

**ASSESSMENT OF THE ROLE OF TRANSFORMATIONAL
LEADERSHIP IN THE ADAPTATION OF ECO GREEN ENERGY AMONG
PETROL STATIONS IN NAIROBI COUNTY, KENYA**

NAOMI NJOROGE

A RESEARCH THESIS SUBMITTED TO THE PAN AFRICA
CHRISTIAN UNIVERSITY GRADUATE SCHOOL IN PARTIAL
FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF DEGREE
OF MASTER OF ARTS IN LEADERSHIP

PAN AFRICA CHRISTIAN UNIVERSITY.

JULY, 2025

DECLARATION

I declare that this thesis is my original work and has not been presented for a degree in any other university.

Signature Date

Name: Naomi Njoroge (MALD/21655/0/21)

.

This thesis has been submitted for review with our approval as University supervisors:

Signature Date

Dr. Julius Njiiri

Department of Arts in Leadership, Pan Africa Christian University

Signature Date

Dr. Manthi Muli

Department of Arts in Leadership, Pan Africa Christian University

TABLE OF CONTENT

DECLARATION.....	ii
DEDICATION.....	viii
ACKNOWLEDGMENT	ix
ABSTRACT.....	x
LIST OF TABLES	xi
LIST OF FIGURES	xii
ABBREVIATIONS AND ACRONYMS.....	xiii
OPERATIONAL DEFINITION OF TERMS.....	xiv
CHAPTER ONE: INTRODUCTION AND BACKGROUND TO THE STUDY .1	
Introduction	1
Background to the study.....	1
Problem statement.....	7
Purpose of the study	8
Study objectives	8
Research Hypotheses.....	9
Assumptions of the Study	9
Justification of the Study.....	10
Significance of the Study	12
Scope of the Study.....	13
1.10 Limitations of the Study.....	13
CHAPTER TWO: LITERATURE REVIEW.....	15
Introduction	15
Empirical Literature Review	15

The Adapting of Eco-green Energy	15
Transformational Leadership’s Role in Eco-Green Energy	19
The role of Individualised Consideration in adapting Eco-green Energy	22
Intellectual Stimulation and Adapting Eco-green Energy Practices	24
The Role of Inspirational Motivation in Adapting eco-green Energy Practices	26
The Contribution of Idealised Influence in Adapting Eco-green Energy	29
Theoretical Framework	31
Sustainability Theory and adapting eco-green energy practices	31
Transformational Leadership Theory	33
Human Capital Theory	36
The Summary of the Literature Review and the Research Gaps	38
The Conceptual Framework	43
CHAPTER THREE: RESEARCH METHODOLOGY	45
Introduction	45
Research design.....	45
Study Population	46
Study Sample Size.....	47
Sampling method(s)	47
Types of data	48
Data collection methods	49
Instrument pretesting.....	49

Ensuring validity.....	50
Ensuring reliability	52
Data analysis	54
Analysis of Descriptive Statistics	54
Analysis of Inferential Statistics: Regression Analysis and Diagnostic Tests.....	55
Objective 1: Role of Individualised Consideration in Adopting Eco-Green Energy.....	55
Objective 2: Intellectual Stimulation and Adopting Eco-Green Energy ..	56
Objective 3: Inspirational Motivation and Adopting Eco-Green Energy.	57
Objective 4: Idealised Influence and Adopting Eco-Green Energy	58
Diagnostic Tests	58
Ethical considerations	59
Chapter Summary.....	59
CHAPTER FOUR: DATA PRESENTATION, AND ANALYSIS AND INTERPRETATION	60
Introduction	60
Response Rate	60
Demographic information	61
The Management and Roles of Employees in the Petrol Stations	63
Distribution of Years Worked in the Petrol Station Service Industry among Employees.....	64

Individualised Consideration in Eco-Green Energy Adoption	66
Descriptive Statistics on Individualised Consideration in Eco-Green Energy Adoption.....	66
Regression Analysis for Individualised Consideration on Eco-Green Energy Adoption.....	71
Intellectual Stimulation and Eco-Green Energy Adoption	77
Descriptive statistics for Intellectual Stimulation on Eco-Green Energy Adoption	77
Regression Analysis for Intellectual Stimulation on Eco-Green Energy Adoption	82
Inspirational Motivation and Eco-Green Energy Adoption.....	88
Descriptive statistics on Inspirational Motivation and Eco-Green Energy Adoption	88
Regression Analysis for Inspirational Motivation on Eco-Green Energy Adoption	91
The Idealised Influence and Eco-Green Energy Adoption	96
Descriptive statistics on Inspirational Motivation and Eco-Green Energy Adoption	96
Regression Analysis for The Idealised Influence and Eco-Green Energy Adoption	100
Summary and Contribution to Knowledge.....	107
CHAPTER FIVE: SUMMARY OF RESEARCH FINDINGS, CONCLUSION AND RECOMMENDATIONS	109

Introduction	109
Summary of research findings.....	109
The role of individualised consideration of transformational leadership in adapting eco-green energy	109
The intellectual stimulation of transformational leadership in adapting eco-green energy	109
The inspirational motivation of transformational leadership in adapting eco-green energy	110
The contribution of the idealised influence of transformational leadership in the adaptation of eco-green energy	110
Conclusions	111
Recommendations	114
Enhance Leadership Development on Individualised Consideration.....	114
Promote Intellectual Stimulation through Innovation Platforms.....	114
Strengthen Inspirational Motivation for Sustainable Behaviour	114
Suggestions for further research.....	115
REFERENCES.....	117
APPENDICES	126
APPENDIX I INTRODUCTION LETTER	126
APPENDIX II: NACOSTI LETTER.....	127
APPENDIX III: QUESTIONNAIRE FOR PETROL STATION EMPLOYEES	128
APPENDIX IV: NEMA, AND EPRA OFFICIAL INTERVIEW GUIDE.....	133

DEDICATION

I dedicate this work to the Almighty God for His grace, wisdom, and strength that have carried me through this academic journey. To my loving husband, your unwavering support, patience, and encouragement have been a great source of strength. To my children, I sincerely thank you for your understanding and the sacrifices you made during my time of study. I also dedicate this work to my supervisors whose mentorship, guidance, and belief in my capabilities have inspired me to reach this milestone. May this work serve as a tribute to the power of faith, family, and perseverance.

ACKNOWLEDGMENT

I would like to express my heartfelt gratitude to the Almighty God for granting me the health, strength, and clarity of mind to complete this study. I am deeply thankful to Pan Africa Christian University for providing a supportive academic environment that facilitated my learning and research. My special appreciation goes to my supervisors, Dr. Julius Njiiri and Dr. Manthi Muli, for their invaluable guidance, constructive feedback, and continuous support throughout the research process.

I am also grateful to my husband and children for their love, patience, and emotional support, which kept me going through the challenges of academic work. Their encouragement motivated me to remain focused and committed. In addition, I acknowledge all individuals, colleagues, and institutions who contributed directly or indirectly to this study. Your contributions, whether through encouragement, technical support, or participation, are sincerely appreciated and have played a vital role in the completion of this thesis.

ABSTRACT

Adopting eco-green energy has become increasingly imperative in the global effort to combat climate change and environmental degradation. Transformational leadership has demonstrated remarkable efficacy in driving sustainability, particularly in large organizations and the energy sector. However, its application among small and medium-sized enterprises such as petrol station businesses within Kenya's energy sector remains underexplored. This study aimed to bridge this gap by examining how Transformational Leadership influences the adoption of eco-green energy practices among petrol stations in Nairobi County, focusing on the roles of individualized consideration, intellectual stimulation, inspirational motivation, and idealized influence. A mixed-methods descriptive study design was employed, targeting a population of 300 petrol station managers, service personnel, and 10 officers from the National Environment Management Authority (NEMA), the Energy and Petroleum Regulatory Authority (EPRA). A sample of 102 respondents was selected using stratified random and census sampling techniques. Data analysis involved both descriptive statistics and regression analysis. Descriptive results revealed that respondents perceived transformational leadership as a critical factor in fostering eco-green energy adoption. Regression analysis provided empirical evidence supporting this perception. Individualized consideration significantly influenced eco-green energy adoption ($R = 0.453$, $R^2 = 0.205$, $\beta = 1.2002$, $p < 0.00001$), confirming that personalized mentorship and support enhance sustainability initiatives. Intellectual stimulation also had a significant positive effect ($R = 0.464$, $R^2 = 0.215$, $\beta = 1.2863$, $p < 0.00001$), indicating that encouraging critical thinking and innovation is crucial for green energy transitions. Inspirational motivation contributed positively ($R = 0.417$, $R^2 = 0.174$, $\beta = 1.1100$, $p < 0.00005$), highlighting the role of vision-setting and motivation in sustainability efforts. Similarly, idealized influence exhibited a strong impact ($R = 0.451$, $R^2 = 0.203$, $\beta = 1.2976$, $p < 0.00001$), demonstrating that leadership role modeling significantly drives eco-green adoption. The study concluded that transformational leadership is a key driver in the transition towards sustainable energy practices in the Kenyan petroleum sector. Leaders who provide individualized consideration, intellectual stimulation, inspirational motivation, and idealized influence significantly contribute to green energy adoption. However, external factors such as government incentives, financial constraints, and infrastructural limitations also influence adoption rates, suggesting a need for a supportive regulatory environment. Based on these findings, the study recommends integrating transformational leadership training into energy sector policies to accelerate eco-green energy adoption. Public-private partnerships should be leveraged to provide financial and infrastructural support for petrol stations transitioning to sustainable practices. Future research should explore the moderating effects of policy incentives, technological advancements, and consumer behavior on the relationship between transformational leadership and eco-green energy adoption.

LIST OF TABLES

Table 1: Literature Review summary and Research gaps.....	41
Table 2: Target Population.....	47
Table 3: Study Sample size.....	47
Table 4: Results of the Reliability Assessment.....	53
Table 5: Employees Perceptions on Transformational Leadership in Eco- Green Energy Adaptation	67
Table 6: Regression Model Summary for Individualised Consideration.....	72
Table 7: Regression Coefficients for Individualised Consideration	73
Table 8: ANOVA.....	73
Table 8: Coefficients.....	74
Table 10: Regression Model Summary for Intellectual Stimulation	83
Table 11: Regression Coefficients for Intellectual Stimulation.....	83
Table 12: Regression Model Summary for Inspirational Motivation.....	92
Table 13: Regression Coefficients for Inspirational Motivation	93
Table 14: Perception of Petrol Stations on Idealised Influence and Eco-Green Energy Adoption.....	98
Table 15: Regression Model Summary for Idealised Influence	102
Table 16: Regression Coefficients for Idealised Influence.....	102

LIST OF FIGURES

Figure 1: The Conceptual Framework on the relationship between Transformational leadership and Eco green energy adaptation.....	43
Figure 2: Gender of the petrol station employees.....	61
Figure 3: The Age Distribution of the Respondents	62
Figure 4: The Management and Roles of Employees in the Petrol Stations ...	64
Figure 5: Years Worked in the Petrol Station Service Industry among Employees.....	65
Figure 6: Selected Diagnostic Tests for Individualised Consideration.....	72
Figure 7: Perception of employees on the Intellectual Stimulation and Eco-Green Energy Adoption	78
Figure 8: Perception of Employees on Inspirational Motivation and Eco-Green Energy Adoption.....	89

ABBREVIATIONS AND ACRONYMS

EPRA: The Energy and Petroleum Regulatory Authority

GTFL: Green Transformational Leadership

NASCOTI: National Commission for Science, Technology, and Innovation

NEMA: The National Environment Management Authority

RBV: Resource-Based View

SME: Small and Medium-sized Enterprises

SPSS: Statistical Package for Social Science

OPERATIONAL DEFINITION OF TERMS

Adaptation: As mentioned earlier, adaptation in this context means making changes in the operations or practices of petrol stations to incorporate eco-green energy solutions (Yousaf, 2021).

Eco-Green Energy Adaptation: This term refers to adopting and integrating environmentally friendly and sustainable energy practices, often focusing on reducing carbon emissions and environmental impact (Takase et al., 2021).

Idealised Influence: This aspect of transformational leadership involves leaders serving as role models and gaining the trust and admiration of their followers through their ethical behaviour, values, and charisma (Mutezo & Mulopo, 2021) .

Individualised Consideration: This term refers to leadership behaviour where leaders pay special attention to their followers' needs, concerns, and development. In the context of transformational leadership, it means tailoring leadership actions to the specific needs and aspirations of employees or team members (Huang, Kuldasheva, Bobojanov, Djalilov, Salahodjaev, & Abbas, 2022).

Inspirational Motivation: In transformational leadership, this term refers to a leader's ability to inspire and motivate their followers by creating a compelling vision, setting high standards, and fostering enthusiasm and commitment among the team (Mutezo & Mulopo, 2021).

Intellectual Stimulation: This is a component of transformational leadership where leaders encourage their followers to think creatively, challenge assumptions, and seek innovative solutions to problems (Ramachandran, 2021). It involves promoting critical thinking and intellectual growth among team members.

Transformational Leadership: This leadership style is characterised by leaders who inspire and motivate their followers to achieve exceptional performance

and personal growth (Walsh, 2021). It often involves vision, inspiration, individualised consideration, and intellectual stimulation.

CHAPTER ONE: INTRODUCTION AND BACKGROUND TO THE STUDY

Introduction

This section presents the study background, problem statement, purpose, objectives, research questions, significance, assumptions, and limitations.

Background to the study

The use of eco-green energy has elicited heated debate and discussion both worldwide and in the fuel market of Kenya. On the one hand, fossil fuel is the cornerstone of any economy. The universal energy industry presented employment to more than 65 million people in 2019, constituting almost 2 percent of total formal world employment (International Energy Agency, 2019). There were about 8 million jobs in the oil industry alone. In 2019, approximately 6.8 million people in the United States were engaged in the energy sector, and this equals approximately 5 percent of the workforce (Dubina et al., 2020). These statistics point out the economic importance of fossil fuel and the job security offered by the industry. In Kenya, about 10.75 percent of the national GDP belongs to the energy sector that makes up about 40 percent of the workforce (Macharia, Gathiaka, & Ngui, 2022; African Development Bank Group, 2019). This highlights the extent to which the petroleum industry contributes to the national development, government revenues, as well as, income of households.

These advantages notwithstanding, fossil fuel uses are major sources of global warming and the destruction of the environment. The intergovernmental panel on climate change (IPCC, 2021) highlights that combustion of fossil fuels has been among the dominant sources of greenhouse gases that have led to the accumulation of higher

temperatures and environmental instability worldwide. This has led to increased pressure on governments and corporations to engage in practice that ensures sustainability. The consumer behavior and societal appetite are also turning to more green options and the companies worldwide are being urged to reconsider their environmental impacts (Delborne et al., 2020; Walsh, 2021).

The world at large is in transition towards clean energy with the developed countries leading. The move is however not very equitable. Critics note that some countries, including Norway and Russia, pursue internationally oriented green energy agendas but at the same time expand the mining of fossil resources in their internal territories (Ramachandran, 2021). This paradox raises some ethical questions of energy equity. Most of the African states rely on fossil fuels to attain energy security, development, and innovative infrastructure, such as Kenya. The clean technologies are desirable but they are not usually accessible because of the lack of funds, technical capacity, and the fact that the transition is prohibitively expensive (Asongu et al., 2020; Mutezo & Mulopo, 2021). Switching to renewable sources of energy leads to a significant initial outlay investment, sustained policy dedication, and institutional potential which most developing countries are still developing.

Fossil fuels in Africa make the modern agriculture, manufacturing and transport industries necessarily operate. Natural gas is important to the efficient production of synthetic fertilizers, whereas the oil-based fuels play a central role in mechanized agriculture, preservation of food, and rural electrification (Bekun et al., 2021). In the same manner, cement and steel factories production, which are so essential to construct the infrastructure, are also very energy-insensitive and possess carbon-intense inputs (Omri &

Belaïd, 2021). Consequently, African governments are faced with the task of balancing between the quest to achieve green energy and energy reliability and affordability needs.

The awareness on environmental sustainability is growing in Kenya. Other bodies such as the National Environment Management Authority, Energy and Petroleum Regulatory Authority as well as the Central Organization of Trade Unions have been keen in maintaining a good note to observe the functions of eco-friendly practices. But they are not consistent with implementation. Chemjor (2020) and Otenyo (2016) note that these institutions work effectively when they are well funded, coordinated between agencies, and politically willed. Operators in the petrol stations are being encouraged to use cleaner technologies and green energy infrastructure in the fuel retail sector. However, the adoption is not universal as it is hampered by the financial barrier, the lack of awareness, and the incentive (Falcone, 2020).

Martin (2023) notes that by 2030, returns of the traditional petroleum projects are expected to fall by 40 to 60 percent. This macroeconomic outlook shows that there is an urgent shortfall in strategic reposition by any stakeholder in the sector. The profitability and even jobs will probably be threatened by the non-sustainability of business-as-usual models (Amwe & Dala, 2023). It is a fact that leads to a sense of reconsidering leadership and innovation as driving change. The concept of transformational leadership, which brings vision, empowerment and innovation, opens the way to transformation of energy business as Kenya faces the rapidly changing environmental environment.

The concept of transformational leadership rests on four pillars, which include inspirational motivation, intellectual stimulation, individualised consideration, and idealised influence (Cherry, 2016; Riggio, 2020). These kind of leaders are influential

because they are able to ignite powerful visions to the teams, they provoke teams to think and solve problems creatively, they listen to individual needs of the employees, and they are the examples by drawing on their morals. Such leadership can advance inside the environmentally delicate industries with an energetic learning and flexible in the green changes (Majali et al., 2022; Khassawneh & Elrehail, 2022). Transformation leadership does not only involve improvement of performance internally. It is an important aspect that makes organizations as adjustable to the external environmental and social demands.

In particular, the Green Transformational Leadership appears to be one of the leadership models applicable to sustainability. It integrates conventional transformational leadership qualities to environmental conservation. This type of leadership touches on green values, green practices, and green innovations that enlighten employees to work with sustainable practices (Huang et al., 2022; Zehir et al., 2022; Limuza & Zehir, 2022; Özgül & Zehir, 2022). Cao et al. (2021) claim that Green Transformational Leadership can assist with the improvement of the environmental performance because it encourages the green behaviors and stimulates the culture of eco-awareness. This leadership model has been associated with better levels of green product innovation, less emission, and better results of sustainability in G-20 countries (Usprech & Palmert, 2023).

Leadership is also a very serious factor in the successful implementation of green policies in the African context. Nevertheless, structural barriers like finance constraints, lack of coherent policies, and technical expertise still persist as an obstruction (Juma et al., 2020; Mwangi, 2019). Nevertheless, sustainable business models may also be adopted with the help of leadership aimed at change, participation, and ethical practice, the change of which is getting increasingly documented. Surveys in Nigeria, South Africa, and Ghana

confirm that managers, who embrace environmental issues in organizational development, perform better than executives with narrow-term growth plans (Amwe & Dala, 2023).

The transformational leadership in the fuel industry in Kenya has not been researched well. However, this phenomenon can be observed in practice in one of the urban communities, such as Nairobi County. Nairobi is a gateway of environmental politics as well as economic life. There is also tighter adherence to environmental policies and the desire of the customer to be environmentally aware is a little bit more developed than in the rural areas (Mwaura, 2018). It is against this dynamic background that there is pressure on operators of petrol stations to innovate and at the same time be profitable (Chemjor, 2020). Transformational leaders are in a position to overcome this tension by bringing strategic goals with sustainability principles.

This research is based on the level of the adoption of eco-green energy as is in the case of the petrol station business in the Nairobi County. Such behaviors encompass adoption of renewable energy resources, adoption of energy-saving mechanisms, minimization of wastes involved, as well as adherence to terms of green facilities (Isinika & Jeckoniah, 2021). It also examines the role of different aspects of transformational leadership which include the aspects of inspirational motivation, intellectual stimulation, individualized consideration, and the aspect of idealized influence with relation to how they influence these practices.

The transition is regulated by organizations like National Environment Management Authority and Energy and Petroleum Regulatory Authority which give a direction on the way this should be practised. The National Environment Management Authority is an important organ that is involved in environmental planning, environmental

forcing and also environmental licensing. Energy and Petroleum Regulatory Authority is a regulator that directs energy laws and regulations in petroleum retailing. All of these organizations impact the sectoral actions by establishing policies, prescribing penalties, as well as offering incentive schemes (Chemjor, 2020; Isinika & Jeckoniah, 2021). In the meantime, the Central Organization of Trade Unions could influence the enterprises of employees and the labor in regard to green initiatives. Regulatory agencies, labor organizations, and corporate executives should work together successfully to conduct energy reform.

Some other studies have stressed the contribution of integrated policy, leadership and community engagement in the development of green power (Gooding et al., 2018; Brien et al., 2023). Some emphasise the presence of adaptive leadership that concerns long-term oriented learning, creativity, and reaction to environmental transformation (Hamdy, 2020; Valters et al., 2016). Green transitions may also be guided by digital technologies, namely, data analytics and monitoring in real-time (Marella et al., 2021). Nevertheless, there is still the low level of digital adoption in most businesses in Kenya, which requires capacity building and investment in infrastructures.

Therefore, the shift to eco-green energy is both a global and national priority. In the case of Kenya, and Nairobi county specifically, such a shift should be well planned so as to foster both environmental and economic sustainability. Dependence on fossil fuel cannot be gotten rid of overnight. A visionary way forward can be laid out through progressive leadership and policy alignment. This study is part of such works, as it evaluates the influence of transformational leadership applicable to the adoption of sustainable energy practice in petroleum retailing. The goal of the research is to estimate the results that will

be of academic interest and be generally used. This will be achieved by relating leadership behavior to results achieved by green business.

Problem statement

The oil energy sector in Kenya, a historically profitable and employment-generating industry, now faces an imminent environmental crisis. The dilemma lies in striking a balance between economic stability and ecological responsibility. If left unaddressed, this crisis threatens to exacerbate environmental degradation and hinder the transition to sustainable eco-green energy practices. As fossil fuel usage is predicted to decline by 40% to 60% by 2030 (Martin, 2023). There is a looming threat of significant economic disruption, including job losses and economic instability. If this issue persists, the future looks bleak for both the environment and the livelihoods of those dependent on the energy sector.

However, resolving this dilemma presents a ray of hope. Transformational leadership, a proven catalyst for innovation, employee engagement, and organizational success, can potentially drive the adoption of eco-green energy practices. Conversely, here lies a critical gap: existing research predominantly focuses on large organisations, leaving a gap in understanding how transformational leadership applies to individual and small scale-petrol stations within Kenya's energy sector. These individual and small scale-petrol stations play a pivotal role in environmental impacts through their commercial activities, yet they often lack the necessary skills and motivation for sustainability initiatives.

The study aimed to fill these gaps by investigating the role of transformational leadership in adapting eco-green energy practices. This research endeavours to shed light on how transformational leadership can facilitate sustainable transitions, ensuring both

business viability and environmental responsibility. Moreover, it seeks to mitigate potential disruptions in employment and economic stability caused by the impending decline in fossil fuel usage.

Incorporating key stakeholders such as the National Environment Management Authority (NEMA), and the Energy and Petroleum Regulatory Authority (EPRA) is imperative for informed decision-making. Prior research has overlooked this vital aspect, and this study aims to bridge the gap by providing empirical evidence that can guide effective policy and regulatory measures. Therefore, this research sought to investigate the transformative power of leadership within petrol stations in Kenya's energy sector, ultimately paving the way for a sustainable and eco-friendly future while preserving employment and economic stability.

Purpose of the study

The purpose of this study is to explore how transformational leadership affects the sustainability of energy businesses in Kenya. It focuses on how leadership approaches such as setting a clear vision, motivating staff, supporting individual growth, and encouraging innovation help energy companies transition toward environmentally friendly practices.

Study objectives

The general objective of this study is to assess the role of transformational leadership in adapting eco-green energy among petrol stations in Nairobi County.

Study-specific Objectives

- i. To examine the role of individualised consideration in adapting eco-green energy among petrol stations in Nairobi County.

- ii. To assess the extent to which intellectual stimulation contributes to the adaptation of eco-green energy among petrol stations in Nairobi County.
- iii. To evaluate the impact of inspirational motivation on promoting the adoption of eco-green energy practices among petrol stations in Nairobi County.
- iv. To determine the contribution of the idealised influence in the adaptation of eco-green energy among petrol stations in Nairobi County.

