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SUSTAINABLE GREEN ENERGY EXPANSION TO DEVELOPING COUNTRIES: THE IMPACT OF THE FDI ON THE LOCAL ECONOMY

The case of Ørsted

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Abstract

This thesis investigates Ørsted's sustainable energy expansion, focusing on its entry into Poland and potential internationalization, particularly in Chile. Through qualitative analysis and quantitative modeling, Chile emerges as a promising market. Recommendations include strategic partnerships, financial leveraging, community engagement, and environmental mitigation. The individual research emphasizes the impact of foreign direct investment (FDI) on economic growth, using Ørsted's investment in Poland to illustrate FDI's potential for technology transfer, human capital accumulation, and domestic investment. This also stresses Poland's need to enhance its absorptive capacity to maximize the benefits of such investments.

Keywords:

Sustainability, Foreign Direct Investment, Renewable Energy, Economic Growth, Globalization, International Business, Sustainable Development, Absorptive Capacity

Case Study

How to expand a green energy business model to developing markets while creating a sustainable impact - *The case of Ørsted*

In early 2019, Ørsted, a green energy company, found itself at a strategic crossroad. Known for revolutionizing the energy sector through its commitment to green energy, the company wanted to grow its presence by expanding into new, untapped markets. Leading this project was Agata, the Managing Director, whose wide experience and strategic thinking were crucial.

At the heart of this strategic decision was not only the aim for business expansion, but also of sustainable impact. Agata and her team faced the challenge of balancing the company's core values of sustainability and innovation with the unique opportunities and challenges of these new markets. Their goal was to find a way that would not only strengthen Ørsted's global presence, but also contribute to the development of green energy around the world. This strategic expansion marks an important phase in Ørsted's journey and reflects the company's clear vision to create a world that runs entirely on green energy.

Ørsted: A Leader in Renewable Energy

Founded in 1972 as Dansk Naturgas, Ørsted adopted its current name in 2017 to honor the Danish scientist, Hans Christian Ørsted (Ørsted n.d.). Initially focused on natural gas, the company underwent a remarkable transformation to become a leading renewable energy powerhouse. This evolution was marked by their swift adaptation to changing market dynamics and regulatory shifts, transitioning from a state-owned oil and gas entity to a privatized renewable energy leader. Ørsted strategically ventured into renewable energy, leveraging their existing expertise in energy production and distribution. By the early 21st century, Ørsted had solidified its position as a pioneer in offshore wind energy. This remarkable success can be

attributed to its well-defined business model. Ørsted's vertically integrated approach, spanning project development to operation, grants it complete control over the value chain. By owning and operating its assets, Ørsted maximizes its revenue streams from electricity sales under long-term power purchase agreements (PPAs) and renewable energy certificate (REC) trading. Ørsted's long-term investment strategy aligns with the lifespan of its renewable energy projects, typically lasting from 20 to 30 years. This commitment to innovation and sustainability has played a critical role in driving the global transition towards cleaner and more sustainable energy solutions, leaving a lasting impact on the energy landscape (Morris 2018).

Green Energy Transition

Ørsted's strategic decision to shift towards greener energy in 2008 was catalyzed by a commitment to sustainability and environmental responsibility. Reflecting the ambitious environmental goals of its home country, Denmark has set forth a national agenda to reduce greenhouse gas emissions by 70% from 1990 levels by 2030 and aims to operate a fully fossil fuel-free electricity system within the same period (Danish Ministry of Climate, Energy and Utilities 2019). The company substantially increased investments in offshore wind farms and simultaneously initiated the conversion of its power stations, transitioning from coal to sustainable biomass as fuel, both essential steps in reducing its carbon footprint. Ørsted's visionary leadership demonstrated that embracing renewable energy can be both lucrative and socially responsible. With the rebranding from DONG Energy in 2017, Ørsted reinforced its commitment to a new vision, promising to become a coal-free renewable energy company by 2023. Central to being a foremost player in the renewable energy sector (McKinsey 2020) is a set of guiding principles that reflect the company's core values: Integrity, passion, team, diversity and collaboration in a non-hierarchy, respectful, and trusting manner, results, setting high standards, taking ownership, and safety. (Ørsted 2019).

From Ørsted's transition as an energy giant to its leadership in renewable power, the company's ethos of strategic progression was deeply embedded in their operational approach. Their project models were meticulously structured, ensuring that every venture aligned with their commitment to innovation and sustainability.

Global Expansion

The company began its market expansion in offshore wind as DONG Energy, making its first significant entry into the United Kingdom in 2004, which marked their initial journey into the international renewable energy sector. Ørsted expanded internationally, entering the German offshore wind market in 2004, Taiwan's in 2015 through an MOU, the U.S. offshore wind sector the same year, and secured a project in the Netherlands in 2016, solidifying its status as a global renewable energy leader (Ørsted 2019). Denmark's dedication to technological innovation, especially in environmental science, reinforces Ørsted's strategy for global expansion, exemplified by its leadership in wind power solutions and wind turbine production (Ministry of Foreign Affairs of Denmark 2019).

Choosing a New Market

Seeking to expand their footprint, Ørsted initially turned their focus to countries geographically close to Denmark, primarily those to the northwest, capitalizing on the proximity and the shared EU membership benefits. Their attention was drawn to the Baltic states, including Latvia and Estonia, where they discovered potential due to the region's growing market in renewables, notable technological innovations, and a highly educated workforce. Similarly, the potential in Finland and Sweden was recognized because of their advanced energy infrastructure and their dedication to renewable energy and sustainability. Especially, Poland stood out as an especially promising market, due to its large market size, strategic position in Europe, and the opportunity it presented for energy transition with its energy system running mainly on coal (IEA 2020). Agata and her team started developing a business case through an analysis of regulatory and

political landscapes, especially focusing on existing projects and technology support. Additionally, technical fundamentals, such as project location, environmental factors, and cost drivers e.g., cable prices, foundation costs and wind speeds were closely evaluated alongside the regulatory framework, revenue pathways, and competitive scenario in the market, to ascertain a strategically viable, technologically feasible, and financially judicious market entry. Primarily due to prevailing need for energy diversification and the opportunity to establish a strong foothold as one of the first movers in such a large market, Poland was identified as the most promising market. Considering moving into this market, Agata and her team conducted an in-depth market analysis, balancing both the challenges and opportunities.

Economic Landscape

When examining the economic landscape, it mainly looked positive. Poland had proven to be one of the most resilient economies in the EU. They had a robust macroeconomic framework, effective absorption of EU investment funds, a strong financial sector, better access to long-term credit, and access to European labor markets supported long-term inclusive growth and poverty reduction (World Bank 2023). This economic stability also led to a remarkably low unemployment rate of 3.28% in 2019 (Statista 2023). Since transitioning from a centrally planned to a market-based economy in 1989, Poland had consistently improved its economic freedom. The favorable growth environment made Poland an attractive and dynamic marketplace for Ørsted (World Bank 2023). With its population of more than 38 million, Poland was home to a skilled and well-educated workforce especially in IT and engineering as well as an active business scene (International Trade Administration 2022). Its strategic location in central Europe, in connection with its great infrastructure, established it as key access point to the broader European marketplace (PwC 2023). [1]

[1] More information about the economic landscape can be found in the Appendix 1.

Political Landscape and Stability

Ranked 27th in political stability, with an index of 0.56, Poland offered a relatively stable but challenging business setting (The Global Economy 2022). The ruling Law & Justice party since 2015, under President Andrzej Duda, favored economic interventionism, impacting investment prospects due to the state's involvement in key sectors. This presented potential entry barriers for investors (GOV.UK 2023). Additionally, the ongoing rule-of-law disputes since 2015, involving accusations against the government for constitutional breaches, introduced regulatory uncertainties (GOV.UK 2023). These factors, including potential regulatory changes linked to Poland-EU tensions, were critical for Agata and her team to consider expanding to the Polish market.

Business Environment and Regulatory Complexity

Poland was globally recognized for its ease of doing business, particularly in areas like cross-border trade, credit access, contract enforcement, and tax collection. However, it posed challenges for new entrants due to complex legislation and rigid regulatory frameworks (International Trade Organisation 2022), which would require Ørsted to invest more time and resources in understanding and complying with local laws. Bureaucratic procedures and slow decision-making could hinder business agility and adaptability. Additionally, fiscal challenges like large deficits, increased social and defense spending, and a lowered retirement age raised concerns about economic stability and labor availability (International Trade Organisation 2022). The government's deviation from European norms and regulatory barriers, especially in offshore projects, created uncertainty for the transition to offshore wind. This was compounded by understaffing in the Polish energy sector.

Environmental Initiatives and EU Influence

Agata also evaluated Poland's commitment to environmental initiatives, crucial for Ørsted's green energy goals. Being a member of the European Union, Poland had the privilege of accessing the Union's funds, which played an important role in influencing the decision to expand operations into the country. The Operational Programme Infrastructure and Environment (OPIE) had outlined a comprehensive strategy, designed to propel Poland's transition towards a competitive, low-carbon economy emphasizing efficient resource utilization, reduced power consumption, and a marked decrease in CO_2 emissions. Additionally, the Marguerite Fund II, a distinguished pan-European infrastructure fund, predominantly focused on sectors including transport, energy, renewable energy, energy efficiency, and water treatment (European Investment Bank 2019).

In Poland's environmental protection financing arena, various funds and initiatives assumed key roles. A standout among them was the National Fund for Environmental Protection and Water Management (NFOSiGW), serving as a cornerstone for the nation’s ecological funding mechanisms and operating as a key legal entity under the Environmental Protection Law (Republic of Poland, 2019). Additionally, Poland capitalized on its surplus Assigned Amount Units within the context of the Kyoto Protocol via the Green Investment Scheme. Revenue generated from this initiative was invested into ground-breaking eco-friendly projects (Republic of Poland N/D). Complementing these efforts, Poland rolled out its green certificate system, aiming to expedite its transition to renewable energy. This model allowed renewable energy producers to procure green certificates, which they could then offer to obligate buyers in the open market (Skarżyński 2016). These initiatives and funding opportunities were crucial in Agata's consideration of Poland as a strategic market.

Renewable Energy Potential

In 2019, Poland's energy sector stood at a turning point. Historically reliant on coal, Poland had restrictive regulations that made 99% of its land unsuitable for wind projects due to the

construction prohibition of turbines within 2 kilometers of buildings or forests (International Trade Administration n.d.). A transformative shift happened when President Duda endorsed a law encouraging offshore wind farm energy production, aiming to boost Poland's renewable energy contribution by 65% between 2020 and 2024. This opened the door for enterprises like Ørsted, with Poland's Baltic Sea coastline presenting optimal conditions for offshore wind energy. Compared to the North Sea, the Baltic Sea has relatively shallow water, milder waves, and less intense currents, making it a favorable location for offshore wind farms. The country had ambitious targets, planning on achieving 5.9GW of offshore wind capacity by 2030, with hopes to double this by 2040. Another milestone was the formulation of Poland's National Energy and Climate Plan for 2021-2030, aiming to boost renewable energy to 32% of electricity generation by 2030 and cut greenhouse gas emissions by 7% from 2005 levels (EU Energy 2019).

After extensive analysis, Agata and her teams concluded that despite its challenges, Poland's potential in the renewable energy sector underscored by the demand for clean energy solutions, made it an appealing option for expansion. The country's commitment to a sustainable future, coupled with Ørsted's expertise, laid the foundation for an impactful project, offering not only business growth but also a greener future for Poland. This decision marked a new chapter in Ørsted's journey towards global sustainability and green energy leadership.

Impact of Ørsted's Offshore Wind Farm Investment in Poland

Ørsted’s team was thoroughly dedicated to sustainability while deliberating the company’s expansion into the Polish market. Ørsted’s offshore projects in Poland represented a transformative Foreign Direct Investment (FDI) with both economic, environmental, and social benefits. First, this investment was a crucial step towards strengthening Poland's energy independence, shifting its energy mix towards renewable sources, and significantly improving

the country's energy security. The Baltica Offshore Wind Farm was projected to cut CO_2 emissions by around 8 million tons annually, and power 4 million home with green energy a year (Baltica Energy n.d). Additionally, Ørsted's investment had a significant impact on the local and regional economy. The direct impact created by the 2.5 GW offshore wind project, was projected to be around PLN 8.75 billion [2]. This inflow of capital would spur tax revenues for local communes, enabling them to finance infrastructure and community projects. It was forecasted that by 2030, this would produce up to PLN 6.25 billion in tax revenue. The financial commitment had direct local investment benefits, such as the development of land infrastructure for the offshore wind farm. Moreover, the construction and operation of the offshore wind farm was anticipated to create around 32,000 jobs in the construction period on a yearly average basis, stimulating both local and regional economic growth (Baltica Energy n.d). This indirect impact from employment and income created in the supply chain for the offshore wind project was projected to be more than PLN 9 billion. The effect resulting from consumer spending by workers employed in the economy could create an induced impact of PLN 7 billion. Furthermore, the investment served as a stimulus for local businesses, creating new opportunities for local entrepreneurs. It was estimated that over 100 domestic entities could be involved in the preparation, construction, and operation of the wind farms. Together this highlighted the enormous potential of the Baltic Sea for attracting offshore investments (Baltica Energy n.d).

Ørsted's Strategic Influence in Poland's Wind Energy Market

Having resolved to enter the Polish market, Agata focused on taking strategic measures that considered the challenges previously identified. To counteract the complex regulatory environment, her and her team pursued a proactive strategy of local engagement and

[2] Based on data and findings from the report 'Developing Offshore Wind Power in Poland' by McKinsey&Company

influencing policy development. By actively engaging with the Wind Energy Association, they aimed to jointly shape and guide regulatory preparations, taking the lead in introducing and administering the Offshore Law to both pave the way for offshore wind development and mitigate the associated risks. Although Ørsted was captivated by the opportunity in a potentially thriving market, the company proceeded with cautious optimism, combining its business strategy with regulatory activism to sculpt a favorable environment for offshore wind energy in Poland.

Partnering for Polish Renewables

Ørsted further investigated how partnerships could strengthen their position when entering the market. Given Poland's policy framework heavily influenced by the government, Agata recognized the value of collaborating. Partnering up with a local, state-owned company would offer a closer insight into the market, deepen the understanding of the regulatory landscape, and provide access to authentic market data. One of the potential partners were Polska Grupa Energetyczna (PGE), the biggest energy utility in Poland. Listed prominently on the Warsaw Stock Exchange and a key component of the WIG30 index, as of 2017, the Polish State Treasury held a significant 57.39% stake in this public limited company, making it a crucial entity in the energy landscape (PGE 2017). Historically, PGE's operational ethos was rooted in independence, often shying away from partnerships, and primarily focusing on solo ventures, especially in the fossil fuel and coal sectors. Yet, the tide was turning. As CO_2 prices surged and considering the European Union's Emissions Trading System policy—an essential tool for cost-effectively lowering greenhouse gas emissions—PGE recognized the urgency to invest in innovative solutions, taking note of the rising trend of renewable energies in other nations. Ørsted saw an opportunity and began negotiations with PGE Baltica, PGE's renewable arm, which was actively seeking a partner for its Offshore Wind Program, Baltica 2 & 3. With

PGE's strong standing, the partnership not only enabled Ørsted to penetrate the Polish market but also symbolized a shift towards sustainability in Poland (Staniewska – Bolesta 2023).

This strategic alliance culminated in more than just a 50/50 joint venture; it set the stage for the largest offshore wind initiative in the Polish Baltic Sea (Baltica Energy n.d.). PGE's influence was marked by a steadfast adherence to their guiding principles: prioritizing safety, embodying accountability with integrity and transparency, and commitment to innovation and continuous improvement. The link to the Polish government was a double-edged sword, offering both advantages in terms of influence and challenges in terms of navigating political waters. However, challenges were evident from the outset. *" We knew PGE, with their strong fossil fuel background and tough negotiation style, often preferred going solo. We were unsure about partnering with such a force. Honestly, when two industry leaders meet, tensions run high, and reaching agreement is tougher than you would think.* (Staniewska – Bolesta 2023). It was not merely a matter of bridging the gap between Polish and Danish national cultures; the companies' organizational cultures were vastly different. PGE's hierarchical structure, characterized by top-down management where lower-rung employees rarely questioned decisions from above, starkly contrasted with Ørsted's corporate culture. Moreover, PGE's close ties to the Polish government meant that any decision often had to consider political ramifications, sometimes overshadowing pure business considerations, leading to uncertainties[3]. As the partnership moved forward, Ørsted found themselves having to adjust many initial decisions taken during the Merger and Acquisition process. It was crucial to understand the true intentions behind PGE's statements, especially given that PGE potentially aimed to learn about offshore operations to eventually branch out on their own.

To navigate these challenges, Ørsted adopted strategies based on experiences from other markets, adapting mechanisms used with different partners. This adaptive approach was seen

[3] More information about the Cultural Differences of Denmark and Poland can be found in Appendix 2.

as a learning opportunity, prompting Ørsted to rethink certain strategies. One major step in solidifying their partnership was transaction documentation, which framed the collaboration's specifics. This documentation, which took almost two years to finalize, was one of Ørsted's longest-negotiated agreements. It covered every facet of their collaboration, ensuring clarity on issues like deadlock resolutions, share sales, and the scope of cooperation across areas such as development, construction, energy sales, and operations. (Staniewska – Bolesta 2023)

Crafting a Regulatory Framework

Agata focused on a collaborative strategy to tackle Poland's complex regulatory landscape. Ørsted, alongside the Wind Energy Association, influenced Polish policymakers through direct and indirect means, utilizing a representative from the association to advocate for the sector's broader interests, transcending Ørsted's individual objectives.

This complicated balancing act between compliance and innovation posed challenges. For 18 months, Agata engaged in weekly meetings addressing offshore requirements, which involved extensive research and drafting of a legal framework and that catered to market needs. Utilizing experiences from different markets, notably the Danish and British, was crucial to adapt their solutions to Polish reality. Despite the differences, the Polish government opted to align more closely with the UK model, incorporating a substantial number of British solutions.

Agata noted the complex and multiplying nature of these dialogues, observing that "*opening one discussion often leads to three more, along with additional ones thereafter."* Discussions on complex issues like subsidies revealed differing perspectives between Ørsted and the Polish administration. Ørsted navigated these complexities by engaging external experts for impartial insights, building trust and credibility with the Polish authorities by adapting market knowledge. Initially perceived as an untrustworthy stakeholder solely seeking market entry in Poland, Ørsted leveraged the Danish embassy's influence for effective diplomacy. Utilizing the embassy's connections, Ørsted clearly communicated key issues, facilitating involvement of

Danish experts in discussions limited to Danish and Polish officials. This setup, occasionally including British officials, provided a more comfortable environment for open and unbiased dialogue, free from concerns of corporate lobbying which has a very negative image in Poland, often used as a synonym of corruption (Jasiecki 2016). Even though the ministry had the final say, which was out of Ørsted's control, the discussions went well. Agata's efforts transformed the initial distance and mistrust into a dynamic and mutually beneficial interaction, showcasing Ørsted's successful regulatory influence and the forging of a cooperative path within the Polish energy market. Ultimately, this journey resulted in the creation of the Polish Offshore Act[4] that could lead the country toward offshore energy development.

Navigating Polish Renewable Energy

Looking back on Ørsted's journey into the Polish market, Agata recognized the critical factors that made the market entry successful. Key factors included (1) a deep understanding of market dynamics and the regulatory environment, which ensured strategic alignment with local conditions; (2) strategic partnerships, which not only eased the market entry but also provided crucial insights into the operational and political landscape of the Polish energy sector; and (3) a flexible yet decisive approach to shaping the regulatory environment.

- What are the benefits and challenges of partnerships with differing internal and external factors and which strategies or solutions could be implemented to ensure successful collaboration?
- How does foreign direct investment (FDI), like Ørsted’s, in renewable energy projects shape the economic development and technological advancement in the host country?
- How can multinational enterprises like Ørsted influence regulatory frameworks in foreign markets responsibly?

[4] More information about the specific provisions of the Offshore Wind Act can be found in Appendix 3.

Evaluation Report

"The world is not on track to realize the goals of the Paris Agreement. The reason for this failure is a lack of investment, particularly in emerging market and developing countries outside China," Nicholas Stern, chair of the Grantham Research Institute on Climate Change and the Environment, highlighted at COP28 (Jessop, El Dahan und Al Sayegh 2023).

1. Introduction

The presented work project aims to explore how to sustainably expand a green energy business model. Having analysed how Ørsted successfully entered the Polish market in the case study, the evaluation report focuses on the question of which developing country Ørsted should enter next. Achieving this vision requires careful planning and execution, including a comprehensive analysis of potential markets to make a strategically aligned market entry decisions.

