone or e-mail. Respondents who answered or agreed to an interview were questioned. The length of the interview was limited to a maximum of 30 minutes. Respondents were interviewed face to face. Interviews were in form of semi-structured interviews with the predetermined questionnaire.

The service provider respondents of the pilot study also formed the final stage in preparing the final questionnaire for the main interviews. The so called “pre-test” is essentially a dry run in which the interviewer goes through the questionnaire with respondents, some of whom should be members of the relevant population who can give realistic advice (Oishi, 2003:56).

The actual qualitative data collection took place face to face with the identified general managers/ owners in the form of semi-structured interviews. The question framework was pre-determined to the interview to gain all information and make the analysing process more efficient. The scheduled time for one interview amounted to a maximum of 30 minutes. Appointments were made 3 weeks in advance via telephone or e-mail. All interviews were carried out according to the same scheme to assure similar conditions and diminish deviation. The laddering approach was used to sequence answers in relation to topics. This technique assured that gathered information was in order and interviews did not get out of control. Interviews were recorded and transcribed at a later stage (Zikmund & Babin 2007:467).

4.6.1. Ethical Considerations

After the interview plan had been finalised the process of ethical clearance started. Firstly, respondents needed to give informed consent to participating. This meant that they needed to be fully informed about the research in which the interview was going to be used. They needed to know that their privacy and sensitivity would be protected, and what was going to happen with their information after recording. A letter of consent was sent out to respondents who had agreed to be interviewed, which addressed these criteria. Secondly, in the interview setting, total anonymity was guaranteed to the respondent to assure total honesty and no doubts regarding the competition from their side (Henning, Van Rensburg & Smit, 2004:73).

As respondents had to stay anonymous, only synonyms are used for the solar service providers, for instance “Company 1”. Consequently it was assured that the information gathered was treated in the interest of all parties involved.

4.7. DATA ANALYSIS

Data analysis places the collected data into some kind of order or format so that it takes on meaning. The qualitative data gathered (pilot and main interviews) in the semi-structured interviews was in the form of open- and closed-ended responses. The answers were used to adapt to Porter’s value chain and to identify key success activities for solar service providers in the Western Cape (Kress, 1988:238).

4.7.1. Recording and Managing the Data

A research design includes a plan for recording data in a systematic manner that is appropriate for the setting, the participants, or both, and that facilitates analysis. Awareness has to be given that the techniques for recording interviews are not intruding on the flow of daily events. To prevent any kind of interference, for instance the procedure to take notes during the interviews, all interviews were recorded (Marshall & Rossman, 2006:151).

To transcribe the interviews means to put the audio recorded interviews into written form. Every interview has its own transcribed section (Appendix A). This step assures that all data collected is available for analysis and interpretation (Zikmund & Babin 2010:490).

4.7.2. Organising the Data

In the beginning of the analysis, it was important to spend some time organising the data. The approach followed was to list on note cards the data that had been gathered, perform the minor editing necessary to make field notes and recording retrievable, and generally clean up what seemed to be overwhelming and unmanageable. The researcher also logged the type of data according to the dates and times when, the place where, and the person with whom it was gathered. After the organising of the data was done, the next step could be started, namely the coding (Marshall & Rossman, 2011:210).

4.7.3. Coding the Data

Coding data is the formal representation of analytical thinking. The purpose of coding the data was to generate categories and themes. The next part was to apply some coding scheme to those categories and themes. Codes may take several forms like, abbreviations of key words, topics or numbers. The codes came from varied sources, including the literature review, the actual words and behaviour in the data and the creative insight of the researcher. As coding proceeded, the researcher saw the ways in which data/codes grouped or clustered together in a pattern or sequence (Saldana, 2010:185).

The transcribed interviews were coded using a content analysis approach. Coding was used to reduce the large number of individual responses to a few general categories and themes of answers (Zikmund & Babin 2010:490).

Content analysis is a data reduction technique that has been used extensively to pick out patterns in face to face interviews. Once key words or themes were identified in textual material, the frequency with which those themes were mentioned was counted.

With open-ended questionnaire responses the first step was to read all of the responses to a specific question and note patterns or trends. The data was reduced until the core themes were identified (Zikmund & Babin 2007:495).

4.7.4. Generating Categories, Themes and Clusters

The salient identification of themes, recurring ideas and patterns of belief that link people and settings together is the most intellectually challenging phase of data analysis. Throughout the process of questioning the data and reflecting on the conceptual framework, the researcher engages the ideas and the data in significant intellectual work (Marshall & Rossman, 2011:210).

After the data was coded and common themes were recognised, frequency tables were created to analyse the rate of occurrence of each identified theme (Hague & Jackson, 1995:122). A frequency rate of 60% and higher was categorised as a commonality or similarity. A frequency rate of less than 60 % was classified as a trend or difference.

As categories and themes were developed and coding was well under way, the researcher began a process whereby he offered integrative interpretations of what he had learned. Interpretation brings meaning and coherence to the themes, patterns, and categories, developing linkages and a story line that makes sense and is engaging to read. Interpretation means attaching significance to what was found, making sense of the findings, offering explanations, drawing conclusions, extrapolating lessons, making inferences, considering meanings and otherwise imposing order (Marshall & Rossman, 2011:218).

The interpretation of identified themes and categories confirmed trends, differences, commonalities and similarities of activities in the solar service provider value chain. The interpretation of primary and secondary data aided in the generation of an adjusted value chain model. The value chain was adjusted only with commonalities of more or equal than a frequency of 60%. Moreover, the data identified key areas for the development of the Western Cape solar service provider value chain, which entailed all themes and categories identified with more and less than 60% frequency.

4.8. RELIABILITY AND VALIDITY

Three concepts that are closely related are validity, reliability, and objectivity. Reliability identifies the stability or consistency of the research results. Validity refers to how well the research measures what it claims to measure. Objectivity refers to the fact that the researcher must not have preconceived notions as to what the outcome should be (Eisner, 1991:58). This study took these principles as guidance throughout the research process in the following manner:

4.8.1. Reliability

Although the term “reliability” is a concept used for testing or evaluating quantitative research, the idea is most often used in all kinds of research. If we see the idea of testing as a way of information elicitation then the most important test of any qualitative study is its quality. A good qualitative study can help us understand a situation that would otherwise be unknowable or confusing (Eisner, 1991:58). This relates to the concept of a good quality research. Reliability is a concept in order to evaluate quality in a quantitative study with a “purpose of explaining”, while the quality concept in a qualitative study has the purpose of “generating understanding” (Stenbacka, 2001:551).

In qualitative research, reliability is viewed as being synonymous with consistency. There are three different types of reliability identified (Struwig & Stead, 2001:133):

- Quixotic reliability refers to any observational method that continually provides the researcher with the same findings.
- Diachronic reliability is similar to test-retest reliability that is used in quantitative research in the study’s observations which are stable over time. It is useful when examining entities that remain relatively unchanged over a period of time. For interviews it is possible to be coded on two separate occasions and compare the two coding schemes.
- Synchronic reliability refers to the extent to which observations from different sources are similar within a specified time period. For instance, in interviews when

the researcher assigns codes or categories to data, these codes or categories should be confirmed by other observers.

In the data analysis of this study, the researcher made use of a diachronic reliability approach. To assure reliability, the data was coded on two different events and the results were compared to each other. In case of variations, adjustments were made. During the interview, notes were made on the questionnaire and the interviews were recorded. After the recorded interviews were transcribed, the results were compared to the notes on the questionnaire.

To address the research objectives of this study it was important to assure reliability in the interviews themselves. To assure interview reliability the semi-structured interview was examined in a pilot study to make sure the respondents understood the questions, found them to be useful and the time limit was not exceeded (Denzin & Lincoln, 2005:869).

4.8.2. Validity

The concept of validity is described by a wide range of terms in qualitative studies. This concept is not a single, fixed or universal concept, but rather a contingent construct, inescapably grounded in the processes and intentions of particular research methodologies and projects (Winter, 2000:1). Although some qualitative researchers have argued that the term “validity” is not applicable to qualitative research, they have realised the need for some kind of qualifying check or measure for their research. For instance, Creswell & Miller (2000) suggest that validity is affected by the researcher’s perception of validity in the study and his/her choice of paradigm assumption. As a result, many researchers have developed their own concepts of validity and have often generated or adopted what they consider to be more appropriate terms, such as quality, rigour and trustworthiness (Davies & Dodd, 2002; Lincoln & Guba, 1985; Seale, 1999).

All in all, the presence of validity in qualitative research is debatable as discussed above. Nevertheless there are some ways of confirming or validating qualitative data, namely descriptive validity, interpretative validity, theoretical validity, triangulation,

researcher effects and applicability (Maxwell, 1992; Miles & Huberman, 1994; Patton, 1990). For this study, the following approaches were used:

- Descriptive validity refers to whether the information provided is factually accurate and comprehensive or whether it has been partly omitted or distorted. Acquiring the assistance of participants or other researchers in examining the accuracy of the data can improve the descriptive validity of the data (Miles & Huberman, 1994). If different parties disagree on the interpretations of the data then agreement has to be found to assure validity.
- Theoretical validity refers to whether there is common agreement between the researcher and the respondents about the concepts and theory used in the study (Maxwell, 1992). The findings of this study were discussed with the manager of one solar service provider who agreed to a discussion. This final input assures the validity of the final data.
- Despite the small sample, saturation was achieved. No new points emerged from additional interviews, and answers repeated themselves. This suggested a high degree of internal validity and consistency in the results. Several consistent themes and specific issues emerged from the analysis.
- Generalisability and applicability refer to the degree to which the data can be generalised within the group of study (Miles & Huberman, 1994). Based on the fact that this study's population frame were all solar service providers in the Western Cape, generalisations and applications could be made to the entire target population; consequently validity was very high.

4.9. CONCLUSION

This chapter discussed the research methodology followed in this study to analyse the solar service provider industry in the Western Cape. The research objectives were stated. The primary objective was to determine the current structure of the solar service provider value chain and subsequently areas of improvement to increase growth, stakeholder satisfaction and sustainability.

The study was in exploratory form, as no similar research in the same field had been conducted previously. Therefore qualitative research techniques were used to address the research objectives. The research design used to gain the knowledge to answer the research objectives was semi-structured interviews. A questionnaire in Appendix B was set up according to the information gained through the secondary research and the pilot study. The entire population of solar service providers, as stated in the Eskom and the Solar Suppliers web pages, was targeted. Only managers and owners of the businesses were interviewed.

The interviews were transcribed to enable the data analysing process. Firstly a content analysis approach was used to generate categories and themes. In addition, a frequency analysis was conducted for certain questions to get more information. The adapted solar service provider value chain consisted of only of activities which were mentioned by more than 60% of the respondents.

The following chapter 5 represents the findings of this study, which were created according to the methodology stated in this chapter. The findings represent the data gathered through the primary research process, and contribute to answer the research objectives of this study.

CHAPTER 5 FINDINGS AND DISCUSSIONS

5.1. INTRODUCTION

Whereas chapter 4 described in detail the methodology and how the primary and secondary research was conducted, this chapter presents the findings of the primary and secondary research of the study.

The chapter is divided into two parts. The first part represents the findings for each question of the semi-structured interview (Appendix B). The second part shows cross findings of different questions, where the coded findings were compared. The content and frequency analysis approach was used to generate valuable knowledge, which is used in the final recommendations chapter.

5.2. PROFILE OF THE SAMPLE

The research population was examined in terms of gender, the years working for the solar service provider, job description, the yearly turnover, the vision and mission statement and finally the tendency of sales in the last year.

5.2.1. Gender profile of interviewees

As can be seen in Figure 5.1, 78% (n=14) of the respondents were male and 22% (n=4) were female.

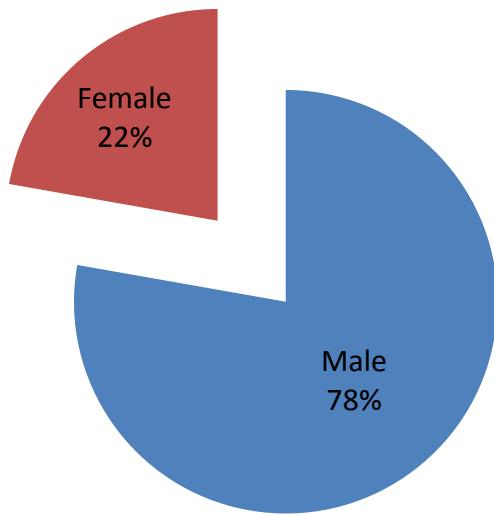


Figure 5.1: Gender distribution of the sample

5.2.2. Employment tenure

The “employment tenure” refers to the length of time an employee had worked for the current employer in the present position. The employment duration at a solar service provider gave insight into the patterns of the flow of skilled labour in the solar industry. As illustrated in Table 5.1, the majority of respondents had been working at the same place for less than 4 years. The short employment durations indicated that respondents had collected knowledge from several service providers of the industry or from joining the industry as it was in an infant stage.

Table 5.1: Duration of employment

>0 Year(s)	• 13 Respondents
>4 Years	• 4 Respondents
>10 Years	• 1 Respondent

5.2.3. Job description and responsibility of the participants

In the research, only directing managers and/ or owners were interviewed, as these positions had all-round knowledge about the business process of the service provider. Consequently, the interviews provided valuable information with regard to how solar service providers conducted their business. Furthermore, the answers to the questions were reliable and valid as the same type of position in the service provider was questioned. The purpose of this question was to assure that managers or owners were interviewed.

5.2.4. The Yearly Turnover

The yearly turnover of solar service providers is illustrated in Figure 5.2. The majority of service providers ($n=10$) had a yearly turnover between R1 – R5 million, followed by ($n=6$) R5 - R15 million.

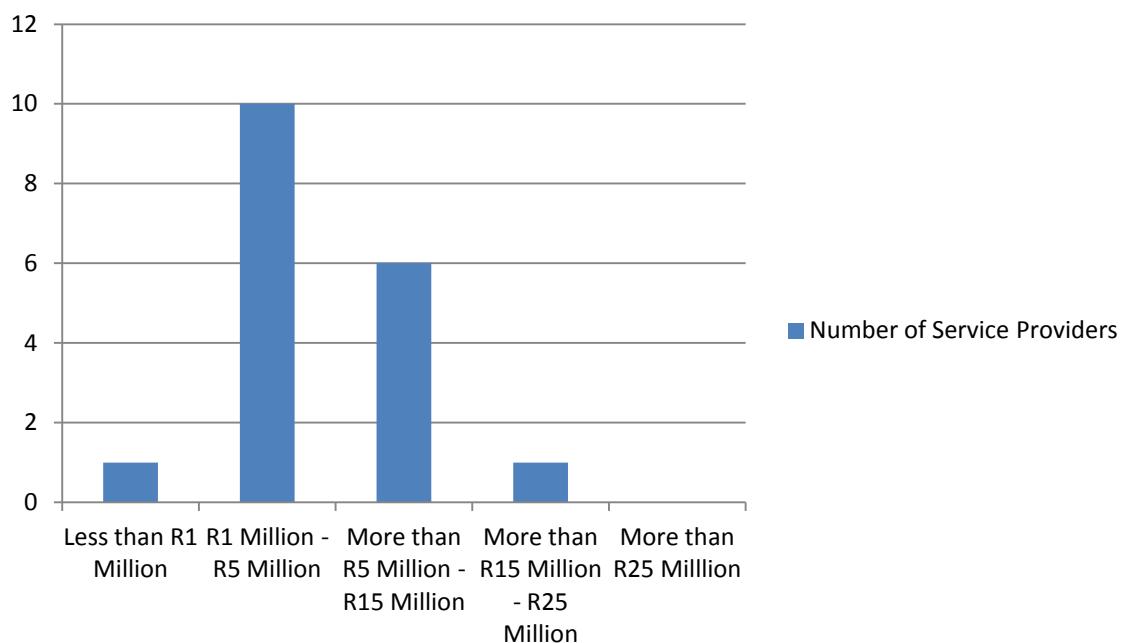


Figure 5.2: Yearly Turnover

5.2.5. The Vision and Mission Statement

The vision and mission statement of solar service providers gave an indication of what their main focus was. The statement was one basic part of a strategy and consequently told a lot about the direction a service provider was heading in. The most popular

themes namely sustainability, environment protection, economical money-saving and customer satisfaction, were identified through a content analysis. As can be seen in Figure 5.3 the most common aim was to offer the customer a money-saving solution, followed by environmental protection. No other themes were mentioned by the respondents.

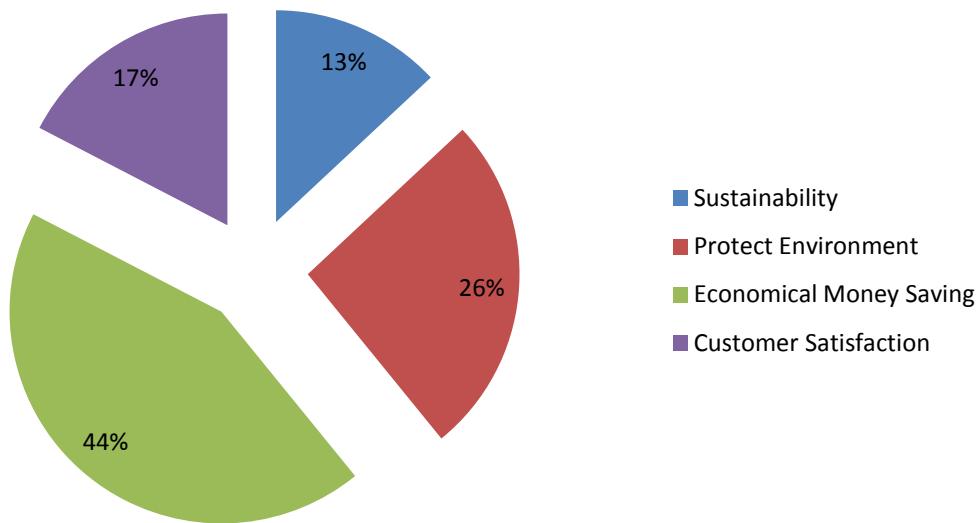


Figure 5.3: Main Focus of Vision and Mission Statements

5.2.6. Sales tendency of the Past Year

The knowledge about the sales in the last year indicated how the market for solar service providers was developing. Moreover, indications could be made in relation to other activities, for instance to choose the right target market, or about the success of strategies. The majority of solar service providers had had an increase in sales in the past year, as can be seen in Figure 5.4. The figure does not take the amount of products sold by each service provider into consideration. It only considers whether the service provider has increased, decreased or stable sales in the last year. All solar service providers had increased or decreased their sales from +50% to -50%, besides one outlier which increased sales by 100%. The solar market (based on the responses) had grown by 10% on average in the last year.

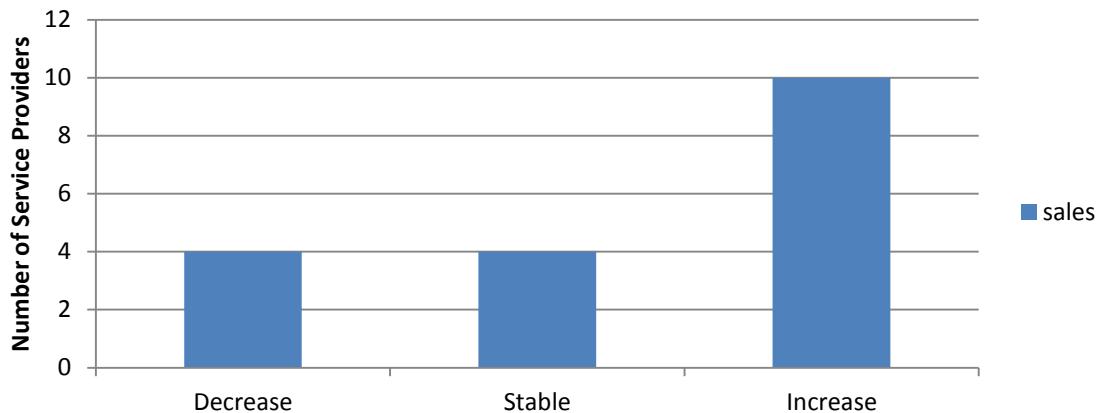


Figure 5.4: Sales Tendencies in 2010

5.3. THE SOLAR SERVICE PROVIDER MARKET

The following section shows which type of customers were targeted by service providers. Moreover, the section indicates how solar service providers in the Western Cape stayed in contact and marketed their products to their target market

5.3.1. The Target Market

The target market for solar service providers describes which type of customer they target. As can be seen in Figure 5.5, the majority of solar service providers were targeting residential areas followed by businesses. The service providers which chose “others” as a target market were targeting public institutions, governmental projects, hotels, bed & breakfasts and/ or restaurants.

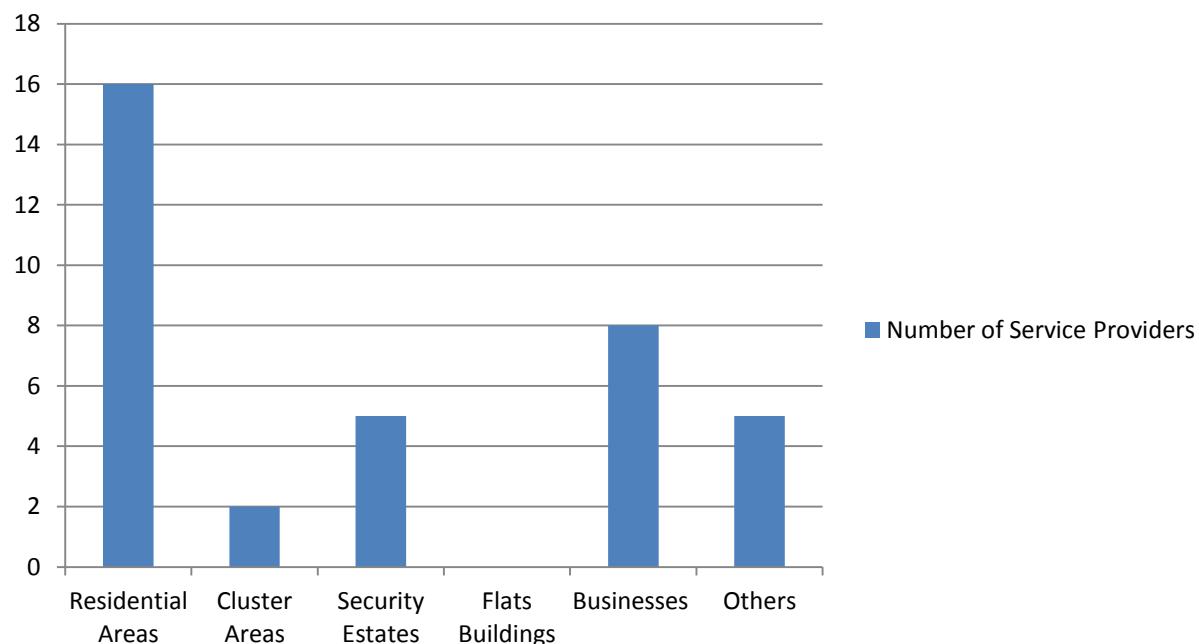


Figure 5.5: The Target Market

5.3.2. The Customer Communication Channels

The communication channels that solar service providers used were tools to stay in personal contact with the potential and present customers. Moreover, it only entailed the contact to customers who had already made contact with the service provider. Figure 5.6 shows that most commonly used tools were e-mail followed by phone calls. It is important to mention that most solar service providers made use of a mix of channels. Personal visits, besides the consultation and actual installation, were used by service providers who wanted to offer superior service to competitors.

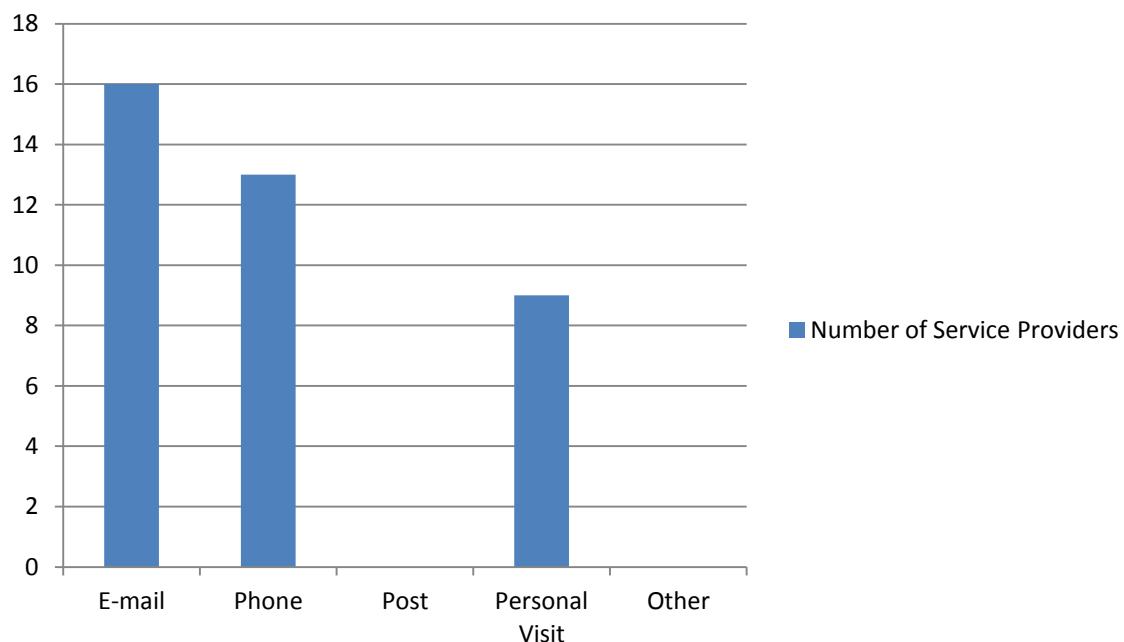


Figure 5.6: The Customer Communication Channels

5.3.3. The Marketing Channels

The marketing channels indicate the way in which solar service providers try to reach their target market. The marketing channel is a tool to reach and educate new customers. The purpose is to motivate potential customers to get in contact with the service provider and be interested in the product. As can be seen in Figure 5.7, 17 out of 18 respondents selected “others” as an answer, followed by paper advertisement. The majority of service providers who selected “others” made use of websites and word of mouth (satisfied customers spread the word), a few used an online store, Google top list and trade shows. The paper advertisements were most of the time placed in newspapers, pamphlet drops and specialised magazines, while only one respondent indicated business directories and Home DIY publications. “Customised advertisement” referred to the personal telephoning of potentially larger clients.

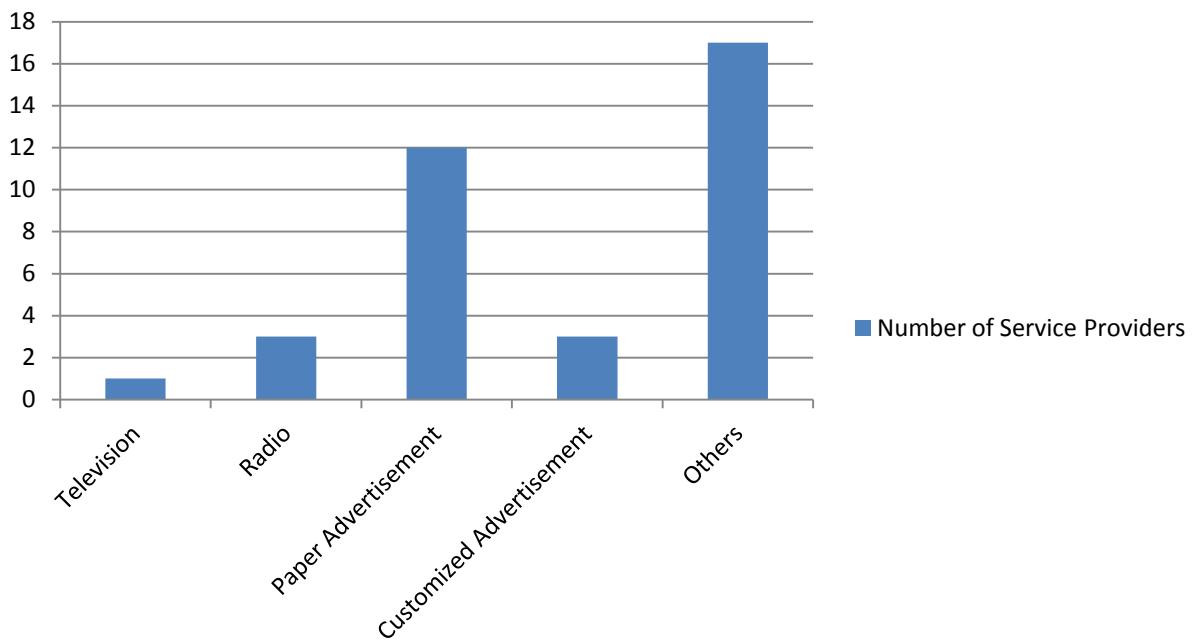


Figure 5.7: The Marketing Channels

5.4. THE SOLAR SERVICE PROVIDER AND STAKEHOLDERS

This section is directed to secondary objective one:

Identify stakeholders in the value chain and understand their link and level of involvement

This part of the semi-structured interview consisted of five questions. It revealed which stakeholders were the most important ones to the service provider and how they were connected to each other. Moreover, it showed with which stakeholder and how important it was to improve the relationship in the future. The last part showed whether there were problems or support regarding the government and the legal framework in which the service providers operated.

5.4.1. The Stakeholders

The definition of a stakeholder is a person that has an interest (stake) in a project or organisation, like a business. Stakeholders can include employees, internal teams,

customers, vendors and even members of the surrounding community or local economy who are affected by business decisions (Cambridge Dictionary Online, 2011).

The respondents were asked to rate the most important stakeholders to their business. The answers were rated from most to least important. The answers were analysed in two steps. Firstly, it was divided into stakeholders who were mentioned often, and those less than 60%. Secondly, stakeholders within each group were rated for their importance according to the spot in which the respondent mentioned it.

The first group consisted of consumers (n=14), suppliers (n=16) and employees (n=15). The most important stakeholder of this group was the consumer with an average rating of 1.36 followed by employees and suppliers with 2.33 and 2.43.

The second group consisted of the community (n=5), government (n=6), investors (n=2), shareholders (n=1) and a franchise partner. The stakeholders in this group were not rated according to their average on which spot they were mentioned, as the amount they were mentioned was not high enough.

5.4.2. The Type of Relationship to Stakeholders

The type of business relationship to each stakeholder shows if solar service providers have a legal contract, verbal agreement or negotiate on an order basis. As can be seen in Table 5.2, solar service providers had legal contracts with the majority of stakeholders, the only exception being the community where they utilised a verbal agreement.

Table 5.2: Type of Business Relationship

Customer	• 100% Legal Contract
Employees	• 93% Legal Contract ; 7% Verbal Agreement
Supplier	• 94% Legal Contract ; 6% Negotiate on Order Basis
Community	• 100% Verbal Agreement
Government	• 70% Legal Agreement ; 30% Negotiate on Order Basis
Shareholder	• 100% Legal Contract
Investors	• 100% Legal Contract
Franchise Partners	• 100% Legal Contract

5.4.3. The improvement of Stakeholder relationships

This section focuses on the question which stakeholder relationship still needed the most improvement in the eyes of the management of solar service providers. It was expected that no relationship would be perfect, but the focus here was on the stakeholder relationship which needed most improvement. How the specific relationship could be improved was also addressed.

As can be seen in Figure 5.8, 12 respondents said that the customer relationship still needs the most improvement. The relationship to suppliers and employees was mentioned two and three times. Four service providers stated that there was no reason to improve with any stakeholders as they were satisfied with the present situation.

The most crucial point to improve with the customer relationship was education. Through better marketing the customer had to be made aware of the benefits of the product and the service provider itself. The improvement of service, especially in empathy and professionalism, would lead to more satisfaction and positive word of mouth.

The relationship to the supplier had to improve, specifically better communication would advance the products and services. Moreover, a good relationship could result in privileges towards the service provider. The employee relationship had to be improved through more training of how to handle the customer and motivation.

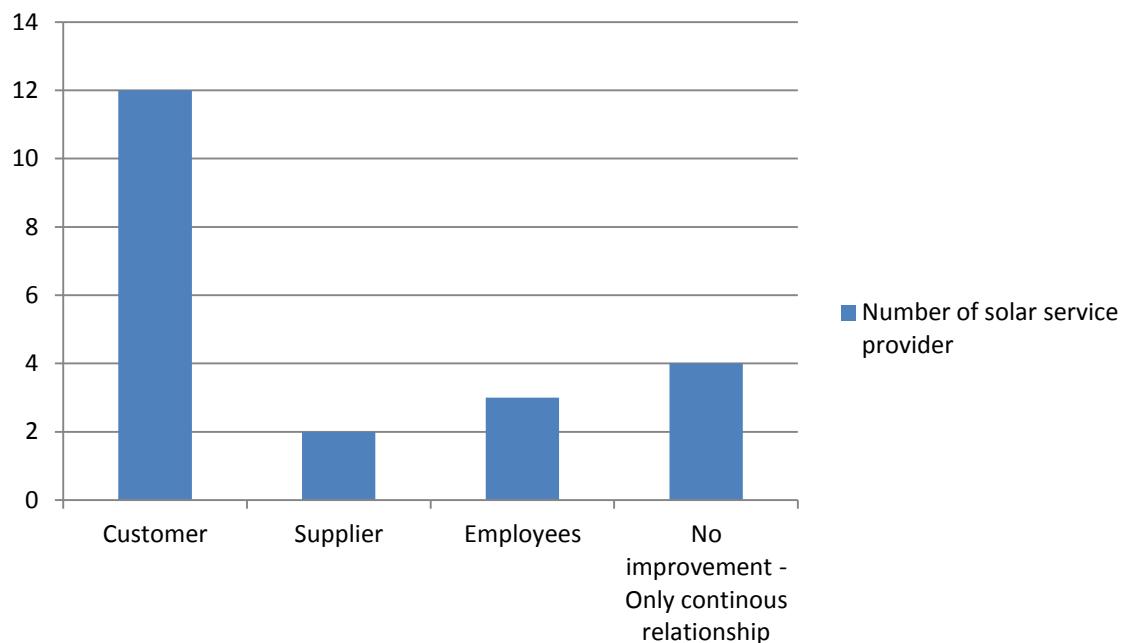


Figure 5.8: The Improvement of Stakeholder Relationships

5.4.4. The Legal and Regulatory Framework

This section dealt with possible difficulties in the legal and regulatory framework for solar service providers in South Africa. The majority of respondents, namely 16 out of 18, complained about the government and the state-owned electricity provider Eskom. Two local service providers would prefer higher import taxes to support the "local is lekker" concept. The concern with the government was best described by quoting the statements of the Companies:

"The biggest problem is the regulatory framework of Eskom and the government. It takes up to 8 months to get a new solar device approved for the market. Moreover the costs involved with this process harm smaller businesses in the market. All in all, this barrier slows the possible development of the industry."

"Yes, the biggest drawback happened recently as Eskom decreased all rebates for solar thermal heating. The rebates are substantial for the positive development of the market. Consequently, if the rebates will continue to fluctuate the market is in danger to collapse. That's why we decided to focus on official institutions and to work with the government."

5.4.5. Service Provided from the Local Government

Solar service providers were asked if the government or Eskom provided any extra service to promote the development of the industry. The responses were all the same, stating that apart from the low rebates to the customer, there was no service. Nevertheless, they wished to have more support from the government, and possibilities mentioned were: Regulations to ensure that new-built houses had to have solar heating, better education about the enormous benefits of solar power, and lastly to keep the subsidies on a continuous level.

5.5. THE TYPES OF STRATEGIES FOLLOWED BY SOLAR SERVICE PROVIDERS

This section was directed to secondary objective two:

Determine the types of service providers and their function in the value chain

This part of the semi-structured interview consisted of only four questions. The first addressed the overall strategic direction of the service provider. The second question asked about the business-customer channel they used. The third one sought to gain more knowledge about which products were most popular. The last question identified the customer preferences in relation to product and service.

5.5.1. The Overall Strategic Direction

The overall strategic direction is described by Porter's Generic strategies. Respondents have to choose one strategy, namely, low-cost, differentiation, best-cost provider and focused. They also had to specify how they pursued the selected strategy.

As can be seen in Figure 5.9, 56% ($n=10$) of the solar service providers followed a best-cost provider strategy. The majority used attractive price/ quality ratios in combination with service packages to gain competitive advantage. Some service providers only offered locally produced solar water heating panels to save transportation costs and to reduce lead times. The differentiation strategy was used by 28% ($n=5$) of the service providers. These service providers offered the best pre- and after-service possible, combined with the newest technology. Most of the technology was imported from Europe. The low-cost strategy was practised by 11% ($n=2$) of service providers, where the target market was low-cost housing. There was no rebate involved and the products were imported from China. One niche market solar service provider respondent targeted large one-family houses with high end quality products.

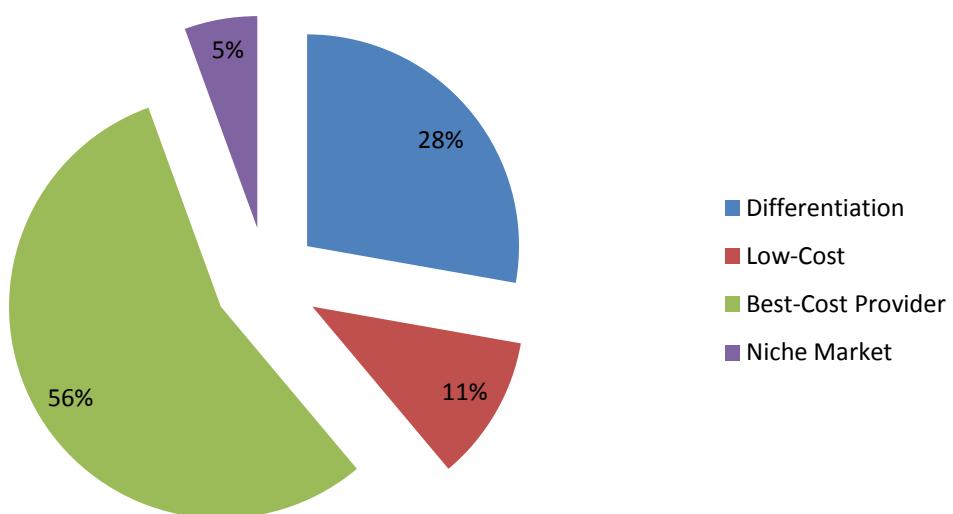


Figure 5.9: The Solar Service Provider's Strategy

5.5.2. The Business-Customer Channels

The business-customer channel indicated how solar service providers stayed in contact with past customers and updated them with new product developments. Section 5.3.2 shows how service providers communicated with potential and present customers. Figure 5.10 shows that nearly all solar service providers used a Webpage (n=17) and E-mails (n=15) to keep their customers up to date. Service providers who wanted to provide superior service (n=10) did personal visits. Only one service provider communicated via brochures.

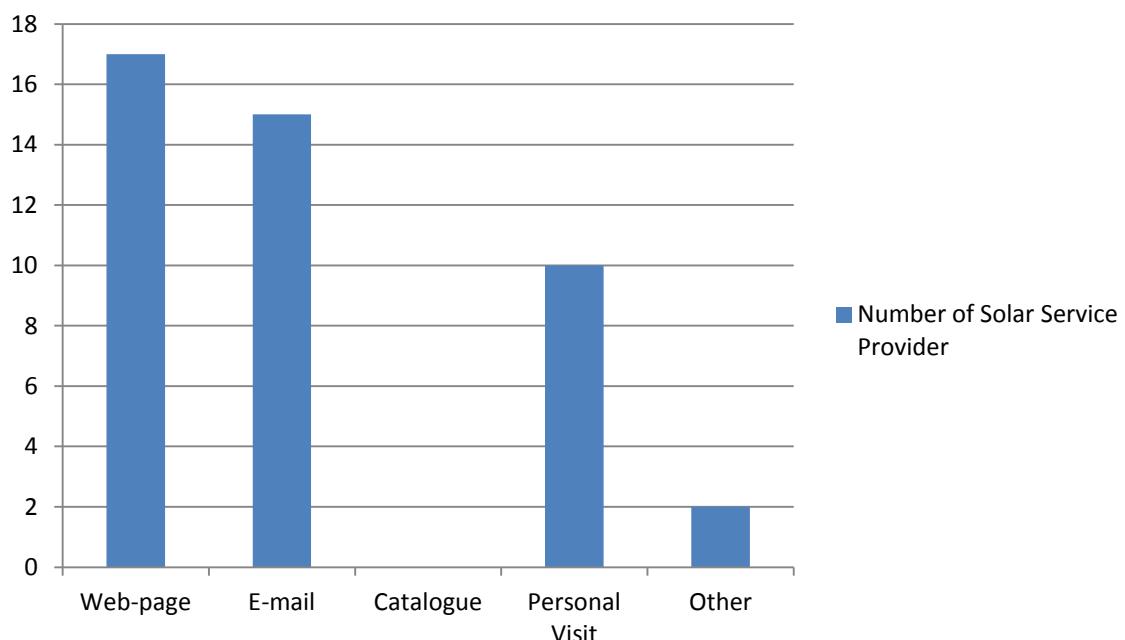


Figure 5.10: The Business-Customer Channels

5.5.3. The Top Selling Solar Devices

This section reveals the top selling devices of solar service providers in the Western Cape. Each solar service provider was asked which product(s) he sold the most. As can be seen in Figure 5.11, the most popular solar devices were water-heating panels and geysers. In general, both products were sold as a package, as a specific type of geyser needs to be connected to the heater panels. Service providers, who specialise in retrofit systems, connect water heating panels to the existing geysers. Only a small number of customers needed a geyser to be connected to water-heating panels. Other rarely mentioned products were heat pumps, pool heating and photovoltaic systems.

