

HOW RENEWABLE ENERGY INITIATIVES HAVE BEEN SUCCESSFULLY
IMPLEMENTED IN MOROCCO

by

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Submitted in partial fulfilment of the requirements
for the degree of Bachelor of Arts Environment, Sustainability and Society and International
Development Studies

at

Dalhousie University
Halifax, Nova Scotia
May 2019

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DALHOUSIE UNIVERSITY

DATE: May 3rd, 2019

AUTHOR: Mansita M. Njie

TITLE: How Renewable Energy Initiatives Been Successfully Implemented in Morocco

DEPARTMENT OR SCHOOL: College of Sustainability

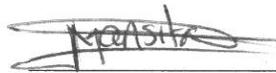
DEGREE: Bachelor of Arts Environment,
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International Development Studies

CONVOCATION: May, 2019

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ACKNOWLEDGEMENTS

I would like to thank my supervisor Anders Hayden and my professors Steven Mannell and Andrew Berge for their continuous support and guidance throughout this process. Thank you for your patience, encouragement and constructive feedback.

To my dearest, my parents and siblings thank you for your love and support. Your words of encouragement continue to be my source of strength.

To my tribe, Nana Apreku, Shanni Cyrus and Bai Bintou kaira thank you for being the best support system I could ever ask for. I wouldn't have been able to do this without your support and friendship.

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ABSTRACT

Most of the literature around transitioning economies to green growth focuses on developed countries because they are assumed to be the only countries that can afford to transition.

Morocco, a developing country, has implemented the world's most ambitious renewable energy plan to diversify its energy mix and reduce the country's dependence on imported energy. Using document analysis, the data around how Morocco's renewable energy sector is constructed, collected, coded and evaluated to demonstrate how the sector was established and what legal frameworks govern it. Morocco recognized that in order to develop its energy sector it needed to liberalize it to attract private and direct foreign investment. Morocco has been able to establish a specialized national agency that focuses on pushing and promoting the renewable energy sector to ensure its growth and development. Morocco has been able to establish a blueprint that other African countries can emulate and strive for.

1 INTRODUCTION

1.1 Overview

The ever-increasing consequences of environmental degradation have intensified the need for mitigation and adaption efforts to address environmental issues. The quest to lower carbon emissions is especially important in the efforts towards mitigating global warming and climate change. Environmental issues have become a global concern, impacting all countries, with the brunt of the impacts shouldered by developing countries. The increase in environmental degradation can be largely attributed to the use of fossil fuels (Zysman & Huberty, 2012). Nonetheless, there is still hesitation towards emission reduction due largely to the economic consequences this presents. With this precedent, it is necessary to develop and implement methods that address GHG (greenhouse gas) emissions while still attaining economic growth. This will require reducing dependence on traditional energy sources, such as coal and oil, and turning towards renewable energy. The concept of attaining economic growth while simultaneously improving environmental sustainability is imbedded in ecological modernization which aims to achieve green growth.

Green growth is defined by the Organisation for Economic Co-operation and Development (OECD) as “the means of fostering economic growth and development, while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies” (Rosenbaum, pg1,2017). This is a concept that recognises that economic development can be achieved in a way that will avoid environmental degradation. The green growth concept gained momentum after the 2009 economic crisis and a series of failed global climate negotiations to cut down carbon dioxide emissions (Zysman & Huberty, 2012). Green growth was considered a feasible method to attain emission reduction and address economic concerns through job creation, while still preserving the natural resources and

environmental services necessary to ensure wellbeing (Zysman & Huberty, 2012). This resulted in the pursuit of renewable energy and innovative green technology as viable pathways for job creation in the Global North.

This study will utilize the theoretical framework of ecological modernization, which advocates for sustainable capitalism, to analyse how green growth can be achieved. The theory establishes that there is no fundamental conflict between ecological modernization and ecological sustainability and that both can exist with modernization (Dryzek, 2013). Capitalism will create room for more ecologically-efficient production fueled by competition (Dryzek, 2013). In the study, this framework is used as the foundation to understanding the move to green growth through renewable energy in Morocco.

1.2 Case Study Selection

The literature on the transition towards green economies mainly focuses on how developed countries can build strong energy systems by shifting towards green economies, because they have the investment capital, technology and infrastructure to make the transition. The analysis of transitioning and strong renewable industries is largely focused on wealthy nations, and one of the chief motivating factors, cited by proponents of the ecological modernization model of attaining green growth, is the comparative advantage and first mover benefits for developed countries (Zysman & Huberty, 2012). Conversely, the focus for developing countries is poverty alleviation and they are positioned to take adaptation measures towards environmental issues by being provided aid and technology transfer. This is because some scholars argue that poorer countries need development first before concentrating on environmental sustainability. Proponents of this argument claim that the populations in low-income countries are more concerned with poverty reduction and economic growth than the environment. They argue that

low-income countries cannot afford to channel their limited resources towards combating environmental issues when they are plagued with more pressing socioeconomic issues that have hindered their development. For instance, they are preoccupied with enhancing social inclusion, improving human welfare, creating opportunities for employment, and ensuring proper access to healthcare and education.

Morocco, a developing country in North Africa, challenged this notion by launching its renewable energy strategy plan in 2012. Its strategy aims to diversify Morocco's energy mix and promote energy efficiency. The Moroccan government has implemented policies and agencies to mitigate climate and energy concerns while simultaneously pursuing economic growth. Morocco's shift towards green growth has positioned it as a leader in the green sector, as will be further explained in later chapters. Morocco is directing the development of its economy to a low carbon and climate change resilient one, by reducing its dependence on imported hydrocarbons and electricity to meet its growing energy demands, which have been driven by economic growth and demographic increase. The aim of this study is to understand the factors that have influenced and motivated Morocco's transition towards renewable energy and how its renewable energy sector was constructed.

1.3 Research Question

This study will explore how renewable energy initiatives have been implemented in Morocco to enable the pursuit of green growth. The research will examine who the key actors are in the renewable energy sector, how they were able to influence policies in favor of going green, the legal framework, and what benefits the key players will gain. The main argument will be dissecting the prevalent notion that green growth policies advocate for structural transformation and industrial development more suited for developed countries than developing economies

(Barbier, 2016). However, there are several secondary questions that will be answered and analyzed throughout this study. What successes has Morocco had in achieving green growth through renewable energy development? How renewable energy projects are financed? Which key actors and stakeholders are part of the renewable energy development in Morocco? How have external factors contributed to or influenced the pathway towards green growth in Morocco? These questions will be answered using document analysis that focus on the Moroccan case.

1.4 Contribution of the Study

The study will contribute to discourse on how developing countries can build viable renewable energy sectors by utilising their natural resources. It will help shape the way sustainable development and green growth is approached and illustrate the possible avenues for export of renewable energy to developed countries to meet their 2020 carbon reduction targets (Zysman and Huberty, 2012). In addition, this study will highlight the policies advocated to achieve green growth and the trade-offs these policies involve in the context of low-income and developing economies. If green growth is to have relevance for low and middle-income economies, it must also be compatible with the most important development objective for these countries: poverty alleviation (Barbier, 2016). As this study is focused on a country that has already undertaken the path to green growth, the emphasis will be on understanding the instruments utilized to ensure the creation of a vibrant renewable energy sector and the contributing factors that have guided and motivated this shift.

This study is significant because it sets a precedent for other developing countries to emulate, as it exemplifies feasible pathways of attaining green growth and industrialization. The study has the power to broaden the discourse around green growth with regards to developing

countries. It can also help encourage and redirect the current analysis of green transitions to include developing countries. Furthermore, Morocco will serve as an example of the benefits of transitioning to a green economy through renewable energy. Furthermore, this study will show examples of environmentally friendly policies that were adapted to enable an economy-wide transformation and aid poverty alleviation in developing countries.