The report begins with an industry analysis to understand the sector's current state, followed by analyzing Ørsted's competitive edge, the reasons, and readiness for expansion. Secondly, a three-phase process identifies potential expansion countries. Finally, guidelines for market entry are developed, incorporating research findings and key learnings while pointing out respective risks and limitations.

2. Methodology

2.1 Data gathering

The study utilizes primary, secondary, and tertiary data sources. Primary sources are defined as empirical evidence, secondary sources as theory, and tertiary sources as background knowledge (Booth, et al. 2016). Primary sources are used in the form of qualitative research interviews, with both internal interviewees from Ørsted, and experts on relevant topics. A detailed workshop with the International Energy Agency moreover yielded significant insights into the global energy sector. Furthermore, data from Ørsted's official site and various materials

supplied by the company were also leveraged. Secondary sources have been employed in the analysis to clarify and debate the findings and results, such as the triple bottom line and SWOT. Tertiary sources include the global wind atlas, news articles, government publications, energy outlook reports, etc., which, by incorporating data and statistics, have strengthened the study's findings.

2.2 Qualitative Interviews

To deepen the insights of the renewable energy market and understand Ørsted's strategic approach and practices, 7 interviews have been conducted with employees from Ørsted. The interviews provide first-hand knowledge about Ørsted's current positioning, strategic goals, and operational challenges in new markets. This has been crucial for making recommendations and guidelines that aligns with Ørsted's capabilities, preferences, and objectives.

Internal Interviews			
Organization	**Role**	**Name**	**Number of interviews**
Ørsted	Senior Strategy Associate	Victor Alexander Schmidt	1 interview + weekly meetings
Ørsted	Senior Business Developer New Markets	Karoline Aaen	1
Ørsted	Senior Strategy Associate	Gjergji Gjeta	1
Ørsted	Managing Director Poland Offshore	Agata Staniewska - Bolesta	3
Ørsted	Senior Sustainability Specialist	Laura Engelund	1

15 expert interviews have clarified the renewable energy market's trends and strategic outcomes, particularly in developing countries, outlining investment challenges and opportunities. These insights are crucial to shaping Ørsted's targeted entry strategies into these markets. An overview of the interviewees is provided below:

External Interviews			
Organization	**Role within organization**	**Name**	**Number of interviews**
IRENA	Consultant	Austin Lee	1
BAM Nuttal	Civil Engineer Windfarms	Matthew Watson	1
Shell Energy	Senior Pricing & Portfolio Advisor	Mats Rademann	1
Africa GreenTec	Director and Co-Founder	Andreas Rohrart	1
Nova SBE	Professor of Economics	Daniel Traca	1
UNDP	Director	Rian Meddeb	1
IEA	Renewable Energy Analyst	Javier Jorquera	2
IEA	Renewable Energy Senior Analyst	Heymi Bahar	1
IEA	Digital Communication Manager	Curtis Brainard	1
Global Wind Energy Council	Chief Operating Officer	Stewart Mullin	1
Africal Development Bank	Head of Renewable Energy Divison	Joao Cunha	1
TME Associates	Senior Sustainability Manager	Alexander Schäfer	1
IISD	Associate Vice President	Matt McCandless	1
Smalt	Co-Founder	Khurram Masood	1

2.3 Data Processing

The study employed semi-structured interviews, adhering to Bernard's (1988) guidelines for flexible, yet consistent discussions. Recordings were made for accurate transcription and analysis. This method enabled a thorough exploration aligned with research goals, followed by transcription, and color-coding for clarity. The coding of the interviews was conducted using an "interpretative phenomenological analysis" approach (Rapley 2011) which excludes theories and concepts from coding, allowing the empirical data itself to define the codes. The data was coded in multiple stages and cycles, aligning with the phenomenological approach of bracketing the researcher's theoretical knowledge. This aims to condense meaning and extract the essence of what the interviewee is trying to convey (Rapley 2011). Details of this methodology are illustrated in Appendix 1.

2.4 Quantitative Data Modelling

Within this thesis, a quantitative model has been developed that is grounded in the fundamental principles presented in the work by Cavusgil, Kiyak, and Yeniyurt (2004), which is further described in Appendix 2. The model of this study was customized and expanded with additional phases to align with the specific research objectives which involved a detailed identification of variables influenced by research and insights from internal and expert interviews. Each variable was carefully quantified and normalized to ensure comparability, creating a more robust and empirical model that serves to rank potential markets for Ørsted's expansion effectively.

3. Industry Analysis

The following will provide an industry analysis to identify key trends, assess competitive dynamics, and understand market forces that affect sector performance.

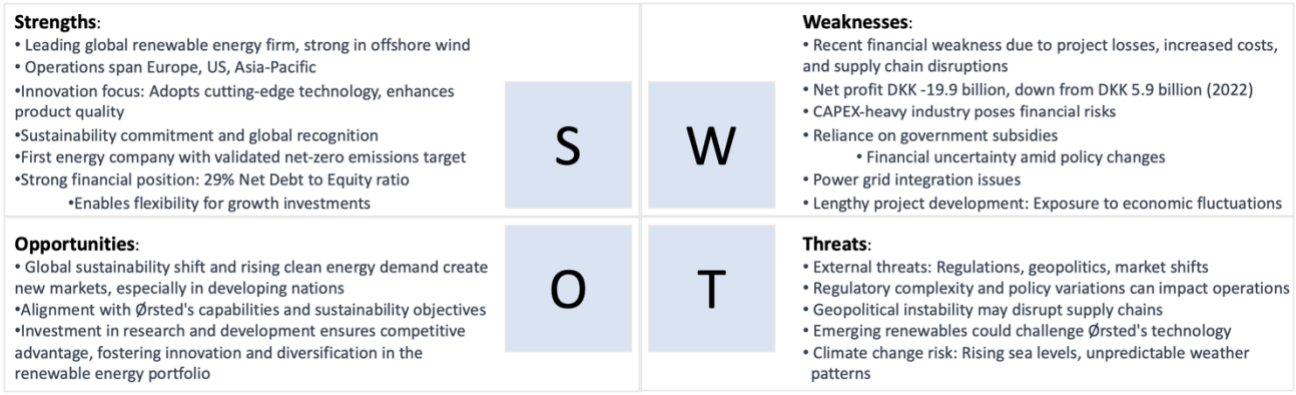
Since 2019, the renewable energy industry has undergone significant transformation, underpinned by technological advancements, supportive government policies, and a universal commitment to green energy. In 2020, renewables constituted 19.1% of the global energy mix

The Covid-19 pandemic precipitated a 4.7% contraction in Total Final Energy Consumption, yet the renewable sector managed a 7% global growth (IEA 2020). In 2021, renewable energy capacity in developing nations grew by 9.8%, reaching 268 watts per capita, partly driven by the Russia-Ukraine conflict's impact on energy security and global supply chains (IEA 2023). By 2022, renewables made up 40.3% of global electricity capacity, with investments climbing to $495 billion (Statista 2023). As of 2023, solar and wind dominate the renewable landscape, with capacities reaching 898 GW and 1,061 GW respectively. Anticipated renewable capacity additions for 2023 are set at a groundbreaking 107 GW (IRENA 2023). Solar PV is the dominant force in this growth, accounting for two-thirds of the total increase. This growth is attributed to global responses to escalating electricity costs and energy dilemmas. However, the future holds certain challenges. 2024 projections indicate a potential 5% decline in onshore wind additions compared to 2023. Additionally, even though costs for new onshore wind and solar PV electricity generation are predicted to retract by 2024, they might still hover 10-15% above pre-pandemic levels in most territories, with China being an exception. Nevertheless, these renewable energy sources maintain their status as the premier cost-effective electricity generation avenues in most nations (IEA 2023).

In conclusion, the renewable energy industry in 2023 stands at a crossroads of technological evolution, geopolitical shifts, and environmental challenges.

4. Analyzing Ørsted’s Competitive Edge in the Renewable Energy Market

To assess Ørsted's position in the renewable energy market, an analysis has been conducted,focusing on its strengths, weaknesses, opportunities, and threats, commonly known as a SWOT analysis.



Appendix 3 contains the theory as well as the written analysis, which showcases Ørsted's prominence in the renewable energy domain and its dedication to environmental sustainability as significant positives. The company's journey through economic uncertainties and the complexities of regulatory frameworks stands out as notable points of attention.

5. Expansion Opportunities and Challenges in Developing Markets

In response to the current challenging macroeconomic environment, identified in the SWOT analysis, Ørsted is seeking to expand its reach beyond its existing markets to diversify its exposure to economic and supply chain risks. With a strong focus on delivering value and advancing energy electrification, developing countries offer a significant expansion opportunity for Ørsted, particularly considering the nascent stage of many of their renewable markets and pressing need to achieve the critical 1.5°C climate target. These countries, often equipped with abundant renewable resources, represent a vast and untapped market for renewable energy solutions (IRENA 2023). By investing early in developing countries, Ørsted can gain a competitive advantage and establish themselves as leaders in the renewable energy landscape of these emerging economies. For Ørsted this also presents an opportunity to diversify its portfolio to mitigate risks and enhance resilience. As the profitability of Ørsted's offshore wind projects gradually declines with project maturity, establishing a presence in developing countries with higher growth rates and lower electricity prices can balance out

potential losses, ensuring a sustainable and diversified outlook. The decreasing costs of solar and wind technologies, driven by continual technological innovations, are enhancing the affordability and investment attractiveness of renewable energy. This trend is reducing the Levelized Cost of Energy (LCOE), making renewable energy projects more feasible and efficient, thus bolstering their appeal to investors and markets in developing countries (IRENA 2022). Furthermore, the increasing availability of climate finance funds and investments from developed to developing countries, specifically directed towards energy transition and workforce training, presents a significant opportunity for Ørsted (GSI 2022).

However, there are also inherent challenges to operating in developing markets. A primary obstacle lies in the limitations of infrastructure and the power grid. Distributing energy in these regions can be costly, often requiring the existing infrastructure to be upgraded or new infrastructure to be constructed by the company, which entails significant expenses (IEA 2023). In many developing countries, foreign direct investors – like Ørsted – face a higher level of political, regulatory, strategic, and operational risk, driven by less stable governance structures, evolving legal frameworks, and potential for socio-economic shifts (World Bank 2023). Additionally, many developing countries are less homogenous than in Europe with substantial variations in social and cultural norms within and across regions, creating unique challenges for Ørsted to tailor its business model and operations to effectively address the needs and expectations of diverse communities (McKinsey&Company 2019).

6. Readiness for expansion

As Ørsted evaluates its readiness to enter new markets, the company seeks to capitalize on the growing demand in developing countries. Although these markets differ significantly from Ørsted's primary operational bases the global need for energy is universal. Ørsted's energy solutions have seen success in their current markets and possess unique attributes that distinguish them in the energy sector. While their offerings are adaptable across markets,

modifications are necessary to fit certain regional conditions. The company has historically shown strong financial performance, but recent challenges might strain its capital reserves and affect borrowing costs. However, Ørsted's diversified portfolio and consistent revenue streams from its mature markets can provide a cushion. Additionally, Ørsted's strategic pursuits in new markets are significantly enhanced by its experienced in-house personnel and a strong international focus in its mission and strategy. While the renewable energy industry is heavily regulated, Ørsted is well-equipped, holding several ISO certifications and having experiences in influence regulatory landscapes (Ørsted 2023). Their collaborative approach with local governments, combined with their commitment to sustainability, positions them as a valuable partner in countries looking to bolster their green energy initiatives. Ørsted faces competition as top rivals like Siemens Gamesa, Vestas, and Iberdrola already have international footprints in developing countries, indicating both the challenges and potential of global expansion.

7. Framework

A combination of quantitative and qualitative analysis was employed to evaluate the potential of 152 developing countries for market entry. These countries are defined as those with a standard of living, income, economic, and industrial development that remain below average (World Data 2023). The international expansion model is systematically organized into three strategic stages: (1) a screening funnel, (2) country ranking and (3) qualitative analysis.

7.1 Phase 1: Screening funnel

The initial stage utilizes a refined screening funnel, based on predetermined criteria to eliminate countries that do not meet the critical requirements, and thus do not have the potential for expansion (Phase 1.1), which narrowed it down to 51 countries.

Variable	Criteria	Reason for Selection
War	No	Safety concerns, potential halt in business operations, capital loss, supply chain disruptions, economic collapse
Corruption	Index ≥20	Likeliness of bribery demands, unfair competition or unethical practices that could jeoparize ist operations and reputation
Ease of Doing Business	Index ≥50	Smoother, quicker and less costly process for Ørsted to establish and run its operations
Political Stability	Index ≥-1.5	Ensures a predictable business environment and security needed for long-term investments like energy projects
Technological Potential	Wind: > 7 m/s Shore Access: Yes/No Solar: 5 kWh/kWp/day	Ensures that selected country hast at least one technology with renewable energy potential for technology to create sufficient energy
Part of WTO	Yes	Crucial for businesses planning to expand: Country's trade environment, legal system, adherence to international trade standards
Country Risk	Index > 6.5	Mitigation of exposure to high-risk environments, avoidance of countries with a high likelihood of economic crises or sudden political changes
Economy Size	Too small: GDP < USD 8 billion GDP per capita < 700 USD	Substantial, diverse, and stable enough market with better infrastructure and access to resources

Subsequently, three scenarios are being introduced, defined by the specific potential of different technologies: Offshore Wind, Onshore Wind and Solar PV. Given Ørsted's leadership in Offshore Wind, international expansion in this area is strategic, while also capitalizing on its Onshore and Solar PV expertise, recognized as cost-effective with significant growth potential in sustainable electricity. Considering the changing industry environment and Ørsted's method of operation, it is essential to assess each technology to ensure an in-depth analysis. For each scenario, all countries that fail to meet the fundamental technical potential requirements, defined by irradiation, wind speed, and shore access, are filtered out (Phase 1.2).

7.1.1 Sensitivity Analysis

To enhance the robustness and reliability of the model, two sensitivity analysis has been performed to ensure that the expansion strategy is not based solely on static assumptions but is adaptable and resilient to changes in key market dynamics. This approach aligns with best practices in strategic planning, emphasizing thoroughness and adaptability in the face of global economic and political fluctuations (Investopedia 2023). For Ørsted, this translates to a more sophisticated understanding of the risks and opportunities in each market. The first analysis lowered each criterion, and the second increased each criterion. The following tables shows how this impacted each variable:

Variable	Original		Sensitivity 1.1		Sensitivity 1.2	
	Criteria	Countries left	Criteria	Countries left	Criteria	Countries left
Corruption	≥20	139	≥15	148	≥25	122
Ease of Doing Business	≥50	117	≥45	132	≥55	101
Political Stability	≥-1.5	135	≥-2	142	≥-1	124
Technological Potential (Solar, Wind, Shore access)	>5, >3, Yes	152	>3, >1, >yes	152	>7, >5, >yes	139
Country Risk	> 6.5	122	>7	130	>6	121
Economy Size (GDP, GDP per capita)	<8 billion, <700	109	<7 billion, <600	112	<9 billion, <800	108

This demonstrates that the variables are indeed sensitive and adjusting them gives different results. It can be attributed to the dynamic and often unpredictable nature of developing countries, where factors like political stability, economic growth, and market openness can significantly fluctuate. However, the range of results obtained does not undermine the analysis but rather underscores the importance of flexibility and adaptability in our expansion strategy.

7.2 Phase 2: Country Ranking

The second stage scores all countries quantitatively for each scenario based on 14 variables, which are categorized into four segments. A detailed description of each variable and its reasoning can be found below.

	Variable	Reason for Selection
Economic Environment	GDP Growth	Indicator for nation's overall economic vitality: **Rapid growth**: Surge in energy requirements, opportunities for new market identification
	Inflation Rate	**Low**: Promote economic predictability and investment security; **High**: Validate and support the financial case for investments
	Share of Renewable Energy in total energy mix	Market maturity for renewables: **High**: More receptive environment for Ørsted's technologies; **Low**: Greater opportunity for market impact and growth
	Electricity prices	Indicator to predict future costs and revenues
Political Environment	Political Stability	Ensures predictability and security of business environment, essential for making sustainable long-term investments
	Corruption	Limits the likelihood of encountering bribery demands, unfair competitioin, unethical practices that could jeopardize the company's operations and tarnish Ørsted's reputation
	Legal Framework for renewable energy	Ease with which Ørsted can initiate the project, operate and resolute conflicts and therefore, manage risk
	Incentives and regulatory support for renewables	Specific tax incentives and support can make the market more financially and operationally attractive
Business Environtment	Cultural Differences	Impact on business practices and communication styles
	Investment Risk	Helps in assessing the socio-political stability of a market, fundamental for long-term planning and resource allocation
	Intellectual Capital	Encompasses the knowledge, skills and expertise that drive innovation and technological advancement
	Social Capital	Ability to translate innovative ideas into practical applications due to lack of community support or trust
RES Potential	Solar: Irradiation & Annual hours of sun	High: More solar energy available for conversion into electricity
	Onshore: Power Density & Wind speed of 10% windiest areas at 100m height	Determine the feasibility, efficiency, and potential energy output, Aligning with heights of Ørsted's onshore turbines
	Offshore: Power Density & Wind Speed of 10% windiest areas at 200m height	Determine the feasibility, efficiency, and potential energy output, Aligning with heights of Ørsted's onshore turbines

Due to the varying scales of raw data across the different variables, the data was standardized into z-scores to neutralize scale discrepancies and prevent any unintentional bias in weighting. This standardized data was then transformed to a scale ranging from 1 to 100, following a formula detailed in Appendix 4. This process enhances interpretability and reduces the variance of effects within the dimensions. To assign appropriate weights to these scores, internal and external expert interviews were conducted. The comprehensive market opportunity index was created by integrating these insights and applying the defined weightings, leading to a final score for each country, which then determines their ranking (Cavusgil 2014).

The country rankings are determined by calculated scores and assigned variable weights. The ranking's validity was confirmed by applying three methodologies detailed in Appendix 5, with the top-ranked countries showing a consistent pattern, affirming the method's reliability.

Consequently, the top 10 countries were selected based on their consistent high performance across all three methods.

Offshore Ranking	
Chile	1
Uruguay	2
Costa Rica	3
Bulgaria	4
Oman	5
Romania	6
Brazil	7
Namibia	8
Panama	9
Qatar	10
Guyana	11
Morocco	12
India	13
South Africa	14
Jamaica	15
Albania	16
Georgia	17
Senegal	18
Jordan	19
Mexico	20

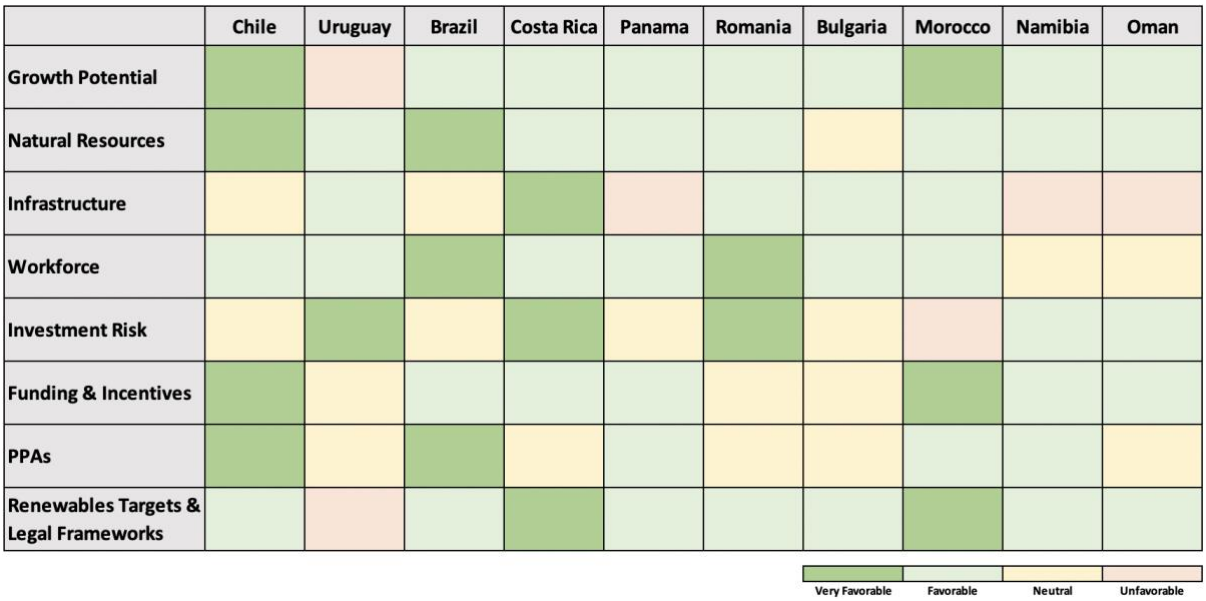
Onshore Ranking	
Chile	1
Uruguay	2
Costa Rica	3
Botswana	4
Bulgaria	5
Romania	6
Oman	7
Panama	8
Namibia	9
Jamaica	10
Brazil	11
India	12
Morocco	13
Georgia	14
Armenia	15
Jordan	16
South Africa	17
Qatar	18
Albania	19
Mexico	20

Solar PV Ranking	
Chile	1
Uruguay	2
Oman	3
Namibia	4
Jordan	5
Botswana	6
Qatar	7
South Africa	8
Morocco	9
Mexico	10
Senegal	11
India	12
Brazil	13
Jamaica	14
Costa Rica	15
Guyana	16
Dominican Republic	17
Peru	18
Egypt	19
Albania	20

Although certain nations consistently achieve high rankings across various technologies, the differences in outcomes across scenarios underscore the need to customize country evaluations according to energy sources. Chile stood out with ranking highest across all technologies. While not showing significant solar potential, Costa Rica, Romania, and Bulgaria showed very high potential for on- and offshore wind. Additionally, Uruguay, Brazil, Morocco, Namibia, Oman, Panama showed high potential across all technologies.