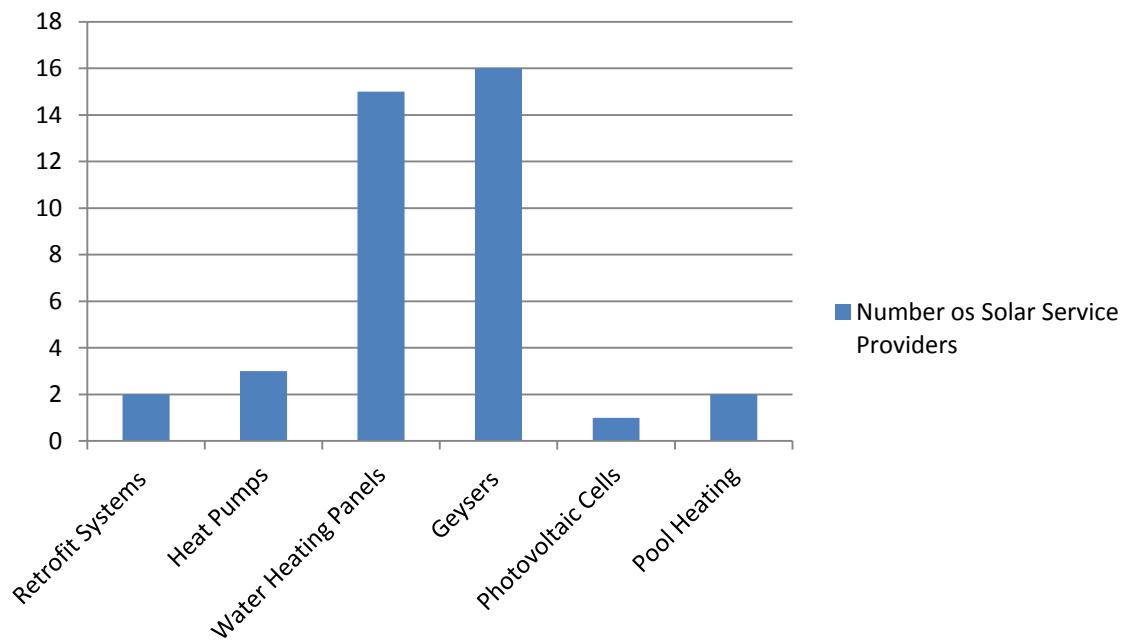


Figure 5.11: The Top Selling Products

5.5.4. Perceived Consumer Preferences

This question reveals the factors that were most important for the consumer when purchasing a new solar device. The answers were from the perspective and experience of the solar service provider, which did not automatically indicate that they were not a reliable source, as they stayed in face to face contact with all customers.

The result was that the majority selected quality ($n=16$) and price ($n=14$) as the most important preference for consumers. Solar service providers who followed differentiation or niche strategies often selected functionality and design as important rather than the price.

5.6. THE VALUE CHAIN STRUCTURE

This section focuses on the secondary objective three:

Determine the current structure of the value chain, including the flow of goods, services and skills

The questions in this part firstly focused on the present structure of the value chain and which activities were most important for competitive success. The following section focuses on the inbound logistics where the spotlight was on the suppliers. The last sections are on present stock operations, service and supporting activities.

5.6.1. Primary Value Chain Activities

The primary value chain activities were the core activities of a solar service provider, from approaching the customer until the final installation and the after-service. Figure 5.12 shows the primary value chain activities of solar service providers in the Western Cape. All activities listed in Figure 5.12 were conducted by more than 60% of all respondents. Extra activities which were mentioned by less than 60% of the respondents were: follow-up call after step 3, preparation of specification after step 5 and a follow-up call after step 7. These extra activities were mentioned by service providers who followed differentiation strategies and targeted the mid to high end market.



Figure 5.12: The Primary Value Chain Service Provider Activities

5.6.2. Secondary Value Chain Activities

The secondary value chain activities are supporting the primary activities in the execution. Figure 5.13 shows the most important secondary activities for solar service providers in the Western Cape. As can be seen in Figure 5.13 the responses were similar and only three crucial supporting activities were mentioned. All activities were mentioned by more than 60% of respondents, which means that they all formed part of the solar service provider value chain in the Western Cape.

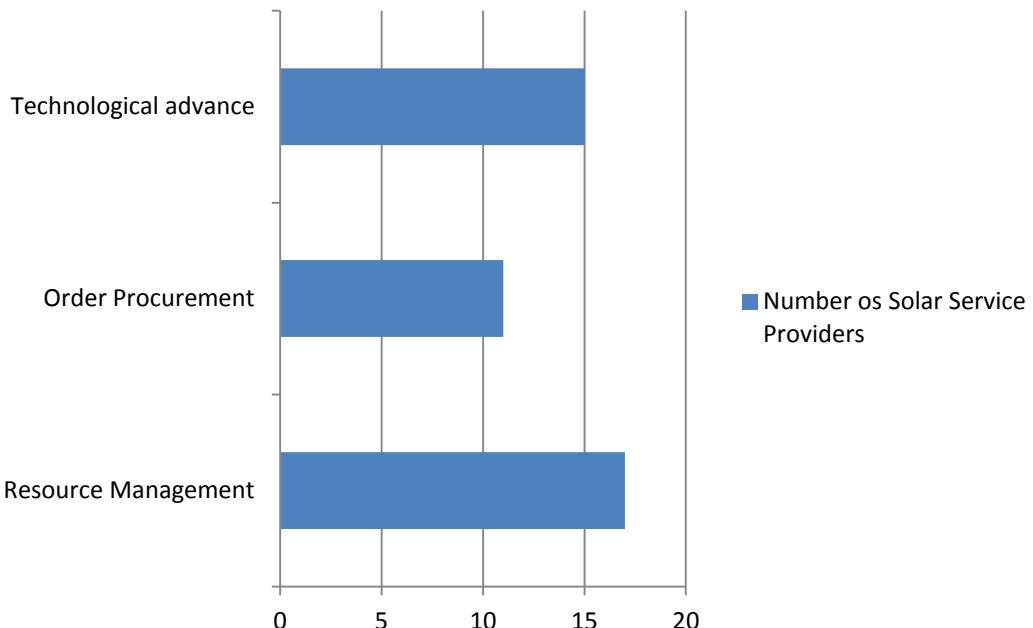


Figure 5.13: The Secondary Value Chain Service Provider Activities

5.6.3. The Key Success Activities in the Value Chain

This question in the semi-structured interview asked the respondents which activity of the value chain was the most important to gain and sustain a competitive advantage. As can be seen in Figure 5.14, service (n=17) was the foremost important activity in the value chain. According to respondents, good service included the site visit/ consultation, installation and after-service. Service was followed by marketing (n=7), technology (n=2) and human resource management (n=1).

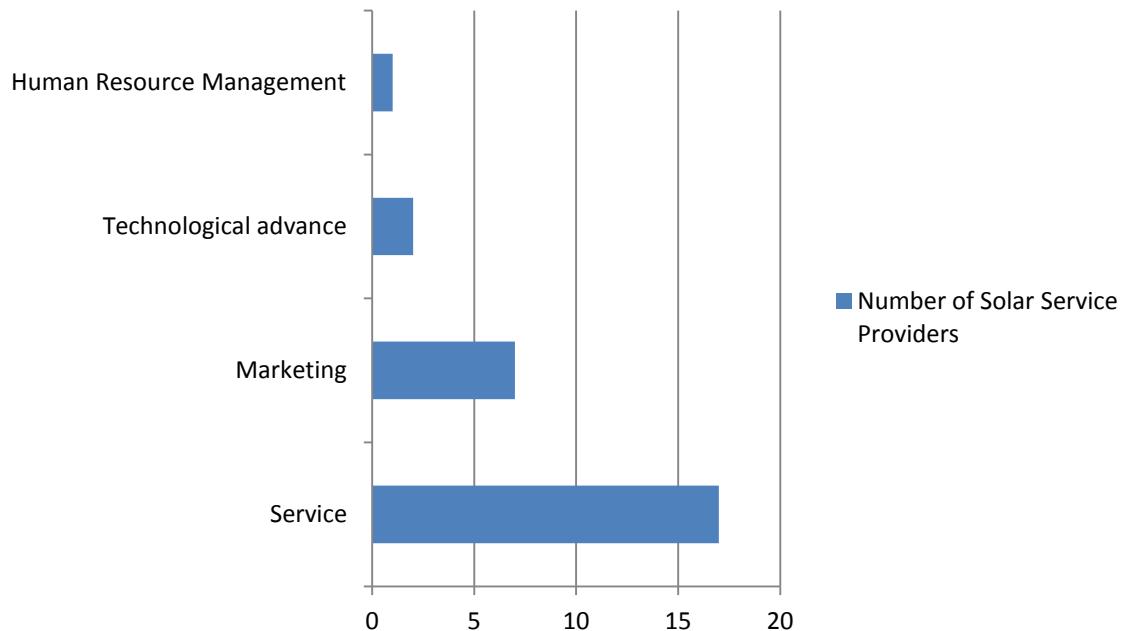


Figure 5.14: The Key Success Factors in the Value Chain

The important aspects of the service activity and marketing are best described by quoting the answers of the companies:

- “Service is the foremost important activity, as the products are fairly similar to competitors and good service is crucial to be competitive superior. Good service creates good word of mouth, which is the strongest marketing and leads to a bigger long term customer base.”

The second crucial activity is marketing. The industry is still in an infant stage which creates the need for more customer education and to get known.”

- “The utilisation of well directed marketing to reach the customer and educate him is very important to reach potential new customers. Past customers can only be helpful in creating positive word of mouth, as the systems are expected to last more than 20 years in which the customer is not profitable for us.”
- “The service which the installer gives to the customer is the most important part of my business process. The parts which are most important here is reliability (pitch on time), professionalism and personal skills towards the customer.”

5.6.4. The Supplier Relationship

This part of the semi-structured interview addressed the relationship with the suppliers by concentrating on the main suppliers, performance evaluation, problem- identification and solution, and product collection.

5.6.4.1. The Suppliers for Solar Devices

The main purpose of this section was to identify from which parts of the world solar service providers in the Western Cape sourced their products. Figure 5.15 shows that the majority of solar service providers ($n=11$) in the Western Cape sourced their products from local manufacturers and suppliers, followed by Europe ($n=6$) and China ($n=3$). There was no market leader in China or Europe, as each service provider used a different supplier(s). South Africa had a large variety of manufacturers/ suppliers, as the 18 service providers interviewed mentioned 10 different local suppliers. However, ITS Solar and Solar Max had a slight lead among competitors. Most best-cost providers sourced their products from local suppliers. Service providers with differentiation strategies, on the other hand, preferred suppliers from Europe.

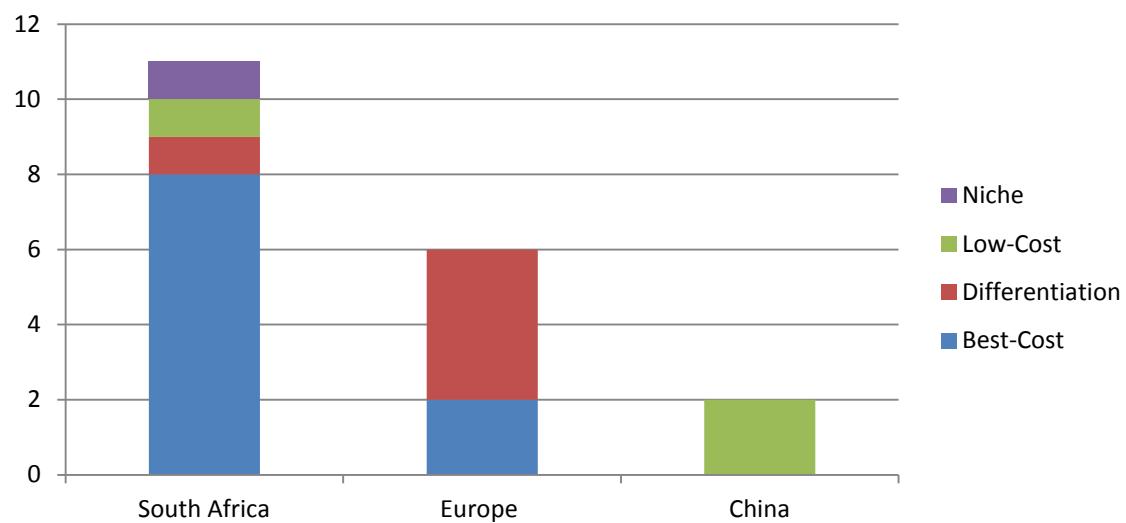


Figure 5.15: The Region of Product Origin

5.6.4.2. The Supplier Performance Evaluation

The performance evaluation of solar service provider suppliers was accomplished with the help of a Likert Scale. Every service provider had to rate his suppliers based on the region, namely USA, Europe and China. The average was taken for each element asked, with 1 *very poor* and 5 *very good*. As can be seen in Table 5.3, suppliers from Europe provided the best overall service and product followed by South Africa and China.

Table 5.3: Regional Supplier Performance Evaluation

China	•3.64 = Average-Good Performance
Europe	•4.54 = Good-Very Good Performance
South Africa	•3.99 = Good Performance

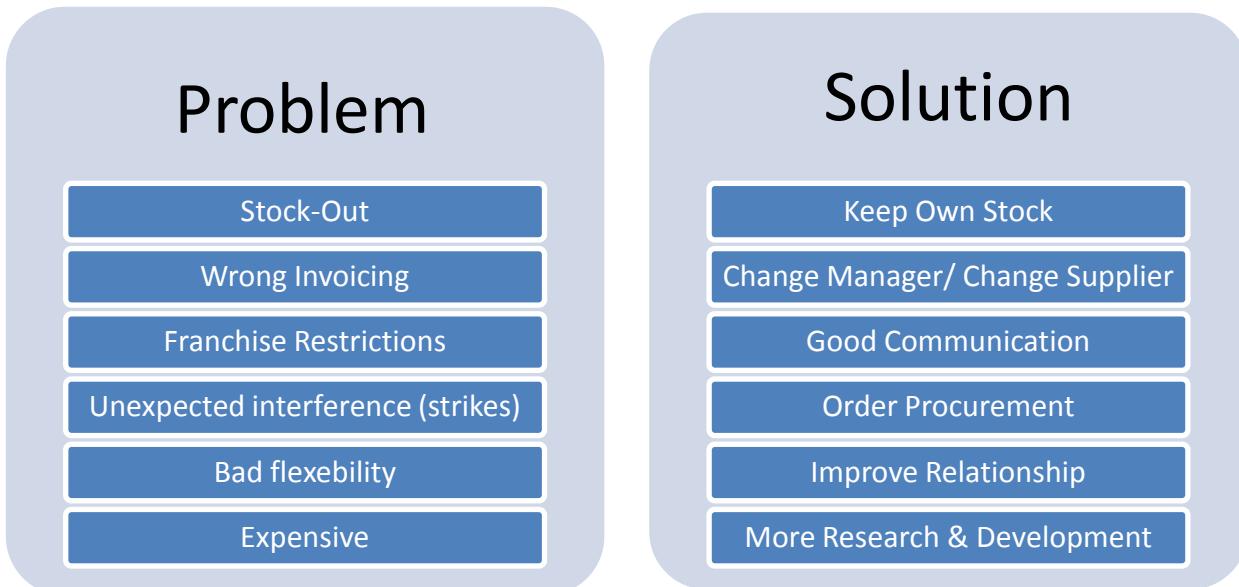
In addition, to have more understanding where suppliers from the single regions needed to improve, the average performance for each element had to be considered. As can be seen in Table 5.4, China's weakest elements were product timing and product training. Suppliers from Europe had the weakest performance in price and delivery time. South African suppliers also had to improve in price and delivery time. Delivery time should be one of the strongest elements for South African suppliers as the transport distances are minimal in comparison to overseas suppliers.

Table 5.4: Elementary Supplier Performance Evaluation

Element	China	Europe	South Africa
Quality	4.7	5	4.5
Reliability	4	5	4.5
Flexibility	3.7	5	3.9
Price	4	3.8	3.7
Product Design	4	4.7	4.7
Service	3.7	4.5	3.9
Product Training	2.3	3.8	3.5
Delivery Time	2.7	4.5	3.9

Questions 5.5 and 5.6 were closely linked to the section above by asking the respondent for specific problems experienced with suppliers and how to solve them. More than half of the service providers ($n=10$) were satisfied with the present situation and did not see a problem. Table 5.5 summarises all difficulties and the solutions the managers proposed. The problems are on the left side and the proposed solution on the right. Some of the problems and solutions were only mentioned once, nevertheless it is important to mention them as it can contribute to the recommendations. The most common difficulty was stock-outs on the supplier side.

Table 5.5: Problems and Solutions with Supplier Relationships



5.6.4.3. The Product Collection Method

This question in the semi-structured interview revealed how solar service providers in the Western Cape collected or received their products from their suppliers. As can be seen in Figure 5.16, Chinese suppliers did not deliver to the service providers; the majority came through an agent. The majority of suppliers (60%) from Europe had collection centres in South Africa, which shows their commitment and trust in the future. The same scenario counted for South African suppliers, 30% of whom delivered directly to the service provider.

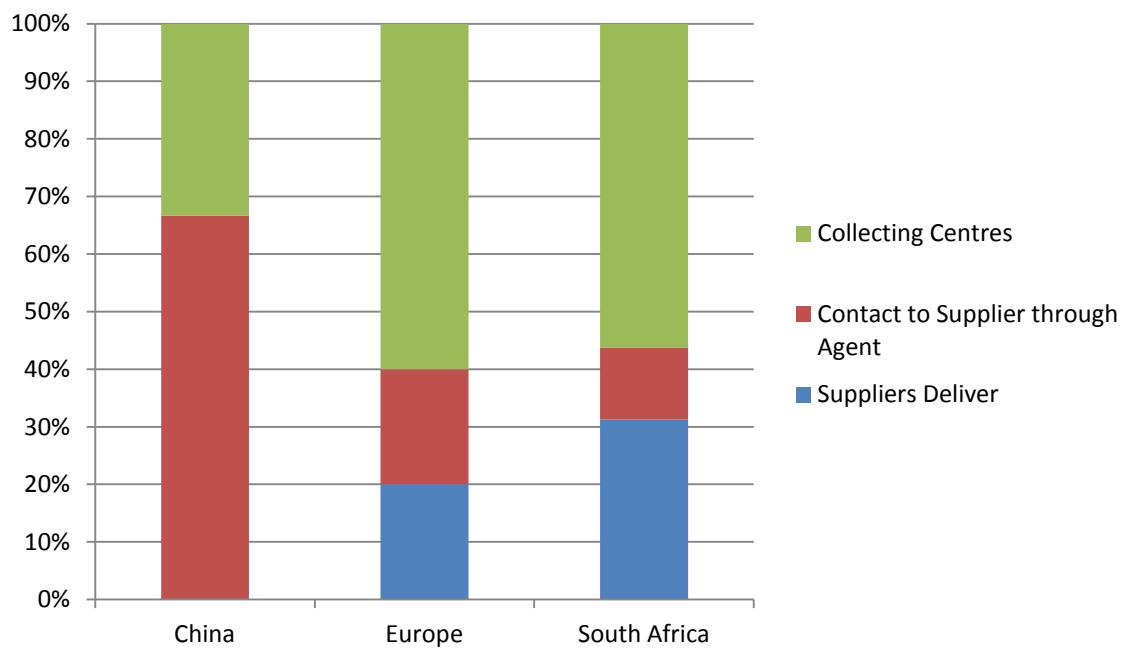


Figure 5.16: The Collection Method

5.6.5. The Product Operations

This section addressed the question of how solar service providers handled their product operations. The first part shows whether the service provider kept stock, used a just-in-time approach or ordered as the customer placed the order. The second part indicates how long the stock was supposed to last if stock was kept. The average stock time was 7 weeks, including two outliers with 15 and 24 weeks.

As illustrated in Figure 5.17, product handling was almost equally distributed between the three options, with a slightly larger number of solar service providers keeping stock. Nevertheless, it is important to mention that if service providers used two approaches, they did not utilise the stock keeping and just-in-time approach together.

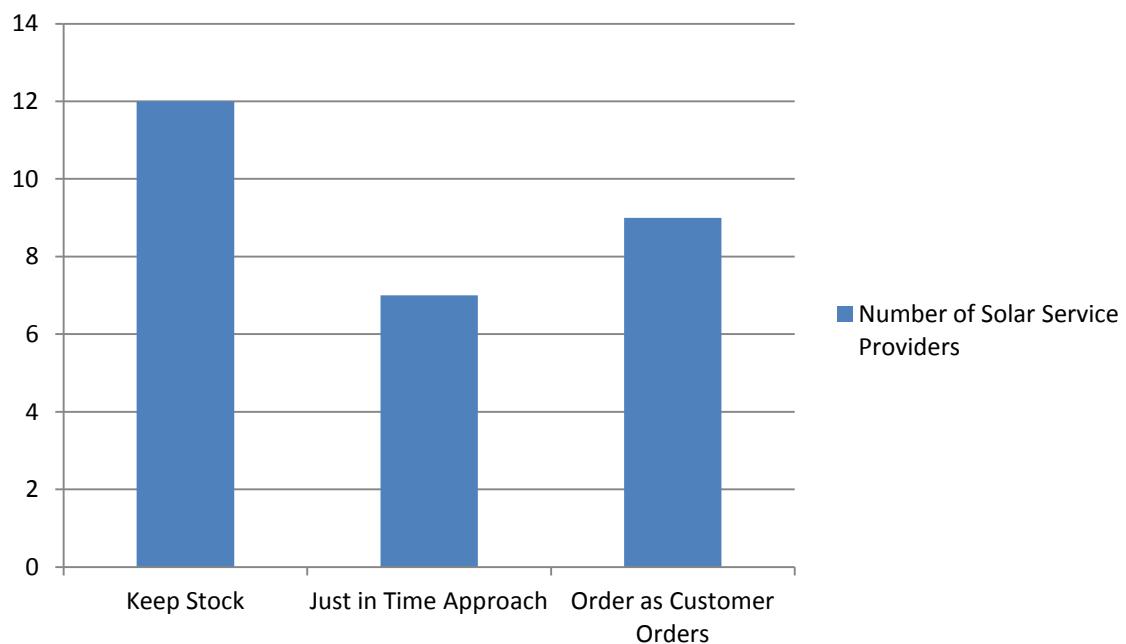


Figure 5.17: The Product Operations

5.6.6. The After-Service

After-service is service which is offered and conducted after the final installation. The possibilities are a check-up call, check-up visit, check-up mail, no after-service or something else (other). As illustrated in Figure 5.18, most solar service providers in the Western Cape used check-up calls to ensure that the customer was satisfied. A check-up visit and mail was only used by very few service providers. The service providers who selected “other” only provided after-service if needed, which means when the system was faulty. Only one service provider offered a hotline for complaints.

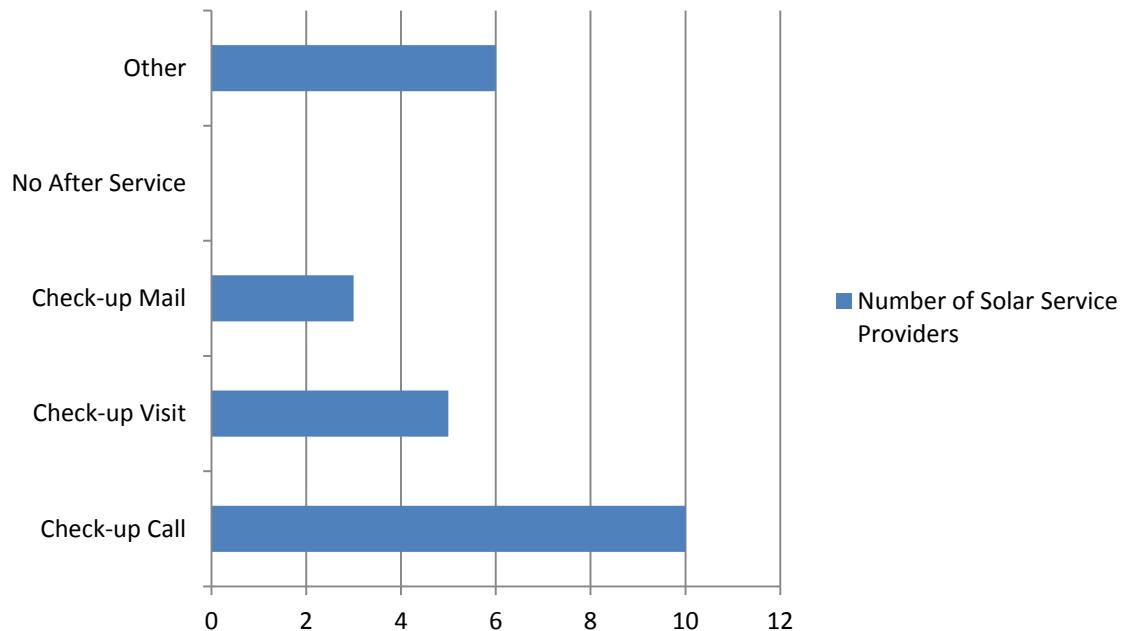


Figure 5.18: The After Service

5.6.7. The Supporting Activities

The supporting activities section is divided into two questions. The first one is directed to the criteria to employ new employees and the second one shows how managers of solar service providers kept their employees motivated. The criteria for new employees gave the options of personal reference, education, personal empathy, first impression and other(s). As shown in Figure 5.19, the most popular criteria were education and personal references, followed by the first impression. Two service providers selected "others" and specified it by stating "experience" as important for them.

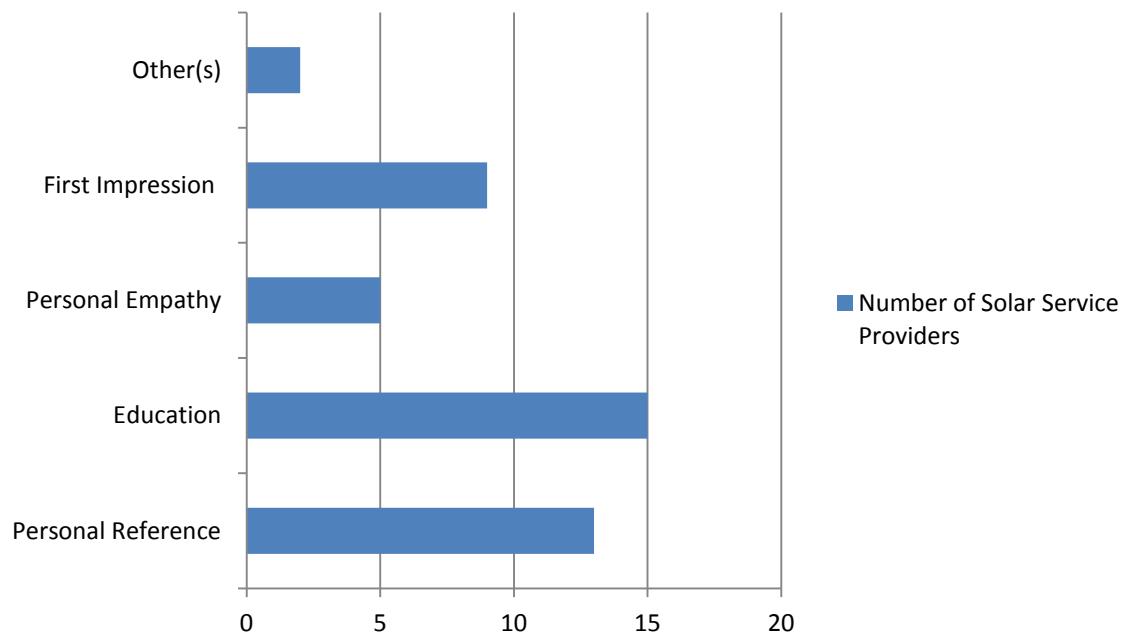


Figure 5.19: The Criteria to employ new Employees

The question how managers of solar service providers keep their staff motivated, provided four options, namely incentives, bonuses, personal recognition and other(s). As can be seen in Figure 5.20, personal recognition was the most commonly used tool to motivate employees, followed by incentives. According to the managers, incentives were awarded for every successful sale. Bonuses could be in different forms, firstly for every successful installation, or secondly 6 months after a sale without complaints. Three of the managers who selected "other" paid a fixed salary, and one motivated with new challenges.

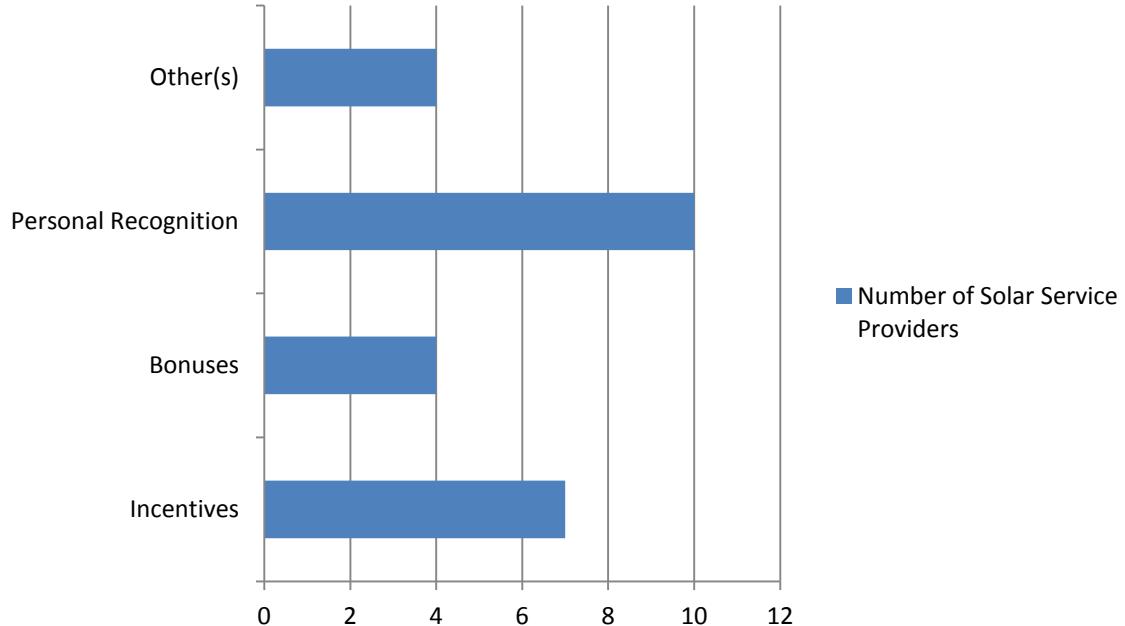


Figure 5.20: The Employee Motivation

5.7. STRATEGIES FOR MORE UTILISATION OF SOLAR PRODUCTS

This segment is concentrating on secondary objective four:

Determine strategies for more utilisation of solar products in the Western Cape

This section of the semi-structured interview entails 6 questions. The questions cover a variety of topics. Firstly, how long it takes from the order to the installation. Secondly, the credit ranges for the customer. The last part deals with how often and if the service provider is in contact with the supplier.

5.7.1. The Time Span from Order to Installation

This question shows how much time it takes on average for a provider to give service from the point of a customer order to the final installation. Figure 5.21 shows that the majority of solar service providers in the Western Cape took up to a week from the point of order till the final installation. Service providers who took up to two weeks sourced all their products from overseas and consequently had longer delivery times. Most South

African service providers took a maximum of up to a week, and a few made it in two days. The service providers from overseas, who accomplished the process in less than two days, held stock and did not have to rely on just-in-time deliveries.

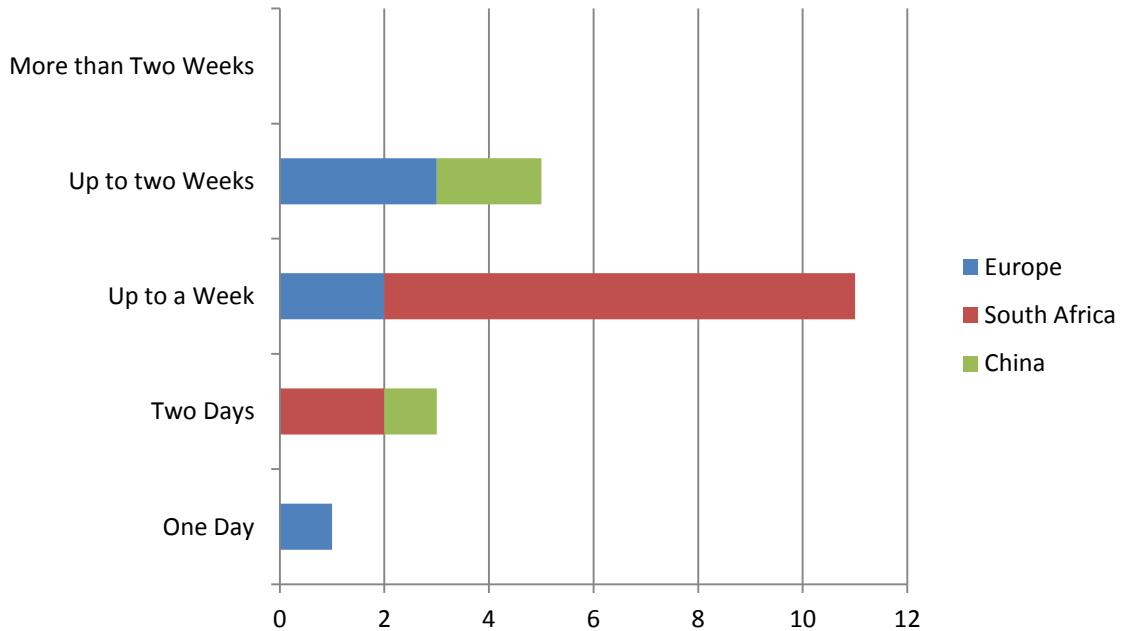


Figure 5.21: The Order Time

5.7.2. The Credit Range for Customers

The credit range the solar service provider offers the customer shows the time span granted to the customer to pay the full amount for the installation and product to the service provider. The time span of the credit range can be seen as extra service to the customer, as the service provider loses interest that could have been gained on the outstanding amount.

Figure 5.22 shows that the majority of service providers gave a credit range of one week, followed by “payment on the day of installation”. The longest credit range was four weeks and is offered by two service providers. There was no interconnection between the overall strategy of a service provider and the credit range.

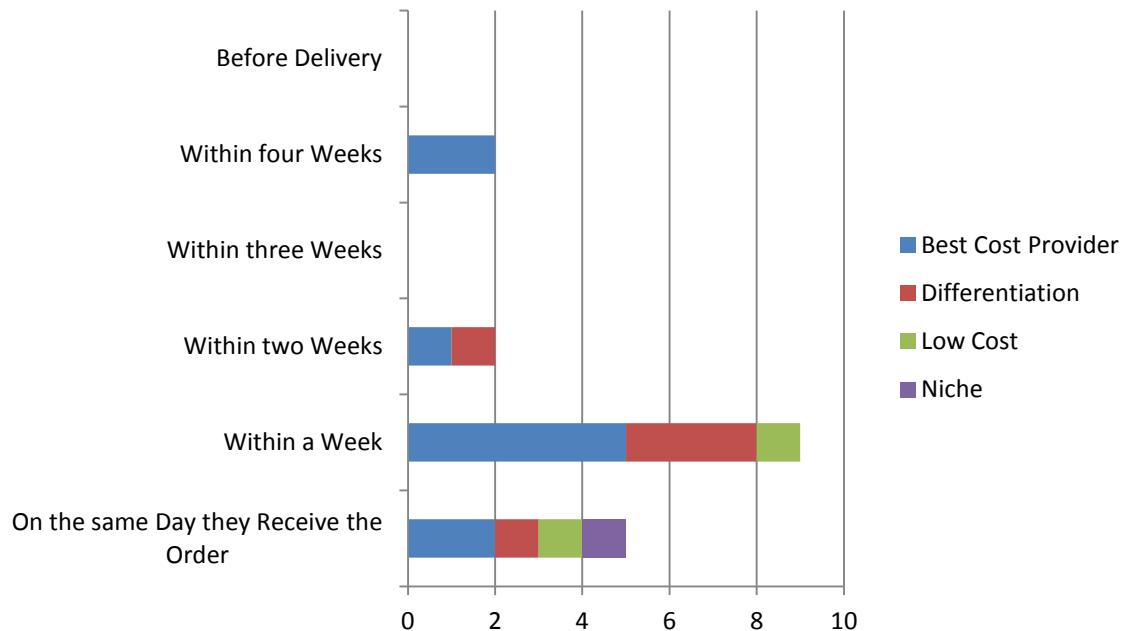


Figure 5.22: The Customer Credit Range

5.7.3. The Supplier-Service Provider Working Relationship

This part of the questionnaire investigates how and how often service providers communicated with their suppliers. Moreover, it shows if there is a one-way or a two-way communication. In addition, it indicates the type of customer service that service providers receive from their suppliers.

5.7.3.1. One-Way or Two-Way Communication

This question showed whether the service provider actively communicated with the supplier. It is a “Yes” or “No” question and asks if the supplier is getting informed about recent market developments, such as changing consumer preferences. The result was that 73% ($n=13$) of solar service providers did keep their suppliers informed about market development.

5.7.3.2. The Supplier to Customer Service

The service a supplier offers to the service provider can contribute to the success of the service provider. The communication process is part of the service and can improve the

relationship between supplier and customer. Moreover, the customer can get more knowledge about the product and future developments.

The service offered to solar service providers in the Western Cape was product training and weekly check-up calls. Suppliers from South Africa, Europe and China offered this service to the same extent. Only three South African suppliers were not offering any service.

5.7.3.3. The Supplier-Service Provider Communication

The last two questions of this section addressed the communication activities between suppliers and solar service providers. The one question revealed how both parties communicated with each other and the second one how often they communicated. As can be seen in Figure 5.23, the most popular way to communicate was via phone/mobile and E-mail/Post, followed by face to face visits.

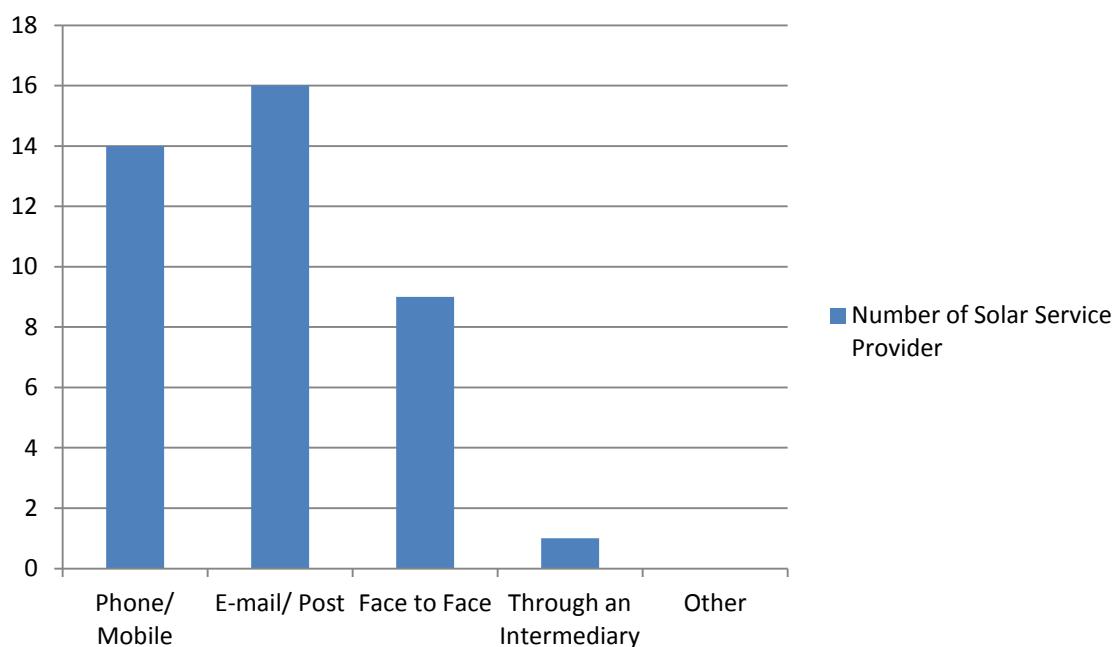


Figure 5.23: The Type of Supplier-Service Provider Communication

Figure 5.24 show's that most solar service providers selected "other" as an answer, as they were only in contact with their suppliers if needed. Five service providers were in contact at least once a week and another four every day. Only one service provider said "Once a month".

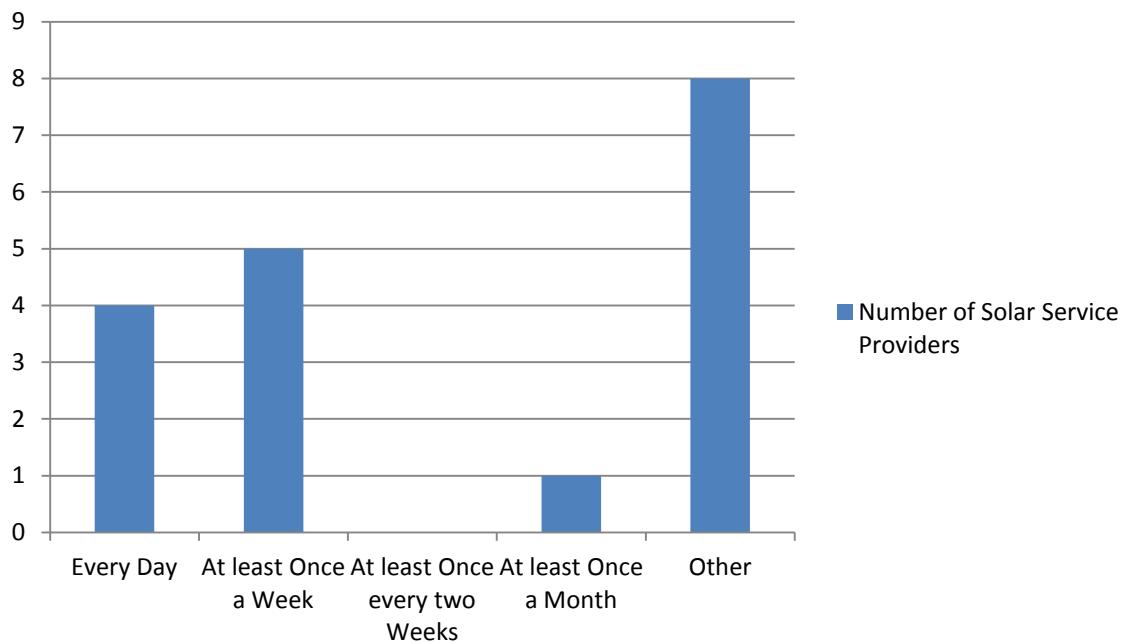


Figure 5.24: The Amount of Supplier-Service Provider Communication

5.8. THE CURRENT USE OF THE VALUE CHAIN MODEL

This section focuses on the secondary objective number five:

Determine how solar companies in the Western Cape currently use the value chain model to add value

This part of the semi-structured interview shows whether the management and employees of solar service providers in the Western Cape were aware of the value chain model and if they made use of it in daily business. The next question asks if there is still space to improve if they are aware of the model. The last two questions show how service providers decide about the implementation of new ideas and if they are aware of the secondary activities.