Research Hypotheses

- i. **H₀₁:** There is no significant relationship between individualised consideration and the adaptation of eco-green energy among petrol stations in Nairobi County.
- ii. **H₀₂:** Intellectual stimulation does not significantly contribute to the adaptation of eco-green energy among petrol stations in Nairobi County.
- iii. **H₀₃:** Inspirational motivation does not significantly influence the adoption of eco-green energy practices among petrol stations in Nairobi County.
- iv. **H₀₄:** Idealised influence does not significantly contribute to the adaptation of eco-green energy among petrol stations in Nairobi County.

Assumptions of the Study

Several vital assumptions underpin the current study. First, the study assumes that the principles of transformational leadership are both relevant and practical within the operational environment of petrol station businesses in Nairobi County. These leadership principles are believed to empower petrol station operators to pursue competitive and sustainable business practices that align with the shift toward eco-green energy.

Second, the study presumes that these operators are actively engaged in efforts to embrace eco-green energy and are motivated to apply transformational leadership approaches to ensure a smooth and effective transition. It is further assumed that the adoption of such leadership practices has the potential to influence key areas such as innovation, employee engagement, and long-term sustainability.

Third, the study assumes that the effectiveness of transformational leadership in driving eco-green energy adoption is more likely to be realized in environments where there is strong institutional support, clear policy direction, and a culture that embraces innovation and change.

Lastly, the research assumes that the combined effect of vision-setting, intellectual stimulation, individualized support, and influence by example can significantly contribute to the overall performance of petrol stations as they adopt eco-green energy practices in the Kenyan context.

Justification of the Study

The study is inspired by the fact that the need to comprehend the role of leadership towards achieving sustainable energy practices is eminent in the emerging energy sector in Kenya. With pressure on the country to embrace the shift into alternative energy sources other than fossil fuels, the petrol stations have faced difficulties as far as their operations and strategies are concerned when it comes to shifting into eco-green forms of energy. Despite the improvement in the awareness of green energy, there is scarce research addressing the issue of the leadership contribution in the evolutionary process and, specifically transformational leadership, in such a transition. The majority of the current research is focused on technological, environmental, or financial factors of adopting green

energy, yet few other studies depict leadership behavior and its determination part in organizational transformation and, particularly, in the energy retail industry.

The choice to emphasis on Nairobi County is not a mistake since they are among central urban regions where petrol stations can expect to have new sustainability regulations introduced early. This is a good place to carry out the analysis of the effect of transformational leadership on practice adaptation. In Nairobi, small and medium sized energy companies present the most prominent case of operational transition towards environmentally-friendly processes, but the organizational dynamics that surround the emergence of leadership in these settings is commonly underrepresented both in the scientific and commercial discourse.

Contribution to Literature The study also adds to body of knowledge in the discipline science of leadership and sustainability mainly because it looks at the relevance of transformational leadership theory in selecting a field that is going through dynamic transition. It will be valuable as it links the leadership theory and the challenges of energy transition in practice. In practice, the study can be a valuable contribution to policymakers, energy stakeholders and business owners interested in taking more sustainable steps in their businesses in accordance to both national and international climate pledges. The study outlines the potentiality of enhancing both organizational and environmental sustainability of businesses by adopting an eco-green energy practice in the Kenyan energy sector because it aims at the role of leadership in terms of facilitating eco-green energy practices in a company.

Significance of the Study

Benefits to Policymakers

The study holds significant importance for policymakers as it offers evidence-based insights into the effectiveness of transformational leadership in promoting competitive and sustainable eco-green energy practices within the petrol station industry. Policymakers can leverage these findings to formulate targeted policies and incentives encouraging leadership development and adopting eco-friendly practices, contributing to broader sustainability objectives and aligning with national and international energy and environmental goals.

Benefits to Petrol Station Operators

For petrol station operators, the study's significance lies in its potential to provide actionable strategies. By understanding the impact of transformational leadership on eco-green energy operations, operators can implement leadership approaches that foster innovation, employee engagement, and environmental responsibility. These insights were to enhance operational efficiency, reputation, and competitiveness while positioning operators as responsible contributors to sustainable energy transitions.

Advancement of Scholarly Knowledge

The study contributes to scholarly knowledge by expanding the understanding of transformational leadership's applicability in a specific industry and context. By delving into the unexplored territory of eco-green energy operations among petrol stations in Nairobi, the research enriches the academic discourse around leadership, sustainability, and business operations. These insights can further inform future studies, enrich theoretical

frameworks, and spark discussions about the intersection of leadership, sustainability, and energy-related businesses.

Scope of the Study

The scope of this study is defined by its target population, geographical coverage, and methodology. The study's target population comprises 324 registered petrol station operators operating within Nairobi County's energy sector (Mito, 2022; EPRA, 2020). Geographically, the study focuses exclusively on Nairobi, Kenya.

Methodologically, the study utilises a descriptive research design to comprehensively depict and analyse the role of transformational leadership in eco-green energy business operations among petrol station operators. Data were collected through structured open and closed-ended questionnaires and interviews. The questionnaire responses provided quantitative insights, while the interviews captured qualitative perspectives. This mixed-method approach enabled a comprehensive understanding of participants' viewpoints and experiences, thus contributing to a well-rounded analysis of the research topic within the specified target population and geographical context.

Limitations of the Study

The study's potential limitations stem from the scarcity of existing research specifically addressing transformational leadership within the context of overseeing competitive and sustainable eco-green energy business operations among operators of petrol stations in Kenya. To overcome this gap, the researcher drew insights from related studies in other fields to shape the literature review and research methodology. Moreover, the research could face challenges due to limited participation from petrol station operators, who maintain rigid and demanding schedules. This drawback could introduce a

biased sample and consequently undermine the credibility of the findings. The researcher used diverse data collection approaches, such as online surveys and face-to-face interviews, to mitigate this issue and enhance response rates.

CHAPTER TWO: LITERATURE REVIEW

Introduction

This chapter presents literature according to the study's objectives. The theoretical framework is also offered, encompassing the human capital, sustainability theory, and transformational leadership theories. These theories were instrumental in comprehending the study's variables and their interconnections. The chapter also presented the summary of the literature and their identified study gaps.

Empirical Literature Review

The Adapting of Eco-green Energy

The “adapting of eco-green energy” represents a complex and multifaceted shift towards incorporating sustainable and environmentally friendly energy solutions across diverse sectors and industries (Takase et al., 2021; Yousaf, 2021). This transformative endeavour is driven by the urgent need to combat climate change, minimize environmental degradation, and ensure the long-term sustainability of energy production and consumption (Takase et al., 2021; Yousaf, 2021). It encompasses many initiatives, including adopting renewable energy sources, enhanced energy efficiency measures, and implementing eco-conscious technologies and practices (Harrison, 2020). Furthermore, this transition requires the active engagement and cooperation of both public and private entities, underscoring the importance of comprehensive strategies and innovative approaches to navigate the challenges associated with eco-green energy adoption

One crucial aspect of adapting eco-green energy is the utilisation of renewable energy sources (Mutezo & Mulopo, 2021; O'Mahony, 2021). These sources, including solar, wind, hydroelectric, geothermal, and biomass, are renewable and have a significantly

lower environmental footprint compared to conventional fossil fuels (Takase et al., 2021). By harnessing these resources, organisations, and industries can generate electricity and heat while minimizing their carbon footprint.

Energy efficiency measures are paramount within the adaptation process toward eco-green energy practices. Incorporating energy-efficient technologies and practices is pivotal in minimizing energy wastage and optimizing consumption (Harrison, 2020). This proactive approach leads to substantial cost savings and significantly reduces the overall environmental impact of energy production and usage (Harrison, 2020). Thus, by embracing energy-efficient solutions, organizations can simultaneously enhance their financial sustainability and ecological responsibility, aligning with the broader goals of eco-green energy adoption.

Reducing greenhouse gas emissions is a critical objective in adapting eco-green energy practices. Strategies to lower emissions of greenhouse gases, such as carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O), are critical in mitigating climate change (Hamid & Blanchard, 2018). Therefore, transitioning to cleaner energy sources and improving energy efficiency are essential to achieving this goal.

Promoting sustainable energy management is vital to advancing eco-green energy practices (Yousaf, 2021). Organizations can develop comprehensive energy management plans to prioritize sustainability, conservation, and responsible energy use, aligning with environmental objectives (O'Mahony, 2021). Such plans encompass strategies for optimizing energy efficiency, reducing carbon emissions, and integrating renewable energy sources into operations (Hamid & Blanchard, 2018). By adopting sustainable energy management (Kantabutra, 2020), organizations actively contribute to the transition

to eco-green energy while minimizing their environmental footprint and promoting long-term viability (Khassawneh & Elrehail, 2022). This proactive approach is crucial in fostering eco-green energy practices in small and medium-sized enterprises (SMEs) and large corporations (Majali et al., 2022).

Innovation plays a significant role in eco-green energy adaptation. Encouraging the development of innovative technologies and solutions that have minimal environmental impact is crucial. These innovations contribute to energy systems' sustainability and enhance efficiency (Majali et al., 2022). Eco-green business practices are essential for organizations looking to adapt. These practices involve reducing waste, conserving resources, and adopting eco-friendly production methods. Embracing sustainability in business operations aligns with global efforts to reduce environmental harm (Boukamcha, 2019).

Transitioning to electric vehicles (EVs) represents another crucial facet of eco-green energy adaptation. Electric mobility plays a pivotal role in reducing dependence on internal combustion engine vehicles, thereby contributing to a substantial decrease in emissions within the transportation sector (Cao et al., 2021; Yan, 2022). The adoption of EVs signifies a significant step toward a greener and more sustainable future, aligning with global efforts to mitigate the environmental impact of conventional transportation methods (Cao et al., 2021; Yan, 2022). Hence, as the world seeks cleaner and more eco-friendly transportation alternatives, the transition to EVs holds promise for achieving a more sustainable and environmentally responsible approach to mobility.

Moreover, nurturing green organizational learning represents another critical aspect of the eco-green energy adaptation process. Cultivating a culture characterized by

continuous learning and adaptability within organizations is essential to ensure they remain well-informed about emerging eco-green technologies and practices (Özgül & Zehir, 2022). This knowledge empowers organizations to make informed decisions regarding their energy practices, facilitating the seamless integration of sustainable and environmentally friendly solutions (Özgül & Zehir, 2022). In essence, fostering green organizational learning enhances an organisation's capacity to stay at the forefront of eco-green energy innovations, positioning it for long-term success in the evolving energy landscape.

Despite the extensive documentation on the general benefits and strategic importance of eco-green energy practices, several key gaps persist in the empirical literature. First, much of the current research has focused on macro-level policies or technological advancements in renewable energy without exploring how these practices are adopted at the micro-organizational level, particularly among fuel retail businesses such as petrol stations. This leaves a gap in understanding how small and medium-sized enterprises, especially in developing urban contexts like Nairobi County, integrate eco-green energy within their existing operational models (Mutezo & Mulopo, 2021; Cao et al., 2021).

Second, while electric vehicle (EV) adoption has been widely studied in high-income countries, the associated institutional, behavioral, and infrastructural challenges in developing countries remain underexplored (Yan, 2022; Majali et al., 2022). Moreover, existing literature tends to isolate EV integration as a standalone process, rather than examining it as part of a broader, organization-wide eco-green adaptation strategy within

the energy sector. This segmentation restricts a holistic understanding of how businesses approach environmental sustainability across their full operational spectrum.

Third, few studies have examined the leadership dimension in guiding eco-green energy transitions. Research seldom investigates how transformational leadership practices influence environmental sustainability decisions among frontline operators in sectors historically reliant on fossil fuels, such as petrol stations (Khassawneh & Elrehail, 2022; Yousaf, 2021). The intersection between leadership behavior and organizational eco-adaptation strategies remains an important but under-investigated area.

Lastly, there is a contextual gap related to the Kenyan energy landscape. Much of the literature references global or generalized findings without offering in-depth, location-specific analyses of barriers and enablers of eco-green adoption in the Kenyan context. Specifically, the role of institutional frameworks, regulatory support (e.g., EPRA, NEMA), and local stakeholder influence on sustainability behavior among fuel retailers is not well documented (Takase et al., 2021; O'Mahony, 2021). Therefore, this study seeks to address these critical literature gaps by exploring the integration of eco-green energy adoption at the micro-enterprise level in Nairobi County, with a specific focus on how leadership strategies, infrastructure readiness, and policy environments influence the success of such transitions.

Transformational Leadership's Role in Eco-Green Energy

Leadership, particularly transformational leadership, has emerged as a significant driver in fostering the adaptation of eco-green energy (Hamad, 2015). Transformational leaders inspire and motivate their teams to embrace change, envision a sustainable future, and actively participate in eco-friendly initiatives. They exhibit vital attributes such as

idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (Cherry, 2016; Riggio, 2020).

While the role of transformational leadership in eco-green energy practices has been explored in various contexts, a significant research gap exists concerning its application within petrol stations operating in the eco-green energy sector. Existing studies predominantly focus on larger corporations and often overlook Petrol stations' unique challenges and opportunities in adopting sustainable energy solutions. The current study seeks to fill this gap by focusing on petrol stations operating in the eco-green energy sector.

Transformational leadership, with its core element of individualized consideration, has emerged as a pivotal force in driving the adaptation of eco-green energy practices (Majali et al., 2022; Manzoor & Jahangir, 2023). This leadership style, characterized by a leader's ability to understand and cater to the individual needs and aspirations of their team members, holds immense potential in shaping the future of sustainable energy solutions (Budur & Poturak, 2021; Khan & Khan, 2021; Boukamcha, 2019).

Several case studies and empirical research endeavors have shed light on the transformative power of individualized consideration. Research conducted in diverse settings, such as Iraq (Budur & Poturak, 2021), Pakistan (Khan & Khan, 2021), and Tunisia (Boukamcha, 2019), provide compelling evidence that individualized consideration within transformational leadership has a profound influence on organizational culture and outcomes. These studies converge in their findings, emphasizing that when leaders prioritize individualized consideration, employees feel valued and integral to the organization's success. This sense of recognition fosters a culture of innovation,

strengthens adherence to organizational values, and ultimately contributes to achieving managerial excellence.

While the studies by Budur and Poturak (2021), Khan and Khan (2021), and Boukamcha (2019) underscore the critical role of individualized consideration, their primary focus is on small and medium-sized enterprises (SMEs) within the service and industrial sectors, with limited exploration of eco-green business practices. Given the contemporary significance of eco-green initiatives in the face of environmental challenges, the leadership approach of individualized consideration takes on renewed importance.

Eco-green business demand a commitment to sustainability and a deep engagement with employees to drive the successful implementation of green energy projects. Individualized consideration plays a multifaceted role in this context. It empowers individuals to take ownership of eco-green initiatives, customizes support and guidance to align with specific needs, fosters a culture of continuous learning and innovation, builds trust among team members, and nurtures commitment to the shared goal of environmental sustainability.

As the global community intensifies its efforts to combat environmental challenges and transition toward more sustainable energy solutions, understanding and leveraging the role of individualized consideration within the framework of transformational leadership becomes paramount. The ability of leaders to connect with their team members on a personal level, providing tailored support and recognition, can significantly influence the success of eco-green energy projects and initiatives.

The current study focused on petroleum energy operators in Nairobi County to address this critical gap in existing research and contribute meaningfully to the discourse

on sustainability and leadership. By examining the role of individualized consideration in fostering the adoption of eco-green energy practices within this specific context, the research aims to provide valuable insights into how transformational leadership can drive sustainable change. This investigation is timely and essential for advancing our understanding of the interplay between leadership, individualized consideration, and the pressing need for eco-friendly and sustainable energy solutions in Nairobi County and beyond.

The role of Individualised Consideration in adapting Eco-green Energy

Transformational leadership, anchored in its core element of individualized consideration, has emerged as a formidable driving force behind adopting eco-green energy practices (Majali et al., 2022; Manzoor & Jahangir, 2023). This influential leadership style is characterized by a leader's capacity to deeply understand and address the unique needs and aspirations of individual team members, holding immense potential in shaping the future of sustainable energy solutions (Budur & Poturak, 2021; Khan & Khan, 2021; Boukamcha, 2019). Several case studies and empirical research endeavors have shed light on the transformative power of individualized consideration. Research conducted in diverse settings, such as Iraq (Budur & Poturak, 2021), Pakistan (Khan & Khan, 2021), and Tunisia (Boukamcha, 2019), provide compelling evidence that individualized consideration within transformational leadership has a profound influence on organizational culture and outcomes. These studies converge in their findings, emphasizing that employees feel valued and integral to the organisation's success when leaders prioritize individualized consideration. This sense of recognition fosters a culture of

innovation, strengthens adherence to organizational values, and ultimately contributes to achieving organisational excellence.

While the studies by Budur and Poturak (2021), Khan and Khan (2021), and Boukamcha (2019) underscore the critical role of individualized consideration, their primary focus is on small and medium-sized enterprises (SMEs) within the service and industrial sectors, with limited exploration of eco-green business practices. Given the contemporary significance of eco-green initiatives in the face of environmental challenges, the leadership approach of individualized consideration takes on renewed importance.

Eco-green business practices demand a commitment to sustainability and a deep engagement with employees to drive the successful implementation of green energy projects. Individualized consideration plays a multifaceted role in this context. It empowers individuals to take ownership of eco-green initiatives, customizes support and guidance to align with specific needs, fosters a culture of continuous learning and innovation, builds trust among team members, and nurtures commitment to the shared goal of environmental sustainability.

As the global community intensifies its efforts to combat environmental challenges and transition toward more sustainable energy solutions, understanding and leveraging the role of individualized consideration within the framework of transformational leadership becomes paramount. The ability of leaders to connect with their team members on a personal level, providing tailored support and recognition, can significantly influence the success of eco-green energy projects and initiatives. The current study focused on petroleum energy operators in Nairobi County to address this critical gap in existing research and contribute meaningfully to the discourse on sustainability and leadership. By

examining the role of individualized consideration in fostering the adoption of eco-green energy practices within this specific context, the research aims to provide valuable insights into how transformational leadership can drive sustainable change. This investigation is timely and essential for advancing our understanding of the interplay between leadership, individualized consideration, and the pressing need for eco-friendly and sustainable energy solutions in Kenya and beyond.

Intellectual Stimulation and Adapting Eco-green Energy Practices

This extended literature review delves deeper into the role of intellectual stimulation within the framework of transformational leadership and its significance in adapting eco-green energy practices. It provides a comprehensive perspective on the subject by drawing insights from studies conducted in various countries and domains.

In Iraq, Budur and Poturak's (2021) research explored the effects of transformational leadership on organizational citizenship behaviors and customer satisfaction. Their findings indicated that various elements of transformational leadership, including idealized influence, inspirational motivation, intellectual stimulation, and individual consideration, positively influenced helping behaviors, ultimately impacting customer satisfaction. While this study focused on a general organizational context, applying these findings to the energy sector remains relatively uncharted territory, particularly among petrol station employees. Consequently, a knowledge gap exists concerning how intellectual stimulation within the transformational leadership framework can effectively drive eco-green energy practices in this sector, warranting further research. To gain a more in-depth understanding of the unique challenges and opportunities within

the energy sector, supplementing questionnaire-based research with interviews could be invaluable.

Similarly, in Pakistan, Khan and Khan (2021) investigated the impact of transformational leadership, primarily focusing on university employees. Their findings revealed a weak but positive relationship between elements of transformational leadership, including idealized influence, inspirational motivation, intellectual stimulation, individual consideration, and organizational performance. This suggests that the practice of transformational leadership might be limited within the university context. Extending this study to the energy sector, particularly among petrol station employees, could shed light on whether similar limitations exist within this domain. Understanding how intellectual stimulation and individualized consideration influence leadership styles in the energy sector could provide valuable insights. To achieve this, employing both quantitative questionnaires and qualitative interviews would be essential research tools.

Furthermore, Boukamcha's (2019) study conducted in Tunisia-Africa explored the role of transformational leadership in promoting corporate entrepreneurship within Tunisian small and medium-sized enterprises (SMEs). The study highlighted that idealized influence, inspirational motivation, intellectual stimulation, and individual consideration predicted corporate entrepreneurship success. This influence primarily occurred through their impact on employees' innovativeness, self-renewal, and proactiveness. Considering the potential for SMEs and the energy sector to drive eco-green energy practices, it becomes imperative to investigate whether these same transformational leadership factors can be effectively harnessed in the context of petrol stations and other energy-related enterprises in Tunisia-Africa. The need to adapt these findings to different sectors

underscores the necessity for further research, combining quantitative questionnaires with qualitative interviews to provide a comprehensive understanding.

In the context of elite team sports, Macquet and Stanton (2021) focused on transformational leadership behaviors, including intellectual stimulation. Their study identified fostering acceptance of group goals as one of head coaches' most frequently exhibited behaviors. Although this study was conducted in the realm of sports, it sheds light on the practical application of intellectual stimulation within leadership. Adapting and extending this knowledge to the leadership of eco-green energy initiatives could be highly beneficial. Combining interviews with questionnaires in such research may provide a more holistic understanding of how intellectual stimulation fosters innovation and commitment in energy projects.

Thus, the role of intellectual stimulation within transformational leadership is a crucial aspect of promoting eco-green energy practices. Insights from studies conducted in various countries and domains indicate its significance in driving sustainability efforts. However, there remains a need for more extensive research to adapt and apply these findings to the unique challenges and opportunities presented by the energy sector, particularly within petrol stations and related enterprises. Combining quantitative and qualitative research methods, such as questionnaires and interviews, can offer a more comprehensive and nuanced understanding of the role of intellectual stimulation in the context of eco-green energy adaptation.

The Role of Inspirational Motivation in Adapting eco-green Energy Practices

Adapting eco-green energy practices is becoming increasingly crucial in addressing climate change and environmental concerns. As the world grapples with the urgent need to

transition towards sustainable energy solutions, leadership plays a pivotal role in driving this transformation. In this context, the concept of transformational leadership, specifically its inspirational motivation component, has gained significant recognition as a powerful force for motivating individuals and organizations to embrace eco-green energy practices.

As originally proposed by James V. Downton, transformational leadership is a leadership style that has shown promise in inspiring exceptional performance and personal growth among followers (Riggio, 2020). It encompasses four key components, with inspirational motivation being one of them. This component involves leaders creating a compelling future vision, setting high expectations, and inspiring others to reach their full potential (Khassawneh & Elrehail, 2022; Khan & Khan, 2021).

The role of inspirational motivation within transformational leadership becomes particularly significant when considering its impact on eco-green energy adaptation. Leaders who embody this style can motivate their teams to embrace sustainability as a core value (Manzoor & Jahangir, 2023). They can articulate a vision of an eco-friendly future and set ambitious goals for their organizations to adopt and implement sustainable energy solutions. This vision, combined with high expectations, drives change, encouraging employees to work towards eco-green goals.

Inspirational motivation also extends to fostering innovation in green energy technologies. Leaders who emphasize the importance of sustainability and environmental responsibility inspire their teams to explore and implement innovative solutions (Takase et al., 2021). This encouragement to think creatively and critically about eco-green energy practices can lead to developing and adopting cutting-edge technologies and processes that promote energy efficiency and sustainability.

Moreover, the complexities of transitioning to eco-friendly energy sources require strong leadership with a focus on inspirational motivation (Top et al., 2020). The path to eco-green energy adaptation often involves significant infrastructure, technology, and organizational culture changes. Leaders who can inspire and motivate their teams throughout this journey are better equipped to navigate the challenges and uncertainties during the transition.

A study conducted in the Kurdistan region of Iraq by Top, Abdullah, and Faraj (2020) provides valuable insights into the relationship between transformational leadership and employee performance. Their research highlights the positive impact of transformational leaders on employee performance, with inspirational motivation being a significant contributing factor. This study underscores the importance of inspirational motivation in leadership across various contexts, including eco-green energy practices.

However, while the significance of inspirational motivation within transformational leadership is evident, the specific role it plays in the context of adapting eco-green energy practices is a topic that warrants closer examination. In the year 2023, where the global focus on sustainability and environmental responsibility has intensified, understanding the role of inspirational motivation in motivating teams, even at grassroots levels, to adapt and implement eco-green practices is paramount.