7.3 Phase 3: Qualitative analysis

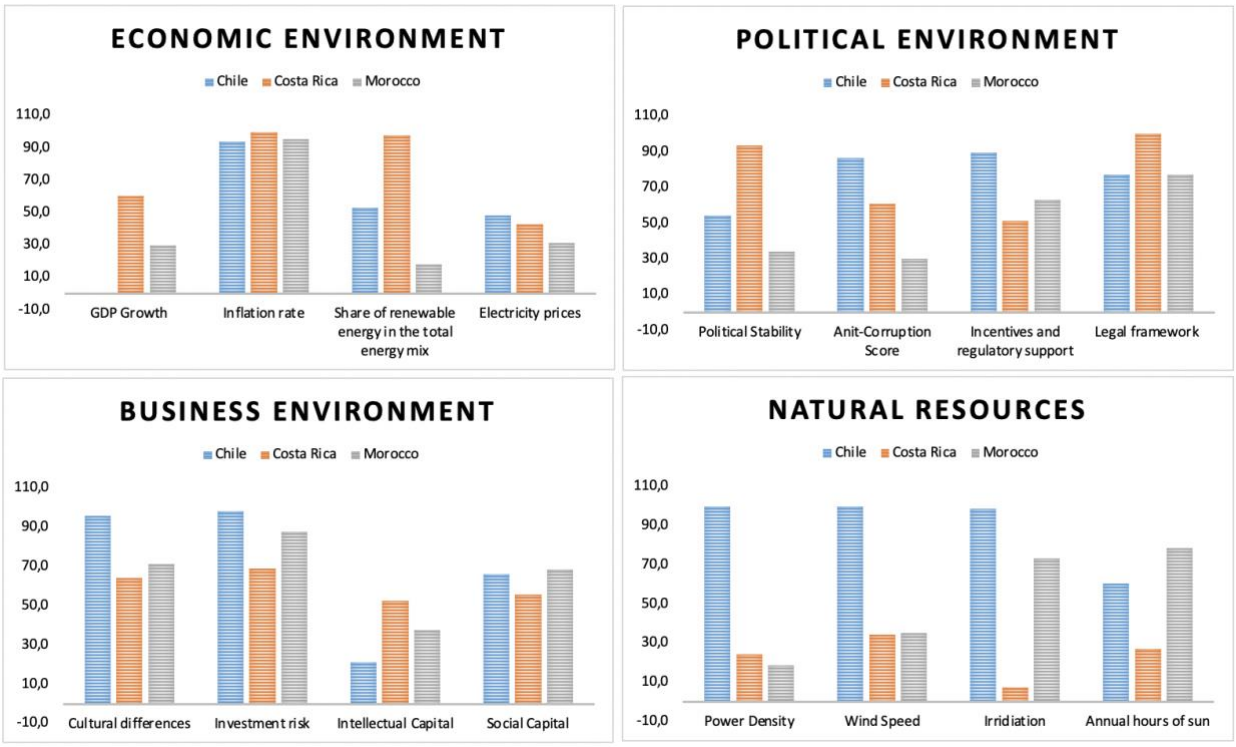
To further refine the evaluation, these 10 highest potential countries were identified to analyze qualitatively, ensuring that the assessment goes beyond data-driven insights and incorporates contextual depth. The table below serves as a concise overview of the outcomes, emphasizing the substantial potential demonstrated by Chile, Morocco, and Costa Rica. A comprehensive and detailed version of this table can be referenced in Appendix 6.



7.4 Top 3 potential countries

Showcasing the high potential of Chile, Morocco, and Costa Rica, a comprehensive qualitative analysis of each country has been conducted (Appendix 7). Based on this analysis, Chile appears to be the best expansion destination. While Morocco presents promising market opportunities for Ørsted, fueled by a growing demand for renewable energy driven by reliance on imported fossil fuels, untapped offshore potential, and supportive regulatory frameworks, it also carries substantial risks and challenges. These include navigating the high LCOE, which could impact project profitability, and addressing logistical complexities that arise from the country's diverse terrain. Moreover, success in this market demands substantial investment from Ørsted, in both financial and cultural terms. Costa Rica's strong commitment to renewable energy and well-developed infrastructure present an attractive landscape for Ørsted, as the company seeks to avoid additional investments in infrastructure owing to the capital-intensive nature of its projects. However, the lack of a skilled workforce, limited logistics capabilities, and a complex regulatory environment dominated by a state-owned energy monopoly are hindering Ørsted's opportunities as a private investor.

In contrast, Chile's outstanding natural resources, untapped offshore wind potential, and significant renewable energy investments provide an ideal setting for Ørsted to leverage its exceptional offshore wind expertise and drive decarbonization in Chile, while also benefiting from stable prices and lucrative funding opportunities. The accompanying graphic depicts the variable performance of these countries, with a detailed view available in Appendix 8.



Chile moreover stands out as the optimal choice for Ørsted, as it aligns most with the company's expansion strategy which prioritizes two key objectives: (1) minimizing risk and (2) maximizing value creation. Costa Rica's mature renewable sector and established offshore projects might limit potential value creation, and Morocco's immature renewables market presents significant risks. In contrast, Chile emerges as the optimal destination, harmonizing these objectives. Chile's market, characterized by its potential for electrification due to the absence of developed offshore wind projects, presents a strategic platform for Ørsted. This environment allows for diversification and risk mitigation in macroeconomic and supply chain aspects, further reinforced by Chile's politically stable and economically diverse backdrop.

7.5 Chile Qualitative Analysis

Given Chile's high potential, the following will examine its economic environment, natural resources, business environment, and political environment in more detail.

7.5.1 Chile's Economic Environment

Chiles' economic environment is characterized by a modest GDP growth of 0.5%, correlating with a rising power demand in the country which indicates a steady need for energy to sustain economic activities. Despite an inflation rate of 7.8% (IMF 2023), electricity prices have remained relatively stable at 0.17 USD per kWh, providing a degree of predictability in energy costs for consumers and businesses. Such an environment underscores a significant opportunity for Ørsted to diversify macroeconomic risks by expanding into this market. In 2021, Chile saw substantial investments in renewable energy, totaling USD 3.4 billion (BNAmericas 2021), which now comprises 52.96% of its total energy mix and rising 18% annually. The LCOE for renewable energy is currently at 49.2 $/MWh and projected to decrease to 41.4 $/MWh by 2030 (Bloomberg 2023). This decreasing trend in the LCOE not only positions Ørsted to improve the efficiency and cost-effectiveness of its renewable energy solutions and thereby competitiveness against traditional energy sources but also significantly enhances the company's investment appeal. However, Chile faces medium logistic risks, with a LPI of 3.0 (World Bank 2023), indicating adequacy for standard business and trading needs, including supply chains and customs clearance. A significant challenge is the 27% rise in freight crime since 2019, primarily impacting sectors such as electronics, food, clothing, footwear, beverages, and automotive parts (BNAmericas 2021). This can lead to disruptions in Ørsted's supply chain, elevating operational costs and potential impacts on project viability and business reputation for companies expanding into the market. The diverse, robust, and growing portfolio for PPAs in Chile in the renewable energy sector is attractive for both local and international investors and companies such as Ørsted.

7.5.2 Chile's Natural Resources

Geographically, Chile's offers a diverse range of natural landscapes ideal for renewable energy generation. Vast desert areas such as the Atacama Desert and other Northern Regions receive some of the highest levels of solar radiation globally, making it ideal for solar energy exploitation. The countries' wind energy potential, both onshore and offshore offer very high-power densities and wind speeds, indicating efficient energy generation from even small land areas as well as capitalizing on the consistent, unobstructed winds available along Chile's extensive coastline. Despite its excellent technical Potential as demonstrated in the map on the right (World Bank 2023), Chile currently does not have any existing offshore wind capacity (Global Data 2023). This presents a significant opportunity for Ørsted, particularly given the country's extensive coastline and the potential for harnessing strong maritime winds. Notably, the onshore wind potential in Chile's south is strong enough to compete with offshore wind capacities of other nations. Yet, the country faces climatic challenges, including mega-droughts and forest fires, emphasizing the need for sustainable energy solutions (Climate Change Knowledge Portal 2023), presenting a key opportunity for Ørsted to meet the growing demand.

7.5.3 Chile's Business Environment

Chile's business environment, particularly in the renewable energy sector, is marked by a blend of cultural diversity, investment stability, high social capital, along with a significant growth potential (Appendix 9). Its workforce is one of the most environmentally conscious globally, with various higher education institutions offering relevant programs (RIFS 2022). Initiatives like SENCE and collaborations with IRENA enhance capacity building and training, further strengthening the sector's human capital. However, the rapid expansion of renewables in Chile has led to congestion in the grid, particularly in the transmission network which poses

significant challenges for Ørsted. (IEA 2023) Additionally, the southern region (SEM), showing the most promising offshore wind potential but with relatively low energy demand, is not yet connected to the central (SEA) and northern (SEN) regions, where energy demand is considerably higher (Appendix 10). Chile's renewable energy competitive landscape is dynamic, featuring a multitude of companies actively pursuing ambitious goals for sustainable transformation. A comprehensive overview can be found in Appendix 11.

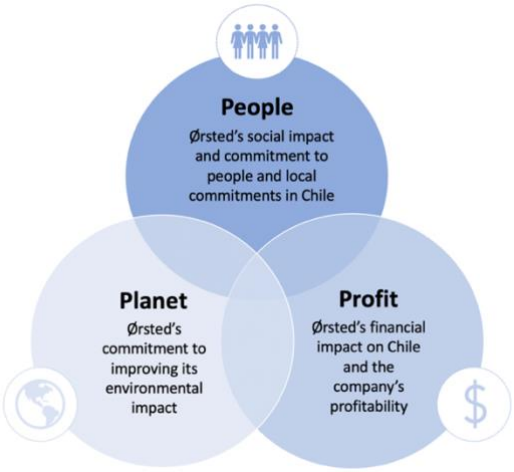
Denmark and Chile differ culturally in power dynamics, individualism, and risk attitudes, with Denmark leaning towards egalitarianism and risk-taking, opposite to Chile's hierarchical and cautious approach. However, both countries score similarly in indulgence, suggesting a mutual prioritization of work-life balance. (Hofstede 2023).

7.5.4 Chile's Political Environment

Chile's political environment plays a crucial role in shaping its renewable energy landscape. The country exhibits moderate political stability and relatively low level of corruption, which, paired with its robust and forward-thinking legal framework, creates a supportive environment for renewable energy initiatives. Chile aims to convert 70% of its total energy consumption to renewables by 2030 and achieve carbon neutrality by 2050. The country employs a mix of indirect incentives, including free market principles, a long-term PPA framework and flexible taxes on local and global emissions, particularly targeting NO, SO_2, and CO_2 emissions from larger generation plans, and direct mandates requiring for companies with significant installed capacity to ensure a portion of their energy comes from renewable sources (OECD 2019).

Chile's high potential as a destination for Ørsted's expansion is evident from the qualitative analysis. However, identifying these opportunities is just the first step; Ørsted then faces the intricate task of navigating the complexities of market entry while upholding its commitment to global sustainability goals. The next section will focus on providing recommendations for Ørsted's market entry in Chile.

8. Formulating Guidelines on Market Entry



In the following, recommendations for a sustainable market entry in Chile will be outlined. Expanding beyond the traditional economic focus to encompass social and environmental dimensions as well. Sustainability, defined as "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (United Nations 1987), emerges as a harmonious balance of these three dimensions, aligned with the Triple Bottom Line Model (Appendix 12).

8.1 Profit

Economically, the project represents a substantial investment with significant impact. Looking at an example of a 110 MW solar plant, the total socioeconomic impact over its lifetime is projected to be US $3124 million. This figure indicates a multiplier effect of 2.2, meaning that for every dollar invested, an additional 1.2 dollars are generated in the economy. This effect is crucial for stimulating economic growth and development (Rodríguez, et al. 2017).

8.1.1 Risk mitigation

Renewable energy projects involve a range of risks, primarily financial, regulatory, technological, and environmental. Due to the substantial financial investments required for renewable energy projects, it is recommended to carefully identifying, assessing, mitigating, and monitoring the specific risks involved is crucial to ensure sustainable project success (Lee 2023). This aligns with Ørsted's established risk management approach where different teams are identifying, assessing, and monitoring various risk factors across commercial, legal, technical, and sustainability dimensions, accompanied by comprehensive mitigation strategies (Engelund 2023). Through expanding to Chile, Ørsted would diversify its portfolio which allows to spread risk but also introduces specific local risks. On the one hand, Chile's growing

renewable energy market and its different economic cycle could provide a buffer against risks prevalent in Ørsted's existing markets in Europe, the US and APAC. By diversifying its operations across regions, Ørsted can mitigate the impact of supply chain and macroeconomic risks, such as currency fluctuations and fluctuating energy demands. This is particularly crucial given the current challenging macroeconomic environment for Capex-heavy companies like Ørsted and the increasing risk of supplier defaults. (IEA 2020b)

On the other hand, an expansion exposes Ørsted to new, region-specific risks. While many of these risk factors in Chile are like other markets, especially in South America, the curtailment risk stands out. Low institutional and technical capacities coupled with a lack of experience with investments in renewables and energy efficiency have prevented extensive investments. While measures such as Chile's $77 million CTF investment plan (CIF 2023), and enactment of the new transmission law alongside other legal adjustments (Ministerio de Energía 2023), are set into place to overcome these barriers, the country is not able yet to keep up, dealing with delays in commissioning of additional grid capacity (IEA 2023). This is resulting in increased curtailment, where excess renewable energy is not sent to the grid due to transmission constraints. Between January and May 2023, Chile recorded an historic peak in curtailments: 735 GWh of clean energy could not be fed into the grid, an increase of 86% compared to the same period in 2022 (PV Magazine 2023). This leads to significant losses and therefore poses a significant risk for Ørsted. In 2022, renewables firms were reported to having lost $1billion due to curtailment and the price differentials seen in the system's different nodes (Bnamericas 2023). To mitigate this risk, Ørsted should focus on operating in regions with a strong grid infrastructure. According to a 2023 report by the CNE, the best grid infrastructure in Chile is concentrated in the central-southern region of the country (IEA 2023b). Ørsted should establish a strong rapport with the regional grid operator and closely monitor ongoing transmission projects to ensure the grid infrastructure is in place to accommodate its future renewable energy

output. Notably, the Kimal-Lo Aguirre HVDC transmission line project, spanning five regions and boasting a 3,000 MW capacity, is poised for 2029 operation, coinciding with Ørsted's potential wind farm investments (Conexion 2023). In addition, the Ministry of Energy, plays a key role in facilitating renewable energy grid integration through developing and implementing corresponding policies. Engaging with the Ministry of Energy – as seen in the case study - can allow Ørsted to shape these policies aligned with its project development and ensure that the project receives the necessary support and regulatory approvals.

8.1.2 Partnerships

One of the most important recommendations for Ørsted is to form strategic partnerships. As seen in the case study, the key to a successful entry in a country with differing cultures and regulatory frameworks is to establish partnerships with local entities, which are crucial for navigating the renewable energy environment of developing countries. Due to Chile's geographical distance to Denmark as well as differing regulations, a partnership can be approached in two ways: (1) A Private-Public-Partnerships to foster a conducive environment for the project and (2) partnering up with private companies to develop and execute viable business cases for joint ventures in the sector.

Having focal points at the Ministry of Energy and industry agencies is recommended because of two reasons: (1) Governments attract renewable energy investments by pooling funds from sources like development banks, local firms, and FDI, facilitating the entry of new players in the sector, as highlighted by IRENA Consultant Austin Lee (Lee 2023). (2) The partnership between locals, with their deep knowledge of the country's dynamics, and international developers, offering financial resources and extensive market experience, forms a powerful alliance (Cunha 2023).

When expanding to Chile, collaborating with an agency is highly beneficial for Ørsted. This strategy echoes their approach in Poland, where the company successfully collaborated with the Wind Energy Association to shape government policy to support offshore energy projects. The Chilean renewable energy association ACERA which consists of developers, generators and suppliers of products and services of the renewable energy industry, could be of particular interest (ACERA 2023). This partnership would provide Ørsted with an in-depth understanding of regulatory requirements, forthcoming regulatory changes, and essential compliance strategies. Such insights are vital for Ørsted's strategic planning and operations, helping to minimize potential legal and operational risks.

Another strategic possibility for Ørsted is to collaborate with the "4e Chile" program, a project focused on boosting energy sector sustainability via technical assistance (4E Chile 2023). This collaboration holds significant potential, as Ørsted could utilize the support offered to conduct comprehensive site evaluations, and successfully integrate the renewable energy sources into the national grid system. Additionally, the program's financing options present Ørsted with avenues to try new financial approaches, reducing investment risks and aiding its successful market entry in Chile.

Moreover, building relationships with the Chilean Energy Commission (CNE) could aid Ørsted in comprehending the technical regulations (Appendix 13) that controls energy production, generation, transport, and distribution. Adhering to these standards is crucial for ensuring reliable, safe, and high-quality service in the energy sector (CNE 2023). This could accelerate Ørsteds understanding of the regulatory compliance and ensures operational safety and efficiency, therefore minimizing legal and financial risks.

To successfully enter the market, it is essential to not only engage in PPPs, but also to collaborate with a local entity to gain market expertise and foster cultural awareness. This

approach is substantiated by the case in Poland, where parting with a local company was necessary for its market knowledge and established local trust and connections.

Upon conducting a Competitive Landscape Analysis (Appendix 11), Enel Chile S.A. (Enel) emerges as the most suitable local partner. A collaboration between Ørsted and the "leading company in the Chilean electricity sector" (Generadoras de Chile 2023) is recommended because of the following reasons:

(1) Enel's significantly higher amount of energy projects in the country indicate a more superior infrastructure and grid connection (Jorquera 2023) (Appendix 14), significantly outperforming others (Appendix 15). This enhances the capacity to harness, store, and distribute clean energy effectively and minimizes the costs for Ørsted as they could leverage these resources through a partnership.

(2) Enel maintains 36 successful partnerships with various associations and organizations, demonstrating its commitment to transparency and collaboration, indicating a lower risk of contract breaches. Additionally, Enel has reinforced its commitment to global standards by joining the United Nations Global Compact (Enel 2023). This does not only highlight its commitment to promote a sustainable way of doing business, managing the challenges of climate change and the energy sector, but also shows their ability to shape the market and participate in the formulation of new policies.

(3) Enel's robust financial performance, exemplified by a 73.59% revenue surge to 4.96 trillion CLP in 2022, underscores its capacity to support large-scale projects and mitigate financial risks for partners like Ørsted. This remarkable growth, driven by a surge in earnings to 1.25 trillion CLP, further highlights Enel's strong market presence and financial resilience (Stock Analysis 2023). The strong revenues and earnings reflect Enel's capability to invest and support large-scale projects, reducing financial risks for Ørsted. These financial strengths are complemented by Enel Group's strategic commitment to sustainable finance, with over €23

billion in transactions in 2022, including about €12.1 billion in sustainability-linked bonds (Enel Group 2023), aligning with Ørsted's green energy goals.

