

# LUISS



Department of Management

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## **Entry Modes in the Energy Sector: The case of TotalEnergies in Africa and the Middle East**

Prof. Antonio Majocchi

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SUPERVISOR

Prof. Riccardo Giovannini

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CO-SUPERVISOR

Raffaele Rocchi

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CANDIDATE

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Matr. 777561

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## Introduction

Foreign direct investment (FDI) in utility-scale renewable energy has become a pivotal channel through which capital, technology, and organisational capabilities flow into emerging markets. In Africa and the Middle East, independent power producer (IPP) programmes and long-term power purchase agreements (PPAs) have enabled cross-border sponsors to finance and deliver large solar and wind assets, supporting decarbonisation, grid modernisation, and industrial competitiveness. Beyond the macroeconomic benefits typically associated with FDI (employment, skills formation, and knowledge transfer) renewables projects embed operational and financial rigour that can raise sectoral standards and catalyse local supply chains when procurement frameworks and local participation rules are transparent and enforceable.

Despite substantial literature on FDI entry modes and a growing body of work on clean-energy investment, existing studies rarely examine at sufficient depth how procurement regimes, offtaker credit quality, and risk-mitigation instruments jointly shape ownership and control in project-financed renewables. Much of the literature treats “entry mode” at a firm-level or country-level of analysis, with limited attention to the contractual and financing architecture that conditions feasible coalitions at project level. This dissertation addresses that gap by analysing how major energy firms structure entry into utility-scale solar and wind in Africa and the Middle East, specifying the institutional and financial mechanisms that drive the observed ownership configurations.

The study asks: how do procurement design, offtaker credibility, financing availability, and local participation requirements influence the choice among minority stakes, parity consortia, and lead-sponsor joint ventures in renewables IPPs? To answer, it adopts a single-case design centred on TotalEnergies with embedded project units, triangulating documentary evidence and sector interviews. Pattern-matching and explanation-building are used to test pre-specified propositions and to trace the decision “gates” through which entry modes are set.

**Chapter 1** develops the conceptual foundations and reviews the literature on FDI entry modes, drawing primarily on the institution-based view, the OLI paradigm for ownership and internalisation choices, the resource-based view for capability rationales, and the network-based view for alliances and joint ventures. It defines key constructs, clarifies the project-finance setting, and motivates the propositions.

**Chapter 2** situates the analysis in the Africa and Middle East context, outlining procurement architectures, PPA bankability conditions, risk-mitigation instruments, and local-content frameworks relevant to utility-scale solar and wind. It consolidates sectoral and policy evidence to specify the mechanisms expected to shape equity structure and control.

**Chapter 3** presents the research design and evidence, reports the TotalEnergies case with embedded projects, and conducts pattern-matching against the propositions. It then discusses implications for theory and practice, limitations, and possible ways for further research.

# Chapter 1: Theoretical Frameworks and Literature Review

## 1.1 Introduction

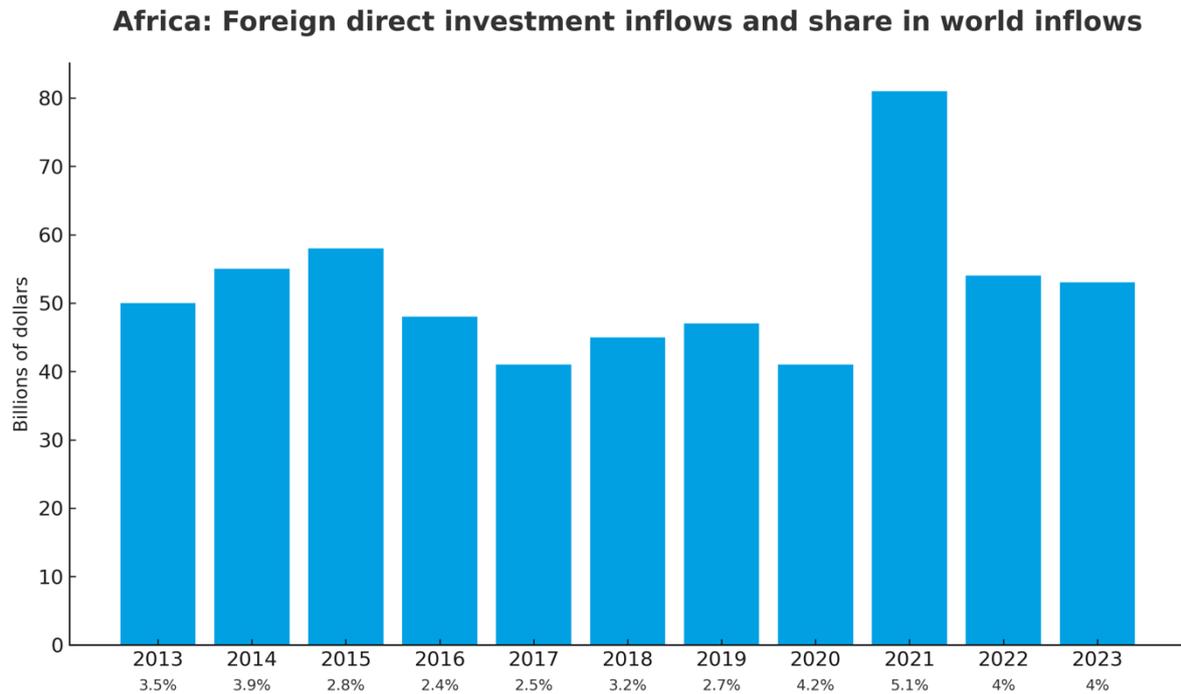
The world energy sector is now in the middle of a profound transformation, leaving fossil fuels to switch to renewable energy sources, and the reasons behind the change may include the climate crisis, the appearance of new technologies, and the changing economics. The global renewables capacity has increased in the recent years and in 2023 a record 473 GW of renewables capacity was added globally, which is 86 percent of all new power additions (IRENA, 2024). The number of photovoltaic solar and wind power farms is rapidly increasing, and solar power alone contributed to around 73 percent of the global renewable capacity growth in 2023 (IRENA, 2024). The cost competitiveness of these technologies has also increased sharply: the levelized cost<sup>1</sup> of solar electricity lowered by more than 80 percent between 2010 and 2019, and in 2019 more than half of the renewable power capacity added worldwide, delivered electricity at less expensive costs compared to the newly constructed coal-fired power plants, and solar and wind could compete even against the world's cheapest existing coal plants (IRENA, 2020). With this global transition, the emerging economies are become prime investment locations for solar and wind projects. The regions of the Middle East and Africa are rich in solar and wind resources but historically lack of installed capacity. As instance, Africa, with about 60 percent of the best solar resources in the world only accounts for 1 percent of installed solar PV<sup>2</sup> capacity (IEA, 2022). Despite the challenges, there are positive indicators of growth: Africa received more than \$10 billion in cross-border project finance for wind and solar investment in 2023 with large scale projects in Egypt, South Africa, and Zimbabwe (UNCTAD, 2024). The graph below shows that, despite fluctuations in absolute inflows, Africa continues to account for a relatively small share of global FDI—generally around 3–5% (2013–2023), creating significant opportunities for investments.