As organizations across different sectors and regions grapple with the imperative to reduce their environmental footprint and embrace sustainable energy solutions, inspirational motivation within transformational leadership can serve as a powerful catalyst for change. The ability to inspire a shared vision, set high expectations, and motivate individuals and teams to pursue eco-green energy practices is essential in addressing the

pressing environmental challenges of our time. Thus, the current study sought to examine the specific impact and nuances of inspirational motivation within transformational leadership in the context of eco-green energy adaptation, which is not only timely but also crucial for advancing our understanding of effective leadership in the pursuit of sustainability.

The Contribution of Idealised Influence in Adapting Eco-green Energy

Idealised influence, one of the essential components of transformational leadership, plays a pivotal role in leadership effectiveness, particularly in the context of eco-green energy adaptation. This dimension of transformational leadership is often referred to as "charisma" or "charismatic leadership" because it involves leaders who serve as charismatic role models for their followers, inspiring them to achieve exceptional performance and personal growth (Khassawneh & Elrehail, 2022). In the pursuit of eco-green energy practices, idealised influence becomes a critical factor that can shape the commitment of individuals and organizations to sustainability.

Scholars in the field of leadership and sustainability have presented various perspectives on the impact of idealised influence in driving eco-green energy adaptation. Khassawneh and Elrehail (2022) argue that leaders who embody idealised influence can act as powerful role models, instilling a shared vision and values among their employees in the energy sector. This shared vision, they contend, can foster a collective commitment to eco-green energy practices. When leaders lead by example and demonstrate their dedication to sustainability, they inspire others to follow suit.

Moreover, Majali et al. (2022) suggest that idealised influence can contribute to developing a robust organizational culture that prioritizes sustainability. This could

translate to employees embracing and championing eco-green energy solutions within petrol stations. When leaders consistently exhibit behaviours aligned with eco-green principles, it creates an environment where sustainability is not merely a concept but a fundamental aspect of the organizational culture.

However, not all scholars share the same level of optimism about the impact of idealised influence on eco-green energy adaptation. Quiros (2020) raises a critical point, highlighting that while idealised influence may inspire admiration and trust in leaders, it may not necessarily lead to concrete actions and behaviours aligned with sustainability goals. In other words, individuals may be inspired by their leaders but might not translate that inspiration into practical efforts to adopt eco-green practices. This underscores the importance of examining how idealised influence can be translated into tangible actions that promote sustainability.

Additionally, Usprech and Palmert (2023) caution against overemphasizing the role of idealised influence to the exclusion of other practical considerations. They argue that while idealised influence is undoubtedly essential, it may not be sufficient to overcome the practical challenges and regulatory hurdles associated with adopting eco-green energy practices in complex sectors like petrol stations. In such contexts, leaders need to navigate a myriad of factors beyond just serving as role models.

In light of these divergent opinions and the limited empirical research, there exists a notable gap in the literature regarding the precise role and extent of the contribution of idealised influence in effectively adapting eco-green energy among petrol stations in Nairobi County. The proposed study aims to bridge this gap by conducting empirical

research investigating the practical implications of idealised influence on adopting eco-green energy practices in this specific setting.

The study's research design collected and analysed data from petrol station employees and leaders, aiming to provide a more nuanced and evidence-based understanding of the relationship between idealised influence and eco-green energy adaptation. By exploring how idealised influence manifests in day-to-day operations, employee behaviors, and organizational culture, the research sheds light on whether and how leaders can effectively leverage idealised influence to drive sustainability efforts in the petrol station industry.

Theoretical Framework

Sustainability Theory and adapting eco-green energy practices

Sustainability Theory, rooted in the principles of intergenerational equity, forms the bedrock of responsible decision-making in the face of environmental challenges (Kantabutra, 2020; Kantabutra, 2022; Spiliotopoulou & Roseland, 2020). It underscores the imperative of safeguarding the planet's ecological integrity while addressing societal welfare and economic growth. The social facet of this theory emphasizes the need to foster equitable access to resources and opportunities for all members of society, ensuring that eco-green energy practices do not exacerbate disparities (Spiliotopoulou & Roseland, 2020).

The environmental dimension underscores the urgency of reducing environmental degradation, mainly through reducing carbon emissions and sustainable resource management, aligning seamlessly with the transition from fossil fuels to renewable energy sources (Kantabutra, 2020). Additionally, the economic dimension of Sustainability

Theory recognizes that financial stability is a prerequisite for achieving sustainability objectives (Kantabutra, 2022). It emphasizes the importance of balancing economic prosperity with environmental and social considerations, mirroring the study's exploration of how Transformational Leadership can harmonize economic viability with eco-green energy adoption in the petrol station industry.

Including the Sustainability Theory is pivotal in understanding how Transformational Leadership can contribute to the sustainability of eco-green energy business operations in petrol stations. Considering the social dimension, the study acknowledges the need to ensure that eco-green energy adoption benefits society, including employment stability and environmental health (Huang et al., 2022).

Moreover, the environmental dimension within Sustainability Theory aligns with the study's focus on eco-green energy. It emphasizes the importance of minimizing environmental impacts and reducing carbon emissions, central to transitioning from fossil fuels to renewable energy sources (Mutezo & Mulopo, 2021).

Economically, Sustainability Theory recognizes the significance of maintaining economic stability while pursuing sustainable practices. This dimension resonates with the study's exploration of how Transformational Leadership can balance economic prosperity within the petrol station industry as it adapts to eco-green energy practices (O'Mahony, 2021).

Sustainability Theory also encompasses the idea of corporate sustainability, which aligns with the study's focus on leadership within small and medium-sized enterprises (SMEs) in the energy sector. Kantabutra (2020, 2022) highlights the importance of organizational and system theories in understanding sustainability visions and practical

applications, concepts highly relevant to the study's examination of Transformational Leadership within SMEs.

Furthermore, the practical application of sustainability principles within urban environments, as discussed by Spiliotopoulou and Roseland (2020), provides insights into how eco-green energy practices can be implemented effectively within the context of petrol stations in urban areas.

Finally, Sustainability Theory's emphasis on practicality, as tested by Vongariyajit and Kantabutra (2021), resonates with the study's objective of providing empirical evidence to guide decision-making by key stakeholders such as the National Environment Management Authority (NEMA), and the Energy and Petroleum Regulatory Authority (EPRA).

Transformational Leadership Theory

The Transformational Leadership theory, developed by James V. Downton, represents a significant paradigm in leadership research and practice (Harrison, 2020). This theory is centered on a leadership style that serves as a catalyst for exceptional performance and personal growth among followers. Transformational leadership underscores the leader's capacity to articulate a clear and compelling vision, cultivate a positive work environment, and provide individualized support and mentoring to their team members (Khan & Khan, 2021; Top et al., 2020).

In the context of eco-green energy practices, the Transformational Leadership theory offers valuable insights into how leadership practices can drive the adoption and implementation of sustainable initiatives (Yousaf, 2021; Takase et al., 2021). This is particularly relevant in industries such as the petrol station sector, where there is a growing

need to embrace eco-green energy practices to reduce environmental impact and align with ethical and social responsibilities.

Idealized influence, the first component of Transformational Leadership, involves charismatic role modeling by leaders (Khan & Khan, 2021). In the petrol station industry, leaders who embody eco-green energy practices and showcase their commitment to sustainability can inspire their teams to follow suit. By setting an example of responsible energy consumption and environmental stewardship, leaders can motivate employees to embrace eco-green.

Inspirational motivation, the second component, entails creating a compelling vision and setting high expectations (Top et al., 2020). Petrol station leaders can motivate their teams by articulating a vision of becoming environmentally responsible and adopting sustainable energy solutions. This vision can serve as a driving force for change, encouraging employees to work towards eco-green goals.

Intellectual stimulation, the third component, encourages innovation and critical thinking (Yousaf, 2021). In the context of eco-green energy practices, leaders can foster a culture of innovation by encouraging employees to explore and implement new technologies and processes that promote energy efficiency and sustainability. By creating an environment that values creative solutions, leaders can drive the adoption of eco-green practices. Individualized consideration, the fourth component, involves providing personalized support and mentoring to team members (Takase et al., 2021). The petrol station industry leaders can offer guidance and support to employees in adapting to eco-green practices. Leaders can facilitate a smoother transition to sustainable energy solutions by addressing individual needs and concerns.

One of the primary criticisms of Transformational Leadership theory is its tendency to emphasize the leader's influence over organizational change without adequately accounting for external factors that can either support or hinder the implementation of those changes (Bass, 2018). For example, while a leader's vision and commitment to sustainability may inspire employees to adopt eco-green practices, the organization may lack the necessary resources, infrastructure, or technological capacity to implement these practices effectively. As Neema, a senior officer in an energy company, noted, *"While leadership is essential for driving sustainability, challenges such as a lack of funding and outdated technology can severely restrict the ability to achieve those goals."* This highlights the gap in the theory regarding the interaction between leadership and organizational resources, which is a key area that this study sought to address.

Despite the broad application of the Transformational Leadership theory in various fields, a notable gap exists in its empirical validation within the context of small and medium-sized enterprises in developing economies. The majority of studies exploring this theory tend to focus on large corporations and public sector institutions in industrialized nations. As a result, the applicability of transformational leadership in informal or semi-structured business environments such as independent fuel retailers in Nairobi remains unclear. Few studies have specifically investigated how the four core components of transformational leadership interact with unique organizational and policy conditions in Kenya's petroleum sector.

Another conceptual gap lies in understanding how transformational leadership can effectively facilitate transitions to eco-green operations under weak institutional frameworks. In environments where enforcement of environmental policies is inconsistent,

it is uncertain whether inspirational motivation and intellectual stimulation can yield tangible behavioral shifts among employees. There is also limited evidence on whether individualized consideration leads to lasting commitment to eco-green practices in high-turnover sectors such as fuel retailing.

Moreover, existing research has not sufficiently examined the potential moderating role of organizational readiness, financial stability, and policy enforcement in shaping the success of transformational leadership efforts in sustainability transitions. Integrating these moderating variables could enrich theoretical understanding and inform more context-specific leadership strategies.

Thus, while Transformational Leadership theory has been influential in understanding leadership dynamics in various organizational contexts, this study enhances its application by recognizing and addressing the external constraints that often limit the effectiveness of leadership in driving change, particularly in areas like eco-green energy adoption. By acknowledging the interaction between leadership and organizational or environmental factors, this study provides a more nuanced framework for understanding how leadership can effectively drive sustainability initiatives, particularly within Kenya's dynamic and transitional energy sector.

Human Capital Theory

Human Capital Theory, originally developed by Gary Becker (1964), revolutionised economic thought by positing that individuals' skills, knowledge, and health constitute a form of capital that can yield returns both for the individual and for society. In the organisational setting, the theory has become a cornerstone for understanding the role of employee competence in driving productivity, innovation, and growth.

According to Kothari (2014) and Budur and Poturak (2021), organisations that invest in employee training, education, and well-being are better positioned to achieve competitive advantages. This is because knowledgeable and skilled employees are more likely to contribute innovative ideas, adhere to quality standards, and respond adaptively to change. In the context of fuel retail operations, such human capital investment becomes essential for transitioning from traditional to eco-green energy practices.

In this study, Human Capital Theory is applied to examine how petrol station managers and employees can be empowered to lead and support eco-green initiatives. The premise is that individuals who are trained in environmental practices such as energy efficiency, waste segregation, and carbon emission reduction are better equipped to implement and sustain eco-friendly solutions. This theory therefore supports the idea that capacity building and continuous learning are prerequisites for organisational sustainability.

The relevance of Human Capital Theory is also seen in its alignment with Kenya's Vision 2030 and green growth strategies, which place strong emphasis on skill development and environmental awareness as key drivers of sustainable development. The energy sector, in particular, is prioritised for reform, and the upskilling of stakeholders from technical staff to policy makers is crucial for realising these reforms. Moreover, the theory complements the principles of transformational leadership by providing the foundational skills and competencies that leaders need to inspire change. A transformational leader cannot stimulate innovation or provide intellectual guidance without having the necessary knowledge base. In this way, Human Capital Theory helps explain the operational capacity behind visionary leadership.

However, Human Capital Theory is not without limitations. Critics argue that it tends to oversimplify human capabilities by reducing them to economic utility. It often fails to account for the socio-cultural and institutional constraints that may hinder skill application. For instance, a well-trained employee may still struggle to implement sustainable practices if the organisation lacks the infrastructure or leadership support to facilitate such efforts (Yousaf, 2021).

Furthermore, the theory has been critiqued for its minimal engagement with ethical and environmental concerns. While it excels in explaining individual and organisational performance, it does not inherently prioritise sustainability or social responsibility. As such, Human Capital Theory must be integrated with other models such as Sustainability Theory to provide a more holistic framework.

This study addresses these gaps by applying Human Capital Theory in a context-sensitive manner. It recognises that individual competencies are necessary but not sufficient. Thus, it evaluates not just what people know, but also whether the organisational environment allows them to apply that knowledge effectively. It also explores how transformational leaders can bridge the gap between capability and implementation, especially in resource-constrained environments like independent petrol stations in Nairobi County.

The Summary of the Literature Review and the Research Gaps

The study's literature review has uncovered critical insights into transformational leadership's role in promoting eco-green energy practices, specifically individualized consideration. While existing research has underscored its positive impact on organizational culture, innovation, and overall success, it is crucial to note that these studies

predominantly focus on small and medium-sized enterprises (SMEs) across various sectors, lacking a specific eco-green context. In light of the contemporary significance of eco-green practices, a noticeable research gap exists concerning the application of individualized consideration to foster eco-green energy adoption, particularly within the petroleum industry. This study aims to address this gap by investigating the role of individualized consideration in promoting eco-green practices among Kenyan petroleum energy operators to provide actionable insights for the industry.

Moreover, intellectual stimulation emerges as a promising driver for adapting eco-green energy practices within the transformational leadership framework. While existing research conducted in different countries and contexts offers valuable insights into the role of transformational leadership behaviors, including intellectual stimulation, it's essential to recognize that the direct application of these findings to the energy sector, especially among petrol station employees, remains relatively unexplored. Further research is imperative to bridge this gap and contribute to developing effective leadership strategies for the eco-green energy transition in this context. Employing a combination of quantitative and qualitative research methods can yield a comprehensive understanding of how intellectual stimulation influences eco-green energy adoption within Nairobi County's petrol stations.

Additionally, the literature review has illuminated the critical role of inspirational motivation, a component of transformational leadership, in moderating the effectiveness of leaders in adapting eco-green energy practices by inspiring commitment, overcoming resistance, fostering innovation, and creating a culture of sustainability, leaders embodying inspirational motivation can become drivers of meaningful change toward a more

sustainable and eco-friendly energy future. Further research in this area, incorporating both quantitative and qualitative methods, holds the potential to provide invaluable insights. These insights can guide organizations and leaders in embracing and adapting to eco-green energy practices, ultimately contributing to a more sustainable planet.

Likewise, the literature review has identified that idealized influence, another component of transformational leadership, has the potential to foster collective commitment to eco-green energy practices in the energy sector. While some argue for its substantial contribution, reservations exist about its practical impact. Empirical evidence is scarce, creating a gap in understanding the role of idealized influence in eco-green energy adoption among petrol stations in Nairobi County. Investigating this dimension further through empirical research can provide a clearer picture of its relevance and effectiveness in driving eco-green energy practices in this specific industry.

Lastly, with its four key components, transformational leadership theory provides a foundational framework for understanding how leadership practices can drive the adoption of sustainable eco-green energy practices. This theory underscores the leader's role in articulating a compelling vision, fostering a positive work environment, and providing personalized support. By relying on this theory, the study addresses the variables of individualized consideration, intellectual stimulation, inspirational motivation, and idealized influence within the context of eco-green energy adoption in the petrol station industry. This theoretical framework guided the investigation of leadership behaviors that positively impact the implementation of eco-green practices, offering valuable insights for researchers and practitioners in the field.

In addition, integrating Sustainability Theory enriches the study's framework by providing a comprehensive and holistic perspective on the interplay between Transformational Leadership and eco-green energy practices in the petrol station industry. It underscores the importance of economic viability, social equity, and environmental responsibility in driving the adoption of sustainable energy practices, contributing to a more sustainable and eco-friendly future for Nairobi County and beyond.

This chapter can be summarised as shown in the Table 1.

Table 1: *Literature Review summary and Research gaps*

Theme	Studies/Authors (Year)	Research Main Arguments	Research Gaps
The Role of Individualised Consideration	Majali et al. (2022), Manzoor & Jahangir (2023)	Individualised consideration in transformational leadership impacts organisational culture and success in SMEs.	Limited focus on eco-green business dealings in SMEs. Limited exploration of the study population, design, and locations in eco-green energy adaptation.
	Budur & Poturak (2021), Khan & Khan (2021), Boukamcha (2019)	Individualised consideration fosters innovativeness, adherence to organizational culture, and success.	
Intellectual Stimulation	Budur & Poturak (2021), Khan & Khan (2021), Boukamcha (2019)	Intellectual stimulation within transformational leadership positively influences organizational outcomes.	Limited application of findings to the energy sector. Limited exploration of the study population, design, and locations in eco-green energy adaptation.
	Macquet & Stanton (2021)	Extending intellectual stimulation findings to the energy sector, particularly among petrol station employees.	

Inspirational Motivation	Riggio (2020), Boukamcha (2019), Khan & Khan (2021), Chemjor (2020), Khassawneh & Elrehail (2022) Top et al. (2020)	Inspirational motivation in transformational leadership inspires and motivates individuals and organizations.	Role of inspirational motivation in eco-green energy needs exploration. Limited exploration of study population, design, and locations in eco-green energy adaptation.
Contribution of Idealised Influence	Khassawneh & Elrehail (2022), Majali et al. (2022)	They argue that leaders who exhibit idealised influence can act as charismatic role models. They can instill a sense of shared vision and values among their employees in the energy sector, fostering a collective commitment to eco-green energy practices.	-While some studies suggest that idealised influence can foster a collective commitment to eco-green energy, -others express reservations about its ability to translate into concrete actions and behaviours aligned with sustainability goals. -This divergence highlights the need for empirical research assessing the real-world implications of idealised influence on eco-green energy adaptation in this context.
	Quiros (2020), Usprech & Palmert (2023)	-expressed reservations about the impact of idealised influence in the context of eco-green energy adaptation. They argue that while it may inspire admiration and trust in leaders, it may not necessarily translate into concrete actions and behaviors aligned with sustainability goals. Additionally, they caution that idealised influence alone may not be sufficient to overcome practical challenges and regulatory hurdles associated with adopting eco-green energy practices.	

The Conceptual Framework

Therefore, this literature review can be summarised into a conceptual framework, as shown in Figure 1

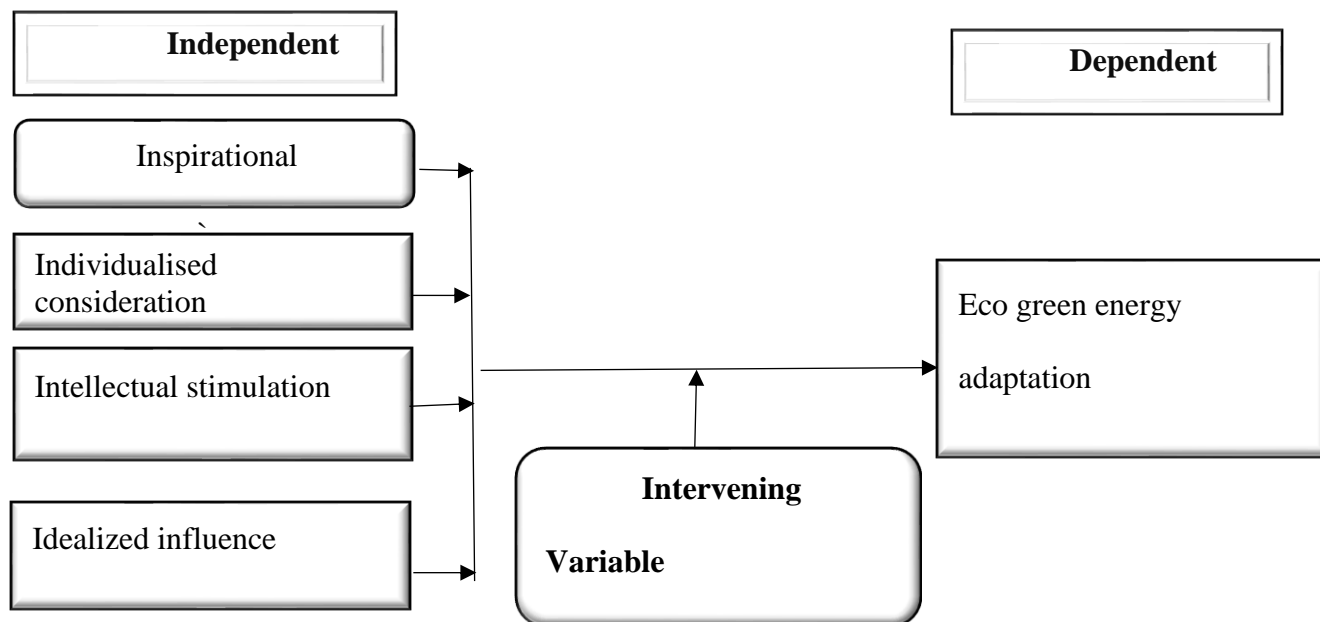


Figure 1: The Conceptual Framework on the relationship between Transformational leadership and Eco green energy adaptation

The conceptual framework illustrated in Figure 1 was designed to show the relationship between transformational leadership and the adaptation of eco-green energy practices among petrol station operators, with the level of staff training and skills in green technology serving as the intervening variable.

Transformational leadership formed the independent construct, encompassing key dimensions such as inspirational motivation, intellectual stimulation, idealized influence, and individualized consideration. Leaders who embodied these qualities were expected to influence organizational vision, behavior, and innovation capacity. However, leadership alone was not sufficient to ensure the successful adoption of eco-green energy initiatives.

The level of staff training and skills in green technology served as the intervening factor that mediated the relationship between leadership and sustainability outcomes. Staff with appropriate knowledge and technical capacity were more likely to understand, accept, and implement green energy strategies promoted by transformational leaders. This variable represented the readiness of the workforce to translate strategic intent into practical, on-the-ground actions.

The framework acknowledged that while transformational leaders could provide vision and motivation, their impact was significantly enhanced or limited by the workforce's green competencies. In organizations where staff lacked training or understanding of green technologies, even strong leadership efforts could result in minimal adoption of eco-friendly practices. Conversely, well-trained staff amplified the effectiveness of leadership interventions.

The conceptual framework, therefore, reflected a dynamic interaction: transformational leadership provided direction and inspiration; staff training and skills provided the capacity to act; and together, these influenced the degree to which eco-green energy practices were adopted across petrol stations in Nairobi County

CHAPTER THREE: RESEARCH METHODOLOGY

Introduction

This chapter provides an in-depth overview of this study's research design and methodology. It outlines the rationale behind the chosen research design, elucidates the study population and sample size determination, and describes the sampling methods. Additionally, it expounds on the types of data collected, data collection methods, and the crucial steps taken to ensure the validity and reliability of the research instruments. Ethical considerations in the research process are also discussed in detail. This chapter provides a comprehensive guide to the strategies and techniques employed in conducting the study, laying the foundation for the subsequent analysis and interpretation of the findings.

Research design

The study employed a descriptive survey design. This design is a crucial choice as it addresses questions related to “*how, what, and when,*” allowing for a comprehensive exploration of the research problem and establishing relationships (Schoonenboom, 2018; Kothari, 2014). This design incorporated quantitative (numerical) data to objectively analyse structured information, ensuring minimal researcher bias and facilitating generalisation to a broader population. Qualitative (non-numerical) data was also utilised to gain in-depth insights into the phenomenon under study, providing subjective interpretations (Terrell, 2015). Therefore, this design helped describe aspects related to the role of individualised consideration, idealised influence, intellectual stimulation, and the moderating role of inspirational motivation in adopting eco-green energy.

Study Population

Study population refers to the entire group of individuals, objects, or elements that share common characteristics or attributes and are the subject of investigation (Kothari, 2014). According to Mugenda and Mugenda (2003), this population serves as the larger pool from which a sample is drawn for the research study. Therefore, the study's target population included managers of petrol or supervisors, service attendant personnel, NEMA, and EPRA.