1.5 Scope (Delimitations), Limitations, Assumptions and Research Bias

The study will primarily focus on Morocco. Although external factors that have directly influenced or played a role in enabling the transition will be considered, the focus will remain on understanding the motivating factors that have influenced the creation of a vibrant renewable energy sector in Morocco. This research is in favor of green growth through renewable energy in developing countries and Morocco is a key example of how attainable the transition can be in the Global South.

1.6 Summary

Morocco is a leader in renewable energy in developing countries, however, transitioning to a green growth economy through renewable energy will require structural change and strategic policies to guide the shift. These policies can be only implemented with support from a multitude of actors coming together. A political coalition also plays a key role in directing the shift and creating a conducive environment for renewable energy to thrive. Moreover, it is crucial to understand that the structural transformation process has been successful so far.

2 LITERATURE REVIEW

This literature review will primarily focus on the theoretical frameworks that the project is built upon. The first section will be focused on green growth and the different perspectives surrounding this concept. The second section will highlight the concept of sustainable development, how it compares to green growth as a theoretical framework, and the challenges associated with the respective concepts in ensuring a successful economic transition to green growth. The third section will look at how economies can successfully transition and how the transfer of knowledge and resources are implemented. This section will highlight green growth and sustainable development from a developing country perspective.

2.1 Green Growth as a Paradigm Shift

Green growth provides an alternative pathway to achieve both economic growth and environmental sustainability simultaneously in a manner that differs from traditional industrial economic growth. The focus of green growth is to achieve a low emission economy by directing waves of investment into technological innovation and green job creation (Zysman & Huberty, 2013). Reilly (2013) defines green growth as a switch towards renewable energy from reliance on fossil fuel. This shift also involves a divergence from harmful practices that negatively impact the environment while encouraging a transition towards adapting energy efficiency and other sustainable measures. These changes trigger the creation of green jobs that are environmentally friendly and responsible, resulting in economic prosperity (Reilly, 2012). Green growth provides an alternative means to achieve stringent climate targets while still stimulating the economy (Antal et. al, 2016). One of the main points highlighted by champions of green growth is innovation related to low-carbon energy technology which will redirect reliance on fossil fuel usage and reduce climate change risk (Sonnenschein & Mundaca, 2015).

2.2 Why Green Growth?

Green growth is considered a means of meeting climate targets set in international negotiations on the agenda for climate action and emission reduction. Green growth succeeded sustainable development as an alternative means of combating climate change without posing a threat to economic growth and productivity (Sterner & Damon, 2011). It is regarded as a solution to the climate change burden sharing which is based on equal but differential responsibility. Climate change burden sharing is the concept that developed countries must shoulder the majority of the climate mitigation burden because they are historically the major emitters dating back to the industrial revolution (Zhang, 2014). On the other hand, developing countries must shoulder some burdens too; however, developed countries must provide financial resources and a transfer of knowledge to strengthen their climate mitigation projects because developing countries are disproportionately impacted by climate change (Zhang, 2014). Reilly (2011) highlights the need for fairness and burden sharing. Reilly emphasizes the necessity to consider equity in green growth policies due the disproportionate impact of climate change between nations.

Zysman and Huberty also echo the sentiment of green growth as a tool for climate change mitigation and abatement. However, they look further into why green growth is beneficial to emitters - especially following the 2008 financial crisis – because, while pursuing emission reduction, it also surfaced as a way to tackle economic stagnation and political instability caused by economic recession. In the context of developing countries, it created the opportunity for them to continue pursuing their developmental aspirations while combating environmental concerns (Sterner & Damon, 2011).

2.3 Debates Around Green Growth

Opinions on the effectiveness of green growth strategies remain divided. Zysman and Huberty (2012) raise concerns about green growth focusing mainly on job creation and export-led-growth. In their view, green jobs are mostly short-term jobs and cannot offset industrial jobs, making them limiting in the long run and potentially ineffective in influencing the climate. The Keynesian model of stimulating the economy through government spending, and using job creation to justify climate change mitigation, creates barriers for long-term mitigation if the economic growth expectations are not met (Reilly, 2012). Reilly also questions the usage of GDP as a measure of growth as it does not account for resource depletion and the cost of using environmental resources. This is not optimal for green growth as it does not take the environmental factors into account.

Zysman and Huberty (2012) propose carbon pricing as a tool to encourage the transition to a green economy. This tool is meant to incentivize investment in environmentally friendly research, technology and green industries by placing a cost on pollution and influencing behaviour. However, the authors acknowledge the fact that carbon pricing is dependent on the functionality of political systems to be effective and sustainable. There is still a need for cooperation between various industries, environmental supporters, and other actors to garner support for the shift towards a greener energy system. These actors require an incentive to push the green growth agenda forward, thus, supporters of carbon pricing play a crucial role in influencing policy (Gazheli, Bergh & Antal, 2016).

2.4 The Reality of Green Growth in Developing Countries

Green growth is positioned as an alternative pathway for developing countries to meet their developmental aspirations while combating climate change and lowering their emissions (Stern

& Damon, 2011). It presents a new trajectory for developing countries to attain development through low emission technology and green industries (Reilly, 2012). The feasibility of green growth in developing countries, however, will require a different approach of structural transformation and industrial development that reconciles poverty reduction with environmental protection. For green growth to succeed in developing countries, these two factors – poverty alleviation and natural resource use – must be tackled through stringent policies and should be included in green growth policies in general (Barbier, 2016). However, countries have different individual national goals or motivating factors for pursuing green growth. Some countries pursue green growth for energy security, independence and emission reduction, while others aim to use their domestic natural resources productively to achieve economic growth (Gazheli, Bergh & Antal, 2016).

2.5 Sustainable Development

The Brundtland Commission defines sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment & Development, 1987, 8). Naturally, however, there are various other interpretations of what sustainable development means in practice. Overall, sustainable development in a developing world context seeks to meet the basic needs of the people and provide equity (Conca & Dabelko, 1998). This concept identifies poverty as a key source of environmental degradation and recognizes that sustainable economic growth needs to take place to address this issue. Sustainable development champions the need for growth and limits to growth are perceived as flexible (Dryzek, 2013). Unsurprisingly, however, the definition of what is considered sustainable remains a point of major contention. Development, growth, and the environment are inevitably intertwined with poverty and standard of living. Greater

economic growth has been largely accepted by some as the solution to environmental degradation. Opponents of sustainable growth models tend to consider sustainable development as an end to economic growth. Developing countries also tend to associate sustainability with scaling down development which has made it unpopular. Others, like the Brundtland Commission, view more growth as necessary to tackle environmental destruction and increase living standards (Conca, & Dabelko, 1998).

2.6 Conclusion

The literature review focuses on the broader academic literature related to issues such as green growth and sustainable development. It broadens the understanding of how countries can attain green growth and sustainable development through policy changes and investment in renewable energy. This literature review also explores the feasibility of green growth as a pathway to sustainable development and its application in developing countries to combat poverty and achieve economic growth.

3 METHODS

This study uses a qualitative data analysis approach to examine how the introduction of renewable energy helped further green growth in Morocco. Specifically, a case study analysis is used to determine and understand the roles of the various actors, policies, and external factors that have contributed to the success of green growth in Morocco.