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<sup>1</sup> The levelized cost of electricity (LCOE) is the average lifetime cost per unit of electricity produced, accounting for all capital, operating, and maintenance costs, unlike simple cost measures that capture only part of these expenses.

<sup>2</sup> PV - Photovoltaic

**Figure 1: UNCTAD (2024). Africa: Foreign investment in clean energy boosts sustainability momentum.**



Note: The value for each year represents the share of total inflows. Data exclude financial centres in the Caribbean and special-purpose entities in reporting countries.

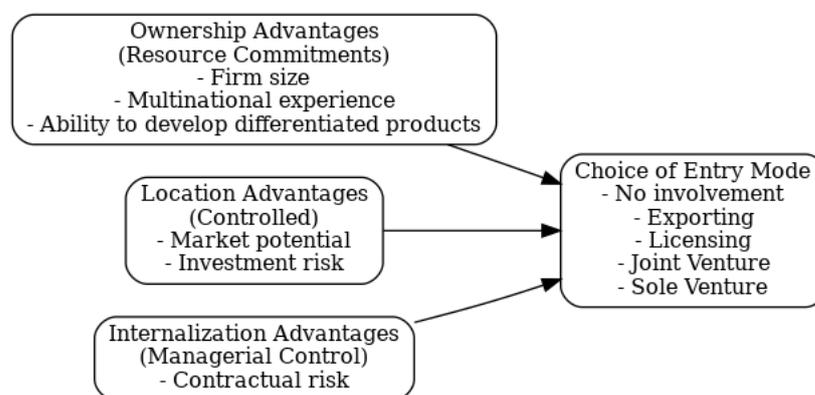
Middle Eastern countries, especially in the Gulf, have also identified powerful renewable energy plans as part of an economic diversification and decarbonization process. However, most of clean energy investment continues to be in the advanced economies and China with over 90 percent of the rise in clean energy investments rising since 2021 in those markets (IEA, 2023). Developing economies, including the majority of countries in the Middle East and in Africa attract a relatively small proportion of global renewable capital (IRENA, 2023). Bridging this investment gap is essential as it is estimated that developing countries require renewable-energy investments for approximately 1.7 trillion a year to achieve climate and development targets, and only approximately one-third of this value has been received during the past years (UNCTAD, 2023). In Africa and in the Middle East, where institutional frameworks may be weaker or under transformation, and where local partnerships may be required to delve into the business environment, how major energy firms select entry modes for solar and wind projects in these regions becomes practically and theoretically relevant.

## 1.2 Entry Mode Strategy Theories

When venturing abroad, companies are required to decide an entry mode: the structural framework through which the company sets up business in a new market. Following a classic definition of Franklin Root, an entry mode is “an institutional arrangement that makes possible the entry of a company’s products, technology, human skills, or other resources into a foreign country” (Root, 1994). Entry modes are divided

into two general categories: equity modes that imply FDI and ownership of the assets in the foreign country (such as joint ventures, mergers and acquisitions, or a wholly owned subsidiary), and non-equity modes, which do not involve ownership stake by the entering firm (such as strategic alliances) (Pan & Tse, 2000). The modes come with varying degrees of resource commitment, control, risk, and profit potential to the firm (Agarwal & Ramaswami, 1992; Ahsan & Musteen, 2011). Equity modes require large amounts of capital and managerial resources and face greater degree of political and economic risks, but also offer greater degree of control and potential returns. In contrast, non-equity modes involve smaller investments and hence less risk but provide less control to the firm over the foreign operations. (Anderson & Gatignon, 1986). The image below illustrates—consistent with the OLI framework—how ownership, location, and internalization advantages shape firms’ choice between non-equity and equity entry modes by trading off commitment, control, risk, and returns.

**Figure 2:** The eclectic paradigm as developed by Dunning (1977, 1988) and interpreted by Agarwal and Ramaswami (1992)



### 1.2.1 Joint ventures

A joint venture is a form of foreign direct investment entry in which two or more companies together establish a new, jointly owned business entity. In this arrangement, each partner contributes equity and shares control over the new venture’s operations and decision-making. Many scholars define a joint venture as a “hybrid” organization separate from the parents, in which ownership and management responsibilities are shared (Park & Ungson, 1997; Kogut, 1989). Unlike a wholly owned greenfield investment where a single firm builds a subsidiary from scratch, a joint venture involves collaboration – although importantly, a joint venture itself can be established as a **greenfield project** when the partners create a new enterprise together (Tsang, 2005). Joint ventures can also be formed by one firm taking partial ownership in an existing local firm (sometimes termed an “acquisition joint venture”), but the defining characteristic is the **shared equity and control** by independent partners (Beamish & Banks, 1987). This mode has become an essential strategic option for multinational enterprises (MNEs) expanding abroad. Indeed, joint ventures have

historically been one of the dominant forms of business organization for MNEs in developing regions, often more prevalent than wholly owned subsidiaries in those contexts (Beamish, 1988).

Joint ventures enable combining complementary resources and capabilities of each partner (Harrigan, 1985), the firms can combine their strengths to get access to assets or knowledge that would be otherwise difficult to reach individually. For instance, the foreign investor could add capital, technology, or management skills, whereas the local partner could contribute with deep knowledge of the country's market, distribution channels or connections with local authorities. Furthermore, joint ventures enable risk sharing, the firms can split the costs and risks associated to large projects (Beamish & Banks, 1987). Moving into a new country, particularly in sectors that require large capital investments such as energy, poses high uncertainty (market, political, and regulatory risks), and collaboration with other firms spreads the financial risk, reducing long term uncertainty and exposure compared to individual operations, in these terms JVs act as a form of mutual insurance to the partners (Beamish & Banks, 1987). Joint ventures can also act as 'real options,' providing flexibility and staged commitment in uncertain foreign markets (Kogut, 1991).

Besides the strategic considerations of each firm, the host country environment often tends to make joint ventures an appealing or even an inevitable prospect. In many emerging economies, local governments favoured or required partnerships between foreign firms and local firms in order to guaranteeing a local participation in economic development (Beamish, 1988; IMF, 1993). These policies have mostly occurred in sensitive or strategic industries, so that the host country can preserve control over foreign investment, ensure technology transfer, and develop local capabilities. Partnership with local firms may confer legitimacy in the host market, reassuring authorities that the investments aligns with national interests, this could enable government buy-in, a crucial factor in highly regulated industries (Soni & Kachieng'a, 2011).

Despite the advantages, Joint ventures face numerous challenges, most importantly the complexity of shared governance: shared ownership and different managers in each side require coordination and consensus, decision making could be challenging with different corporate culture or diverging objectives between the firms. Studies point out that joint ventures have a higher failure or instability rate compared to wholly owned subsidiaries (Blodgett, 1992). Disputes may occur over strategic direction, profit sharing, or operational control, when the partners objectives diverge over time and cultural differences could create friction or misunderstandings within the JV (Park & Ungson, 1997). Furthermore, problems of trust and opportunism could arise; each partner may worry about the other appropriating critical knowledge or not fully committing to the venture (Kogut, 1989). Despite the challenges, it is possible to find good examples of joint venture performance when the partners achieve synergy and remain aligned. In economies like Africa and the Middle East, the selection and management of partners has been proven extremely important because joint venture in those regions often operate in volatile markets characterized by shifting regulation. Joint ventures that operate in the energy sector could be mutually beneficial: the foreign partner could achieve market entry and return on investment, and the local partner and host economy can also gain different advantages, for example through investment capital, technology transfer, and capacity development.