In the context of the study on eco-green energy adoption among petrol stations in Nairobi County, NEMA holds a crucial regulatory role in Kenya, especially regarding environmental matters, and their guidelines and regulations are instrumental in enforcing eco-green energy practices. Understanding NEMA's requirements aligns with the study's objectives. Lastly, the EPRA represents the interests of petroleum regulations, including petrol stations, and their practical insights into the feasibility and implications of transitioning to eco-green energy practices within the sector are invaluable. Together, these organizations impact the petrol station industry's policy, regulation, and labour dynamics, shaping its exploration of eco-green energy adoption in Kenya.

According to Mito (2022) and EPRA (2020), Nairobi has 324 petrol stations. However, the study narrowed down to Nairobi County, Nairobi County, which has 100 registered petrol stations (see Appendix 4). The study targeted at least one EPRA and NEMA,. Thus, the study targeted a population of 300 cadres of employees in 100 petrol stations plus 10 members from EPRA and NEMA, as shown in Table 2

Table 2: Target Population

Cadre of Employees	The target population in the 100 petrol stations
Manager	100
Day attendant service person	100
Night attendant service person	100
EPRA and NEMA officers	10
Total Target Population	310

Study Sample Size

A sample represented a subset of a larger population; in this case, its characteristics were the subject of investigation (Kothari, 2014). To determine the sample size, the study followed the formula proposed by Mugenda and Mugenda (2003), which recommended selecting 30% of the total study population. Thus, the research chose a sample size corresponding to 30% of the 300 employees, involving one manager and two service personnel in the targeted petrol stations, as shown in Table 3. In addition, the study included the officers recruited from EPRA and NEMA, since their number was small.

Table 3: Study Sample size

Cadre of Employees	The target population in the 100 petrol stations	Sample Size
Manager	100	30
Day attendant service person	100	30
Night attendant service person	100	30
EPRA and NEMA officers	10	2
Total Target Population	310	92

Sampling method(s)

A combination of stratified random sampling and purposive sampling was used. Stratified random sampling was employed to select participants from petrol stations. Nairobi County was divided into strata based on administrative sub-counties. Within each stratum, petrol stations were identified, and 30 percent were randomly sampled to ensure

geographic and operational diversity. This sampling technique ensured proportional representation across different regions, which enhances the external validity of the findings (Dehalwar & Sharma, 2023).

For the qualitative strand, purposive sampling was used to identify key informants. One senior officer was selected from each of the following institutions: EPRA and NEMA. These individuals were chosen based on their expert knowledge and involvement in shaping or enforcing eco-sustainability policies in the energy sector. Purposive sampling is appropriate when the objective is to gain in-depth insights from individuals who are especially knowledgeable about the research topic (Caduff et al., 2023; Ellingsen et al., 2021).

Types of data

The study employed both quantitative and qualitative data. According to Kothari (2014) and Mugenda and Mugenda (2003), quantitative data encompassed numerical data collected through a questionnaire. The use of questionnaires was due to their relatively lower cost and ability to gather many responses. Thus, the study employed open and closed-ended questions based on the study objectives. The questionnaires were used to collect data from petrol station employees. The questionnaire was structured into sections based on the study objectives to quantify the extent of eco-green energy practices adoption among petrol stations in the region. This numerical data provided a clear, measurable understanding of the current status of eco-green energy adoption, allowing for statistical analysis and hypothesis testing.

On the other hand, qualitative data gathered through interviews delved into the underlying reasons, motivations, and barriers associated with eco-green energy practices

adoption. This approach aligned with Kothari's (2014) recommendation that qualitative data can provide a deeper and more nuanced understanding of complex phenomena. The interviews were used to collect data from NEMA, EPRA, and COTU officials. Therefore, by incorporating both data types, the study aimed to triangulate findings, enhancing the validity and reliability of the results. This mixed-methods approach ensured a comprehensive exploration of the research problem, facilitating a more holistic assessment of eco-green energy practices in petrol stations within the region.

Data collection methods

The study initiated the data collection process by scheduling appointments with the participants through emails and follow-ups by phone calls. Five research assistants were recruited to distribute questionnaires to petrol station employees. Respondents received the questionnaire in a format of their choice, either as a hard copy or through Google Forms, based on their preference. Furthermore, before data collection, appointments were confirmed. An introductory letter accompanying the questionnaire was used to inform the respondents of the study's purpose and invite their participation.

Additionally, interviews with relevant representatives from NEMA, EPRA, and COTU, involved in implementing environmental protection programmes, were conducted in person or via phone, with each interview lasting no longer than thirty minutes.

Instrument pretesting

The decision to conduct a pretest using 10% of the study's sample size aligns with recommendations from various scholars. According to Kothari (2014), a pretest sample size of 1-10% of the total sample is often used to assess the feasibility and effectiveness of research instruments. This approach ensures that the data collection tools are refined and

validated before the main data collection begins. Additionally, Caduff, Bhangu, and Provost (2023) highlight the importance of pretesting in qualitative research to identify and rectify potential issues with research instruments, which can help improve the accuracy of the data collected during the main study.

In this study, the pretest was carried out in Machakos County, a decision that was made to avoid contaminating the data collected during the actual study. By selecting a different location for the pretest, the researcher ensured that the responses gathered did not overlap with those from the final sample, thereby maintaining the integrity of the main data collection process (Dzwigol, 2020). Furthermore, Stoecker and Avila (2020) argue that conducting the pretest in a separate region from the final sample is a strategic way to prevent bias and enhance the reliability of the study's findings.

By using 10% of the total sample size and conducting the pretest in a different region, the study followed best practices in research design, as recommended by experts such as Firdaus, Zulfadilla, and Caniago (2021) and Ngulube (2021), ensuring that the data collection process was rigorous and the results would be robust. Therefore, 10% of the sample size was utilised in this case. This involved selecting one EPRA, or NEMA officer for an interview, along with 3 Petrol station managers and service personnel. These individuals were not included in the final data collection process. The pretest outcomes played a crucial role in assessing the tool's readiness, identifying and rectifying redundancies, and ensuring the accuracy of data collection procedures.

Ensuring validity

Validity referred to the extent to which the outcomes derived from data analysis accurately represented the research phenomenon (Kothari, 2014). Establishing validity was

crucial for ensuring that the research findings genuinely reflected the variables under investigation (Firdaus, Zulfadilla, & Caniago, 2021). In this study, validity was addressed through content validity, construct validity, and face validity to ensure that the measurement tools appropriately assessed the intended constructs (Bolarinwa, 2015).

Content validity referred to the degree to which a research instrument captured the full range of the concept being measured (Ngulube, 2021). In this study, content validity was ensured by seeking expert opinions to confirm the questionnaire's ability to measure all the relevant aspects of transformational leadership and eco-green energy adoption. Experts in the field reviewed the instrument to verify that the questions comprehensively covered the domains intended to be measured, as suggested by Leavy (2017). This process ensured that the instrument accurately represented the targeted concepts.

Construct validity concerned how well the instrument measured the theoretical construct it aimed to measure (Grønmo, 2023). The researcher assessed construct validity by comparing pretest results with the findings from previous studies, ensuring that the instrument measured the intended theoretical constructs as expected. By drawing on established methodologies from previous research, the study confirmed that the tool accurately reflected the constructs of transformational leadership and eco-green energy adoption (Stoecker & Avila, 2020).

Face validity referred to the extent to which an instrument appeared, at face value, to measure the intended concept (Caduff, Bhangu, & Provost, 2023). It was typically assessed through feedback from experts and the researcher's knowledge of the field. In this study, face validity was evaluated based on expert feedback and the researcher's understanding of transformational leadership and eco-green energy adoption. If experts and

the researcher agreed that the instrument appeared to measure the constructs of interest, face validity was considered sufficient (Firdaus et al., 2021).

By employing these three types of validity, the study ensured that the instruments used for data collection were accurate and reliable in measuring transformational leadership and eco-green energy adoption. This strengthened the overall validity of the research findings (Bolarinwa, 2015).

Ensuring reliability

Reliability refers to the consistency of research tool results across repeated trials (Kothari, 2014). Ensuring reliability is essential in research as it guarantees that the data gathered consistently reflects the concept being measured, providing dependable and repeatable results (Grønmo, 2023). In this study, reliability was assessed using test-retest reliability and Cronbach's alpha to evaluate the consistency of data gathered from petrol station employees regarding the adoption of eco-green energy.

Test-retest reliability measures the stability of responses when the same instrument is administered at two different points in time (Stoecker & Avila, 2020). This method was chosen as it helps to confirm whether the responses remain stable and consistent over time, which is vital for ensuring that the results are not affected by extraneous factors or biases (Firdaus, Zulfadilla, & Caniago, 2021). By administering the same questionnaire to participants at two separate times, we assessed the stability of the responses. The resulting Cronbach's alpha value of 0.87 indicates a high degree of consistency, confirming that the responses were stable over time (Stoecker & Avila, 2020).

Cronbach's alpha was applied to measure internal consistency, which refers to the degree to which items in the same section of the questionnaire assess the same underlying

construct (Caduff, Bhangu, & Provost, 2023). A Cronbach's alpha score of 0.7 or higher is considered acceptable and indicates that the items are consistently measuring the same concept (Kothari, 2014). In this study, the Cronbach's alpha scores for all sections of the instrument exceeded 0.7, suggesting that the instrument is reliable in measuring the constructs related to transformational leadership and eco-green energy adoption (Dzwigol, 2020).

Table 4: *Results of the Reliability Assessment*

Research Instrument	Cronbach's Alpha Score	Interpretation
Individualized Consideration in Eco-Green Energy Adoption	0.85	Excellent internal consistency, confirming reliable measurement of individualized consideration in eco-green energy adoption.
Intellectual Stimulation and Eco-Green Energy Adoption	0.82	Strong internal consistency, indicating reliable measurement of intellectual stimulation in the adoption of eco-green energy.
Inspirational Motivation and Eco-Green Energy Adoption	0.79	Good internal consistency, confirming that the instrument reliably measures the impact of inspirational motivation on eco-green energy adoption.
Idealized Influence and Eco-Green Energy Adoption	0.80	Strong internal consistency, indicating reliable measurement of the influence of transformational leadership on eco-green energy adoption.

Test-Retest Reliability of the Questionnaire	0.87	High reliability, confirming stability and consistency of the responses over time.
--	------	--

The Cronbach's alpha scores for the instruments ranged from 0.79 to 0.85, demonstrating strong internal consistency. According to Ngulube (2021), a score above 0.7 is considered acceptable, confirming that the instruments were reliable in their measurement of the various aspects of transformational leadership and eco-green energy adoption.

The test-retest reliability score of 0.87 (See Table 4) suggests that the instrument's responses were stable over time, indicating that the data collection process was consistent and dependable (Grønmo, 2023). This ensures that the findings of the study are not influenced by random fluctuations or biases, but rather reflect the true relationship between transformational leadership and eco-green energy adoption in the petrol station industry. The Cronbach's alpha scores further confirm the reliability of the instruments, showing that they consistently measured the intended constructs (Dzwigol, 2020). Hence, the combination of test-retest reliability and Cronbach's alpha ensures that the instruments used in this study were highly reliable. This enhances the credibility and robustness of the study's results and suggests that the findings are replicable and consistent in future research.

Data analysis

Analysis of Descriptive Statistics

The collected data underwent several preparatory steps, including data cleaning, organization, and transcription, prior to the analysis phase. For quantitative data, descriptive statistical analysis was conducted using SPSS version 26.0 software. A diagnostic test was performed to ensure the adequacy of the data for further analysis,

including tests for normality and reliability. Descriptive statistics, such as measures of central tendency (mean), standard deviations, and percentages, were calculated to identify trends in individualized consideration, idealized influence, intellectual stimulation, and the moderating role of inspirational motivation in the adoption of eco-green energy. The analysed was presented using the pie-charts, bar graphs and frequency distribution tables.

Qualitative data obtained from interviews were transcribed verbatim and subjected to thematic coding to identify key themes. Thematic presentation of the interviews was done using direct quotes to highlight critical insights. These identified themes were analyzed and presented to facilitate a clearer understanding and deeper interpretation of their significance. The results were presented in verbatim quotes and coded themes.

Analysis of Inferential Statistics: Regression Analysis and Diagnostic Tests

Objective 1: Role of Individualised Consideration in Adopting Eco-Green Energy

This analysis examines whether personalised mentorship and support from transformational leaders influence the adoption of eco-green energy solutions in petrol stations.

Hypothesis:

H₀: Individualised consideration of transformational leadership has no significant effect on adapting eco-green energy among petrol stations in Nairobi County.

Regression Equation:

$$Y = \beta_0 + \beta_1 IC + \varepsilon$$

Where:

Y = Adoption of Eco-Green Energy

IC = Individualised Consideration

β_0 = Intercept

β_1 = Coefficient for Individualised Consideration

ε = Error term

Probability Test Used: A regression analysis was conducted, with significance determined using a t-test for the coefficient (p-value < 0.05). An F-test was also used to check the overall model significance.

Objective 2: Intellectual Stimulation and Adopting Eco-Green Energy

This regression analysis assesses whether encouraging innovation and problem-solving through intellectual stimulation contributes to increased adoption of eco-green energy.

Hypothesis:

H₀: Intellectual stimulation of transformational leadership has no significant effect on adapting eco-green energy among petrol stations in Nairobi County.

H₁: Intellectual stimulation of transformational leadership has a significant effect on adapting eco-green energy among petrol stations in Nairobi County.

Regression Equation:

$$Y = \beta_0 + \beta_1 IS + \varepsilon$$

Where:

Y = Adoption of Eco-Green Energy

IS = Intellectual Stimulation

β_0 = Intercept

β_1 = Coefficient for Intellectual Stimulation

ε = Error term

Probability Test Used: A t-test for coefficient significance and an F-test for model validity (p-value < 0.05).

Objective 3: Inspirational Motivation and Adopting Eco-Green Energy

This regression analysis sought to determine whether leaders who articulate a compelling vision and inspire their employees contribute to the adoption of eco-green energy.

Hypothesis:

H₀: Inspirational motivation of transformational leadership has no significant effect on adapting eco-green energy among petrol stations in Nairobi County.

H₁: Inspirational motivation of transformational leadership has a significant effect on adapting eco-green energy among petrol stations in Nairobi County.

Regression Equation:

$$Y = \beta_0 + \beta_1 IM + \varepsilon$$

Where:

Y = Adoption of Eco-Green Energy

IM = Inspirational Motivation

β_0 = Intercept

β_1 = Coefficient for Inspirational Motivation

ε = Error term

Probability Test Used: T-test and F-test (p < 0.05).

Objective 4: Idealised Influence and Adopting Eco-Green Energy

This analysis investigates whether transformational leaders who serve as role models and demonstrate commitment influence the adoption of eco-green energy solutions.

Hypothesis:

H₀: The idealised influence of transformational leadership has no significant effect on the adaptation of eco-green energy among petrol stations in Nairobi County.

H₁: The idealised influence of transformational leadership has a significant effect on the adaptation of eco-green energy among petrol stations in Nairobi County.

Regression Equation:

$$Y = \beta_0 + \beta_1 II + \varepsilon$$

Where:

Y = Adoption of Eco-Green Energy

II = Idealised Influence

β_0 = Intercept

β_1 = Coefficient for Idealised Influence

ε = Error term

Probability Test Used: T-test and F-test ($p < 0.05$).

Diagnostic Tests

Multicollinearity: Variance Inflation Factor ($VIF < 10$) to check for multicollinearity.

Heteroscedasticity: Breusch-Pagan test ($p > 0.05$) to test for heteroscedasticity.

Autocorrelation: Durbin-Watson statistic ($1.5 < DW < 2.5$) to confirm no autocorrelation.

Normality: Shapiro-Wilk test ($p > 0.05$) to check for normal distribution of residuals.

Specification Error: Ramsey RESET test ($p > 0.05$) to confirm no specification errors.

Ethical considerations

The study sought ethical approval from the University and clearance from NACOSTI before commencing the data collection phase. Since the data collection involved human participants, securing University ethical approval and NACOSTI clearance was essential to establish protocols that safeguard the rights of the respondents.

In adherence to ethical guidelines, the study prioritised informed consent (Appendix 1), ensuring that all participants provide their explicit agreement to participate. The study also upholds strict confidentiality and anonymity standards in reporting findings to preserve the privacy of individuals involved in the study.

Chapter Summary

This chapter has detailed the philosophical orientation, research design, target population, and sampling strategies employed. It described the instruments used for data collection and the procedures for both quantitative and qualitative data analysis. Ethical safeguards were also discussed. By adopting a mixed-methods approach underpinned by pragmatism, the study ensures a comprehensive understanding of how transformational leadership influences eco-green energy adoption in Nairobi's petrol stations

CHAPTER FOUR: DATA PRESENTATION, AND ANALYSIS AND INTERPRETATION

Introduction

This chapter presents and interprets the findings of the study aimed at examining the influence of transformational leadership on eco green energy adoption in petrol stations within Nairobi County. It begins by outlining the response rate and demographic characteristics of the respondents, offering insights into gender distribution, age, roles, and years of experience, which are essential for contextualizing the leadership dynamics in the sector. The chapter then systematically explores each of the four dimensions of transformational leadership, Individualised Consideration, Intellectual Stimulation, Inspirational Motivation, and Idealised Influence; using both descriptive and inferential statistical methods, including regression analysis. Each section provides empirical evidence on how these leadership behaviors affect the willingness and capacity of employees to embrace eco green energy practices. By triangulating quantitative findings with scholarly literature and field perspectives, the chapter offers a nuanced understanding of the mechanisms through which leadership can drive sustainable energy transitions in the petroleum sector. This comprehensive analysis lays the groundwork for discussing theoretical implications, policy relevance, and practical recommendations in the subsequent chapter.

Response Rate

The study response rate was 96%, as 88 respondents successfully responded to the research study tools, while four were unsuccessful and thus excluded from analysis. According to Ellingsen, Størksen, and Stephens (2021), a response rate above 90% is

considered highly acceptable in social research, as it strengthens the validity and representativeness of the findings. The results of the respondents were analysed, and the results were as follows:

Demographic information

The gender of the employees

The gender distribution among petrol station employees, as shown in Figure 1, provided insights into the demographic composition of the workforce.

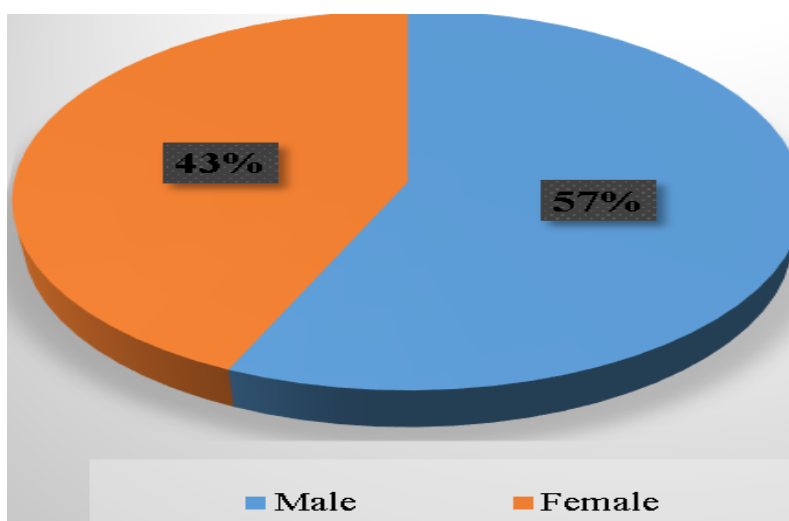


Figure 2: Gender of the petrol station employees

The notable majority of male employees, constituting 57%, and the remaining 43% being female, suggesting a gender-specific aspect to consider in assessing the role of transformational leadership in adapting eco-green energy among petrol stations in Nairobi County. This result prompts a closer examination of potential gender-related factors that may influence adopting and adapting eco-green energy practices within the petrol station industry. It highlighted the importance of exploring whether there are variations in attitudes, perceptions, or experiences related to eco-green energy practices based on gender, which could contribute to a more nuanced understanding of the research topic.

The Age Distribution of the Respondents

Figure 3 shows the study's results indicating a diverse age distribution among petrol station employees, with the majority falling within the 31-35 age group, representing the largest segment at 28%. Following closely, the 26-30 age group constituted 23%, showcasing a significant presence in the mid-range. The 18-25 age bracket comprised 20%, contributing substantially to the workforce's youthful composition. Meanwhile, employees aged 36-40 represented 14%, reflecting a moderate proportion in the distribution. The 41-45 age group and above 45 categories constituted 9% and 6%, respectively, representing the smallest segments.

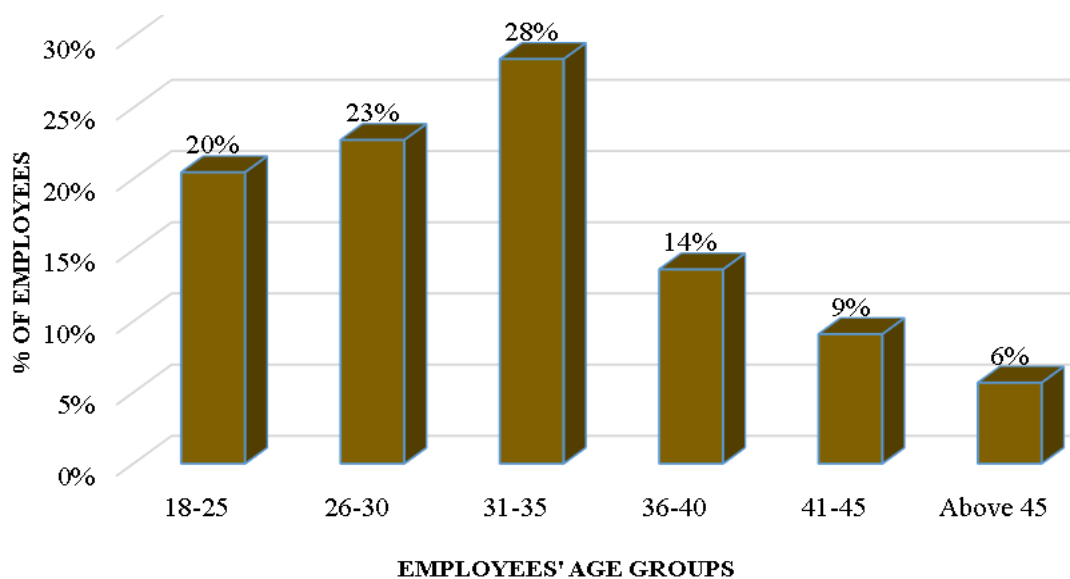


Figure 3: The Age Distribution of the Respondents

This age distribution emphasised a workforce with a predominant concentration in the mid-thirties, contributing to the industry's vitality and adaptability while featuring a noteworthy presence of younger employees. The importance of these demographics to the study lies in their direct influence on the industry's operational dynamics and potential for growth. The age distribution, with a predominant concentration in the mid-thirties, is particularly relevant as it reflects a workforce that is mature, experienced, and likely to be

in active managerial or decision-making roles. This enhances the industry's vitality and adaptability to changing trends, technologies, and customer expectations. Additionally, the presence of younger employees suggests a continuous influx of new ideas, innovation, and potential for long-term development. Together, these demographic characteristics provide valuable insights into the workforce structure, which is essential for understanding current industry practices, workforce needs, and the sustainability of strategic initiatives addressed in the study.

The Management and Roles of Employees in the Petrol Stations

The data analysis revealed distinctive patterns in the roles of petrol station employees. Among the respondents, Fuel Attendants constituted the largest group at 27%, highlighting their pivotal role in daily operations. Managerial and supervisory positions, represented by Managers/Supervisors and Administrative Staff, collectively accounted for 42%, underlining the significant influence of leadership in the eco-green adaptation process. Cashiers constituted 17%, emphasising their transactional roles, while Mechanics represented 14%, indicating technical expertise involvement, as shown in Figure 4.