Given that Enel is yet to venture into offshore wind operations, a collaboration with the industry's global leader is highly beneficial because of the knowledge transfer offered from Ørsted. Furthermore, Enel's goal to have an electricity generation mix that is entirely derived from zero-emission sources by 2040 (Enel 2023), can be supported by the knowledge of Ørsted, that has successfully undergone a similar transformation.

This synergy could facilitate smooth market entry, shared resources, and aligned strategies, making the partnership effective in establishing and expanding renewable energy projects in Chile. This collaboration would not only launch Chile's first offshore wind project but also establish it as a pioneering initiative in the nation's renewable sector, advancing Ørsted's vision of a world powered by green energy. For Ørsted, collaborating with a Chilean company fosters adaption to Chile's more hierarchical, collectivist, and risk-averse culture, while leveraging shared values in indulgence to foster a mutual understanding and effective partnership.

It is suggested to make use of the "Investment entry mode" (Appendix 16), which involves committing significant financial resources to establish a presence in the Chilean market, likely through joint ventures or direct investment. Specifically, a joint venture is recommended as it allows both companies to share capital and risks while leveraging their respective strengths: Ørsted's expertise in offshore wind and Enel's established market access and relationships in Chile. This collaborative strategy can facilitate a more effective and efficient entry into the Chilean renewable energy market (David 2023).

8.1.3 Leverage Funding and Financial Incentives

Another recommendation lies within the financing and funding options available in Chile. Based on insights gathered from expert interviews, the role of funding and financing is crucial when expanding to a new market, specifically for renewable energy projects, which are very

CAPEX heavy. As Chile is experiencing significant growth in its renewable energy sector, the landscape of fiscal incentives and financial mechanisms designed to support and accelerate these projects is also currently evolving. In November 2023 the government announced, that they are working on a new green tax reform that incentivizes investments in climate-friendly projects, including in the energy sector. Shifting from merely collecting funds, this proactive strategy involves using tax revenues to support and finance eco-friendly projects, thereby fostering a more inviting environment for green investments. Another critical aspect of the reform is the proposed increase in the existing carbon tax, which is currently set at $5 per ton of carbon emitted (Argus 2023). By making renewable energy sources more attractive and cost-competitive, the carbon tax could drive demand for Ørsted's expertise and technology. Actively monitoring these evolving policies is crucial to capitalize on the emerging opportunities.

Chile's growing PPA adoption presents another significant fiscal benefit for Ørsted (Atlas Renewable Energy 2020). These PPAs allow direct electricity buying from independent sources, creating a financially conducive setting for renewable projects, and providing Ørsted with stable, predictable revenue, essential for financial sustainability.

In addition, the company should actively explore the various funding options available in Chile and South America to supplement their financial resources. The Invest Chile Programme, a collaborative initiative between the Energy Ministry and the Chilean Economic Development Agency (CORFO), offers valuable support for renewable energy projects and financing solutions across the region (IEA 2021). CORFO designs and deploys innovative financial tools and technical aid through local financial institutions, promoting private investment in low-carbon initiatives like renewable energy and sustainable transport. Specifically, CORFO's High-Technology Investment Promotion Programme offers financial incentives, technical advice, and information to foster advanced technology adoption, employee training, and pre-feasibility studies (CORFO n.d.). Accessing these resources allows Ørsted to enhance its

financial health and acquire essential support for tailoring its technologies to the Chilean market. This includes gaining insights into local technical conditions and assistance in adjusting its technologies. Furthermore, it provides specialized training programs for local staff, enabling Ørsted to focus on strategic direction and advice, which can speed up the deployment of its offshore wind farm projects in Chile. Furthermore, the Climate Investment Funds (CIF), offering concessional financing, provide Ørsted a significant opportunity. CIF allocates $77 million to Chile through the Clean Technology Fund (CTF), targeting barriers in renewable energy adoption like risk perceptions, limited capabilities, and inexperience in this sector (CIF n.d.). For example, CTF's funding focuses on mitigating investment risks in large-scale projects, which can substantially ease the financial challenges of such ventures that Ørsted is undertaking.

8.1.4 Scaling and Growth Opportunities

To achieve sustainable growth and establish a strong presence in Chile, it is furthermore recommended for Ørsted to have a clear expansion strategy that encompasses both initial establishment and long-term growth objectives. Adapting to market changes and scaling operations effectively are crucial for sustainable success and capitalizing on opportunities in Chile's and South America's expanding renewable energy sectors. Utilizing Ansoff's Matrix (Appendix 17), Ørsted can develop a flexible strategy for future growth. This framework, offering four growth strategies (Peterdy n.d.), highlights two particularly relevant for Ørsted's Chilean ambitions:

(1) The first recommended growth strategy is the market expansion, as the prospects for growth in Chile are not just limited to the immediate market. Chile is particularly good as the first market to expand to in South America due their low investment risk, low level of corruption and stable political and economic environment, which gives a safer, more predictable business climate, which is crucial when entering a new region. Developing a sustainable supply chain

in Chile can facilitate a smoother expansion into other South American markets. The established networks and partnerships within Chile are poised to become essential catalysts for broader regional growth. By extending its reach into markets such as Costa Rica, Panama, and Uruguay, Ørsted could furthermore achieve economies of scale. These countries present untapped renewable potential and favorable business environments. This strategic expansion not only promises to enhance Ørsted's market share but also aims to solidify its standing as a dominant force in the renewable energy sector across South America.

(2) Another strategic direction recommended from Ansoff's Matrix is product development.

Pursuing product development as outlined in Ansoff's Matrix, Ørsted could start by establishing offshore wind farms in Chile's central region, where energy demand is high, yet the market remains untapped. This initial step could pave the way for expansion into the southern region, which, although experiencing lower demand, offers more favorable wind conditions. Here, Ørsted's focus could expand with Power-to-X (PtX) technologies, particularly with a focus on green hydrogen production. Chile aspires to become the leading low-cost exporter of green hydrogen by 2040 and doing so by utilizing the natural wind strengths in its southern regions like Patagonia and Magallanes (Bartlett, 2022). This creates an opportunity for the development of extensive wind farms for large-scale green hydrogen production. Ørsted, with their goal of being a global leader in PtX by 2030 (Ørsted, 2023), should capitalize on this untapped potential. This strategy not only diversifies Ørsted's product portfolio but also contributes to Chile's energy transition and decarbonization efforts. By developing PtX technologies, Ørsted can position itself at the forefront of this emerging market, strengthening its role in the global green hydrogen economy.

8.2 People

Ørsted's operations in Chile could have social impacts on the country. Assuming the installation, operation, and maintenance of a 110MW concentrated solar power plant in Chile,

the direct and indirect impact has been calculated. The project is anticipated to have a positive impact on employment, with each direct job created leading to the generation of approximately 1.21 additional jobs in various other sectors of the economy (Rodríguez et. al. 2017). This could be particularly beneficial for Chile, given the high unemployment risks in the sectors most stimulated by the project. Job creation from the project could mitigate these risks, enhancing social stability and living standards.

8.2.1 Engaging with local communities

When entering a new market, it is highly important to engage with and show respect to local communities. Several projects of the International Institute for Sustainable Development reveal that simply meeting locals' need for electricity is not enough for success, often failing due to public opposition rather than economic or financial reasons (McCandless 2023). To prevent that, Ørsted must broaden its focus beyond renewable energy to ways in which the project can positively impact the local people. Ørsted performs stakeholder engagement throughout the project lifecycle, but the scope of this engagement has been relatively limited. This may be attributed to the company's primary focus on offshore wind projects, which typically have a minimal impact on local communities (Engelund 2023). Additionally, Ørsted's traditional markets in Europe and the US exhibit cultural similarities and strong and respected labor laws (Oyster 2022), which is why community engagement was not essential to intensify up to this point. Taken these factors into account, it is recommended that Ørsted introduce a more profound local community engagement guideline into its project development process. To effectively establish these guidelines, they should be informed by and aligned with various international frameworks developed by reputable organizations such as the UN and IFC (UNDP 2011) (IFC 2012).

Engaging with local communities can be challenging especially in areas unlike the countries Ørsted usually operates in, where people may be fearful or too occupied to communicate

openly. NGOs, particularly local grassroots ones, can help overcome this obstacle. Even though they may be less organized and harder to find, their local connections and insights outweigh the extra effort needed to engage with them over international NGOs (McCandless 2023). Furthermore, it is very important to ensure that locals understand the project in a way that makes sense to them. In many developing countries, education standards are frequently lower, with regions where a significant portion of the population cannot read or write. In developed countries, the adult literacy rate is 99%, while in developing countries, it is only 78% (Our World in Data 2022a). Ørsted must adapt its operations to be accessible to individuals with these educational and varied cultural backgrounds. As Traça (2023) notes, these communities are resistant to paternalistic or post- colonialist approaches. Therefore, actively including local communities and balancing their needs with the company's objectives is essential for building trust – the foundation of successful collaboration. As McCandless (2023) aptly states, "*Out of trust comes legitimacy and out of legitimacy can come fruitful collaboration.* ".

The literacy rate of 97.04% (Statista 2023a) as well as freedom of impression index of 0.89 (Our World in Data 2022b) in Chile is relatively high compared to other developing countries which indicates that it is easier for Ørsted to engage with local communities. However, the freedom of expression and openness of local people towards foreigners can differ significantly depending on the region and therefore specific project side Ørsted chooses.

A significant challenge in Chile is the absence of laws recognizing indigenous land rights and sovereignty, leading to inadequate respect for their territorial claims. Learning from several negative examples, such as the Chiloé wind power project which failed its lack of consultation with Indigenous communities and the desecration of sacred sites (IHRB 2022). In accordance with Article 10 of the United Nations Declaration on the Rights of Indigenous Peoples, Ørsted should prioritize seeking free, prior, and informed consent (FPIC) (United Nations 2007). This means that indigenous communities should be fully informed about the project in advance,

have the right to veto the project, and be compensated for any negative impacts. At this stage a partnership with Enel would be highly beneficial. The company has a proven track record of long-lasting collaboration and respect for indigenous communities and has recently signed a Memorandum of Understanding with the ACIR Bio – a local association promoting indigenous rights (Enel 2022). Ørsted could learn significantly from Enel's approach when setting up guidelines and leverage its expertise to establish a strong foundation for engaging with indigenous communities in Chile.

8.3 Planet

When focusing on the environmental aspect of the triple bottom line, it is crucial to consider the ecological impacts. It must be mentioned that, unlike fossil fuels, renewable energy resources are inexhaustible. They produce little to no greenhouse gas emissions during operation, significantly reducing air pollution and carbon footprint. They typically emit minimal to no greenhouse gases when operational, substantially diminishing air pollution and the overall carbon footprint. (IEA 2023)

8.3.1 Construction and decommissioning phase

However, it is essential to acknowledge environmental challenges that their construction and decommissioning phases can pose. For instance, the direct and indirect economic activities required by a 110 MW concentrated solar power tower plant result in the generation of 64.36 g CO_2/kWh, which is a significant environmental impact. While this is a consequence of the economic activities required by the project, replacing coal-fired thermoelectric plants with this CSP technology would lead to a significant reduction in CO_2 emissions, contributing positively to Chile's environmental efforts in combating climate change (Rodríguez et. al. 2017).

8.3.2 Minimizing biodiversity harm

Ørsted has already established numerous environmental guidelines aimed at minimizing harm in effecting biodiversity, soil contamination and cultural heritage, which are being performed

by external consultants before every project (Engelund 2023). Maintaining these standards is essential when expanding into markets beyond the EU.

The Northern region of Chile, known for having some of the highest solar radiation levels globally with capacity factors exceeding 35% (World Bank 2023), presents an ideal location for constructing solar PV installations. This region's lack of forests is advantageous, as it means that solar projects can be developed without impacting wildlife habitats or necessitating deforestation (GFW 2023). Given the well-developed infrastructure, and strong grid connectivity in Northern and Central Chile, the requirement to construct new facilities in these areas is minimal. This situation is beneficial as it reduces the likelihood of additional greenhouse gas emissions, noise pollution, and other environmental impacts typically associated with new construction projects. Moving southward in Chile, despite a weaker grid and less developed infrastructure, the region showcases impressive wind resources, with the potential to achieve capacity factors surpassing 60%. (Bloomberg 2019)

8.3.3 Offshore Wind Projects

Special consideration must be given to the completely undeveloped offshore wind sector in Chile. It is recommended for Ørsted to ensure that its operations do not adversely impact marine life and the overall health of the oceanic ecosystem. Fishing boats or small vessels should gather the data and Environmental Impact Assessments must be performed regarding the local marine flora and fauna, migratory patterns, and the seabed environment. Sites must be selected with minimized disruption to critical habitats, breeding grounds, and migratory routes and areas of ecological sensitivity and high biodiversity should be avoided.

Furthermore, it is noteworthy that Ørsted has not yet established operations in South America, potentially leading to significant emissions due to the transportation of turbines over long distances. Therefore, it is recommended to seek local manufacturers capable of producing these turbines nearer to the project site. The proposed collaboration with Enel might be beneficial in

this context, considering their involvement in onshore projects within the country. This experience could enable them to connect with partners capable of supplying offshore turbines.

8.4 Final recommendation

Acknowledging the inherent challenges and risks associated with Ørsted's expansion into a new continent, the significant potential in South America, particularly in Chile, outweigh these obstacles. Notably, Chile's untapped market for offshore wind presents a substantial opportunity for Ørsted to penetrate this unexplored market. Specifically, it is recommended, that Ørsted should prioritize a strategic partnership with established local players like Enel. Simultaneously, the company should leverage its offshore wind expertise to capitalize on opportunities in Chile, particularly in regions with strong grid infrastructure. Complementing this strategy, Ørsted should diversify its portfolio by exploring PtX technologies, with a focus on green hydrogen production in the southern regions of Chile. Moreover, successful market entry and expansion in Chile will require a commitment to community engagement and respecting indigenous rights. Navigating the complex regulatory landscape is another critical aspect. Lastly, a robust financial strategy that explores various funding options and leverages fiscal incentives will support these initiatives, ensuring the financial viability and sustainability of Ørsted's projects in Chile. These recommendations, when implemented effectively, will not only facilitate Ørsted's successful market entry into Chile but also contribute significantly to its overarching goal of leading the green energy transformation.

9. Limitations

The following outlines the limitations of the study, discussing the five most significant limitations and their impact on the study's conclusions and recommendations.

(1) The study faced a significant limitation due to data gaps, especially in areas such as PPAs, LCOE, and electricity demand. As it was not possible to gather this data for all countries, these factors were included in the qualitative analysis of the selected countries instead of the

quantitative analysis. Therefore, the absence of this data could have an impact of the ranking of the countries from Phase 2. Additionally, certain variables lacked data for few specific countries, which due to their small size did not have much information publicly available. In these instances, the data was estimated through research and by drawing parallels with similar countries. While this method may affect model precision, it was the most feasible solution.

(2) The study's scope is constrained by insufficient data on financial strategies. An ideal analysis would include comprehensive financial planning, encompassing market entry costs, revenue projections, and expected returns. Nonetheless, due to limited access to company data and research resources, it was not possible to formulate such a strategy. Thus, the study does not completely capture the financial implications of Ørsted's potential expansion into Chile.

(3) Another significant limitation is the tendency for energy investments to disproportionately benefit certain nations (UNDP 2023). Historically, certain countries have consistently attracted more energy investments, often overlooking nations with a more pressing need for such resources (UNCTAD 2023), such as Nigeria and the Democratic Republic of Congo (World Bank 2023), where the risk is too high for investments, but where the need is urgent. This bias is unintentionally mirrored in the model in this thesis, highlighting a broader, systemic issue in global energy investment trends. It underscores the need for more equitable energy policies and investment practices that prioritize not just economic returns, but also the urgent energy needs of underprivileged regions. Nevertheless, since this study is geared towards providing recommendations for a company seeking market entry, it must consider economic viability and meet specific criteria like political stability, low corruption, grid connectivity, etc., which are essential for a company's ability to successfully enter a new market.

(4) The environmental review of the proposed strategies encountered significant limitations due to the lack of detailed data on factors like marine and terrestrial biodiversity for wind and solar projects, impacting the analysis depth. Insights from expert interviews suggest that

specialist consultants are often needed due to this data deficit, and caution is advised regarding the accuracy of the information that is available, thus narrowing the scope of the environmental analysis.

(5) Finally, the methodology of the country ranking, while useful for initial screening, presented several limitations. A notable concern is the lack of specificity for Ørsted‘s technologies and the renewables industry in the variables used (e.g. Ease of Doing Business Index), which may limit the model's applicability to the specific industry context of renewable energy. Additionally, the model's results are highly dependent on the subjective weights assigned to various criteria, highlighting the need for customizing it to align with specific business needs and preferences. Additionally, similar rankings can be developed by multinational companies considering foreign direct investment. The model, therefore, should be seen as a preliminary tool for market entry, not as a definitive guide and was used as such.

9.1 Suggestions for further research

To further expand the scope of this study, future research could attempt to bridge data gaps by utilizing advanced data analytics and accessing proprietary industry databases. For instance, researchers could analyze data from historical electricity demand, economic growth, and population growth to develop more accurate and comprehensive electricity demand forecasts for developing countries. Further environmental impact studies with a focus on local ecosystems could be conducted in partnership with environmental organizations. Moreover, researchers could visit the site, to gather more accurate and precise data. Addressing the investment bias in favor of under-served regions could be another suggestion for further research, potentially through the development of inclusive investment frameworks.

10. Conclusion

In this thesis, the strategic expansion of Ørsted into new markets with a focus on sustainable green energy was explored. A comprehensive approach combining quantitative data modeling

and qualitative analysis identified countries with the highest potential for Ørsted's expansion. Chile is identified as an optimal market, rich in natural resources, with substantial investments in renewable energy and a wealth of untapped offshore wind capabilities. Notably, Chile's market dynamics aligned well with Ørsted's strategic priorities of minimizing risk and maximizing value creation. The analysis led to key recommendations for Ørsted's successful market entry into Chile. Central to these were forming a strategic partnership with Enel to exploit the untapped offshore wind potential in areas with robust grid infrastructure, such as in the central region. Furthermore, an expansion strategy for Ørsted in Chile emphasizing the development of green hydrogen through PtX technologies was proposed. Leveraging funding and financial incentives, engaging with local communities, and minimizing biodiversity impact were also recognized as essential elements to the expansion strategy.

Moreover, several limitations were identified, including data gaps, limited information on Ørsted's financial strategies, and a systemic bias in the country ranking model favoring certain nations. Additionally, the methodology's specificity to the renewable energy industry was limited. Despite these limitations, the thesis offers valuable insights and recommendations, serving as a robust framework to guide Ørsted's strategic initiatives in Chile.