5.8.1. The Awareness of the Value Chain Model

The awareness of the value chain model was divided into two questions, the first whether the management was aware and the second whether the employees were aware. Before the questions were asked, the interviewer made sure that the respondent

knew what the value chain model was. If the respondent did not know, a brief introduction was given. As can be seen in Figure 5.25, the majority of solar service provider managers were aware of the value chain model. It can also be seen that only managers who used best-cost and differentiation strategies were aware.

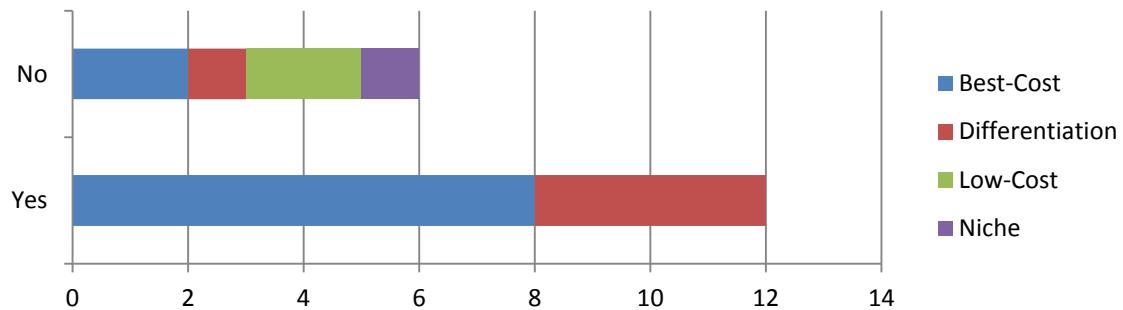


Figure 5.25: The Management Awareness of the Value Chain Model

Figure 5.26 illustrates the employee awareness of the model from a respondent, and consequently a management perspective. More employees were not aware of the model than were aware. The same pattern with managers can be seen, that only employees of service providers with best-cost and differentiation strategies were aware of the model.

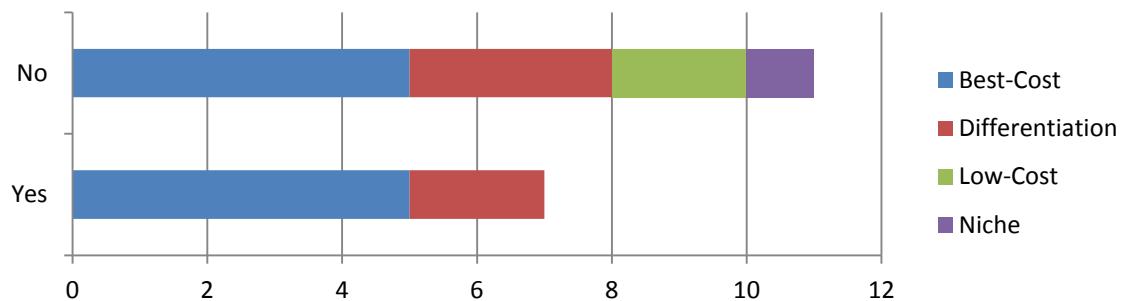


Figure 5.26: The Employee Awareness of the Value Chain Model

5.8.2. The Improvement of the Value Chain

This question asked respondents who were aware of the value chain model, if there was still space to improve, and where it was. Table 5.6 shows all the areas of improvement mentioned by respondents. The only area which was mentioned more than once ($n=6$) was the installers. For most managers the installers were the most

important part of the business process, as they stayed in immediate contact with the customers.

Table 5.6: The Value Chain Improvement

Marketing	<ul style="list-style-type: none"> • Reach Target Market • Educate Consumer • Increase Awareness
Sustainability	<ul style="list-style-type: none"> • Long-Term Objectives • Consistency in Product and Service
Service	<ul style="list-style-type: none"> • Installers • Sales Representatives • Employees
Financial Systems	<ul style="list-style-type: none"> • More Efficiency • Financial Awareness

5.8.3. The Awareness of Supporting Activities

The question asked all respondents if they were aware of supporting activities and their possible effect on the performance of the business. Nearly all managers answered this question with “yes” (n=16); only two answered with “no”. The respondents who answered with “yes” mentioned activities like human resource management, order procurement and reliable quality.

5.8.4. The Implementation of New Ideas and Business Activities

The last question in this section asked the respondents how they decided whether to implement a new business activity or not. Table 5.7 shows the two categories of all answers. The respondents who spoke about a short-term cost-benefit ratio were either relying on numbers or on their so called “gut feeling”, referring to a time span of less than a year. The long-term cost-benefit ratio was more detailed, and test phases were

used to reveal the potential for a new activity. Two service providers outsourced the managing of new activities to external firms. Nevertheless, all respondents said which approach they made use of depended on the activity.

Table 5.7: The Implementation of New Activities

Short-Term Cost Benefit Ratio	• Numbers • Inner Feeling
Long-Term Cost Benefit Ratio	• Test Phase • Outsourced

5.9. THE COMPETITIVE SOLAR SERVICE PROVIDER ENVIRONMENT

This segment focal point is about secondary objective number six:

Identify the solar competitive advantage and key success factors of the industry

This section of the semi-structured interviews gave more information about the competitive environment in the solar service provider industry. The first question used Porter's Five Forces to investigate where most competitive pressure was experienced. The questions that follow show the core competencies and main competitors for service providers. The last two questions asked the respondents' opinions about the future development of the competitive forces from new entrants and substitutes.

5.9.1. Porter's Five Forces and the Solar Service Provider Industry

This question used the model of Porter's Five Forces to ask respondents from which competitive element they experienced most pressure. As can be seen in Figure 5.27, most service providers classified new entrants as the biggest threat, followed by buyers and substitutes. A relationship could only be identified between the threat of new entrants and solar service providers using a differentiation strategy.

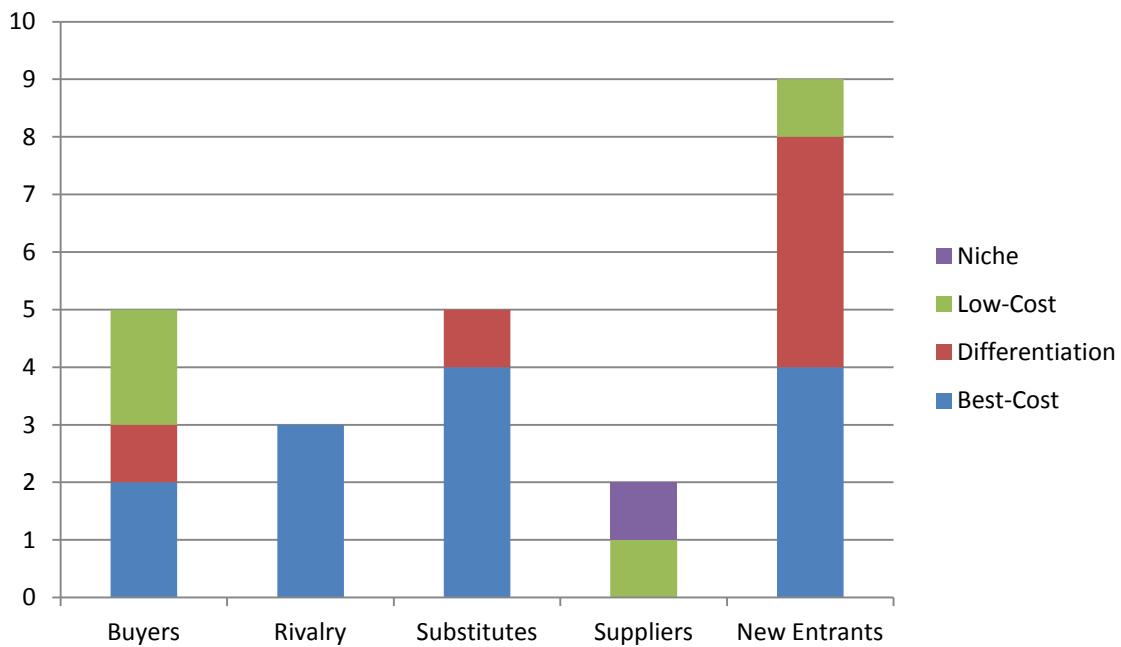


Figure 5.27: Porter's Five Forces in the Solar Industry

The explanation for the selection of the competitive forces can best be explained by quoting the answers of the respondents:

- New entrants:
 - “New Entrants try to gain new customers with low price offers. The quality they supply is very low, which harms all businesses as bad word of mouth spreads.”
 - “Low cost providers from China and major brands like Simens.”
 - “Cheap and low quality products from china gain acceptance but don’t deliver the promised results, which harms the market.”
- Buyers:
 - “Manny service providers to choose from.”
 - “The recession and the canceled rebate decreased the number of buyers.”
- Substitutes:
 - “Cheap Eskom electricity is still the main competitor.”
 - “Heatpumps and Eskom electricity.”

- Rivalry:
 - “Highly competitive market, similar products (over 60 service providers in the Western Cape).”
- Suppliers:
 - “The supplier power is very high for me as I am a relatively small customer for them.”

5.9.2. Solar Service Provider Core Competencies

The question reveals the core competencies from the perspective of each solar service provider. The information indicates in which activity most effort was invested to become competitively superior. Table 5.8 shows all topics and sub-topics mentioned by respondents. The most frequently mentioned topic was the service provided from the installers, followed by technology and reputation.

Table 5.8: Core Competencies of Solar Service Providers

Service	Technology	Marketing
<ul style="list-style-type: none"> • Warranty • Educated • Specialization • Flexibility • Installer 	<ul style="list-style-type: none"> • Up-to-Date • Reliable 	<ul style="list-style-type: none"> • Price • Reputation • Well-Known Name

5.9.3. Main Contenders in the Western Cape

The question which was the main rivals for each service provider interviewed indicated if there were any service providers which were dominant. The only service providers which were mentioned more than three times were Solar Tech (n=8) followed by Solar Max (n=4). Solar Tech is a franchise business with several dealers in the Western Cape and Solar Max is a manufacturer/ service provider situated close to Hermanus. All in all, 20 service providers were mentioned, which indicates that the market was still very fragmented, without a clear market leader.

5.9.4. Future Development of New Entrants

The question asked the respondent how the market would develop in the future in relation to new entrants. The result was that 67% expected new entrants to join the market, most of which were from China, with low-priced offers. The most significant answers were as follows:

- “Based on the fact, that Eskom has drastically reduced all rebates the market has stopped to develop as well as in the past. In the short-run the trend of new entrants is reduced. Nevertheless, in the long-run more competitors will join.”
- “We expect more competitors to join the market, as the market will grow in future due to higher electricity prices. The biggest threat is big companies like Bosch, with a huge financial power behind them.”

- “The market is shrinking at the moment, consequently there will be no new entrants to the market.”
- “The amount of new entrants will be very limited as there are already a vast amount of competitors.”
- “New business will enter the market by offering cheap priced products from China.”
- “There will still be a lot of entrants, but the majority will exit shortly after. They try to drop their prices but not making any profit.”

5.9.5. Future Development of Substitutes

The last question of the interview asked the respondent how he expected substitutes of his products to develop in the future. The result was that 89% of respondents expected the market for substitutes to develop in their favour. The main reason was the increasing price of common electricity. The main arguments were as follows:

- “Electricity is becoming more and more expensive, which is the main substitute for our products. Consequently, consumers are looking for a more economical way of saving money. We are offering a very good solution, which means the development of the substitute common Eskom electricity is positive for us.”
- “The price of electricity is increasing, which makes people more aware of solutions that we offer. The worse Eskom handles their business the better it is for us.”
- “The industry can only improve. It is all in the hands of the government.”

5.10. COMMONALITIES BETWEEN QUESTIONS

This section reveals commonalities between the questions in different sections. Key questions were selected to be compared to other questions for commonalities. The aim was to disclose if factors like strategy had an influence on certain solar service provider business activities.

5.10.1. The Solar Service Provider Strategy

This section investigated commonalities between the strategy of a solar service provider and other questions which could be influenced by the strategy. The first column shows the topic of the question and in which section of the chapter the original results can be found. The first question is the sales in the last year for which the results can be seen in Table 5.9 in the first row. According to the sum of all answers, the most successful strategy was a best-cost provider strategy with an average sales increase of 23%. The second question related to the supplier region, each of which can be seen in row two. Row three shows that there was no commonality between the strategy and the credit range that the solar service provider offers the customer. Row four shows that only service providers with best-cost and differentiation strategies were aware of the model. The last row indicates that the service providers experienced most competitive threat from “mixed” forces, indicating that there was more than one source.

Table 5.9: Commonalities with Strategies

Question	Best-Cost	Differentiation	Low-Cost	Niche
Sales; 5.2.5.	+23%	+7%	-15%	-60%
Supplier Region; 5.6.4.1.	South Africa	Europe	China	South Africa
Customer Credit Range; 5.7.2.	No Commonality	No Commonality	No Commonality	No Commonality
Awarenes of Value Chain Concept; 5.8.1.	Yes	Yes	No	No
Porter's Five Forces; 5.9.1.	Mixed	New Entrants	Mixed	Supplier

5.10.2. The Supplier Region

This section investigated possible commonalities between the supplier region and related questions. The results are presented in table 5.10., with the question and the chapter section in the first column. The first question is the order time, where South African suppliers take up to a week and the others up to two weeks. The second question is the average performance rating, where Europe is leading, followed by China and South Africa.

Table 5.10: Supplier Region and Commonalities

Question	South Africa	Europe	China
Order Time; 5.7.1.	1 Week	2 Weeks	2 Weeks
Performance Rating; 5.6.4.2.	Average - Good	Very Good	Good

5.10.3. The Annual Sales

The increase or decrease of annual sales in the last year was only linked to the target market question. As can be seen in Table 5.11, solar service providers who selected others as a target market had the strongest annual sales growth in the previous year, followed by businesses and residential areas.

Table 5.11: Annual Sales Commonalities

Question	Residential Areas	Cluster Areas	Security Estates	Businesses	Other(s)
Average Sales	+2,8%	+2,5%	-11%	+8,6%	+37,5%

5.11. THE PRESENT SOLAR SERVICE PROVIDER

To visualise the current operations of a typical solar service provider in the Western Cape, Figure 5.28 was created. The figure only depicts the core business operations of a service provider, and serves as a brief overview. The detailed information to each part can be found in the previous sections of this chapter. The dark blue highlighted areas (supplier; employee; customer) are the three most important stakeholders. In the middle (white) is the solar service provider him/itself. The arrows between stakeholder and solar service provider show the interactions. At the bottom in light blue is the external environment.

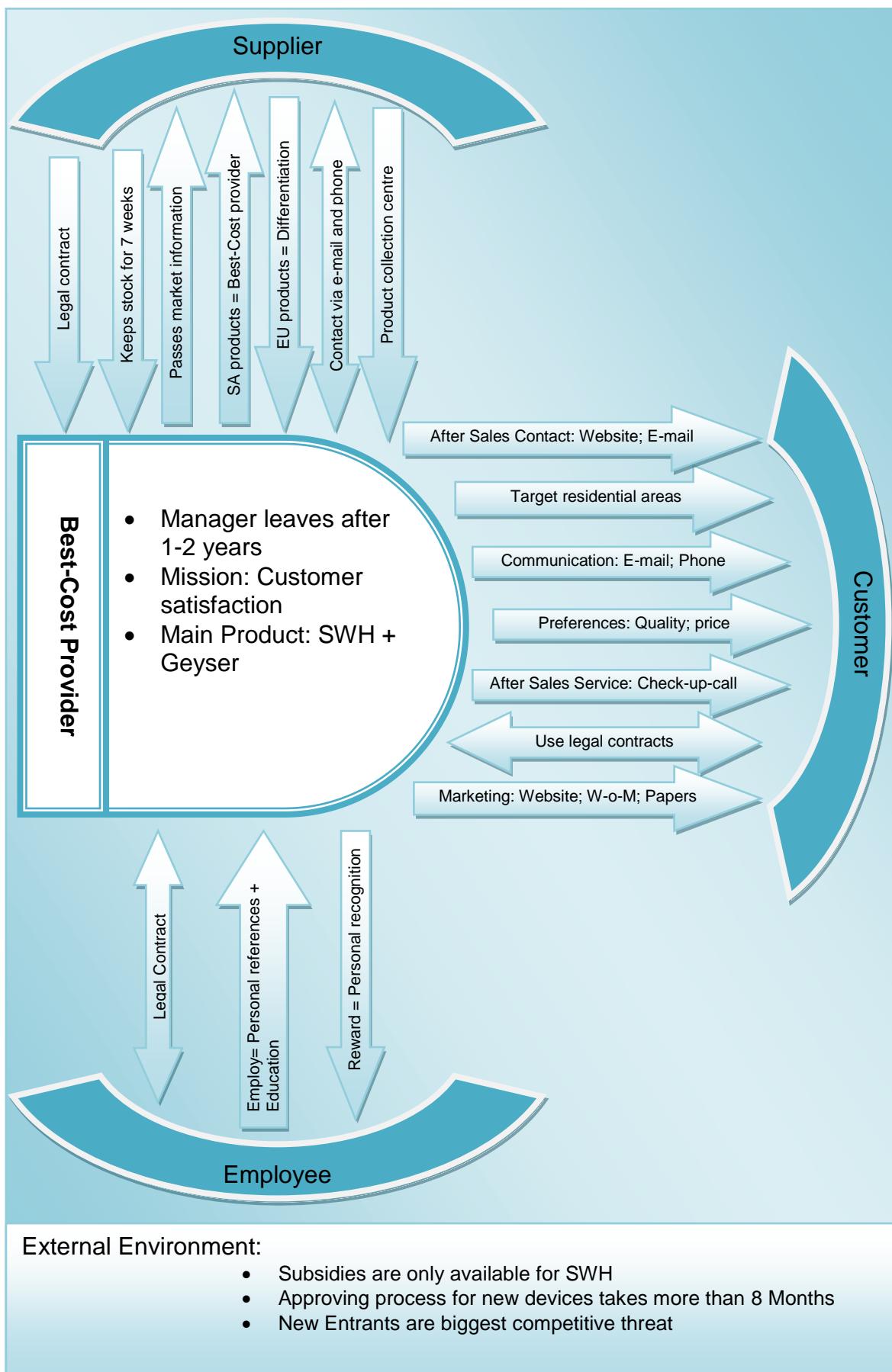


Figure 5.28: The current Solar Service Provider

5.12. CONCLUSION

This chapter has dealt with the empirical findings of the research study, and contributes to answering the research objectives stated in chapter 4. The chapter can be subdivided into two parts. The first part consists of a content analysis to identify common themes and categories for each question asked in the semi-structured interview. The identified themes and categories are analysed with a frequency analysis approach to distinguish between commonalities and trends. The second part identifies commonalities between the categories and themes of the questions.

The following chapter 6 presents the final conclusion and recommendations of the study. Based on the fact that the study was in exploratory form, the majority of recommendations are based on the findings of chapter 5. The last chapter addresses the last objective, how solar service providers could make use of the value chain in the future to add more value.

CHAPTER 6 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1. INTRODUCTION

The previous chapter, chapter 5, analysed and interpreted the data generated with the interviews. This chapter gives a brief summary of the study, followed by the main findings and recommendations.

As stated in chapter 1, the current South African energy structure is not sustainable. Most energy is generated with coal and fossil fuels, which will increase in price as the demand increases and reservoirs decrease. Renewable sources of energy have the potential to contribute significantly to a sustainable independent country. South Africa has one of the highest annual sun radiation levels in the world, which indicates the potential usefulness of solar energy.

As the solar industry is still in its infant stage the findings and recommendations of this chapter aim to contribute to a more efficient distribution of solar devices. The findings represent the present business structure of solar service providers, using Porters' value chain as a foundation. In addition, recommendations are provided to improve business activities. Lastly, limitations of this study and opportunities for further research are explained.

6.2. OBJECTIVES OF THE STUDY

The main objective of this study was to create an adapted model of Porter's Value Chain for solar service providers in the Western Cape. The adapted model is essential to be able to analyse present solar service provider business activities. The adapted value chain made it possible to identify opportunities to improve the business structure,

and reveal how these opportunities would affect all other business activities, as all activities are interlinked. Based on these findings, recommendations to improve the business structure and competitiveness could be made.

Secondary objectives were formulated to gain all necessary information in order to answer the main objective. The literature review and the pilot study assisted in creating the following secondary objectives:

- Identify stakeholders in the value chain and understand their links and levels of involvement.
- Determine the types of service providers and their function in the value chain.
- Diagnose the current structure of the value chain, including the flow of goods, services and skills.
- Determine strategies for more utilisation of solar products in the Western Cape.
- Determine how solar companies in the Western Cape currently use the value chain concept to add value.
- Identify the solar competitive advantage and key success factors of the industry.
- Propose how solar companies could make use of the value chain in the future to add value.

The intended value contribution of this study was to improve and increase the usage of solar energy sources in South Africa. The study focused on solar energy, as the growing market has potential which is not used with the present technology. The focal point was set on service providers as the growing market creates new opportunities and needs which have to be satisfied. All in all, increased usage of solar energy in private and public sectors could contribute to a more sustainable future by protecting the environment, saving electricity costs and lowering the risk of electricity shortages.

6.3. THEORETICAL OVERVIEW

A literature review was initially conducted to gain knowledge about the research models, namely the value chain and Porter's Five Forces, and the energy market. In addition a pilot study assisted in acquiring real-time knowledge of the current electricity market. Thereafter the exact primary and secondary research objectives were formulated.

Porter's value chain formed the primary research model of this study. The model was adapted to the business structure of solar service providers in the Western Cape. As described in detail in chapter 2, the model assisted in analysing how solar service providers conduct their business. It was possible to identify all major business activities from the inbound logistics to the final customer service. Moreover, it was possible to detect weaknesses and opportunities within the business, and consider how a change would affect other activities.

Porter's Five Forces was the secondary model of the study, and was explained in depth in the second part of chapter 2. The information about the competitive forces for solar service providers assisted in creating recommendations which took the external environment into consideration. The model measured the power of five forces, namely substitutes, buyers, suppliers, rivals and new entrants. To create recommendations which are effective it is important to know the external areas which are most crucial to success.

After both fundamental research models of this study were explained, focus was given to the energy market in chapter 3. Firstly, the global and the South African electricity industry were investigated. Worldwide, the demand for electricity will increase by 30% in the next 30 years. At the same time, present main electricity sources like coal, oil and uranium are predicted to be used up in the next 150 years. South Africa is still producing 93% of its electricity with coal. Consequently, it is not a sustainable solution for South Africa to invest in common sources like nuclear power. Taking the natural advantage of having one of the highest sun radiations in the world, the potential for solar energy in South Africa is enormous.

The in-depth literature review about the research models in chapter 2 and the energy markets in chapter 3 were essential to the success of this study. The knowledge about the models gave structure to the research process and made it possible to identify the business activities of solar service providers. The understanding of the electricity and renewable energy resources markets, created understanding of the solar service provider market and provided an indication of opportunities. Based on this knowledge it was possible to create a questionnaire which covered all the information needed to answer the objectives.

6.4. RESEARCH METHODOLOGY

The research objectives were investigated according to the methodology stated in chapter 4. The research was of exploratory form, as no study of similar nature existed. A pilot study with 5 respondents was conducted to finalize the questionnaire for the main interviews. The questionnaire is attached as Appendix B.

The research targeted the whole solar service provider population of the Western Cape. The majority of service providers are listed on the Eskom webpage ($n=55$). In addition, a second webpage called “solar suppliers” ($n=33$) was used to complete the list. The main interviews entailed 18 solar service providers. Respondents were managers or owners of the service providers. All interviews were conducted with the same procedure to assure reliability and validity (section 4.8).

To enable the coding of the gathered data, the recorded interviews were first transcribed (Appendix A). A content analysis approach was then used to identify similar categories and themes. Lastly, a frequency analysis approach was used where possible to create more meaning. If the same answer was given with equal or more than 60% of the time, it was classified as a similarity or commonality. Answers with less than 60% were interpreted as a trend or difference. Porter’s value chain model was adapted to solar service providers using only the similarities and commonalities.

6.5. SUMMARY OF MAIN FINDINGS

This section presents the most significant findings of this study. To create more understanding of the findings, the sections start with the most basic findings. First there are the stakeholders who enable the service providers to conduct their business. Second, the solar service provider value chain which presented the current business structure and the key success factors within this chain. Lastly, Porter's Five Forces were applied to the point of view of solar service providers, followed by several cross-sectional findings.

6.5.1. The Stakeholders

To create recommendations that would improve the relationships with the most important stakeholders, respondents were asked to select the main stakeholders to their business. Those most frequently selected were suppliers (89%), employees (83%) and customers (78%). The business relationship with all three main stakeholders was based on legal contracts. The biggest concern expressed by 67% of the respondents was the relationship with customers. This stakeholder group still had to be educated about the benefits of solar energy, without being concerned about the initial investment.

6.5.2. The Solar Service Provider Value Chain

Part of the primary objective of this study was to adapt Porter's value chain model to the business activities of solar service providers in the Western Cape. Sections 5 and 7 of the questionnaire were directed at gathering all the information necessary for the adaption of the model. As mentioned, only answer categories and themes with a frequency of 60% and more were used for the adaptation. The adapted solar service provider value chain model is presented in Figure 6.1. Most service providers (56%) pursued a best-cost provider strategy, as customers demanded good performing products without an enormous initial investment. The secondary activities were on top, and are as follows:

- *The human resource management* function was mentioned as the most important one, as it was responsible for good service, which was a strong differentiation point.

To employ new staff members, education (83%) and personal reference (72%) were the foremost important criteria. To keep staff members motivated in 55% of the cases, personal recognition was used, followed by 38% for incentives.

- The technology represented the products which were sourced from suppliers. Good technological products were a basic requirement to become a sustainable contender in the market.
- Order procurement was essential for the business, which meant they had to perform well in order to enter the market. It organised the product buying process at the optimal possible cost in the correct amount and quality.

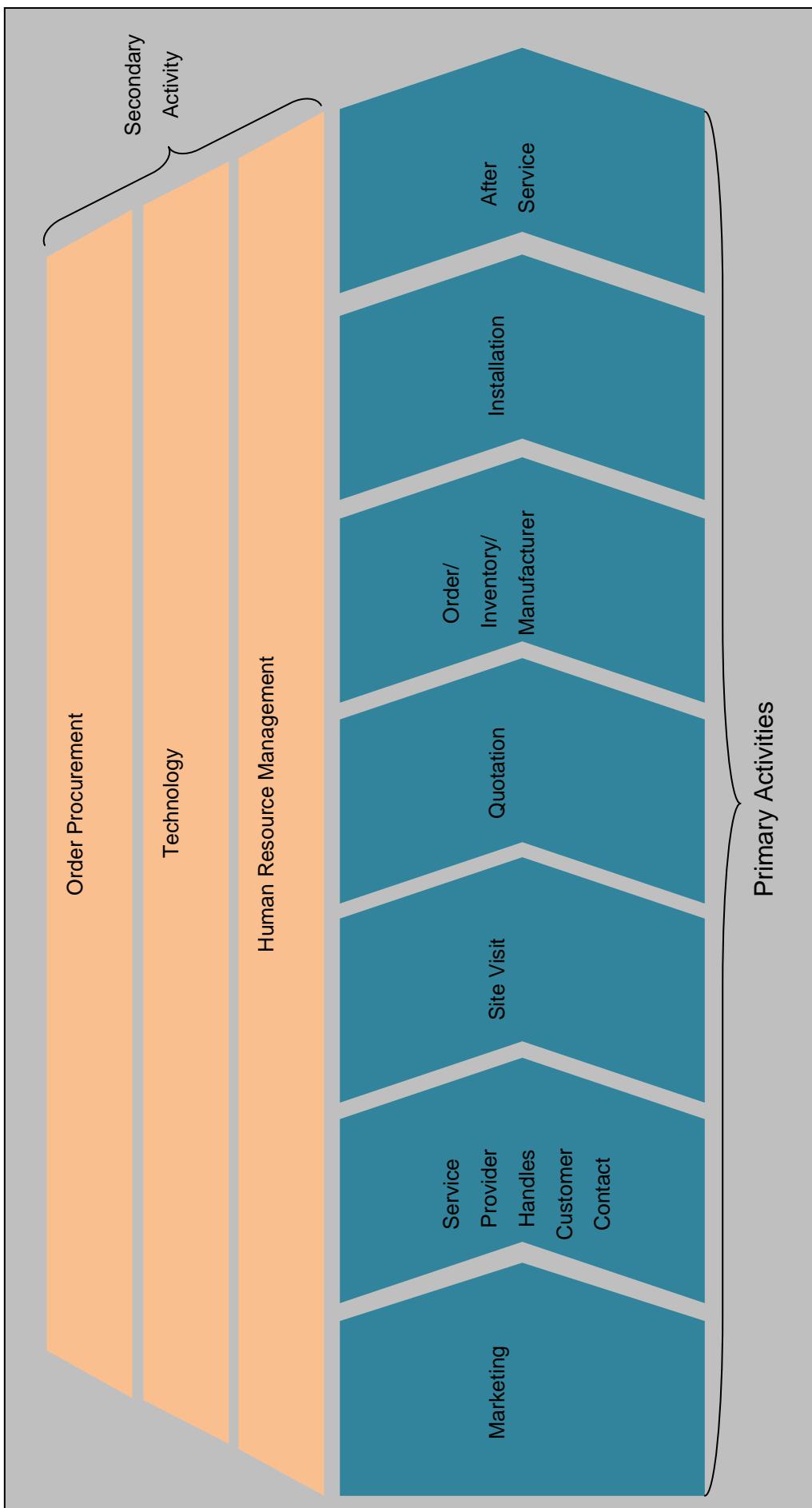


Figure 6.1: The Solar Service Provider Value Chain

The primary activities in Figure 6.1 were at the bottom, and formed the core business process of a solar service provider. The primary activities identified were as follows:

- Marketing was the first step as it was necessary to make the customer aware of the product. Residential areas were targeted from nearly all (89%) of the service providers, followed by businesses (45%). The most common marketing tools used at the time were websites, word of mouth and paper advertisement. Word of mouth was generated by satisfied customers.
- Solar service provider handles customer contact after he gained awareness through the marketing. The contact channels were e-mail in 89% of the cases, followed by phone and personal visits with 72% and 50%.
- Site visits were done by solar service provider staff members to evaluate the location at the customer's place, and to find the most suitable product solution.
- The quotation was prepared and sent to the customer after the target location was evaluated and the appropriate solution was found. The best sold products were geysers with 89% and solar water heaters with 83%. The most important product preferences for all products were price and quality.
- The order, manufacturing and inventory step made sure all product parts for the demanded installation were ready. The majority of service providers sourced their products from South African suppliers (55%), followed by European (30%) and Chinese (15%). The European products had the best overall measured rating, with the only disadvantage of high prices. South African products were in second place, with lower ratings than the European products and prices which were also rated as too high. Chinese products got the lowest overall rating, but the prices offered were lower.

The service providers either received their products through agents or at collecting centres. It depended on the product and whether stock was kept, for the most popular products 67% of the service providers kept stock. On an average the stock lasted for 7 weeks.

Product training and weekly check-up calls were services that were provided by 84% of the suppliers. A two-way communication approach between supplier and service provider was performed by 75% of the existing relationships. The frequency of communication depended on the service provider, which made contact at least once a week. The most common communication channels were e-mail (89%), phone (78%) and face to face communication (50%).

- *The installation* takes place when the products demanded by the customers are put into place at the desired location. Within the first week 89% of the orders were installed. In 78% of the cases the customer had to settle the outstanding amount in the first week after the installation was finished.
- *The after-service* took place after the installation and payments were made. The purpose was to assure that the product performed as promised. In 55% of the cases a check-up call was conducted from the service provider, and 33% did not have any after-service.

The majority of managers (67%) were aware of the value chain concept and how to apply it to their business. It is interesting to mention that only managers who approached a best-cost provider and differentiation strategy were conscious of the concept. Only 37% of employees were aware of the concept. Repeatedly, only employees of service providers with best-cost provider and differentiation strategies used the concept. The awareness of the supporting activities was high, with 89%.

All activities of the solar service provider value chain were interlinked. For instance, if a new product was added to the product portfolio in step 5, all other steps had to take this into consideration. The staff members had to be trained to be able to evaluate the customer locations and to be able to install it. The next section identifies key success factors in the value chain.

6.5.3. The Value Chain Key Success Factors

The value chain key success factors were identified by asking the respondents which areas of their value chain they rated as most important to be successful in the market. These factors are part or are one of the activities of the adapted value chain in Figure

6.1. For solar service providers to be sustainable and competitively superior, it is important to perform exceptionally in these activities.

The foremost important value chain activity was service, which was mentioned by 94% of the respondents. Service forms part of virtually every value chain activity. However, the most important service activities were the site visit and the installation. The employee is in face to face contact with the customer and has to ensure that the products are set up properly. Moreover, good service has a strong influence on positive word of mouth.

The second most important activity was marketing, which was chosen by 39% of the respondents. Based on the fact that the industry is still in its infant stage, customers have to be made aware and to be educated about the product offers of solar service providers. As mentioned before, a successful installation with excellent service creates positive word of mouth, which is one of the most powerful marketing tools. The products last more than 20 years, which makes it important to gain new customers. Positive word of mouth is consequently a good way to gain new buyers, and is crucial for sustainability.

Good service and marketing are activities which are not yet well developed in the industry; this creates space for service providers to gain competitive advantage. Nevertheless, the other important activities like technology are a prerequisite to survive in the industry.

6.5.4. The Five Forces and Solar Service Providers

The evaluation of the five forces in the solar service provider market assisted in creating better recommendations of what the ideal solar service provider business structure should look like. The knowledge of where most competitive pressure is generated from indicates where to conduct improvements and to innovate.

The force of new entrants was mentioned the most and was selected by 50% of the respondents. Reason for this was the strong growing market, which created space for new market entry. Most new entrants offered cheap products from China, which harmed the market reputation as the performance was low in comparison to European and

South African quality. Moreover, no service provider could establish himself as a clear market leader yet.

The forces of substitutes and buyers were selected each with 28%. The major substitute for solar energy is the still relatively cheap common electricity delivered by Eskom. This substitute is expected to become weaker as the electricity price is going to increase in the future. The power of buyers is considerably high as there are more service providers entering the market, which gives a greater variety to choose from.

Most of the respondents mentioned installations as their core competency, followed by technology and reputation. In addition, respondents were asked to identify their strongest competitor(s). The strongest contender in the Western Cape market was SolarTech, followed by SolarMax.

6.5.5. Relevant Cross-Sectional Findings

This section summarises the most significant cross-sectional findings of the questionnaire. Considerable findings could be made, based on the strategy the solar service provider is pursuing. The best-cost provider strategy was the most successful one with an annual sales increase of 23%, followed by a differentiation strategy with 7%. All other strategies had decreasing sales numbers.

Best-cost providers sourced their products from local suppliers, as they had a good quality/price ratio. Moreover, the delivery time was one week in comparison to overseas products of two weeks. Service providers with differentiation strategies sourced from European suppliers as the quality was superior, but with the disadvantage of a high price.

The target market with the highest sales increases with 37% was public institutions and hotels. The second strongest market was residential areas with 2.8% increase, which was also the most popular one.

6.6. THE ADVANCED SOLAR SERVICE PROVIDER BUSINESS STRUCTURE

This section represents the second part of the main objective. Recommendations are made to solar service providers in the Western Cape about how to improve their business structure and activities. Section 6.5 represented the first part of the main objective, the adaptation of Porter's value chain.

The advanced solar service provider business structure, including the recommendations, is illustrated in Figure 6.2. The recommendations are highlighted in red and are discussed in more depth in this section. It is clearly visible that most improvements were given for the relationship of the service provider to the customer.

The best-cost provider strategy was selected as the most appropriate one for solar service providers. The first reason is that many potential customers fail to purchase the solar product as the initial investment is too high. The strategy offers a lower initial investment, which makes it affordable for more customers. Secondly, the quality has to be high, as the solar technology is still in the beginning of its life cycle. For instance, a low cost quality solar water heating system does not efficiently heat the water, which causes dissatisfaction for the customer.

Part of the strategy is the target market. The solar service provider can specialize in certain types of customers. As shown in table 5.11, one target market yields more potential are businesses. The type of product provides another opportunity to specialize in. It would save time and costs to specialize in solar water heating systems, as the popularity is increasing (Figure 5.11).

The flagship products are geysers and solar water heating panels. The reason is that the technology is relatively advanced, which means it is durable, effective and reliable. Moreover, Eskom is providing subsidies for each SABS-approved system sold.

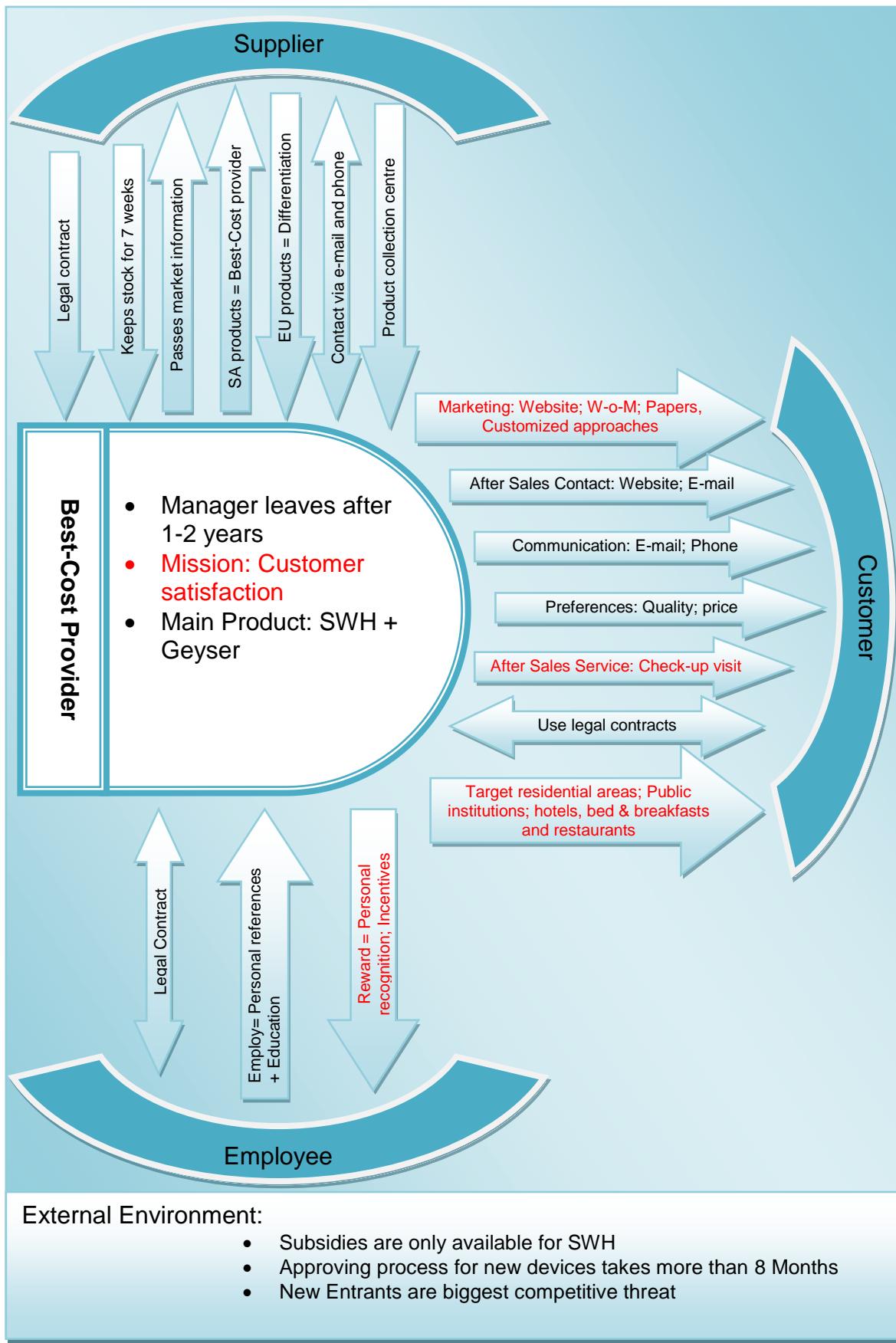


Figure 6.2: Advanced Solar Service Provider Business Structure

6.6.1. Marketing

Marketing is crucial for solar service providers, as the products offered in the market are very similar. Marketing creates the opportunity to differentiate themselves from rivals. Customer retention in the market is very low, as once a customer has bought a solar system which lasts for at least 15 years, he is highly unlikely to come back for another one. Moreover, customers have to be made aware and educated about the benefits. The following section explains the customised marketing approach:

- *Provide incentives to customers who bring a new customer.* The main marketing aim should be to attract new customers. This approach could help immensely to win new customers. The incentive could be free service of the installed products for X amount of years, which also keeps the customer reminded of the service provider. Another approach could be to refund a part of the customer's bill.

