

**FINANCIAL ANALYSIS OF USE OF DOMESTIC  
SOLAR SYSTEMS IN SRI LANKA**

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Degree of Master of Science

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University of Moratuwa

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Thesis/Dissertation submitted in partial fulfillment of the requirements  
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## **Declaration**

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## **Abstract**

Srilanka is a country which produces electricity via hydropower, thermal power, coal power and wind power. Mainly, the Ceylon Electricity Board and Lanka Electricity Company Pvt Ltd have the authority access to the power grid and they distribute electricity to domestic and commercial customers. Due to the droughts, crude oil prices rise, and continuous breakdowns of coal power station, the unit price of the usage had increased rapidly through- out last decade. Hence the domestic users faced more difficulties and they had to search for low cost electricity power generation methods. Initial cost of the Solar systems is very high. Therefore in my intention was to find out are there any financial benefits of investing money on solar system. According to the cost functions and the revenue functions built, it can be identified that 5.0kw system has a brake even point of 84 units for monthly. When considering the net income for the systems, 5.0kw system has higher percentage (94.60%). According to the Balance Sheet of each project, 5.0kw project is more viable for the investor. Considering the cash flow statement, 5.0kw solar system has a positive closing cash balance up to the 8th year and after that it is moving to negative values while 3.3kw system has negative values throughout the period. Project Internal Rate of Return for 5.0kw project with 60 units consumption 5.0kw system has a profit value with the amount of Rs 55, 361.80 at the end of the period and 3.3kw system has a loss value of Rs 315,912.50. These findings can be used to find a suitable investment for the viable solution to the electricity cost in Srilanka.

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## Table of Contents

Declaration .....	i
Abstract .....	ii
Acknowledgement.....	iii
Table of Contents .....	iv
List of Figures .....	vi
List of Tables.....	vii
List of Abbreviations.....	viii
CHAPTER 1. INTRODUCTION .....	1
1.1 What Are Solar Panels? .....	1
1.2 Solar Photovoltaic (Solar PV): Background .....	2
1.2.1 How does a solar panel work? .....	2
1.2.2 Are solar power systems practical for home owners? .....	3
1.2.3 Types of solar power systems.....	4
1.2.4 The benefits of solar energy at residence solar system contain:.....	4
1.3 Research Problem .....	5
1.4 Research Objectives.....	8
1.5 Significance of the Study .....	8
1.6 Scope of the Study .....	8
1.7 Summery .....	11
CHAPTER 2. LITERATURE REVIEW .....	12
CHAPTER 3. METHODOLOGY.....	15
3.1 Fixed Annuity .....	15
3.2 Net Present Value (NPV).....	15
3.3 Nominal Interest Rate .....	16
3.4 Loan Amortization Schedule .....	16
3.5 Internal Rate of Return – IRR.....	17
3.6 Profit & Loss Account (P&L).....	18
3.7 Balance Sheet.....	19
3.8 Cash Flow Statement .....	19
3.9 Project Pay Back Method.....	20
3.10 Weighted average price.....	20

3.11 Assumptions.....	20
CHAPTER 4. FINDINGS .....	21
4.1 Research Process.....	21
4.2 Profit & Los Account.....	34
4.3 Balance Sheets .....	38
4.4 Cash Flow Statements.....	43
4.5 Project Pay Back Period Method.....	45
4.6 Project Internal Rate of Return .....	47
4.7 Net Present Value .....	49
4.8 Summery .....	49
CHAPTER 5. CONCLUSION AND RECOMMENDATIONS .....	50
5.1 Overview.....	50
5.2 Conclusion and Recommendations.....	50
REFERENCES.....	53
APPENDIX A: Table of CEB Units Charges .....	54
APPENDIX B: Table Of Loan Amortization Schedule For RS 645,000/-.....	55
APPENDIX C: Table of Loan Amortization schedule for Rs 885,000/-.....	59
APPENDIX D - W: Tables of Balance Sheets for solar systems .....	63
APPENDIX X: Matlab codes .....	83

## List of Figures

Figure 1.1 Solar panel .....	1
Figure 1.2 How Solar panel generate energy .....	3
Figure 1.3 Quotation for 3.3kw solar system .....	9
Figure 1.4 Quotation for 5.0 kw solar system .....	10
Figure 1.5 Source of Generation of Electricity in year 2017.....	11
Figure 4.1 Cost Function and the Income Function of the 3.3kw with monthly usage of units $\leq$ 30 .....	23
Figure 4.2 Cost Function and the Income Function of the 3.3kw with monthly usage of 31<units $\leq$ 60 .....	24
Figure 4.3 Cost Function and the Income Function of the 3.3kw with monthly usage of 61<units $\leq$ 90 .....	25
Figure 4.4 Cost Function and the Income Function of the 3.3kw with monthly usage of 91<units $\leq$ 120 .....	26
Figure 4.5 Summery of Cost Function and the Income Function of the 3.3kw .....	27
Figure 4.6 Cost Function and the Income Function of the 5.0kw with monthly usage of units $\leq$ 30 .....	28
Figure 4.7 Cost Function and the Income Function of the 5.0kw with monthly usage of 31<units $\leq$ 60 .....	29
Figure 4.8 Cost Function and the Income Function of the 5.0kw with monthly usage of 61<units $\leq$ 90 .....	30
Figure 4.9 Cost Function and the Income Function of the 5.0kw with monthly usage of 91< units $\leq$ 120 .....	31
Figure 4.10 Summery of Cost Function and the Income Function of the 5.0kw .....	32



## List of Tables

Table 1.1 CEB payment for solar unit .....	7
Table 1.2 CEB Domestic customer billing Charges .....	7
Table 4.1: Summary Of the Capital and interest recover annually for systems.....	33
Table 4.2: Profit & Loss account for whole project.....	34
Table 4.3: Profit & Loss account for whole project of 5kw.....	35
Table 4.4 Net Profit or Loss At Each Year for Solar 3.3kw .....	36
Table 4.5 Net Profit or Loss At Each Year for Solar 5.0kw .....	37
Table 4.6 Cash Flow Statements for 3.3kw for 1st Year .....	43
Table 4.7 Cash Flow Statements for 5.0kw for 1st Year .....	45
Table 5.1 Economical Model For Solar System .....	50

## **List of Abbreviations**

NPV – Net Present Value

PV – Photovoltaic

CEB - Ceylon Electricity Board

LECO - Lanka Electricity Company (Pvt) Ltd

IRR - Internal Rate of Return

$CF_0$  - Initial Investment

$CF_t$  - net after-tax cash inflow-outflows during a single period  $t$

$n$  - Each Period

$N$ - Holding Period

P & L - Profit & Loss

DC - Direct Current

AC- Alternating current

USA – United State of America