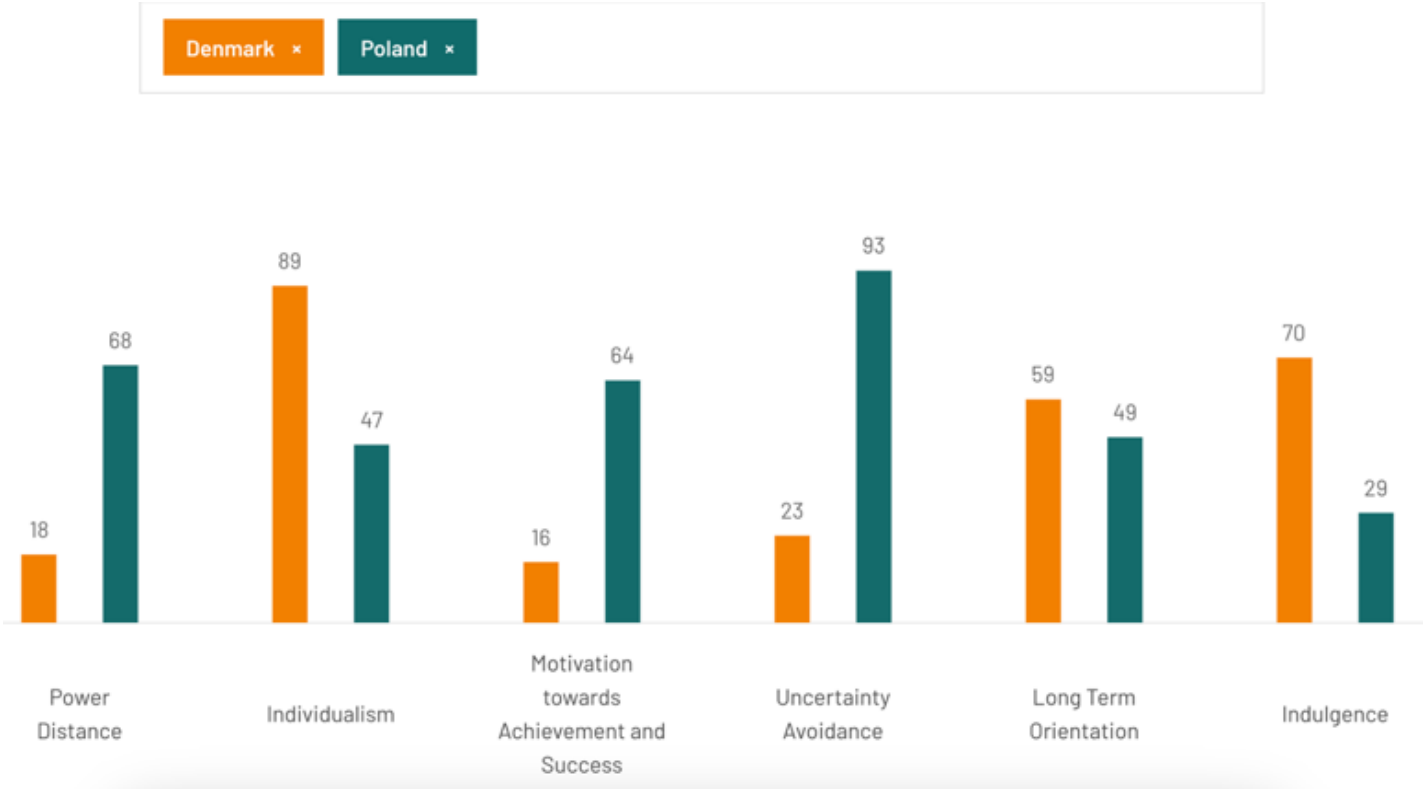
Appendix Case Study

Appendix 1:

	Denmark	Poland
Annual GDP Growth (in %)	1.5	4.5
Ease of Doing Business (Rank)	4	40
Annual Inflation (in %)	0.76	2.23
Political Stability (Rank)	11	27

Source: (World Bank, 2019), (Country Economy 2019), (Global Economy 2019)

Appendix 2:



Source: (Hofstede, 2019).

Appendix 3: Polish Offshore Wind Act

On 18 February 2021, the Act on the promotion of power generation in offshore wind farms, i.e. the Polish Offshore Wind Act ("OWA") will become effective. The OWA provides a comprehensive regulatory regime for the development and support of offshore wind farms ("OWFs") in the Polish exclusive economic zone in the Baltic Sea. The key matters regulated in the OWA are:

REGULATION	EXPLAINATION
SUPPORT SCHEME	The OWA provides for a support scheme for OWF project owners (beneficiaries). The support is based on the contract of difference formula - this will create the right to settle the negative balance resulting from the difference between the average market price and the strike prices ("CfD"). In the case of a positive balance, the beneficiary will be obligated to pay back the surplus. The beneficiaries will be entitled to a CfD- based subsidy for 25 years (counting from the first power generation). The subsidy will be capped by multiplying 100,000 hours and the installed capacity of the OWF. The beneficiaries will be obliged to generate power and feed it into the grid within 7 years of the date the CfD was awarded.
THE RESET OF EXISTING SEABED PERMIT PROCEEDINGS – OPPORTUNITY FOR NEW INVESTORS	The OWA provides that all seabed permit proceedings concerning. In practical terms, almost all existing proceedings will be discontinued, and consequently, the areas marked in orange will be available for new competition. This will create an opportunity for new investors to enter the Polish offshore market.
NEW CRITERIA FOR ASSESSING SEABED PERMIT APPLICATIONS TO BE ADOPTED	The OWA sets out that the detailed criteria for evaluating applications are to be specified in secondary legislation, i.e. the regulation to be issued by the Ministry of Infrastructure. It is expected that several investors (including Polish State-owned companies and key international players) will compete for the areas specified in Annex 2 to the OWA. As a result, this regulation will be of key importance for selecting the best application by the Minister of Infrastructure (the seabed

	permit-issuing authority) and for the investors to prepare their applications.
REGULATION REGARDING GRID CONNECTIONS	Initial grid connection conditions are the obligatory attachments to the application for both (Stage I and II) support schemes. The initial grid connections are issued by a transmission system operator (TSO) and are valid for 2 years after their delivery. They are automatically transformed to (final) grid connection conditions after obtaining CfD support - also with a 2-year validity period. Investors are obliged to cover the costs of building the grid connection between the OWF and the Polish grid (connection infrastructure). There is a specific regulation regarding the purchase of this connection infrastructure by the TSO. Before concluding the transmission services agreement, the TSO has the right to purchase the connection infrastructure. Additionally, the TSO has a pre-emption right with respect to the connection infrastructure sold by the investor, who, in such case, is obliged to inform the TSO of its intention to sell and the terms of the sale of this infrastructure. The OWA establishes the rules to determine the price for the infrastructure to be sold in this regime.
SUPPLY CHAIN PLAN	The obligation to submit a supply chain plan will help to mitigate the negative consequences of Poland's "green" transition for the Polish economy. Investors are obliged to submit a plan for local devices and services to participate - from the construction phase to initial power generation. The supply chain includes the results of initial talks with the authorities and operators. In the operation phase, investors are obliged to present, on a regular basis, a report to the President of the Energy Regulatory Office regarding the plan's implementation. The OWA does not indicate the minimum of the local content ratio to be included in the plan; further, there are no specific consequences for not complying with the plan.
FAST-TRACK PERMITTING	To speed up the permitting process, and eventually, start the OWFs' commercial operation, the OWA is introducing the fast-track permitting procedures, i.e.:

	-strict, 90-day deadlines for issuing, i.a. the environmental decision, water permits, and building permits, and a 30-day deadline for the use permit. Currently, issuing similar permits for less complicated onshore projects may take substantially longer, in practical terms, even approx. 6-8 months. If the authority fails to issue a decision within the statutory deadline, the authority will be punished with a fine. Securing the environmental decision is particularly important to meet the deadline for the first 2025 auction (only entities that have an environmental decision will be allowed to participate), - the key project permits referred to above are immediately enforceable by operation of law. This means that even if appeals are submitted against a particular permit, the investor may continue project development (the appeal will not suspend the given non-final permit),

Source: (Sołtysiński Kawecki & Szlęzak 2021)

Appendix Evaluation Report

Appendix 1: Color Coding Example

Color codes:

Challenges

Opportunities

Market entry strategies

Political and economic environment

Regulatory frameworks and government policies

Sustainability/Triple Bottom Line

Funding and financial considerations

Example 1:

Interviewer: What do you consider the most important considerations for a European country like Denmark when entering these new markets?

Interviewee: For instance, when considering an investment in a country, the primary focus shouldn't just be on the resources, like exporting gas or renewable potential. It's crucial to think holistically, taking into account all societal, economic, and environmental aspects of your intervention in that country

Example 2:

Interviewer: What would be one piece of advice you would give a private owned company when expanding into developing countries?

Interviewee: …. the fourth element, is about the financial tools. Essentially, it's about understanding the types of financial instruments necessary for market entry. This could mean blended finance, equity grants, and so forth. It's also crucial to comprehend the investment risks associated with operating in such environments.

Appendix 2: Detailed explanation of the model and its underlying methodology from Cavusgil, Kiyak, and Yeniyurt (2004)

The country ranking model in the paper is a detailed approach for businesses to evaluate foreign markets. It involves analyzing various indicators such as economic development, market size, growth rate, market intensity, infrastructure, and political stability. These factors are standardized and combined, often with specific weights, to create a comprehensive market opportunity index. This index ranks countries based on their market attractiveness, aiding businesses in identifying and prioritizing potential markets for expansion or investment. The paper also proposes the development of a similar model for assessing foreign direct investment (FDI) opportunities, highlighting the adaptability of the approach for different business objectives.

Appendix 3: SWOT analysis

To assess the company's competitive position, a SWOT analysis was performed.

SWOT analysis is a framework developed to assess an entity's competitive stance by scrutinizing its internal Strengths and Weaknesses, as well as external Opportunities and Threats. This approach, attributed to Albert Humphrey in the 1960s, is pivotal in strategic business planning. (Teoli, et. Al 2023)

Ørsted is a leading company in renewable energy, known for its strong focus on offshore wind, financial stability, and commitment to sustainability, which together position it strongly in the global market. The company has been recognized as a global leader on climate action by the CDP Climate Change A List and has been the first energy company in the world to have its net-zero emissions target validated by the Science Based Targets initiative (SBTi) (Ørsted, who we are). As the global market leader, the company has a significant share of the global offshore wind market and operates in various regions around the world such as the North Sea in Europe, the East Coast of the United States, and Asia-Pacific areas like Taiwan, thereby ensuring a varied and robust portfolio of energy production. Further strengths of Ørsted lie in its strong operational portfolio, its ability to execute complex projects and its deep understanding of the energy market (Interview, Senior Strategy Associate Ørsted, 2023). Ørsted has succeeded in optimizing its operations to ensure high efficiency and cost-effectiveness. This is also reflected in the company's strong financial performance, which has achieved steady sales growth and high profitability over the years. In addition, Ørsted is quick to embrace new technologies and ensures that its energy solutions are state of the art and of high quality. Not only does this improve their products, but it also strengthens customer confidence in the brand and builds a loyal customer base. Finally, a core strength of Ørsted lies in their strong commitment to sustainable energy production. Positioned as a frontrunner in environmental, social, and governance (ESG) metrics among energy firms, as highlighted in their sustainability report,

Ørsted is dedicated to creating a world that runs entirely on green energy. This commitment not only established that Ørsted as a responsible company, but also distinguishes them, earning recognition from customers and the public. These strengths have positioned Ørsted as a leader in the renewable energy sector and continue to form the basis for the company's success and resilience in the market.

In reviewing Ørsted's operational framework, several weaknesses are evident, which could impact the company's competitive edge in the industry. A predominant concern is capital-intensive nature of the offshore wind industry, in which the company mainly operates in. Consequently, any financial instability or hurdle in raising funds can pose a particular challenge for the company. These difficulties are compounded by technical challenges. The marine conditions in which Ørsted operates can be harsh, making the construction and maintenance of wind turbines both challenging and costly. These factors also contribute to the process being highly time-consuming. Moreover, Ørsted's operations are dependent on government subsidies which creates inherent risk. The competitive landscape for Ørsted is intense as well. The company competes not only with other offshore wind developers, but oil & gas companies, who have more capital through their oil and gas operations and are currently in the process of transitioning to renewable energy. Another significant challenge for Ørsted is potential integration issues with the power grid. The integration of renewable energy, especially from sources like wind, into the existing power grid can be complex. In addition, public perception is a crucial factor. Offshore wind projects managed by Ørsted may attract public critism based on due to their visual and acoustic impact and potential negative impacts on marine ecosystems. Finally, the notably long development cycle of Ørsted's projects stands out. The lengthy development and approval phase - compared to other renewable energy sectors - makes the company more vulnerable to fluctuations in the economic landscape.

Besides Ørsted’s strengths and weaknesses, a variety of external opportunities also present themselves, offering potential for growth, innovation, and further market penetration. An important opportunity emerges as countries around the world are increasingly prioritizing sustainability, making the global demand for clean energy grow. Ørsted, with its extensive knowledge and experience in this field, is well-positioned to capitalize on this trend and increase its market presence. Furthermore, this surge in demand could potentially result in legislation that aligns with sustainability commitments, further benefiting Ørsted's operations and market standing. Additionally, Ørsted can broaden its horizons and strengthen its market position by exploring opportunities in developing markets that are investing heavily in renewable energy and align with global initiatives such as those of the United Nations to accelerate the promotion of green energy. This not only offers new territories for business expansion but also aligns with the global shift towards sustainable practices, allowing Ørsted to further contribute to and capitalize on the growing momentum in the renewable energy sector. By moving into these growing markets, Ørsted can establish a strong presence in areas that are set to quickly increase their use of green energy. This ensures Ørsted's long-term success and ability to adapt in an industry that is constantly changing. Investing in research and development is also an opportunity for Ørsted to maintain its competitive edge through innovative solutions. By adopting new digital technologies, Ørsted can improve operational efficiency and enhance customer engagement, while diversifying into other forms of renewable energy to broaden its portfolio. By capitalizing on these opportunities, Ørsted can further strengthen its position in the renewable energy sector, contribute to global sustainability goals, and drive long-term growth.

In the evolving landscape of the renewable energy sector, Ørsted faces several external threats that could hinder its growth and profitability. This implies that any sudden regulatory shifts could profoundly impact Ørsted's operations. Given the different energy policies,

environmental regulations, and subsidy structures around the world, coupled with the complex regulatory framework of the renewable energy sector, sudden changes could significantly impact Ørsted's operations. Additionally, geopolitical shifts, including changes in trade policies or bouts of political instability and conflicts, can adversely affect Ørsted and have potential to disrupt their operations and supply chain. Another potential threat lies in market fluctuations, particularly those related to energy prices. While the emergence of new technologies can be promising, they also pose a risk. Although progress is positive, the emergence of newer and more efficient renewable energy or storage solutions could make Ørsted's current technologies less competitive. Climate change, including rising sea levels and unpredictable weather patterns, poses a significant risk, especially to Ørsted's offshore wind farms. Their onshore and solar PV infrastructures are not immune to these changes either. Supply chain disruptions, whether due to global crises like pandemics or geopolitical tensions, can delay projects and escalate costs. As technology improves and barriers to entry diminish, Ørsted faces the threat of increased competition. More players are likely to enter the market, potentially reducing Ørsted's market share.

Appendix 4:

$$X'_{ij} = \left[\frac{X_{ij} - min_i}{R_i} * (99)\right] + 1,$$

Where:

X'_{ij} is the scaled final value of country j on dimension for i;

X_{ij} is the average score of country j on dimension i;

min_i is the minium value for dimension i

R_i is the range of dimension i.

Source: (International Business Material 2023)

Appendix 5:

Offshore Ranking	
Chile	1
Uruguay	2
Costa Rica	3
Bulgaria	4
Oman	5
Romania	6
Brazil	7
Namibia	8
Panama	9
Qatar	10
Guyana	11
Morocco	12
India	13
South Africa	14
Jamaica	15
Albania	16
Georgia	17
Senegal	18
Jordan	19
Mexico	20
Mexico	20
Colombia	21
Dominican Republic	22
Philippines	23
Peru	24
Bosnia and Herzegovina	25
Thailand	26
Mauritania	27
Malaysia	28
Indonesia	29
Guatemala	30
Tanzania	31
Honduras	32
Egypt	33
Ecuador	34
Argentina	35
Cambodia	36
Sri Lanka	37
Benin	38
Ghana	39

Onshore Ranking	
Chile	1
Uruguay	2
Costa Rica	3
Botswana	4
Bulgaria	5
Romania	6
Oman	7
Panama	8
Namibia	9
Jamaica	10
Brazil	11
India	12
Morocco	13
Georgia	14
Armenia	15
Jordan	16
South Africa	17
Qatar	18
Albania	19
Mexico	20
Senegal	21
Dominican Republic	22
Philippines	23
Bosnia and Herzegovina	24
Mauritania	25
Tanzania	26
Kazakhstan	27
Peru	28
Honduras	29
Egypt	30
Mongolia	31
Guatemala	32
Uzbekistan	33
Argentina	34
Ecuador	35
Paraguay	36
Thailand	37
Sri Lanka	38
Azerbaijan	39
Tajikistan	40
Nepal	41
Belarus	42

Solar PV Ranking	
Chile	1
Uruguay	2
Oman	3
Namibia	4
Jordan	5
Botswana	6
Qatar	7
South Africa	8
Morocco	9
Mexico	10
Senegal	11
India	12
Brazil	13
Jamaica	14
Costa Rica	15
Guyana	16
Dominican Republic	17
Peru	18
Egypt	19
Albania	20
Armenia	21
Colombia	22
Mongolia	23
Mauritania	24
Tanzania	25
Guatemala	26
Uzbekistan	27
Thailand	28
Paraguay	29
Honduras	30
Cambodia	31
Benin	32
Sri Lanka	33
Argentina	34
Nepal	35
Tajikistan	36
Ghana	37

As the ranking is mainly depended on the countries calculated score and the weights that are assigned to each variable, we applied two additional approaches to get a more holistic view of the countries' potential:

(1) Utilizing a logarithmic scale, which narrows the range of larger values while widening the range of smaller ones to create a more symmetrical and less skewed distribution, helps prevent the ranking from being disproportionately affected by countries with extreme values in one or more variables. However, taking logarithms can obscure the original score values and

potentially distort relationships between variables which is why it is only used as an additionally ranking.

(2) As the weights need to account to a total of 100% a sensitivity analysis could not be performed. However, to incorporate an alternative method of weighting each variable, the four categories – technical potential, economic, political, and business environment – were each allocated a 25% weight. Within these categories, individual variables were further weighted according to their relative importance. This approach resulted in nine different rankings, with three for each technology that can be found below:

25% Approach	
Chile	1
Uruguay	2
Costa Rica	3
Bulgaria	4
Romania	5
Oman	6
Guyana	7
Brazil	8
Panama	9
Namibia	10
Albania	11
Morocco	12
Jamaica	13
Georgia	14
Qatar	15
South Africa	16
Senegal	17
India	18
Philippines	19
Colombia	20
Peru	21
Jordan	22
Mexico	23
Dominican Republic	24
Thailand	25
Mauritania	26
Bosnia and Herzegovina	27
Guatemala	28
Honduras	29
Malaysia	30
Indonesia	31
Tanzania	32
Ecuador	33
Egypt	34
Cambodia	35
Argentina	36
Sri Lanka	37
Benin	38
Ghana	39

Ranking Offshore	
Chile	1
Uruguay	2
Costa Rica	3
Bulgaria	4
Oman	5
Romania	6
Brazil	7
Namibia	8
Panama	9
Qatar	10
Guyana	11
Morocco	12
India	13
South Africa	14
Jamaica	15
Albania	16
Georgia	17
Senegal	18
Jordan	19
Mexico	20
Colombia	21
Dominican Republic	22
Philippines	23
Peru	24
Bosnia and Herzegovina	25
Thailand	26
Mauritania	27
Malaysia	28
Indonesia	29
Guatemala	30
Tanzania	31
Honduras	32
Egypt	33
Ecuador	34
Argentina	35
Cambodia	36
Sri Lanka	37
Benin	38
Ghana	39

Logarithmic Approach	
Chile	1
Costa Rica	2
Romania	3
Bulgaria	4
Namibia	5
Brazil	6
Morocco	7
Albania	8
Jamaica	9
Jordan	10
Georgia	11
Senegal	12
Uruguay	13
Philippines	14
Dominican Republic	15
Guyana	16
India	17
Panama	18
Bosnia and Herzegovina	19
South Africa	20
Oman	21
Mexico	22
Colombia	23
Qatar	24
Tanzania	25
Peru	26
Thailand	27
Ecuador	28
Indonesia	29
Honduras	30
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Guatemala	32
Benin	33
Mauritania	34
Egypt	35
Sri Lanka	36
Malaysia	37
Ghana	38
Argentina	39

25% Approach	
Chile	1
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Jamaica	9
Oman	10
Georgia	11
Brazil	12
Armenia	13
Morocco	14
India	15
Albania	16
South Africa	17
Jordan	18
Mauritania	19
Philippines	20
Mexico	21
Senegal	22
Dominican Republic	23
Qatar	24
Bosnia and Herzegovina	25
Guatemala	26
Honduras	27
Tanzania	28
Kazakhstan	29
Peru	30
Mongolia	31
Egypt	32
Uzbekistan	33
Tajikistan	34
Paraguay	35
Thailand	36
Argentina	37
Azerbaijan	38
Ecuador	39
Sri Lanka	40
Nepal	41
Belarus	42

Ranking Onshore	
Chile	1
Uruguay	2
Costa Rica	3
Botswana	4
Bulgaria	5
Romania	6
Oman	7
Panama	8
Namibia	9
Jamaica	10
Brazil	11
India	12
Morocco	13
Georgia	14
Armenia	15
Jordan	16
South Africa	17
Qatar	18
Albania	19
Mexico	20
Senegal	21
Dominican Republic	22
Philippines	23
Bosnia and Herzegovina	24
Mauritania	25
Tanzania	26
Kazakhstan	27
Peru	28
Honduras	29
Egypt	30
Mongolia	31
Guatemala	32
Uzbekistan	33
Argentina	34
Ecuador	35
Paraguay	36
Thailand	37
Sri Lanka	38
Azerbaijan	39
Tajikistan	40
Nepal	41
Belarus	42