3.1 Case Selection

Case selection allows for a methodological justification of the selection of certain cases over others, which ensures that any case selected for in-depth analysis has enough data to address the main goal of the research question (Seawright & Gerring, 2018). Morocco was selected as the focus of the study because of the strides the country has taken towards attaining green growth through renewable energy. For instance, the Middle East Institution points to Morocco as the country with the most ambitious renewable energy goals in the world, outlining that the country has the potential to provide structural and policy examples for others within the region to emulate (2016). There are also several other institutions that similarly recognize Morocco as a leader in green growth. The Climate Change Performance Index report ranks Morocco as number 5 out of 56 countries, in addition to the EU, because of Morocco's ambitious GHG reduction targets and its rapid expansion of renewable energy in the previous five years (Burck et.al, 2019). Morocco ranks number five in the world; however, it is the second most highly ranked of 56 countries and the European Union (EU) (Burck et.al, 2019). The first three ranks on the Climate Change Performance Index report are currently empty as no country is considered to be doing enough at the moment (Burck et.al, 2019).

Considering most of the literature around green growth tends to portray developing countries as more focused on economic growth and poverty reduction than green energy,

Morocco's high ranking on the Climate Change Performance Index and the Climate Action Tracker (CAT) is an anomaly. This performance provides strong justification for the selection of Morocco as a renewable leader worthy of examination. Morocco is one of only two countries the Climate Action Tracker (CAT) rates as 1.5°C Paris Agreement-compatible, meaning the country has already taken actions and targets that are compatible with limiting warming to 1.5 °C (Climate Action Tracker, 2018).

Furthermore, Morocco's innovation in the renewable energy sector sets it apart from other countries. Morocco's Ouarzazate Solar Power Station Project comprises three phases; NOOR I, NOORII and NOOR III. The Ouarzazate is set to be the world's largest solar farm in the world, expected to produce 580MW of power at peak. Phase 1 (NOOR I) was actualized in 2016, producing 150 MW with a three-hour storage capacity. The NOORII and NOOR III consists of a hybrid system which uses concentrated solar plant (CSP) and photovoltaic (PV) technologies (Yaakoubi, 2016). Both projects will have seven hours of energy storage respectively. NOOR II will consist of a 200 MW parabolic trough and NOOR III will have a 150 MW tower (Currie, 2016). The new hybrid plant has the potential to be a game changer in the renewable market, especially because of the low-cost technology used (African Development Bank, 2012). Moreover, the Ouarzazate solar energy will be stored in the form of heated molten, which will enable the production of energy into the night. This ability to generate power through the night is an important innovation because it addresses the intermittent aspect of renewable energy (wind and solar), which reduces costs and resolves one of the major problems with renewable energy (Hochberg, 2016).

3.2 Document Analysis

Olson (2012) refers to document analysis as a form of qualitative research that involves the process of collecting and analyzing data from documents. This is a method that allows the researcher to engage with different types of sources, from primary to secondary sources (Olson, 2010). The selection process of document analysis begins with identifying and categorizing data based on their usefulness and relevance to the study (Evers & van Staa, 2012). Evers & van Staa state that data analysis involves an ongoing process of data collection and coding that is either inductive or deductive in nature (2012).

The research will rely primarily on the analysis of primary and secondary documents to identify key themes that correspond to the following questions: What are the main policy initiatives to expand renewable energy in the country? Who are the key actors supporting renewable energy development? Why are they doing so (i.e. what interests are they pursuing)? What key factors have enabled the pursuit of green growth through renewable energy in Morocco? What lessons might this case offer for other developing countries regarding the pursuit of renewable energy and green growth? These sub-questions will aid in answering the broader question of how a renewable energy sector can be successfully constructed. Likewise, the key themes will serve as the foundation for initial codes to analyze the data.

3.3 Coding

A deductive coding method is used in this study. Deductive coding involves using theories to guide and generate research (Palys & Atchison, 2008). The initial questions mentioned previously are used to guide the themes used in the coding process seen in Table 3-1 below. The coding process, based on these key questions, is then applied to the document analysis. During the coding process, additional themes emerged from the data to build upon the initial themes.

Table 3-1. Codes.

Codes	Sub-Codes
Main policy initiatives	<ul style="list-style-type: none"> • Diversification of energy sector • Privatization of energy • National environmental agencies • National energy strategy/policy • National Plan of Priority Actions • Economic and political incentives
Key actors supporting renewable energy development	<ul style="list-style-type: none"> • The King • The Ministry of Energy, Mines, Water, and the Environment • Multilateral development banks • The private sector • The International Finance Corporation (IFC) • The Moroccan parliament
Motivations and interests of key actors	<ul style="list-style-type: none"> • High electricity cost • Energy security • Energy exports • Economic development • Combating climate change • Environmental sustainability
Possible lessons for other developing nations	<ul style="list-style-type: none"> • Green growth coalition • Funding for projects • Implement environmental policies • Collaborations with various stakeholders • How to garner support for a green growth transition

3.4 Primary Documents

Primary data sources like government reports are used to understand the environmental policies implemented and how support was garnered to push renewable energy development. These data sources have been used to gather information about the government initiatives and programs that are in place and how they have been designed to propel the green growth agenda forward.

Government publications and reports are also analyzed to determine the motivational factors for those who are politically supportive of the renewable energy sector and how they generated

support for green growth. Reports from international institutions such as the World Bank, United Nations Development Programme (UNDP), United Nations Environment Programme (UNEP), International Energy Agency, and International Renewable Energy Agency have been analyzed to identify what steps Morocco is taking towards renewable energy development, the actors involved, the reasons these actors are supporting green growth through renewable energy, and other background and statistical information.

Media articles have been used to keep track of ongoing renewable energy initiatives, projects and new policies implemented. Relevant media reports on the current affairs of Morocco, specifically those connected to their renewable energy sector and related policy adaptations, have also been utilized. Research has been based only on media reports from reputable media sources such as BBC, Aljazeera and Forbes. Also, the research draws on information from major Moroccan publications, such as, Morocco World News and MBC Times, to learn about the relevant environmental policies the government has implemented or is planning to implement and the factors driving renewable energy development in the country.

The Economist Intelligence Unit (EIU) was used to learn about the current affairs, overall political climate, and the direction the country is taking. Most of the primary data sources are found using google search, using search terms such as: Morocco renewable energy, Morocco's environmental policies, Renewable energy projects in Morocco, and Morocco partners in the renewable energy sector.

3.5 The Secondary Documents

The secondary data sources used in this study are primarily peer-reviewed journals. These peer-reviewed journals strengthen the understanding of the theoretical frameworks (green growth and

sustainable development) on which the study is based. They serve as tools to analyze how green industries are constructed and the factors that have influenced the involvement of the different actors and stakeholders in the renewable sector.

3.6 Data Triangulation

Data triangulation is the use of multiple types of data sources to reach robust conclusions in a study (Ever & van Staa, 2012). There are multiple types of data triangulation; however, for the purpose of this study, the form of data triangulation used is “multiple sources of evidence”, as it is the most relevant to the study (Yin, 2003, p. 98). Triangulation from multiple sources of evidence is ideal because it allows for a broader range of information sources to be used to make an in-depth analysis of the roles of the different players and agencies. Triangulation using multiple data sources – including reports from governments, international organizations, media, and other analysts - helps to ascertain the validity of the results by ensuring that conclusions are supported by multiple sources of evidence that are independent of each other. Drawing on multiple sources of evidence also helps to highlight the different viewpoints and perspectives presented in the primary documents, which strengthens the research and helps to increase overall understanding of the renewable energy sector in Morocco (Evers & van Staa, 2012).

4 RESULTS

4.1 History of Morocco's Energy Sector

It is important to understand the policy history of Morocco's energy sector, because the policy changes within the sector enabled private energy investors to get involved and for renewable energy to be included in the country's energy production. It also explains how the energy sector was structured and opened to create room for renewable energy development projects to succeed.