This approach would assist in increasing the most powerful marketing tool, word of mouth. Moreover, as there is no major market leader and service providers are of small size, the capital available for marketing is not enough for big campaigns. In addition, this tool would be directed to the local target market, and no extra effort has to be made.

- *Create a marketing pool to generate more power.* Solar service providers are only able to create a powerful marketing campaign if they form a marketing partnership where resources are combined. Consequently, the campaign will have a wider reach to educate and increase awareness of the products and their benefits. All service providers participating can benefit as new customers can be attracted. Nevertheless, this is a long-term goal, as it requires trust and planning between the partners. The partnership could target a region, like the Western Cape.
- *Promote the products at functions.* Service providers need to become creative to conduct successful marketing within their budgets. Therefore it is important that the target consumers are present and are reached. For instance, if the service provider targets security estates with a golf course, it is an opportunity to sponsor a prize and include a speech about the product at the prize-giving. If the target markets are for

the tourist industry, potential customers can be reached at hotels, congresses or exhibitions.

All marketing recommendations take the present business structure of the majority of solar service providers into consideration. Firstly, the business is small, which means there are limited funds for marketing, and target customers are in a small area. Secondly, most competitive pressure is created by new entrants who make it important to be established in the local market. Consequently, to be successful, the small service provider should create a reliable and professional reputation in his local market.

6.6.2. The Service

Service is the second important tool identified in the research, which can create competitive advantage if executed successfully. In Figure 6.2 the service parts are highlighted in red, including the mission (customer satisfaction) and after-sales service. The following recommendations indicate how to improve these activities:

- *The mission statement aims to create customer satisfaction.* Solar service providers formulated well defined mission statements even though it was very vague and broad, and still lacking in implementation and execution. As shown in chapter 5 in section 5.6.4.2, the performance evaluation of all suppliers and their product is good to very good. Consequently, the service the business is providing is the crucial point to satisfy the customer and to be different from competitors.

The installing team is therefore the key to fully satisfy the customer. The respondents knew that installing was the key, but they could not tell what they could do to improve their performance. Solar service provider managers have to make sure that the installer is well trained on the products, which can be seen as a prerequisite. Secondly, to gain positive customer feedback, the installer also needs to be trained on interaction with the customer. To assure excellent service the service provider should train the installer team in all service dimensions:

- *Reliability* is the ability of an installer to perform the promised service dependably and accurately. This means that employees must be trained well on the products and how to install them. For instance, part of this is the site

visit where the location for the solar panels for maximum radiation must be found.

- Responsiveness is the willingness to help and provide prompt service. For the installers, this means that they have to be in time for their appointments with the customer. Moreover, if there are any problems with the product, the installer has to be able to come the same day to fix it.
 - Assurance is the employees' knowledge and courtesy and their ability to inspire trust and confidence. For instance, the whole installing team should introduce themselves to the customer on the first visit. The customer should also be informed on general maintenance and knowledge about the product.
 - Empathy is to care and to give individualised attention to customers. The installers should be trained in communicating with customers. For example, the installer should sit down with the customer and explain to him step for step what he is going to do and why. Consequently, the customer feels more satisfied as he is informed about everything he is paying for.
 - Tangibility is the appearance of physical facilities, equipment, personnel, and written materials. The equipment, including the car, should be clean and organised. The working clothes of all workers have to be clean and should be identical, which gives a professional and trustworthy impression.
- After-sales-service is often underestimated in contributing to overall customer satisfaction. At the start, a check-up call should be conducted to ask if everything is working. To improve the service enormously, service providers should conduct a last visit to check the functionality of all products. Last questions from the customers' side can also be addressed. As the technology is new to most customers, questions often evolve after using the product for a week or more.

6.6.3. Employee Motivation

The employees are the capital of a solar service provider business. The business cannot survive with employees who are not trained or are not motivated to apply their trained knowledge. Section 6.6.2 gave recommendations of how to train employees efficiently. This section provides recommendations of how to improve the motivation of employees. At the moment managers give employees personal recognition for more motivation. The following are two possible tools for further motivation:

- An incentive is extra salary paid to the employee for each successful installation. For instance, the installer team can receive for each successful job an X amount of money. This amount is distributed after the final check-up visit/ call when the customer has expressed his satisfaction.
- Bonuses are used on a monthly base and are added to the basic salary. Bonuses are generated and distributed to employees when monthly predicted profits are exceeded.

As employees, especially installers, should only be focused on their present installation, it is advisable to use incentives. The advantage is that the installer knows that for each job he does well, he gets extra money. Bonuses can also be used but are more suitable for employees who are not directly linked to the main service, the installation.

6.7. LIMITATIONS OF THE STUDY AND OPPORTUNITIES FOR FUTURE RESEARCH

This study aimed to make a considerable contribution to knowledge about the business structure and activities of solar service providers in the Western Cape. Recommendations were made to improve the performance and competitiveness. Nevertheless, the study could not explore all areas and some fields have to be researched in more depth.

As a result of the findings of this study, the following opportunities for further research and the limitations of this study are identified:

- Limitation: Using only 18 solar service providers was a clear limitation of the study, as this only represents 24% of the entire population in the Western Cape. Nevertheless, this study produced information about solar service providers' business structure and how they could improve it in the future.

Opportunity: Further research could include other areas of the country to get a better picture of the whole market and possible market leaders.

- Limitation: The study only targeted solar service providers, which created limitations for the findings. Knowledge from stakeholders about their business relationships with solar service providers would have assisted in generating more effective recommendations. However, the solar service provider was the focus of the study and interviews revealed enough knowledge to produce valid findings.

Opportunity: Future research should integrate the customer, as that is the most important stakeholder to the business.

- Limitation: Using only managers and owners of solar service providers has been a limitation of the study. The reason was to get an all-round knowledge of the business and the activities.

Opportunity: Further research could incorporate installers, as this group is crucial to the actual success of the business.

The study was in an exploratory form, which was a first step to understanding and improving the downstream part of the solar value chain in South Africa. As a result the knowledge created is new, and the outcome has to be validated with further quantitative research. As mentioned before in other areas, further qualitative research has to be conducted to gain more insight.

6.8. CONCLUSION

The main outcome of this study is the adapted model of Porters' value chain to solar service providers in the Western Cape. Recommendations to improve the business structure and activities in the interest of all stakeholders were made. Chapter 1 gave a brief overview of the study. Chapter 2 and 3 presented the literature review, which included the research models and the knowledge about the energy and solar industry. Chapter 4 described in detail how the study was conducted. The findings of the interviews were presented in chapter 5, followed by the recommendations in chapter 6.

The literature review of this study has shown that it is crucial for the sustainable future of South Africa to increasingly make use of renewable sources of energy. As mentioned

before, the high sun radiation level presents optimal conditions for the usage of solar technology in South Africa. In addition, the present development of the rising electricity costs makes it progressively more economical to invest in renewable sources of energy.

The supplier side of the industry is developed, as can be seen in countries such as Germany, where the technology is well accepted. The downstream part of the South African solar industry is in its infant stage, which creates space and the need to improve. To increase the usage of solar energy in South Africa, this study aimed to improve the performance of solar service providers.

The recommendations of this study show that solar service providers need to improve their service and marketing performance. Marketing is important as customers still have to be educated about the benefits of solar products. High quality service is crucial, as solar panels cannot perform at their maximum and capture all the possible sun radiation if installed poorly.

Satisfying the demand for energy in the 21st century is one of the major challenges for the human race. Present sources of energy are finite, and cause environmental pollution. To create a sustainable environment for coming generations, it is essential to start now to increase the usage of renewable sources of energy. This study aimed to contribute to a sustainable natural and economical environment in South Africa.

LIST OF REFERENCES

Abbay, T. T. 2004. Competitive Strategy Formulation. Durban: University of KwaZulu-Natal. (MA-Thesis).

Addinall, P.J. 2011. Interview with the technical sales director on 8th June 2011. Johannesburg: Energex.

All Africa. 2011. *South Africa: BRIC becomes BRICS*. [Online]. Accessed at: <http://allafrica.com/stories/201101311356.html> [13 February 2011].

APS Solar. 2011. Interview with the sales manager on 8th June 2011. Johannesburg: Energex.

ASCD, 2010. *Data Collection: Building a Valid and Reliable Data Collection Plan*. [Online]. Accessed at: <http://www.ascd.org/publications/books/100047/chapters/Data-Collection@-Building-a-Valid-and-Reliable-Data-Collection-Plan.aspx> [12 June 2011].

Babbie, E. & Mouton, J. 2003. *The practice of social research*. South African Edition. Cape Town: Oxford University Press.

Ball, R. 2004. Corporate Governance and Financial Reporting at Daimler-Benz (DaimlerChrysler) AG: From a “Stakeholder” toward a “Shareholder Value” Model.

Bennett, K. 2011. Interview with professor for renewable energy on 22nd May 2011. Cape Town: University of Cape Town.

Biology Online. 2010. *The Greenhouse effect*. [Online]. Accessed at: http://www.biology-online.org/dictionary/Greenhouse_effect [12 June 2011].

Brady, M.K., Crittenden, V.L., Crittenden, W.F. & Grant, K. 1998. *Direct Selling as a Marketing Entry strategy*. Boston: Carroll Scholl of Management.

Brown, S. Bessant, J. & Lamming, R. 2000. *Strategic operations management*. Oxford: Butterworth Heinemann.

Bryant, F.B. & Wortman. 1978. Secondary Analysis: The Case for Data Analysis. *American Psychologist*. Vol 33(4): 381-387.

Business Dictionary. 2009. *Primary research data*. [Online]. Accessed at: <http://www.businessdictionary.com/definition/primary-data.html> [10 February 2011].

Cambridge Dictionaries Online. 2011. *Stakeholder Definition*. [Online]. Accessed at: http://dictionary.cambridge.org/dictionary/british/stakeholder_1 [20 September 2011].

Carson, D., Gilmore, A., Perry, C. & Gronhaug, K. 2001. *Qualitative Marketing Research*. London: SAGE Publications Ltd.

Chiang, A. 2001. *A Practical Guide to Delivering Excellent Customer Service*. Hong Kong: Hong Kong Association for Customer Service Excellence.

Clean Energy Ideas. 2010. *Renewable Energy Definition*. [Online]. Accessed at: http://www.clean-energy-ideas.com/energy_definitions/definition_of_renewable_energy.html [12 February 2011].

Cline, D. & Clark, D.L. 2010. *The Problem Statement*. [Online]. Accessed at: <http://education.astate.edu/dcline/guide/Problem.html> [29 May 2011].

Colorado State University. 2010. *Writing Guide: Content Analysis*. [Online]. Accessed at: <http://writing.colostate.edu/guides/research/content/> [01 June 2011].

Companies and Markets. 2010. *Renewable Energy in South Africa - new market report and analysis*. [Online]. Accessed at: <http://www.pr-inside.com/renewable-energy-in-south-africa-r2012611.htm> [15 May 2011].

Conningarth Economists. 2004. *Economic and Financial Calculations and Modelling for the Renewable Energy Strategy Formulation with selection of the optimal mix (least cost) of technologies, for fulfilling the 10 000 (4 000)GWh target at least cost for the South African society*. South Africa: Report to the World Bank.

Cooper, R.G. 1994. New Products: The Factors that drive Success. *International Marketing Review*. Vol. 11(1): 60-76.

Cooper, D.R. & Schindler, P.S. 2003. *Business Research Methods*. New York: McGraw-Hill.

Cooper, D.R. & Schindler, P.S. 2006. *Marketing research*. New York: McGraw-Hill.

Corporate Communication. 2010 . *The Advantages of Vertical Integration*. [Online]. Accessed at: http://www.pes.eu.com/assets/articles/096_TrinaSolar%5B1%5D.pdf [12 June 2011].

Creswell, J. W. & Miller, D. L. 2000. Determining validity in qualitative inquiry. *Theory into Practice*. 39(3): 124-131.

Damon, I. 2011. Interview with SESSA ambassador on 7th June 2011. Johannesburg: Energex.

Datamonitor. 2009. *Global Energy*. [Online]. Accessed at: <http://www.datamonitor.com/default.aspx> [12 February 2011].

Davidson, O., Hirst, N., & Moomaw, W. 2010. *Recommendations to the World Bank Group on Lending to South Africa for Eskom Investment Support Project that includes a Large Coal Burning Power Station at Medupi*. Washington: World Bank.

Davies, D., & Dodd, J. 2002. Qualitative research and the question of rigor. *Qualitative Health research*. 12(2): 279-289.

Denzin, N.K. & Lincoln, Y.S. 2005. *The SAGE Handbook of Qualitative Research*. 3rd rev. ed. California: SAGA Publication Ltd.

Department: Environment affairs and Tourism of the Republic of South Africa. 2009. *Greenhouse Gas Inventory South Africa*. [Online]. Accessed at: <http://www.pmg.org.za/files/docs/090812greenhouseinventory.pdf> [10 February 2011].

Department of Environment Affairs and Tourism South Africa. 2007. *Long Term Mitigation Scenarios*. [Online]. Accessed at: <http://www.environment.gov.za/HotIssues/2009/LTMS2/LTMSTechnicalSummary.pdf> [28 April 2011].

Department of Minerals and Energy. 2004. *White Paper on the Renewable Energy Policy of the Republic of South Africa*. [Online]. Accessed at: <http://www.info.gov.za/view/DownloadFileAction?id=68765> [03 April 2011].

Dess, G.G. 1994. Porters Generic Strategies as a Determinants of Strategic Group Membership and Organizational Performance. *The Academy of Management Journal*. Vol. 27(3): 467-488.

DME (Department of Minerals and Energy). 2002. *Energy outlook for South Africa*. Pretoria: DME.

DME (Department of Minerals and Energy). 2005. *White Paper for the Promotion of Renewable Energies and Clean Development*. DME: Pretoria.

DME (Department of Minerals and Energy). 2006. *Digest of South African energy statistics*. Pretoria: DME.

Dongjie, H. 2011. Interview with the sales engineer of NARI on 7th June 2011. Johannesburg: Energex.

E Service Expert. 2009. *Benchmark Methodology*. [Online]. Accessed at: http://www.e-service-expert.com/Benchmarking_Methodology.html [3 June 2011].

Eberhard, A.A. & Williams, A. 1988. *Renewable Energy Resources and Technology Development in South Africa*. Cape Town: Elan Press.

Edkins, M., Marquard, A. & Winkler, H. 2010. Assessing the effectiveness of national solar and wind energy policies in South Africa. *Journal of Energy in South Africa*. Cape Town: Energy Research Centre.

Eisner, E. W. 1991. *The enlightened eye: Qualitative inquiry and the enhancement of educational practice*. New York: Macmillan Publishing Company.

Energy Business Reports. 2009. *Global Energy Industry Outlook 2009*. [Online].

Accessed at:

<http://energybusinessreports.com/freepdf/GlobalEnergyIndustryOutlook2009.pdf> [13 February 2011].

Eng, L.G. 1993. Using generic strategies: some caveats. *Singapore Management Review*. Vol. 15(2):43-48.

Environmental Issues. 2011. *What is the Greenhouse Effect?* [Online]. Accessed at: <http://environment.about.com/od/globalwarming/a/greenhouse.htm> [2 February 2011].

EPIA (European Photovoltaic Industry Association). 2006. *Global Market Outlook for Photovoltaic until 2012*. Germany: EPIA.

Eskom. 2011a. *Renewable Energy*. [Online]. Accessed at:

<http://www.eskom.co.za/c/91/renewable-energy/> [14 June 2011].

Eskom. 2011b. *Solar Water Heating Program*. [Online]. Accessed at:

<http://www.eskom.co.za/c/56/eskom-solar-water-heating-programme/> [2 May 2012].

Eskom Call Centre. 2012. Subsidies for Renewable Sources of Energy. [Phone Call]. (Personal Communication, 2 May 2012).

ESTIF (European Solar Thermal Industry Federation). 2010. *Solar thermal markets in Europe - trends and market statistics 2009*. [Online]. Accessed at: http://www.estif.org/statistics/st_markets_in_europe_2009/ [11 February 2011].

Expertise Marketing. 2011. *Differentiation Strategy Consulting*. [Online]. Accessed at: <http://www.expertisemarketing.com/differentiation-strategy.html> [29 May 2011].

ExxonMobil, 2009. *Outlook for Energy. A View to 2030*. [Online]. Accessed at: http://www.exxonmobil.com/Corporate/files/news_pub_eo_2009.pdf [27 April 2012].

ExxonMobile. 2012. *The Outlook for Energy: A View to 2040*. [Online]. Accessed at: http://www.exxonmobil.com/Corporate/files/news_pub_eo.pdf [06 May 2012].

Faulkner, D. & Bowman, C. 1992. Generic strategies and congruent organizational structures. *European Management Journal*. Vol. 10(4):494-500.

Finance News. 2010. *Maintaining Good Relationship with your Suppliers*. [Online]. Accessed at: <http://finance.ninemsn.com.au/smallbusiness/customerservice/8124167/maintaining-good-relationships-with-your-suppliers> [1 June 2011].

Flat World Knowledge. 2010. *The Framework: The Value Chain*. [Online]. Accessed at: <http://www.flatworldknowledge.com/pub/gallaugher/41135#web-41135> [4 June 2011].

Frary, R.B. 2004. *A Brief Guide to Questionnaire Development*. Virginia: Virginia State University.

Frey, C. 2010. *The Relationship between Innovation and Differentiation*. [Online]. Accessed at: <http://www.innovationtools.com/weblog/innovationblog-detail.asp?ArticleID=513> [23 May 2011].

Future Energy. 2012. *Future Energy Technology*. [Online]. Accessed at: <http://www.alternative-energy-news.info/technology/future-energy/> [10 June 2011].

Galbraith, C. & Schendel, D. 2006. An Empirical analysis of Strategy types. *Strategic Management Journal*. 4(2):153-173.

Gereffi, G. 2001. Shifting Governance Structures in Global Commodity Chains, with Special Reference to the Internet. *American Behavioural Scientist*. Vol.

44(10):1616-1637.

Gereffi, G. & Kaplinsky, R. 2001. The Value of Value Chains. *IDS Bulletin*.32(3): 128-141.

Gereffi, G. Humphrey, J. Kaplinsky, R. & Sturgeon, T.J. 2001. Introduction: Globalisation, Value Chains and Development. *IDS Bulletin*.32(3): 1-10.

Gereffi, G., Humphrey, J. & Sturgeon, T. 2003. *The Governance of Global Value Chains*. Durham: Duke University.

Gibbon, P. 2001. Upgrading primary products: a global value chain approach. *World Development* 29(2):345-363.

Giuliani, E. & Pietrobelli, C. 2000. *Upgrading in Global Value Chains: Lessons from Latin American Clusters*. Italy: University of Rome.

Global Solar Energy Council. 2010. *Solar Thermal Market*. [Online]. Accessed at: <http://www.solarthermalworld.org/node/1025> [05 June 2011].

Graneheim, U.H. & Lundman, B. 2003. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today*. 24(2): 105-112.

Green Electricity Marketplace. 2007. *What is Green Electricity?* [Online]. Accessed at: <http://www.greenelectricity.org/renewables.php> [9 February 2011].

Green Power. 2011. *Solar Performance*. [Online]. Accessed at: <http://www.green-power.co.za/?gclid=CKqkjONwqkCFdQOfAody0K5Uw> [1 June 2011].

Green Rhino Energy. 2010. *The Solar Value Chain: Key Success Factors*. [Online]. Accessed at: http://www.greenrhinoenergy.com/solar/industry/ind_ksfs.php [19 February 2011].

Hamel, G. & Pralahad C. K. 1994. *Competing for the Future*. Cambridge: Harvard Business School Press.

Hair, J.F., Bush, R.P. & Ortinau, D.J. 2000. *Marketing Research: A practical approach for the new millennium*. Boston: McGraw-Hill International.

Hauge, P. & Jackson, P. 1995. *Do your own Market Research*. 2nd ed. London: Kogan Page.

Henning, E., Van Rensburg, W. & Smit, B. 2004. *Finding your Way in Qualitative Research*. Pretoria: Van Schaik.

Hoffmann, H. 2006. PV solar electricity industry: Market growth and perspective. *Solar Energy Materials & Solar Cells*. 90(18):3285–3311.

Holm, D. 2005. *Market Survey of Solar Water Heating in South Africa for the Energy Development Corporation (EDC) of the Central Energy Fund (CEF)*. South Africa: SolaSure.

Hough, J., Thomson, A.A., Strickland, A.J. & Gamble, J.E. 2011. *Crafting and executing strategy: text, readings and cases*. South African ed. London:McGraw-Hill.

Howells, M. 1999. *Baseline and greenhouse gas mitigation options for bulk energy supply, South African Country Study on Climate Change*. South Africa: University of Cape Town.

Hrab, D & Yamkina, O. 2011. *Improving the Competitive Position in a Growing High Tech Industry*. Sweden: Linkoepings University.

Humphrey, J. & Schmitz, H. 2000. *Governance and upgrading: linking industrial cluster and global value chain research*. Brighton: Institute of Development Studies, University of Sussex.

IEA (International Energy Agency). 2006. *Key World Energy Statistics from the IEA: International*. Paris: Energy Agency.

Industrial Restructuring Project. 2000. Benchmarking. *Policy Briefing Paper No 5*. Durban: School of Development Studies, University of Natal.

Inspectapedia. 2007. *Electrical Definitions: Amps, Volts, Watts, Ground*. [Online]. Accessed at: <http://www.inspectapedia.com/electric/ElectricalDefinitions.htm> [21 February 2011].

Joburg. 2011. Interview with the solar engineer on 8th June 2011. Johannesburg: Enerex.

Kaplinsky, R. & Morris, M. 2000. *A Handbook for Value Chain Research*. London: Institute of Development Studies.

Ketchen, D.J. Rebarick, W. Tomas, G. Hult, M. & Meyer, D. 2008. Best value supply chains: A key competitive weapon for the 21st century. *Business Horizons*. 51(3):235-243.

Keyway, C. 2011. Interview with the export manager of Sun Power on 7th June 2011. Johannesburg: Enerex.

Keyser, J.C. 2006. *Description of Methodology and Presentation of Templates for Value Chain Analysis*. World Bank:Washington, D.C.

Kumar, V., Aaker, D.A. & Day, G.S. 2002. *Essentials of Marketing Research*. New York: John Wiley & Sons, INC.

Kress, G. 1988. *Marketing Research*. 3rd ed. New Jersey: Prentice Hall.

Lambertini, L. & Rossini, G. 2004. *Vertical Integration and Differentiation in an Oligopoly with Process Innovating R&D*. Italy: University of Bologna.

Latif, A., Hoeflerr, P. & Stocker, A. 2010. *The Linked Data Value Chain: A Lightweight Model for Business Engineers*. Austria: Graz University of technology.

Letete, T., Guma, M & Marquard, A. 2009. *Information on climate change in South Africa: greenhouse gas emissions and mitigation options*. [Online]. Accessed at: www.erc.uct.ac.za/Information/.../Climate_change_info-complete.pdf. [4 February 2011].

Lincoln, Y. S. & Guba, E. G. 1985. *Naturalistic inquiry*. California: SAGE Publication Ltd.

Lynch, R. 2000. *Corporate Strategy*. Prentice Hall: London.

Malhotra, N.K. 2004. *Marketing Research: an applied orientation*. 4th ed. New Jersey: Prentice Hall.

Malhotra, N.K. & Birks, D.F. 2000. *Marketing research: an applied approach*. European edition. England: Pearson Prentice Hall.

Marshall, C. & Rossman, G.B. 2006. *Designing Qualitative Research*. 4th ed. California: Sage Publications.

Marshall, C. & Rossman, G.B. 2011. *Designing Qualitative Research*. 5th. ed. California: Sage Publications.

Maxwell, J.A. 1992. Understanding and validity in qualitative research. *Harvard Educational Review*. 62(3):279-300.

MBendi. 2011. *World Energy – Industry Overview*. [Online]. Accessed at: <http://www.mbindi.com/indy/ener/p0005.htm> [11 February 2011].

Menanteau, P., Finon, D. & Lamy, M.L. 2003. Prices versus quantities: choosing policies for promoting the development of renewable energy. *Energy Policy* 31(8):799–822.

Miles, M.B. & Huberman, A.M. 1994. *Qualitative Data Analysis*. 2nd ed. Thousand's Oaks, CA: SAGE Publications Ltd.

Mitchell, C. 1995. The renewable NFFO. *Energy Policy*. 23(12):1077–1091.

Morris, M. 2001. Creating Value Chain Co-operation. *IDS Bulletin*. Vol. 32(3):127-136.

Nasa Science. 2000. *Definition of Volt*. [Online]. Accessed at:
http://www.google.com/search?q=volt+definition&sourceid=ie7&rls=com.microsoft:en-za:IE-SearchBox&ie=&oe=&rlz=1I7ADFA_en [28 May 2011].

New Energy News. 2010. *Concentrating Photovoltaic*. [Online]. Accessed at:
<http://nenmore.blogspot.com/2010/08/high-finance-for-concentrating-pv.html> [19 February 2011].

Oishi, S.M. 2003. *How to conduct In-Person Interviews for Surveys*. California: Sage Publications.

Panel Business. 2011. *How to Choose a Business Location*. [Online]. Accessed at:
<http://panelbusiness.com/news-and-articles/how-to-choose-strategic-business-location.html> [28 May 2011].

Panwar, N.L., Kaushik, S.C & Kothari, S. 2011. Role of renewable energy sources in environmental protection: A review. *Renewable and Sustainable Energy Reviews*. 15(3): 1513-1524.

Patton, M.Q. 1990. *Qualitative evaluation and research methods*. 2nd ed. Newbury Park, CA: SAGE Publications Ltd.

Paul, P.J. & Donnelly, J.H. 2002. *A Preface to Marketing Management*. New York: McGraw-Hill Professional.

PCMAG. 2011. *Definition: Service Provider*. [Online]. Accessed at:
http://www.pcmag.com/encyclopedia_term/0,2542,t=service+provider&i=51187,00.asp [4 March 2011].

Pegels, A. 2010. Renewable energy in South Africa: Potentials ,barriers and options for support. *Energy Policy*. 38(6):4945–4954.

Polar Power. 2009. *Photovoltaic with tracker*. [Online]. Accessed at:
<http://www.polarpowerinc.com/info/operation20/operation23.htm> [22 February 2011].

Porter, M. 1979. How competitive forces shape strategy. *Harvard Business review*. 57(2): 137-145.

Porter, M. 1980. *Competitive Strategy*. Free Press: New York.

Porter, M. 1985. *Competitive Advantage: Creating and Sustaining Superior Performance*. New York: Simon & Schuster.

Porter, M. 1990. *The competitive advantage of nations*. New York: The Free Press.

Porter, M. 1998a. *Competitive advantage: Creating and sustaining superior performance*. New York: The Free Press.

Porter, M. 1998b. *Competitive strategy: Techniques for analyzing industries and competitors*. New York: The Free Press.

Porter, M. 2001. Strategy and the Internet. *Harvard Business Review*. 79(3):62-78.

Porter, M. 2007. How competitive forces shape strategy. *Harvard Business Review*. 57(2):137-145.

Porter, M. 2008. The Five competitive forces that shape strategy. *Harvard Business Review*. 86(1):78-93.

Rainforest Facts. 2006. *What is climate change*. [Online]. Accessed at: <http://www.rainforest-facts.com/what-is-climate-change.html> [25 June 2011].

Ramanathan, V. & Feng, Y. 2009. Air pollution, greenhouse gases and climate change: Global and regional perspectives. *Journal of Atmospheric Environment*. 43(1):37-50.

RCG University. 1999. *Strategic Outsourcing*. [Online]. Accessed at: <http://rockfordconsulting.com/strategic-outsourcing.htm> [19 March 2011].

Reh, J. 2010. *How to use Benchmarking in Businesses*. [Online]. Accessed at: <http://management.about.com/cs/benchmarking/a/Benchmarking.htm> [2 June 2011].

Renewable Energy Article. 2011. *Renewable Energy Definition*. [Online]. Accessed at: http://www.renewables-info.com/energy_definitions/renewable_energy_definition.html [13 June 2011].

Renewable Energy World. 2009. *Solar Thermal Energy Industry Still Growing Worldwide*. [Online]. Accessed at: <http://www.renewableenergyworld.com/rea/news/article/2009/06/video-solar-thermal-energy-industry-still-growing-worldwide> [14 February 2011].

Republic of South Africa. Department of Energy and Minerals Pretoria. 2004. *Capacity Building in Energy Efficiency and Renewable Energy*. Pretoria: Department of Energy and Minerals Pretoria.

Research and Markets. 2011. *Renewable Energy - Top 5 Emerging Markets Industry Guide*. [Online]. Accessed at: [http://www.researchandmarkets.com/reportinfo.asp?report_id=1299511&t=d&cat_id=\[12%20May%202011\]](http://www.researchandmarkets.com/reportinfo.asp?report_id=1299511&t=d&cat_id=[12%20May%202011]).

Richard, C. 2007. *Strategic Cost Management: Value Chain Analysis Approach*. [Online]. Accessed at: http://findarticles.com/p/articles/mi_qa5377/is_200708/ai_n21293213/?tag=content;col1 [1 March 2011].

Rose, C.M. & Stevles A.B. 2005. *Applying Environmental Value Chain Analysis Manufacturing Modelling Laboratory*. Stanford: Stanford University.

SA Weather Services. 2010. *Climate change*. [Online]. Accessed at: <http://www.weathersa.co.za/web/Content.asp?contentID=84> [1 February 2011].

Saldana, J. 2010. *The Coding Manual for Qualitative Research*. London: Sage Publications.

Saxenian, A. 1996. *Regional Advantage*. Cambridge: Cambridge University Press.

Schmela, M. 2011. *Photon photovoltaic stock index, Photon International: The Solar Power Magazine*. [Online]. Accessed at: <http://www.photon-magazine.com/ppvx/index.htm> [1 June 2011].

Schroeder, T.C. 2003. *Enhancing Canadian Beef Industry Value-Chain Alignment*. Kansas: Kansas State University.

Schuette, P.M. 2008. *Accelerating Strategic Learning*. Netherlands: Schuette & Company.

Scorgie Y, Paterson G, Burger LW, Annegarn HJ, & Kneen M. 2004. *Study to examine the potential socio-economic impact of measures to reduce air pollution from combustion*. South Africa: NEDLAC.

Seale, C. 1999. Quality in qualitative research. *Qualitative Inquiry*. 5(4): 465-478.

Sebitosi, A.B. & Pillay, P. 2008. Renewable energy and the environment in South Africa: A way forward. *Energy Policy*. 36(9): 3312–3316.

Semini M., Strandhagen, J.O. & Vigtil, A. 2005. *Value chain profiling*. Norway: Norwegian University of Technology and Science.

SESSA. 2011. *Solar industry news*. [Online]. Accessed at: <http://www.sessa.org.za/home/category/news-2> [2 June 2011].

Shank, J. K., & Govindarajan, V. 1993. *Strategic Cost Management: the new tool of Competitive Advantage*. New York: Free Press.

Small Businesses Marketing Plans. 2007. *Marketing Niche Strategy*. [Online]. Accessed at: <http://www.smallbusiness-marketing-plans.com/marketing-niche-strategy.html> [29 May 2011].

Social research skills. 2008. *Focussed (semi-structured) interview*. [Online]. Available: <http://www.sociology.org.uk/methfi.pdf>. [14 June 2011].

Solar Energy. 2010. *Types of Solar Energy*. [Online]. Accessed at:
http://www.getsolar.com/why_solar_types-of-solar-power.php [14 June 2011].

Solar Feed-in Tariff. 2008. *Yearly Sum of Global Irradiance*. [Online]. Accessed at:
<http://www.solarfeedintariff.net/worldmap.html> [21 February 2011].

Solar Server. 2010. *Photovoltaic: Solar Electricity and Solar Cells in Theory and Practice*. [Online]. Accessed at: <http://www.solarserver.com/knowledge/basic-knowledge/photovoltaics.html> [07 June 2011].

Solar Suppliers. 2011. *Solar Suppliers*: South Africa. [Online]. Accessed at:
<http://www.solarsuppliers.co.za/> [03 June 2011].

Solar Visions for the Future. 2010. *Differentiation for SVC*. [Online]. Accessed at:
<http://www.solarvizon.com/Differentiation.html> [29 May 2011].

Stenbacka, C. 2001. Qualitative research requires quality concepts of its own. *Management Decision*. 39(7): 551-555.

Steyn, G. 2000. *A competitive electricity market for South Africa: The need for change and a strategy for restructuring South Africa's electricity supply industry*. Pretoria: The Department of Minerals & Energy.

Struwig, F.W. & Stead, G.B. 2001. *Planning, designing and reporting research*. South Africa: Pearson.

Sunedison, 2010. *The Solar Energy Service Provider*. [Online]. Accessed at:
<http://www.sunedison.com/services--solar-energy-services-provider.php> [4 March 2011].

Sun Gen. 2011. Interview with the sales manager 7th June 2011. Johannesburg: Energex.

Sunny, S. 2011. Interview with the sales manager on 7th June 2011. Johannesburg: Energex.

- The Nature Conservancy. 2011. *Climate Change: Impacts and Threats*. [Online]. Accessed at:
- <http://www.nature.org/ourinitiatives/urgentissues/climatechange/threatsindex.htm> [20 June 2011].
- The Physics. 2001. *Definition of Ampere*. [Online]. Accessed at:
- <http://physics.nist.gov/cuu/Units/ampere.html> [12 June 2011].
- Tidd, J. & Bessant, J.R. 2009, *Managing innovation: integrating technological, market and organizational change*. 4th ed. England: Wiley, Chichester.
- Tull, D.S. & Hawkins, D.I. 1993. *Marketing Research: Measurement and Method*. Sixth edition. New York: Maxwell MacMillan International.
- Tyler, E. 2009. Aligning South African energy and climate change mitigation policy. *Journal of Energy South Africa*. 20(1):1-19.
- Value Chain Group. 2010. Individual or Organizational Value Chain. [Online]. Accessed at: <http://value-chain.org/membership/> [1 June 2011].
- Walter, W.J. 2000. *Economic Rents*. 3 ed. New York: Barrons Educational Series Inc.
- Walters, D. & Lancaster, W. 2000. Implementing value strategy through the value chain. *Management Decision*. 38(3):160-178.
- Welman, J.C. & Kruger, S.J. 2002. *Research Methodology*. Second edition. Cape Town: Oxford Southern Africa.
- Werner, T.H. 2010. SunPower Corporation: Annual report 2009 [online]. Accessed at: <http://investors.sunpowercorp.com/annuals.cfm> (8 May 2011).
- White, R.E. 1986. Generic business strategies, organizational context and performance: an empirical investigation. *Strategic Management Journal*. Vol.7(3):217-231.

Wiki. 2009. *Types of Value Chains*. [Online]. Accessed at:
http://apps.develebridge.net/amap/index.php/Types_of_Value_Chain_Governance [16 June 2011].

Willis, J.W. 2007. *Foundations of Qualitative Research*. London: Sage Publications.

Winkler, H. 2005a. Climate change and developing countries. *South African Journal of Science*. 101(7): 355-364.

Winkler, H. 2005b. Renewable energy policy in South Africa: policy options for renewable electricity. *Journal of Energy Policy*. 33(1):27-38.

Winkler, H. 2006. Energy policies for sustainable development in South Africa. *Energy for sustainable development*. 10(1):26-34.

Winter, G. 2000. *A comparative discussion of the notion of validity in qualitative and quantitative research*. [Online]. Accessed at: <http://www.nova.edu/ssss/QR/QR4-3/winter.html> [13 June 2011].

Zikmund, W.G. & Babin, B.J. 2010. *Exploring Marketing Research*. 10th ed. Mason: Thomson.

Zom, T. 2004. *Designing and Conducting Semi-Structured Interviews for Research*. [Online]. Accessed at: <http://wms-soros.mngt.waikato.ac.nz/NR/rdonlyres/em25kkojrnxofpq3j7avsnl46vkmera63kk2s6nd5ey2pyposxs32ne7dykntjde4u2qhffhpol6bzi/Interviewguidelines.pdf> [12 June 2011].

APPENDIX A:

Transcribed Interviews

1. Company

1. General information

1.1. What is your gender?

Male

Female

1.2. How long have you been employed in this position?

Less than 1 Year (2011 January)

1.3. What is your position in the company?

Managing Director / Owner

1.4. What is your yearly turnover measured in Rand?

Less than R 1 million	R 1 Million – R 5 Million	More than R 5 Million – R15 Million	More than R15 Million – R25 Million	More than R25 Million
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1.5. What is your mission or vision statement for your company?

Mission

To market and sell Alternative Energy Solutions to the Helderberg and Western Cape market thus contributing to conserving the earth as well as earning a living for its employees.

Vision

To actively do something to preserve the earth by providing Awareness and Alternative Energy Solutions to as many people as possible in the identified region and providing an excellent honest service and products to its client base.

1.6. Did your sale of solar devices increase last year? If yes, by how many percent?

Sales are increasing by 5%. The major reason is that the business is relatively new in the market.

2. The solar service provider market

2.1. Who is your target market?

1.Residential Areas	2.Cluster Areas	3.Security Estates	Flats buildings	Businesses	Others: <ul style="list-style-type: none"> • Hospitality • Bed & Breakfast • Restaurants • Hotels
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2.2. How do you communicate with your customer base? Which one is most effective?

1.E-mail (more detail)	2.Phone	Post	Personal visit	Other
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2.3. How do you market your products to your target market? Which one is most effective?

Television	Radio	1.Paper advertisement <ul style="list-style-type: none"> • Newspaper • Advertisement Papers 	3.Customized advertisement <ul style="list-style-type: none"> • E-mail to customer base 	2.Others: <ul style="list-style-type: none"> • Web page
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3. Solar service providers and stakeholders

3.1. Which are the five most important Stakeholders to your business? (List from most to least important)

1. Consumer
2. Supplier
3. Community

3.2. What type of business relationship do you prefer with each stakeholder?

- legal contract (1. 2.)
- verbal agreement (3.)
- no agreement at all, we negotiate on order basis

3.3. Do you envisage increased engagement with one of these Stakeholders? If Yes, why and how?

There is definitely space to improve with the customer, as the education level of solar energy is still very low. Moreover, the company is still unknown which also creates space for improvement. The approach used at the moment is extensive paper advertisement and information sessions, which are inform of free seminars for the customers to learn more about solar energy.

3.4. With regard to the legal and regulatory framework, have you experienced any difficulties to grow your business? If yes, what were these difficulties?

The biggest problem is the regulatory framework of Eskom and the government. It takes up to 8 months to get a new solar device approved for the market. Moreover the costs involved with this process harm smaller businesses in the market. All in all, this barrier slows the possible development of the industry enormously down.

3.5. What kind of services does the (local) government provide to service providers in this sector? Are these services up-to date and useful?

The government provides no specific service to companies. The only support for the market is the rebates from Eskom between R3000 and R9000 per Unit. Nevertheless, these subsidies vary from time to time which also slows the market development down. At the moment, rebates are minimized due to Eskom funding problems.

4. Types strategies of service provider

4.1. Which one of the following strategies describes best your strategic targets?
Why?

Differentiation strategy

Low cost strategy

Best-cost provider strategy

The business offers high quality South African products to a reasonable price.

The Emphasis lies on very good customer service, before and after the installation.

Niche market strategy

4.2. Which one of the following business-customer channels do you make use of?

1.Web page	2.E-mail	Catalogue	3.Personal visits	Other:

4.3. What are the top three selling solar thermal devices you sell?

The company is specialized in retrofit systems, which means that the present geyser is connected to new solar thermal devices to heat the water up. Consequently, the best selling product is the water heating devices which is installed on top of the roof.

4.4. What kind of preferences do your customers have (e.g. in terms of **quality, price, design, functionality, health standards etc.**)

The customer's preferences are positioned in the quality of the product, which has to be offered to a good price. Therefore, the customer usually demands 5 quotations from five different solar service providers.

5. The Value Chain Structure

5.1. The following Figure represents Porter's value chain, which is a generalization of activities a typical business consists of.

- What are the core (primary) activities for you as a solar service provider?

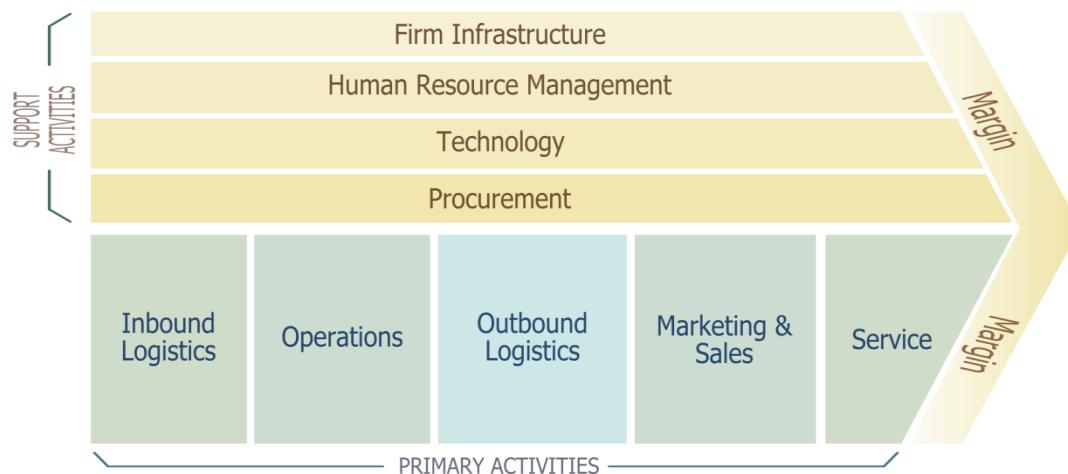
Marketing – customer contacts service provider – site visit – quotation (50-50 payment ratio) – inbound logistics – preparation to specifications – installation – after service

- What are the supporting activities?