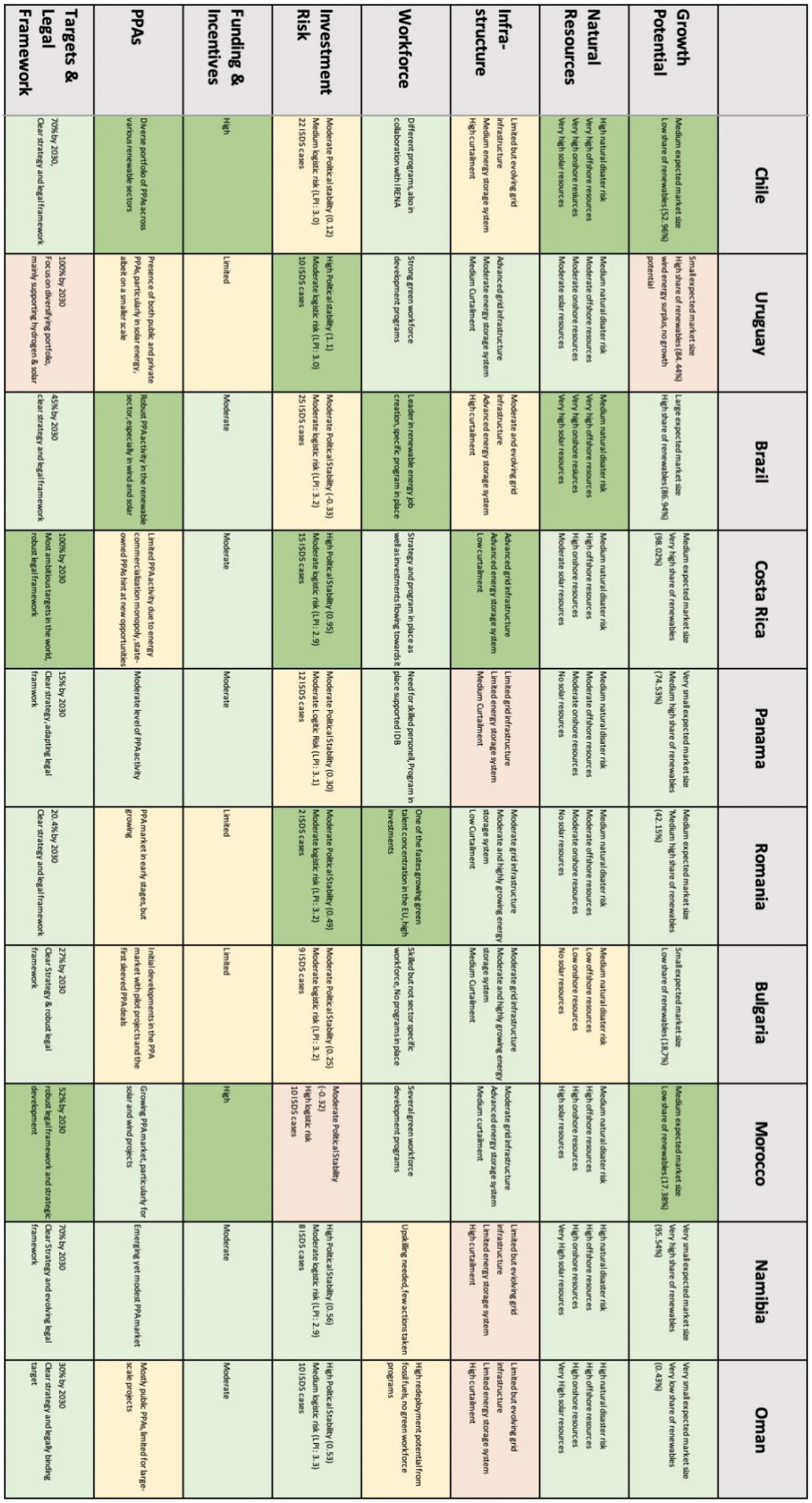
Logarithmic Approach	
Chile	1
Costa Rica	2
Uruguay	3
Morocco	4
Namibia	5
Romania	6
Jamaica	7
Georgia	8
Albania	9
Armenia	10
Bulgaria	11
Jordan	12
Bosnia and Herzegovina	13
Panama	14
South Africa	15
Brazil	16
Philippines	17
Oman	18
Dominican Republic	19
Kazakhstan	20
Botswana	21
Mexico	22
Sri Lanka	23
Tanzania	24
Ecuador	25
Senegal	26
Mongolia	27
Qatar	28
India	29
Mauritania	30
Uzbekistan	31
Argentina	32
Nepal	33
Honduras	34
Paraguay	35
Egypt	36
Peru	37
Guatemala	38
Thailand	39
Tajikistan	40
Azerbaijan	41
Belarus	42

25% Approach	
Chile	1
Uruguay	2
Namibia	3
Oman	4
Jordan	5
Qatar	6
Botswana	7
South Africa	8
Morocco	9
Senegal	10
Guyana	11
Mexico	12
Jamaica	13
Brazil	14
Peru	15
Dominican Republic	16
India	17
Costa Rica	18
Egypt	19
Mauritania	20
Albania	21
Mongolia	22
Armenia	23
Guatemala	24
Colombia	25
Tanzania	26
Thailand	27
Paraguay	28
Uzbekistan	29
Honduras	30
Cambodia	31
Benin	32
Sri Lanka	33
Nepal	34
Tajikistan	35
Argentina	36
Ghana	37

Ranking Solar PV	
Chile	1
Uruguay	2
Oman	3
Namibia	4
Jordan	5
Botswana	6
Qatar	7
South Africa	8
Morocco	9
Mexico	10
Senegal	11
India	12
Brazil	13
Jamaica	14
Costa Rica	15
Guyana	16
Dominican Republic	17
Peru	18
Egypt	19
Albania	20
Armenia	21
Colombia	22
Mongolia	23
Mauritania	24
Tanzania	25
Guatemala	26
Uzbekistan	27
Thailand	28
Paraguay	29
Honduras	30
Cambodia	31
Benin	32
Sri Lanka	33
Argentina	34
Nepal	35
Tajikistan	36
Ghana	37

Logarithmic Approach	
Chile	1
Uruguay	2
Namibia	3
Jordan	4
Morocco	5
Senegal	6
Botswana	7
Oman	8
Jamaica	9
Brazil	10
Dominican Republic	11
South Africa	12
Mexico	13
Guyana	14
India	15
Costa Rica	16
Qatar	17
Tanzania	18
Armenia	19
Peru	20
Albania	21
Mongolia	22
Colombia	23
Paraguay	24
Guatemala	25
Thailand	26
Cambodia	27
Honduras	28
Benin	29
Uzbekistan	30
Mauritania	31
Egypt	32
Sri Lanka	33
Argentina	34
Tajikistan	35
Ghana	36
Nepal	37

Appendix 6: Qualitative analysis of top 10 countries



	Chile	Uruguay	Brazil	Costa Rica	Panama	Romania	Bulgaria	Morocco	Namibia	Oman
Growth Potential	Medium expected market size Low share of renewables (52.96%)	Small expected market size High share of renewables (84.44%) wind energy surplus, no growth potential	Large expected market size High share of renewables (86.94%)	Medium expected market size Very high share of renewables (98.02%)	Very small expected market size Medium high share of renewables (74.53%)	Medium expected market size Medium high share of renewables (42.15%)	Small expected market size Low share of renewables (18.7%)	Medium expected market size Low share of renewables (17.38%)	Very small expected market size Very high share of renewables (95.54%)	Very small expected market size Very low share of renewables (0.43%)
Natural Resources	High natural disaster risk Very high offshore resources Very high onshore resources Very high solar resources	Medium natural disaster risk Moderate offshore resources Moderate onshore resources Moderate solar resources	Medium natural disaster risk Very high offshore resources Very high onshore resources Very high solar resources	Medium natural disaster risk High offshore resources High onshore resources Moderate solar resources	Medium natural disaster risk Moderate offshore resources Moderate onshore resources No solar resources	Medium natural disaster risk Moderate offshore resources Moderate onshore resources No solar resources	Medium natural disaster risk Low offshore resources Low onshore resources No solar resources	Medium natural disaster risk High offshore resources High onshore resources High solar resources	High natural disaster risk High offshore resources High onshore resources Very High solar resources	High natural disaster risk High offshore resources High onshore resources Very High solar resources
Infra-structure	Limited but evolving grid infrastructure Medium energy storage system High curtailment	Advanced grid infrastructure Moderate energy storage system Medium Curtailment	Moderate and evolving grid infrastructure Advanced energy storage system High curtailment	Advanced grid infrastructure Advanced energy storage system Low curtailment	Limited grid infrastructure Limited energy storage system Medium Curtailment	Moderate grid infrastructure Moderate and highly growing energy storage system Low Curtailment	Moderate grid infrastructure Moderate and highly growing energy storage system Medium Curtailment	Moderate grid infrastructure Advanced energy storage system Medium curtailment	Limited but evolving grid infrastructure Limited energy storage system High curtailment	Limited but evolving grid infrastructure Limited energy storage system High curtailment
Workforce	Different programs, also in collaboration with IRENA	Strong green workforce development programs	Leader in renewable energy job creation, specific program in place	Strategy and program in place as well as investments flowing towards it	Need for skilled personnel, Programs in place supported IDB	One of the fastest growing green talent concentration in the EU, high investments	Skilled but not sector specific workforce, No programs in place	Several green workforce development programs	Upskilling needed, few actions taken	High redeployment potential from fossil fuels, no green workforce programs
Investment Risk	Moderate Political stability (0.12) Medium logistic risk (LPI: 3.0) 22 1SDS cases	High Political stability (1.1) Moderate logistic risk (LPI: 3.0) 10 1SDS cases	Moderate Political Stability (-0.33) Moderate logistic risk (LPI: 3.2) 25 1SDS cases	High Political Stability (0.95) Moderate logistic risk (LPI: 2.9) 15 1SDS cases	Moderate Political Stability (0.30) Moderate Logistic Risk (LPI: 3.1) 12 1SDS cases	Moderate Political Stability (0.49) Moderate logistic risk (LPI: 3.2) 21 SDS cases	Moderate Political Stability (0.25) Moderate logistic risk (LPI: 3.2) 9 1SDS cases	Moderate Political Stability (-0.32) High logistic risk 10 1SDS cases	High Political Stability (0.56) Moderate logistic risk (LPI: 2.9) 8 1SDS cases	High Political Stability (0.53) Medium logistic risk (LPI: 3.3) 10 1SDS cases
Funding & Incentives	High	Limited	Moderate	Moderate	Moderate	Limited	Limited	High	Moderate	Moderate
PPAs	Diverse portfolio of PPAs across various renewable sectors	Presence of both public and private PPAs, particularly in solar energy, albeit on a smaller scale	Robust PPA activity in the renewable sector, especially in wind and solar	Limited PPA activity due to energy commercialisation monopoly, state-owned PPAs hint at new opportunities	Moderate level of PPA activity	PPA market in early stages, but growing	Initial developments in the PPA market with pilot projects and the first skeeved PPA deals	Growing PPA market, particularly for solar and wind projects	Emerging yet modest PPA market	Mostly public PPAs, limited for large-scale projects
Targets & Legal Framework	70% by 2030, Clear strategy and legal framework	100% by 2030 Focus on diversifying portfolio, mainly supporting hydrogen & solar	45% by 2030 clear strategy and legal framework	100% by 2030 Most ambitious targets in the world, robust legal framework	15% by 2030 Clear strategy, adapting legal framwork	20.4% by 2030 Clear strategy and legal framework	27% by 2030 Clear Strategy & robust legal framework	52% by 2030 robust legal framework and strategic development	70% by 2030 Clear Strategy and evolving legal framework	30% by 2030 Clear strategy and legally binding target

Appendix 7: Qualitative Analysis Morocco and Costa Rica

Morocco

Morocco presents a promising yet moderately sized market for renewable energy, with significant growth potential, particularly in solar and wind sectors. This growth is primarily driven by the country's escalating electricity demand, which is projected to grow from 35 TWh in 2016 to between 80 and 170 TWh by 2030 (Moudene, et al. 2023). As the country is dependent on imported fossil fuels, this increase in demand would require a significant reconsideration of Morocco's energy policy. Therefore, Morocco has ambitiously set targets for renewable energy deployment, aiming for 52% of its total generation capacity from renewables by 2030. It is important to note that as of now, despite its potential of 200GW total capacity (Appendix 18) (World Bank 2023), Morocco does not have any operational offshore wind farms. However, the country is taking significant steps towards exploring this avenue: a €2 million grant has been secured to fund a feasibility study. to study explore the viability of a small-scale offshore wind energy pilot project (EIB 2022). This fact underscores the untapped potential in this sector and the significant opportunities for growth, particularly in the solar and wind sectors. he country's current share of renewable energy is 17.38%, with a current share of renewable energy of only 17,38% (Moudene et al. 2023). The transition to renewable energy is not only a strategic move to reduce reliance on fossil fuels but also an economic imperative. The development of renewable energy is anticipated to increase Morocco's GDP by 0.51% by 2025, significantly impacting employment and financial earnings (Moudene et al. 2023). However, there are challenges to consider for companies considering moving into this market, such as the high LCOE and logistical complexities. Additionally, the cultural differences between Denmark and Morocco must be considered (Appendix 19). Denmark's preference for egalitarianism and individualism contrasts with Morocco's hierarchical and collectivist orientation, impacting communication and decision-making processes. Danish flexibility and

innovation meet Moroccan preference for structure and clarity, underlining the need for mutual understanding and adaptive strategies for successful collaboration. This reflects that a significant investment is required for initial setup and ongoing operations, not just in financial terms but also in terms of cultural adaptability and understanding. (Hofstede 2023) Additionally, the logistical complexities, including transportation, installation, and maintenance of wind and solar technologies in varying geographical terrains, further complicate market entry.

The political environment in Morocco, characterized by a moderate level of stability with an average political stability index of -0,35, slightly below the world average of -0,07, reflects a relatively stable environment under its constitutional monarchy and parliamentary system (The Global Economy, Morocco: Political stability 2021). However, the power structure is notably centralized, with the King having significant influence over legislative and judicial decisions. This centralization may impact decision-making processes and policy implementation. Additionally, Morocco's ranking on Transparency International's Corruption Perceptions Index suggests a moderate level of corruption, which is an important consideration for policy and business operations (Transparency International 2023).

However, the government in Morocco demonstrates strong incentives and regulatory support for renewable energy, actively promoting the sector's growth. This includes the enactment of Law 13-09 which encourages the growth of renewable energies and reforms to fossil fuel subsidies (CMS 2020). Through comprehensive energy reforms, the government aims to develop the renewable energy and energy efficiency sectors, reduce dependence on imported fossil fuels, and minimize the energy intensity of its economy (Mezzour 2023). Ambitious targets set by the National Office of Electricity and Water include achieving an installed capacity of 10 GW of renewable energy by 2030, with specific goals for solar, wind, and hydropower (Mezzour 2023).

Morocco's business environment is increasingly favorable for renewable energy ventures. The country has shown significant progress in developing large-scale solar and wind projects, demonstrating its commitment to renewable energy. Foreign investors are welcomed, with the freedom to wholly own Moroccan companies and transfer back capital and dividends without restrictions (Mezzour 2023). The presence of leading players in the solar PV sector, such as Cleanergy Morocco, ALROMAR ENERGIE, and Green Energy Solutions, indicates a competitive yet burgeoning market. Additionally, the growing market for renewable PPAs, especially in solar and wind, points to an expanding business opportunity in this sector. This is further supported by the actions of the Moroccan Agency for Sustainable Energy Development, which has been instrumental in moving forward stalled wind projects and signing new PPAs, demonstrating a commitment to expanding Morocco's renewable energy capacity through these agreements and making it attractive to invest in.

Morocco's natural resources offer vast potential for renewable energy development. The country's average solar potential is impressive at 5 kWh per square meter per day, and its potential to generate 25.000 MW of wind power highlights the untapped opportunities in wind energy. Morocco's extensive coastline further creates opportunities for offshore wind. The combination of its geographical location, low population density, political stability, and high average daily sunlight (8,8 hours) not only enhances its potential for renewable energy development but also positions Morocco as a strong candidate for investment in this sector.

Costa Rica

Costa Rica is known for its strong commitment to carbon neutrality, attracting over 2.8 billion US dollars in clean energy investments between 2018 and 2022 (Ministry of Environment and Energy of Costa Rica 2023) and a share of renewable energy in their energy mix of 98,02%. However, hydropower, making up 73% of this energy mix (Statista 2023), has been highly criticized by local communities due to environmental concerns (IMF 2023). Considering these

concerns, Costa Rica is looking to the focus of its energy mix, offering a great potential for Ørsted in wind and solar power. Additionally, the energy demand is expected to grow due to population growth, economic development and rising living standards which is reflected in high GDP growth and energy needed for the planned shift to electric mobility (IMF 2023). While Costa Rica's workforce is notable for its high English proficiency, scaling the green economy will require further closing the skills gap among those outside the metropolitan region who lack the necessary knowledge and skills (World Future Council 2020).

Geographically, Costa Rica has over 8000 km² of land suitable for solar power generation, with potential for 203 GW of energy and 15 GW untapped onshore potential with significant wind power density (World Future Council 2020). Additionally, considering its 17GW potential in offshore wind (Appendix 20) (World Bank, 2023), Costa Rica is extensively looking into this opportunity with a study financially supported by the CABEI (CABEI 2022), presenting an excellent opportunity for Ørsted, given its extensive expertise in offshore wind.

As the country is already heavily reliant of renewables, its infrastructure is highly developed with an electricity grid coverage of 99.4%, a regional interconnect system of 493km, a well-developed transmission and distribution system and more and more investments into energy storages (IRENA 2022). However, the country faces significant natural disaster risks, yet these can be mitigated through strategies like using hurricane resistant materials (IMF 2023). Even tough Costa Rica’s infrastructure is robust, limited roads, congested rural areas, and ports and airports not equipped for large shipments can hinder logistics for renewable energy projects. Additionally, complex customs clearance might delay equipment imports (WTW 2023) a significant concern for Ørsted, which relies heavily on suppliers based elsewhere.

In forging a partnership between Ørsted and a Costa Rican entity, acknowledging cultural nuances is essential. Costa Rica's preference for hierarchy may necessitate a more formal approach from the Danish side, used to a flatter organizational structure. The collectivist culture

of Costa Rica, emphasizing teamwork and consensus, will contrast with Danish individualism and may require a more collaborative strategy. Additionally, Costa Rica's higher uncertainty avoidance calls for Danish partners to offer clear, structured business strategies to align with local expectations for stability and detailed planning. (Hofstede 2023) (Appendix 21)

Moreover, Costa Rica has a history of investor-state dispute settlement (ISDS) cases, with 15 instances many involving disputes over environmental regulations, indicating potential legal challenges (ICSID 2023). Apart from that, Costa Rica is characterized by high political stability, a mild level of corruption, robust social welfare system and recovering inflation rate (IMF 2023), decreasing investment risk. Additionally, Ørsted would be protected from financial losses associated with renewable energy projects by government programs, as well as granted priority access to the electricity grid for wind and solar power projects, ensuring a guaranteed market for its generated electricity (IRENA 2021). The competitive environment is vigorous with the state-owned company ICE playing a significant role as well as established players like Enel Green Power.