### ***1.2.2 Mergers & Acquisitions***

Cross-border mergers and acquisitions (M&As) constitute an important entry mode through which firms secure an immediate foothold in foreign markets by purchasing or merging with existing companies. Unlike greenfield investment, which requires time to establish new operations, M&As allow rapid access to assets, staff, and market share, a speed that is particularly valuable in industries such as renewable energy where timely access to permits, land, and grid connections can determine competitiveness. In this sector, international utilities increasingly acquire local solar or wind developers to obtain project portfolios and regulatory knowledge.

The advantages of M&As lie primarily in the fast establishment of scale and access to complementary resources. By acquiring an incumbent, firms avoid the delays and uncertainties of starting from scratch (Child et al., 2001). M&As are diffused because they grant a quick access and scale of complementary resources, with an incumbent purchase, firms eliminate uncertainty and delays that could arise when creating a business or a venture from zero (Child et al., 2001). Acquisitions also bring only tangible and intangible assets, such as infrastructure, brand reputation and relationships with stakeholders, from a resource-based view, this enables companies to obtain essential resources that could not be developed internally (Wernerfelt, 1984). Based on empirical results, acquisitions are frequently used in cases where there is the presence of high entry barriers or when it is too complex to directly challenge the local competitors (Slangen & Hennart, 2008).

In weaker institutional environments, where risks of hidden liabilities, unreliable disclosures, and contract disputes are greater, acquisitions are riskier compared to other entry modes, but when institutions are supportive, M&As can be an efficient vehicle for entry, as their feasibility strongly depends on institutional conditions: acquisitions are safer and more attractive in countries with developed markets for corporate control and strong property rights (Alon et al., 2020).

M&As continue to be adopted by large energy corporations to speed up their renewable energy transition. For instance, European oil majors have resorted to acquisitions to obtain expertise and project portfolios in solar and wind power projects. The purchase of Lightsource by BP and investments in SunPower by TotalEnergies are clear examples of how M&As were used as entry modes and as steppingstone in a broader corporate transformation. According to the OLI paradigm, firms that possess strong ownership advantages and attractive location opportunities, prefer to internalize through acquisitions to realize value instantly (Dunning, 1993).

M&As are still uncommon in the African and Middle Eastern renewable sectors, which are dominated by greenfields and joint ventures due to their early-stage nature, but they are expected to grow as industries advance and consolidation rises.

### ***1.2.3 Wholly Owned Subsidiaries***

A wholly owned subsidiary (WOS) is an entry mode into a foreign country where a multinational enterprise holds 100 percent of its foreign affiliate, it can be defined as an ownership decision between full

ownership versus a joint venture (Wan et al., 2023). A fully owned subsidiary can be established through a greenfield investment (establishing new operations) or by the acquisition of a local firm. This form provides the parent firm with complete strategic and operational control of the venture but establishing or acquiring a wholly-owned subsidiary “requires the highest commitment...as the firm must assume all of the risk—financial, currency, economic, and political” (Mariadoss, 2022). For instance, in capital intensive industries like oil and gas or renewable energy, firms often tend to prefer 100 percent owned projects as a way to protect valuable technology and maximize returns. Wholly owned entry also avoids the risk of partner conflicts and guarantees consistent quality and strategy across different markets. Nevertheless, this mode is risky because of the high capital requirements and for the overall exposure to the risks that the host country poses, the parent firm must supply all necessary investment and may face slow start-up costs, and it lacks local partners who could provide market knowledge and networks. In regions like sub-Saharan Africa or the Middle East, governments may impose equity caps or mandatory joint ventures, making therefore impossible an independent market entry, these limitations imply that wholly owned subsidiaries are typically selected by firms that possess substantial resources or where total control is considered essential.

#### ***1.2.4 Strategic Alliances***

There are more modes that companies adopt as a way to expand in an international marketplace: strategic alliances. A strategic alliance is a cooperation arrangement between two or more companies to achieve a collection of agreed targets remaining independent (Contractor & Lorange, 1988). These alliances can exist in various forms, ranging from technology sharing and development agreements, to consortium-based project collaborations. The distinction of strategic alliances lies in the fact that they are generally flexible and temporally based partnerships formed to leverage the complementary capabilities of the partners, without the merger or the creation of a new jointly owned entity (Yoshino & Rangan, 1995). In the entry mode context, strategic alliances could be interpreted as a compromise between simple market transactions and equity ownership. Firms may prefer an alliance when they consider it to be of mutual value to cooperate without being, or needing, the commitment of a joint venture or an acquisition. Alliances are also formed internationally to tackle the cost and risk of big projects, to earn from a partner (learning alliances) or to establish compatibility and standard setting in a new market (Doz & Hamel, 1998). Strategic alliances are very flexible, an alliance can also be designed with limited scope and specific duration so that a company can test a new market or technology without commitment. Alliances also help in transferring knowledge, one partner can learn a new skill from the other, an invaluable asset in rapidly advancing sectors such as renewable energy technology. As an example, a large energy company could partner with a local engineering firm to collectively develop a wind project, thereby understanding local permitting requirements and grid conditions, and the local firm can learn about advanced turbine technology from the large company. In emerging markets, alliances give the opportunity to a foreign company to build trust and credibility by collaborating with local partners, allowing it to build stakeholder networks that are crucial factors for success, without immediately participating in full equity investments.

Despite all the advantages, strategic alliances heavily depend on contracts and goodwill of the counterparts, given the absence of a clear governance structure. There is the threat of opportunism: one partner might take advantage from the alliance appropriating knowledge or assets from the other firm (Kale, Singh & Perlmutter, 2000). Some conflicts might arise if goals between partners diverge and there is role/contributions ambiguity. The outcome of alliances often depends on clearly aligning incentives and developing trust and constant communication (Inkpen & Currall, 2004).

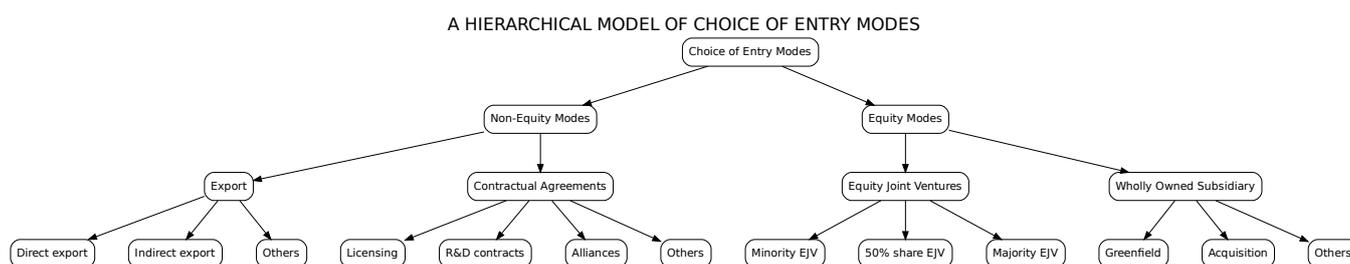
In the past years in the energy sector, alliances have been quite common, with oil and gas majors partnering with local firms to explore jointly in R&D for new technologies (e.g., joint research on battery storage). Strategic alliances may also serve as a prelude to an equity investment. The partnership may begin with a non-equity alliance to test the compatibility and meet the market and in case of a successful partnership it could evolve in a JV or an acquisition (Reuer, 2004). On the other hand, the firms could part away more easily than in case of a joint venture company.