Morocco's energy sector has historically been monopolized by one entity at any given time. At first, a French company called Energie Electrique du Maroc (EEM) was solely in charge of the production, distribution and transportation of electricity in the country. EEM was responsible for more than 90% of the national energy production since 1924. Later, the Dahir 1-63-226 legislation of 1963 ushered in the creation of the national agency for electricity (ONE) which replaced EEM to meet the country's increasing energy demands. ONE monopolized the production and distribution of Morocco's electricity, charged with producing at a capacity of over 10MW of electricity (Chentouf & Allouch, 2018). However, the induction of new development projects, such as the Programme d'Electrification Rurale Globale (PERG) in 1995 which aimed to increase electricity access in rural areas, resulted in an increase in electricity demand (Belakhdar, Kharbach, & Afilal, 2014). To satisfy the country's electricity demands, private players in energy generation entered the Moroccan energy market under a 1994 law that allowed the Independent Power Producers (IPPs) to produce 10MW of electricity for their own usage and sell the surplus to individual buyers exclusively (Chentouf & Allouch, 2018). In 2008, a law was introduced that allowed IPPs to produce electricity at 50MW capacity on the condition that after the plant uses the power it needs, the excess power be sold to ONE (Chentouf & Allouch, 2018). The 1994 law ended the monopolization of the energy sector by a single entity and ushered in the era of energy reforms.

4.2 What Has Motivated the Transition to Renewable Energy?

Morocco relies on energy imports for 95% of the country's energy demands, of which 81% is sourced from fossil fuels such as coal (imported hard coal), oil and natural gas, while the other 15% is electricity imported either from Spain or Algeria (Allouhi et.al, 2015). Morocco's high reliance on electricity imports is due to the significant increase in energy demand, which has been estimated at 7–8.5% per year. Economic growth and widespread access to electricity are the main reasons why there is an increase in the country's energy demand (Kousksou et al., 2015). In 2015, Morocco had a 99.5% electricity access rate (Choukri et al., 2017). This, coupled with a growing population, placed enormous strain on the energy sector. Likewise, the increase in energy consumption is a result of the significant growth in energy-intensive industries, increasing standard of living, and the growing tourism industry (Hochberg, 2016). Morocco's total energy consumption in 2015 was 18.4 million tons of oil equivalent, of which 60% was petroleum products (Choukri et al., 2017). These factors have made Morocco highly dependent on imported energy, making it vulnerable to volatile international energy prices, which has in turn put a strain on the country's national budget (Kousksou et al., 2015). Morocco's high dependency on energy imports threatens its energy security. These factors have prompted the Moroccan government's shift to renewable energy, in an effort to ensure energy security and access at an affordable price. As a result, Morocco has adapted and implemented a National Energy Strategy (NES) to deal with the increasing energy demands, tackle energy insecurity, ensure stable energy supply and reduce the cost of electricity.

Morocco is particularly vulnerable to climate change due to its geographic location and its diverse ecosystem. The country faces numerous climate change issues like desertification, floods, and water scarcity, worsened by the increase of arid and semi-arid zones. Additionally,

Morocco's agriculture sector is still largely dependent on rainfall and, therefore, affected by variation in rainfall patterns. The pressing need to address the issue of climate change has prompted the country to use its domestic energy resources to mitigate climate change and pursue green growth (MEMEE, Ministry of Energy, Mines, Water and Environment, Department of Environment, 2014). Morocco's new development model is designed to pursue green growth by respecting both its human and natural resources. The country's goal also motivates the transition to eradicate poverty and improve its standing in the region's energy sector by increasing economic growth through green jobs.

Morocco's geographic location plays an important role because of the market opportunities it opens. The country is located in a strategic location between Europe and sub-Saharan Africa, it shares land borders with Spain and neighbors Europe on the North across the Mediterranean Sea. This gives it the advantage of a close proximity to export renewable electricity to these countries. In addition, there is a high demand for renewable energy in the European Union, which needs to meet emission targets (Katiri, 2016). This helps widen Morocco's market opportunity and contributes in asserting its dominance in the region's renewable energy sector. Another advantage is the country's access to natural resources, like the abundance of sunlight and strong winds which, coupled with the declining cost of renewable energy technologies; especially the falling cost of solar photovoltaic (PV), concentrated solar power (CSP), and wind power, have allowed Morocco to be much more ambitious about renewable energy development (Katiri, 2016). The decline in the cost of renewable energy technologies allows Morocco to benefit substantially from renewable energy and increases the opportunities available for the country to become the leading exporters of renewable energy to Europe.

In sum, Morocco's transition to renewable energy is fueled by the desire for energy security to reduce reliance on imported energy, lower the cost of electricity, expand energy access and improve the standard of living of Moroccans by creating jobs (Hochberg, 2016).

4.3 National Energy Strategy and National Plan of Priority Actions

The launching and implementation of the National Energy Strategy (NES), and the related National Plan of Priority Actions (PNAP) by His Majesty King Mohammed VI in 2008, kick-started the country's transition to renewable energy development. The intention behind these two national strategies was to create a renewable energy sector to meet domestic energy demands, explore the potentials of renewable energy, and integrate the country into the regional energy system (Alhamwi, Kleinhans, Weitemeyer & Vogt, 2015). The NES outlined Morocco's objectives and aspirations for its renewable energy industry.

The NES was created specifically for the pursuit of low carbon opportunities. It is one of the most ambitious clean energy targets in the world with a goal to meet 42% of the country's domestic energy needs through renewable energy (wind, solar, and PV energy) by 2020, and 52% by 2030 (Choukri et al., 2017). This goal also includes increasing energy efficiency by 12% by 2020 (The Ministry of Energy, Mines, Water, and the Environment, 2016). The strategy will require approximately a 40 billion-dollar investment, with 75% of the money going towards the renewable energy sector (The Ministry of Energy, Mines, Water, and the Environment, 2016). The primary objective behind the creation of NES is to respond to the country's import energy dependence and to combat climate change. NES was implemented to ensure the security of energy supply by decreasing dependency on energy imports through regional integration and addressing climate change. A primary motivating factor behind the establishment of the NES was to place environmental issues at the realm of its development programs and contribute to the

global fight against the effects of climate change. This direction was envisioned to create more sustainable jobs and increase air quality and health (Minister of Energy, Mines, Water and Environment, 2014).

The associated action programme (PNAP) was created with four targets in mind. First, to ensure the security of energy supply with diversification of fuel types and origins. Secondly, to ensure energy is accessible to all Moroccans regardless of location, at a competitive price. Third, to ensure that renewable energy and energy efficiency is promoted and, lastly, to ensure Morocco is integrated into Euro-Mediterranean markets (Kousksou et al., 2015). These objectives and goals served as the guidelines that influenced the transition.

4.4 Legal Framework that Accompanied the Transition

To pursue the goals mentioned above, there were laws and legal frameworks enacted to govern the renewable energy sector. The laws enacted were made to promote and regulate the commercialization of the renewable energy sector for both domestic use and exports. In 2010, Morocco was able to create a legal framework (Law 13-09 on renewable energy) for renewable energy development, and this law now governs the development of renewable projects (The Ministry of Energy, Mines, Water, and the Environment, 2010). The law focuses on renewable energy generation because of the country's ambition to attain energy security. It also aims to make energy more accessible to the Moroccan citizens, increase sustainable development, decrease GHG emissions, decrease deforestation, and increase environmental protection (The Ministry of Energy, Mines, Water, and the Environment, 2010). Renewable energy is chosen to solve the country's energy aspirations because of its geographic location, which allows it to enjoy an abundance of sun and wind, as well as its proximity to European markets. Law 13-09 also allows for further diversification of the energy mix. It allowed Morocco's energy market to

open for competition in the production and commercialization of renewable energy sources (The Ministry of energy, Mines and Sustainable Development, n.d). This new legislation has made it possible for private operators to sell electricity to customers of their choosing through the national grid at a capacity of 20% of annual production (Hochberg, 2016). Furthermore, the law put in place a requirement for authorization and declaration from electricity facilities that generate between 20kW and 2MW (Hochberg, 2016).