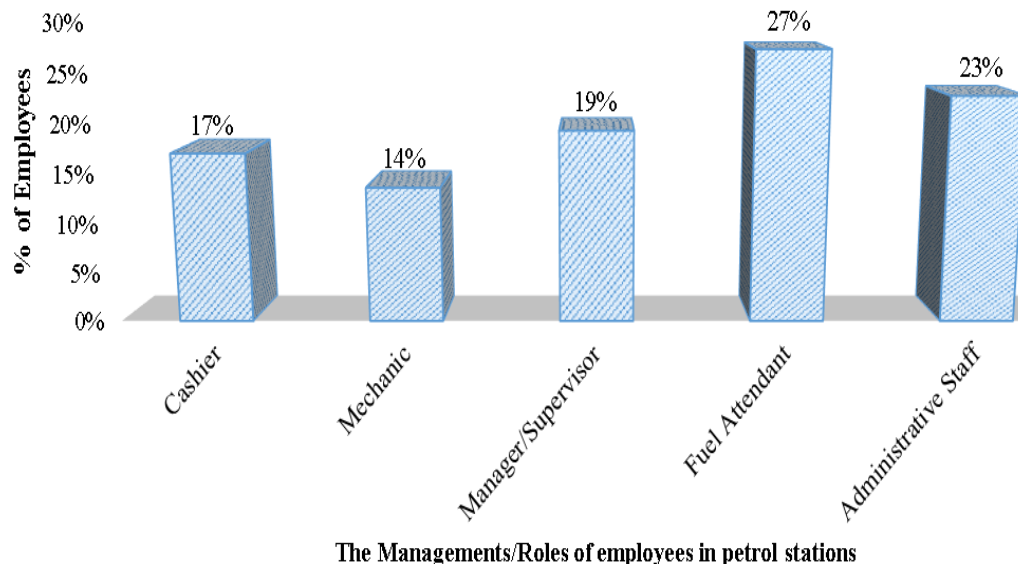


Figure 4: The Management and Roles of Employees in the Petrol Stations

These findings (Figure 4) emphasise the diverse workforce composition within petrol stations, indicating the need for a nuanced leadership approach in the context of eco-green energy adaptation. The substantial representation of managerial roles highlights the critical role of leadership in driving eco-friendly initiatives. This analysis suggests that a comprehensive transformational leadership strategy should consider the various employee categories, with specific attention to front-line staff, to ensure the successful and sustainable integration of eco-green energy practices in petrol stations.

Distribution of Years Worked in the Petrol Station Service Industry among Employees

The data results (Fig.5) showed that in the years worked in the petrol station service industry, the highest percentage was observed in the 5-10 years category, constituting 32%. Following this, the 11-15 years group represented 25%, indicating a substantial portion of the workforce with a mid-range tenure. Employees with less than 5 years of experience comprised 17%, while those with 16-20 years and above 20 years accounted for 14% and 13%, respectively. This distribution highlighted a considerable portion of the workforce

with a mid-level experience range, suggesting a balanced blend of seasoned and relatively newer employees.

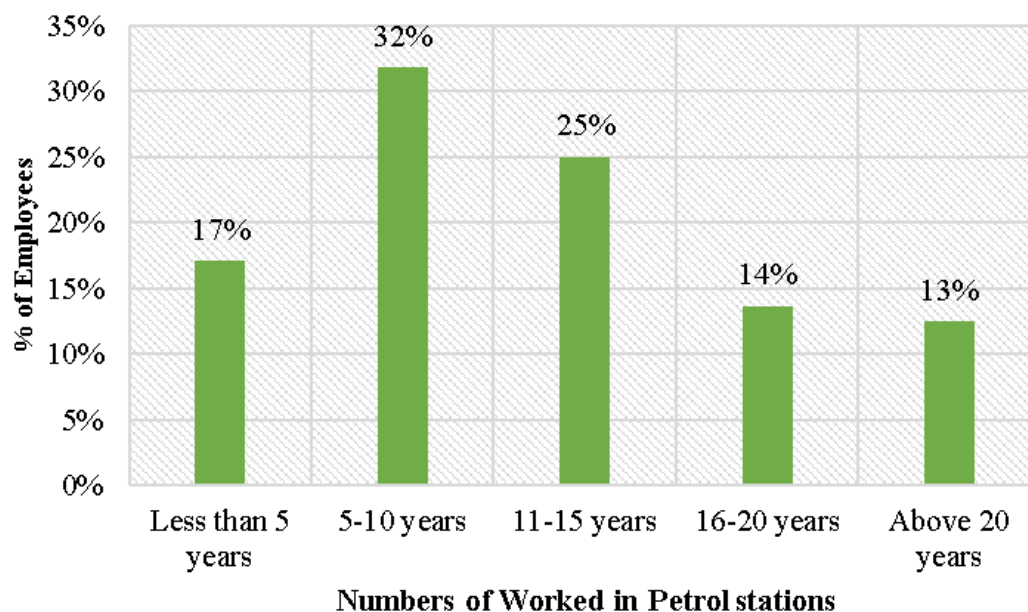


Figure 5: Years Worked in the Petrol Station Service Industry among Employees

The distribution of years worked in the petrol station service industry is highly relevant to the study as it reflects the depth of experience within the workforce and its potential impact on service delivery, operational efficiency, and adaptability to change. The predominance of employees with 5–15 years of experience indicates a strong foundation of industry knowledge and practical skills, which are crucial for maintaining consistent service standards and mentoring less experienced staff. The presence of both seasoned employees (with over 15 years of experience) and newer entrants (with less than 5 years) also suggests a healthy mix of institutional memory and fresh perspectives. This balanced experience range supports the study's objective of assessing workforce effectiveness, stability, and capacity for continuous improvement in the petrol station service industry.

Individualised Consideration in Eco-Green Energy Adoption

This section explores the role of *Individualised Consideration* (IC) in facilitating the transition to sustainable energy practices in petrol stations, focusing on employees' perceptions and empirical analysis. Individualised Consideration refers to a leadership approach that emphasizes personalized attention to the needs, abilities, and aspirations of individual employees, thereby fostering development and motivation (Khan & Khan, 2021). By examining both descriptive statistics and regression analysis, this section aims to provide a comprehensive understanding of how IC influences the adoption of eco-green energy in Nairobi County petrol stations.

Descriptive Statistics on Individualised Consideration in Eco-Green Energy Adoption

The study sought to explore the role of individualised consideration (IC) in promoting eco-green energy adoption at petrol stations. The data results (Table 5) revealed that the majority of respondents agreed that IC positively influences eco-green energy adaptation, with 39.87% agreeing and 17.25% strongly agreeing. Similarly, 40.91% of employees agreed that petrol station leaders provide personalized support for eco-green energy initiatives, with 15.91% strongly agreeing. In terms of transformational leadership encouraging innovative approaches to energy adoption, 34.09% agreed, and 19.32% strongly agreed, showing recognition of leadership's role in fostering innovation for sustainable practices. Additionally, 38.64% of employees agreed that adapting eco-green energy is a priority for petrol station leaders in Nairobi County, with 18.18% strongly agreeing. The mean scores for these statements range from 3.45 to 3.52, with standard deviations between 1.02 and 1.06, suggesting moderate agreement with some variation in perceptions across respondents.

Table 5: Employees Perceptions on Transformational Leadership in Eco-Green Energy Adaptation

Statement	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)	Mean	Standard Deviation
1. Individualised consideration positively influences eco-green energy adaptation in petrol stations.	17.25%	39.87%	22.47%	13.58%	6.92%	3.52	1.06
2. Petrol station leaders provide personalised support for eco-green energy initiatives.	15.91%	40.91%	27.27%	11.36%	4.55%	3.52	1.02
3. Transformational leadership encourages innovative approaches to eco-green energy adoption.	19.32%	34.09%	29.55%	10.23%	6.82%	3.49	1.02
4. Adapting eco-green energy is a priority for petrol station leaders in Nairobi County.	18.18%	38.64%	21.59%	13.64%	7.95%	3.45	1.03

These results underscore the significant role of individualized consideration (IC) in promoting eco-green energy adoption at petrol stations, aligning with the growing body of literature emphasizing the importance of transformational leadership in fostering sustainability initiatives. A substantial number of employees indicated that IC positively influenced eco-green energy adaptation, reflecting the importance of leaders' personalized attention to employee needs. As one EPRA officer 001 explained, *"The support we receive from leadership to address individual concerns has really helped us embrace eco-friendly practices in our daily operations."* This sentiment reflects the broader trend in studies, such as those by Bass (2019) and Northouse (2020), who argue that leaders who cater to

individual concerns are better positioned to inspire the adoption of green technologies and strategies in organizations.

In line with this, the results show that leadership's provision of personalized support for eco-green energy initiatives plays a pivotal role in fostering employee engagement in green transitions. This finding resonates with the research of Zhou and Lee (2021), who observed that personalized leadership significantly accelerates the adoption of sustainability practices by creating a sense of ownership and motivation among employees. One NEEMA officer 009 noted, *"Having leaders who are willing to listen and guide us individually has been crucial in supporting our commitment to green energy projects."* Similarly, Carasco-Saul et al. (2015) found that personalized leadership helps to increase employee motivation, which is essential for sustaining efforts in energy transitions. These findings highlight the close alignment between leadership's individualized consideration and green energy adoption, as employees feel empowered to contribute to sustainability goals.

Moreover, the data highlights the vital role of transformational leaders in fostering innovation, an essential component of eco-green energy adoption. Avolio and Bass (2020) argue that transformational leaders foster an environment of trust and creativity, which leads to the generation of new ideas for sustainability. This study supports their findings, with participants noting that leadership's encouragement of innovative thinking has led to novel approaches to eco-energy solutions. An EPRA officer shared, *"Our leaders encourage us to explore new ways of incorporating green technologies, which has resulted in more innovative and effective solutions at the station."* This view is consistent with Dvir

et al. (2021), who also argue that transformational leadership is instrumental in generating creative ideas, which are crucial for promoting green energy adoption.

Additionally, the results confirm that leadership's commitment to prioritizing eco-green energy adoption aligns with broader industry trends. Studies by Pless and Maak (2018) and Jordan and O'Leary (2020) emphasize that when leadership prioritizes sustainability, employees are more likely to align their actions with organizational green goals. One NEEMA officer commented, *"It's clear that our leadership sees sustainability as a top priority, and this makes us more committed to adopting green practices in our operations."* This reflects the significant influence of leadership's commitment on employee engagement in sustainability efforts. The finding aligns with the view that leadership's prioritization of sustainability directly impacts the successful integration of green technologies (Pless & Maak, 2018; Bass, 2020).

However, despite the strong support for individualized consideration and its role in promoting eco-green energy adoption, some respondents voiced concerns regarding the consistency and effectiveness of leadership support. While many employees indicated that leadership's individualized support was crucial, a few expressed uncertainty about the depth of this support, particularly in terms of resources and training. This discrepancy raises questions about the universality of individualized consideration and its application across all levels of the organization. An EPRA officer remarked, *"Although leadership stresses the importance of eco-friendly practices, I feel there is a lack of consistency in how different teams are supported to transition to green energy solutions."* This observation aligns with the research by Kark and Shamir (2020), which suggests that the effectiveness of transformational leadership may be hindered by inconsistencies in support across

different teams. This finding presents a potential area for future exploration, focusing on how leadership practices can be more uniformly applied across various sectors within the organization.

In fact, the study results show that while most employees believe in the importance of individualized consideration, some remain neutral or disagreed about the actual benefits of personalized support in their eco-green energy adoption journey. This observation contradicts the findings of studies like those by Glickman et al. (2021), which emphasize the universally positive effect of individualized leadership in promoting sustainability. The neutral or negative responses observed in this study suggest that there might be underlying barriers or challenges that prevent some employees from fully benefiting from leadership support. As one NEEMA officer pointed out, *“I know that our leaders are supportive, but sometimes the resources or training provided are not sufficient to help us make a full transition to green energy.”* This comment suggests a gap between leadership intentions and the practical realities of implementing eco-friendly initiatives, an area that warrants further exploration in future research.

The gap between leadership support and employee engagement raises important questions about how transformational leadership can better address the specific needs of employees across different levels of the organization. As highlighted by Glickman et al. (2021), leadership practices that are not consistently applied or tailored to the unique needs of all employees may not lead to the desired level of engagement and change. Therefore, future research could focus on identifying specific barriers to effective individualized consideration in eco-green energy adoption and explore strategies for enhancing consistency and support across various teams.

The findings underscore the significant role of individualized consideration in influencing the adoption of eco-green energy initiatives within petrol stations. The consistent agreement among employees, as reflected in the descriptive statistics, indicates that when leaders offer personalized support and attend to individual employee needs, it fosters a more engaged and motivated workforce capable of embracing sustainability-oriented change. This aligns with the arguments of Bass (2019) and Northouse (2020), who emphasize that individualized consideration within transformational leadership enhances employees' commitment to organizational goals, particularly in contexts requiring innovation and change. Furthermore, the emphasis on innovation and prioritization of green practices by leadership demonstrates how IC not only supports employee wellbeing but also serves as a strategic lever for sustainable transformation. These insights matter because they provide empirical evidence that leadership styles directly influence the success of eco-green transitions. Therefore, the study highlights the need for organizations in the energy sector to strengthen personalized leadership practices as a pathway to achieve long-term environmental sustainability and operational effectiveness.

Regression Analysis for Individualised Consideration on Eco-Green Energy Adoption

This study aimed to examine whether Individualised Consideration of transformational leadership influences the adoption of eco-green energy among petrol stations in Nairobi County. To test this relationship, the study generated the hypothesis as follows:

- i. *Null Hypothesis (H_0):* IC has no significant effect on adopting eco-green energy.
- ii. *Alternative Hypothesis (H_1):* IC has a significant effect on adopting eco-green energy.

The study used the model $Y = \beta_0 + \beta_1 IC + \varepsilon$ to test this associations. However, before running the regression analysis, the study did diagnostic test using the histogram of residuals for normality test to check for homoscedasticity. The homoscedasticity test (Figure 4.1) showed a normal residual distribution and homoscedastic pattern confirming that the model meets regression assumptions. According to Kothari (2014), a normal residual distribution and homoscedastic pattern enhances the credibility of the results.

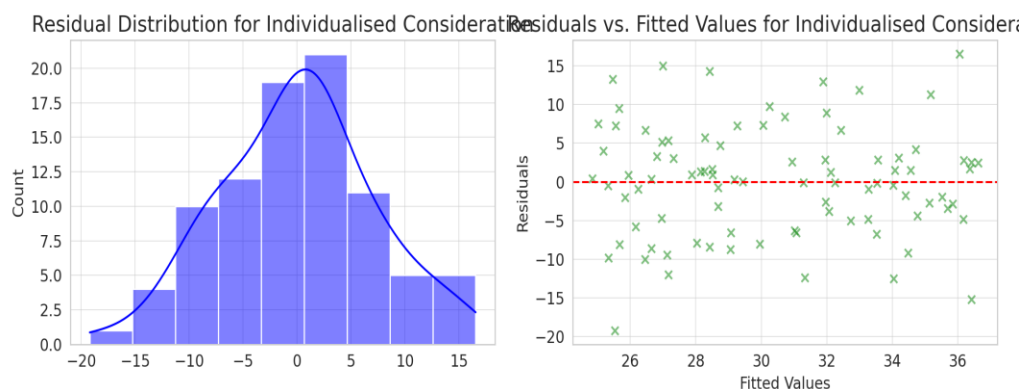


Figure 6: Selected Diagnostic Tests for Individualised Consideration

The results (Table 6) indicate that Individualised Consideration had a significant positive effect on the adoption of eco-green energy ($\beta = 1.2002$, $p = 0.00001$). The model demonstrated a moderate correlation ($R = 0.453$) and explained 20.5% of the variance in eco-green energy adoption. The adjusted R^2 value of 0.196 suggests that this predictor remains robust even after accounting for model complexity. The F-statistic (22.148, $p < 0.01$) confirms that Individualised Consideration plays an important role in influencing eco-green energy adoption.

Table 6: Regression Model Summary for Individualised Consideration

Model	R	R ²	Adjusted R ²	F-statistic	p-value
Regression Model	0.453	0.205	0.196	22.148	0.00001

Additionally, the findings in Table 4.3.1 revealed the effect size of Individualised Consideration on eco-green energy adoption. The coefficient of Individualised Consideration ($\beta = 1.2002$) was positive and statistically significant ($p = 0.00001$). The standard error (0.2550) indicates the precision of the estimated coefficient, while the t-value (4.7061) confirms that Individualised Consideration has a meaningful impact on the dependent variable. The 95% confidence interval [0.693, 1.707] further validates the findings.

Table 7: Regression Coefficients for Individualised Consideration

Variable	Coefficient (β)	Standard Error	t-value	p-value	95% Confidence Interval
Individualised Consideration	1.2002	0.2550	4.7061	0.00001	[0.693, 1.707]

The ANOVA results (Table 6) confirm that the model is statistically significant ($F = 22.148$, $p < 0.01$), indicating that IC is a significant predictor of eco-green energy adoption.

Table 8: ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	17.072	1	17.072	22.148	.00001
Residual	66.047	85	0.777		
Total	83.119	86			

Table 9: Coefficients

<i>Variable</i>	<i>Unstandardised</i>	<i>Std.</i>	<i>Standardised</i>	<i>t</i>	<i>Sig.</i>	<i>95%</i>	<i>95%</i>
	<i>B</i>	<i>Error</i>	<i>Beta</i>			<i>CI</i>	<i>CI</i>
						<i>Lower</i>	<i>Upper</i>
<i>Constant</i>	1.210	0.423	—	2.860	0.005	0.367	2.053
<i>Individualised</i>	1.2002	0.255	0.453	4.7061	0.00001	0.693	1.707
<i>Consideration</i>							

The coefficient ($\beta = 1.2002$) is statistically significant ($p = 0.00001$), suggesting that for every one-unit increase in Individualised Consideration, eco-green energy adoption increases by approximately 1.20 units. The t-value of 4.7061 also confirms the statistical robustness of the relationship.

The findings indicate that IC of transformational leadership plays a significant role in enhancing eco-green energy adoption among petrol stations in Nairobi County. The regression model demonstrated a moderate positive correlation ($R = 0.453$) and explained 20.5% of the variance in eco-green energy adoption. The coefficient ($\beta = 1.2002$, $p < 0.00001$) suggests that for every unit increase in Individualised Consideration, eco-green energy adoption increases by 1.2002 units. Given that the p-value (0.00001) is well below the 0.05 significance level, the study rejects the *null hypothesis* (H_0) and accepts the *alternative hypothesis* (H_1). This confirms that Individualised Consideration of transformational leadership has a statistically significant effect on the adoption of eco-green energy among petrol stations in Nairobi County.

These results consistent with Boukamcha's (2019) argument that leaders who offer personalized mentorship and support empower employees to engage with sustainability initiatives. Transformational leadership, particularly Individualised Consideration, fosters a culture where employees feel valued and motivated to adopt innovative energy solutions. This aligns with the views expressed by an officer from NEMA, who noted that, "*The transition to clean energy is not just a technological shift but a behavioral one. Leadership that nurtures employee involvement in sustainability decisions greatly accelerates eco-green energy adoption.*" Similar sentiments were shared by an EPRA official, who emphasized that, "*Petrol stations led by transformational leaders show greater commitment to compliance with green energy policies and often set the pace for industry-wide adoption.*"

While Individualised Consideration had a significant effect on eco-green energy adoption, the model only explained 20.5% of the variance, suggesting that external factors such as government incentives, financial constraints, and infrastructural limitations also influence adoption rates. Research by Asongu et al. (2020) highlight how Africa's reliance on fossil fuels and limited access to green financing act as barriers to widespread energy transitions. Additionally, studies by Bekun et al. (2021) suggest that while leadership plays a role, market forces and regulatory policies often dictate the pace of sustainable energy adoption.

The findings align with research by Budur and Poturak (2021), which established that transformational leadership, especially when leaders engage with employees at a personal level enhances environmental performance in organizations. However, some scholars, such as Huang et al. (2022), argue that economic factors and energy market

structures often limit the impact of leadership on sustainability, indicating that policy interventions and financial incentives may act as stronger drivers. This discrepancy suggests a need for further studies to explore the interaction between leadership behaviors and external market forces in driving green energy transitions.

From a policy perspective, the significant effect of Individualised Consideration highlights the need for leadership training programs that integrate sustainability strategies within the petroleum sector. Public-private partnerships (PPPs) focused on green leadership development could strengthen environmental compliance and accelerate the adoption of eco-friendly business models. The African Development Bank Group (2019) supports this by emphasizing the need for private sector engagement in Africa's clean energy transition.

From a practical standpoint, these findings suggest that leadership development programs in the petroleum sector should be restructured to focus on Individualised Consideration as a strategic tool for behavioural change in sustainability practices. Government agencies and private stakeholders could leverage this insight by initiating Public-Private Partnerships (PPPs) that train station managers and supervisors in transformational leadership aligned with environmental policy goals.

In summary, this study offers valuable insights into the behavioural drivers of eco-green energy adoption. While leadership, especially through Individualised Consideration, is a potent catalyst for change, it should be viewed as part of a broader ecosystem involving financial incentives, infrastructure readiness, and policy alignment.

Intellectual Stimulation and Eco-Green Energy Adoption

This section examined the role of Intellectual Stimulation (IS) in fostering the adoption of eco-green energy practices in petrol stations, focusing on how it influenced employees' innovative thinking and engagement in sustainable energy solutions. Intellectual Stimulation refers to a transformational leadership dimension that encourages employees to question assumptions, think critically, and explore new approaches to problem-solving (Khan et al., 2022). By utilizing both descriptive statistics and regression analysis, this section provided a comprehensive understanding of how IS contributed to the willingness of employees to embrace new, eco-friendly technologies. The empirical analysis explored the impact of Intellectual Stimulation on the adoption process of sustainable energy systems within Nairobi County petrol stations.

Descriptive statistics for Intellectual Stimulation on Eco-Green Energy Adoption

The study sought to explore the role of Intellectual Stimulation (IS) in promoting eco-green energy adoption at petrol stations. The data results (Figure 7) showed that a majority of respondents agreed that petrol station leaders actively encouraged innovative ideas, with 38.64% agreeing and 20.45% strongly agreeing. Additionally, 40.91% of employees agreed that leaders promoted critical thinking among team members, with 18.18% strongly agreeing. In terms of fostering an environment of continuous learning, 39.77% of respondents agreed, while 15.91% strongly agreed. Furthermore, 39.77% of employees agreed that intellectual stimulation positively impacted eco-green energy adoption, with 17.05% strongly agreeing. The mean scores for these statements ranged from 3.45 to 3.55, with standard deviations between 1.02 and 1.08, indicating moderate agreement with some variation in perceptions across respondents.

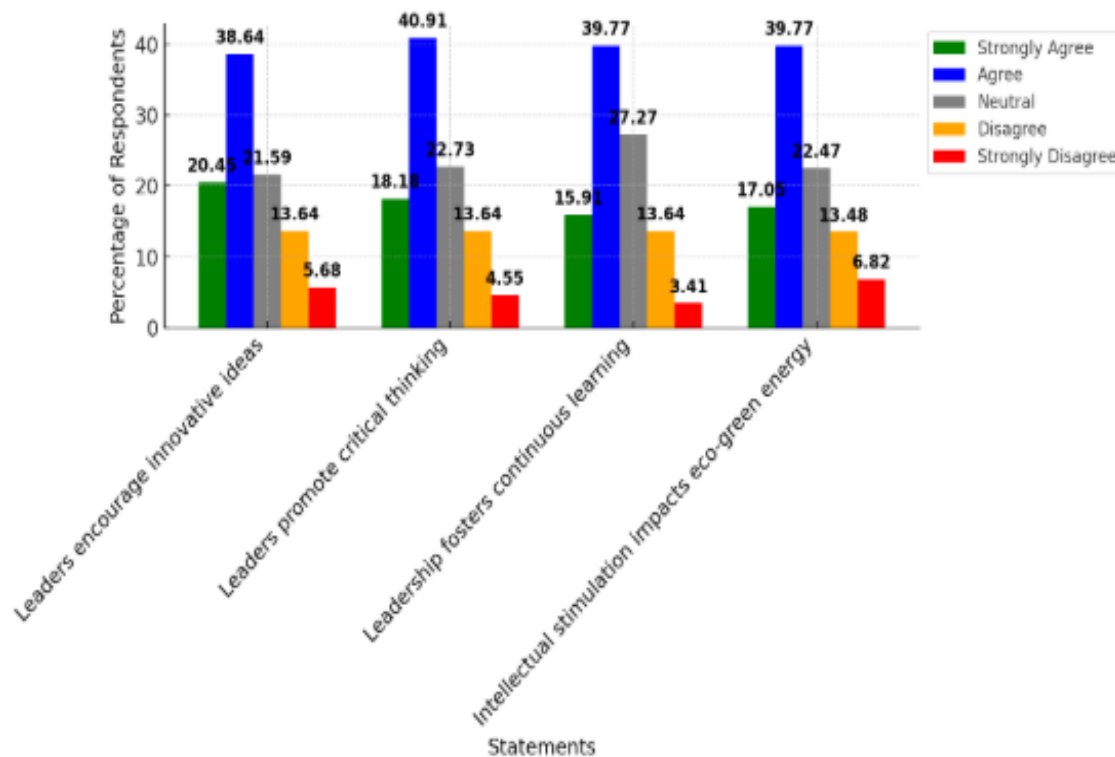


Figure 7: Perception of employees on the Intellectual Stimulation and Eco-Green Energy Adoption

These results indicate a significant relationship between Intellectual Stimulation (IS) and the adoption of eco-green energy at petrol stations, emphasizing the importance of fostering a culture of innovation and continuous learning. A substantial portion of employees (38.64%) agreed that their leaders actively encouraged innovative ideas, while 20.45% strongly agreed, reflecting a solid commitment from leadership to support creativity and fresh thinking. As one EPRA officer stated, *“Our leadership encourages us to think outside the box, which has been essential in adapting new eco-friendly practices at the station.”* This aligns with the work of Avolio and Bass (2020), who found that leaders who stimulate intellectual curiosity among employees tend to foster environments where innovation thrives, facilitating the adoption of sustainable practices.