Even if strategic alliances are not explicitly considered in the traditional entry mode classification, they align with the concept of “network-based internationalization” where companies leverage relations in inter-firm network to internationalize instead of doing everything internally (Johanson & Mattsson, 1988).

### 1.2.5 Selection Criteria for Entry Modes

When a firm decides how to enter a foreign market, it weighs a complex set of criteria to determine the most suitable mode. The choice is essentially a multi-criteria decision problem: firms seek to maximize benefits (market share, profits, learning) while minimizing risks (capital, uncertainty). Numerous factors – internal, external, and project-specific – shape this decision (Pan & Tse, 2000; Zhao, Luo & Suh, 2004). The image below designed by Pan & Tse maps all major foreign market entry modes, from non-equity arrangements to high-commitment equity investments.

**Figure 3:** A hierarchical model of choice of entry modes, adapted from Pan & Tse (2000)



Some of the most important criteria, especially for energy firms ready to invest in renewable projects in Africa and the Middle East, include firm-specific resources and capabilities: firms with strong technological, managerial, and financial capabilities, and with international experience, are more likely to pursue high-control modes such as wholly owned greenfields or acquisitions (Agarwal & Ramaswami, 1992). By contrast, smaller or less experienced firms often use JVs or alliances to “borrow” resources from partners (Lu & Beamish, 2001). For instance, a developer of medium size, who has no funds at his disposal, can rely on a joint venture with a larger investor. A critical aspect is global strategy coherence, where integration and

standardization are crucial, the companies favour WOS models; in cases where flexibility and local adaptation is crucial then the alliances or JVs are preferred (Prahalad & Doz, 1987).

Market and industry factors play a crucial role since entry modes are largely determined by the characteristics of the target country, large markets with high growth prospects justify the risk of wholly owned entry modes, whereas smaller markets suit better with partnerships (Pan & Tse, 2000). For instance, a firm can invest in Saudi Arabia directly but choose alliances in smaller economies. The industry structure plays a strategic role, in fragmented markets greenfields may be preferred, while in oligopolistic industries, firms may prefer acquisitions to gain rapid footholds (Yip, 1982). The market is strongly shaped by government tenders and PPAs in the case of renewables, in an environment where the tenders are transparent, greenfield investments are attractive; in contrast, local partnerships are favoured in relationship-driven environments.

Institutions are also decisive in emerging markets. Firms need to consider several factors that play a strategic role, such as equity restrictions, incentives and requirements, contract enforcement and property rights, institutional voids, and political and policy risks. These aspects will be examined in greater detail in section 1.3.

Another crucial criterion is cultural and geographic distance: the greater the psychic distance, the more likely firms are to partner locally (Kogut & Singh, 1988). Cultural differences raise management complexity for WOS, though experienced MNCs often overcome this through expatriates or training (Gatignon & Anderson, 1988). Some firms still prefer WOS to protect technology or corporate culture, even in distant contexts.

Firms need to analyse the project-specific characteristics and scale: large-scale projects often require consortia or JVs to spread financial risk. Renewable projects are commonly financed through multiple equity sponsors. Smaller projects, within the firm's financial capacity, may be wholly owned. The sensitivity of technology is another criterion that influences WOS preferences, while complex or long projects may benefit from local partners. In contrast, highly integrated projects (e.g. solar-plus-storage) may require tight control, and thus favour WOS.

A crucial factor is the strategic intent and so the need for control for the firm: if a project is critical to a firm's global strategy or image, then WOS are favoured (Brouthers & Hennart, 2007). In exploratory or peripheral ventures, shared-control modes are acceptable. Flexibility in exit also plays an important role, alliances and contracts can be withdrawn with less difficulty, in contrast, in acquisitions and greenfields it is harder to withdraw (Erramilli & Rao, 1993).

To give a practical example, consider a European renewable company venturing into the African solar market. The market factor (rise in demand) is positive, however, there are issues with political risk and weak legal systems. The company has strong resources and few African contacts, and the large size of the project also increases risk. Logic suggests a JV with a reputable local IPP as an entry mode. In contrast, if the same firm entered a stable Middle East market where it already operates, a wholly owned structure would be more appropriate. Host country risk is related to joint ventures, cultural distance to cooperative modes, and firm

size/experience to wholly owned subsidiaries (Zhao et al., 2004; Tihanyi, Griffith and Russell, 2005). Entry modes can be dynamic: a firm may begin with a JV and then buy out partners as experience grows (Benito, 2015; Puck et al., 2009).

To conclude, the way entry mode is selected is influenced by the interplay of firm capabilities, host country conditions and project characteristics; in the case of energy companies focusing on solar and wind energy projects in the regions of Africa and the Middle East, balancing opportunity and risk is the key to success. This comes in the form of decisions between an independent entry (through greenfields or acquisitions), or through local partnership (joint ventures and alliances) depending on the context.

### **1.3 The Role of Institutions**

Having outlined entry-mode strategy theories and the criteria guiding those choices, this section turns to the institutional context that influences them, with a focus on institutional theory, institutional voids in emerging markets, and the most relevant regulatory and legal frameworks to energy-sector FDI.

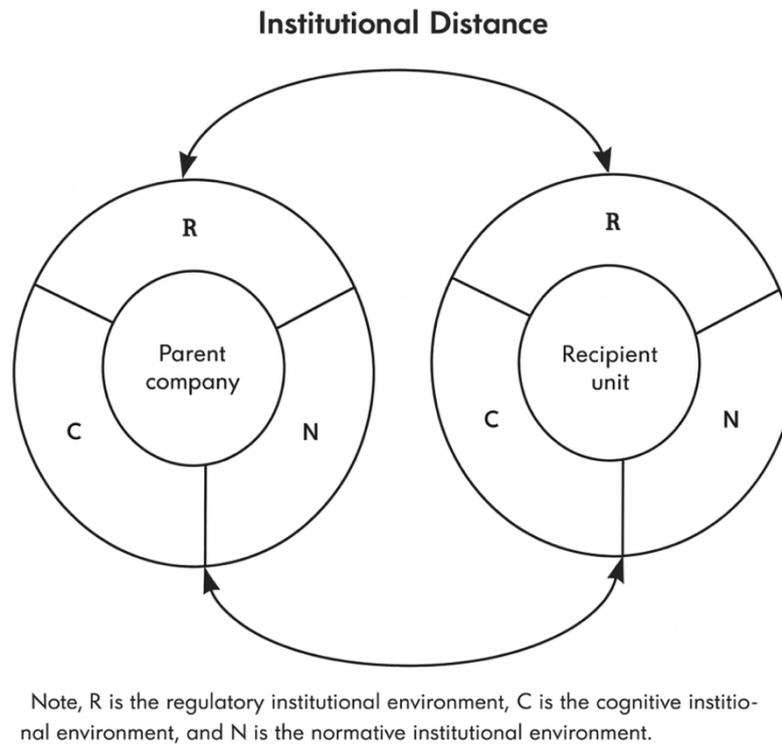
#### ***1.3.1 Institutional Theory and Internationalization***

An institution can be defined as the “rules of the game” in a society (North, 1990), enclosing formal constraints such as laws and regulations (regulative institutions) and constraints of informal nature such as norms, values, and accepted practices (normative and cognitive institutions) (Scott, 1995). When firms consider internationalization, they deal with very different institutional structures to those of their home country. International institutional theory focuses on how such differences affect the firm strategies including the entry mode choice and how firms obtain and mitigate the “liability of foreignness” in host environments (Zaheer, 1995).