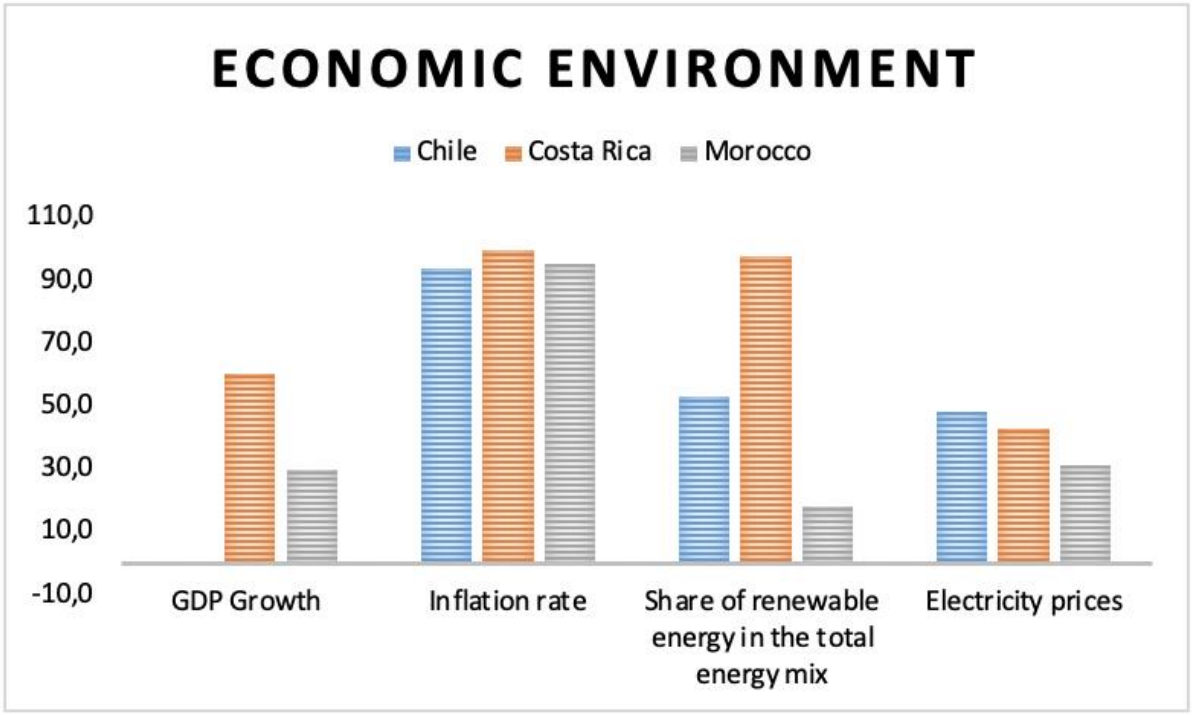
Costa Rica has set and is on track to achieve ambitious renewable energy targets, aiming for 100% renewable electricity generation by 2030 and carbon neutrality by 2050 (Climate Action Tracker 2023). The country is actively investing in its workforce to prepare for the transition to a green economy, implementing targeted initiatives like US$4.5 million scholarship program focused on STEM education and technical training through INA and EARTH University.

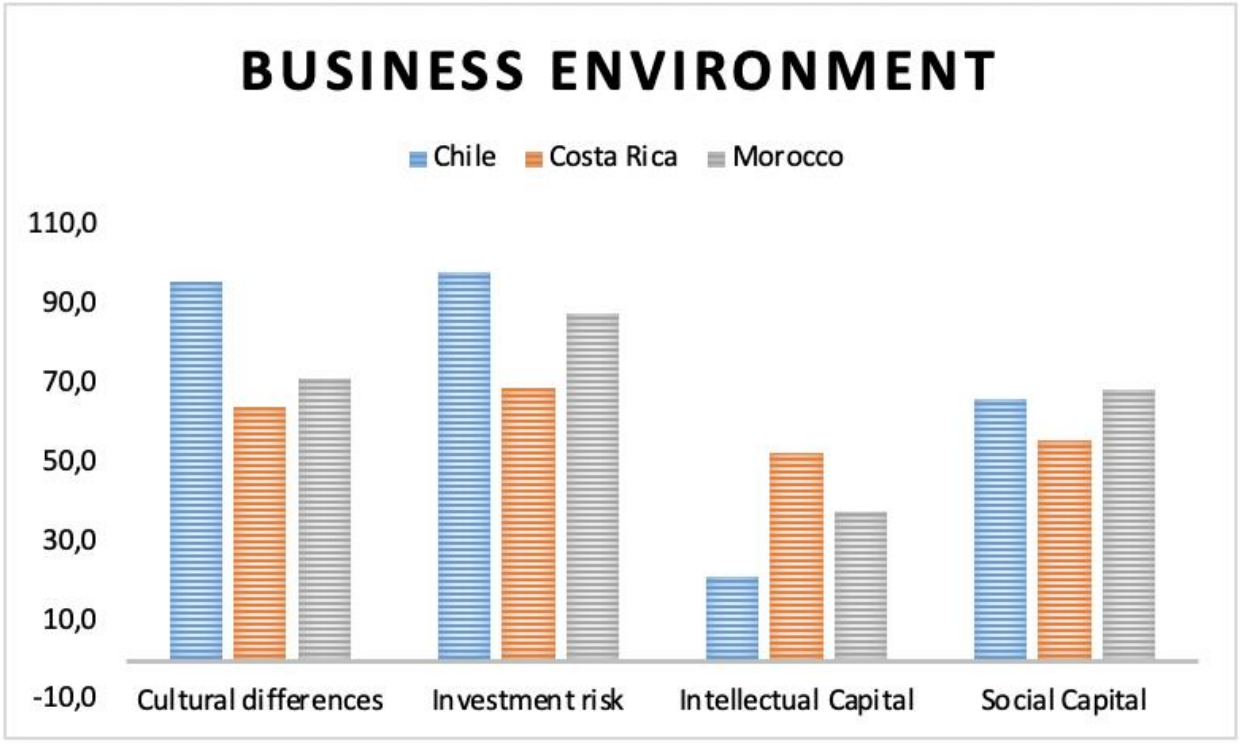
Costa Rica's renewable energy market is shaped by a complex regulatory environment, with the state-owned company ICE holding a dominant position and public resistance to privatization (Transnational Institute 2023). Despite the state-owned energy monopoly, PPAs with state-owned distribution companies indicate emerging opportunities for private sector involvement. Moreover, the government offers a range of incentives to encourage renewable energy development, including tax exemptions, accelerated depreciation, simplified

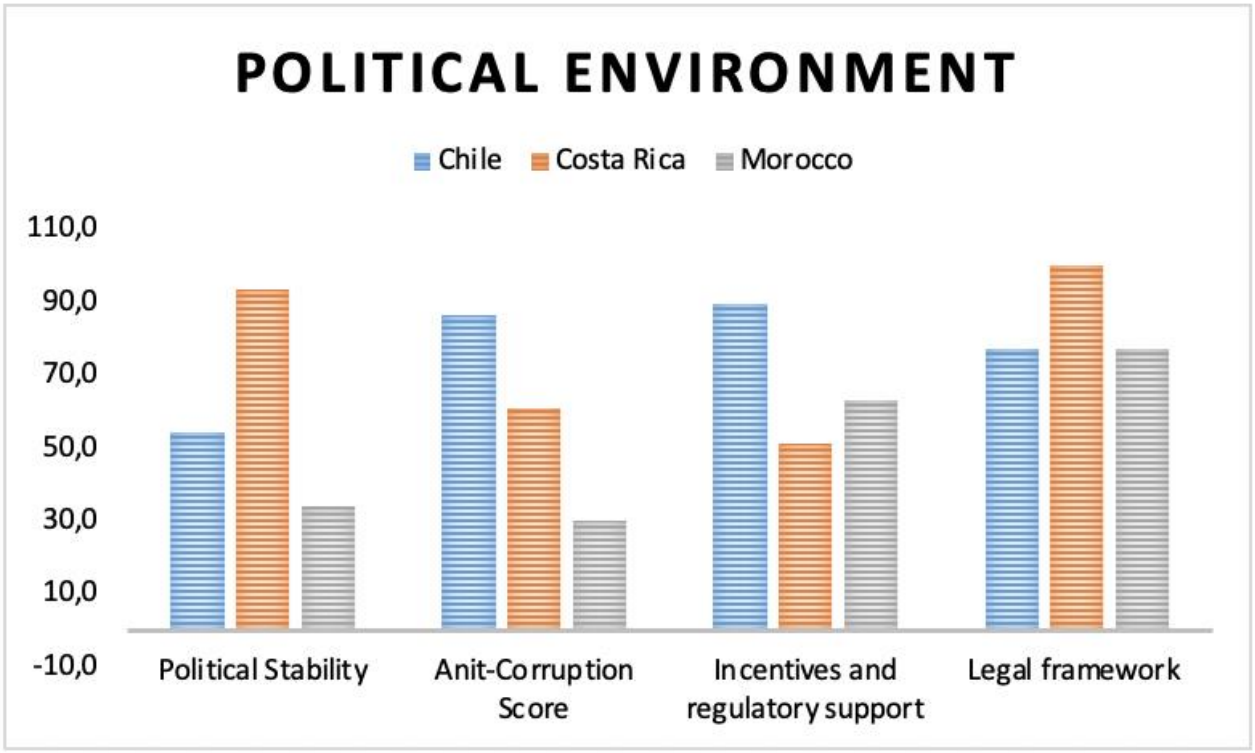
permitting, low-interest loans, and feed-in tariffs with the highest rates for wind and solar energy which Ørsted could leverage (IRENA 2021). Additionally, private sector involvement through commercial banks, Development Finance Institutions (DFIs), and private equity firms represent viable financing options.

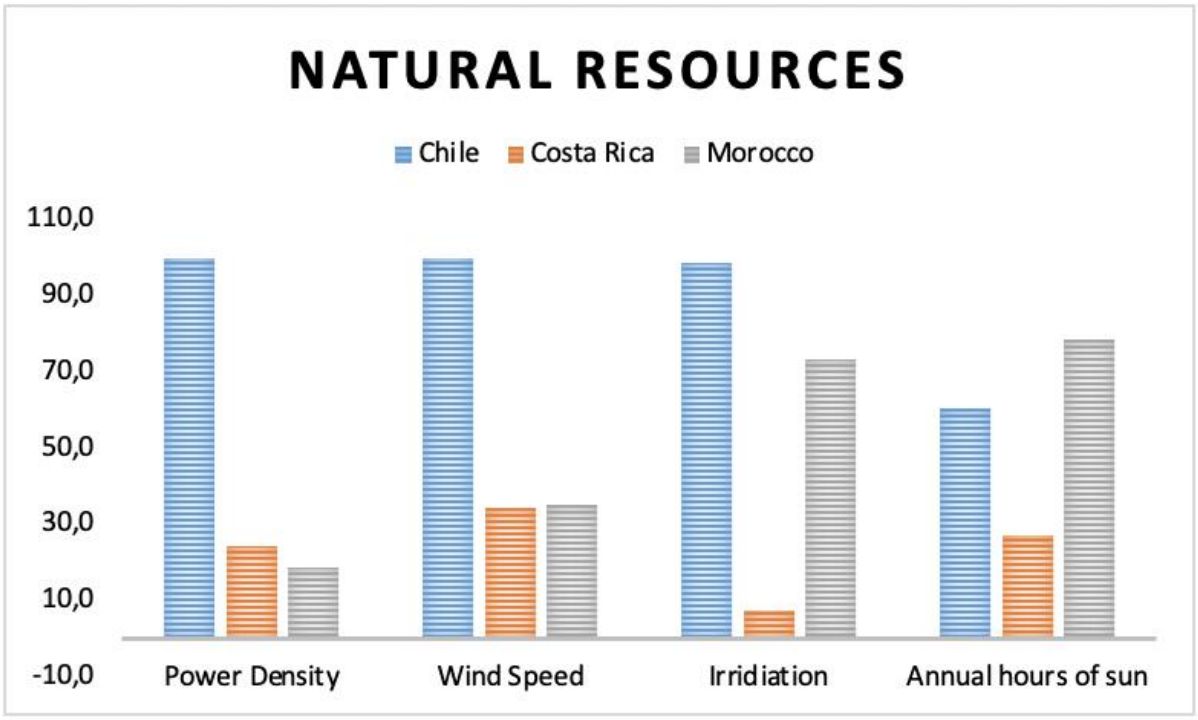
Costa Rica presents a compelling investment opportunity due to its strong commitment to sustainability, abundant renewable resources, well-developed infrastructure, and supportive government policies. With the country's commitment to shift towards wind and solar energy coupled with the expected rise in energy consumption, there is significant potential for further growth and expansion into neighboring countries particularly Panama, which offers high wind energy potential.

Appendix 8: Performance of top 3 countries, full image

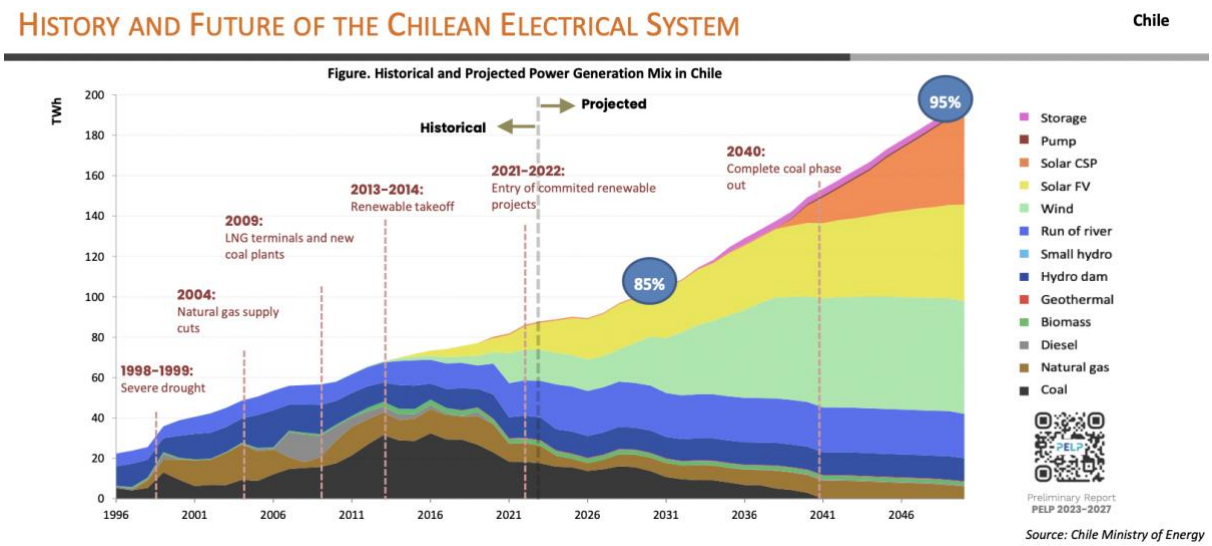


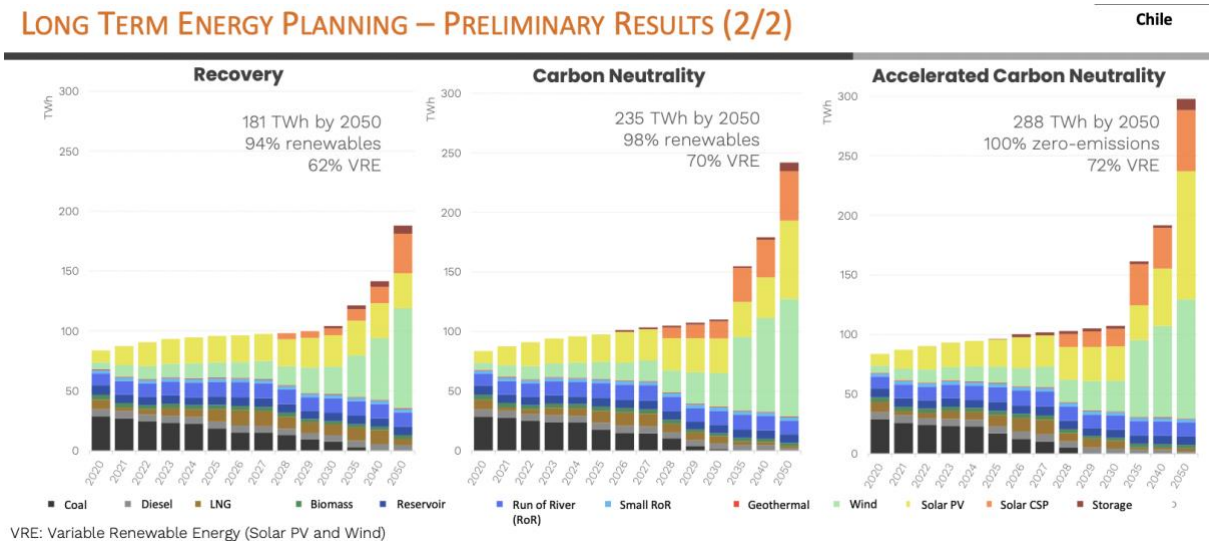

BUSINESS ENVIRONMENT
Chile
Costa Rica
Morocco
110,0
90,0
70,0
50,0
30,0
10,0
-10,0
Cultural differences
Investment risk
Intellectual Capital
Social Capital

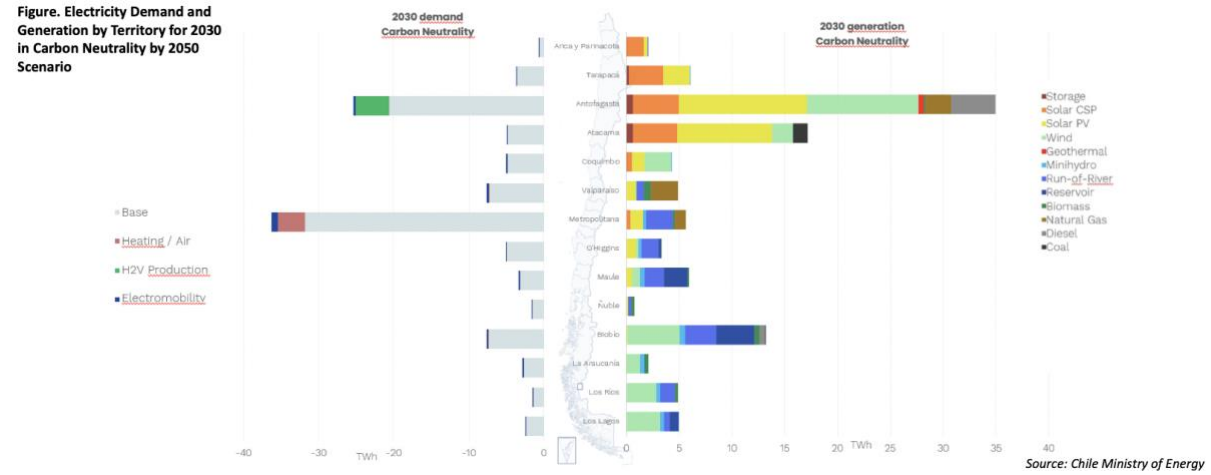

POLITICAL ENVIRONMENT
Chile
Costa Rica
Morocco
110,0
90,0
70,0
50,0
30,0
10,0
-10,0
Political Stability
Anit-Corruption Score
Incentives and regulatory support
Legal framework


NATURAL RESOURCES
Chile
Costa Rica
Morocco
110,0
90,0
70,0
50,0
30,0
10,0
-10,0
Power Density
Wind Speed
Irridiation
Annual hours of sun

Appendix 9: Renewables Growth Potential in Chile







Source: (Ministerio de Energía 2023)

Appendix 10: Organization if Chile's Energy Grid

Source: (Ministerio de Energía 2023)