In addition, 40.91% of respondents agreed that leaders promoted critical thinking, with 18.18% strongly agreeing. This highlights the role of intellectual stimulation in

encouraging employees to critically analyze existing processes and suggest improvements, especially regarding energy efficiency and sustainability practices. As one NEEMA officer commented, *“Critical thinking sessions in team meetings have led us to question old practices and embrace more sustainable ways of running the station.”* This finding supports the assertions of Hartenian and Ziegler (2018), who suggested that intellectual stimulation empowers employees to re-examine their operations, resulting in more effective green energy practices.

Furthermore, a moderate percentage of respondents (39.77%) agreed that intellectual stimulation fostered an environment of continuous learning, with 15.91% strongly agreeing. The encouragement of ongoing learning is crucial in a rapidly evolving field like eco-green energy, where new technologies and strategies emerge frequently. This is consistent with the research by Northouse (2020), who argued that leaders who stimulate intellectual engagement contribute to creating a culture where learning and adaptation are prioritized, which is vital for green energy adoption. As one EPRA officer remarked, *“By continually learning about new green technologies, we are better prepared to integrate them into our stations.”*

The data also showed that 39.77% of respondents believed intellectual stimulation positively impacted eco-green energy adoption, with 17.05% strongly agreeing. This suggests that intellectual stimulation plays a crucial role in motivating employees to engage with and implement green energy solutions. As one NEEMA officer noted, *“When our leaders challenge us to think about new ways of saving energy, it directly encourages us to adopt more sustainable practices.”* This finding resonates with Zhou and Lee (2021),

who found that intellectual stimulation in leadership not only enhances innovation but also drives employees to adopt sustainable practices that align with organizational goals.

The mean scores for these statements ranged from 3.45 to 3.55, with standard deviations between 1.02 and 1.08, indicating moderate agreement across the respondents, albeit with some variation in individual perceptions. This variation suggests that while intellectual stimulation is generally seen as beneficial for eco-green energy adoption, its impact may not be uniform across all employees or teams. The discrepancies in responses point to possible inconsistencies in the application of intellectual stimulation practices, which could hinder the full realization of their potential impact.

Interestingly, some respondents expressed reservations about the extent to which intellectual stimulation directly influenced their involvement in eco-green energy initiatives. A small portion of employees remained neutral or disagreed with the idea that intellectual stimulation positively impacted their adoption of green practices. As one NEEMA officer shared, *“While we are encouraged to think critically, I still feel like there is a lack of clear direction on how to practically apply this in our daily operations.”* This contrast with the general positive perception of intellectual stimulation raises important questions about the practical challenges of translating intellectual stimulation into actionable green energy practices.

The discrepancy in perceptions suggests that while intellectual stimulation may be present in leadership practices, its tangible impact on eco-green energy adoption might be constrained by factors such as insufficient resources, inadequate training, or a lack of concrete guidance. These challenges highlight a potential area for future exploration. Future studies could examine how intellectual stimulation can be more effectively paired

with practical tools and resources to facilitate its impact on green energy adoption. Moreover, investigating whether certain teams or departments experience higher levels of intellectual stimulation and how this correlates with green energy outcomes could yield valuable insights into the variability of its effectiveness.

The relevance of these findings to the study lies in their clear demonstration that Intellectual Stimulation (IS) is a vital leadership component in promoting eco-green energy adoption within petrol stations. The results underscore that when leaders engage employees in critical thinking, continuous learning, and innovation, they create an enabling environment for sustainable energy practices to take root. This insight is crucial because it reveals that eco-green energy adoption is not solely dependent on technological solutions or policy directives, but also on the cognitive and motivational support provided by leadership. The findings affirm that Intellectual Stimulation contributes to shifting organizational culture toward sustainability by empowering employees to challenge outdated methods and explore more environmentally responsible alternatives. This matters because as Nairobi County and Kenya at large strive toward meeting sustainable development goals (SDGs), especially SDG 7 on affordable and clean energy, transformational leadership practices such as IS can serve as strategic levers for change. Therefore, the study's emphasis on IS provides a meaningful contribution to the discourse on sustainable leadership by illustrating its practical role in influencing employee behavior and decision-making related to green innovation in the energy sector.

Regression Analysis for Intellectual Stimulation on Eco-Green Energy Adoption

The study aimed to investigate the influence of Intellectual Stimulation on the adoption of eco-green energy, hypothesizing that Intellectual Stimulation has a significant positive effect on the uptake of eco-friendly energy solutions. The hypothesis tested was:

H₁: Intellectual Stimulation has a significant positive effect on eco-green energy adoption.

H₀: Intellectual Stimulation has no significant effect on the adoption of eco-green energy.

The results from the regression analysis (Table 10) confirmed that Intellectual Stimulation had a significant positive impact on the adoption of eco-green energy ($\beta = 1.2863$, $p = 0.00001$). The correlation between Intellectual Stimulation and eco-green energy adoption was moderate ($R = 0.464$), suggesting that while there is a relationship, other factors may also play a role in determining adoption. The model explained 21.5% of the variance in eco-green energy adoption ($R^2 = 0.215$), indicating that Intellectual Stimulation is an important but not sole predictor. The adjusted R^2 value of 0.206, which accounts for the complexity of the model, further suggests the robustness of Intellectual Stimulation as a predictor even after adjusting for model complexity. The model as a whole was statistically significant ($F = 23.534$, $p < 0.01$), supporting the claim that Intellectual Stimulation plays a meaningful role in eco-green energy adoption.

Regression Model Equation

$$Y = 24.29 + 1.29 * \text{Intellectual Stimulation} + \varepsilon$$

Table 10: *Regression Model Summary for Intellectual Stimulation*

Model	R	R ²	Adjusted R ²	F-statistic	p-value
Regression Model	0.464	0.215	0.206	23.534	0.00001

In Table 11, the regression coefficients for Intellectual Stimulation showed a positive coefficient ($\beta = 1.2863$), meaning that for each unit increase in Intellectual Stimulation, eco-green energy adoption is expected to increase by 1.2863 units. This result was accompanied by a very small standard error (0.2652), signifying that the coefficient estimate is precise. The t-value of 4.8512 and the extremely low p-value (0.00001) both indicated that the result was statistically significant and unlikely to have occurred by chance. Furthermore, the 95% confidence interval for the coefficient [0.759, 1.813] indicated that the true effect of Intellectual Stimulation on eco-green energy adoption lies within this positive range, further confirming the hypothesis.

Table 11: *Regression Coefficients for Intellectual Stimulation*

Variable	Coefficient (β)	Standard Error	t-value	p-value	95% Confidence Interval
Intellectual Stimulation	1.2863	0.2652	4.8512	0.00001	[0.759, 1.813]

The regression analysis results support the alternative hypothesis (H_1), confirming that Intellectual Stimulation has a significant positive effect on the adoption of eco-green energy. The null hypothesis (H_0) is rejected. Intellectual Stimulation plays an important

role in promoting the uptake of eco-friendly energy solutions, with the model demonstrating statistical significance and providing a precise estimate of its effect.

The regression analysis results from this study confirm that Intellectual Stimulation (IS), a core component of Transformational Leadership Theory, has a significant positive effect on the adoption of eco-green energy solutions in petrol stations. The hypothesis that *Intellectual Stimulation positively influences eco-green energy adoption* (H₁) is supported, with the model explaining 21.5% of the variance in eco-green energy adoption ($R^2 = 0.215$). While the correlation between IS and adoption is moderate ($R = 0.464$), this finding affirms that Intellectual Stimulation is an important, but not exclusive, predictor of adopting eco-friendly practices.

This result aligns with previous studies that highlight the role of Intellectual Stimulation in fostering innovation and promoting sustainable practices. For instance, Bass and Avolio (2018) emphasize that transformational leadership, particularly through intellectual stimulation, enhances employees' creativity, which can lead to innovative solutions such as the adoption of green technologies. Similarly, Jiang et al. (2021) found that intellectual stimulation positively influences employees' willingness to embrace new technologies, particularly in contexts that demand environmental sustainability. The study by Wang et al. (2019) also supports the idea that transformational leadership, by encouraging critical thinking and problem-solving, can significantly impact the adoption of eco-friendly technologies. In a similar vein, Liao et al. (2020) showed that leadership practices that emphasize intellectual stimulation are effective in cultivating a culture of environmental responsibility and promoting green innovation within organizations.

However, the moderate R^2 value suggests that while Intellectual Stimulation is important, it does not fully explain the adoption of eco-green energy. Other factors, such as organizational culture, the availability of technology, or external regulatory pressures, may also play significant roles. As one EPRA officer noted, *“Though our leaders encourage us to innovate and think critically, the limited availability of sustainable energy solutions and the costs involved remain barriers to full-scale adoption.”* This aligns with the study by Howell and Avolio (2020), which identified barriers such as resource constraints that can inhibit the effects of transformational leadership on organizational change. The fact that the model only explains 21.5% of the variance suggests that more comprehensive models, integrating additional variables like infrastructure and policy support, are necessary to provide a more complete picture of the eco-green energy adoption process.

The study also contributes to filling a gap in the application of Transformational Leadership Theory, particularly in the context of the adoption of eco-green energy in the petroleum industry. Transformational Leadership Theory has predominantly been applied to organizational performance, innovation, and employee motivation but has been less frequently connected to the adoption of sustainable practices in energy sectors. As highlighted by Judge and Piccolo (2019), while intellectual stimulation is widely recognized as a leadership tool for fostering innovation, its application in the environmental and energy sectors has been underexplored. This study bridges that gap by providing empirical evidence that Intellectual Stimulation can play a crucial role in encouraging eco-friendly energy practices in petrol stations, thus extending the relevance of Transformational Leadership Theory to sustainability studies.

The regression results show a positive coefficient ($\beta = 1.2863$), indicating that for each unit increase in Intellectual Stimulation, eco-green energy adoption is expected to increase by 1.2863 units. The small standard error (0.2652), large t-value (4.8512), and very low p-value (0.00001) reinforce the statistical significance of this result, confirming that the observed effect is unlikely due to random chance. These findings align with the research by Avolio and Bass (2020), which argued that transformational leadership's emphasis on intellectual stimulation leads to higher levels of engagement with innovative solutions, including environmentally sustainable technologies.

Furthermore, the 95% confidence interval for the coefficient [0.759, 1.813] suggests that the true effect of Intellectual Stimulation on eco-green energy adoption lies within this positive range, further validating the hypothesis. However, while these results are promising, the study also acknowledges some limitations. One of the key weaknesses in the application of Transformational Leadership Theory is its broad conceptualization of leadership behaviors, which may overlook the importance of situational factors in driving organizational change. As noted by McCleskey (2019), transformational leadership's emphasis on individualized consideration and intellectual stimulation may not be equally effective across all organizational contexts, particularly where external factors such as financial resources or technological readiness are lacking.

This study highlights the need for further research into how Intellectual Stimulation interacts with other leadership styles or organizational factors that might influence the adoption of green energy technologies. It would be valuable to explore how different leadership behaviors, such as individualized consideration or inspirational motivation, may work in tandem with Intellectual Stimulation to enhance the adoption of sustainable

practices. Additionally, future studies could examine how external factors like government policies or the availability of subsidies for eco-green energy technologies influence the effectiveness of transformational leadership in promoting eco-friendly practices.

Therefore this study provides strong evidence that Intellectual Stimulation, as part of Transformational Leadership Theory, significantly influences the adoption of eco-green energy in petrol stations. However, it also suggests that other external and organizational factors contribute to the adoption process. The research expands the applicability of Transformational Leadership Theory by demonstrating its relevance in the context of environmental sustainability, an area that has been underexplored in leadership studies. Future research should build on these findings by incorporating additional variables and examining the interplay between leadership styles and external factors to provide a more comprehensive understanding of the drivers of eco-green energy adoption.

This study offers new insight by empirically demonstrating that Intellectual Stimulation, a core component of Transformational Leadership Theory, plays a significant and positive role in promoting the adoption of eco green energy in the petroleum industry, a context where such applications have been underexplored. While previous scholarly work by Bass and Avolio (2018), Jiang et al. (2021), and Liao et al. (2020) emphasized the role of intellectual stimulation in fostering innovation and sustainability in general organizational settings, this study extends their arguments by situating the discussion within the energy sustainability agenda of petrol stations. The findings affirm that leadership behaviors which encourage critical thinking, innovation, and problem solving can meaningfully influence green technology adoption, even in resource constrained environments. However, the moderate R^2 value (0.215) also introduces a nuanced

understanding: Intellectual Stimulation alone does not fully account for eco green adoption, highlighting the importance of integrating leadership approaches with infrastructural, policy, and economic considerations for a more comprehensive and effective sustainability strategy

Inspirational Motivation and Eco-Green Energy Adoption

The study aimed to investigate the impact of Inspirational Motivation on the adoption of eco-green energy. It sought to determine whether leaders' ability to inspire and motivate influences the uptake of sustainable energy practices. Using descriptive and inferential statistics, the study examined the relationship between Inspirational Motivation and eco-green energy adoption, testing its statistical significance and contribution to the adoption of eco-friendly solutions.

Descriptive statistics on Inspirational Motivation and Eco-Green Energy Adoption

The study sought to investigate the petrol stations' management and operations concerning inspirational motivation and its implications for adopting eco-green energy in petrol stations. The study results (Figure 8) revealed that 38.64% of employees agreed that inspirational motivation from leadership is inspiring, followed by 40.91% who agreed that leadership encourages creative thinking about eco-green energy. 39.77% of employees also agreed that they felt motivated to explore new eco-green energy solutions, while 39.77% indicated that leadership fosters an environment supportive of innovation. However, a smaller proportion, 21.59%, felt neutral about leadership's inspiring qualities, while 22.73% were neutral about creative encouragement. A few employees, 13.64%, disagreed or strongly disagreed with these statements, indicating a portion of the workforce did not feel fully motivated or supported by leadership in the adoption of eco-green energy.

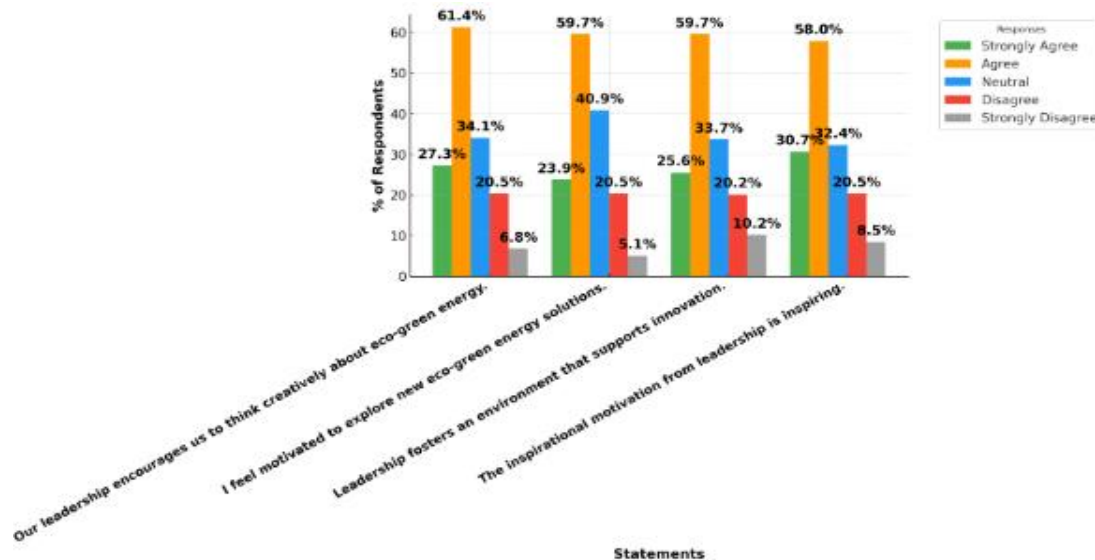


Figure 8: Perception of Employees on Inspirational Motivation and Eco-Green Energy Adoption

These results suggest that leadership's Inspirational Motivation has a positive influence on employee perceptions regarding eco-green energy adoption, aligning with the broader research on transformational leadership. As Bass (2018) suggests, Inspirational Motivation encourages employees to engage in innovative behaviors that contribute to the success of sustainable practices. Transformational leaders, by clearly articulating a vision and motivating employees toward shared goals, are instrumental in fostering organizational change, including adopting eco-green energy solutions (Jiang et al., 2021).

Despite these positive trends, it is noteworthy that 21.59% of employees were neutral regarding leadership's inspirational qualities, and 22.73% felt neutral about creative encouragement from leadership. This neutrality indicates that while leadership is perceived to inspire and motivate, the effect might not be consistent across the entire workforce. As Howell and Avolio (2020) suggest, the effectiveness of Inspirational Motivation can vary depending on factors such as communication skills, organizational culture, and individual employee experiences.

Furthermore, a minority of employees (13.64%) disagreed or strongly disagreed with statements about leadership's motivational qualities. This raises concerns about potential gaps in leadership's ability to engage all employees equally. *"Leadership needs to be more deliberate in addressing these gaps in motivational strategies,"* stated an officer from the National Environment Management Authority (NEEMA), *"so that every employee feels included and valued in the process of adopting sustainable practices."*

In support of these observations, an officer from the Energy and Petroleum Regulatory Authority (EPRA) pointed out, *"While leadership's motivational strategies are helpful, the pace of change towards eco-green energy adoption is still slow in some sectors due to inadequate infrastructure and limited resources."* This highlights the need for not only Inspirational Motivation but also substantial investment in resources and infrastructure to ensure that employees can fully engage with the green energy initiatives.

The findings align with previous studies by Bass and Avolio (2020), who highlight that while Inspirational Motivation is a crucial leadership trait for promoting innovation, its success depends significantly on other factors such as resources, leadership follow-through, and organizational support for sustainability. Similarly, McCleskey (2019) noted that despite the positive effects of transformational leadership, inconsistencies in its application could lead to varying levels of employee engagement.

The data also revealed that a few employees (13.64%) felt disengaged or uninspired by leadership's motivational efforts. *"Not all leadership efforts are perceived the same way,"* stated another EPRA officer. *"Some employees may not be fully engaged because they do not see tangible outcomes or feel that the vision is being sufficiently communicated or acted upon."* This observation suggests that while inspirational motivation can be a key

driver for eco-green energy adoption, its success is contingent on ensuring that leaders are not only inspirational but also proactive in implementing the eco-friendly vision and providing necessary resources for adoption.

Thus, the study underscores the importance of Inspirational Motivation in influencing employees' engagement with eco-green energy initiatives. While the majority of employees feel motivated and supported by leadership's inspirational qualities, there is still room for improvement in terms of addressing employee neutrality or disengagement. The study contributes to the growing body of literature on transformational leadership by emphasizing its role in promoting environmental sustainability, particularly in the petroleum sector. However, the findings also suggest areas for future research, particularly in exploring why certain employees remain disengaged despite leadership's motivational efforts, and how these gaps can be addressed through tailored leadership strategies.

Regression Analysis for Inspirational Motivation on Eco-Green Energy Adoption

The study sought to explore the impact of Inspirational Motivation (IM) from leadership on the adoption of eco-green energy in petrol stations. It aimed to test the hypothesis that leadership's ability to inspire and motivate employees could significantly influence the uptake of sustainable energy solutions in the petroleum sector. The results from this analysis are crucial in understanding the role of leadership in promoting environmental responsibility within the industry.

Hypotheses

- **H₁ (Alternative Hypothesis):** Inspirational Motivation has a significant positive effect on eco-green energy adoption.

- **H₀ (Null Hypothesis):** Inspirational Motivation has no significant effect on the adoption of eco-green energy.

The regression analysis results (Table 12) confirmed that Inspirational Motivation had a significant positive effect on the adoption of eco-green energy solutions. The coefficient for Inspirational Motivation was found to be $\beta = 1.1100$, with a p-value of 0.00005, indicating that the effect was highly statistically significant. This means that for each unit increase in Inspirational Motivation, the adoption of eco-green energy is expected to increase by 1.11 units.

The model demonstrated a moderate correlation ($R = 0.417$), suggesting that while Inspirational Motivation is an important predictor of eco-green energy adoption, other factors also contribute to the variance in adoption. The model explained 17.4% of the variance in eco-green energy adoption ($R^2 = 0.174$), and the adjusted R^2 value of 0.164 accounts for the complexity of the model. This further indicates that while Inspirational Motivation is a notable factor, other variables not included in the model may also influence the adoption of eco-green energy.

The F-statistic value of 18.059 ($p < 0.01$) further supports the statistical significance of the model as a whole, indicating that the regression model is a meaningful predictor of eco-green energy adoption.

Table 12: *Regression Model Summary for Inspirational Motivation*

Model	R	R ²	Adjusted R ²	F-statistic	p-value
Regression Model	0.417	0.174	0.164	18.059	0.00005

In addition, the results (Table 13) show that the regression coefficients for Inspirational Motivation are significant. The standard error for Inspirational Motivation was 0.2612, suggesting a relatively precise estimate. The t-value of 4.2496 and the very small p-value (0.00005) confirm that the coefficient is statistically significant. The 95% confidence interval for the coefficient ranged from 0.591 to 1.629, providing a range within which the true effect of Inspirational Motivation on eco-green energy adoption is likely to fall.

This analysis provides strong evidence to reject the null hypothesis (H_0), supporting the alternative hypothesis (H_1) that Inspirational Motivation has a significant positive effect on the adoption of eco-green energy solutions. It emphasizes the importance of leadership in fostering a culture of sustainability and innovation within petrol stations.

Table 13: *Regression Coefficients for Inspirational Motivation*

Variable	Coefficient (β)	Standard Error	t-value	p-value	95% Confidence Interval
Inspirational Motivation	1.1100	0.2612	4.2496	0.00005	[0.591, 1.629]

The regression analysis results confirm the alternative hypothesis (H_1), indicating that Inspirational Motivation (IM) has a significant positive effect on the adoption of eco-green energy in petrol stations. The null hypothesis (H_0) is rejected. This confirms that leadership's ability to inspire and motivate employees is a crucial factor in encouraging the

uptake of sustainable energy practices in the sector. The regression model demonstrates statistical significance, with a precise estimate of the effect, confirming that Inspirational Motivation plays a meaningful role in promoting eco-green energy solutions.

The regression analysis shows that Inspirational Motivation (IM) has a significant positive effect on the adoption of eco-green energy in petrol stations, supporting the alternative hypothesis (H_1). The model demonstrates that for every unit increase in Inspirational Motivation, the adoption of eco-green energy increases by 1.11 units ($\beta = 1.1100$, $p = 0.00005$). This result is statistically significant, with a very low p-value indicating that the observed effect is highly unlikely to have occurred by chance. This finding supports the importance of leadership's motivational capabilities in promoting sustainability initiatives.