Human Resource management – employing and motivating staff (installers!)

Procurement – Reliable order process

Technology – Reliable and qualitative products



- 5.2. Which one of the activities mentioned above is crucial for the competitive success of your business?

Service is the foremost important activity, as the products are fairly similar to competitors and good service is crucial to be competitive superior. Good service creates good word of mouth, which is the strongest marketing and leads to a bigger long term customer base.

The second crucial activity is marketing. The industry is still in an infant stage which creates the need for more customer education and to get known.

(Inbound Logistics)

- 5.3. Which are the three main suppliers from which you source your products from?
(Indicate Percentage)

New Power (South Africa) -50%

ITS Solar (South Africa) – 50%

- 5.4. If you would have to evaluate the performance of your three main suppliers along a scale of 1 (very poor) to 5 (very good), what kind of marks would you give for the following criteria:

Criteria	Very poor	Poor	Average	Good	Very Good
Quality					•
Reliability					•
Flexibility					•
Price				•	
Product design					•
Service				•	
Product training				•	
Delivery time			•		

- 5.5. What kind of difficulties do you face in working together with your suppliers?

The main Supplier for solar thermal devices called New Power (South African) runs from time to time out of stock, which delays the order installation process. The result is occasional stock difficulties.

5.6. Do you have any suggestions, how these problems can be addressed? (if you have any)

The company keeps their own stock to prevent any shortages from their side.

5.7. How do you collect your products?

Suppliers come to me	I go to the suppliers (e.g. through an agent, or personally)	I have collecting centres at central places	I use an out-grower system: suppliers sell exclusively to me	Other:
• ITS Solar		• New Power		

Operations

5.8. How do you handle your product operations?

- ✓ **Keep stock of our main products**
- Just in Time approach
- ✓ **Order from supplier as soon customer order is set**

5.9. If you keep stock, for how long is it supposed to keep in your inventory?

The stock of New Power products is supposed to last one week.

Service

5.10. What type of after service do you offer to your customers?

Check up call	Check up visit	Check up e-mail/ post	No after service	Other

Supporting activities

5.11. What is your criteria for new employees

2.Personal references	1.Education	Personal sympathy	First impression	Other

5.12. How do you keep your employees motivated?

Incentives	Bonuses (each successful installation)	Personal recognition	Other
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6. Determine strategies for more utilization of solar products in the Western Cape

6.1. How long does it take until you get your order from your suppliers to the customer?

One day	Two days	Up to one week	Up to two weeks	More than two weeks
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6.2. How long is the credit range for the customer?

On the same day I receive the order	Within a week	Within two weeks	Within three weeks	Within four weeks	Before Delivery
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6.3. Do you regularly update your suppliers with regards to new market developments?

Yes No

6.4. What kind of customer services do you receive from your suppliers?

The company receives weekly check-calls and personal visits. For each new product, product training is offered.

6.5. How do you communicate with your suppliers?

2.By phone/ Mobile	1.Via mail/post	3.Face to Face	Through an intermediary (agent)	Other:
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6.6. How often do you communicate with your suppliers?

Every day	At least once per week	At least once every two weeks	At least once per month	Other
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7. Current use of the value chain model

7.1. Are you taking the value chain principle into consideration?

Yes.

7.2. Are most employees aware of the model?

Yes, to certain extend.

7.3. Is there still space to improve? If Yes, where and how?

The business sees no reason and space to improve.

7.4. Are you aware of the supporting activities and the potential effect on the performance?

Yes. Supporting activities are the base on which the business is build on. The business can only be as good as the supporting activities.

7.5. How do you decide about the potential success of new or adjusted activities?

As the business is still very young the business has money constraints, consequently new activities are implemented in a short-term cost-benefit ratio.

8. Identify the solar competitive advantage and key success factors of the industry

8.1. For [name of service provider], in which area(s) is competitive pressure more intense?

1. Buyer power – Many service providers to choose from
2. Industry Rivalry – Highly competitive market, similar products (over 60 service providers in the Western Cape)

8.2. What are your core competencies over competitors?

1. 10 year warranty
2. Highly educated installer

8.3. Who are your main competitors on the market?

1. Solar Tech
2. Helderberg Solar

8.4. How do you expect the competitive force of new entrants to develop in the next years?

Based on the fact, that Eskom has drastically reduced all rebates the market has stopped to develop as well as in the past. In the short-run the trend of new entrants is reduced. Nevertheless, in the long-run more competitors will join.

8.5. How do you expect the competitive force of substitutes to develop in the next years?

Electricity is becoming more and more expensive, which is the main substitute for our products. Consequently, consumers are looking for a more economical way of saving money. We offering a very good solution, which means the development of the substitute common electricity is positive for us.

2.Company

1. General information

1.1. What is your gender?

Male

Female

1.2. How long have you been employed in this position?

5 Years (2006)

1.3. What is your position in the company?

Managing Director / Owner

1.4. What is your yearly turnover measured in Rand?

Less than R 1 million	R 1 Million – R 5 Million	More than R 5 Million – R15 Million	More than R15 Million – R25 Million	More than R25 Million
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1.5. What is your mission or vision statement for your company?

The main objective of the business is to provide the customer with an economical solution to save money. The secondary objective is to secure a safe environment for future generations

1.6. Did your sale of solar devices increase last year? If yes, by how many percent?

The sales were constant in the last year.

2. The solar service provider market

2.1. Who is your target market?

1.Residential Areas	Cluster Areas	Security Estates	Flats buildings	2.Businesses	Others:
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2.2. How do you communicate with your customer base? Which one is most effective?

1.E-mail (more detail)	2.Phone	Post	Personal visit	Other:
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2.3. How do you market your products to your target market? Which one is most effective?

Television	Radio	2.Paper advertisement • brochures	Customized advertisement	1.Others: • Web page
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3. Solar service providers and stakeholders

3.1. Which are the five most important Stakeholders to your business? (List from most to least important)

1. Shareholder
2. Employees/ Architects
3. Installer

3.2. What type of business relationship do you prefer with each stakeholder?

- O legal contract (1. 2.)
- O verbal agreement (3.)
- O no agreement at all, we negotiate on order basis

3.3. Do you envisage increased engagement with one of these Stakeholders? If Yes, why and how?

The place with the highest potential for improvement is the customer relation management. Positive word of mouth is very important for the long-term success and can only be achieved through excellent customer relations. The installer has to be friendly and knowledgeable to create good feedback.

- 3.4. With regard to the legal and regulatory framework, have you experienced any difficulties to grow your business? If yes, what were these difficulties?

As mentioned above in section 2.2, Eskom regulations make the import of devices expensive

- 3.5. What kind of services does the (local) government provide to service providers in this sector? Are these services up-to date and useful?

The government provides no specific service besides the rebates to the company.

4. Types strategies of service provider

- 4.1. Which one of the following strategies describes best your strategic targets?
Why?

O Differentiation strategy

We utilize a best service strategy to be different from competitors.

O Low cost strategy

O Best-cost provider strategy

O Niche market strategy

- 4.2. Which one of the following business-customer channels do you make use of?

Web page	E-mail	Catalogue	Personal visits	Other: Web page
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- 4.3. What are the top three selling solar thermal devices you sell?

The top selling products are collectors, heat pumps and geysers.

- 4.4. What kind of preferences do your customers have (e.g. in terms of **quality**, **price**, design, functionality, health standards etc.)

The customer's preferences lie in the quality/ price ratio of the products.

5. The Value Chain Structure

- 5.1. The following Figure represents Porter's value chain, which is a generalization of activities a typical business consists of.

The primary activities are depending on the type of customer and order, for us there are three different types:

Emergency call:

Marketing – customer contacts service provider – site visit (80/20 payment ratio) – inbound logistics – preparation to specification – installation – after service

Normal:

Marketing – customer contacts service provider – site visit – quotation (80/20 payment ratio) - inbound logistics – preparation to specification – installation – after service

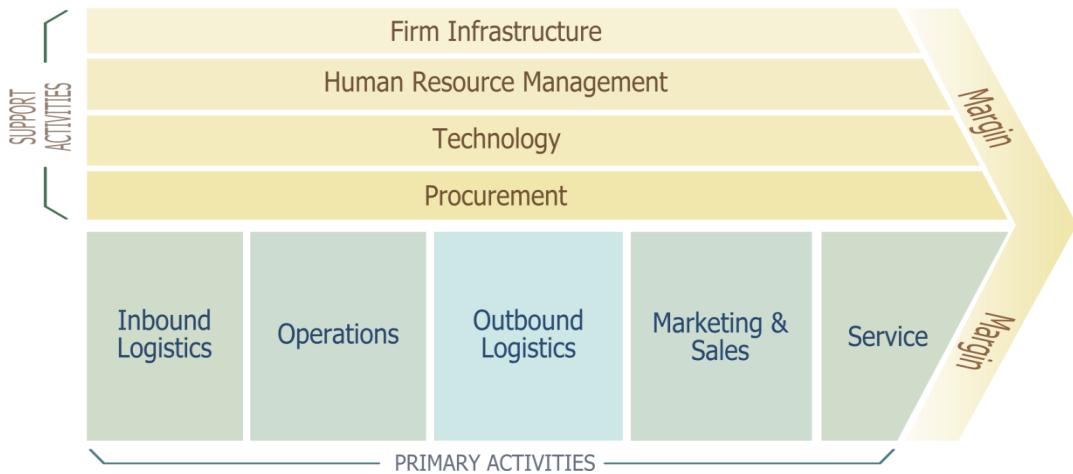
Architect:

Architect contacts service provider – designing appropriate solution – site visits – quotation - inbound logistics – preparation to specification – installation – after service

- What are the supporting activities?

Human Resource management – employing and motivating staff (installers!)

Technology – Reliable and qualitative products



- 5.2. Which one of the activities mentioned above is crucial for the competitive success of your business?

Good customer service is the most important criteria to differentiate the offer to the customer and to create sustainability for the business.

The utilization of good directed marketing to reach the customer and educate him is very important to reach potential new customers. Past customers can only be helpful in creating positive word of mouth, as the systems are expected to last more than 20 years in which the customer is not profitable for us.

(Inbound Logistics)

- 5.3. Which are the three main suppliers from which you source your products from?
(Indicate Percentage)

Dimplex (Europe) – 60%

Durazone (Europe) – 40%

5.4. If you would have to evaluate the performance of your three main suppliers along a scale of 1 (very poor) to 5 (very good), what kind of marks would you give for the following criteria:

Criteria	Very poor	Poor	Average	Good	Very Good
Quality					•
Reliability					•
Flexibility					•
Price				•	
Product design					•
Service					•
Product training				•	
Delivery time					•

5.5. What kind of difficulties do you face in working together with your suppliers?

All the products are sourced from European suppliers and manufacturers. The problem originates with the SABS representatives of Eskom, which have to be sent to prove and audit the devices to the place of origin of the products on the expenses of my business. This procedure for every new product is highly expensive and slows the market development down.

5.6. Do you have any suggestions, how these problems can be addressed? (if you have any)

No Difficulties.

5.7. How do you collect your products?

Suppliers come to me • Dimplex	I go to the suppliers (e.g. through an agent, personally)	I have collecting centres at central places • Durazone	I use an out-grower system: suppliers sell exclusively to me	Other:
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Operations

5.8. How do you handle your product operations?

- Keep stock of our main products**
- Just in Time approach
- Order from supplier as soon customer order is set

5.9. If you keep stock, for how long is it supposed to keep in your inventory?

The stock lasts on an average 4 weeks.

Service

5.10. What type of after service do you offer to your customers?

Check up call	Check up visit	Check up e-mail/ post	No service after	Other: • Only if needed
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Supporting activities

5.11. What is your criteria for new employees

Personal references	1.Education	2.Personal sympathy	First impression	Other
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5.12. How do you keep your employees motivated?

Incentives	Bonuses	Personal recognition	Other
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6. Determine strategies for more utilization of solar products in the Western Cape

6.1. How long does it take until you get your order from your suppliers to the customer?

One day	Two days	Up to one week	Up to two weeks	More than two weeks
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6.2. How long is the credit range for the customer?

On the same day I receive the order	Within a week	Within two weeks	Within three weeks	Within four weeks	Before Delivery
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6.3. Do you regularly update your suppliers with regards to new market developments?

Yes No

6.4. What kind of customer services do you receive from your suppliers?

The company receives weekly check-calls and personal visits. For each new product, product training is offered.

6.5. How do you communicate with your suppliers?

By phone/ Mobile	1.Via e-mail/post	2.Face to Face	Through intermediary (agent)	an Other:
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6.6. How often do you communicate with your suppliers?

Every day	At least once per week	At least once every two weeks	At least once per month	Other
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7. Current use of the value chain model

7.1. Are you taking the value chain principle into consideration?

Yes.

7.2. Are most employees aware of the model?

Yes, we train them.

7.3. Is there still space to improve? If Yes, where and how?

Yes there is still plenty space to improve. The area with most space to improve is marketing. The marketing is not specific enough to efficiently reach our target customers. The investment would lead to more customers in the long-run.

7.4. Are you aware of the supporting activities and the potential effect on the performance?

Yes. The supporting activities assure that our business delivers high quality products and services. It is very important to be reliable for long-term success in this business.

7.5. How do you decide about the potential success of new or adjusted activities?

We use a cost benefit ratio in a long-term perspective, which means it can take more than a year to see the results of the initial investment.

8. Identify the solar competitive advantage and key success factors of the industry

8.1. For [name of service provider], in which area(s) is competitive pressure more intense?

1. Potential Entrants – New Entrants try to gain new customers with low price offers. The quality they supply is very low, which harms all businesses as bad word of mouth spreads.

8.2. What are your core competencies over competitors?

1. Latest Technology from Europe
2. Reliability – We have been in business for long and going to be available for the customer in the future.
3. 10 year Warranty

8.3. Who are your main competitors on the market?

1. Solar Tech
2. Greenability
3. ITS Solar

8.4. How do you expect the competitive force of new entrants to develop in the next years?

We expect more competitors to join the market, as the market will grow in future due to higher electricity prices. The biggest threat is big companies like Bosch, with a huge financial power behind them.

8.5. How do you expect the competitive force of substitutes to develop in the next years?

Electricity is becoming more and more expensive, which means that more consumers will install solar devices to save money.

3.Company

1. General information

1.1. What is your gender?

Male

Female

1.2. How long have you been employed in this position?

1.5 years

1.3. What is your position in the company?

Managing Director / Owner

1.4. What is your yearly turnover measured in Rand?

Less than R 1 million	R 1 Million – R 5 Million	More than R 5 Million – R15 Million	More than R15 Million – R25 Million	More than R25 Million
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1.5. What is your mission or vision statement for your company?

Our mission is to be the provider of choice for:

- Quality products,
- Professional service and
- Affordable alternative energy solutions, within an environment that allows all to benefit.

We aim to achieve this by:

- Nurturing collaborative partnerships with organisations in the sustainable energy sector
- Develop long term relationships with manufacturers and suppliers of quality products and materials

- Sourcing and/or developing and designing products manufactured with local materials
- Researching innovative and sustainable materials
- Empowering all associated with the business by offering training and skills development opportunities
- Job creation by training operational teams in areas where solar systems are being supplied and installed
- Providing educational material to increase awareness of the value of sustainable energy solutions
- Operating within a formalised and structured management system defining quality and service standards for all operations
- Active involvement of managers at all levels of the operation
- Positive and pro-active decision making, focussed on customer satisfaction
- Continuous improvement practices

1.6. Did your sale of solar devices increase last year? If yes, by how many percent?

Sales are increasing by 50%.

2. The solar service provider market

2.1. Who is your target market?

1.Residential Areas	Cluster Areas	Security Estates	Flats buildings	Businesses	2.Others: <ul style="list-style-type: none"> • Hospitals • Hotels • Public institutions
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2.2. How do you communicate with your customer base? Which one is most effective?

1.E-mail (more detail)	Phone	Post	2.Personal visit	Other
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2.3. How do you market your products to your target market? Which one is most effective?

Television	Radio	Paper advertisement • Publications	3. Customized advertisement • Active phoning	2. Others: • Web page • Word of mouth
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3. Solar service providers and stakeholders

3.1. Which are the five most important Stakeholders to your business? (List from most to least important)

1. Employees
2. Supplier
3. Eskom

3.2. What type of business relationship do you prefer with each stakeholder?

- legal contract (1. 2. 3.)
- verbal agreement
- no agreement at all, we negotiate on order basis

3.3. Do you envisage increased engagement with one of these Stakeholders? If Yes, why and how?

The service we provide to our customers can still be improved. The main aspect is the impression the installer leaves with the customer. We identified two factors namely, empathy and professionalism.

3.4. With regard to the legal and regulatory framework, have you experienced any difficulties to grow your business? If yes, what were these difficulties?

The biggest problem is the regulatory framework of Eskom and the government. The process of SABS approving devices is long and costly.

- 3.5. What kind of services does the (local) government provide to service providers in this sector? Are these services up-to date and useful?

No specific service besides the rebates.

4. Types strategies of service provider

- 4.1. Which one of the following strategies describes best your strategic targets?
Why?

Differentiation strategy

Low cost strategy

Best-cost provider strategy

We offering affordable prices, good quality and integrity (selling the right product)

Niche market strategy

- 4.2. Which one of the following business-customer channels do you make use of?

1. Web page	2. E-mail	Catalogue	Personal visits	Other:
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- 4.3. What are the top three selling solar thermal devices you sell?

The top three selling products are the 150L, 200L and 300L Solar Max solar water heating devices.

- 4.4. What kind of preferences do your customers have (e.g. in terms of **quality**, **price**, design, functionality, health standards etc.)

The customer's preferences are positioned in the quality of the product, which has to be offered to a good price.

5. The Value Chain Structure

5.1. The following Figure represents Porter's value chain, which is a generalization of activities a typical business consists of.

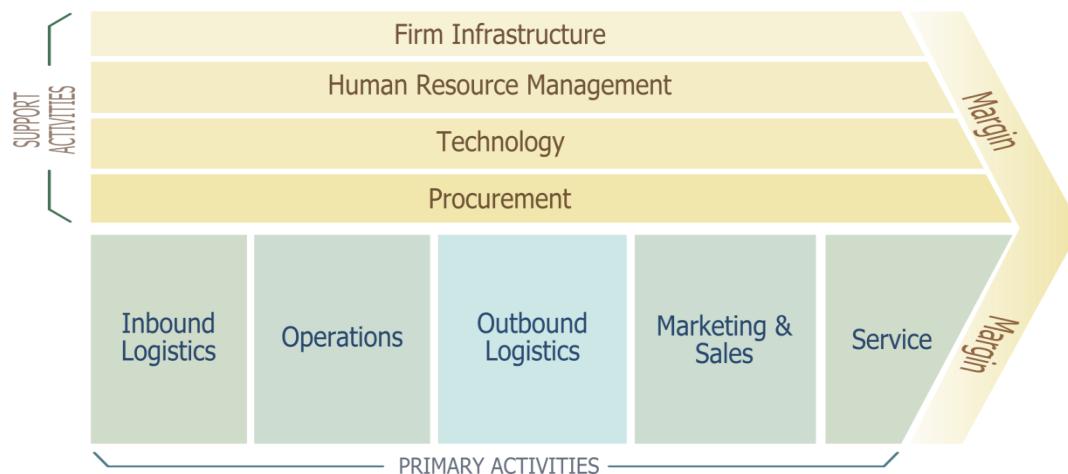
- What are the core (primary) activities for you as a solar service provider?
Marketing – customer contacts service provider – site visit – quotation (50-50 payment ratio) – inbound logistics – preparation to specifications – installation – after service

- What are the supporting activities?

Human Resource management – employing and motivating staff (installers!)

Procurement – Reliable order process

Technology – Reliable and qualitative products



- 5.2. Which one of the activities mentioned above is crucial for the competitive success of your business?

Service is the foremost important activity, as the products are fairly similar to competitors and good service is crucial to be competitive superior. Good service creates good word of mouth, which is the strongest marketing and leads to a bigger long term customer base.

(Inbound Logistics)

5.3. Which are the three main suppliers from which you source your products from?
(Indicate Percentage)

Green Power (South Africa) -30%

Solar Max (South Africa) – 50%

Free Power (South Africa) – 20%

5.4. If you would have to evaluate the performance of your three main suppliers along a scale of 1 (very poor) to 5 (very good), what kind of marks would you give for the following criteria:

Criteria	Very poor	Poor	Average	Good	Very Good
Quality				•	
Reliability				•	
Flexibility				•	
Price			•		
Product design				•	
Service				•	
Product training			•		
Delivery time				•	

5.5. What kind of difficulties do you face in working together with your suppliers?

No Problems.

5.6. Do you have any suggestions, how these problems can be addressed? (if you have any)

No problems.

5.7. How do you collect your products?

Suppliers come to me • Solar Max • Green Power	I go to the suppliers (e.g. through an agent, or personally)	I have collecting centres at central places • Free Power	I use an out-grower system: suppliers sell exclusively to me	Other:
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Operations

5.8. How do you handle your product operations?

✓ **Keep stock of our main products**

✓ **Just in Time approach**

○ Order from supplier as soon customer order is set

5.9. If you keep stock, for how long is it supposed to keep in your inventory?

The stock is supposed to last one week.

Service

5.10. What type of after service do you offer to your customers?

1.Check up call	2.Check up visit (needed)	Check up e-mail/ post	No after service	Other

Supporting activities

5.11. What is your criteria for new employees

2.Personal references	1.Education	Personal sympathy	3.First impression	Other

5.12. How do you keep your employees motivated?

Incentives	Bonuses	1.Personal recognition	Other: • New challenges
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6. Determine strategies for more utilization of solar products in the Western Cape

6.1. How long does it take until you get your order from your suppliers to the customer?

One day	Two days	Up to one week	Up to two weeks	More than two weeks
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6.2. How long is the credit range for the customer?

On the same day I receive the order	Within a week	Within two weeks	Within three weeks	Within four weeks	Before Delivery
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6.3. Do you regularly update your suppliers with regards to new market developments?

Yes No

6.4. What kind of customer services do you receive from your suppliers?

The company receives weekly check-calls and personal visits. For each new product, product training is offered.

6.5. How do you communicate with your suppliers?

2.By phone/ Mobile	1.Via e- mail/post	Face to Face	Through an intermediary (agent)	Other:
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6.6. How often do you communicate with your suppliers?

Every day	At least once per week	At least once every two weeks	At least once per month	Other
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7. Current use of the value chain model

7.1. Are you taking the value chain principle into consideration?

No.

7.2. Are most employees aware of the model?

No.

7.3. Is there still space to improve? If Yes, where and how?

We conduct business from a day to day approach.

7.4. Are you aware of the supporting activities and the potential effect on the performance?

No.

7.5. How do you decide about the potential success of new or adjusted activities?

Cost-benefit ratio, within less than a year.

8. Identify the solar competitive advantage and key success factors of the industry

8.1. For [name of service provider], in which area(s) is competitive pressure more intense?

1. Industrial Rivalry – Customer get up to five quotations from competitors

8.2. What are your core competencies over competitors?

1. Highly qualified installers

8.3. Who are your main competitors on the market?

1. Every other solar service provider

8.4. How do you expect the competitive force of new entrants to develop in the next years?

Eskom has stopped any positive development of the market by withdrawing the rebates. New entrants are very unlikely.

- 8.5. How do you expect the competitive force of substitutes to develop in the next years?

Electricity is becoming more expensive, but it will take more time to educate the customer that there are other money saving solutions besides normal electricity. To achieve these targets will take at least 1-2 years.

4.Company

1. General information

1.1. What is your gender?

Male

Female

1.2. How long have you been employed in this position?

2 years

1.3. What is your position in the company?

Managing Director / Owner

1.4. What is your yearly turnover measured in Rand?

Less than R 1 million	R 1 Million – R 5 Million	More than R 5 Million – R15 Million	More than R15 Million – R25 Million	More than R25 Million
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1.5. What is your mission or vision statement for your company?

The vision for Company 4 is to contribute to green long-term sustainability. This will be achieved by reducing the carbon footprint of consumers.

1.6. Did your sale of solar devices increase last year? If yes, by how many percent?

Sales have decreased by 60%. Reason is the abolishment of the Eskom rebate for solar water heating devices.

2. The solar service provider market

2.1. Who is your target market?

1.Residential Areas	Cluster Areas	Security Estates	Flats buildings	Businesses	Others:
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2.2. Do you face any problems/restrictions by selling products from your supplier(s) to the consumer? If yes, why?

The only problem originates with Eskom, referring to the SABS approval process. Without this process it would be possible to design more customized products.

2.3. How do you communicate with your customer base? Which one is most effective?

1.E-mail (more detail)	2.Phone	Post	Personal visit	Other
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2.4. How do you market your products to your target market? Which one is most effective?

Television	Radio	1.Paper advertisement <ul style="list-style-type: none"> • Newspaper • Flyers 	Customized advertisement	2.Others: <ul style="list-style-type: none"> • Web page • Word of Mouth
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3. Solar service providers and stakeholders

3.1. Which are the five most important Stakeholders to your business? (List from most to least important)

1. Customer
2. Supplier
3. Employers
4. Eskom

3.2. What type of business relationship do you prefer with each stakeholder?

- legal contract (1. 2. 3. 4.)
- verbal agreement
- no agreement at all, we negotiate on order basis

3.3. Do you envisage increased engagement with one of these Stakeholders? If Yes, why and how?

No improvement.

3.4. With regard to the legal and regulatory framework, have you experienced any difficulties to grow your business? If yes, what were these difficulties?

The process which new products have to go through is too expensive and too long. The involvement of Eskom is the biggest contra of the market and the reason why it is not developing.

3.5. What kind of services does the (local) government provide to service providers in this sector? Are these services up-to date and useful?

No Service.

4. Types strategies of service provider

4.1. Which one of the following strategies describes best your strategic targets?
Why?

- Differentiation strategy
- Low cost strategy
- Best-cost provider strategy
- Niche market strategy**

The product is of extremely high quality and a comparable higher price, which targets a niche market.

4.2. Which one of the following business-customer channels do you make use of?

1.Web page	2.E-mail	Catalogue	3.Personal visits	Other:

4.3. What are the top three selling solar thermal devices you sell?

The top three selling items are the 300L Solardome, the 300L Genergy and the 150L Genergy.

4.4. What kind of preferences do your customers have (e.g. in terms of **quality**, price, design, functionality, health standards etc.)

The company is only dealing with customers who demand high quality, as maintenance problems with low price low quality products are not wished.

5. The Value Chain Structure

5.1. The following Figure represents Porter's value chain, which is a generalization of activities a typical business consists of.

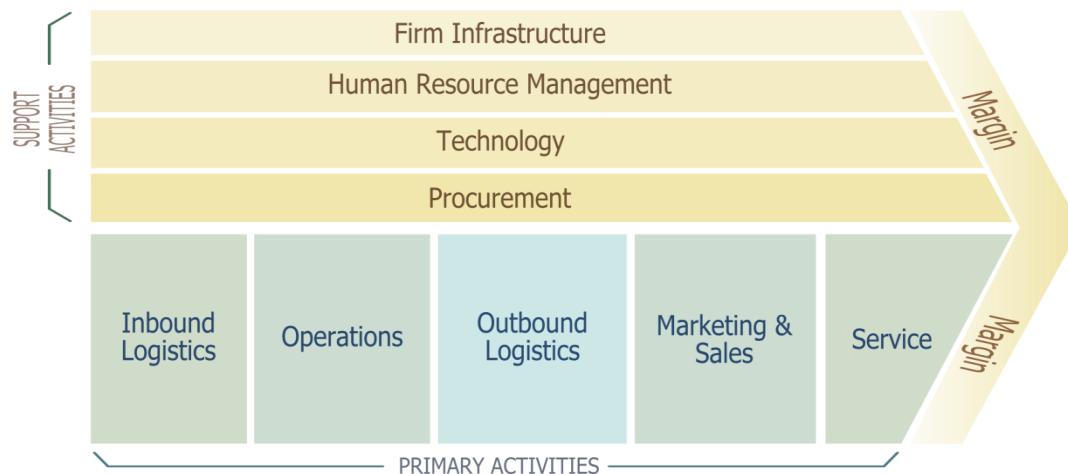
- What are the core (primary) activities for you as a solar service provider?

Marketing – customer contacts service provider – site visit - place order with suppliers- place order with installer – installer collects item – final installation

- What are the supporting activities?

Human Resource management – employing and motivating staff (installers!)

Technology – Reliable and qualitative products



- 5.2. Which one of the activities mentioned above is crucial for the competitive success of your business?

The service which the installer gives to the customer is the most important part of my business process. The parts which are most important here is reliability (pitch on time), professionalism and personal skills towards the customer.

(Inbound Logistics)

- 5.3. Which are the three main suppliers from which you source your products from?
(Indicate Percentage)

Solar Dome (South Africa) -20%

Genergy (South Africa) – 70%

Solar Max (South Africa) – 10%

- 5.4. If you would have to evaluate the performance of your three main suppliers along a scale of 1 (very poor) to 5 (very good), what kind of marks would you give for the following criteria:

Criteria	Very poor	Poor	Average	Good	Very Good
Quality				•	
Reliability				•	
Flexibility				•	
Price			•		
Product design				•	
Service	• (Solar dome)				•
Product training	•				
Delivery time				•	

- 5.5. What kind of difficulties do you face in working together with your suppliers?

The service Company 4 provides is very unsatisfying, which includes wrong invoices and no product training. Furthermore, a problem originates with Eskom, referring to the SABS approval process. Without this process it would be possible to design more customized products.

- 5.6. Do you have any suggestions, how these problems can be addressed? (if you have any)

Replace management of Solardome.

5.7. How do you collect your products?

Suppliers come to me	I go to the suppliers (e.g. through an agent, or personally)	I have collecting centres at central places	I use an out-grower system: suppliers sell exclusively to me	Other:
• Solar Max		• Solardome; Genergy		

Operations

5.8. How do you handle your product operations?

- Keep stock of our main products
- Just in Time approach
- Order from supplier as soon customer order is set**

5.9. If you keep stock, for how long is it supposed to keep in your inventory?

No stock.

Service

5.10. What type of after service do you offer to your customers?

Check up call	Check up visit	Check up e-mail/ post	No after service	Other
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Supporting activities

5.11. What is your criteria for new employees

2.Personal references	1.Education	3Personal sympathy	First impression	Other
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5.12. How do you keep your employees motivated?

Incentives	Bonuses	Personal recognition	Other:
			• Fixed salary

6. Determine strategies for more utilization of solar products in the Western Cape

6.1. How long does it take until you get your order from your suppliers to the customer?

One day	Two days	Up to one week	Up to two weeks	More than two weeks
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6.2. How long is the credit range for the customer?

On the same day I receive the order	Within a week	Within two weeks	Within three weeks	Within four weeks	Before Delivery
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6.3. Do you regularly update your suppliers with regards to new market developments?

Yes No

6.4. What kind of customer services do you receive from your suppliers?

No service.

6.5. How do you communicate with your suppliers?

2.By phone/ Mobile	1.Via e- mail/post	3.Face to Face	Through an intermediary (agent)	Other:
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6.6. How often do you communicate with your suppliers?

Every day	At least once per week	At least once every two weeks	At least once per month	Other: • When required
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7. Current use of the value chain model

7.1. Are you taking the value chain principle into consideration?

Not aware.

7.2. Are most employees aware of the model?

No.

7.3. Is there still space to improve? If Yes, where and how?

The business sees no reason and space to improve.

7.4. Are you aware of the supporting activities and the potential effect on the performance?

Conducting business from a day to day approach.

7.5. How do you decide about the potential success of new or adjusted activities?

I am using a cost-benefit ration in the short run, which means it has to break even after less than a year.

8. Identify the solar competitive advantage and key success factors of the industry

8.1. For [name of service provider], in which area(s) is competitive pressure more intense?

1. Supplier power – The supplier power is very high for me as I am a relatively small customer for them.

8.2. What are your core competencies over competitors?

1. High qualitative product
2. Targeting niche market

8.3. Who are your main competitors on the market?

1. Future comfort (Energy service provider)
2. Renaissance Solar

8.4. How do you expect the competitive force of new entrants to develop in the next years?

The market is shrinking at the moment; consequently there will be no new entrants to the market.

8.5. How do you expect the competitive force of substitutes to develop in the next years?

Electricity is becoming more and more expensive, which is the main substitute for our products. Consequently, the demand for solar devices will rise in the long term (more than 1 year).

5. Company

1. General information

1.1. What is your gender?

Male

Female

1.2. How long have you been employed in this position?

4 years

1.3. What is your position in the company?

Managing Director / Owner

1.4. What is your yearly turnover measured in Rand?

Less than R 1 million	R 1 Million – R 5 Million	More than R 5 Million – R15 Million	More than R15 Million – R25 Million	More than R25 Million
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1.5. What is your mission or vision statement for your company?

Mission Statement

Company 5 is an alternative energy company, focusing on the manufacturing and sale of quality solar panels and related services. These products and services are used principally in the renewable energy markets, enabling our customers to save money and contribute positively to the environment

Fundamental principles:

- Achieving consistent, long term financial growth.
- Attaining a position of leadership in each of the renewable energy markets we serve.
- Providing economic growth and increased development of the company's total service area.

- Protect, enhance and develop the communities' natural resources with particular attention to solar, air, water and land resources.
- Using the company as an economic vehicle for the upliftment of the previously disadvantaged.
- Provide job opportunities and an investment in the service area, which promotes higher standards of living for all citizens.

We aim to achieve this by:

- The successful implementation of sound financial and customer care principals.
- The education of the public and policy makers on the matters related to renewable energy, climate change and manufacturing sectors.
- Continuous research and development to encourage innovative thought to enable the implementation of new methods and improvements.
- As profits and finances become adequate and opportunities arise, uplift the local community through job creation, the selective allocation of bursaries and community projects where economically practical.

1.6. Did your sale of solar devices increase last year? If yes, by how many percent?

The sales have increased by 25% in the last year.

2. The solar service provider market

2.1. Who is your target market?

1.Residential Areas	Cluster Areas	Security Estates	Flats buildings	Businesses	Others:

2.2. How do you communicate with your customer base? Which one is most effective?

E-mail	Phone	Post	1.Personal visit	Other
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2.3. How do you market your products to your target market? Which one is most effective?

Television	3.Radio	2.Paper advertisement • Newspaper • Flyers	Customized advertisement	1.Others: • Web page • Word of Mouth
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3. Solar service providers and stakeholders

3.1. Which are the five most important Stakeholders to your business? (List from most to least important)

1. Customer
2. Supplier
3. Employers

3.2. What type of business relationship do you prefer with each stakeholder?

- legal contract (1. 2. 3.)
- verbal agreement
- no agreement at all, we negotiate on order basis

3.3. Do you envisage increased engagement with one of these Stakeholders? If Yes, why and how?

Yes, there is always space for improvement. Customers still have to be more educated about the reliability and possible cost savings of our systems.

The relationship with suppliers can be improved to get new technology devices first.

The training of employees is also improvable, to improve efficiency and the quality of customer service.

- 3.4. With regard to the legal and regulatory framework, have you experienced any difficulties to grow your business? If yes, what were these difficulties?

We are not facing any difficulties. Nevertheless the government could launch actions to protect and support local produced products. Import taxes would be an option.

- 3.5. What kind of services does the (local) government provide to service providers in this sector? Are these services up-to date and useful?

No Service.

4. Types strategies of service provider

- 4.1. Which one of the following strategies describes best your strategic targets? Why?

Differentiation strategy

Low cost strategy

Best-cost provider strategy

The products are offered for the mid to high end market with a locally produced high quality. Moreover, the service offered is very professional. The product produces is 100% South African (local is lekka), which also forms part of the strategy.

Niche market strategy

- 4.2. Which one of the following business-customer channels do you make use of?

1.Web page	2.E-mail	Catalogue	3.Personal visits	Other:

- 4.3. What are the top three selling solar thermal devices you sell?

The top three selling items are the panels we produce combined with the 150L and 100L geysers.

- 4.4. What kind of preferences do your customers have (e.g. in terms of **quality**, price, design, **functionality**, health standards etc.)

It is of high importance for the customer that the product lasts long and fulfills its promises by being of good quality. Moreover, functionality refers to the facts if the product is the right model to satisfy the customer's needs.

5. The Value Chain Structure

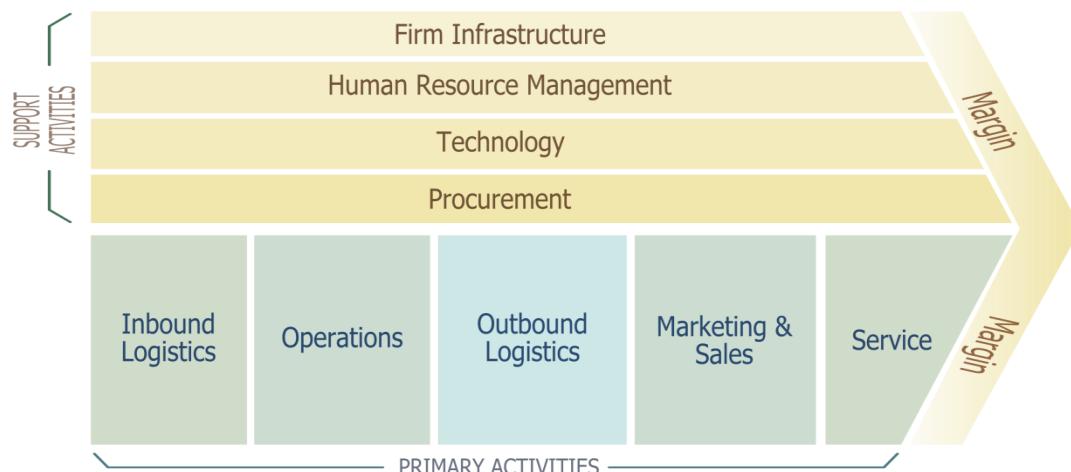
- 5.1. The following Figure represents Porter's value chain, which is a generalization of activities a typical business consists of.

- What are the core (primary) activities for you as a solar service provider?
Marketing – customer contacts service provider – site visit – quotation – inventory/manufacturer – installation.
- What are the supporting activities?

Human Resource management – employing, training and motivating staff (installers!)

Technology – Reliable and qualitative products

Procurement – Handling and processing the order



- 5.2. Which one of the activities mentioned above is crucial for the competitive success of your business?

The customer service is the most important aspect to become competitive superior as the products in the mid to high class range are similar.

Based on the fact that customers have systems installed that last longer than 20 years it is important to win new ones with marketing. For our business to be successful, we investigate a lot of effort and money into marketing to reach potential customers.

(Inbound Logistics)

- 5.3. Which are the three main suppliers from which you source your products from?
(Indicate Percentage)

1. Own manufacturer.

- 5.4. If you would have to evaluate the performance of your three main suppliers along a scale of 1 (very poor) to 5 (very good), what kind of marks would you give for the following criteria:

Manufacturer.

- 5.5. What kind of difficulties do you face in working together with your suppliers?

Manufacturer

- 5.6. Do you have any suggestions, how these problems can be addressed? (if you have any)

No.

5.7. How do you collect your products?

Suppliers come to me	I go to the suppliers (e.g. through an agent, or personally)	I have collecting centres at central places	I use an out-grower system: suppliers sell exclusively to me	Other:
• Solar Max (delivers)				

Operations

5.8. How do you handle your product operations?

- Keep stock of our main products**
- Just in Time approach
- Order from supplier as soon customer order is set

5.9. If you keep stock, for how long is it supposed to keep in your inventory?

4 to 5 days

Service

5.10. What type of after service do you offer to your customers?

Check up call	Check up visit	Check up e-mail/ post	No after service	Other: • When needed
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Supporting activities

5.11. What is your criteria for new employees

2.Personal references	1.Education	Personal sympathy	First impression	3.Other: • Experience
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5.12. How do you keep your employees motivated?

Incentives	Bonuses • Performance	Personal recognition	Other:
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6. Determine strategies for more utilization of solar products in the Western Cape

6.1. How long does it take until you get your order from your suppliers to the customer?

One day	Two days	Up to one week	Up to two weeks	More than two weeks
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6.2. How long is the credit range for the customer?

On the same day I receive the order	Within a week	Within two weeks	Within three weeks	Within four weeks	Before Delivery
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6.3. Do you regularly update your suppliers with regards to new market developments?

Yes No

6.4. What kind of customer services do you receive from your suppliers?

Personal visits for better personal relationship and product training.

6.5. How do you communicate with your suppliers?

2.By phone/ Mobile	1.Via mail/post	3.Face to Face	Through intermediary (agent)	an	Other:
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6.6. How often do you communicate with your suppliers?

Every day	At least once per week	At least once every two weeks	At least once per month	Other: • When required
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7. Current use of the value chain model

7.1. Are you taking the value chain principle into consideration?

Not aware.

7.2. Are most employees aware of the model?

No.

7.3. Is there still space to improve? If Yes, where and how?

Yes there is still space to improve. We conduct business on a short term approach. In the future to become more successful we are going to plan strategically what we want to achieve. The value chain model will form part of it. It is very important for us to create more value for the customer.

7.4. Are you aware of the supporting activities and the potential effect on the performance?

Yes we are aware and making effort to improve the order handling, offerings and the human resource management.

7.5. How do you decide about the potential success of new or adjusted activities?

I am using a cost-benefit ration in the short run, which means it has to break even after less than a year.