In 2015, another law was adopted called the draft law No48-15. This law ensured that the National Authority for Electricity Regulation was established to govern the changes that are happening in the renewable energy sector, and to make the sector more attractive for private investors. This law will also guide Morocco to enter the European energy market (The Ministry of energy, Mines and Sustainable Development, n.d).

4.5 Independent Power Producers

Morocco has been strict in ensuring IPPs were structured around ONE to ensure it maintains dominance of the electricity generation sector. This dates back to 1994, when the first IPP were allowed entry into the energy market to meet the increasing energy demand. However, the role of ONE persisted even after the implementation of Act 13–09. The Act 13–09 focused solely on authorizing the liberalization, exportation and commercialization of the renewable energy market for competition. The act allowed private individuals to produce electrical energy from renewable sources (Ghezloun et al., 2014). Act 13–09 also entailed an authorization scheme which detailed how projects would be implemented and the capacity of energy that could be produced from renewable energy sources (Choukri et al., 2017). These regulations were put in place to regulate the involvement of IPPs in the energy sector. For instance, there is a 2MW cap on the capacity of electricity IPPs can produce and give the electricity producers access to connect to the national

electricity grid (Choukri et al.,2017), after which ONEE buys the company for an agreed upon price. An updated version of the Act 13-09 was implemented in 2016, called Act 58–15. This act introduced new regulations to improve the energy sector. The most significant improvement of this new act is the liberalization of the low-voltage electricity market to encourage investment in small scale projects like rooftop photovoltaic & solar pumps (Choukri et al., 2017).

Act 47-09 for the renewable energy market was enacted in 2011. The act was adopted to increase energy efficiency by reducing energy waste, and to lessen the accumulation of national energy costs using environmentally sustainable means (Ghezloun et al, 2014). A set of modifications accompanied this act: energy impact studies, energy audits, and technical controls were implemented based on sustainable energy usage. Companies were encouraged to rationalize their energy consumption by implementing sector specific energy efficient codes while conducting generalized energy audits (Ghezloun et al, 2014). This law enhanced the prior law by encouraging the energy efficiency among producers to be increased. It also encouraged the use of low consumption lights and solar water heaters to promote the efficient use of electricity (Ghezloun et al, 2014). This act was primary designed for the industrial sector, to guide its contribution to the national goal of sustainable development.

4.6 The Different Stakeholders and Their Roles

In this section, the key stakeholders involved in the renewable sector will be discussed.

Furthermore, their roles, interests and motivations in supporting renewable energy development will be discussed as well.

4.7 The King of Morocco, Mohammed VI

The King has played a dynamic role by leading and endorsing renewable energy in the country. He has been vocal about his support for renewable energy development as a means to address the country's energy needs, attain socio-economic development and address climate change (Kingdom of Morocco, 2009). "His Majesty King Mohammed VI during the anniversary of the accession to the throne recognised the need for the country to adapt to the profound changes affecting the energy sector at world level and to 'resolutely pursue efforts to making alternative and renewable energies the keystone of national energy policy'." The King asserted the political will that has led the country towards sustainable development (Gracia & Leidreiter, n.d). Furthermore, the King's insistence on the need for a private-public contractual mechanism to help boost investment in the sector was instrumental in enacting and passing the law (T. Kousksou et al., 2014).

4.8 The Ministry of Energy, Mines, Water, and the Environment.

The Ministry of Energy, Mines, Water, and the Environment plays a crucial role in setting and implementing the terms that govern electricity production and consumption under the NES and PNAN (The national plan against global warming, 2009). This ministry is the implementing agency for Morocco's RES. The Ministry controls and handles the administrative tasks of the National Agency for Electricity and Water/ Electricity Branch (ONEE), which is the public utility the electricity sector is structured around (Choukri et al., 2017). ONEE operates as a single entity and is entrusted with the production, transport, and distribution of electricity. ONEE, in collaboration with three other IPPs, produces Morocco's energy and operates as a single buyer (Kousksou et al., 2015). This ministry's involvement in the country's renewable sector is fueled not only by the goal of securing low-cost and accessible power supplies, it also aims to develop a

long-lasting development dividend. In addition, the ministry's interest in the sector is heavily driven by the ambition to create local industries capable of providing locally-manufactured inputs to the solar energy sector, thereby increasing local employment and expertise in the sector (African Development Bank, 2012).

The Ministry of Energy, Mines, Water, and the Environment plays a supervisory role in several institutions which all play important roles in the construction of the renewable energy sector. Below is a list of institutions the ministry supervises.

4.9 The Moroccan Agency for Solar Energy (Masen)

The Moroccan Agency for Solar Energy (MASEN) was established by the government in 2010 as a limited company with an advisory and management body comprising of different ministries (Choukri et al., 2017). MASEN is responsible for the solar plan of the country. This includes feasibility assessment, development, design, and financing of solar projects in Morocco (Green Growth Best Practice, 2014). The agency is also responsible for governing all solar generating electricity projects and making sure that solar energy capacity is at least 2000 MW (Choukri et al., 2017). The agency's main missions are to build national expertise in solar energy and make energy policies that adhere to international standards (Chentouf & Allouch, 2018). MASEN was renamed Moroccan Agency for Sustainable Energy when its energy portfolio was extended to include wind and hydropower, and no longer focused solely on solar energy generation (Chentouf & Allouch, 2018). MASEN is also charged with ensuring the integrated development of renewable energy installations and it takes 25% of any RE project while the developer owns 75% (Choukri et al., 2017). The main motivating factor behind MASEN's vision is to address the challenges climate change poses to Morocco's vision of attaining low-carbon, climate change-resilient development (Moroccan climate change policy, n.d.) MASEN was built to create

renewable energy projects that will help the country decrease green-house gas emissions while attaining its ambition to master large-scale solar production in order to curb GHG emissions (African Development Bank, 2012).

The following diagram (Figure 4-1) demonstrates how solar projects are funded in Morocco under MASEN and the different stakeholders who contribute in the funding process and have involvement in the sector. For instance, the Moroccan government owns 25% of the company through ONEE, the Hassan II Fund for Economic and Social Development, and the Société d'Investissements Energétiques (Green Growth Best Practice, 2014). Saudi Arabia has a private company called ACWA Power, which has become a significant player in Morocco's energy sector. ACWA role and motivation for joining the green energy sector is highlighted in a further chapter. United Arab Emirates like Saudi Arabia is an oil producing and reliant country. The United Arab Emirates is trying to reduce its reliance on oil. The United Arab Emirates is trying to reduce its reliance on oil and gas by diversifying its energy mix to position itself as a leader in green technology and innovation (International Renewable Energy Agency, 2019).