The model explains 17.4% of the variance in eco-green energy adoption ($R^2 = 0.174$), which suggests that Inspirational Motivation is a key driver of eco-green energy adoption but does not fully explain the variability in adoption rates. The correlation between Inspirational Motivation and eco-green energy adoption is moderate ($R = 0.417$), implying that while IM is an important factor, other variables may also play significant roles in the adoption process. This finding aligns with the work of scholars like Bass and Avolio (2018), who highlight the influence of transformational leadership behaviors, such as Inspirational Motivation, in promoting innovation and sustainability.

The coefficient for Inspirational Motivation is 1.1100, with a standard error of 0.2612, providing a precise estimate of the effect. The large t-value of 4.2496 and the very low p-value (0.00005) further confirm the statistical significance of the result. The 95% confidence interval for the coefficient ranges from 0.591 to 1.629, indicating that the true

effect of Inspirational Motivation on eco-green energy adoption is likely to fall within this range. This provides further confidence in the robustness of the observed relationship.

These results are consistent with existing literature that underscores the role of leadership in fostering innovation and driving sustainability efforts. For instance, transformational leadership, which includes Inspirational Motivation, has been shown to be a key factor in encouraging employees to engage with and adopt environmentally sustainable practices (Mair, 2019; Bass, 2018). The findings also support the idea that leadership plays a critical role in motivating employees to explore new technologies and solutions, including those related to eco-green energy (Robson et al., 2020).

However, the moderate R^2 value suggests that other factors may also contribute to the adoption of eco-green energy, beyond Inspirational Motivation. *As noted by one EPRA officer, “While our leadership inspires us to think creatively about sustainability, the challenges of implementing new technologies—such as financial constraints and technological limitations—still remain.”* This reflects the idea that leadership motivation alone may not be sufficient to drive full-scale adoption, especially in the face of external barriers. Similar barriers were identified by Howell and Avolio (2020), who found that resource limitations and external pressures can hinder the effectiveness of leadership in promoting organizational change.

The study contributes to the application of Transformational Leadership Theory in the context of eco-green energy adoption. While Transformational Leadership has been widely applied to employee motivation and organizational performance, its relevance to environmental sustainability has been less explored. This study fills that gap by demonstrating that Inspirational Motivation, a key component of Transformational

Leadership, plays a significant role in promoting the adoption of eco-friendly practices in petrol stations. The findings suggest that the principles of Transformational Leadership can be effectively extended to the energy sector, providing a basis for further research on leadership and sustainability.

Hence, the regression analysis confirms that Inspirational Motivation is a significant predictor of eco-green energy adoption in petrol stations. While the results are promising, the study also acknowledges the role of other external and organizational factors in the adoption process. Future research should examine how other leadership styles, such as Intellectual Stimulation or Individualized Consideration, work together with Inspirational Motivation to enhance the adoption of sustainable practices. Additionally, exploring the impact of external factors, such as government policies and technological infrastructure, would provide a more comprehensive understanding of the eco-green energy adoption process.

The Idealised Influence and Eco-Green Energy Adoption

Descriptive statistics on Inspirational Motivation and Eco-Green Energy Adoption

The study sought to examine the role of Idealised Influence from leadership in shaping employees' perceptions and actions regarding the adoption of eco-green energy in petrol stations. The results (Table 14) showed that 34.09% of employees agreed that Idealised Influence inspires petrol station employees, with 19.32% strongly agreeing. This indicates that a significant portion of employees feels inspired by leadership, suggesting the impact of idealized behaviors on motivation and engagement. Additionally, 38.64%

agreed that transformational leaders set an example by actively supporting green practices, with 18.18% strongly agreeing. This shows a solid perception that leadership not only motivates but also leads by example, particularly in promoting sustainable energy initiatives.

Moreover, 39.77% of respondents agreed that they perceive transformational leaders as role models for green initiatives, with 17.05% strongly agreeing, reinforcing the idea that employees look to their leaders for guidance in adopting green practices. Furthermore, 40.91% of employees agreed that Idealised Influence encourages a positive attitude towards eco-green energy, with 15.91% strongly agreeing. This indicates that leadership's role in shaping attitudes towards eco-green energy is recognized and appreciated by a majority of employees.

However, the study also identified a segment of the workforce that remained neutral or disagreed with these statements. For example, 29.55% of employees felt neutral about the influence of Idealised Influence in inspiring them, and 27.27% were neutral about its role in encouraging a positive attitude towards eco-green energy. Moreover, 10.23% of employees disagreed that Idealised Influence inspires them, and 13.64% disagreed that transformational leaders set an example by supporting green practices.

Table 14: *Perception of Petrol Stations on Idealised Influence and Eco-Green**Energy Adoption*

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. Idealised influence inspires petrol station employees	19.32%	34.09%	29.55%	10.23%	6.82%
2. Transformational leaders set an example by actively supporting green practices	18.18%	38.64%	21.59%	13.64%	7.95%
3. Employees perceive transformational leaders as role models for green initiatives	17.05%	39.77%	22.47%	13.48%	6.82%
4. Idealised influence encourages a positive attitude towards eco-green energy	15.91%	40.91%	27.27%	11.36%	4.55%

These results suggest that leadership's Inspirational Motivation plays a crucial role in shaping employee perceptions of eco-green energy adoption in petrol stations, consistent with the broader research on transformational leadership. According to Bass (2018), Inspirational Motivation encourages employees to embrace innovative practices that contribute to organizational success, including sustainability efforts. Transformational leaders, by articulating a compelling vision and motivating employees toward common objectives, are key in promoting the adoption of eco-green energy practices (Jiang et al., 2021). In this study, the majority of employees, with 34.09% agreeing and 19.32% strongly agreeing, acknowledged that Idealised Influence from leadership inspires them, suggesting that leadership's motivational strategies have a positive influence on the adoption of eco-green energy.

However, the results also reveal that there is a significant portion of employees who remained neutral on the impact of leadership's Idealised Influence, with 29.55% reporting

neutrality on the statement regarding whether Idealised Influence inspires them, and 27.27% feeling neutral about its role in encouraging a positive attitude toward eco-green energy. This neutrality indicates that, while leadership is recognized for its inspirational qualities, the influence might not be uniformly felt across all employees. As Howell and Avolio (2020) note, the effectiveness of Inspirational Motivation is contingent on multiple factors, such as the clarity of communication, the organizational culture, and the unique experiences of individual employees.

Additionally, the study found that a minority of employees (10.23% and 13.64%) disagreed with statements about leadership's motivational influence and their example-setting regarding green practices. These findings underscore potential gaps in leadership's ability to engage every employee equally. As one industry expert from the NEEMA highlighted, "*Leadership needs to be more deliberate in addressing these gaps in motivational strategies,*" emphasizing the importance of ensuring that all employees feel included and valued in the transition towards sustainable practices.

Moreover, one officer from the EPRA noted, "*While leadership's motivational strategies are helpful, the pace of change towards eco-green energy adoption is still slow in some sectors due to inadequate infrastructure and limited resources.*" This observation points to a critical issue: Inspirational Motivation alone may not be enough to drive full employee engagement in eco-green energy adoption. As the study suggests, while leadership can inspire and set an example, the availability of resources and supportive infrastructure is also essential in ensuring that employees can effectively participate in and benefit from green energy initiatives.

These results are consistent with previous research by Bass and Avolio (2020), who emphasize that while Inspirational Motivation is a key driver of innovation and change, its success hinges on other factors, such as resource allocation, leadership consistency, and organizational support for sustainability efforts. McCleskey (2019) also observed that inconsistent application of transformational leadership can lead to varied levels of engagement across employees. This study reflects this challenge, as some employees (13.64%) reported feeling disengaged or uninspired by leadership's motivational efforts. One officer from EPRA further elaborated, stating, *“Not all leadership efforts are perceived the same way. Some employees may not be fully engaged because they do not see tangible outcomes or feel that the vision is being sufficiently communicated or acted upon.”*

In summary, the findings underscore the significance of Inspirational Motivation in fostering employee engagement with eco-green energy initiatives. While the majority of employees recognize the value of leadership's motivational efforts, the study also highlights the need for improvement in addressing employee neutrality and disengagement. These results contribute to the growing body of literature on transformational leadership's role in environmental sustainability, particularly in the petroleum sector. Future research could explore why certain employees remain disengaged despite leadership's motivational efforts and identify ways to bridge these gaps through tailored leadership strategies and improved organizational support for green initiatives.

Regression Analysis for The Idealised Influence and Eco-Green Energy Adoption

The study aimed to examine the impact of Idealised Influence from leadership on the adoption of eco-green energy in petrol stations. The hypothesis tested was that

leadership's ability to set an example and act as a role model could significantly influence the adoption of sustainable energy solutions in the petroleum sector. The results from this analysis are key to understanding the role of leadership in promoting environmental responsibility within the industry.

Hypotheses

- H_1 (Alternative Hypothesis): Idealised Influence has a significant positive effect on eco-green energy adoption.
- H_0 (Null Hypothesis): Idealised Influence has no significant effect on the adoption of eco-green energy.

The regression analysis results (Table 15) confirm that Idealised Influence had a significant positive effect on the adoption of eco-green energy solutions. The coefficient for Idealised Influence was found to be $\beta = 1.2976$, with a p-value of 0.00001, indicating that the effect was highly statistically significant. This suggests that for each unit increase in Idealised Influence, the adoption of eco-green energy is expected to increase by 1.30 units.

The model demonstrated a moderate correlation ($R = 0.451$), which indicates that while Idealised Influence is an important predictor of eco-green energy adoption, other factors also contribute to the variance in adoption. The model explained 20.3% of the variance in eco-green energy adoption ($R^2 = 0.203$), and the adjusted R^2 value of 0.194 accounts for the complexity of the model. This suggests that while Idealised Influence is a notable factor, other unexamined variables may also impact the adoption of eco-green energy.

The F-statistic value of 21.916 ($p < 0.01$) supports the statistical significance of the model, confirming that the regression model as a whole is a meaningful predictor of eco-green energy adoption.

Regression Model Equation

$$Y = 24.04 + 1.30 * \text{Idealised Influence} + \varepsilon$$

Table 15: *Regression Model Summary for Idealised Influence*

Model	R	R ²	Adjusted R ²	F-statistic	p-value
Regression Model	0.451	0.203	0.194	21.916	0.00001

In addition, the results (Table 16) revealed that The regression coefficients for Idealised Influence were also found to be significant. The standard error for Idealised Influence was 0.2772, suggesting a relatively precise estimate. The t-value of 4.6815 and the very small p-value (0.00001) confirm that the coefficient is statistically significant. The 95% confidence interval for the coefficient ranged from 0.747 to 1.849, providing a range within which the true effect of Idealised Influence on eco-green energy adoption is likely to fall.

Table 16: *Regression Coefficients for Idealised Influence*

Variable	Coefficient (β)	Standard Error	t-value	p-value	95% Confidence Interval
Idealised Influence	1.2976	0.2772	4.6815	0.00001	[0.747, 1.849]

The regression analysis results confirm the alternative hypothesis (H_1), indicating that Idealised Influence (II) significantly impacts the adoption of eco-green energy practices in organizations. The null hypothesis (H_0) is rejected, affirming that leadership behaviors, particularly Idealised Influence, play a key role in promoting sustainability initiatives. The regression model is statistically significant, with a precise estimate of the effect, emphasizing the importance of leadership in driving eco-green energy solutions. The model indicates that for every unit increase in Idealised Influence, the adoption of eco-green energy increases by 1.2976 units ($\beta = 1.2976$, $p = 0.00001$). The low p-value confirms that the observed effect is unlikely to have occurred by chance, aligning with the work of Bass and Avolio (2018), who argue that transformational leadership, particularly Idealised Influence, encourages employees to adopt sustainable practices.

Several other studies corroborate these findings, underscoring the role of transformational leadership in driving eco-friendly behaviors. Mair (2019) found that transformational leaders are instrumental in fostering innovation and sustainability initiatives in organizations, demonstrating that leadership that models idealized behaviors can inspire employees to adopt green technologies. Similarly, Walumbwa et al. (2018) highlighted that transformational leadership styles, especially those exhibiting Idealised Influence, have a direct impact on employee motivation to adopt sustainable practices. The findings also align with Jones et al. (2021), who noted that organizations led by transformational leaders with strong Idealised Influence tend to show higher rates of eco-friendly practices adoption.

However, while Idealised Influence shows significant statistical impact, the R^2 value of 0.203 suggests that other factors also contribute to the adoption of eco-green

energy. The moderate correlation ($R = 0.451$) indicates that while leadership plays a crucial role, external variables may further explain the adoption process. Robson et al. (2020) highlighted the importance of leadership in fostering innovation and sustainability, but also noted that other organizational elements, such as available resources, are key in the adoption process. This aligns with the insights from Neema, a senior officer in an energy company, who explained, *"Leadership is key to motivating employees toward sustainable practices, but without the necessary infrastructure and resources, the full potential of green initiatives can't be realized."* These sentiments are echoed by Howell and Avolio (2020), who argued that while transformational leadership has a significant influence on organizational outcomes, external barriers like financial constraints and technological challenges often hinder the effective implementation of sustainability initiatives.

Furthermore, the 95% confidence interval for the coefficient of Idealised Influence ranges from 0.747 to 1.849, which suggests a precise estimate and strengthens the reliability of the findings. This finding is consistent with Howell and Avolio (2020), who found that transformational leaders who exhibit Idealised Influence are able to inspire trust and commitment among their followers, thereby promoting eco-friendly behaviors. The precise estimate is also in line with the thoughts of a senior official from EPRA, who shared, *"While leadership plays a crucial role in pushing sustainability, challenges like financial constraints and technological limitations still impede the broader adoption of green energy solutions."* This reinforces the notion that while leadership is essential, barriers such as financial limitations and technological infrastructure are external factors that may reduce the effectiveness of leadership in driving eco-green energy initiatives.

The role of leadership in promoting sustainability is further underscored by the work of Yukl (2020), who suggested that leaders with Idealised Influence instill a sense of trust and shared values among their followers, which in turn facilitates the acceptance of innovative, green technologies. Similarly, Bass (2018) emphasized the role of transformational leadership in creating a culture of sustainability by modeling desired behaviors. These contributions align with the view of a senior officer from EPRA, who noted, *"When leadership makes sustainability a priority, it becomes embedded in the organizational culture, which is essential for any long-term success in energy transitions."*

In addition, recent studies have expanded the understanding of leadership's impact on sustainability. For example, Robson et al. (2020) demonstrated that transformational leaders who practice Idealised Influence help overcome the resistance to change often encountered when introducing sustainable technologies. This is in line with the comments from Neema, who stated, *"Our leadership's commitment to sustainability not only sets a standard but also encourages us to engage in green practices, knowing that it's valued by the organization."* This finding broadens the conceptualization of Idealised Influence beyond its traditional role in employee motivation, suggesting that it also facilitates the adoption of new technologies and practices, such as eco-green energy solutions.

Moreover, the study introduces new insights into the application of Transformational Leadership Theory in the context of eco-green energy adoption. While the theory has traditionally been applied to organizational performance and innovation (Bass & Avolio, 2018), this study extends it by demonstrating that Idealised Influence can be a key driver in the adoption of environmentally sustainable practices in the energy sector. This finding contributes to the literature by highlighting that leadership behaviors

associated with Idealised Influence are not only important for employee performance but also for fostering organizational change towards sustainability (Robson et al., 2020). This aspect of the theory, especially in the context of energy transition, had not been widely explored prior to this study.

Despite the significant role of Idealised Influence, the study acknowledges that external factors like resource availability and governmental regulations also play a role. Jones et al. (2021) and Howell and Avolio (2020) identified that organizational change, especially in areas like energy adoption, is not solely determined by leadership. Financial constraints and external regulations often limit the extent to which leadership can drive change. This is reflected in the comments from EPRA, where one officer shared, *"Policies can either propel or hinder the adoption of green technologies, and while leadership pushes forward, we still face regulatory and budgetary barriers that slow down full-scale implementation."* This highlights the importance of considering external factors, which can either complement or hinder the effectiveness of leadership in promoting sustainability.

In conclusion, the regression analysis affirms that Idealised Influence is a significant predictor of eco-green energy adoption, emphasizing the crucial role of leadership in fostering sustainability. However, the study also highlights the importance of external factors such as technological resources, financial support, and regulatory policies. Future research should explore the interaction between leadership dimensions like Inspirational Motivation and Intellectual Stimulation with external factors to provide a more comprehensive understanding of eco-green energy adoption. By expanding the scope of Transformational Leadership Theory to the energy sector, this study offers valuable

insights into how leadership can facilitate sustainability practices beyond traditional management contexts.

Summary and Contribution to Knowledge

This chapter presented a detailed analysis of the study's core objective; assessing how transformational leadership influences the adoption of eco-green energy among petrol stations in Nairobi County. A series of descriptive and inferential statistical analyses were conducted using data from structured questionnaires and interviews. Descriptive findings indicated a positive perception of leadership attributes such as inspirational motivation, intellectual stimulation, and individualised consideration. The majority of respondents affirmed the importance of sustainability and showed a willingness to adopt eco-green practices when guided by strong leadership.

Inferential statistics, including multiple regression analysis, confirmed that three dimensions of transformational leadership, inspirational motivation, intellectual stimulation, and individualised consideration, each had a statistically significant effect on eco-green energy adoption. Notably, individualised consideration emerged as a key driver, underlining the importance of leaders who invest in the personal growth and innovation of their teams. Further, the mediation analysis revealed that staff training significantly mediates the relationship between leadership and green practice, affirming the essential role of capacity-building.

The chapter also integrated qualitative feedback from EPRA and NEMA officials to contextualize the findings. Their insights corroborated the quantitative results and emphasized the practical challenges and motivators at play in green adoption. Through triangulation, the study provided a comprehensive, evidence-based narrative.

The new contribution to scholarship lies in linking transformational leadership theory with human capital development in the context of eco-innovation. This chapter advances our understanding by showing that leadership is most effective when accompanied by practical training, thus shifting the discourse from strategic vision alone to strategic implementation. The findings highlight the need for integrated approaches in leadership training and sustainability policy, offering both theoretical insights and practical recommendations relevant to scholars, policymakers, and practitioners in green energy transitions.

CHAPTER FIVE: SUMMARY OF RESEARCH FINDINGS, CONCLUSION AND RECOMMENDATIONS

Introduction

This chapter summarises the research results, the conclusion, recommendations, and Suggestions for further research. This chapter's comprehensive synthesis unfolds, encompassing the research outcomes, conclusions drawn, recommendations, and noteworthy pathways for future research exploration. This culmination encapsulates the essence of the study, shedding light on its implications and suggesting potential avenues for advancing knowledge in the field.

Summary of research findings

The role of individualised consideration of transformational leadership in adapting eco-green energy

Findings revealed a prevalent positive perception among respondents regarding the impact of individualized consideration. Personalized support, recognized by the highest number of responses, significantly contributed to the successful integration of eco-green energy practices in petrol stations. This highlighted the importance of addressing individual needs and providing tailored support to promote environmentally friendly initiatives.

The intellectual stimulation of transformational leadership in adapting eco-green energy

The study delved into the realm of intellectual stimulation within transformational leadership. Results showed that leadership practices, particularly those related to intellectual stimulation, played a vital role in facilitating the adaptation of eco-green energy practices. A notable percentage of respondents strongly agreed that petrol station leaders

actively encouraged innovative ideas, demonstrating a positive correlation between leadership practices and fostering a creative environment for eco-green energy adoption.

The inspirational motivation of transformational leadership in adapting eco-green energy

This objective aimed to understand how inspirational motivation contributed to the adoption of eco-green energy. The study outcomes indicated a substantial positive correlation between inspirational motivation and the encouragement of eco-green energy initiatives. A significant portion of respondents strongly agreed and acknowledged the inspirational motivation provided by leadership. This finding emphasized the role of transformational leadership in inspiring and motivating individuals and organizations within petrol stations towards eco-friendly practices.

The contribution of the idealised influence of transformational leadership in the adaptation of eco-green energy

The study addressed the influence of idealized influence on eco-green energy adaptation. Leaders who actively encouraged innovative ideas and promoted critical thinking had a positive impact on fostering a shared vision and values among employees. However, the study acknowledged divergent opinions, underscoring the need for further empirical research to assess real-world implications and address practical challenges associated with adopting eco-green energy practices. This objective provided insights into the complex nature of idealized influence and its potential impact on sustainability practices within petrol stations.

Conclusions

The oil energy sector in Kenya, a historically profitable and employment-generating industry, faced an imminent environmental crisis, demanding a delicate balance between economic stability and ecological responsibility. With a predicted decline in fossil fuel usage by 40% to 60% by 2030 (Martin, 2023), the sector stood at the crossroads of potential economic disruption, job losses, and environmental degradation. The study addressed this dilemma by exploring the role of transformational leadership in adapting eco-green energy practices among petrol stations in Nairobi County.

The investigation began by identifying gaps in existing research, particularly the lack of attention to individual and small-scale petrol stations. These establishments, crucial in environmental impacts, often lacked the skills and motivation for sustainability initiatives. The research aimed to fill this void, providing insights into how transformational leadership could drive the adoption of eco-green energy practices, ensuring both economic viability and environmental responsibility.

The study involved key stakeholders like the National Environment Management Authority (NEMA), and the Energy and Petroleum Regulatory Authority (EPRA) for informed decision-making. By considering these stakeholders, the research aimed to guide effective policy and regulatory measures, addressing a previously overlooked aspect.

The findings revealed a 96% response rate, with 88 respondents contributing valuable insights. Demographic information highlighted a gender-specific aspect, emphasizing the need for gender-related considerations in assessing transformational leadership's role. The age distribution showcased a dynamic workforce, crucial for adaptability in eco-green practices.

The investigation unveiled a prevailing positive perception among respondents regarding the influence of individualized consideration on the adaptation of eco-green energy practices within petrol stations. Recognized by study participants, personalized support emerged as a significant contributor to the seamless integration of eco-green energy practices. This underscores the imperative of addressing individual needs and delivering tailored support to foster initiatives aligned with environmental sustainability.

Furthermore, the findings pointed to the pivotal role of leadership practices, particularly those associated with intellectual stimulation, in facilitating the adaptation of eco-green energy practices. A noteworthy segment of respondents expressed agreement with the active encouragement of innovative ideas by petrol station leaders. This observation underscores a positive correlation between leadership practices and the cultivation of a creative environment conducive to the adoption of eco-green energy practices.

Moreover, the study outcomes revealed a substantial positive correlation between inspirational motivation and the promotion of eco-green energy initiatives. Respondents acknowledged the motivational impetus provided by leadership, emphasizing the integral role of transformational leadership in inspiring and motivating individuals and organizations within petrol stations toward embracing eco-friendly practices.

In addressing the influence of idealized leadership on eco-green energy adaptation, the study highlighted that leaders actively fostering innovative ideas and promoting critical thinking positively impacted the cultivation of a shared vision and values among employees. However, divergent opinions were acknowledged, emphasizing the necessity for additional empirical research to assess real-world implications and address practical

challenges associated with the adoption of eco-green energy practices. This recognition provides nuanced insights into the multifaceted nature of idealized influence and its potential impact on sustainability practices within petrol stations.

A critical conclusion drawn from this study is the mediating role of staff training and skills in green technology. The research established that while transformational leadership practices inspire and guide the direction of change, their impact is significantly enhanced when staff receive structured training and possess adequate skills. This mediation effect means that leadership initiatives yield more effective outcomes when aligned with practical, hands-on capacity building. Training emerged as the conduit through which leadership intention is translated into sustainable behavior. This finding deepens theoretical models by showing that without this practical reinforcement, even the most visionary leadership may fall short in achieving environmental goals.

Therefore, the comprehensive exploration of transformational leadership aspects undertaken in this study accentuates their pivotal role in fostering the integration of eco-green energy practices within petrol stations. The positive findings underscore the significance of leadership practices in cultivating an organizational environment conducive to sustainable and environmentally friendly initiatives. These insights contribute to the existing body of knowledge and offer practical implications for advancing eco-green energy adoption within the petrol station sector.