From an “institution-based” view of strategy, which combines industry-based and resource-based perspectives, firm strategies and performances in international business do not only depend on the industry conditions and on firm resources, but also on the institutional frameworks of the markets in which they operate (Peng et al., 2008), “institutions matter”, since they can enable or constrain certain strategic decisions. For example, clear and stable regulations lower the uncertainty and can attract more committed entries such as wholly owned ventures, in contrast, bad institutions increase risks and push firms toward more flexible ventures (Meyer et al., 2009).

Institutional distance is a key concept that refers to the differences between the institutional environment in the home country and the host one (Kostova, 1999). Where there is significant institutional distance, firms are often forced to change their strategies to suit to the local institutional environment and gain legitimacy, the generalized perception that whatever is done is desirable or appropriate according to the rules and norms of the host society (Suchman, 1995). The image below illustrates institutional distance between the parent company and a recipient unit across the regulatory (R), cognitive (C), and normative (N) institutional environments.

**Figure 4: Institutional distance, adapted from Kostova, T. (1999).**



Firms often make a deep analysis of the institutional profile of a host country (Kostova & Zaheer, 1999), considering both formal institutions (laws, regulations, policies) and informal institutions (it refers to culture, social norms, values) in order to predict which aspects will require an adaptation.

During the process of internationalization, firms are likely to engage in institutional networking and lobbying as part of the strategy: forming connections with host regulators and joining industry associations to influence or at least be aware of rule changes (Boddeyn & Brewer, 1994). This is of particular relevance in the energy sector, where policies (tariffs and subsidies and grid regulations, etc.) crucially shape the market, and the ability to manage such institutional interfaces becomes a competitive advantage in this type of environment.

Institutional theory explains that differences in entry strategies and performance can be justified by differences in institutions, a concept is not captured by purely economic or resource-based theories. The fact that firms choose different entry modes in different countries may be the result of different institutional pressures or voids in the two countries and not firm-specific strategy (Xu et al., 2004), firms moderate their entry mode by analysing institutional quality indices as rule of law, corruption perception and ease of doing business (Meyer et al., 2009; Brouthers, 2002).

Another perspective is institutional isomorphism (DiMaggio & Powell, 1983): over time, firms operating in the same environment tend to become more similar in structure or practices due to facing the same institutional pressures, this implies that a foreign entrant needs to adapt to local business practices, to ensure its survival and success. A western company joining the Middle East will realize that business in the region

is conducted more on the basis of personal relationships (Wasta<sup>3</sup>) and may need to adjust recurring to relationship managers or joining networks, thus mimicking the local relational approach.

### ***1.3.2 Institutional Voids in Emerging Markets***

Emerging markets sometimes exhibit what Khanna and Palepu refer to as institutional voids - the lack of key institutions of market support taken as given in more-developed economies (Khanna & Palepu, 2010). Institutional voids may manifest in many areas, such as capital markets (a deficiency of intermediaries such as venture capital, or weak financial systems), product markets (insufficient reliable consumer information or product distribution channels), labour markets (shortage of skilled labour, or absence of executive-search firms), and, specifically for foreign investors, governance systems (poor legal systems, weak enforcement of contracts, corruption, etc.). These gaps imply that conducting business in emerging markets involves different methods of accomplishing tasks that, in the developed world, is the responsibility of institutions.

As an example, in most African countries, entrepreneurs do not have access to strong credit rating agencies, collateral registries to evaluate or secure loans: these gaps highlight a void in financial institutions. In addition, efficient contract enforcement procedures can be slow or biased and thus firms may rely more on informal mechanisms than on formal contracts to resolve these problems. This can be seen under the concept of institutional voids according to which multinational enterprises (MNEs) may struggle to easily transfer their business models into emerging markets without appropriate adaptation to the particular environment (Khanna & Palepu, 1997).

In reality, when a firm operates under an institutional perspective, they need to overcome these institutional voids through the adaptation of different mechanisms: internalization or partnership with others. As an example, the absence of a stable supply chain or logistics providers may prompt a business to vertically integrate to a greater extent in an emerging market than it would in any other scenario, or, where trained workers are not available due to the lack of sufficient educational institutions (a gap in the labour market institutions), then the company may overcome this gap by investing heavily in building an in-house training facility or an internal corporate academy. The responses to institutional voids are represented by business groups in diversified emerging markets internalizing transactions internally because external markets do not function efficiently (Khanna & Yafeh, 2007).

Institutional voids play an important role in the development and operation of projects in the world of FDI in energy projects. In many emerging economies in the energy sector, the most common gaps include: inadequate regulatory measures to regulate independent power producers, non-transparent bidding procedures, underdeveloped power grids, weak off-take institutions (e.g., state-owned utilities that may be

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<sup>3</sup> Wasta refers to the use of personal connections and networks to facilitate business or gain advantages in Middle Eastern contexts.

financially unsound or lacking creditworthiness), and underdeveloped local financial markets to raise long-term project finance.

These gaps are dangerous and may involve additional costs, for example, when the national utility is in financial difficulty (absence of solid regulatory oversight or effective enforcement mechanisms), that reflects an institutional gap in contract enforcement (investors will be nervous whether power purchase agreement payments will be met). To fill this gap, firms may turn to international institutions (e.g. World Bank guarantees or political risk insurance) to provide backup or to partner with local institutions that enjoy government support to enhance credibility.

Another factor are institutional gaps in governance like corruption or unstable policies. These will not only discourage investment but also affect the forms of structures the firms take in organizing their activities. Firms respond by becoming active in government relations or by structuring the transaction to accommodate political motives (by providing equity in projects to state bodies or other local influential parties to guarantee favour), such actions are ethical and long-term risk practices.

The effectiveness of firms in emerging markets depends on their ability to address institutional gaps - the capability has been referred to as "institutional entrepreneurship" (Peng, 2003). They may form their own institutions or intermediaries or be collective in lobbying reforms. An example, in some African countries, the foreign investors in renewables have collaborated with developmental agencies to create renewable energy regulatory units or auction system designs, actually helping to create the institutional environment that lacked. Until such institutions develop, firms adopt temporary solutions such as consortium structure. From an entry mode perspective, institutional gaps have the effect of promoting collaborative strategies or network approaches, when there are not any solid market institutions, it is more crucial to know who rather than what (Khanna & Palepu, 2010). Thus, foreign companies frequently collaborate with the local firms or stakeholders since it can help to address the institutional gaps. A local partner may also know how to operate: how to get things done in a bureaucracy that lacks process. The network-based view proposed by Johanson and Mattsson (1988) suggests that networks of relationships can compensate for the absence of well-developed formal institutions. In such contexts, institutional trust is often weak, making personal trust and informal networks crucial mechanisms for conducting business; where confidence in formal systems is limited, firms rely heavily on interpersonal connections and collaborative synergies to facilitate exchanges and reduce uncertainty (Dhanaraj and Beamish; 2004).