8. Identify the solar competitive advantage and key success factors of the industry

8.1. For [name of service provider], in which area(s) is competitive pressure more intense?

1. Potential entrants – New businesses with low priced products try to gain market share..

8.2. What are your core competencies over competitors?

1. Highly efficient solar panels (quality)
2. Relatively low price

8.3. Who are your main competitors on the market?

1. Manufacturers from China

8.4. How do you expect the competitive force of new entrants to develop in the next years?

The number of competitors will grow in the long run.

8.5. How do you expect the competitive force of substitutes to develop in the next years?

The market will reach its peak in 3-5 years, thereafter other technology will overtake the market share. For instance, photovoltaic technology is advancing on a rapid pace.

6.Company

1. General information

1.1. What is your gender?

Male

Female

1.2. How long have you been employed in this position?

4 years

1.3. What is your position in the company?

Managing Director / Owner

1.4. What is your yearly turnover measured in Rand?

Less than R 1 million	R 1 Million – R 5 Million	More than R 5 Million – R15 Million	More than R15 Million – R25 Million	More than R25 Million
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1.5. What is your mission or vision statement for your company?

Vision

To help create a South Africa where individuals and businesses are able to meet their energy requirements as far as possible via renewable resources, in a way that protects and preserves the planet.

We strive to live out this vision by delighting our clients with world-class solar installations that deliver maximum benefits for their businesses, and the planet.

Mission

At Company 6, our promise is to assist your business in meeting its energy requirements in a low-carbon, environmentally friendly way. When you deal with us, you get the following:

- Tailor-made thermal solar solutions individually designed to meet your business's exact needs
- Superior quality products based on proven international technologies – at affordable prices
- Cost-effective finance options to suit your budget
- The very best service and a solid, long-term business relationship
- Various value-added services to enhance your company's sustainability

1.6. Did your sale of solar devices increase last year? If yes, by how many percent?

The sales have increased by 20% in the last year.

2. The solar service provider market

2.1. Who is your target market?

3.Residential Areas	Cluster Areas	Security Estates	Flats buildings	1.Businesses	2.Others: <ul style="list-style-type: none">• government
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2.2. How do you communicate with your customer base? Which one is most effective?

1.E-mail	2.Phone	Post	3.Personal visit	Other
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2.3. How do you market your products to your target market? Which one is most effective?

Television	Radio	Paper advertisement	Customized advertisement	1.Others: • Web page • Word of Mouth
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3. Solar service providers and stakeholders

3.1. Which are the five most important Stakeholders to your business? (List from most to least important)

1. Government
2. Suppliers
3. Consumer

3.2. What type of business relationship do you prefer with each stakeholder?

- legal contract (1. 3.)
- verbal agreement
- no agreement at all, we negotiate on order basis (2.)

3.3. Do you envisage increased engagement with one of these Stakeholders? If Yes, why and how?

The first factor to improve is to broaden the consumer base and educate them. Consumers have to understand what we are offering and the advantages.

3.4. With regard to the legal and regulatory framework, have you experienced any difficulties to grow your business? If yes, what were these difficulties?

We do have difficulties with the approval process to get SABS certificates. Not in the corporate target market, as SABS approval only has to be done up to 350L.

- 3.5. What kind of services does the (local) government provide to service providers in this sector? Are these services up-to date and useful?

No Service.

4. Types strategies of service provider

- 4.1. Which one of the following strategies describes best your strategic targets?
Why?

Differentiation strategy

Low cost strategy

Best-cost provider strategy

We provide a mid to high class product with a good quality to a good price.

Niche market strategy

- 4.2. Which one of the following business-customer channels do you make use of?

Web page	E-mail	Catalogue	Personal visits	Other: <ul style="list-style-type: none">• No updates
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- 4.3. What are the top three selling solar thermal devices you sell?

The top selling devices are the solar thermal panels

- 4.4. What kind of preferences do your customers have (e.g. in terms of **quality**, **price**, design, functionality, health standards etc.)

The customer is looking for an affordable product with good quality.

5. The Value Chain Structure

5.1. The following Figure represents Porter's value chain, which is a generalization of activities a typical business consists of.

- What are the core (primary) activities for you as a solar service provider?

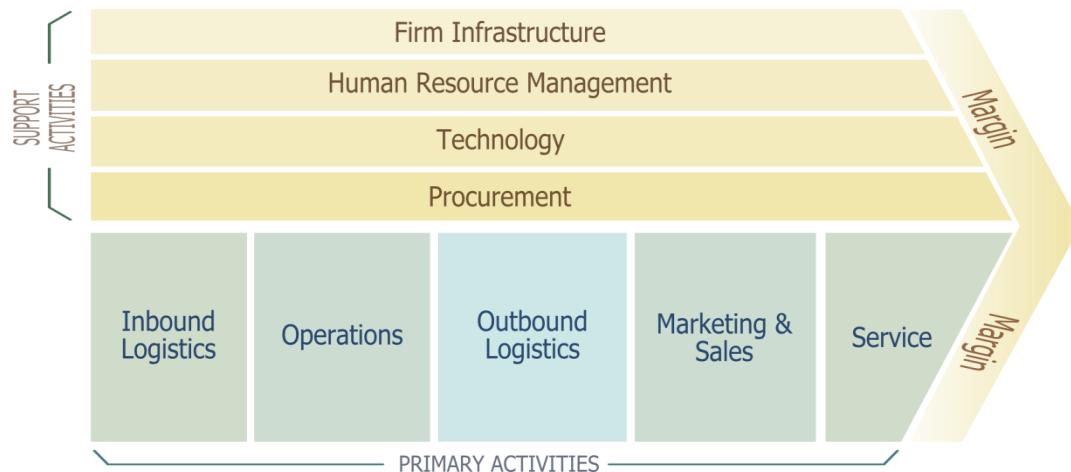
Marketing – customer contacts service provider – site visit – consultation - quotation – order product/ inventory – installation.

- What are the supporting activities?

Human Resource management – employing, training and motivating staff (installers!)

Technology – Reliable and qualitative products

Procurement – Handling and processing the order



- 5.2. Which one of the activities mentioned above is crucial for the competitive success of your business?

The most important part of our business is part of the installer who is in immediate contact with the supplier, where professionalism and empathy plays an important role.

Secondly, the consulting and advice we offer is outstanding and unique in the market. Our product portfolio is comparatively big which makes it more likely for us to find the appropriate product for the customer.

(Inbound Logistics)

5.3. Which are the three main suppliers from which you source your products from?
(Indicate Percentage)

1. Solar Energy (Austria)
2. Clina (Berlin)

5.4. If you would have to evaluate the performance of your three main suppliers along a scale of 1 (very poor) to 5 (very good), what kind of marks would you give for the following criteria:

Criteria	Very poor	Poor	Average	Good	Very Good
Quality				•	
Reliability				•	
Flexibility				•	
Price			•		
Product design				•	
Service				•	
Product training				•	
Delivery time				•	

5.5. What kind of difficulties do you face in working together with your suppliers?

No difficulties.

5.6. Do you have any suggestions, how these problems can be addressed? (if you have any)

No.

5.7. How do you collect your products?

Suppliers come to me	I go to the suppliers (e.g. through an agent, or personally)	I have collecting centres at central places • Clina • Solar Energy	I use an out-grower system: suppliers sell exclusively to me	Other:
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Operations

5.8. How do you handle your product operations?

- Keep stock of our main products**
- Just in Time approach
- Order from supplier as soon customer order is set

5.9. If you keep stock, for how long is it supposed to keep in your inventory?

Two months.

Service

5.10. What type of after service do you offer to your customers?

1.Check up call	2.Check up visit • If needed	Check up e-mail/ post	No after service	Other:
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Supporting activities

5.11. What is your criteria for new employees

3.Personal references	1.Education	2.Personal sympathy	First impression	Other:
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5.12. How do you keep your employees motivated?

Incentives	Bonuses	Personal recognition	Other:
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6. Determine strategies for more utilization of solar products in the Western Cape

6.1. How long does it take until you get your order from your suppliers to the customer?

One day	Two days	Up to one week	Up to two weeks	More than two weeks
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6.2. How long is the credit range for the customer?

On the same day I receive the order	Within a week	Within two weeks	Within three weeks	Within four weeks	Before Delivery
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6.3. Do you regularly update your suppliers with regards to new market developments?

Yes No

6.4. What kind of customer services do you receive from your suppliers?

Product training if needed.

6.5. How do you communicate with your suppliers?

2.By phone/ Mobile • Skype	1.Via e-mail/post	3.Face to Face	Through an intermediary (agent)	Other:
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6.6. How often do you communicate with your suppliers?

Every day	At least once per week	At least once every two weeks	At least once per month	Other: • When required
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7. Current use of the value chain model

7.1. Are you taking the value chain principle into consideration?

Yes.

7.2. Are most employees aware of the model?

Yes.

7.3. Is there still space to improve? If Yes, where and how?

We have to improve on the installer's side. There is no sense in having an extraordinary product which is installed wrong.

7.4. Are you aware of the supporting activities and the potential effect on the performance?

Yes.

7.5. How do you decide about the potential success of new or adjusted activities?

We using a cost-benefit approach for a time span of more than a year (up to three years).

8. Identify the solar competitive advantage and key success factors of the industry

8.1. For [name of service provider], in which area(s) is competitive pressure more intense?

1. Buyers – The recession and the canceled rebate decreased the number of buyers.

8.2. What are your core competencies over competitors?

1. Unique up to date product from Europe
2. Customer service (Consulting)

8.3. Who are your main competitors on the market?

1. Solar Sun
2. Solar Max

8.4. How do you expect the competitive force of new entrants to develop in the next years?

The amount of new entrants will be very limited as there are already a vast amount of competitors.

8.5. How do you expect the competitive force of substitutes to develop in the next years?

The price of electricity is increasing, which makes people more aware of solutions like we offer. The worse Eskom handles their business the better it is for us.

7.Company

1. General information

1.1. What is your gender?

Male

Female

1.2. How long have you been employed in this position?

1 year

1.3. What is your position in the company?

Managing Director / Owner

1.4. What is your yearly turnover measured in Rand?

Less than R 1 million	R 1 Million – R 5 Million	More than R 5 Million – R15 Million	More than R15 Million – R25 Million	More than R25 Million
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1.5. What is your mission or vision statement for your company?

Vision

Here at Company 7, we share the common ideal of making green technology available to everyone. Through an innovative approach to manufacturing and installation methods, we aim to offer our customers the best solution for their specific needs at rates which make them economically viable from day one.

The desire to see the replacement of dirty energy sources with clean, natural alternatives is the fuel that drives our business.

Mission

Our mission is it to make solar devices accessible for the broad market by offering acceptable quality to a good price.

1.6. Did your sale of solar devices increase last year? If yes, by how many percent?

The sales are constant.

2. The solar service provider market

2.1. Who is your target market?

1.Residential Areas	2.Cluster Areas	Security Estates	Flats buildings	Businesses	Others:

2.2. How do you communicate with your customer base? Which one is most effective?

1.E-mail	2.Phone	Post	Personal visit	Other

2.3. How do you market your products to your target market? Which one is most effective?

Television	Radio	2.Paper advertisement <ul style="list-style-type: none"> • Pamphlet drops 	Customized advertisement	1.Others: <ul style="list-style-type: none"> • Web page • Word of Mouth

3. Solar service providers and stakeholders

3.1. Which are the five most important Stakeholders to your business? (List from most to least important)

1. Investors
2. Employees
3. Supplier

3.2. What type of business relationship do you prefer with each stakeholder?

- legal contract (1.2.3.)
- verbal agreement
- no agreement at all, we negotiate on order basis

3.3. Do you envisage increased engagement with one of these Stakeholders? If Yes, why and how?

The first factor to improve is to achieve more motivation with employees, especially the installers.

Secondly, it would be beneficial for both sides, suppliers and us, to meet on a regular base face to face to discuss recent market developments.

3.4. With regard to the legal and regulatory framework, have you experienced any difficulties to grow your business? If yes, what were these difficulties?

We do have difficulties with the approval process to get SABS certificates.

3.5. What kind of services does the (local) government provide to service providers in this sector? Are these services up-to date and useful?

No Service.

4. Types strategies of service provider

4.1. Which one of the following strategies describes best your strategic targets?
Why?

Differentiation strategy

Low cost strategy

Best-cost provider strategy

We provide a mid class product with a good quality to a good price.

Niche market strategy

4.2. Which one of the following business-customer channels do you make use of?

1.Web page	2.E-mail	Catalogue	3.Personal visits	4.Other: • Brochures
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4.3. What are the top three selling solar thermal devices you sell?

The top selling products are the solar panels and the 150L and 200L geyser sizes.

4.4. What kind of preferences do your customers have (e.g. in terms of **quality**, **price**, design, functionality, health standards etc.)

The customer is looking for an affordable product with good quality and good functionality for their needs.

5. The Value Chain Structure

5.1. The following Figure represents Porter's value chain, which is a generalization of activities a typical business consists of.

- What are the core (primary) activities for you as a solar service provider?

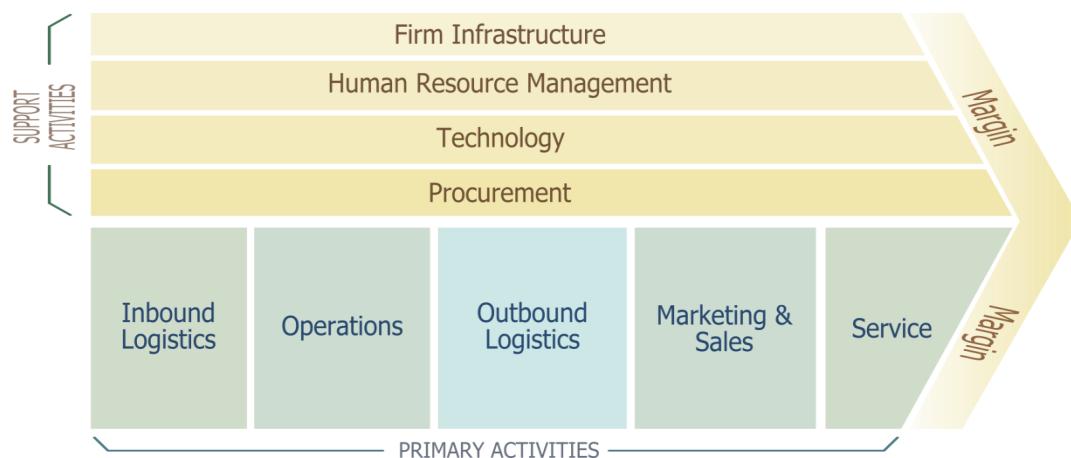
Marketing – customer contacts service provider – site visit – consultation - quotation – follow up - order product/ inventory – installation – follow up – check up call.

- What are the supporting activities?

Human Resource management – employing, training and motivating staff (installers!)

Technology – Reliable and qualitative products

Procurement – Handling and processing the order



- 5.2. Which one of the activities mentioned above is crucial for the competitive success of your business?

At the moment for us as a very young business it is a combination of marketing and good service. The marketing is very important to get our name out there.

(Inbound Logistics)

- 5.3. Which are the three main suppliers from which you source your products from?
(Indicate Percentage)

1. Solar Max 80%
2. ITS Solar 20%

5.4. If you would have to evaluate the performance of your three main suppliers along a scale of 1 (very poor) to 5 (very good), what kind of marks would you give for the following criteria:

Criteria	Very poor	Poor	Average	Good	Very Good
Quality				•	
Reliability				•	
Flexibility				•	
Price				•	
Product design				•	
Service				•	
Product training					•
Delivery time				•	

5.5. What kind of difficulties do you face in working together with your suppliers?

No difficulties.

5.6. Do you have any suggestions, how these problems can be addressed? (if you have any)

No.

5.7. How do you collect your products?

Suppliers come to me	I go to the suppliers (e.g. through an agent, or personally) • ITS Solar	I have collecting centres at central places • Solar Max	I use an out-grower system: suppliers sell exclusively to me	Other:
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Operations

5.8. How do you handle your product operations?

- Keep stock of our main products**
- Just in Time approach
- Order from supplier as soon customer order is set

5.9. If you keep stock, for how long is it supposed to keep in your inventory?

Three to four months.

Service

5.10. What type of after service do you offer to your customers?

1.Check up call	Check up visit	Check up e-mail/ post	No after service	Other:
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Supporting activities

5.11. What is your criteria for new employees

2.Personal references	1.Education	3.Personal sympathy	1.First impression	Other:
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5.12. How do you keep your employees motivated?

Incentives	Bonuses	Personal recognition	Other:
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6. Determine strategies for more utilization of solar products in the Western Cape

6.1. How long does it take until you get your order from your suppliers to the customer?

One day	Two days	Up to one week	Up to two weeks	More than two weeks
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6.2. How long is the credit range for the customer?

On the same day I receive the order	Within a week	Within two weeks	Within three weeks	Within four weeks	Before Delivery
-------------------------------------	----------------------	------------------	--------------------	-------------------	-----------------

6.3. Do you regularly update your suppliers with regards to new market developments?

Yes No

6.4. What kind of customer services do you receive from your suppliers?

Product training if needed.

6.5. How do you communicate with your suppliers?

2.By phone/ Mobile	Via mail/post	e-	Face to Face	Through intermediary (agent)	an	Other:
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6.6. How often do you communicate with your suppliers?

Every day	At least once per week	At least once every two weeks	At least once per month	Other: • When required
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7. Current use of the value chain model

7.1. Are you taking the value chain principle into consideration?

Yes.

7.2. Are most employees aware of the model?

No.

7.3. Is there still space to improve? If Yes, where and how?

We have to train our employees to understand the model behind the value chain and the possible benefits.

- 7.4. Are you aware of the supporting activities and the potential effect on the performance?

Yes.

- 7.5. How do you decide about the potential success of new or adjusted activities?

If the costs allow us to implement a promising idea only then it is possible for us to progress.

8. Identify the solar competitive advantage and key success factors of the industry

- 8.1. For [name of service provider], in which area(s) is competitive pressure more intense?

1. Substitutes– Cheap Eskom electricity is still the main competitor.

- 8.2. What are your core competencies over competitors?

1. Customer Service (Installation)
2. Customer service (Consulting)

- 8.3. Who are your main competitors on the market?

1. Solar Tech
2. Solar Juice

- 8.4. How do you expect the competitive force of new entrants to develop in the next years?

New business will enter the market by offering cheap priced products from china.

- 8.5. How do you expect the competitive force of substitutes to develop in the next years?

The market is developing in our favour as electricity is becoming more expensive.

8.Company

1. General information

1.1. What is your gender?

Male

Female

1.2. How long have you been employed in this position?

2 years

1.3. What is your position in the company?

Managing Director / Owner

1.4. What is your yearly turnover measured in Rand?

Less than R 1 million	R 1 Million – R 5 Million	More than R 5 Million – R15 Million	More than R15 Million – R25 Million	More than R25 Million
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1.5. What is your mission or vision statement for your company?

Our mission is to provide outstanding service and high-quality water heating system to residential, commercial and industrial hot water user. This enables us to create sustainable profits in order to meet all the needs of our stakeholders.

1.6. Did your sale of solar devices increase last year? If yes, by how many percent?

The sales are constant.

2. The solar service provider market

2.1. Who is your target market?

1.Residential Areas	Cluster Areas	2.Security Estates	Flats buildings	3.Businesses	Others:

2.2. How do you communicate with your customer base? Which one is most effective?

1.E-mail	2.Phone	Post	3.Personal visit	Other

2.3. How do you market your products to your target market? Which one is most effective?

Television	3.Radio	2.Paper advertisement • Home publications • Business directories	DIY Customized advertisement	1.Others: • Web page • Word of Mouth

3. Solar service providers and stakeholders

3.1. Which are the five most important Stakeholders to your business? (List from most to least important)

1. Customers
2. Franchise partners
3. Suppliers
4. Employees

3.2. What type of business relationship do you prefer with each stakeholder?

- legal contract (1.2.3.4.)
- verbal agreement
- no agreement at all, we negotiate on order basis

3.3. Do you envisage increased engagement with one of these Stakeholders? If Yes, why and how?

No increase in engagement, only a continued engagement.

3.4. With regard to the legal and regulatory framework, have you experienced any difficulties to grow your business? If yes, what were these difficulties?

We do have difficulties with the approval process to get SABS certificates.

3.5. What kind of services does the (local) government provide to service providers in this sector? Are these services up-to date and useful?

No Service.

4. Types strategies of service provider

4.1. Which one of the following strategies describes best your strategic targets? Why?

O Differentiation strategy

Our products are directed only for the upper market, by providing exceptional quality

O Low cost strategy

O Best-cost provider strategy

O Niche market strategy

4.2. Which one of the following business-customer channels do you make use of?

1.Web page	2.E-mail	Catalogue	3.Personal visits	Other:
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4.3. What are the top three selling solar thermal devices you sell?

The top selling products are the solar panels and the 200L and 250L geyser sizes.

4.4. What kind of preferences do your customers have (e.g. in terms of quality, price, design, functionality, health standards etc.)

Aesthetic is by far the biggest concern for our customer. The overall appearance of the system, the location of the system and whether the system can be hidden from the pool/patio/entertainment area.

5. The Value Chain Structure

5.1. The following Figure represents Porter's value chain, which is a generalization of activities a typical business consists of.

- What are the core (primary) activities for you as a solar service provider?

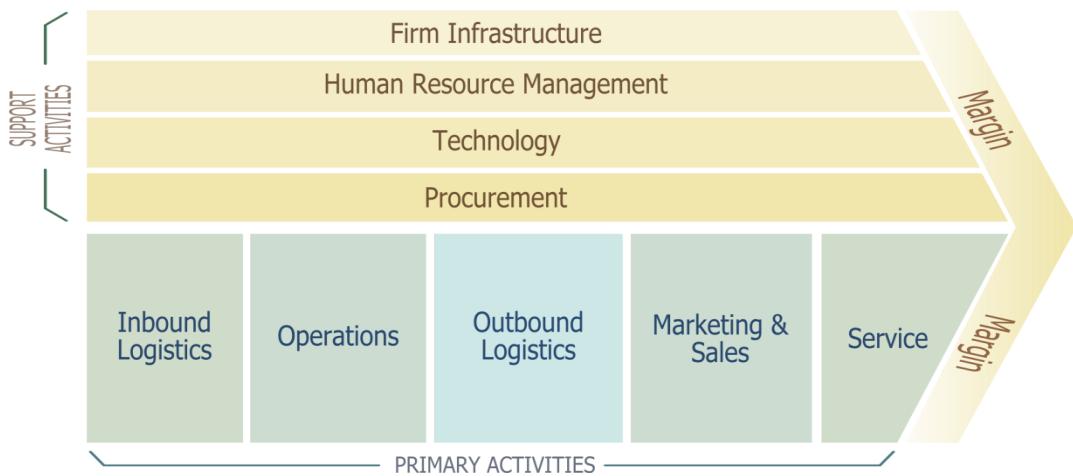
Marketing & sales

Inbound & Outbound logistics

- What are the supporting activities?

Human Resource management – employing, training and motivating staff (installers!)

Technology – and information about alternative technology



- 5.2. Which one of the activities mentioned above is crucial for the competitive success of your business?

Marketing & Sales

(Inbound Logistics)

- 5.3. Which are the three main suppliers from which you source your products from?
(Indicate Percentage)

1. Kwikot (95%)
2. Others (5%)

- 5.4. If you would have to evaluate the performance of your three main suppliers along a scale of 1 (very poor) to 5 (very good), what kind of marks would you give for the following criteria:

Criteria	Very poor	Poor	Average	Good	Very Good
Quality				•	
Reliability					•
Flexibility		•			
Price		•			
Product design			•		
Service				•	
Product training		•			
Delivery time			•		

5.5. What kind of difficulties do you face in working together with your suppliers?

Company 8, being a franchise; do have certain control/restrictions on product choice and supplier selection. Typically this regulates national product supply more than impacting on product supply to consumer.

However, recent industrial action (metal workers union strike) impact national supply of stock.

Lack of variety of available products.

5.6. Do you have any suggestions, how these problems can be addressed? (if you have any)

Continued focus on procurement.

5.7. How do you collect your products?

Suppliers come to me	I go to the suppliers (e.g. through an agent, or personally)	I have collecting centres at central places • Kwikot	I use an out-grower system: suppliers sell exclusively to me	Other:
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Operations

5.8. How do you handle your product operations?

- Keep stock of our main products
- Just in Time approach**
- Order from supplier as soon customer order is set**

5.9. If you keep stock, for how long is it supposed to keep in your inventory?

Three to four weeks.

Service

5.10. What type of after service do you offer to your customers?

1.Check up call	3.Check up visit	2.Check up e-mail/ post	No after service	Other:
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Supporting activities

5.11. What is your criteria for new employees

2.Personal references	1.Education	Personal sympathy	1.First impression	Other:
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5.12. How do you keep your employees motivated?

Incentives	Bonuses	Personal recognition	Other:
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6. Determine strategies for more utilization of solar products in the Western Cape

6.1. How long does it take until you get your order from your suppliers to the customer?

One day	Two days	Up to one week	Up to two weeks	More than two weeks
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6.2. How long is the credit range for the customer?

On the same day I receive the order	Within a week	Within two weeks	Within three weeks	Within four weeks	Before Delivery
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6.3. Do you regularly update your suppliers with regards to new market developments?

Yes No

6.4. What kind of customer services do you receive from your suppliers?

Managed at the franchise head office.

6.5. How do you communicate with your suppliers?

By phone/ Mobile	Via e- mail/post	Face to Face	Through intermediary (head office)	an	Other:
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6.6. How often do you communicate with your suppliers?

Every day	At least once per week	At least once every two weeks	At least once per month	Other:
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7. Current use of the value chain model

7.1. Are you taking the value chain principle into consideration?

Yes, in some instance.

7.2. Are most employees aware of the model?

No.

7.3. Is there still space to improve? If Yes, where and how?

No.

7.4. Are you aware of the supporting activities and the potential effect on the performance?

Yes.

7.5. How do you decide about the potential success of new or adjusted activities?

There is a 12-18 months test phase.

8. Identify the solar competitive advantage and key success factors of the industry

8.1. For [name of service provider], in which area(s) is competitive pressure more intense?

1. Substitutes– Cheap Eskom electricity is still the main competitor.

8.2. What are your core competencies over competitors?

1. Experience
2. Professionalism

8.3. Who are your main competitors on the market?

1. Solar Hart
2. Duratherm

8.4. How do you expect the competitive force of new entrants to develop in the next years?

The improvement in the locally produced solar thermal panels, and the emergence of solar photovoltaic panels.

8.5. How do you expect the competitive force of substitutes to develop in the next years?

Heat pump solutions; Alternative short term fixes; Wind energy; Photovoltaic Panels.

9.Company

1. General information

1.1. What is your gender?

Male

Female

1.2. How long have you been employed in this position?

6 months

1.3. What is your position in the company?

Managing Director / Owner / Franchisee

1.4. What is your yearly turnover measured in Rand?

Less than R 1 million	R 1 Million – R 5 Million	More than R 5 Million – R15 Million	More than R15 Million – R25 Million	More than R25 Million
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1.5. What is your mission or vision statement for your company?

We provide economical electricity solutions to our customers. The customer is able to save money with our solutions.

1.6. Did your sale of solar devices increase last year? If yes, by how many percent?

The sales have dropped by 30%.

2. The solar service provider market

2.1. Who is your target market?

1.Residential Areas	Cluster Areas	2.Security Estates	Flats buildings	Businesses	Others:
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2.2. How do you communicate with your customer base? Which one is most effective?

1.E-mail	Phone	Post	Personal visit	Other
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2.3. How do you market your products to your target market? Which one is most effective?

Television	Radio	Paper advertisement	Customized advertisement	1.Others: • Web page • Word of Mouth
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3. Solar service providers and stakeholders

3.1. Which are the five most important Stakeholders to your business? (List from most to least important)

1. Employees
2. Customer
3. Suppliers

3.2. What type of business relationship do you prefer with each stakeholder?

- legal contract (1.2.3.)
- verbal agreement
- no agreement at all, we negotiate on order basis

- 3.3. Do you envisage increased engagement with one of these Stakeholders? If Yes, why and how?

No. We just want to continue our relationship.

- 3.4. With regard to the legal and regulatory framework, have you experienced any difficulties to grow your business? If yes, what were these difficulties?

We are facing problems with the SABS regulations.

- 3.5. What kind of services does the (local) government provide to service providers in this sector? Are these services up-to date and useful?

No Service.

4. Types strategies of service provider

- 4.1. Which one of the following strategies describes best your strategic targets?
Why?

Differentiation strategy

Low cost strategy

We aim on giving the customer a low price for good quality. We not working with the rebate program.

Best-cost provider strategy

Niche market strategy

- 4.2. Which one of the following business-customer channels do you make use of?

1. Web page	2. E-mail	Catalogue	Personal visits	Other:
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- 4.3. What are the top three selling solar thermal devices you sell?

Our top selling products are our retrofit panels, followed by the geysers.

- 4.4. What kind of preferences do your customers have (e.g. in terms of quality, **price**, design, **functionality**, health standards etc.)

5. The Value Chain Structure

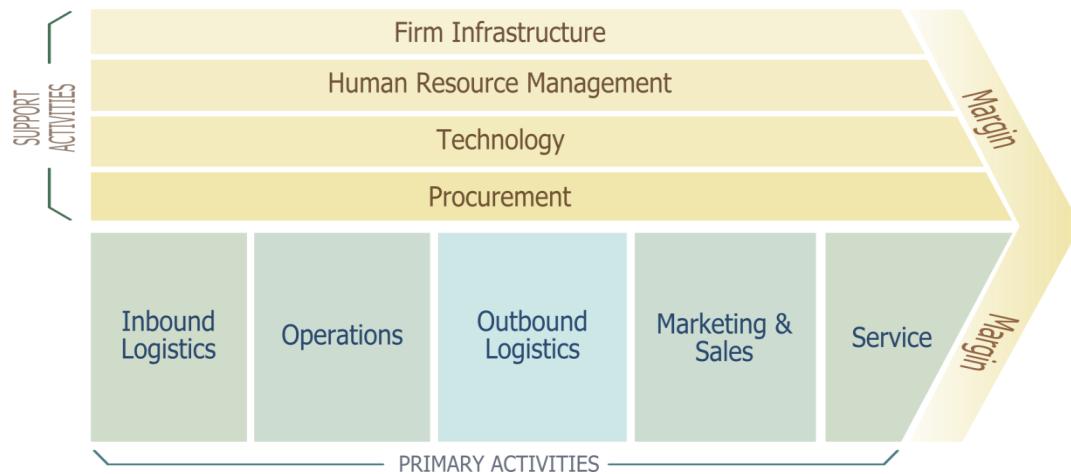
- 5.1. The following Figure represents Porter's value chain, which is a generalization of activities a typical business consists of.

- What are the core (primary) activities for you as a solar service provider?
Marketing – customer contact – site visit – quotation – deposit – stock / order – installation.

What are the supporting activities?

Human Resource management – employing, training and motivating staff (installers!)

Technology – and information about alternative technology



- 5.2. Which one of the activities mentioned above is crucial for the competitive success of your business?

Service (installation)

Marketing (Web based-Google)

(Inbound Logistics)

5.3. Which are the three main suppliers from which you source your products from?
(Indicate Percentage)

1. China (75%)
2. Local (15%)

5.4. If you would have to evaluate the performance of your three main suppliers along a scale of 1 (very poor) to 5 (very good), what kind of marks would you give for the following criteria: Local; **China**

Criteria	Very poor	Poor	Average	Good	Very Good
Quality				•	•
Reliability			•		•
Flexibility	•			•	
Price			•		•
Product design			•		•
Service			•		
Product training	•	•			
Delivery time			•	•	

5.5. What kind of difficulties do you face in working together with your suppliers?

The products are supplied from China, which sometimes creates delivery time problems due to the long way.

The delivery times and flexibility has to be improved in the future. Moreover, more product training could improve our work immensely.

5.6. Do you have any suggestions, how these problems can be addressed? (if you have any)

Better order procurement practices. More investment in training courses.

5.7. How do you collect your products?

Suppliers come to me	I go to the suppliers (e.g. through an agent, or personally)	I have collecting centres at central places • China • Local	I use an out-grower system: suppliers sell exclusively to me	Other:
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Operations

5.8. How do you handle your product operations?

Keep stock of our main products (China)

Just in Time approach (Local)

Order from supplier as soon customer order is set

5.9. If you keep stock, for how long is it supposed to keep in your inventory?

6 months

Service

5.10. What type of after service do you offer to your customers?

Check up call	Check up visit	Check up e-mail/ post	No after service	Other: • If needed
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Supporting activities

5.11. What is your criteria for new employees

1. Personal references	2. Education	Personal sympathy	First impression	Other:
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5.12. How do you keep your employees motivated?

Incentives • Every sale	Bonuses	Personal recognition	Other:
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6. Determine strategies for more utilization of solar products in the Western Cape

6.1. How long does it take until you get your order from your suppliers to the customer?

One day	Two days	Up to one week	Up to two weeks	More than two weeks
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6.2. How long is the credit range for the customer?

On the same day I receive the order	Within a week	Within two weeks	Within three weeks	Within four weeks	Before Delivery
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6.3. Do you regularly update your suppliers with regards to new market developments?

Yes No

6.4. What kind of customer services do you receive from your suppliers?

Product Training.

6.5. How do you communicate with your suppliers?

By phone/ Mobile	Via mail/post (China)	e- Face to Face	Through intermediary	an	Other:
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6.6. How often do you communicate with your suppliers?

Every day	At least once per week	At least once every two weeks	At least once per month	Other: • If needed
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7. Current use of the value chain model

7.1. Are you taking the value chain principle into consideration?

No

7.2. Are most employees aware of the model?

No

7.3. Is there still space to improve? If Yes, where and how?

No

7.4. Are you aware of the supporting activities and the potential effect on the performance?

Yes.

7.5. How do you decide about the potential success of new or adjusted activities?

We employ new ideas if they are affordable and produce competitive advantage.

8. Identify the solar competitive advantage and key success factors of the industry

8.1. For [name of service provider], in which area(s) is competitive pressure more intense?

1. Buyers – The market is experiencing difficult times and there are many service providers to choose from.
2. Potential entrants – New service providers with the same model than we have enter the market. (China products)

8.2. What are your core competencies over competitors?

1. Service (installer)
2. Price
3. Experience (10yrs)

8.3. Who are your main competitors on the market?

1. Solar Tech
2. Sun tank

8.4. How do you expect the competitive force of new entrants to develop in the next years?

More low cost providers, with Chinese products will enter the market.

8.5. How do you expect the competitive force of substitutes to develop in the next years?

Eskom electricity is becoming more expensive, which drives more customers to us.

10.Company

1. General information

1.1. What is your gender?

Male

Female

1.2. How long have you been employed in this position?

7 years

1.3. What is your position in the company?

Managing Director / Owner

1.4. What is your yearly turnover measured in Rand?

Less than R 1 million	R 1 Million – R 5 Million	More than R 5 Million – R15 Million	More than R15 Million – R25 Million	More than R25 Million
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1.5. What is your mission or vision statement for your company?

The priority is to create an environment which is sustainable for future generations. Nevertheless, the business would not work if the offers are not attractive for the customer.

1.6. Did your sale of solar devices increase last year? If yes, by how many percent?

The sales have decreased by 30%

2. The solar service provider market

2.1. Who is your target market?

1.Residential Areas	Cluster Areas	Security Estates	Flats buildings	Businesses	Others:
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2.2. How do you communicate with your customer base? Which one is most effective?

1.E-mail	Phone	Post	Personal visit	Other
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2.3. How do you market your products to your target market? Which one is most effective?

Television	Radio	2.Paper advertisement • Pamphlet drops	Customized advertisement	1.Others: • Web page • Word of Mouth
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3. Solar service providers and stakeholders

3.1. Which are the five most important Stakeholders to your business? (List from most to least important)

1. Supplier
2. Customer
3. Community

3.2. What type of business relationship do you prefer with each stakeholder?

- legal contract (1.2.)
- verbal agreement (3.)
- no agreement at all, we negotiate on order basis

- 3.3. Do you envisage increased engagement with one of these Stakeholders? If Yes, why and how?

Customers have to be educated about the potential benefits. Moreover, the overall awareness has to be increased.

- 3.4. With regard to the legal and regulatory framework, have you experienced any difficulties to grow your business? If yes, what were these difficulties?

We are facing problems with the SABS regulations.

- 3.5. What kind of services does the (local) government provide to service providers in this sector? Are these services up-to date and useful?

No Service.

4. Types strategies of service provider

- 4.1. Which one of the following strategies describes best your strategic targets?
Why?

Differentiation strategy

Our offerings are high end quality products, which differentiates us from the majority of potential competitors.

Low cost strategy

Best-cost provider strategy

Niche market strategy

- 4.2. Which one of the following business-customer channels do you make use of?

1. Web page	E-mail	Catalogue	Personal visits	Other:
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- 4.3. What are the top three selling solar thermal devices you sell?

Our top selling products are our panels, followed by the Geysers.

- 4.4. What kind of preferences do your customers have (e.g. in terms of **quality**, **price**, design, **functionality**, health standards etc.)

The customer in South Africa wants good quality, customized functionality to a reasonable price.

5. The Value Chain Structure

- 5.1. The following Figure represents Porter's value chain, which is a generalization of activities a typical business consists of.

- What are the core (primary) activities for you as a solar service provider?

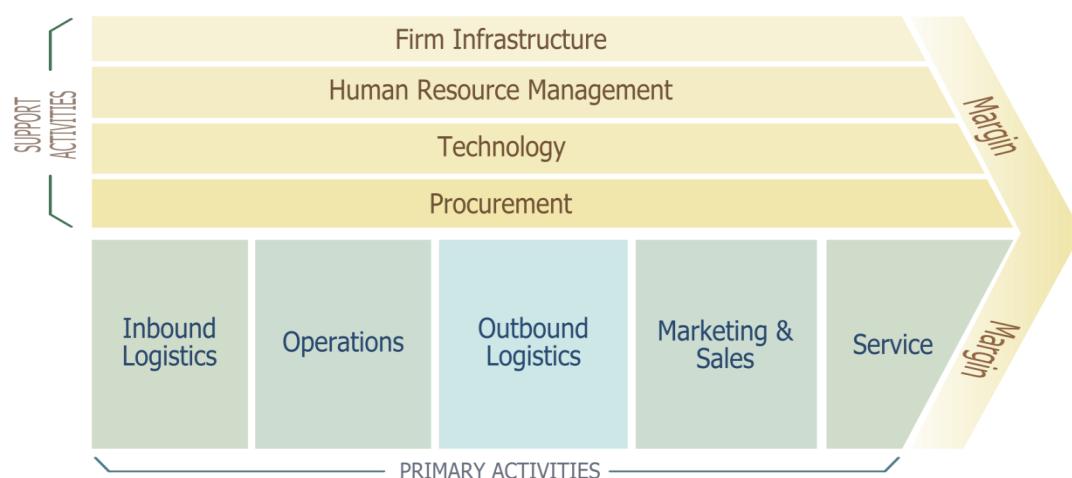
Marketing – customer contact – site visit – quotation –order– installation – after service.

What are the supporting activities?

Human Resource management – employing, training and motivating staff (installers!)

Technology – and information about alternative technology

Order Procurement - reliability



- 5.2. Which one of the activities mentioned above is crucial for the competitive success of your business?

Technology

After sales service.

(Inbound Logistics)

- 5.3. Which are the three main suppliers from which you source your products from? (Indicate Percentage)

1. Nu power (100%)

- 5.4. If you would have to evaluate the performance of your three main suppliers along a scale of 1 (very poor) to 5 (very good), what kind of marks would you give for the following criteria:

Criteria	Very poor	Poor	Average	Good	Very Good
Quality				•	
Reliability				•	
Flexibility		•			
Price				•	
Product design				•	
Service			•		
Product training				•	
Delivery time			•		

- 5.5. What kind of difficulties do you face in working together with your suppliers?

The flexibility of the supplier has to improve in the future.

- 5.6. Do you have any suggestions, how these problems can be addressed? (if you have any)

Based on the fact that we are a relatively small customer, we are always last in the line. This sometimes causes problems in getting the product to the customer in a reasonable time.

5.7. How do you collect your products?

Suppliers come to me	I go to the suppliers (e.g. through an agent, or personally)	I have collecting centres at central places • Nu Power	I use an out-grower system: suppliers sell exclusively to me	Other:
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Operations

5.8. How do you handle your product operations?

- Keep stock of our main products
- Just in Time approach
- Order from supplier as soon customer order is set

5.9. If you keep stock, for how long is it supposed to keep in your inventory?

No

Service

5.10. What type of after service do you offer to your customers?

1.Check up call	Check up visit	2.Check up e-mail/ post • 3 months	No after service	Other:
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Supporting activities

5.11. What is your criteria for new employees

2.Personal references	1.Education	Personal sympathy	First impression	Other:
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5.12. How do you keep your employees motivated?

Incentives	Bonuses	Personal recognition	Other: • Fixed
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6. Determine strategies for more utilization of solar products in the Western Cape

6.1. How long does it take until you get your order from your suppliers to the customer?

One day	Two days	Up to one week	Up to two weeks	More than two weeks
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6.2. How long is the credit range for the customer?

On the same day I receive the order	Within a week	Within two weeks	Within three weeks	Within four weeks	Before Delivery
-------------------------------------	----------------------	------------------	--------------------	-------------------	-----------------

6.3. Do you regularly update your suppliers with regards to new market developments?

Yes No

6.4. What kind of customer services do you receive from your suppliers?

No.

6.5. How do you communicate with your suppliers?

By phone/ Mobile	Via e-mail/post	Face to Face	Through an intermediary	Other:
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6.6. How often do you communicate with your suppliers?

Every day	At least once per week	At least once every two weeks	At least once per month	Other: • If needed
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7. Current use of the value chain model

7.1. Are you taking the value chain principle into consideration?

No, we are too small.