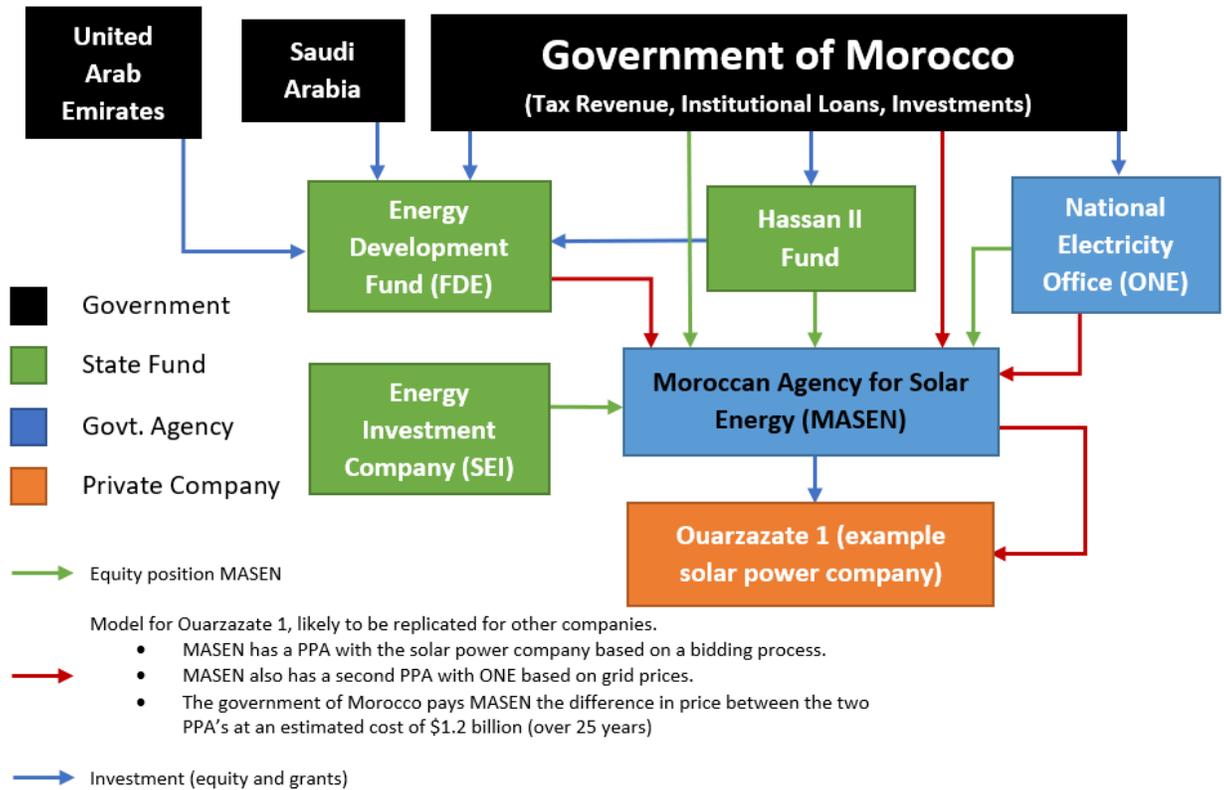


Figure 4-1. MASEN – Ownership and Funding Structure (Green Growth Best Practice, 2014).

4.10 International Tenders

MASEN is responsible for auctioning solar projects while ONEE is responsible for auctioning wind projects, and they have jointly created schemes for international tenders. These schemes are accompanied by a unique set of conditions designed to help the country meet its renewable energy targets, reduce the cost of electricity, and increase the attractiveness of the energy sector to private investors (Cirlig, 2013). Choukri et al. describe the IPP scheme as “the development, financing, design, engineering, procurement, construction, commissioning, operation, and maintenance of wind farms” (pg,4,2017). A power purchase agreement (APP) is signed by both the bidder and ONEE. These APPs allow private investors to negotiate the terms of the contract and enable them to sell their power to consumers directly. The APP includes the condition that

after 20 years, ownership transfers to ONEE (Choukri et al., 2017). The APP also has terms that ensure the protection of both the bidder's investment and the Moroccan renewable sector. It also ensures that project developers are committed to executing the project.

These structures have collectively created a thriving renewable industry where the interests of both Morocco and the private investors are protected to benefit all parties. These regulations have considerably limited the number of people that can participate in the energy sector due to the rigorous vetting policy private investors have to undergo. IPPs have become prominent players in the energy sector, accounting for 35% of electricity production (Cîrlig, 2013).

4.11 ADEREE

The 'Agence Nationale pour le Développement des Energies Renouvelables et de l'Efficacité Energétique' (ADEREE) is a strategic public institution that was created to increase Morocco's energy efficiency and renewable energy usage. The ADEREE became the Moroccan Agency for Energy Efficiency, AMEE. AMEE is an important institution because it plays a key role in implementing the national energy policy, which ensures that the renewable energy sector is a success. This national agency is under the supervision of the Ministry of Energy, Mines and Sustainable Development (MEDENER, 2017). Its mission is to aid the implementation of the national energy policy, curb energy dependence, and promote environmental sustainability (MEDENER, 2017).

4.12 The Role of Multilateral Institutions in Morocco's Energy Sector

Multilateral Developmental Banks (MDB) and Development Banks (DB) have historically been involved in the energy and transportation sector either in an advisory capacity or through financing projects (Ansari & Alakwaa, 2018). MDBs and DBs are playing a vital role in

financing renewable energy projects because they recognize that sufficient access to electricity is required for economic development to take place, and that electricity affects other crucial sectors like education, manufacturing industries, and health. In addition, MDBs are trying to address and mitigate the impacts of climate change (Ansari & Alakwaa, 2018). Likewise, MDBs have vowed to support climate mitigation projects. Primarily, the World Bank has decided that after 2019 it will no longer invest in upstream oil and gas due to the Paris Agreement in 2015 (Ansari & Alakwaa, 2018).

MDBs are crucial in Morocco because they are willing to finance projects that do not yield quick returns, if they have a strong developmental mandate. Also, Commercial banks are unlikely to finance risky projects without quick investment returns (Arab Petroleum Investments Corporation, 2017). MDBs also provide low rates over a long period of time which is especially good for renewable projects (Arab Petroleum Investments Corporation, 2017).

4.13 The Institute of Research in Solar Energy and New Energies

The Institute for Research in Solar Energy and New Energies (IRESEN) was created in 2011 to promote research and development in the applied sciences, and encourages innovation in solar and new energies by bringing together multiple main national stakeholders; namely, “the National Agency for Renewable Energies and Energy Efficiency (ADEREE), the National Centre for Energy Sciences and Nuclear Technologies (CNESTEN), the Moroccan Agency for Solar Energy (MASEN), the Sharifian Phosphate Office (OCP), the National Agency for Electricity and Water (ONEE), the National Agency for Hydrocarbons and Mines (ONHYM), and the Energy Investment Company (SIE)” (International Energy Agency, 2014). This is done in the hopes that innovation will position Morocco as a renewable energy leader on the global stage and

ensure the sustainability of the energy sector (International Energy Agency, 2014). IRESEN is an important part the nation's effort to stay committed to pursuing renewable energy development.

4.14 Regional Development Institutions

A multi-billion dollar Concentrated Solar Power (CSP) project is financed by a number of international development agencies, including the European Investment Bank (EIB), African Development Bank (AfDB), and the German Development Bank, Kreditanstalt für Wiederaufbau (KfW) group. Additionally, an 850 MW wind project financed by the EIB and KfW is also currently under construction.

4.14.1 African Development Bank

The African Development Bank (AfDB) is financing the first phase of the Ouarzazate solar power plant; the largest plant using concentrated solar power technology (African Development Bank, 2013). The AfDB will be financing the project with EUR 168 million of its own and a soft loan of USD 100 million from the Clean Technology Fund (CTF) (African Development Bank, 2013). The Clean Technology Fund is one of the components of the Climate Investment Fund (Climate Investment Funds, 2018). The CTF provides developing countries with large scale financial investments into clean technology projects with the goal of reducing long-term greenhouse emissions (Climate Investment Funds, 2018). The AfDB's investment into Morocco's solar sector is motivated by its goal of combating the global effects of climate change while contributing to the increase of the world's installed CSP capacity (African Development Bank, 2012).

4.14.2 The International Finance Corporation

The International Finance Corporation (IFC) will aid the Moroccan Agency for Solar Energy to create a feasibility assessment on solar plants to be built in Ouarzazate that will have an aggregate capacity of 500 MW. The assessment will look at the potential for private investment in the project (International Finance Corporation, 2019). This is in line with the IFC's strategy of increasing private sector involvement in infrastructure development in the country. The IFC, along with a subsidiary of the Paris-based Agence Française de Développement (Proparco), also financed the Photovoltaics (PV) project (concentrated solar power and photovoltaics - PV), making the PV project the first in the country to receive a green bond in foreign currency (Verdict Media Limited, 2018).