Appendix 11: Competitive Landscape Overview

Company	Wind Capacity	Solar Capacity	Total Installed Capacity across all energy sources in Chile	Operation Countries	Sources of Energy	Planned Projects (in Development & Construction)	Notes
AES Chile	348 MW	151 MW	3,947 MW	Chile, Argentina, Colombia	Run-of-River Hydroelectric, Wind, Photovoltaic Solar, BESS (Lithium) Battery Energy Storage System (BESS) using Lithium technology, Coal, Biomass, Mini Run-of-River Hydroelectric	Wind: 450MW in Biobío, 350MW in Antofagasta, Solar: 820MW in Antofagasta	2nd most important generating company
AME	-	93 MW	93MW	Chile, Peru	Solar	/	1,165 MW in Chile & Peru
Colbún S.A.	-	224 MW	3,342 MW	Chile, Peru	Reservoir Hydroelectric, Run-of-River Hydroelectric, Natural Gas, Photovoltaic Solar, BESS (Lithium), Mini Run-of-River Hydroelectric, Diesel Oil, Coal	Solar: 736MW in Antofagasta, 537 MW in Tarapacá, Wind: 812MW in Antofagasta, 473MW in Biobío	Wants to double their size by 2030, based on renewable energy and energy solutions that support customers' sustainability goals. Looking for growth opportunities in green hydrogen and water treatment.
EDF	181 MW	93 MW	274 MW	30 countries	Historically active in onshore wind power and photovoltaics, the Company is now strongly positioned in offshore wind power and new technologies such as energy storage.	Wind: 416MW in Antofagasta; Solar: 198,9 in Antofagasta, 120MW in Metropolitan	**Partner: AME**, French company, world leader in low-carbon energy generation (91% of electricity generated does not emit CO2)
Enel	797 MW	2,074 MW	8,583 MW	Operates in Europe, North and South America, Asia and Africa.	Wind, Natural Gas, Photovoltaic Solar, Geothermal, Reservoir hydroelectric, Run-of-River Hydroelectric, Mini Run-of-River Hydroelectric, Diesel Oil	Solar: 375MW in Antofagasta, 106MW in La Cabaña, 120MW in Biobío	Formerly Endesa, Established as Empresa Nacional de Electricidad S.A., leading company in electricity sector; has it's own RES company (Enel Green Power); operates in Europe, North & South America, Asia & Africa
Engie	302 MW	439 MW	2,200 MW	Operates in 31 countries	BESS (Lithium), Wind, Photovoltaic Solar, Coal, Diesel Oil, Mini Run-of-River Hydroelectric, Run-of-River hydroelectric, Natural Gas	Wind: 648 MW in Antofagasta, 323 MW in Biobío, 151 MW in Los Lagos	Currently EECL is one of the most important electricity generators in Chile (fourth nationally). 2021, EECL announced a transformation plan in its operation in the country, compromising the total output of coal by 2025 (~1,500MW) and the development of 2,000 total renewable MW in the coming years.
Generadora Metropolit	-	-	750 MW	Chile	Diesel Oil, Natural gas, BESS (Lithium)	Solar: 1150MW in Antofagasta	Belongs to AME and EDF Groups
Guacolda	-	-	764 MW	Chile	Coal	/	More than 25 years of presence in electricity sector; only doing Coal
Inkia Energy Chile	-	0.4 MW	412 MW	Bolivia, Peru, Chile, Argentina	Natural Gas, Diesel Oil, Solar	/	"Inkia Energy Chile has as its vocation the development of projects and the permanent search for new investment opportunities, with the aim of increasing its presence in the Chilean market, becoming a relevant actor within the national electricity sector."; >5,514MW of operations in Latin American and Carribean countries
Innergex	332 MW	119 MW	705 MW	Canada, US, France, Chile	Hydraulic, Solar, Wind, Thermosolar, BESS (Lithium)	Wind: 236 MW in Biobio	Renewable energy generation company from Canadian capitals
Latin America Power	238 MW	-	263 MW	Chile, Peru	Hydraulic, Wind, BESS (Lithium)	Wind: 65 MW in Atacama	Dedicated to development and operation of power plants of renewable energy generation
Pacific Hydo	83 MW	-	562 MW	36 countries: Australia, Brazil and Chile, Malta, Japan, Turkey, Vietnam etc.	Hydraulic, Solar, Wind, BESS (Lithium)	Solar: 493 MW in Atacama, 82 MW in Coquimbo, Wind: 117 MW in Coquimbo	Clean Energy only
Prime Energy	-	133 MW	1,000 MW	Chile, Colombia	Solar, Diesel Oil, Hydraulic	Solar: 30 MW in Antofagasta	100% Subsidiary of Enfragen LLC (owned by Glenfarne Group LLC of New York); Its plants work mainly in exceptional situations: such as droughts, earthquakes or other cases of emergencies. We are the essential complement for the development of Unconventional Renewable Energies (ERNC) in the medium and long term.
Statkraft	-	-	378 MW	18 countries, 4 continents	Hydraulic, Solar, Wind, BESS (Lithium)	Wind: 104 MW in O'Higgins, 408 MW in El Maule, Solar: 1174 MW in Antofagasta	Norwegian company

Own illustration. Source: (Generadoras de Chile, 2023).

Appendix 12: Triple Bottom Line

The triple bottom line is a business framework that advocates for companies to encompass social and environmental considerations alongside their financial performance (Elkington 1998). This holistic approach challenges businesses to go beyond maximizing profits and instead strive for a balance of the three Ps: People, Planet, and Profit.

- People: Ensuring fair and beneficial business practices towards labor, the community, and the region in which a corporation conducts its business. Social sustainability in this model means contributing to the well-being of the current and future communities and cultures affected by the company's operations.
- Planet: This involves reducing the environmental impact of a company's operations and making responsible use of natural resources. It promotes the conservation of ecosystems and biodiversity, and the reduction of waste and emissions. The goal is to maintain the health and viability of the natural environment over the long term.
- Profit: While profit is a traditional measure of company performance, in the context of sustainability, it implies conducting profitable business without sacrificing social and environmental responsibilities. Economic sustainability refers to practices that support long-term economic growth without negatively impacting social, environmental, and cultural aspects of the community.

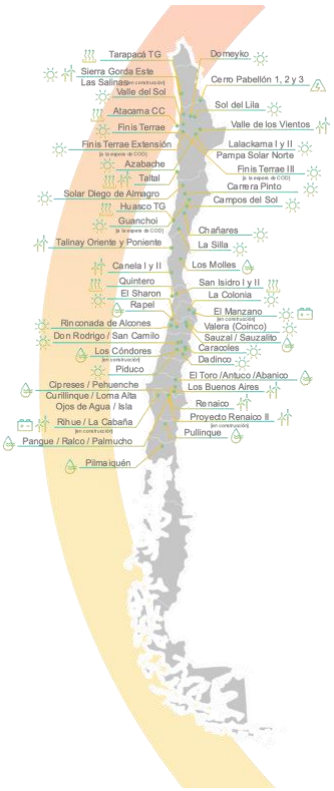
In the triple bottom line model, sustainability is defined as the ability to ensure business longevity and success while not harming the environment or society. Essentially, it is about meeting current needs without compromising the ability of future generations to meet their needs.

Appendix 13: Technical regulations

- Ley de Plantas de la Comisión Nacional de Energía
- Crea la Superintendencia de Electricidad y Combustibles
- Ley Orgánica de Empresa Nacional del Petróleo
- Establece mecanismo de cobro y registro de costos directos de reproducción
- Estructura Orgánica de la Comisión Nacional de Energía
- Norma de Participación Ciudadana de la Comisión Nacional de Energía
- Crea el Ministerio de Energía y la Comisión Nacional de Energía
- Proceso de Tarificación
- Sector Eléctrico
- (Español) Reglamento NT y Planes Anuales
- Normas Técnicas
- Open Regulatory Processes
- Regulatory Processes Closed
- Consulta Pública

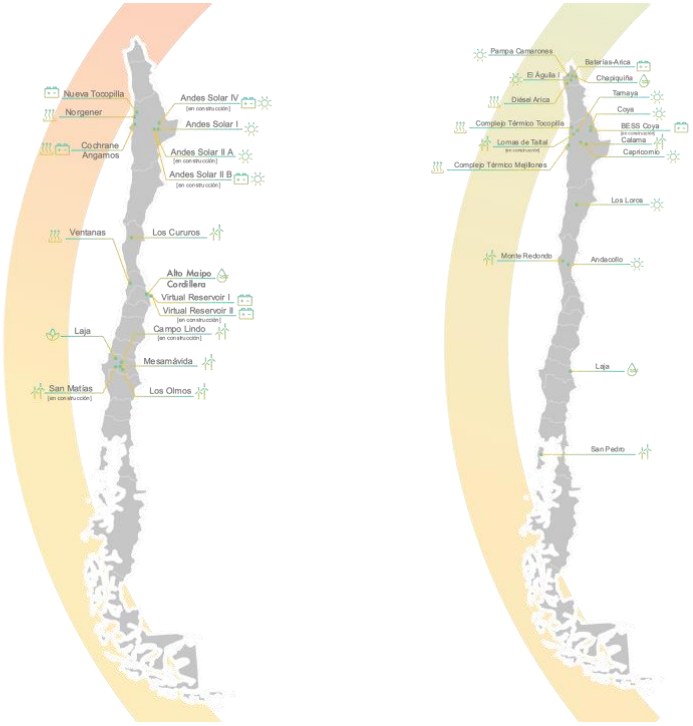
(CNE 2023).

Appendix 14: Enel's projects



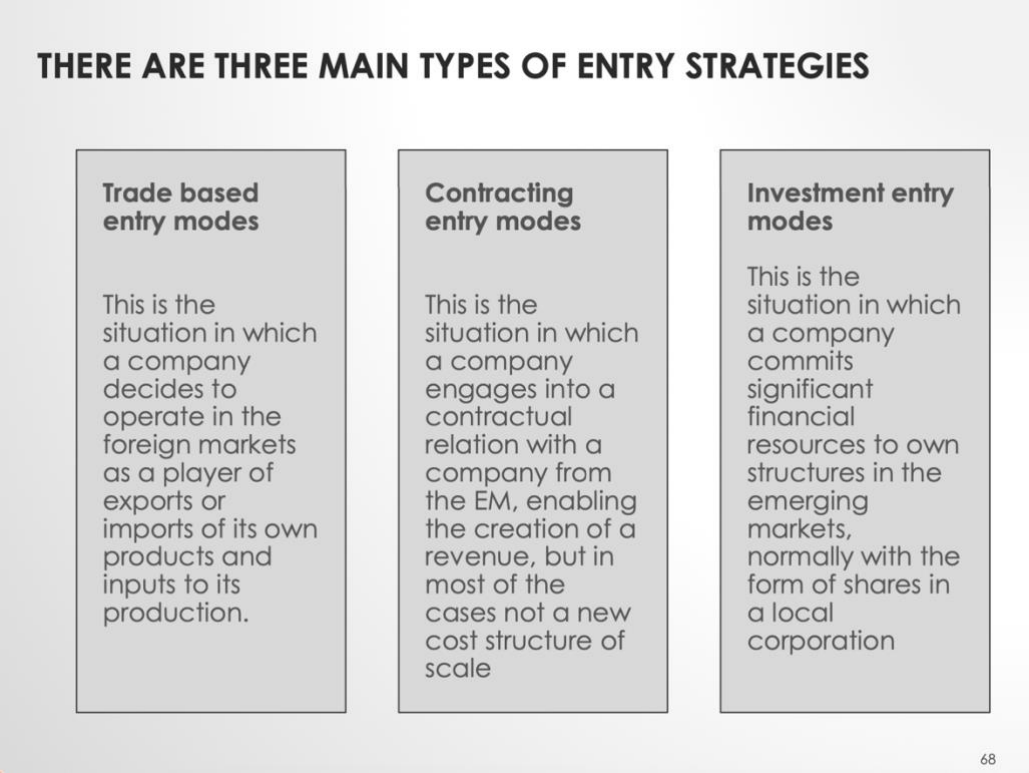
Source: (Generadoras de Chile 2023).

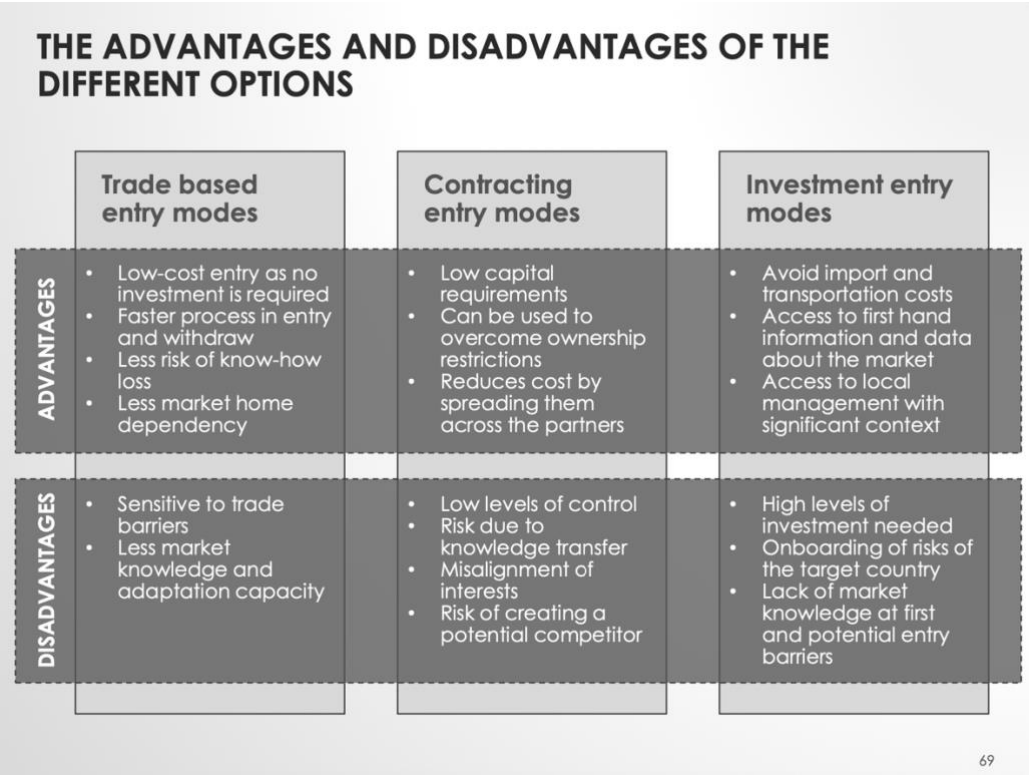
Appendix 15: Competitors' Projects (AES & Engie)



Source: (Generadoras de Chile 2023).

Appendix 16: Investment modes



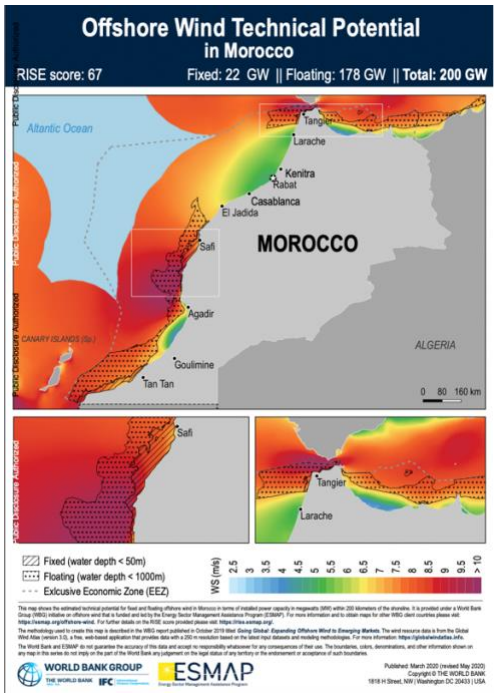


Source: (David 2023)

Appendix 17: Ansoff Matrix

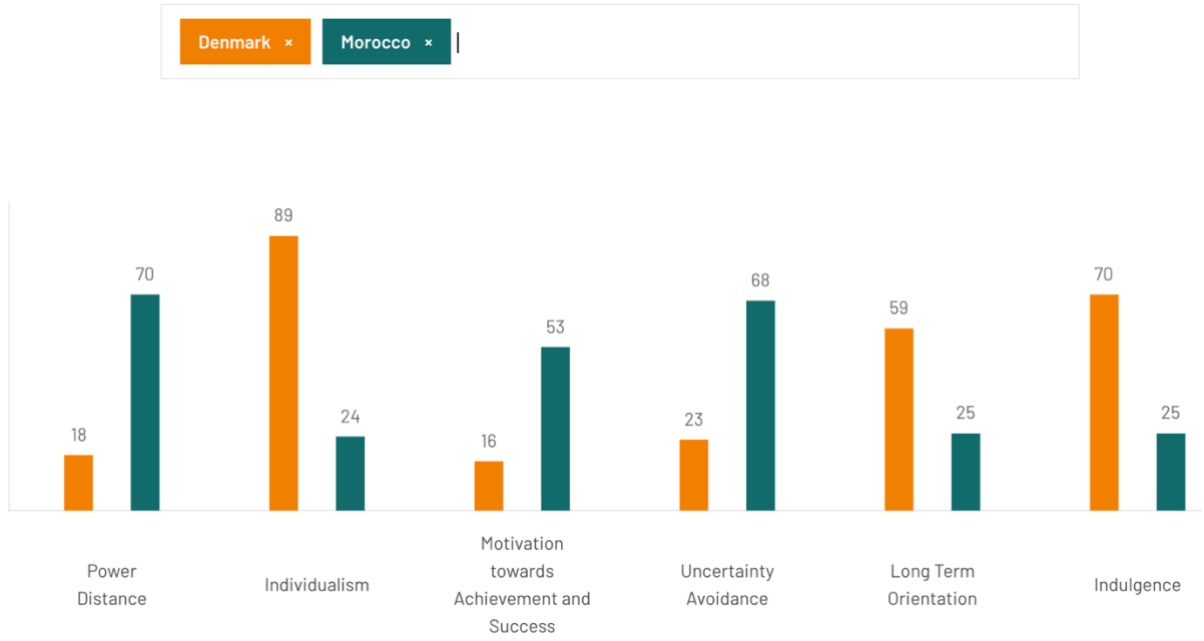
Source: (Peterdy n.d.)

Appendix 18: Offshore Wind Potential Morocco



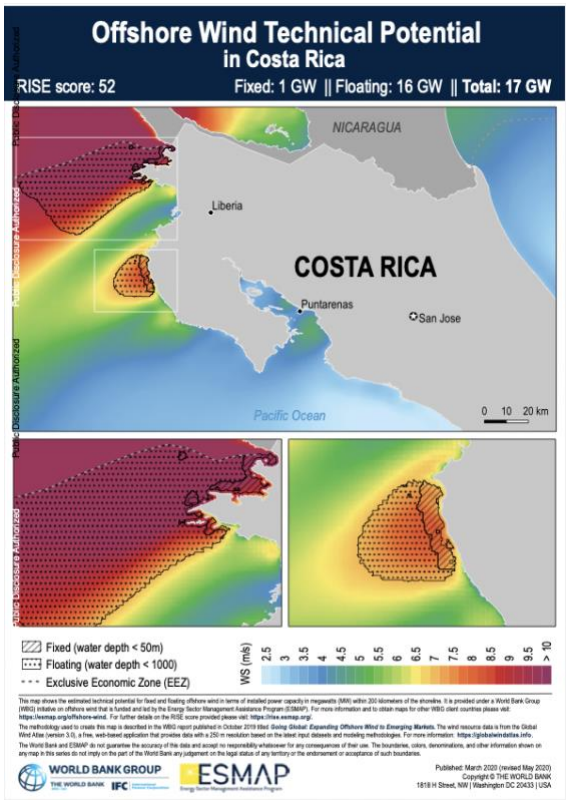
Source: (World Bank 2023)

Appendix 19: Country Comparison Denmark Morocco



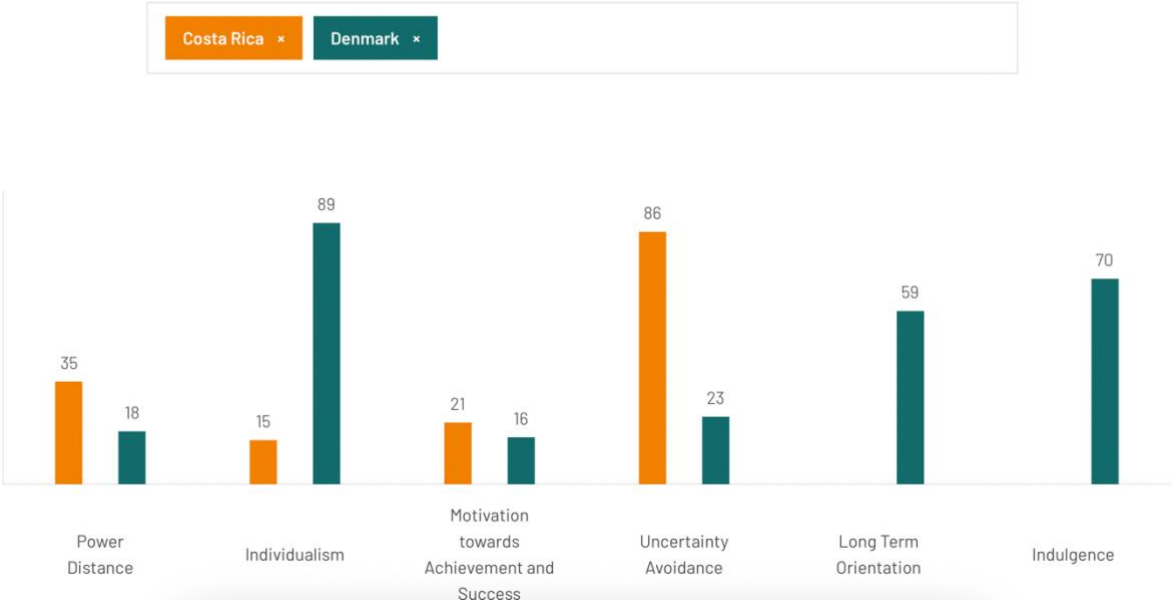
Source: Hofstede (2023)

Appendix 20: Offshore Wind Potential Costa Rica



Source: (World Bank 2023)

Appendix 21: Country Comparison Denmark Costa Rica



Source: (Hofstede 2023)

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