7.2. Are most employees aware of the model?

No

7.3. Is there still space to improve? If Yes, where and how?

No.

7.4. Are you aware of the supporting activities and the potential effect on the performance?

Yes.

7.5. How do you decide about the potential success of new or adjusted activities?

We are using a cost benefit ratio for less than a year.

8. Identify the solar competitive advantage and key success factors of the industry

8.1. For [name of service provider], in which area(s) is competitive pressure more intense?

1. Potential new entrants – Low cost provider (China)

8.2. What are your core competencies over competitors?

1. High quality product
2. Good after service

8.3. Who are your main competitors on the market?

1. Greenability
2. Solarmax

- 8.4. How do you expect the competitive force of new entrants to develop in the next years?

There will be no new comers as the market is shrinking.

- 8.5. How do you expect the competitive force of substitutes to develop in the next years?

The industry can only improve. It is all in the hands of the government.

11. Company

1. General information

1.1. What is your gender?

Male

Female

1.2. How long have you been employed in this position?

5 years

1.3. What is your position in the company?

Marketing Director

1.4. What is your yearly turnover measured in Rand?

Less than R 1 million	R 1 Million – R 5 Million	More than R 5 Million – R15 Million	More than R15 Million – R25 Million	More than R25 Million
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1.5. What is your mission or vision statement for your company?

Vision

Our team of registered professional engineers and ancillary service professionals will provide a customised and superior level of service to ensure that our clients' objectives are met at all stages of the project cycle.

Mission

A strong network of energy experts in the private and public sectors, both in South Africa and abroad, keeps us abreast of local and international technological developments to ensure that global standards of best practice are met.

As a technology neutral company, we provide solutions that are tailored to our customers' needs and objectives, which take full account of local conditions and costing as well as technological relevance and suitability.

1.6. Did your sale of solar devices increase last year? If yes, by how many percent?

The sales have increased by 30%

2. The solar service provider market

2.1. Who is your target market?

Residential Areas	Cluster Areas	Security Estates	Flats buildings	2.Businesses	1.Others: <ul style="list-style-type: none">• Public institutions• Hospitals• Schools• Police stations
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2.2. How do you communicate with your customer base? Which one is most effective?

2.E-mail	1.Phone	Post	3.Personal visit	Other
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2.3. How do you market your products to your target market? Which one is most effective?

4.Television <ul style="list-style-type: none">• Documentaries	Radio	2.Paper advertisement <ul style="list-style-type: none">• Specialised magazines	3.Customized advertisement <ul style="list-style-type: none">• Phoning	1.Others: <ul style="list-style-type: none">• Web page• Word of Mouth
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3. Solar service providers and stakeholders

3.1. Which are the five most important Stakeholders to your business? (List from most to least important)

1. Customer
2. Community
3. Employees
4. Suppliers
5. Government

3.2. What type of business relationship do you prefer with each stakeholder?

- legal contract (1.3.4.)
- verbal agreement (2.)
- no agreement at all, we negotiate on order basis (5.)

3.3. Do you envisage increased engagement with one of these Stakeholders? If Yes, why and how?

There is still plenty of space to improve with our employees, in terms of working culture and climate.

The teamwork with the local government on projects has to improve with the communication.

3.4. With regard to the legal and regulatory framework, have you experienced any difficulties to grow your business? If yes, what were these difficulties?

No problems.

3.5. What kind of services does the (local) government provide to service providers in this sector? Are these services up-to date and useful?

No Service, only business partner.

4. Types strategies of service provider

4.1. Which one of the following strategies describes best your strategic targets?
Why?

Differentiation strategy

Our aim is it to target different markets than most solar service providers. We also don't offer thermal devices, only photovoltaic.

Low cost strategy

Best-cost provider strategy

Niche market strategy

4.2. Which one of the following business-customer channels do you make use of?

1.Web page	2.E-mail	Catalogue	3.Personal visits	Other:

4.3. What are the top three selling solar thermal devices you sell?

Our top selling products are photovoltaic panels, followed by wind systems.

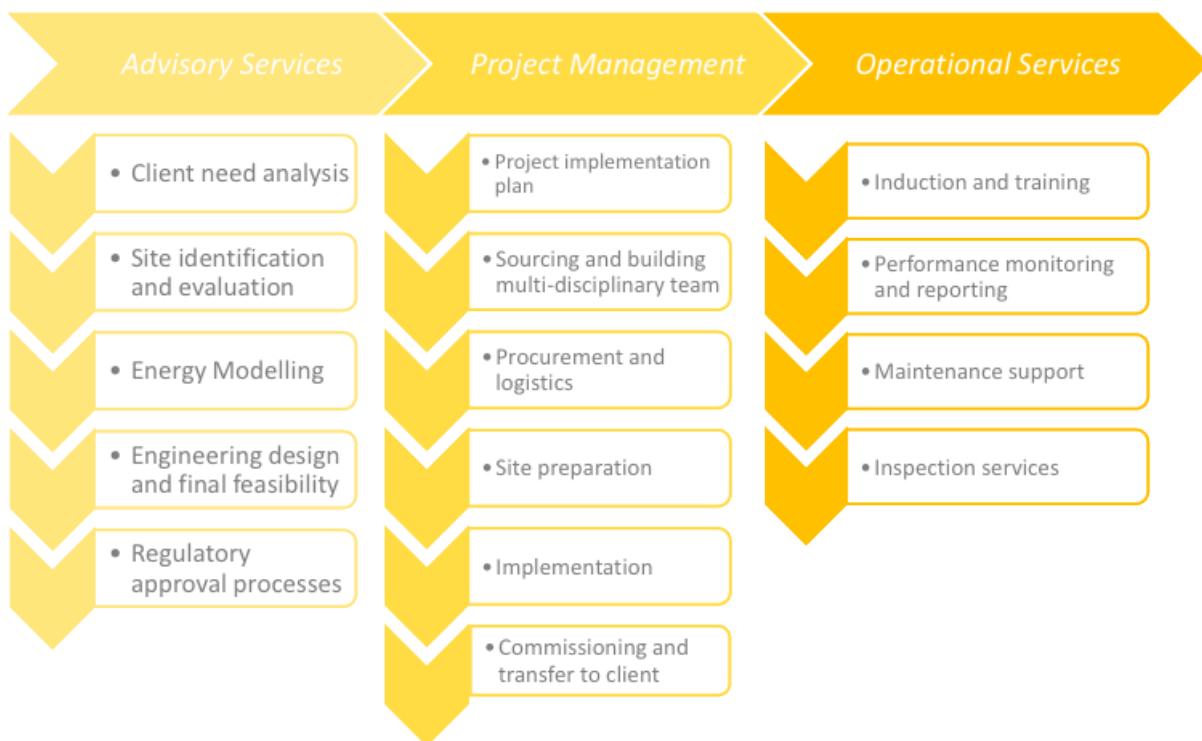
4.4. What kind of preferences do your customers have (e.g. in terms of **quality**, price, **design**, **functionality**, health standards etc.)

Our customers emphasise the functionality customized to their demand, followed by good quality to have a reliable system. The least important point but still in consideration is the design of the end result.

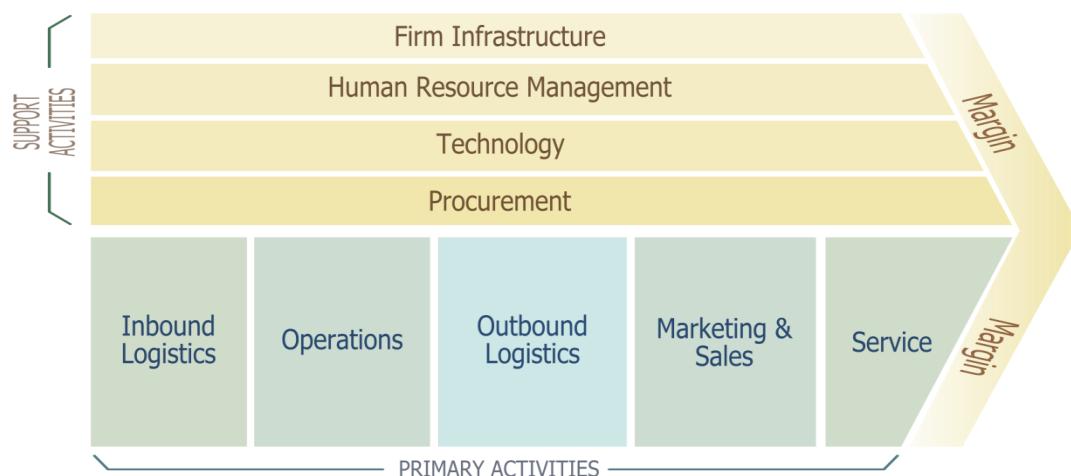
5. The Value Chain Structure

5.1. The following Figure represents Porter's value chain, which is a generalization of activities a typical business consists of.

- What are the core (primary) activities for you as a solar service provider?



What are the supporting activities?



- 5.2. Which one of the activities mentioned above is crucial for the competitive success of your business?

Advisory service

Installation

(Inbound Logistics)

- 5.3. Which are the three main suppliers from which you source your products from?
(Indicate Percentage)

1. Schott Solar German (70%)
2. Solar World German (30%)

- 5.4. If you would have to evaluate the performance of your three main suppliers along a scale of 1 (very poor) to 5 (very good), what kind of marks would you give for the following criteria:

Criteria	Very poor	Poor	Average	Good	Very Good
Quality					•
Reliability					•
Flexibility					•
Price			•		
Product design					•
Service					•
Product training					•
Delivery time					•

- 5.5. What kind of difficulties do you face in working together with your suppliers?

The best quality in the market has its price, which will improve dramatically in the next two years, due to research and development.

- 5.6. Do you have any suggestions, how these problems can be addressed? (if you have any)

Is improving through Research and development.

5.7. How do you collect your products?

Suppliers come to me	I go to the suppliers (e.g. through an agent, or personally)	I have collecting centres at central places • Schott solar • Solar World	I use an out-grower system: suppliers sell exclusively to me	Other:
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Operations

5.8. How do you handle your product operations?

- Keep stock of our main products
- Just in Time approach
- Order from supplier as soon customer order is set

5.9. If you keep stock, for how long is it supposed to keep in your inventory?

No

Service

5.10. What type of after service do you offer to your customers?

1.Check up call	3.Check up visit	2.Check up e-mail/ post • 6 months	No after service	Other:
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Supporting activities

5.11. What is your criteria for new employees

2.Personal references	1.Education	Personal sympathy	3.First impression	Other:
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5.12. How do you keep your employees motivated?

Incentives (Finished job)	Bonuses (6 months after installations without any complaints)	Personal recognition	Other:
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6. Determine strategies for more utilization of solar products in the Western Cape

6.1. How long does it take until you get your order from your suppliers to the customer?

One day	Two days	Up to one week	Up to two weeks	More than two weeks
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6.2. How long is the credit range for the customer?

On the same day I receive the order	Within a week	Within two weeks	Within three weeks	Within four weeks	Before Delivery
-------------------------------------	---------------	-------------------------	--------------------	-------------------	-----------------

6.3. Do you regularly update your suppliers with regards to new market developments?

Yes No

6.4. What kind of customer services do you receive from your suppliers?

We receive excellent product training and occasional site visits.

6.5. How do you communicate with your suppliers?

2.By phone/ Mobile	1.Via mail/post	3.Face to Face	Through an intermediary	Other:
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6.6. How often do you communicate with your suppliers?

Every day	At least once per week	At least once every two weeks	At least once per month	Other: • If needed
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7. Current use of the value chain model

7.1. Are you taking the value chain principle into consideration?

Yes we do.

7.2. Are most employees aware of the model?

Yes all employees are aware and understand the model.

7.3. Is there still space to improve? If Yes, where and how?

Yes, the implementation of the model still has to be optimized. Especially frontline employees have to get more understanding of the possible long-term effects.

7.4. Are you aware of the supporting activities and the potential effect on the performance?

Yes.

7.5. How do you decide about the potential success of new or adjusted activities?

We have staff meetings to discuss all possible effects in the long term. Nevertheless, initial costs will always be a significant factor.

8. Identify the solar competitive advantage and key success factors of the industry

8.1. For [name of service provider], in which area(s) is competitive pressure more intense?

1. Potential new entrants – Others will see the potential
2. Buyers – there are only a few big buyers which is the disadvantage of our target market

8.2. What are your core competencies over competitors?

1. High quality product
2. Exceptional service

8.3. Who are your main competitors on the market?

1. Yandalux
2. Set solar
3. Liselo Ltd

8.4. How do you expect the competitive force of new entrants to develop in the next years?

There will be an increase of photovoltaic suppliers in South Africa, due to the market growth.

8.5. How do you expect the competitive force of substitutes to develop in the next years?

Our technology is advancing rapidly, which makes solar thermal and common Eskom electricity less attractive.

12.Company

1. General information

1.1. What is your gender?

Male

Female

1.2. How long have you been employed in this position?

8 years

1.3. What is your position in the company?

Manager

1.4. What is your yearly turnover measured in Rand?

Less than R 1 million	R 1 Million – R 5 Million	More than R 5 Million – R15 Million	More than R15 Million – R25 Million	More than R25 Million
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1.5. What is your mission or vision statement for your company?

The slogan of Company 12 is “Better for you, better for your world”. It indicates that the first priority is to give a better solution to the customer itself by being more economical.

The second factor is the protection of the environment by securing it for future generation.

1.6. Did your sale of solar devices increase last year? If yes, by how many percent?

The sales have decreased by 50%.

2. The solar service provider market

2.1. Who is your target market?

1.Residential Areas	Cluster Areas	2.Security Estates	Flats buildings	3.Businesses	Others:
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2.2. How do you communicate with your customer base? Which one is most effective?

2.E-mail	1.Phone	Post	3.Personal visit	Other
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2.3. How do you market your products to your target market? Which one is most effective?

Television	Radio	1.Paper advertisement <ul style="list-style-type: none"> • Magazines • Pamphlet drops 	Customized advertisement	2.Others: <ul style="list-style-type: none"> • Web page • Word of Mouth • Energy web sites
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3. Solar service providers and stakeholders

3.1. Which are the five most important Stakeholders to your business? (List from most to least important)

1. Customer
2. Vendors
3. Employees

3.2. What type of business relationship do you prefer with each stakeholder?

- legal contract (1.2.3.)
- verbal agreement
- no agreement at all, we negotiate on order basis (5.)

- 3.3. Do you envisage increased engagement with one of these Stakeholders? If Yes, why and how?

We should improve the marketing to educate consumers about our products and to increase awareness.

- 3.4. With regard to the legal and regulatory framework, have you experienced any difficulties to grow your business? If yes, what were these difficulties?

We struggling with the process to get our products SABS approved

- 3.5. What kind of services does the (local) government provide to service providers in this sector? Are these services up-to date and useful?

No Service, only business partner.

4. Types strategies of service provider

- 4.1. Which one of the following strategies describes best your strategic targets?
Why?

- Differentiation strategy
- Low cost strategy
- Best-cost provider strategy**

We provide good quality product for a real competitive price. Moreover, our after service is excellent.

- Niche market strategy

- 4.2. Which one of the following business-customer channels do you make use of?

1. Web page	2. E-mail	Catalogue	Personal visits	Other:
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4.3. What are the top three selling solar thermal devices you sell?

Our top selling products are the heating panels followed by the 150L and 200L geysers.

4.4. What kind of preferences do your customers have (e.g. in terms of **quality**, **price**, design, functionality, health standards etc.)

The customer is looking for a good quality product for a good price. Moreover, durability is very important.

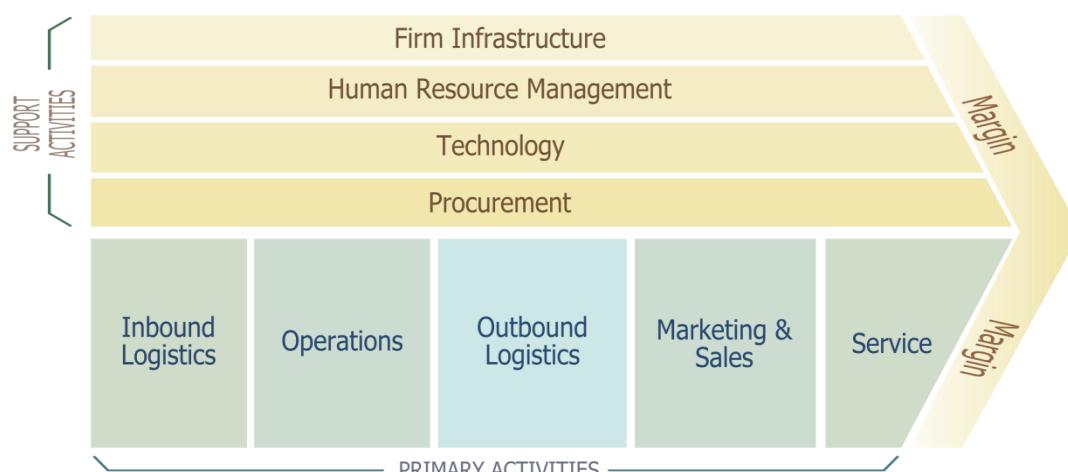
5. The Value Chain Structure

5.1. The following Figure represents Porter's value chain, which is a generalization of activities a typical business consists of.

- What are the core (primary) activities for you as a solar service provider?
Marketing – customer contacts service provider – site visit – consultation - quotation
- order product/ inventory – installation – check up call.
- What are the supporting activities?

Human Resource management – employing, training and motivating staff (installers!)

Technology – Reliable and qualitative products



- 5.2. Which one of the activities mentioned above is crucial for the competitive success of your business?

Human resource management – well trained and motivated employees

(Inbound Logistics)

- 5.3. Which are the three main suppliers from which you source your products from?
(Indicate Percentage)

1. Xstream

- 5.4. If you would have to evaluate the performance of your three main suppliers along a scale of 1 (very poor) to 5 (very good), what kind of marks would you give for the following criteria:

Criteria	Very poor	Poor	Average	Good	Very Good
Quality					•
Reliability					•
Flexibility				•	
Price				•	
Product design					•
Service				•	
Product training				•	
Delivery time				•	

- 5.5. What kind of difficulties do you face in working together with your suppliers?

No

- 5.6. Do you have any suggestions, how these problems can be addressed? (if you have any)

No

5.7. How do you collect your products?

Suppliers come to me	I go to the suppliers (e.g. through an agent, or personally)	I have collecting centres at central places	I use an out-grower system: suppliers sell exclusively to me	Other:
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Operations

5.8. How do you handle your product operations?

- Keep stock of our main products
- Just in Time approach**
- Order from supplier as soon customer order is set**

5.9. If you keep stock, for how long is it supposed to keep in your inventory?

No

Service

5.10. What type of after service do you offer to your customers?

1.Check up call	Check up visit	Check up e-mail/ post	No after service	Other:
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Supporting activities

5.11. What is your criteria for new employees

3.Personal references	1.Education	Personal sympathy	2.First impression	Other:
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5.12. How do you keep your employees motivated?

Incentives	Bonuses	Personal recognition	Other:
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6. Determine strategies for more utilization of solar products in the Western Cape

6.1. How long does it take until you get your order from your suppliers to the customer?

One day	Two days	Up to one week	Up to two weeks	More than two weeks
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6.2. How long is the credit range for the customer?

On the same day I receive the order	Within a week	Within two weeks	Within three weeks	Within four weeks	Before Delivery
-------------------------------------	----------------------	------------------	--------------------	-------------------	-----------------

6.3. Do you regularly update your suppliers with regards to new market developments?

Yes No

6.4. What kind of customer services do you receive from your suppliers?

We receive excellent product training and occasional site visits.

6.5. How do you communicate with your suppliers?

1.By phone/ Mobile	2.Via e- mail/post	Face to Face	Through an intermediary	Other:
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6.6. How often do you communicate with your suppliers?

Every day	At least once per week	At least once every two weeks	At least once per month	Other: • Needed
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7. Current use of the value chain model

7.1. Are you taking the value chain principle into consideration?

Yes.

7.2. Are most employees aware of the model?

No

7.3. Is there still space to improve? If Yes, where and how?

Yes, we just implemented a new financial system.

7.4. Are you aware of the supporting activities and the potential effect on the performance?

Yes.

7.5. How do you decide about the potential success of new or adjusted activities?

Cost benefit ratio for the short term.

8. Identify the solar competitive advantage and key success factors of the industry

8.1. For [name of service provider], in which area(s) is competitive pressure more intense?

1. Substitutes – Import products from China

8.2. What are your core competencies over competitors?

1. Better Technology
2. Good installation

8.3. Who are your main competitors on the market?

- 1.Solar Max
- 2.Solardome
- 3.Solar Tech

- 8.4. How do you expect the competitive force of new entrants to develop in the next years?

There will still be a lot of entrants, but the majority will exit shortly after. They try to drop their prices but not making any profit.

- 8.5. How do you expect the competitive force of substitutes to develop in the next years?

Electricity is becoming increasingly more expensive, which creates more awareness for our products.

13.Company

1. General information

1.1. What is your gender?

Male

Female

1.2. How long have you been employed in this position?

6 years

1.3. What is your position in the company?

Manager / Owner / Franchisee

1.4. What is your yearly turnover measured in Rand?

Less than R 1 million	R 1 Million – R 5 Million	More than R 5 Million – R15 Million	More than R15 Million – R25 Million	More than R25 Million
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1.5. What is your mission or vision statement for your company?

Company 13 is committed to superior products and service excellence.

Our tributes are:

- outstanding design
- proven technology
- high quality
- professional work and advise

OneSolar Mission

- Selects a product range that meets the highest of standards.
- Ensures that the value of your house increases when installing a Solar System.

- Ensures that after the pay-back period you get the benefit of your system as long as possible by giving you a long lasting product.
- Enables you to upgrade sustainability in time by adding more panels.
- Can mount the selected slim line solar panels in a horizontal or vertical fashion in line with the architectural design of an estate.
- Provides you with a sound solar solution tailor-made to your requirements by selecting the best quality in all product categories.
- Gets you to enjoy the benefit of a solar system long after the pay-back period with our 10 year warranty.
- Ensures guaranteed workmanship.
- Has built a sound reputation in the solar-industry, please refer to our list of contactable references

1.6. Did your sale of solar devices increase last year? If yes, by how many percent?

The sales have increased by 20%.

2. The solar service provider market

2.1. Who is your target market?

1.Residential Areas	Cluster Areas	2.Security Estates	Flats buildings	Businesses	3.Others: <ul style="list-style-type: none">• Hospitality Sector
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2.2. How do you communicate with your customer base? Which one is most effective?

2.E-mail	1.Phone	Post	3.Personal visit	Other
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2.3. How do you market your products to your target market? Which one is most effective?

Television	3.Radio	2.Paper advertisement <ul style="list-style-type: none">• Newspaper• Magazines	Customized advertisement	1.Others: <ul style="list-style-type: none">• Web page• Word of Mouth
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3. Solar service providers and stakeholders

3.1. Which are the five most important Stakeholders to your business? (List from most to least important)

1. Customer
2. Franchise head office
3. Suppliers
4. Employees

3.2. What type of business relationship do you prefer with each stakeholder?

- legal contract (1.2.3.)
- verbal agreement (4.)
- no agreement at all, we negotiate on order basis

3.3. Do you envisage increased engagement with one of these Stakeholders? If Yes, why and how?

The communication with other franchisees can be improved to maximize efficiency and market coverage.

The majority of potential customers have to receive more education about the benefits of our products.

3.4. With regard to the legal and regulatory framework, have you experienced any difficulties to grow your business? If yes, what were these difficulties?

Yes. The process of SABS approving our products.

3.5. What kind of services does the (local) government provide to service providers in this sector? Are these services up-to date and useful?

No Service, only business partner.

4. Types strategies of service provider

4.1. Which one of the following strategies describes best your strategic targets?
Why?

Differentiation strategy

Low cost strategy

Best-cost provider strategy

We provide good middle class quality products for an acceptable price. Through the experience and network is our service excellent.

Niche market strategy

4.2. Which one of the following business-customer channels do you make use of?

1.Web page	2.E-mail	Catalogue	3.Personal visits	Other:

4.3. What are the top three selling solar thermal devices you sell?

Our top selling products are the heating panels followed by the 300L and 200L geysers.

4.4. What kind of preferences do your customers have (e.g. in terms of **quality**, **price**, design, **functionality**, health standards etc.)

The customer is looking for a good quality product for a good price. Moreover, it is very important to install a suitable system for the customer.

5. The Value Chain Structure

5.1. The following Figure represents Porter's value chain, which is a generalization of activities a typical business consists of.

- What are the core (primary) activities for you as a solar service provider?

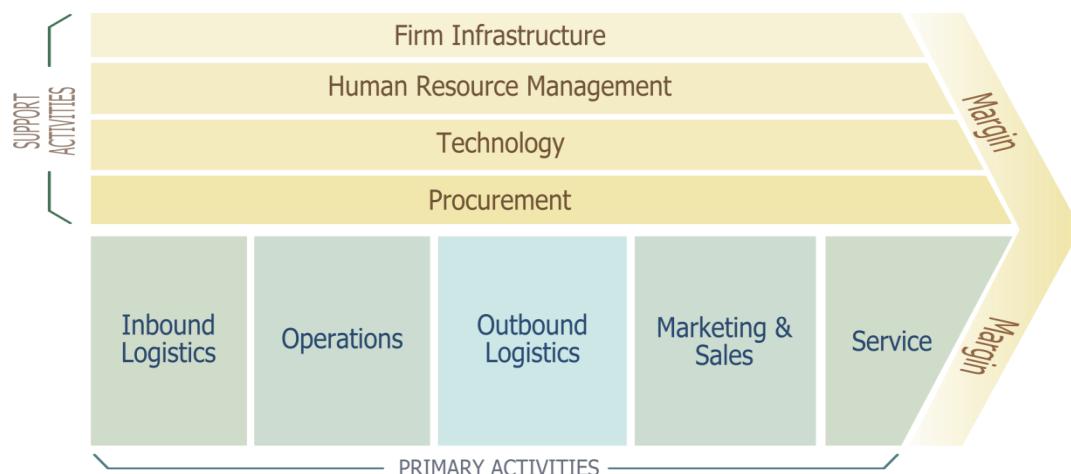
Marketing – customer contacts service provider – site visit - quotation - order product/ inventory – installation – check up call.

- What are the supporting activities?

Human Resource management – employing, training and motivating staff (installers!)

Technology – Reliable and qualitative products

Procurement – Handling and processing the order



- 5.2. Which one of the activities mentioned above is crucial for the competitive success of your business?

Marketing

Installation

(Inbound Logistics)

- 5.3. Which are the three main suppliers from which you source your products from? (Indicate Percentage)

1. Xstream (60%) Local
2. Kwikot (40%) Local

5.4. If you would have to evaluate the performance of your three main suppliers along a scale of 1 (very poor) to 5 (very good), what kind of marks would you give for the following criteria:

Criteria	Very poor	Poor	Average	Good	Very Good
Quality				•	
Reliability					•
Flexibility				•	
Price				•	
Product design				•	
Service					•
Product training				•	
Delivery time				•	

5.5. What kind of difficulties do you face in working together with your suppliers?

No

5.6. Do you have any suggestions, how these problems can be addressed? (if you have any)

No

5.7. How do you collect your products?

Suppliers come to me	I go to the suppliers through the head office.	I have collecting centres at central places	I use an out-grower system: suppliers sell exclusively to me	Other:
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Operations

5.8. How do you handle your product operations?

- Keep stock of our main products
- Just in Time approach
- Order from supplier as soon customer order is set

5.9. If you keep stock, for how long is it supposed to keep in your inventory?

No

Service

5.10. What type of after service do you offer to your customers?

1.Check up call	Check up visit	Check up e-mail/ post	No after service	Other:
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Supporting activities

5.11. What is your criteria for new employees

2.Personal references	1.Education	Personal sympathy	First impression	Other:
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5.12. How do you keep your employees motivated?

Incentives	Bonuses (Performance)	Personal recognition	Other:
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6. Determine strategies for more utilization of solar products in the Western Cape

6.1. How long does it take until you get your order from your suppliers to the customer?

One day	Two days	Up to one week	Up to two weeks	More than two weeks
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6.2. How long is the credit range for the customer?

On the same day I receive the order	Within a week	Within two weeks	Within three weeks	Within four weeks	Before Delivery
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6.3. Do you regularly update your suppliers with regards to new market developments?

Yes No

6.4. What kind of customer services do you receive from your suppliers?

We receive the training from the franchise head office.

6.5. How do you communicate with your suppliers?

1.By phone/ Mobile	2.Via e-mail/post	3.Face to Face (Head office)	Through an intermediary	Other:
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6.6. How often do you communicate with your suppliers?

Every day	At least once per week	At least once every two weeks	At least once per month	Other:
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7. Current use of the value chain model

7.1. Are you taking the value chain principle into consideration?

Head office.

7.2. Are most employees aware of the model?

Yes, to a certain extend.

7.3. Is there still space to improve? If Yes, where and how?

No, we are satisfied.

- 7.4. Are you aware of the supporting activities and the potential effect on the performance?

Yes.

- 7.5. How do you decide about the potential success of new or adjusted activities?

Head office.

8. Identify the solar competitive advantage and key success factors of the industry

- 8.1. For [name of service provider], in which area(s) is competitive pressure more intense?

1. Potential new entrants – Low cost providers and major brands like Simens
2. Substitutes – Heatpumps and Eskom electricity.

- 8.2. What are your core competencies over competitors?

1. Excellent customer service
2. Affordable price

- 8.3. Who are your main competitors on the market?

- 1.Solar Tech
- 2.Solardome

- 8.4. How do you expect the competitive force of new entrants to develop in the next years?

There will be an increase of new entrants as the market is growing, especially from china.

- 8.5. How do you expect the competitive force of substitutes to develop in the next years?

Eskom electricity will continue to rise, which will increase the amount of customers for us.

Heat pumps will exit the market as they are not a long term solution.

14.Company

1. General information

1.1. What is your gender?

Male

Female

1.2. How long have you been employed in this position?

3 years

1.3. What is your position in the company?

Manager / Owner

1.4. What is your yearly turnover measured in Rand?

Less than R 1 million	R 1 Million – R 5 Million	More than R 5 Million – R15 Million	More than R15 Million – R25 Million	More than R25 Million
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1.5. What is your mission or vision statement for your company?

Vision

We provide economical electricity solutions to our customers. The customer can save money and contribute to a more sustainable environment for future generations. Moreover, we have good relationships with our suppliers and offer the newest technology to our customers.

Mission

At Company 14 we specialise in the design and installation of solar water heating solutions for the residential and commercial markets.

1.6. Did your sale of solar devices increase last year? If yes, by how many percent?

The sales have increased by 35%.

2. The solar service provider market

2.1. Who is your target market?

1.Residential Areas	Cluster Areas	Security Estates	Flats buildings	Businesses	Others:
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2.2. How do you communicate with your customer base? Which one is most effective?

2.E-mail	1.Phone	Post	Personal visit	Other
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2.3. How do you market your products to your target market? Which one is most effective?

Television	Radio	Paper advertisement <ul style="list-style-type: none"> • Magazines 	Customized advertisement	1.Others: <ul style="list-style-type: none"> • Web page • Word of Mouth • Google top list
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3. Solar service providers and stakeholders

3.1. Which are the five most important Stakeholders to your business? (List from most to least important)

1. Customer
2. Employee
3. Suppliers
4. Government

3.2. What type of business relationship do you prefer with each stakeholder?

- O legal contract (1.2.3.)
- O verbal agreement
- O no agreement at all, we negotiate on order basis (4.)

3.3. Do you envisage increased engagement with one of these Stakeholders? If Yes, why and how?

We should improve the marketing to educate consumers about our products and to increase awareness. Plus, better maintenance packages should be offered to create better customer satisfaction.

3.4. With regard to the legal and regulatory framework, have you experienced any difficulties to grow your business? If yes, what were these difficulties?

We struggling with the process to get our products SABS approved

3.5. What kind of services does the (local) government provide to service providers in this sector? Are these services up-to date and useful?

No Service, only business partner.

4. Types strategies of service provider

4.1. Which one of the following strategies describes best your strategic targets?
Why?

O Differentiation strategy

We are offering superior quality and the newest technology, which results in a premium price and product.

- O Low cost strategy
- O Best-cost provider strategy
- O Niche market strategy

4.2. Which one of the following business-customer channels do you make use of?

1.Web page	2.E-mail	Catalogue	Personal visits	Other:
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4.3. What are the top three selling solar thermal devices you sell?

Our top selling products are the heating panels followed by the 100L and 150L geysers.

4.4. What kind of preferences do your customers have (e.g. in terms of **quality, price, design, functionality**, health standards etc.)

The customer is looking for a good quality product for a good price.

5. The Value Chain Structure

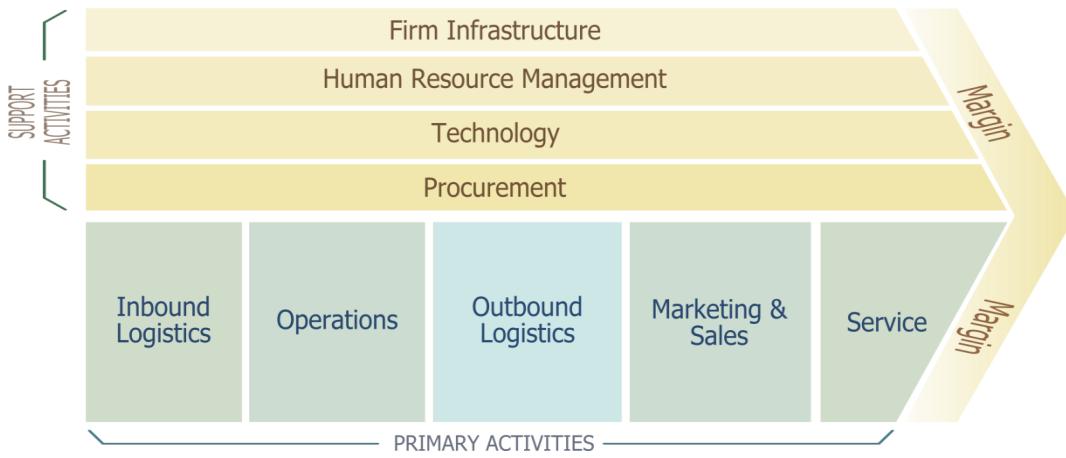
5.1. The following Figure represents Porter's value chain, which is a generalization of activities a typical business consists of.

- What are the core (primary) activities for you as a solar service provider?
Marketing – customer contacts service provider – site visit – consultation - quotation – follow up - order product/ inventory – installation – follow up – check up call.
- What are the supporting activities?

Human Resource management – employing, training and motivating staff (installers!)

Technology – Reliable and qualitative products

Procurement – Handling and processing the order



- 5.2. Which one of the activities mentioned above is crucial for the competitive success of your business?

Product technology

Installation

(Inbound Logistics)

- 5.3. Which are the three main suppliers from which you source your products from?
(Indicate Percentage)

1. Green Power (50%) Irland
2. Solar Zone (30%) Germany
3. Sun Scan (20%) China

- 5.4. If you would have to evaluate the performance of your three main suppliers along a scale of 1 (very poor) to 5 (very good), what kind of marks would you give for the following criteria:

Criteria	Very poor	Poor	Average	Good	Very Good
Quality				•	•
Reliability			•		•
Flexibility				•	•
Price			•	•	
Product design			•	•	
Service				•	•
Product training			•		•
Delivery time			•	•	

5.5. What kind of difficulties do you face in working together with your suppliers?

China has got delivery problems.

5.6. Do you have any suggestions, how these problems can be addressed? (if you have any)

Better procurement and planning.

5.7. How do you collect your products?

Suppliers come to me	I go to the suppliers (e.g. through an agent, or personally) (China)	I have collecting centres at central places (Europe)	I use an out-grower system: suppliers sell exclusively to me	Other:
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Operations

5.8. How do you handle your product operations?

- O Keep stock of our main products**
- O Just in Time approach**
- O Order from supplier as soon customer order is set**

5.9. If you keep stock, for how long is it supposed to keep in your inventory?

1 month

Service

5.10. What type of after service do you offer to your customers?

1.Check up call	Check up visit	Check up e-mail/ post	No after service	Other:
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Supporting activities

5.11. What is your criteria for new employees

Personal references	1.Education	2.Personal sympathy	3.First impression	Other:
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5.12. How do you keep your employees motivated?

1.Incentives	Bonuses	2.Personal recognition	Other:
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6. Determine strategies for more utilization of solar products in the Western Cape

6.1. How long does it take until you get your order from your suppliers to the customer?

One day	Two days	Up to one week	Up to two weeks	More than two weeks
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6.2. How long is the credit range for the customer?

On the same day I receive the order	Within a week	Within two weeks	Within three weeks	Within four weeks	Before Delivery
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6.3. Do you regularly update your suppliers with regards to new market developments?

Yes No

6.4. What kind of customer services do you receive from your suppliers?

We receive excellent product training and occasional site visits.

6.5. How do you communicate with your suppliers?

1.By phone/ Mobile	2.Via e- mail/post	Face to Face	Through an intermediary	Other:
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6.6. How often do you communicate with your suppliers?

Every day	At least once per week	At least once every two weeks	At least once per month	Other:
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7. Current use of the value chain model

7.1. Are you taking the value chain principle into consideration?

Yes

7.2. Are most employees aware of the model?

Not all employees, but the majority.

7.3. Is there still space to improve? If Yes, where and how?

Installers have to get more education about possible long term effect of applying the model.

7.4. Are you aware of the supporting activities and the potential effect on the performance?

Yes.

7.5. How do you decide about the potential success of new or adjusted activities?

Cost benefit ratio for the long term

8. Identify the solar competitive advantage and key success factors of the industry

8.1. For [name of service provider], in which area(s) is competitive pressure more intense?

1. Potential new entrants – Chinese products
2. The Government – SABS + subsidies

8.2. What are your core competencies over competitors?

1. Customer service – referrals
2. Technology

8.3. Who are your main competitors on the market?

1. One solar
2. Green Power

8.4. How do you expect the competitive force of new entrants to develop in the next years?

There will be an increase of new entrants as the market is growing, especially from China.

8.5. How do you expect the competitive force of substitutes to develop in the next years?

Electricity is becoming increasingly more expensive, which creates more awareness for our products.

Another substitute are products from China which are cheaper or better quality.

15. Company

1. General information

1.1. What is your gender?

Male

Female

1.2. How long have you been employed in this position?

5 years

1.3. What is your position in the company?

Managing Director / Owner

1.4. What is your yearly turnover measured in Rand?

Less than R 1 million	R 1 Million – R 5 Million	More than R 5 Million – R15 Million	More than R15 Million – R25 Million	More than R25 Million
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1.5. What is your mission or vision statement for your company?

- **Solutions driven** - if we don't have what you need or want, we can design it for you.
- **Partnership** – we support and develop our partners working together to find a solution.
- **Holistic approach** - we look at energy and water in combination as the 2 are mutually inclusive.
- **Corporate social responsibility** - as a company we have partnered with environmental partners looking to plant trees as well as those less fortunate to give back where we can.
- **Under promise and over deliver** - Solar does save you money, however correct expectations need to be set and the right solution delivered for your needs. You

can't install a 150L solar system for 6 people for example! This is drummed into our sales guys from the start.

1.6. Did your sale of solar devices increase last year? If yes, by how many percent?

Sales are increasing by 30%.

2. The solar service provider market

2.1. Who is your target market?

1.Residential Areas	Cluster Areas	3.Security Estates	Flats buildings	2.Businesses	Others:
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2.2. How do you communicate with your customer base? Which one is most effective?

1.E-mail (more detail)	2.Phone	Post	Personal visit	Other
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2.3. How do you market your products to your target market? Which one is most effective?

Television	Radio	Paper advertisement	Customized advertisement	1.Others: <ul style="list-style-type: none">• Web page• Web shop• Shows
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3. Solar service providers and stakeholders

3.1. Which are the five most important Stakeholders to your business? (List from most to least important)

1. Consumer
2. Employee
3. Supplier

3.2. What type of business relationship do you prefer with each stakeholder?

- legal contract (1. 2. 3.)
- verbal agreement
- no agreement at all, we negotiate on order basis

3.3. Do you envisage increased engagement with one of these Stakeholders? If Yes, why and how?

The most important stakeholder for us is the customer. It is very important to promote more education about our products and the long-term advantages. Many potential customers are not aware of the cost and environment benefits of solar technology.

3.4. With regard to the legal and regulatory framework, have you experienced any difficulties to grow your business? If yes, what were these difficulties?

The only problem for us at the moment is the process of getting new solar devices SABS approved. The process takes up to 6 months and costs a lot of money.

3.5. What kind of services does the (local) government provide to service providers in this sector? Are these services up-to date and useful?

The government provides no specific service to us. The only support are the rebates on solar water heating devices.

4. Types strategies of service provider

4.1. Which one of the following strategies describes best your strategic targets?
Why?

Differentiation strategy

Low cost strategy

Best-cost provider strategy

As stated in our vision statement, we provide best quality for a very good price.

Niche market strategy

4.2. Which one of the following business-customer channels do you make use of?

1.Web page	2.E-mail	Catalogue	3.Personal visits	Other:
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4.3. What are the top three selling solar thermal devices you sell?

The best selling devices are the 150 and 300 litre solar water heater systems and the pool heating devices.

4.4. What kind of preferences do your customers have (e.g. in terms of **quality, price**, design, functionality, health standards etc.)

The customer wants a combination of three factors namely, price, quality and service.

5. The Value Chain Structure

5.1. The following Figure represents Porter's value chain, which is a generalization of activities a typical business consists of.