4.15 Saudi Arabia

Saudi Arabia's involvement in the renewable sector is through the Saudi Arabian International Company for Water and Power Projects (ACWA), which is a dominant player in the country's green energy sector. The company has a partnership with MASEN with a 20-year power purchase agreement to develop renewable energy projects. ACWA has been allocated the contract for Morocco's first photovoltaic (PV) solar project for both NOOR II and NOOR III (Mogielnicki, 2019). This makes it a major player in the sector. Before this ACWA had the Noor 1 project (160mw) under its portfolio (Verdict Media Limited, 2018). ACWA is also involved in the wind sector, specifically the 120mw Khallidi wind farm (Verdict Media Limited, 2018). The projects ACWA has been awarded demonstrates its influence in Morocco.

4.16 Motivations Behind Saudi's ACWA Involvement

According to the chairman of ACWA Power, Mohammad Aunayyan, the company's involvement in Morocco is due to the attractiveness of the Moroccan energy sector and the incentives in place (ARAB NEWS, 2018). Aunayyan also points to the country's efficient legal framework as a contributing factor that has attracted and encouraged the company's involvement in the sector in addition to the investment the country has already been able to amass (ARAB NEWS, 2018).

4.17 The European Union

The EU has cooperated with Morocco, through the EU's Renewable Energy Directive (RES) Cooperation Mechanisms, to meet its target of increasing the region's overall RES consumption to 20% by 2020 (Karakosta, Marinakis & Psarras, 2013). Morocco has had a long-standing economic relationship with the EU due to its proximity to Europe. Morocco is separated from Spain by only 14 kilometers of water (Atlantic Ocean) and, hence, connects North Africa to Europe (Kurt, 2014). This proximity to Europe places Morocco in a strategic location to export its renewable energy sources and makes it an equally convenient market (Cîrlig, 2013). These factors, coupled with the fact that the EU is trying to meet their greenhouse gas emission targets and attain energy security, have been the main motivations behind the European Union's interest in Morocco. The EU's RES cooperation mechanism, under its Renewable Directive, has allowed EU countries to collaborate and import green energy from third world countries (Cîrlig, 2013). This has further enhanced the EU's involvement in Morocco's renewable energy sector, which has encouraged the EU-North Africa solar partnership (Cîrlig, 2013). The EU has maintained a long relationship with Morocco in an effort to mitigate and reduce the North African migration issue by encouraging and enhancing economic growth in the region.

4.18 Fonds de Développement de l'Énergie (Energy Development Fund)

Morocco developed the “Fonds de Développement de l'Énergie” (FDE) to support the functioning and governance of the renewable energy sector by providing long-term funding to private sector players (Climate Investment Funds, 2011). The FDE has been funded by different agencies and institutions, including the World Bank, EIB, and the ADF. Furthermore, significant contributors like the Clean Technology Fund Investment Plan (CTF IP) for Morocco have contributed \$150 million USD (Cîrlig, 2013) to increase performances in renewable investment. Saudi Arabia, the United Arab Emirates, and the Hassan II Fund have also collectively contributed the sum of \$1 billion USD (Cîrlig, 2013), while the Energy Investment Corporation (SIE) has funded renewable energy and energy efficiency projects with 1 billion Moroccan Dirham (Cîrlig, 2013).

4.19 Current Incentives for Private Sector

The Moroccan government has created incentives to encourage and increase private sector participation in renewable energy production. For example, the government, through the EnergiePro program, has decided to buy the excess energy produced by energy intensive industries at a favorable tariff for a period of 20-25 years (Cîrlig, 2013). The government has also enacted laws that increase the amount of energy private producers can produce. As previously mentioned, the energy production permitted for IPPs was increased from 10MW to 50MW of installed capacity in 2008 (Chentouf & Allouch, 2018). This was further increased to a maximum of 300 MW in 2015 with the implementation of Act 54-14. This allowed producers the right to produce at a bigger capacity and it boosted investment into the energy sector. However, private investors can also bid for competitive contracts to produce electricity through ONE. Some of the concessions ONE can offer are: providing financial assistance towards operational

costs, providing the private investor access to the electricity grid, and giving them land to build the energy project (Cîrlig, 2013). These concessions were made to reduce the perception of risk, which may pose a barrier for investors. According to an IRENA and CEM report, “investors’ risk perceptions can be reduced by opting for a contract for engineering, procurement, and construction (EPC) of a power plant without the obligation to operate and maintain it over an extended period of time” (Choukri et al., 2017). Morocco also previously implemented such schemes successfully for wind and hydro until 2010. This scheme was created to decrease investors’ reluctance to enter Morocco’s energy market by offering them an increased sense of security.

Furthermore, the agencies offer Power Purchase Agreements to companies with conditions. For instance, ONE can guarantee to buy electricity from a company at a fixed tariff for a span of 20-25 years, after which the plant is owned by ONEE (Cîrlig, 2013). These conditions are designed to ensure that bidders stay committed to completing the project on time and ensuring good performance. The government also tried to make concessions to allow producers to sell directly to consumers. One such concession was allowing producers to have access to "very high voltage", "high voltage", and "medium voltage" electric networks. Overall, the government has implemented laws and regulations that will increase the attractiveness of the renewable sector for private investors, as they enforce producers’ security in Morocco’s energy markets.

5 DISCUSSION

In this section, some of the key and common themes that have emerged from the results section will be examined and analyzed. The themes are based on the motivational factors that have influenced the many different actors participating in Morocco's renewable energy sector. The motivations of the various actors will also be examined in more detail. Likewise, the significance and importance of the roles of the national agencies will be analyzed to determine their contribution in pushing forward the national vision to diversify the energy mix in the electricity sector. This section will also review the country's legal framework and how it has been built to strengthen the renewable energy sector through public-private partnerships. Finally, it will discuss the opportunity for other African countries to emulate Morocco's example.

5.1 Combating Climate Change

A common theme that has been identified in the motivations for multiple stakeholders' involvement in Morocco's renewable sector is the goal of combating climate change. The goal of mitigating climate change impacts drives multilateral institutions due to their hindrance of socioeconomic growth. This is especially true in developing countries, which are disproportionately impacted by climate change. AfDB, for example, has been heavily influenced by its aspiration to contribute to the global effort of addressing climate change (African Development Bank, 2012). This sentiment is shared with other institutions such as the IMF and the World Bank, which have also prioritized climate change mitigation efforts (African Development Bank, 2012).

Morocco's transition to green growth was also motivated by the environmental issues the country is facing – desertification, pollution and sea-level rise – which can be attributed to global

warming. The EU's investment in Morocco and the region's renewable sector is led by its relatively ambitious GHG reduction and renewable energy targets. These actors recognize that investing in low-carbon technology, specifically, wind and solar, will be crucial in reducing green gas emission in the long run. Similarly, most of these actors and stakeholders are motivated to meet the goal of the Paris Agreement to limit warming to below 2°C, and the urgency to address climate change has driven the various actors to look for more sustainable alternative means.

5.2 Economic Growth

The urgency to address climate related hindrances to economic growth is shared among the many stakeholders. Most of the stakeholders are recognizing that to attain economic growth and improve the livelihood of people, climate sensitive and resilient initiatives must be implemented. The aim is to use the creation of green industries and jobs to bring about economic growth while fighting against climate change. Development must correlate with environmental sustainability for emissions to decrease. One of the incentives for Mohammed VI's support of Morocco's transition to green growth is the economic potential of the renewable sector. The NES was specifically designed to guide the country towards sustainable growth. The World Bank in particular is also motivated by the potential for sustainable growth because this is in line with its goal of cutting investment to upstream oil and gas projects by 2019. Investing in Morocco helps with the Bank's objective of sustainable development. The protection of the environment is at the forefront of most of these actors' visions.