Institutional gaps can also be connected to risk and uncertainty. Whenever any of the main market institutions (i.e. providing property rights or ensuring contract enforcements) are absent, the level of uncertainty is high. The responses that firms may be using include demanding greater returns, restricting exposure, or the use of methods of entering that can easily be reversed. It is noted that in high-void environments, companies either do not even attempt entry, or instead introduce themselves in controlled measures (i.e. pilot projects, minority stakes) until they build up confidence (Meyer, 2001). They can also use extra-country institutions to help fill gaps e.g., international arbitration as part of a contract to avoid using local courts, or bank loans that come with some covenants and monitoring.

### 1.3.3 Regulatory and Legal Frameworks

A host country's regulatory and legal frameworks are crucial components of its institutional environment, allowing or disallowing foreign direct investment in energy. The clarity and consistency of regulations can make the difference between success and failure for solar and wind projects in Africa and the Middle East investments.

Key component in the regulatory framework in the energy sector:

- **Energy sector liberalization and market organization:** The extent of openness to independent power producers (IPPs) and the transparency of project allocation are crucial. Countries with codified mechanisms (renewable energy auctions or feed-in tariffs) provide predictability, in contrast, in countries without those kinds of mechanisms, firms have to appeal to ad hoc negotiations, that are more time-consuming and riskier. REIPPPP<sup>4</sup> in South Africa is a clear case where a foreign investor is attracted to invest in a foreign country due to well-defined rules and governmental commitment (Eberhard et al., 2016).
- **Legal enforceability of contracts:** The confidence of investors depends on the fact that PPAs<sup>5</sup> or JV contracts will be respected. Robust structures grant enforceability through law and fair arbitration. In weaker regimes, companies frequently appeal to international arbitration clauses or rely on political risk insurance coverage to hedge against the possibility of breach, reflecting the centrality of contract security to the investment decision.
- **Foreign investment laws and protection:** National investment codes include the rules about the treatment of foreign investors, these could assure against expropriation, offer arbitration rights or tax incentives, or require obligations such things as local content rules. In some countries in the Middle East, foreign firms are forced to use joint ventures since the laws make it mandatory to have a local partner. This is however fading through new reforms, especially in the UAE<sup>6</sup>. Financial viability is also directly shaped by the ability to repatriate foreign currency profits.
- **Regulatory bodies and governance:** Independent energy regulators provide stability by setting cost-reflective tariffs and ensuring timely payments, while weak or politicized regulators erode investor confidence. Strong and transparent commissions attract investment, whereas markets where decisions are left to ministries appear more uncertain. Across Africa, regulatory capacity is uneven, some countries have made significant progress, while others remain weak.
- **Policy stability:** Stable policies (feed-in tariffs, auctions or tax breaks) can minimize uncertainty, but policy reversals can destroy investor returns. Changes made retroactively like cutting tariffs or increase of new taxes indicate instability, investors pay close attention to the legal protections, and track record: countries with consistent commitments attract more investments, while those countries characterized by reversals are distrusted.

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4 Renewable Energy Independent Power Producer Procurement Programme

5 Power purchasing agreement

6 United Arab Emirates

Stable legal frameworks encourage committed entry modes such as wholly owned projects or majority JVs. Weak regimes push firms to partner locally, structure deals for treaty protections, or delay entry. Some countries in the Middle East/Africa have local content/ localization laws, which force foreign projects to source a certain percentage of equipment or labour locally, the extent of these legal requirements can greatly affect the cost and operations of the project and firms must comply or negotiate waivers. They might also influence entry mode, for example a firm might establish a local subsidiary to manufacture components (greenfield investment) to meet local content rules, or partner with a local manufacturer. A current example is in countries like Saudi Arabia or South Africa, where local content in renewables is encouraged or mandated; foreign firms have adapted by transferring some production locally or teaming up with local companies.

A strong legal framework can give firms the confidence to do wholly owned projects, often, there is also a correlation between good governance indicators and greater levels of FDI or a preference for full ownership (Asiedu, 2006). The World Bank report on renewable FDI highlights in particular the importance of minimizing regulatory risks in order to encourage private investments in renewables sector, pointing out measures such as clear policy goals, stable incentive systems, and risk mitigation instruments (World Bank, 2023).

## **1.4 FDI in the Energy Sector**

Following the analysis of the role that host-country institutions have in international expansion, this section examines the growth in energy-sector FDI, the role of ESG principles in the energy transition, and the key opportunities and challenges that firms may face during this kind of foreign investments.

### ***1.4.1 The Energy Transition and Renewables***

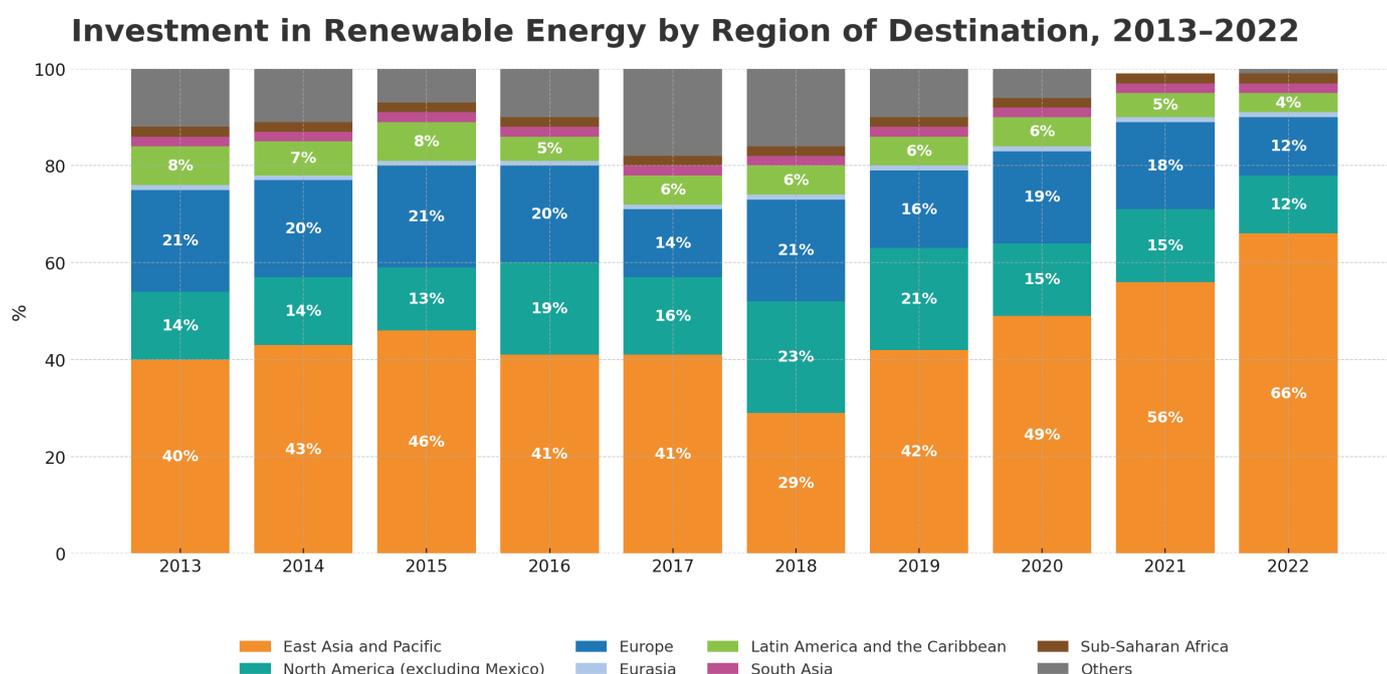
The energy transition has been strongly pushed by climate change and associated policies (e.g. Paris Agreement). Most of the global economies have already set different decarbonization targets, such as achieving net-zero greenhouse emissions by 2050, but these targets can be realized only through a massive scaling of renewable energy. This translates into trillions of dollars of investment required in renewable electricity and supporting infrastructures (IEA, 2022). Investments in renewables will have to grow to around \$1.3 trillion by 2030, up from \$390 billion per year in the late 2010s (World Bank, 2023). This context creates countless opportunities for firms that develop, construct and run renewable energy projects worldwide.