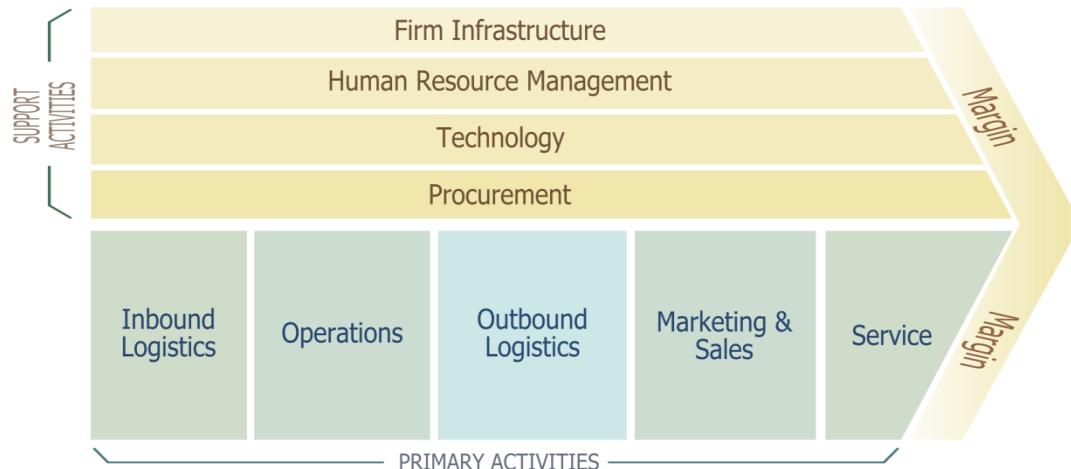
- What are the core (primary) activities for you as a solar service provider?

Marketing – customer contacts service provider – site visit – quotation (60-40 payment ratio) – production to specifications (stock) - installation – after service

- What are the supporting activities?

Human Resource management – employing and motivating staff (installers!)

Procurement – Reliable order process



- 5.2. Which one of the activities mentioned above is crucial for the competitive success of your business?

Customer Consultation.

(Inbound Logistics)

- 5.3. Which are the three main suppliers from which you source your products from?
(Indicate Percentage)

From Europe

5.4. If you would have to evaluate the performance of your three main suppliers along a scale of 1 (very poor) to 5 (very good), what kind of marks would you give for the following criteria:

Criteria	Very poor	Poor	Average	Good	Very Good
Quality					•
Reliability					•
Flexibility					•
Price					•
Product design					•
Service			•		
Product training					•
Delivery time				•	

5.5. What kind of difficulties do you face in working together with your suppliers?

No

5.6. Do you have any suggestions, how these problems can be addressed? (if you have any)

No

5.7. How do you collect your products?

Suppliers come to me	I go to the suppliers (e.g. through an agent, or personally)	I have collecting centres at central places	I use an out-grower system: suppliers sell exclusively to me	Other:
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Operations

5.8. How do you handle your product operations?

- ✓ **Keep stock of our main products**
- Just in Time approach
- Order from supplier as soon customer order is set

5.9. If you keep stock, for how long is it supposed to keep in your inventory?

The stock is supposed to last 2 months

Service

5.10. What type of after service do you offer to your customers?

Check up call	Check up visit	Check up e-mail/ post	No after service	Other: • If needed
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Supporting activities

5.11. What is your criteria for new employees

2. Personal references	Education	Personal sympathy	1. First impression	Other
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5.12. How do you keep your employees motivated?

Incentives	Bonuses	Personal recognition	Other
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6. Determine strategies for more utilization of solar products in the Western Cape

6.1. How long does it take until you get your order from your suppliers to the customer?

One day	Two days	Up to one week	Up to two weeks	More than two weeks
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6.2. How long is the credit range for the customer?

On the same day I receive the order	Within a week	Within two weeks	Within three weeks	Within four weeks	Before Delivery
-------------------------------------	----------------------	------------------	--------------------	-------------------	-----------------

6.3. Do you regularly update your suppliers with regards to new market developments?

Yes No

6.4. What kind of customer services do you receive from your suppliers?

Manufacturer.

6.5. How do you communicate with your suppliers?

1.By phone/ Mobile	2.Via e- mail/post	Face to Face	Through intermediary (agent)	an	Other:
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6.6. How often do you communicate with your suppliers?

Every day	At least once per week	At least once every two weeks	At least once per month	Other:
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7. Current use of the value chain model

7.1. Are you taking the value chain principle into consideration?

Yes.

7.2. Are most employees aware of the model?

Yes, they are all trained.

7.3. Is there still space to improve? If Yes, where and how?

The sales staff can be more trained in consumer relations.

7.4. Are you aware of the supporting activities and the potential effect on the performance?

Yes, that's why we implemented the value chain model. We realized the enormous effect of factors like the human resource management on the final customer satisfaction.

7.5. How do you decide about the potential success of new or adjusted activities?

We use a cost benefit ratio approach, by estimating the potential value and the business development.

8. Identify the solar competitive advantage and key success factors of the industry

8.1. For [name of service provider], in which area(s) is competitive pressure more intense?

1. Potential entrants – Cheap and low quality products from China gain acceptance but don't deliver the promised results, which harms the market.
2. Industry Rivalry – Highly competitive market, similar products (over 60 service providers in the Western Cape)

8.2. What are your core competencies over competitors?

1. Consulting

8.3. Who are your main competitors on the market?

1. Solar Tech
2. Solar Max

8.4. How do you expect the competitive force of new entrants to develop in the next years?

The vast majority of new entrants are going to be service providers, which source their products from China. Nevertheless, this development is not sustainable as customers will experience in the long run the bad quality.

- 8.5. How do you expect the competitive force of substitutes to develop in the next years?

The market of our main substitute, the common Eskom electricity, is developing to our advantage. The increasing electricity prices will convert more and more people to renewable energy solutions.

16.Company

1. General information

1.1. What is your gender?

Male

Female

1.2. How long have you been employed in this position?

5 years

1.3. What is your position in the company?

Managing Director / Owner

1.4. What is your yearly turnover measured in Rand?

Less than R 1 million	R 1 Million – R 5 Million	More than R 5 Million – R15 Million	More than R15 Million – R25 Million	More than R25 Million
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1.5. What is your mission or vision statement for your company?

Vision

We pride ourselves in delivering quality products and exceptional service to an affordable price. We can help you to create comfort and promote a healthy lifestyle in your home.

Mission

Company 16 has its own in-house R&D team that constantly develop new models in the solar water and power environment.

The Company 16 installation team is a group of highly skilled individuals ensuring that your solar product is installed with the utmost care.

1.6. Did your sale of solar devices increase last year? If yes, by how many percent?

The sales have increased by 100% in the last year.

2. The solar service provider market

2.1. Who is your target market?

Residential Areas	Cluster Areas	Security Estates	Flats buildings	Businesses	Others: • Government • Low-cost housing
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2.2. How do you communicate with your customer base? Which one is most effective?

E-mail	Phone	Post	1. Personal visit	Other
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2.3. How do you market your products to your target market? Which one is most effective?

Television	Radio	Paper advertisement	Customized advertisement	1.Others: • Web page • Word of Mouth • Executive meetings
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3. Solar service providers and stakeholders

3.1. Which are the five most important Stakeholders to your business? (List from most to least important)

1. Government
2. Employers
3. Suppliers
4. Community

3.2. What type of business relationship do you prefer with each stakeholder?

- legal contract (1. 2. 3.)
- verbal agreement (4.)
- no agreement at all, we negotiate on order basis

3.3. Do you envisage increased engagement with one of these Stakeholders? If Yes, why and how?

Yes, the relationship with the government still has to be improved in two ways. Firstly, the potential customer has still to be educated about the real benefits of solar energy. Secondly, our service still has to be improved in terms of empathy and sympathy from the installer towards the customer.

The working climate for our customers is another factor which has to be improved, as it can contribute highly to the motivation.

3.4. With regard to the legal and regulatory framework, have you experienced any difficulties to grow your business? If yes, what were these difficulties?

Yes, the biggest drawback happened recently as Eskom reduced all rebates for solar thermal heating. The rebates are substantial for the positive development of the market, consequently if the rebates will continue to fluctuate the market is in danger to collapse. That's why we decided to focus on official institutions and to work with the government.

- 3.5. What kind of services does the (local) government provide to service providers in this sector? Are these services up-to date and useful?

No Service.

4. Types strategies of service provider

- 4.1. Which one of the following strategies describes best your strategic targets?
Why?

Differentiation strategy

Low cost strategy

Best-cost provider strategy

The aim is it to provide solar devices for the mid class market with high quality and an affordable price. Moreover, we are providing highly professional service.

Niche market strategy

- 4.2. Which one of the following business-customer channels do you make use of?

1. Web page	2. E-mail	Catalogue	Personal visits	Other:
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- 4.3. What are the top three selling solar thermal devices you sell?

The top selling products are the 150L and 100L low pressure geysers.

- 4.4. What kind of preferences do your customers have (e.g. in terms of **quality**, **price**, design, functionality, health standards etc.)

Our customers looking for a qualitative good product to an affordable price.

5. The Value Chain Structure

5.1. The following Figure represents Porter's value chain, which is a generalization of activities a typical business consists of.

- What are the core (primary) activities for you as a solar service provider?

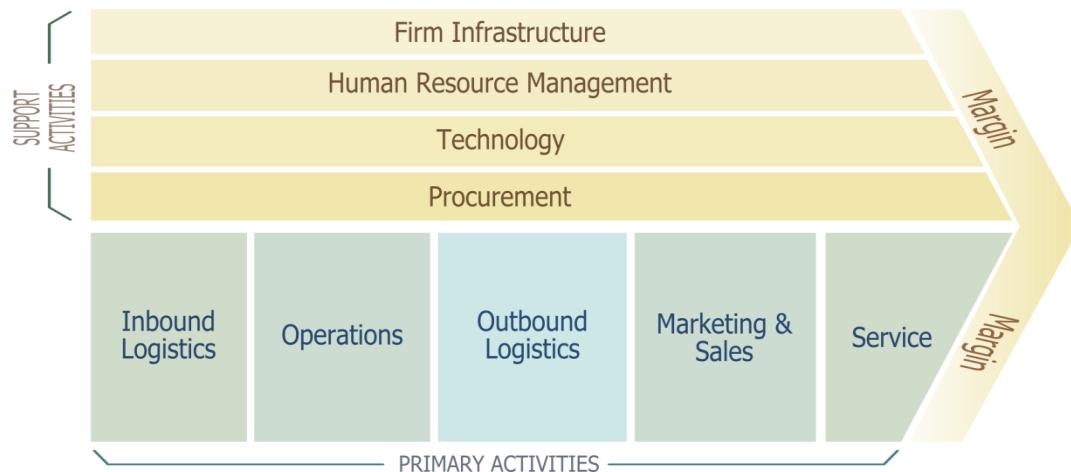
Marketing – customer contacts service provider – site visit – quotation – order product – installation.

- What are the supporting activities?

Human Resource management – employing, training and motivating staff (installers!)

Technology – Reliable and qualitative products

Procurement – Handling and processing the order



5.2. Which one of the activities mentioned above is crucial for the competitive success of your business?

Site visit

Consultation

(Inbound Logistics)

5.3. Which are the three main suppliers from which you source your products from?
 (Indicate Percentage)

1. Solardome
2. ITS solar

5.4. If you would have to evaluate the performance of your three main suppliers along a scale of 1 (very poor) to 5 (very good), what kind of marks would you give for the following criteria:

Criteria	Very poor	Poor	Average	Good	Very Good
Quality				•	
Reliability					•
Flexibility				•	
Price				•	
Product design		•			
Service					•
Product training				•	
Delivery time					•

5.5. What kind of difficulties do you face in working together with your suppliers?

No difficulties.

5.6. Do you have any suggestions, how these problems can be addressed? (if you have any)

No.

5.7. How do you collect your products?

Suppliers come to me	I go to the suppliers (e.g. through an agent, or personally)	I have collecting centres at central places	I use an out-grower system: suppliers sell exclusively to me	Other:
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Operations

5.8. How do you handle your product operations?

O Keep stock of our main products

Just in Time approach

Order from supplier as soon customer order is set

5.9. If you keep stock, for how long is it supposed to keep in your inventory?

2 months

Service

5.10. What type of after service do you offer to your customers?

Check up call	Check up visit	Check up e-mail/ post	No after service	Other: • Hotline
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Supporting activities

5.11. What is your criteria for new employees

Personal references	1.Education	Personal sympathy	First impression	Other: • Experience
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5.12. How do you keep your employees motivated?

1.Incentives	Bonuses	2.Personal recognition	Other:
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6. Determine strategies for more utilization of solar products in the Western Cape

6.1. How long does it take until you get your order from your suppliers to the customer?

One day	Two days	Up to one week	Up to two weeks	More than two weeks
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6.2. How long is the credit range for the customer?

On the same day I receive the order	Within a week	Within two weeks	Within three weeks	Within four weeks	Before Delivery
-------------------------------------	---------------	------------------	--------------------	--------------------------	-----------------

6.3. Do you regularly update your suppliers with regards to new market developments?

Yes No

6.4. What kind of customer services do you receive from your suppliers?

Product training if needed.

6.5. How do you communicate with your suppliers?

2.By phone/ Mobile	1.Via e- mail/post	3.Face to Face	Through an intermediary (agent)	Other:
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6.6. How often do you communicate with your suppliers?

Every day	At least once per week	At least once every two weeks	At least once per month	Other:
------------------	------------------------	-------------------------------	-------------------------	--------

7. Current use of the value chain model

7.1. Are you taking the value chain principle into consideration?

Yes.

7.2. Are most employees aware of the model?

No.

7.3. Is there still space to improve? If Yes, where and how?

Yes, especially our installers should gain a better understanding of the model. We created the bonus system to reward them for every successfully finished job. In fact they should understand that if they do a good job with more effort they will be booked more often due to good word of mouth.

7.4. Are you aware of the supporting activities and the potential effect on the performance?

Yes. Our main focus at the moment is to educate employees of the model and possible benefits.

7.5. How do you decide about the potential success of new or adjusted activities?

We are using a cost-benefit approach for a time span of less than a year.

8. Identify the solar competitive advantage and key success factors of the industry

8.1. For [name of service provider], in which area(s) is competitive pressure more intense?

1. Potential entrants – New businesses with low priced products try to gain market share..

8.2. What are your core competencies over competitors?

1. Flexibility – (flat structure)
2. Customer service (Credit method)

8.3. Who are your main competitors on the market?

1. Tasol

8.4. How do you expect the competitive force of new entrants to develop in the next years?

New low priced competitors with products from China will enter the market in the next year.

8.5. How do you expect the competitive force of substitutes to develop in the next years?

The price of electricity is increasing, which makes people more aware of solutions like we offer.

17.Company

1. General information

1.1. What is your gender?

Male

Female

1.2. How long have you been employed in this position?

20 years

1.3. What is your position in the company?

Managing Director / Owner

1.4. What is your yearly turnover measured in Rand?

Less than R 1 million	R 1 Million – R 5 Million	More than R 5 Million – R15 Million	More than R15 Million – R25 Million	More than R25 Million
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1.5. What is your mission or vision statement for your company?

Company 17 has emerged as a leader in the field of sustainable progress by bringing practical solutions to private and commercial sectors in South Africa. Many aspects of sustainable development, including energy efficiency, renewable energy, and water conservation need to be addressed on the ground level. Many processes, policies and proposals by government and private entities need to be implemented. From this realization, Sustainable Projects developed its functional toolbox in order to support efficient living.

1.6. Did your sale of solar devices increase last year? If yes, by how many percent?

The sales have increased by 30%.

2. The solar service provider market

2.1. Who is your target market?

1.Residential Areas	Cluster Areas	Security Estates	Flats buildings	2.Businesses	Others:
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2.2. How do you communicate with your customer base? Which one is most effective?

1.E-mail	2.Phone	Post	3.Personal visit	Other
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2.3. How do you market your products to your target market? Which one is most effective?

Television	Radio	Paper advertisement	Customized advertisement	1.Others: <ul style="list-style-type: none"> • Web page • Word of Mouth • Online Store
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3. Solar service providers and stakeholders

3.1. Which are the five most important Stakeholders to your business? (List from most to least important)

1. Customers
2. Employees
3. Supplier

3.2. What type of business relationship do you prefer with each stakeholder?

- legal contract (1.2.3.)
- verbal agreement
- no agreement at all, we negotiate on order basis

- 3.3. Do you envisage increased engagement with one of these Stakeholders? If Yes, why and how?

No

- 3.4. With regard to the legal and regulatory framework, have you experienced any difficulties to grow your business? If yes, what were these difficulties?

We are facing problems with the SABS regulations.

- 3.5. What kind of services does the (local) government provide to service providers in this sector? Are these services up-to date and useful?

No Service.

4. Types strategies of service provider

- 4.1. Which one of the following strategies describes best your strategic targets?
Why?

Differentiation strategy

Low cost strategy

Best-cost provider strategy

We target the higher middle class

Niche market strategy

- 4.2. Which one of the following business-customer channels do you make use of?

1.Web page	2.E-mail	Catalogue	3.Personal visits	Other:

- 4.3. What are the top three selling solar thermal devices you sell?

Our top selling products are our panels, followed by the 150L and 200L Geyser.

- 4.4. What kind of preferences do your customers have (e.g. in terms of **quality**, **price**, design, functionality, health standards etc.)

It is very important for our customers to have a good quality product, which serves their specific needs.

5. The Value Chain Structure

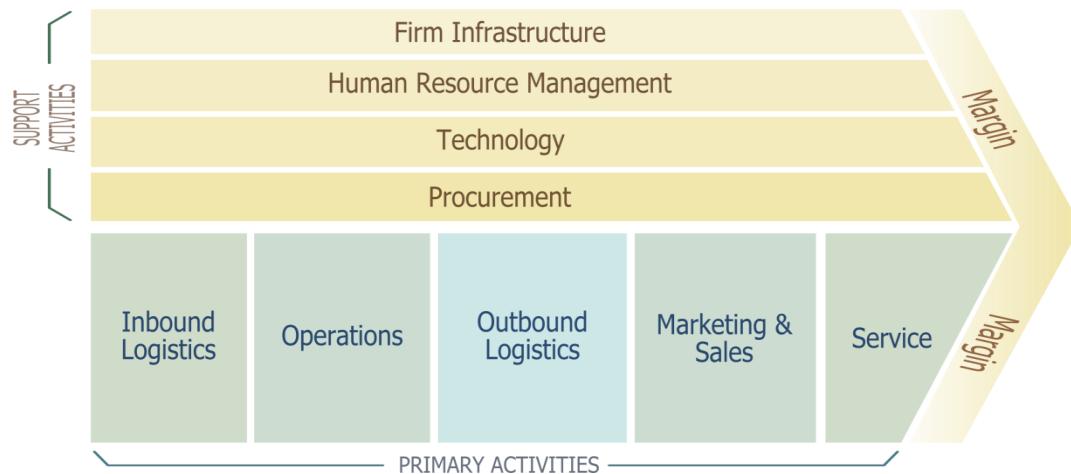
- 5.1. The following Figure represents Porter's value chain, which is a generalization of activities a typical business consists of.

- What are the core (primary) activities for you as a solar service provider?
Marketing – customer contact – site visit – quotation – installation – after service.

What are the supporting activities?

Human Resource management – employing, training and motivating staff (installers!)

Technology – and information about alternative technology



- 5.2. Which one of the activities mentioned above is crucial for the competitive success of your business?

Service (installation)

After service

(Inbound Logistics)

5.3. Which are the three main suppliers from which you source your products from?
 (Indicate Percentage)

3. ITS Solar
4. On Tap

5.4. If you would have to evaluate the performance of your three main suppliers along a scale of 1 (very poor) to 5 (very good), what kind of marks would you give for the following criteria:

Criteria	Very poor	Poor	Average	Good	Very Good
Quality					•
Reliability					•
Flexibility					•
Price					•
Product design					•
Service					•
Product training					•
Delivery time					•

5.5. What kind of difficulties do you face in working together with your suppliers?

No

5.6. Do you have any suggestions, how these problems can be addressed? (if you have any)

No

5.7. How do you collect your products?

Suppliers come to me	I go to the suppliers (e.g. through an agent, or personally)	I have collecting centres at central places	I use an out-grower system: suppliers sell exclusively to me	Other:
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Operations

5.8. How do you handle your product operations?

- O Keep stock of our main products**
- Just in Time approach
- O Order from supplier as soon customer order is set**

5.9. If you keep stock, for how long is it supposed to keep in your inventory?

4 weeks.

Service

5.10. What type of after service do you offer to your customers?

Check up call	Check up visit	Check up e-mail/ post	No after service	Other: • If needed
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Supporting activities

5.11. What is your criteria for new employees

Personal references	1.Education	Personal sympathy	2.First impression	Other:
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5.12. How do you keep your employees motivated?

1.Incentives	Bonuses	2.Personal recognition	Other:
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6. Determine strategies for more utilization of solar products in the Western Cape

6.1. How long does it take until you get your order from your suppliers to the customer?

One day	Two days	Up to one week	Up to two weeks	More than two weeks
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6.2. How long is the credit range for the customer?

On the same day I receive the order	Within a week	Within two weeks	Within three weeks	Within four weeks	Before Delivery
-------------------------------------	----------------------	------------------	--------------------	-------------------	-----------------

6.3. Do you regularly update your suppliers with regards to new market developments?

Yes No

6.4. What kind of customer services do you receive from your suppliers?

Occasional Visits.

6.5. How do you communicate with your suppliers?

1.By phone/ Mobile	2.Via mail/post	3.Face to Face	Through an intermediary	Other:
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6.6. How often do you communicate with your suppliers?

Every day	At least once per week	At least once every two weeks	At least once per month	Other:
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7. Current use of the value chain model

7.1. Are you taking the value chain principle into consideration?

Yes.

7.2. Are most employees aware of the model?

Yes, to some extent.

7.3. Is there still space to improve? If Yes, where and how?

Yes. Installers have to be trained on the principles of the model to ensure long term success.

7.4. Are you aware of the supporting activities and the potential effect on the performance?

Yes.

7.5. How do you decide about the potential success of new or adjusted activities?

Depending on the activity.

8. Identify the solar competitive advantage and key success factors of the industry

8.1. For [name of service provider], in which area(s) is competitive pressure more intense?

1. Potential new entrants – Low cost provider (China)
2. Substitutes– Cheap Eskom electricity is still the main competitor.

8.2. What are your core competencies over competitors?

1. Experience
2. Strong network (Marketing power)

8.3. Who are your main competitors on the market?

1. Solar Tech
2. Solardome

8.4. How do you expect the competitive force of new entrants to develop in the next years?

Low cost providers, with Chinese products will enter the market.

8.5. How do you expect the competitive force of substitutes to develop in the next years?

Eskom electricity is becoming more expensive, which drives more customers to us.

18.Company

1. General information

1.1. What is your gender?

Male

Female

1.2. How long have you been employed in this position?

2 years

1.3. What is your position in the company?

Manager / Owner

1.4. What is your yearly turnover measured in Rand?

Less than R 1 million	R 1 Million – R 5 Million	More than R 5 Million – R15 Million	More than R15 Million – R25 Million	More than R25 Million
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1.5. What is your mission or vision statement for your company?

Vision Statement:

- To provide Environmentally-Friendly Products; as well as Water and Renewable Energy Solutions, where it is required .
- To be world-class leaders, in the creation of a better lifestyle to all

Mission Statement:

- To be a successful “Service Solution Provider” and to Deliver Excellent Quality Workmanship.
- To Foster a sound professional relationship and to give professional advice to all stakeholders.
- To provide the best technically sound and cutting edge Products.
- To utilize our expertise and skills in developing and implement best management practices

- To support local business opportunities by utilizing local labour and expertise also transferring skills.
- To support our government and international initiatives in the creation of an Eco-Friendly and sustainable Environment by:
 - Saving water
 - Saving energy
 - Saving our eco-systems.

1.6. Did your sale of solar devices increase last year? If yes, by how many percent?

Stable - no change.

2. The solar service provider market

2.1. Who is your target market?

1.Residential Areas	Cluster Areas	Security Estates	Flats buildings	Businesses	Others:
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2.2. How do you communicate with your customer base? Which one is most effective?

2.E-mail	1.Phone	Post	Personal visit	Other
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2.3. How do you market your products to your target market? Which one is most effective?

Television	Radio	2.Paper advertisement <ul style="list-style-type: none"> • Newspaper 	Customized advertisement	1.Others: <ul style="list-style-type: none"> • Web page • Word of Mouth • Google top list
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3. Solar service providers and stakeholders

3.1. Which are the five most important Stakeholders to your business? (List from most to least important)

1. Community
2. Customer
3. Employee
4. Suppliers

3.2. What type of business relationship do you prefer with each stakeholder?

- legal contract (2.3.4.)
- verbal agreement (1.)
- no agreement at all, we negotiate on order basis

3.3. Do you envisage increased engagement with one of these Stakeholders? If Yes, why and how?

We should improve the marketing to educate consumers about our products and to increase awareness.

3.4. With regard to the legal and regulatory framework, have you experienced any difficulties to grow your business? If yes, what were these difficulties?

We struggling with the process to get our products SABS approved

3.5. What kind of services does the (local) government provide to service providers in this sector? Are these services up-to date and useful?

No Service, only business partner.

4. Types strategies of service provider

4.1. Which one of the following strategies describes best your strategic targets?
Why?

Differentiation strategy

Low cost strategy

Low cost housing

Best-cost provider strategy

Niche market strategy

4.2. Which one of the following business-customer channels do you make use of?

1. Web page	2. E-mail	Catalogue	Personal visits	Other:
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4.3. What are the top three selling solar thermal devices you sell?

Our top selling products are the heating panels followed by the 100L geysers.

4.4. What kind of preferences do your customers have (e.g. in terms of **quality**, **price**, design, functionality, health standards etc.)

The customer is looking for a good quality product for a good price.

5. The Value Chain Structure

5.1. The following Figure represents Porter's value chain, which is a generalization of activities a typical business consists of.

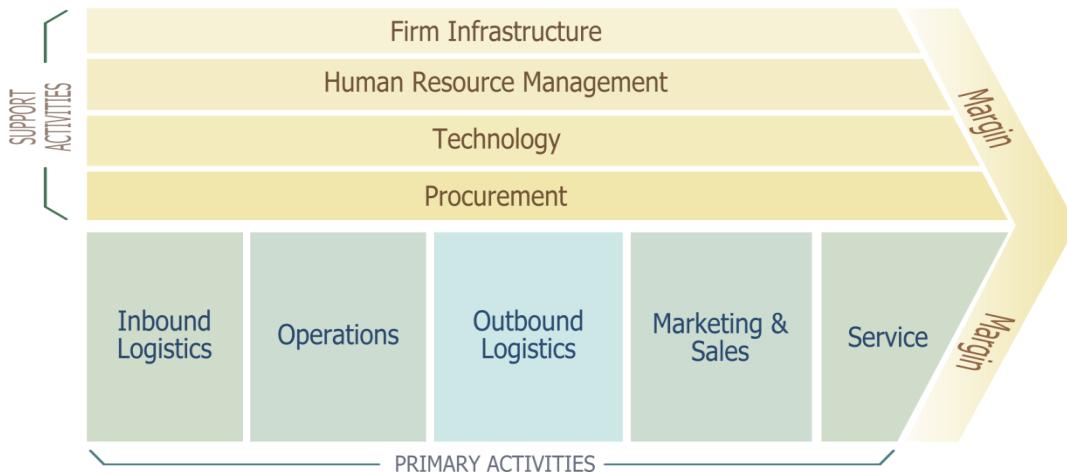
- What are the core (primary) activities for you as a solar service provider?

Marketing – customer contacts service provider – site visit – consultation - quotation – follow up - order product/ inventory – installation – follow up – check up call.

- What are the supporting activities?

Human Resource management – employing, training and motivating staff (installers!)

Procurement – Handling and processing the order



- 5.2. Which one of the activities mentioned above is crucial for the competitive success of your business?

Installation

Follow Up

(Inbound Logistics)

- 5.3. Which are the three main suppliers from which you source your products from?
(Indicate Percentage)

1. China

- 5.4. If you would have to evaluate the performance of your three main suppliers along a scale of 1 (very poor) to 5 (very good), what kind of marks would you give for the following criteria:

Criteria	Very poor	Poor	Average	Good	Very Good
Quality					•
Reliability				•	
Flexibility					•
Price				•	
Product design				•	
Service				•	
Product training			•		
Delivery time	•				

- 5.5. What kind of difficulties do you face in working together with your suppliers?

Delivery times

- 5.6. Do you have any suggestions, how these problems can be addressed? (if you have any)

Keep Stock

- 5.7. How do you collect your products?

Suppliers come to me	I go to the suppliers (e.g. through an agent, or personally)	I have collecting centres at central places	I use an out-grower system: suppliers sell exclusively to me	Other:
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Operations

5.8. How do you handle your product operations?

O Keep stock of our main products

O Just in Time approach

Order from supplier as soon customer order is set

5.9. If you keep stock, for how long is it supposed to keep in your inventory?

2 month

Service

5.10. What type of after service do you offer to your customers?

1.Check up call	2.Check up visit	Check up e-mail/ post	No after service	Other:
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Supporting activities

5.11. What is your criteria for new employees

Personal references	1.Education	Personal sympathy	2.First impression	Other:
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5.12. How do you keep your employees motivated?

Incentives	Bonuses	Personal recognition	Other:
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6. Determine strategies for more utilization of solar products in the Western Cape

6.1. How long does it take until you get your order from your suppliers to the customer?

One day	Two days	Up to one week	Up to two weeks	More than two weeks
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6.2. How long is the credit range for the customer?

On the same day I receive the order	Within a week	Within two weeks	Within three weeks	Within four weeks	Before Delivery
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6.3. Do you regularly update your suppliers with regards to new market developments?

Yes No

6.4. What kind of customer services do you receive from your suppliers?

We receive excellent product training and occasional site visits.

6.5. How do you communicate with your suppliers?

1.By phone/ Mobile	2.Via e-mail/post	Face to Face	Through an intermediary	Other:
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6.6. How often do you communicate with your suppliers?

Every day	At least once per week	At least once every two weeks	At least once per month	Other:
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7. Current use of the value chain model

7.1. Are you taking the value chain principle into consideration?

No

7.2. Are most employees aware of the model?

No

7.3. Is there still space to improve? If Yes, where and how?

Get educated about the principles of the model.

7.4. Are you aware of the supporting activities and the potential effect on the performance?

Yes.

7.5. How do you decide about the potential success of new or adjusted activities?

Feedback; Observation; Benefit tracking

8. Identify the solar competitive advantage and key success factors of the industry

8.1. For [name of service provider], in which area(s) is competitive pressure more intense?

1. Suppliers – lack of suppliers
2. Buyers – initial investment

8.2. What are your core competencies over competitors?

1. Customer service – referrals
2. Affordability

8.3. Who are your main competitors on the market?

1. Ecozone

- 8.4. How do you expect the competitive force of new entrants to develop in the next years?

There will be an increase of new entrants as the market is growing, especially from china.

- 8.5. How do you expect the competitive force of substitutes to develop in the next years?

Electricity is becoming increasingly more expensive, which creates more awareness for our products.

Another substitute are products from China which are cheaper of cheaper price and quality.

APPENDIX B:

Interview guide



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INTERVIEW

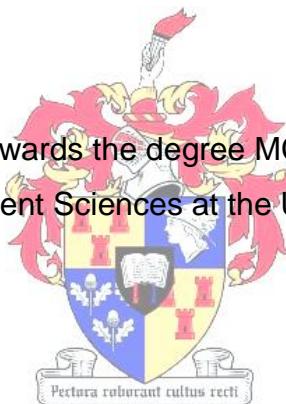
AN ANALYSIS OF THE SOLAR SERVICE PROVIDER INDUSTRY IN THE WESTERN CAPE

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Economic and Management Sciences at the University of Stellenbosch

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Interview guide

Obtaining feedback from professionals of the business is vital to the research process. Your responses are voluntary and are confidential. Responses will not be identified by individual. All responses will be compiled together and analysed as a group. It should take about 30 minutes of your time. I would appreciate it, if you willing to take the time to complete the following survey with me.

Introduction

Show the manager the value chain map and explain it to him. Also explain to him that this local exercise could be beneficial for him to improve his business activities. Explain to the manager that it is important to understand his position in the value chain.

1. General information

1.1. What is your gender?

Male

Female

1.2. How long have you been employed in this position?

1.3. What is your position in the company?

1.4. What is your yearly turnover measured in Rand?

Less than R 1 million	R 1 Million – R 5 Million	More than R 5 Million – R15 Million	More than R15 Million – R25 Million	More than R25 Million
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1.5. What is your mission or vision statement for your company?

1.6. Did your sale of solar devices increase last year? If yes, by how many percent?

2. The solar service provider market

2.1. Who is your target market?

Residential Areas	Cluster Areas	Security Estates	Flats buildings	Businesses	Others (specify)
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2.2. How do you communicate with your customer base? Which one is most effective?

E-mail	Phone	Post	Personal visit	Other
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2.3. How do you market your products to your target market? Which one is most effective?

Television	Radio	Paper advertisement (specify)	Customized advertisement (specify)	Others:
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3. Solar service providers and stakeholders

Definition of stakeholder:

A person, group, or organization that has direct or indirect stake in an organization because it can affect or be affected by the organization's actions, objectives, and policies. Key stakeholders in a business organization include creditors, customers, directors, employees, government (and its agencies), owners (shareholders), suppliers, unions, and the community from which the business draws its resources.

- 3.1. Which are the four most important Stakeholders to your business? (List from most to least important)
- 3.2. What type of business relationship do you prefer with each stakeholder?
 - legal contract
 - verbal agreement
 - no agreement at all, we negotiate on order basis
- 3.3. Do you envisage increased engagement with one of these Stakeholders? If Yes, why and how?
- 3.4. With regard to the legal and regulatory framework, have you experienced any difficulties to grow your business? If yes, what were these difficulties?
- 3.5. What kind of services does the (local) government provide to service providers in this sector? Are these services up-to date and useful?

4. Types of strategies of service provider

4.1. Which one of the following strategies best describes your strategic targets?

Why?

- Differentiation strategy
- Low cost strategy
- Best-cost provider strategy
- Niche market strategy

4.2. Which one of the following business-customer channels do you make use of?

Web page	E-mail	Catalogue	Personal visits	Other:
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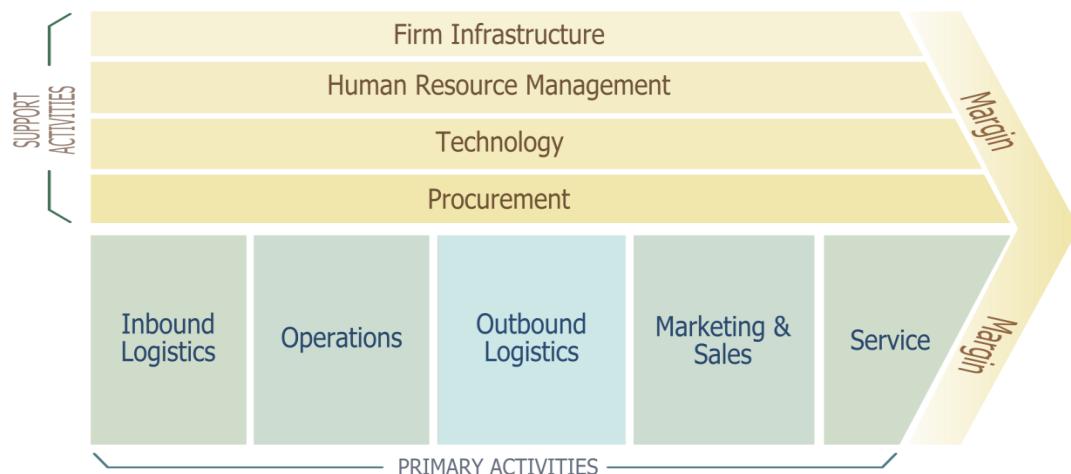
4.3. What are the top three selling solar devices you sell?

4.4. What kind of preferences do your customers have (e.g. in terms of quality, design, functionality, health standards etc.)

5. The Value Chain Structure

5.1. The following Figure represents Porter's value chain, which is a generalization of activities a typical business consists of.

- What are the core (primary) activities for you as a solar service provider?
- What are the supporting activities?



- 5.2. Which one of the activities mentioned above is crucial for the competitive success of your business?

(Inbound Logistics)

- 5.3. Which are the three main suppliers from which you source your products from? (Indicate Percentage)
- 5.4. If you would have to evaluate the performance of your three main suppliers along a scale of 1 (very poor) to 5 (very good), what kind of marks would you give for the following criteria:

Criteria	Very poor	Poor	Average	Good	Very Good
Quality					
Reliability					
Flexibility					
Price					
Product design					
Service					
Product training					
Delivery time					

- 5.5. What kind of difficulties do you face in working together with your suppliers?
- 5.6. Do you have any suggestions, how these problems can be addressed? (if you have any)
- 5.7. How do you collect your products?

Suppliers come to me	I go to the suppliers (e.g. through an agent, or personally)	I have collecting centres at central places	I use an out-grower system: suppliers sell exclusively to me	Other:
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Operations

5.8. How do you handle your product operations?

- Keep stock of our main products
- Just in Time approach
- Order from supplier as soon customer order is set

5.9. If you keep stock, for how long is it supposed to be kept in your inventory?

Service

5.10. What type of after service do you offer to your customers?

Check up call	Check up visit	Check up e-mail/ post	No after service	Other

Supporting activities

5.11. What is your criteria for new employees

Personal references	Education	Personal sympathy	First impression	Other

5.12. How do you keep your employees motivated?

Incentives	Bonuses	Personal recognition	Other

6. Determine strategies for more utilization of solar products in the Western Cape

6.1. How long does it take until you get your order from your suppliers to the customer?

One day	Two days	Up to one week	Up to two weeks	More than two weeks

6.2. How long is the credit range for the customer?

On the same day I receive the order	Within a week	Within two weeks	Within three weeks	Within four weeks	Before Delivery

6.3. Do you regularly update your suppliers with regards to new market developments?

Yes No

6.4. What kind of customer services do you receive from your suppliers?

6.5. How do you communicate with your suppliers?

By phone/ Mobile	Via mail/post	e-	Face to Face	Through intermediary (agent)	an	Other:

6.6. How often do you communicate with your suppliers?

Every day	At least once per week	At least once every two weeks	At least once per month	Other

7. Current use of the value chain model

Every business consists of several steps in designing, producing, marketing, delivering and supporting its product or service. The strategy is called the value chain as every step creates value for the potential customer. Value chains differ from company to company as business strategies and the internal and external environment differ. The value chain describes how the whole process from the raw material to the end consumer is linked together. The process consists of primary and secondary activities.

7.1. Are you taking the value chain principle into consideration?

7.2. Are most employees aware of the model?

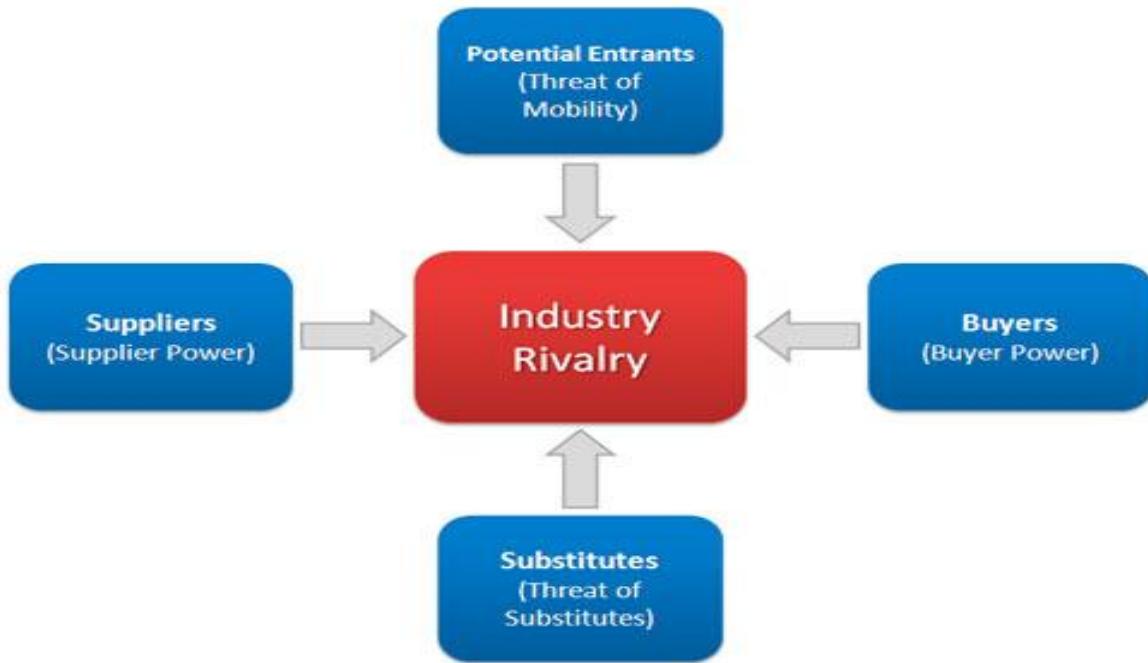
7.3. Is there still space to improve? If Yes, where and how?

7.4. Are you aware of the supporting activities and the potential effect on the performance?

7.5. How do you decide about the potential success of new or adjusted activities?

8. Identify the solar competitive advantage and key success factors of the industry

- 8.1. Porters five forces model of competition is by far the most powerful tool to systematically diagnosing the principal of competition pressure. The model evaluates five different areas namely; rivals, new entrants, substitute products and supplier bargaining power. Porters Five Forces model is illustrated below:



For [name of service provider], in which area(s) is competitive pressure more intense?

- 8.2. What are your core competencies over competitors?
- 8.3. Who are your main competitors on the market?
- 8.4. How do you expect the competitive force of new entrants to develop in the next years?
- 8.5. How do you expect the competitive force of substitutes to develop in the next years?