5.3 Energy Security

A primary source of motivation for Morocco's transition to green growth by building a renewable energy sector is the country's heavy reliance on imported energy. Morocco's

dependency on imported fossil fuel energy puts the country in a tight and vulnerable position in terms of energy security and national development. Especially with the high increase in demand and consumption of energy due to the rising number of energy intensive industries, increased economic growth, and improved standards of living in the country. Morocco's energy security is further threatened by the volatility and rise of oil prices and expenses in the region. This results in a high cost of electricity, placing a strain on the national budget. Gaining energy security can be argued as one of the principal motivating factors for Morocco's transition to green growth. It was even one of the points used to justify the transition and garner local support, as producing its own energy sources will help the country gain greater energy security.

5.4 Cross-Regional Clean Energy Trade

Another reason for the push for the renewable energy agenda in Morocco is its quest to position itself as a leader in the Cross-regional clean energy trade. Morocco's close proximity to Europe places it in an advantageous position to export renewable energy into European markets to enable them to meet their ambitious GHG reduction targets; thereby, giving it the opportunity to become the leading exporter of renewable energy to Europe. This, in addition to the country's ample access to natural resources such as an abundance of sunlight and strong winds, has fueled and garnered support for the transition because of the economic opportunities it presents. The lucrative market opportunity and potential for profit are among the reasons why private investors are investing in Morocco's energy sector.

5.5 Falling Cost of Renewable Energy Technologies

Morocco significantly benefits from the decline in the cost of renewable energy technologies. The high cost of renewable energy technologies was a major issue and barrier to the country's investment in renewable energy, because the electricity produced will reflect the cost of

production. Morocco has been able to avoid that drawback due to the declining cost of renewable energy technologies, which is allowing Morocco to be much more ambitious about renewable energy development. Given its abundant solar resources, Morocco is one of the first countries that is able to benefit substantially from this decline in costs, giving it the unique opportunity to be the leading exporter of renewable energy to Europe.

5.6 The Interests of the European Union and Saudi Arabia in Renewable Energy Development

The reason behind the EU's investment in Morocco is not simply because it sees North African energy as a way to meet its ambitious GHG reduction and renewable energy targets. The EU also views Morocco as a potential solution to the concern about migration from North Africa and other related political and security issues plaguing the region. By investing in the economic development project, the EU hopes to create incentives for North Africans to remain in their home countries through job creation. This is beneficial to both Morocco and the EU (El Katiri, 2016) and presents an additional motivating factor for investing in green growth and other forms of economic development in the region. While Saudi Arabia understands the realities of climate change, the country's main motivating factor is the profitability of the sector and how well tailored the Moroccan energy sector is for foreign direct investment. These two factors are the main reason behind Saudi Arabia's investment in Morocco.

5.7 Legal Framework & Policy

The ongoing success of Morocco's renewable energy sector can be largely attributed to the legal framework and assistance measures that were implemented to guide the transition. The national

agencies like MASEN and ONEE have played a crucial role in structuring the energy sector and making it attractive for foreign investment.

Public-private partnerships have played a huge role in implementing and executing big renewable energy projects in Morocco. Most of Morocco's projects, such as the Ouarzazate Solar Power Station Project, have materialized through public-private partnerships. Morocco recognized that in order for it to achieve its desired energy mix, it needs to involve the private sector in electricity production. This included ending the state-owned company ONE's monopolization of the electricity sector by welcoming independent power producers (IPP) into the energy sector. The Moroccan government understands that private investor can be only attracted by creating incentives like tax breaks, easing market entry procedures, providing protection to private operators through laws specifically created to improve investment conditions (Essakkati et al., 2018). Which the Moroccan government has implemented. The integration of IPPs into the energy sector is managed and regulated by laws that govern the selection and operational processes. The laws and acts were specifically designed to regulate the country's transition towards green development, and to enhance the structures in place to increase investors' confidence, attract multiple stakeholders, and ensure efficiency of the renewable sector to yield results. These laws helped to regulate the entry of private investors into the renewable energy sector and it demonstrates Morocco's commitment to increasing the participation of private investors in the sector. Also, the Moroccan government is recognizant of the fact that it can meet its ambitious renewable energy target only through attracting private and foreign investment, which requires the liberalization of the sector (Essakkati et. al, 2018).

5.8 Application in Other African Countries

Morocco has provided a blueprint that other African countries can emulate, however, other countries must tailor the blueprint to meet their socioeconomic and political realities. There are major structural changes that need to be undertaken for a country to successfully transition to green growth. One significant contributing factor to Morocco's success is having a willing government that recognizes the connection between combating climate change and sustainable economic growth. Political will is crucial in ensuring the sector garners support and yields results, because green growth requires various sectors working together. This is demonstrated by the different stakeholders and national agencies working together to push green energy forward in Morocco.

In Morocco, we can see that there are multiple multilateral institutions funding projects and most projects are joint ventures with multiple stakeholders. Morocco's legal framework shows how the sector has been designed to create space for foreign investment and attract private investors. These factors are among the reasons why a Saudi Arabian company, for example, is heavily investing in Morocco's green sector. Foreign direct investment plays a crucial role in the country's development; therefore, a well-established and transparent legal framework is essential in ensuring investor confidence in the green sector. Creating a transparent legal framework might be a challenging for some African countries, yet transparency in the legal framework and funding process is a fundamental requirement for the transition to green growth to work.

One of the reasons Morocco is an ideal case study is the country's access to renewable resources. Morocco's climate gives it the ability to produce an abundance of natural resources, especially wind and solar energy. Access to these abundant resources is an important component of Morocco's successful green growth transition; but not all African countries have strong, long-lasting winds or solar energy, and constant rainfall may also be a barrier.

Before stakeholders participate or invest in the renewable energy sector, they need to be sure it is profitable. The government must reaffirm investor confidence in the sector in order to garner support. These factors contributed majorly to Morocco's success. Thus, other African countries can emulate the procedures that Morocco has implemented, although, it is important they are cognizant of their unique realities and tailor their transitions accordingly.

6 CONCLUSION

For Morocco, the transition to renewable energy is fueled by the desire to increase energy security, reduce reliance on imported energy, lower the cost of electricity, expand access to energy, and improve the standard of living for Moroccans by creating jobs (Hochberg, 2016). These motivational factors are shared by many of the stakeholders discussed in the results section. Morocco also largely benefited from its strategic geographic location at the intersection of Europe, North and West Africa, and the Middle East. Its position gives it access to markets to export its renewable energy.

Morocco has been able to pursue its ambitious renewable energy targets largely due to the declining cost of renewable energy technologies and the financial backing it has received from its own government and numerous multilateral institutions. In addition to the significant roles played by private investors, IPP's have also contributed to the sector. Furthermore, Morocco's legal framework has created a solid foundation upon which the sector will operate and be governed.

Morocco stands out as a pioneer among developing economies for its promotion of renewable energy. However, for other countries to transition following Morocco's model, they must embrace a more liberal economic model to be attractive to foreign direct investors. Morocco provides a blue print that will be hard but not impossible to follow because Morocco has a unique advantage due to its strategic location, as well as the fact that the country is more developed than most African countries. Morocco can afford to pursue green growth unlike less developed countries such as Sierra Leone. Likewise, a country like Senegal can potentially successfully follow Morocco's blueprint.

Morocco's successful and ambitious renewable energy transition debunks much of the literature around green growth, which tends to portray developing countries as more focused on

economic growth and poverty reduction than green energy. On the contrary, Morocco, a developing country, has not only set the most ambitious renewable energy targets in the world, it is successfully attaining these goals.

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