Oil and gas companies' investments in clean energy has risen in the past years, for instance, in 2022, the investment in clean energy totalled about 20 billion dollars, doubling the 2019 amount, although this still only accounts to only about 4 per cent of their capital expenditure (IEA, 2023). Many utilities from Europe and elsewhere, facing saturated or decarbonizing home markets, looked abroad (including to emerging markets) for new opportunities in renewables. This confirms that the energy transition has become a strategic driver of cross-border M&A and venturing activity within the energy sector. Lately, many European companies have established renewable portfolios through acquisitions and joint ventures (IEA,

2023), for example, Enel (Italy) has deployed renewable projects in dozens of countries, including several in Africa, and has partnered with sovereign funds like Qatar’s QIA to support this expansion.

Emerging markets play a dual role in the energy transition. On one hand, many emerging economies in Africa and the Middle East are richly endowed with solar and wind resources – for instance, the Middle East and North Africa have vast deserts ideal for solar farms, and parts of Africa have world’s best wind corridors. This resource potential is attracting global investors seeking to develop large-scale projects (e.g., Morocco’s solar projects, Egypt’s Benban solar park, or wind farms in Kenya and South Africa). On the other hand, emerging markets often have the fastest growing energy demand due to population and economic growth. The International Energy Agency (2022) projected that Africa’s electricity demand will double by 2040, and meeting that sustainably implies a major scale-up of renewables (IEA, 2022). Although international renewable investment has begun flowing more into emerging regions, the distribution remains highly uneven. More than 70% of the world’s population – mostly in developing and emerging economies – received only around 15% of global renewable energy investments in 2022, while the bulk of investment continued to flow to a handful of countries such as China, the United States, Europe, India, and a few others (IRENA, 2023). The graph below clearly shows that the major amount of investment in renewable energy was destined to the regions of East Asia and Pacific, North America and Europe.

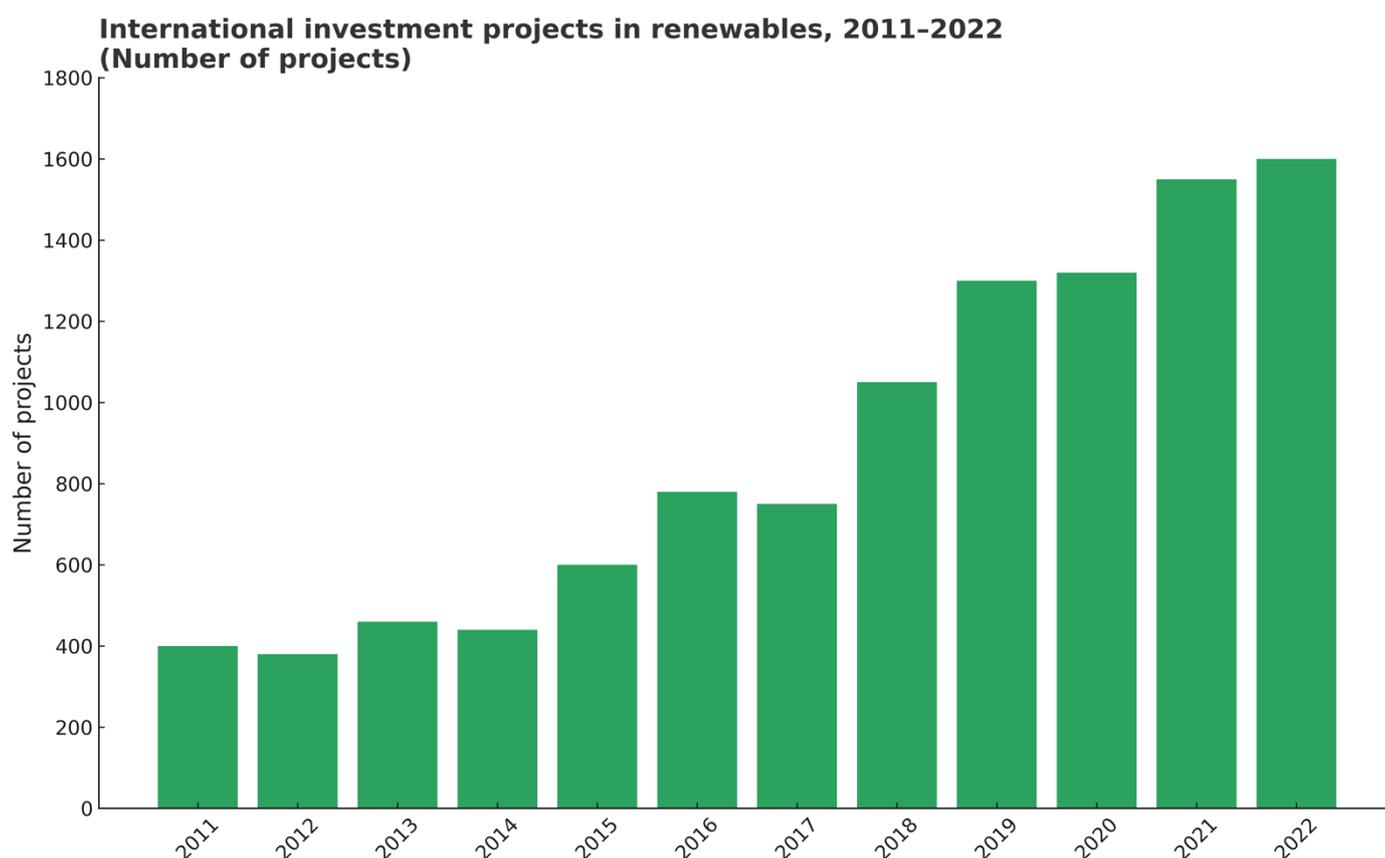
**Figure 5: Investment in Renewable Energy by Region of Destination, adapted from IRENA, Global Landscape of Renewable Energy Finance, 2023.**



From an FDI perspective, the energy transition has resulted in a global redistribution of capital, FDI in clean energy has increased even though the global FDI has been fluctuating, and investments in renewable energy remained on an increasing trend over the years (UNCTAD, 2023). Over 50 percent of the world investments in new power projects in 2019 was in renewable energy and foreign firms were sponsors in approximately 40 percent of all renewable energy projects worldwide (UNCTAD, 2020). In developing nations, the dependence on foreign capital on renewables is even higher, foreign investors made up more

than 70% of renewable project investment in those countries. This data highlight that the energy transition in most emerging markets is significantly being funded and driven by FDI and foreign investments, due to local capital limitations and technology gaps.