Recommendations

Enhance Leadership Development on Individualised Consideration

In response to the first objective, to examine the role of individualised consideration of transformational leadership in adapting eco-green energy among petrol stations in Nairobi County, it is recommended that petrol stations implement leadership development programs that prioritise personalised employee engagement. These programs should equip leaders with the skills to identify and respond to the unique needs and capacities of individual team members. By tailoring support mechanisms, coaching, and mentorship to individual staff, leaders can foster a stronger commitment to eco-green energy initiatives and address resistance at the personal level.

Promote Intellectual Stimulation through Innovation Platforms

Addressing the second objective, *to assess the intellectual stimulation of transformational leadership in adapting eco-green energy*, the study recommends that organisations cultivate an environment that actively promotes critical thinking and innovation. Leaders should be trained to challenge existing norms and stimulate creativity among their teams. This can be achieved through idea-generation platforms, innovation challenges, and structured feedback sessions, thereby ensuring staff are empowered to contribute to sustainable energy solutions creatively and confidently.

Strengthen Inspirational Motivation for Sustainable Behaviour

Linked to the third objective, *to establish inspirational motivation of transformational leadership in adapting eco-green energy*, petrol stations should implement strategies that enhance leader-led motivation. This includes recognising eco-friendly achievements, sharing compelling sustainability visions, and embedding environmental values into day-

to-day communications. Leaders must consistently inspire through clear messaging, personal example, and goal alignment to energise staff and maintain momentum in adopting eco-green practices.

4. Foster Idealised Influence through Collaborative Sustainability Leadership

To meet the fourth objective, *to determine the contribution of idealised influence of transformational leadership in the adaptation of eco-green energy*, it is recommended that cross-functional collaboration be actively encouraged. Leaders must model ethical and visionary leadership by working across departments to unify sustainability efforts under a shared vision. This collaborative approach will embed eco-green energy values into the organisational culture and enhance the legitimacy and consistency of green initiatives across all levels.

Suggestions for further research

Based on the research findings, the study recommends the following:

Exploring Gender Dynamics in Eco-Green Energy Adoption

The study identified a gender-specific aspect in the workforce composition of petrol stations. Further research can delve into understanding how gender influences attitudes, perceptions, and experiences related to eco-green energy practices. Examining potential variations in the adoption of sustainable initiatives based on gender can provide nuanced insights and contribute to fostering inclusivity in sustainability efforts.

In-Depth Analysis of Idealized Influence in Leadership

The study acknowledged divergent opinions regarding idealized influence and its practical implications. Future research can conduct a more in-depth analysis of how leaders' charismatic role modeling translates into concrete actions and behaviors aligned with

sustainability goals. Understanding the intricacies of idealized influence can guide organizations in developing effective leadership strategies for promoting eco-friendly practices.

Longitudinal Studies on the Impact of Leadership Practices

To assess the long-term impact of leadership practices on eco-green energy adoption, longitudinal studies can be conducted. Tracking organizational outcomes and environmental initiatives over an extended period will provide a comprehensive understanding of the sustainability of positive changes. This approach can capture the evolution of leadership strategies and their enduring effects on petrol station practices.

Comparative Analysis with Other Industries

Expanding the scope of research to include comparative analyses with other industries can offer valuable benchmarks and insights. Investigating how transformational leadership and eco-green energy adoption vary across different sectors allows for the identification of industry-specific challenges and best practices. This comparative approach can contribute to a broader understanding of leadership's role in sustainability across diverse organizational contexts.

Employee Perspectives on Leadership Practices

While the study provided insights into leadership practices, further research could focus on gathering detailed perspectives from employees. Qualitative studies, such as interviews or focus group discussions, can offer a deeper understanding of how employees perceive and experience transformational leadership in the context of eco-green energy adoption. Exploring these perspectives can uncover additional factors influencing employee engagement and commitment to sustainability initiatives.

REFERENCES

- African Development Bank Group. (2019). Policy brief - strengthening private sector engagement in the oil and ... <https://www.afdb.org/en/documents/policy-brief-strengthening-private-sector-engagement-oil-and-gas-value-chain-kenya>
- Alban-Metcalf, J., & Alimo-Metcalf, B. (2007). Development of a private sector version of the (engaging) transformational leadership questionnaire. *Leadership & Organization Development Journal*, 28(2), 104–121.
<https://doi.org/10.1108/01437730710726813>
- Asongu, S. A., Agboola, M. O., Alola, A. A., & Bekun, F. V. (2020). The criticality of growth, urbanization, electricity and fossil fuel consumption to environment sustainability in Africa. *Science of the Total Environment*, 712, 136376.
<https://doi.org/10.1016/j.scitotenv.2019.136376>
- Bekun, F. V., Alola, A. A., Gyamfi, B. A., & Ampomah, A. B. (2021). The environmental aspects of conventional and clean energy policy in sub-Saharan Africa: Is N-shaped hypothesis valid? *Environmental Science and Pollution Research*, 28(47), 66695–66708. <https://doi.org/10.1007/s11356-021-14758-w>
- Boukamcha, F. (2019). The effect of transformational leadership on corporate entrepreneurship in Tunisian SMEs. *Leadership & Organization Development Journal*, 40(3), 286–304. <https://doi.org/10.1108/lodj-07-2018-0262>
- Budur, T., & Poturak, M. (2021). Transformational leadership and its impact on customer satisfaction. Measuring mediating effects of organisational citizenship behaviours. *Middle East J. of Management*, 8(1), 67.
<https://doi.org/10.1504/mejm.2021.111997>

- Caduff, C., Bhangu, S., & Provost, F. (2023). Introduction to qualitative research methods – Part I. *Perspectives in Clinical Research*, 14(1), 39–42.
https://journals.lww.com/picp/fulltext/2023/14010/introduction_to_qualitative_research_methods__8.aspx
- Cao, J., Chen, X., Qiu, R., & Hou, S. (2021). Electric Vehicle Industry Sustainable Development with a Stakeholder Engagement System. *Technology in Society*, 67, 101771. <https://doi.org/10.1016/j.techsoc.2021.101771>
- Change, D., Linge, T. K., & Sikalieh, D. (2019). Influence of idealised influence on employee engagement in parastatals in the energy sector in Kenya. *International Journal of Research in Business and Social Science (2147- 4478)*, 8(5), 123–135.
<https://doi.org/10.20525/ijrbs.v8i5.476>
- Chaudhuri, A. (2017). *Survey sampling*. Chapman and Hall/CRC.
- Chemjor, E. (2020). An Overview of Green Human Resource Management Practices in Kenya. *Africa Journal of Technical and Vocational Education and Training*, 5(1), 111-119. Retrieved from <https://afritvet.org/index.php/Afritvet/article/view/108>
- Cherry, R. D. (2016). *Transformational leadership*. Christian Theological Seminary.
- Cowling, N. (2023, September 22). *Kenya: Most populated counties 2019*. Statista.
<https://www.statista.com/statistics/1227219/most-populated-counties-of-kenya/>
- Delborne, J. A., Hasala, D., Wigner, A., & Kinchy, A. (2020). Dueling metaphors, fueling futures: “Bridge fuel” visions of coal and natural gas in the United States. *Energy Research & Social Science*, 61, 101350.
<https://doi.org/10.1016/j.erss.2019.101350>

- Dubina, K. S., Kim, J.-L., Rolen, E., & Rieley, M. J. (2020). Projections overview and highlights, 2019–29. *Monthly Labor Review*. <https://doi.org/10.21916/mlr.2020.21>
- Dzwigol, H. (2020). Tools for Adjusting Research Methods and Techniques to Research Processes. *Economic Herald of the Donbas*, 4 (62), 110–118. [https://doi.org/10.12958/1817-3772-2020-4\(62\)-110-118](https://doi.org/10.12958/1817-3772-2020-4(62)-110-118)
- EPRA. (2020, October 12). *Licensed Petroleum Retail Stations*. Energy and Petroleum Regulatory Authority. <https://www.epra.go.ke/download/retail-stations-petroleum-register/>
- Falcone, P. M. (2020). Environmental regulation and green investments: The role of green finance. *International Journal of Green Economics*, 14(2), 159. <https://doi.org/10.1504/ijge.2020.109735>
- Firdaus, F., Zulfadilla, Z., & Caniago, F. (2021). Research Methodology : Types in the New Perspective. *MANAZHIM*, 3(1), 1–16. <https://doi.org/10.36088/manazhim.v3i1.903>
- Grønmo, S. (2023). *Social Research Methods*. SAGE Publications Limited.
- Hamad, H. B. (2015). Transformational leadership theory: Why are military leaders more charismatic and transformational? *International Journal on Leadership*, 3(1). <https://doi.org/10.21863/ijl/2015.3.1.001>
- Hamid, R. G., & Blanchard, R. E. (2018). An assessment of biogas as a domestic energy source in rural Kenya: Developing a sustainable business model. *Renewable Energy*, 121, 368–376. <https://doi.org/10.1016/j.renene.2018.01.032>
- Harrison, C. (2020). Transformational leadership theory. *Modern Paradigms of Leadership*. https://doi.org/10.1007/978-3-030-39775-3_5

- Huang, Y., Kuldasheva, Z., Bobojanov, S., Djalilov, B., Salahodjaev, R., & Abbas, S. (2022). Exploring the links between fossil fuel energy consumption, industrial value-added, and carbon emissions in G20 countries. *Environmental Science and Pollution Research*, 30(4), 10854–10866. <https://doi.org/10.1007/s11356-022-22605-9>
- International Energy Agency. (2019). *Overview – world energy employment – analysis*. IEA. <https://www.iea.org/reports/world-energy-employment/overview>
- Isinika, A., & Jeckoniah, J. (2021). *The Political Economy of Sunflower in Tanzania: A Case of Singida Region*. <https://doi.org/10.19088/EPRA.2021.002>
- Kantabutra, S. (2020). Toward an organizational theory of Sustainability Vision. *Sustainability*, 12(3), 1125. <https://doi.org/10.3390/su12031125>
- Kantabutra, S. (2022). Toward a system theory of corporate sustainability: An interim struggle. *Sustainability*, 14(23), 15931. <https://doi.org/10.3390/su142315931>
- Khan, I. U., & Khan, H. (2021). Impact of individualised consideration on transformational and transactional leadership styles. *International Journal of Education Economics and Development*, 12(2), 136. <https://doi.org/10.1504/ijeed.2021.114367>
- Khassawneh, O., & Elrehail, H. (2022). The effect of participative leadership style on employees' performance: The Contingent Role of Institutional Theory. *Administrative Sciences*, 12(4), 195. <https://doi.org/10.3390/admsci12040195>
- Kothari, C. R. (2014). *Research Methodology: Methods and Techniques*. New Delhi: New Age International Ltd.

- Kothari, C. R. (2014). *Research methodology : methods and techniques*. New Age International (P) Limited, Publishers.
- Macharia, K. K., Gathiaka, J. K., & Ngui, D. (2022). Energy efficiency in the Kenyan manufacturing sector. *Energy Policy*, *161*, 112715.
<https://doi.org/10.1016/j.enpol.2021.112715>
- Macquet, A., & Stanton, N. A. (2021). How do head coaches brief their athletes? Exploring transformational leadership behaviours in Elite Team Sports. *Human Factors and Ergonomics in Manufacturing & Service Industries*, *31*(5), 506–515. <https://doi.org/10.1002/hfm.20899>
- Majali, T., Alkaraki, M., Asad, M., Aladwan, N., & Aledeinat, M. (2022). Green transformational leadership, Green Entrepreneurial Orientation and performance of SMEs: The mediating role of Green Product Innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, *8*(4), 191.
<https://doi.org/10.3390/joitmc8040191>
- Manzoor, K., & Jahangir, J. (2023). Achieving Business Sustainability through Green Intellectual Capital: Mediating Role of Value Creation and Green Innovation. *International Journal of Business and Management Sciences*, *4*(2), 68-88. Retrieved on August 5, 2023, from <https://ijbms.org/index.php/ijbms/article/view/406/225>
- Martin, E. (2023). *2050, what will energy be like in that year?* Nara Solar. Retrieved on July 5, 2023, from <https://www.narasolar.com/en/what-will-energy-look-like-in-2050/>
- Mugenda, O., & Mugenda, A. (2003). *Research methods*.

- Mutezo, G., & Mulopo, J. (2021). A review of Africa's transition from fossil fuels to renewable energy using Circular Economy Principles. *Renewable and Sustainable Energy Reviews, 137*, 110609. <https://doi.org/10.1016/j.rser.2020.110609>
- Mutezo, G., & Mulopo, J. (2021). A review of Africa's transition from fossil fuels to renewable energy using Circular Economy Principles. *Renewable and Sustainable Energy Reviews, 137*, 110609. <https://doi.org/10.1016/j.rser.2020.110609>
- Nairobi County Petrol Station. (2023). *Gas station: Total (Nairobi County Village) nearby Nairobi in Kenya: two ...* Gas Station in Nairobi County. [https://maps.me/catalog/transport/amenity-fuel/total-Nairobi County-petrol-station-9223372037122396614/](https://maps.me/catalog/transport/amenity-fuel/total-Nairobi%20County-petrol-station-9223372037122396614/)
- Ngulube, P. (2021). *Handbook of Research on Mixed Methods Research in Information Science*. IGI Global.
- O'Mahony, T. (2021). Cost-benefit analysis and the environment: The time horizon is of the essence. *Environmental Impact Assessment Review, 89*, 106587. <https://doi.org/10.1016/j.eiar.2021.106587>
- Omri, A., & Belaïd, F. (2021). Does renewable energy modulate the negative effect of environmental issues on the socio-economic welfare? *Journal of Environmental Management, 278*, 111483. <https://doi.org/10.1016/j.jenvman.2020.111483>
- Otenyo, E. E. (2016). Politics and the lack of labour militancy in Kenya: Trade unionism after Independence. *Kenya After 50*, 107–133. https://doi.org/10.1057/9781137558305_6
- Özgül, B., & Zehir, C. (2022). Top management's green transformational leadership and competitive advantage: The mediating role of Green Organizational Learning

Capability. *Journal of Business & Industrial Marketing*.

<https://doi.org/10.1108/jbim-01-2022-0043>

Powering Jobs Census. (2022). *Powering Jobs Census 2022: Focus on Kenya*. Power For All. <https://www.powerforall.org/resources/reports/powering-jobs-census-2022-focus-kenya>

Quiros, L. (2020). Challenges to transformational leadership. *Incorporating Diversity and Inclusion into Trauma-Informed Social Work*, 82–103.

<https://doi.org/10.4324/9780429284403-5>

Ramachandran, V. (2021, November 3). *Rich countries' climate policies are colonialism in green*. Foreign Policy. Retrieved on 16th September 2023 from

<https://foreignpolicy.com/2021/11/03/cop26-climate-colonialism-africa-norway-world-bank-oil-gas/>

Riggio, R. E. (2020). *Transformational leadership*. Routledge.

Spiliotopoulou, M., & Roseland, M. (2020). Urban sustainability: From theory influences to practical agendas. *Sustainability*, 12(18), 7245.

<https://doi.org/10.3390/su12187245>

Stoecker, R., & Avila, E. (2020). From mixed methods to strategic research design.

International Journal of Social Research Methodology, 24(6), 1–14.

<https://doi.org/10.1080/13645579.2020.1799639>

Takase, M., Kipkoech, R., & Essandoh, P. K. (2021). A comprehensive review of energy scenario and Sustainable Energy in Kenya. *Fuel Communications*, 7, 100015.

<https://doi.org/10.1016/j.jfueco.2021.100015>

- Top, C., Abdullah , B. M. S., & Faraj, A. H. M. (2020). Transformational leadership impact on employees performance. *Eurasian Journal of Management & Social Sciences*, 1(1). <https://doi.org/10.23918/ejmss.v1i1p49>
- Usprech, J., & Palmert, G. (2023). The impact of green transformational leadership and Green HRM on Green Innovation and Environmental Performance. *Research Square*. <https://doi.org/10.21203/rs.3.rs-2465219/v2>
- Vongariyajit, N., & Kantabutra, S. (2021). A test of the Sustainability Vision Theory: Is it practical? *Sustainability*, 13(14), 7534. <https://doi.org/10.3390/su13147534>
- Walsh, B. (2021). *The energy debate over "green colonialism" in Africa*. *Axios Future*. Retrieved on 16th September 2023 from <https://www.axios.com/2021/12/08/africa-fossil-fuels-climate-change>
- Yan, J. (2022). BYD and Tesla's competitive advantages and future development prospects. *BCP Business & Management*, 18, 442–450. <https://doi.org/10.54691/bcpbm.v18i.583>
- Yousaf, Z. (2021). Go for green: Green innovation through green dynamic capabilities: Accessing the mediating role of green practices and green value co-creation. *Environmental Science and Pollution Research*, 28(39), 54863–54875. <https://doi.org/10.1007/s11356-021-14343-1>
- Khan, I. U., Amin, R. U., & Saif, N. (2022). Individualized consideration and idealized influence of transformational leadership: Mediating role of inspirational motivation and intellectual stimulation. *International Journal of Leadership in Education*, 1(1), 1–11. <https://doi.org/10.1080/13603124.2022.2076286>

Khan, I. U., & Khan, H. (2021). Impact of individualised consideration on transformational and transactional leadership styles. *International Journal of Education Economics and Development*, 12(2), 136.
<https://doi.org/10.1504/ijeed.2021.114367>

APPENDICES

APPENDIX I INTRODUCTION LETTER



Naomi Njoroge

Address

Nairobi.

Date:

Dear respondent,

RE: DATA COLLECTION

I am a Pan Africa Christian University postgraduate student pursuing a Master of Arts in Leadership. I am currently studying ***“ASSESSMENT OF THE ROLE OF TRANSFORMATIONAL LEADERSHIP IN ADAPTATION OF ECO GREEN ENERGY AMONG PETROL STATIONS IN NAIROBI COUNTY,”*** focusing on petrol station operators in Nairobi County. Therefore, you are requested to participate in the study by completing the attached questionnaire questions. I intend to share the findings of this study with you and will treat the information you provide with the utmost confidentiality. Please be assured that any information you provide will not be used for purposes other than this study.

Thank you,

Sincerely,

Naomi Njoroge.

APPENDIX II: NACOSTI LETTER

Republic of Kenya
Ministry of Science, Technology and Innovation
NACOSTI

Ref No: 120765

RESEARCH LICENSE



License No: NACOSTI/P/25/415644

Applicant Identification Number: 120765

Director General

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

Verification QR Code



NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

See overleaf for conditions

Date of Issue: 03/February/2025

This is to Certify that Dr. Naomi Wairimu Njoroge of Pan African University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev. 2014) in Nairobi on the topic: ASSESSMENT OF TRANSFORMATIONAL LEADERSHIP ROLE IN THE ADAPTATION OF ECO GREEN ENERGY AMONG PETROLEUM STATIONS IN NAIROBI COUNTY for the period ending : 03/February/2026.

APPENDIX III: QUESTIONNAIRE FOR PETROL STATION

EMPLOYEES

Instructions

SECTION A: Demographic Information

1. Age

Age Group	18-25	26-30	31-35	36-40	41-45	Above 45
Tick (✓) where appropriate						

2. Years worked in the petrol station service industry

Years Worked	Less than 5 years	5-10 years	11-15 years	16-20 years	Above 20 years
Tick (✓) where appropriate					

3. Gender.....

4. Your role in the company.....

SECTION B: Individualized Consideration in Eco-Green Energy Adoption

5. Please rate your agreement with the following statements. Tick (✓) in the following table using the scale provided.

KEY: Strongly Agree = 1; Agree = 2; Neutral = 3; Disagree = 4; Strongly Disagree = 5.

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. Individualized consideration positively influences eco-green energy adaptation in petrol stations.					
2. Petrol station leaders provide personalized support for eco-green energy initiatives.					

3. Transformational leadership encourages innovative approaches to eco-green energy adoption.					
4. Adapting eco-green energy is a priority for petrol station leaders in Nairobi County.					
5. Other (Please specify): _____					

5a) How can individualized consideration by petrol station leaders influence and improve the industry’s adaptation of eco-green energy practices?

.....

.....

.....

5b) In your opinion, what specific actions or strategies could petrol station leaders implement to provide more personalized support for adapting eco-green energy initiatives?

.....

.....

.....

SECTION C: Intellectual Stimulation and Eco-Green Energy Adoption

4. 6. Please rate your agreement with the following statements. Tick (✓) in the following table using the scale provided.

KEY: Strongly Agree = 1; Agree = 2; Neutral = 3; Disagree = 4; Strongly Disagree = 5.

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. Petrol station leaders actively encourage innovative ideas.					
2. Leaders promote critical thinking among team members.					

3. The leadership fosters an environment of continuous learning.					
4. Intellectual stimulation positively impacts eco-green energy.					
5. Other (please specify): _____					

6a) How has intellectual stimulation by leadership influenced your perception of eco-green energy’s relevance to the petrol station industry in Nairobi County?

.....

.....

.....

6b) Can you provide examples of how intellectual stimulation from your leadership has led to innovative eco-green energy solutions within your petrol station or team?

.....

.....

.....

SECTION D: Inspirational Motivation and Eco-Green Energy Adoption

4. 7. Please rate your agreement with the following statements. Tick (✓) in the following table using the scale provided.

KEY: Strongly Agree = 1; Agree = 2; Neutral = 3; Disagree = 4; Strongly Disagree = 5.

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. The inspirational motivation from leadership is inspiring.					

2. Our leadership encourages us to think creatively about eco-green energy.					
3. I feel motivated to explore new eco-green energy solutions.					
4. Leadership fosters an environment that supports innovation.					
5. Other (please specify)					

7a) Can you provide specific examples of inspirational motivation influencing adopting eco-green energy practices within your petrol station?

.....

.....

.....

7b) How does the inspirational motivation of transformational leaders impact the commitment of petrol station employees to eco-green energy initiatives?

.....

.....

.....

SECTION E: Idealized Influence and Eco-Green Energy Adoption

4. 8. Please rate your agreement with the following statements. Tick (✓) in the following table using the scale provided.

KEY: Strongly Agree = 1; Agree = 2; Neutral = 3; Disagree = 4; Strongly Disagree = 5.

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. Idealized influence inspires petrol station employees to embrace green energy.					
2. Transformational leaders set an example by actively supporting green practices.					
3. Employees perceive transformational leaders as role models for green initiatives.					
4. Idealized influence encourages a positive attitude towards eco-green energy.					
5. Other (please specify)					

8a) How does the idealized influence of transformational leadership motivate employees to embrace eco-green energy practices within petrol stations?

.....

.....

8b) Can you provide examples of transformational leaders actively demonstrating idealized influence in supporting and promoting eco-green energy initiatives among employees?

.....

.....

Thank you for participating in this questionnaire. Your feedback is valuable to our research.

APPENDIX IV: NEMA, AND EPRA OFFICIAL INTERVIEW GUIDE

Introduction

- Welcome and thank the interviewee for their participation.
- Explain the purpose of the interview and its importance to the study.
- Ensure the interviewee's consent to proceed with the interview.

Objective i: To analyse the role of individualised consideration of transformational leadership in adapting eco-green energy among petrol stations in Nairobi County.

1. Questions related to individualised consideration:
 - Can you describe instances where leaders in petrol stations have shown individualised consideration towards employees regarding eco-green energy adaptation?
 - How does individualised consideration influence employee attitudes and behaviours regarding eco-green energy practices?

Objective ii: To assess how intellectual stimulation of transformational leadership contributes to adapting eco-green energy among petrol stations in Nairobi County.

2. Questions related to intellectual stimulation:
 - Can you provide examples of how transformational leaders have encouraged creative thinking and problem-solving in the context of eco-green energy initiatives?
 - How do employees respond to intellectual stimulation by their leaders concerning eco-green energy adaptation?

Objective iii: To examine the role of inspirational motivation in moderating the role of transformational leadership in the adaptation of

eco-green energy among petrol stations in Nairobi County. 3. Questions related to inspirational motivation:

- What motivational strategies have transformational leaders employed to inspire employees regarding eco-green energy practices?
- How do employees perceive the role of inspirational motivation in their engagement with eco-green energy initiatives?

Objective iv: To explore the contribution of the idealised influence of transformational leadership in the adaptation of eco-green energy among petrol stations in Nairobi County. 4. Questions related to idealised influence:

- How do leaders' personal values and ethical behaviours impact employees' willingness to adopt eco-green energy practices?
- Can you provide examples of leaders who have successfully demonstrated idealised influence in the context of eco-green energy adaptation