**Figure 6:** *International investment projects in renewables, 2011-2022, adapted from UNCTAD, World Investment Report 2023: Investing in Sustainable Energy for All. Geneva: United Nations, 2023, p 35.*



Another dimension to be considered is the concept of stranded assets and long-term risk: as the world transitions, assets like coal-fired power plants or even oil extraction projects may lose value or become obsolete. This risk is prompting energy firms to pivot their portfolios toward future-proof investments: renewables. International diversification in renewables can also spread risk, as policies and market conditions differ across countries.

The energy transition is closely linked to global policy frameworks (Paris Agreement, SDGs). There is increasing coordination through initiatives like the UN's Sustainable Energy for All, and financing initiatives via climate funds, etc., which often encourage or de-risk private investment into renewables in poorer countries. For major firms, partnering with such initiatives or tapping into blended finance can be part of their strategy to enter challenging markets (e.g., using World Bank guarantees as mentioned, or working on projects co-financed by development banks).

#### **1.4.2 ESG Considerations and Corporate Strategy**

Environmental, Social, and Governance (ESG) considerations are a now core of the business strategy, especially for energy firms, because of their environmental impact and transition. ESG criteria are

relevant for investors and stakeholders, since they serve as a benchmark in determining the long-term sustainability and risk exposure of firms (Friede, Busch, & Bassene, 2015). In the case of energy companies, the environmental aspect, including reductions of emissions, biodiversity, and resource efficiency, is of critical importance, but the social and governance factors, such as community engagement and transparency, also play a vital role.

Companies with strong ESG profiles, have improved access to capital and reduced financing costs since they are perceived in a better position by the markets towards a carbon constrained future (Giese et al., 2019).

Sustainable finance is growing, with green bonds and climate linked loans, a World Bank (2023) report underlines that, being aligned with ESG principles, makes it easier to attract development finance, a critical factor when investing in renewable energy investments in emerging countries (World Bank, 2023).

The decarbonization policies are a clear example of how ESG can be operationalized in the business strategy. Major energy companies have committed themselves to net-zero targets, directing their capital into renewables, storage, and new technologies, this reallocation is not only a reaction to climate regulations and international agreements but also a strategic operation aimed at ensuring long-term competitiveness. In Africa and the Middle East, solar and wind resources are plentiful, but risks are high, therefore companies with a strong ESG profile, have greater ability to secure foreign investment and build trust with governments and communities on the ground. Development financial institutions and multilateral banks, which frequently fund large-scale projects in these areas, often require compliance with environmental and social safeguards, with corporate ESG practices aligned with development targets of the host country.

To conclude, ESG factors have started to play a crucial role in the internationalization decisions of energy companies by affecting how they allocate capital, their access to finance and their relationships with stakeholders. As large firms consider investing in renewables in Africa and the Middle East, a good ESG performance is not only an asset, but a necessary condition to obtain legitimacy and resources in a challenging institutional context. Considered this, the environmental, social, and governance practices can be both a constraint and an enabler of international expansion, directly influencing the way firms approach and build up their foreign entry strategies.

### ***1.4.3 Opportunities and Challenges in International Expansion***

The companies planning to invest in Africa and the Middle East in solar and wind face great opportunities and major challenges, and weighing correctly both sides is crucial.

Opportunities	Challenges
<p><b>High Growth Markets:</b> Fast population and economic growth lead to an increasing energy demand and deficits, contrarily to saturated developed markets. Sub Saharan Africa, where electricity consumption per capita is low, but growth is projected to be high, holds long term opportunities. The Middle Eastern economies such as Saudi Arabia and the UAE are shifting towards renewables and opening large scale projects.</p>	<p><b>Political and Regulatory Risk:</b> Uncertainty, policy fluctuations, and poor governance threaten long-term investments. The ability to convert currency and repatriate profits also complicate the viability of the project.</p> <p><b>Bureaucracy and Corruption Risk:</b> Delayed project implementation may be caused by lengthy permitting processes and fragmented institutions that can also increase compliance risks are also under laws like US FCPA or UK Bribery Act.</p>
<p><b>Resource Endowment:</b> Solar and wind resources in the Sahara belt, Arabian Peninsula, and parts of Africa are world-class, resulting in high-capacity factors and low-cost projects. Record-low solar tariffs in the UAE and Saudi Arabia are a clear example.</p>	<p><b>Off-taker and Credit Risk:</b> State-owned utilities, often loss-making, raise concerns about timely PPA payments. Cross currency mismatch (e.g. domestic revenues against foreign debt) increases the risk even more.</p>
<p><b>First-mover Advantage:</b> Companies entering the market earlier have the opportunity to secure prime locations, influence regulation and build credibility. The completion of the first utility scale project can establish long term relationship with governments and off takers.</p>	<p><b>Infrastructure Gaps:</b> Weak grids and slow logistics stall delay power evacuation and increase the cost, particularly in large wind operations.</p> <p><b>Local Capacity and Supply Chain:</b> Shortages in skilled labour and suppliers often force firms to train or import expertise, while local content rules increase complexity.</p>
<p><b>International Support:</b> Development banks and climate funds (e.g., IFC, AIIB, Green Climate Fund, Power Africa) provide concessional finance and guarantees, reducing risk and cost.</p>	<p><b>Financing Challenges:</b> Long-term project finance is constrained because of high cost of capital and limited capacity of local banks.</p>
<p><b>Strategic Partnerships:</b> Partnering with the sovereign funds and local champions (e.g. Masdar, ACWA Power), spreads risk and ease the entry into broader markets.</p>	<p><b>Competition:</b> Intensive bidding, especially by state-subsidized firms with lower costs of capital could erode margins.</p>
<p><b>Policy Trends:</b> Many emerging economies are launching auctions, feed-in tariffs, and renewable targets, providing attractive policy frameworks and positive entry opportunities.</p>	<p><b>Social and Environmental Factors:</b> When not approached well in advance through community engagement, land use conflicts and environmental impacts (e.g., bird migration, water use) can result in community opposition or delays.</p>

*Table 1: Opportunities and Challenges in International Expansion*

International expansion in renewables offers vast opportunities but also major risks. Success depends on leveraging supportive policies, financing tools, and partnerships, while mitigating political, financial, and operational risks through careful structuring and local engagement.

## **1.5 Global Trends in Renewable Investments**

Having examined FDI dynamics in the energy sector, this section provides a clearer picture of what the global trends are in renewable investments, focusing on growth in solar and wind, emerging destinations, and the role of key industry players.

### ***1.5.1 Growth in Solar and Wind Investments***

Investment in solar and wind energy developed at very high rates in the last decade, reflecting a shift in the energy investment scenario. Solar PVs and wind power are gaining a crucial role in the new power sector development, becoming central options. Some of the major trends that clearly show the growth in solar and wind investments globally include:

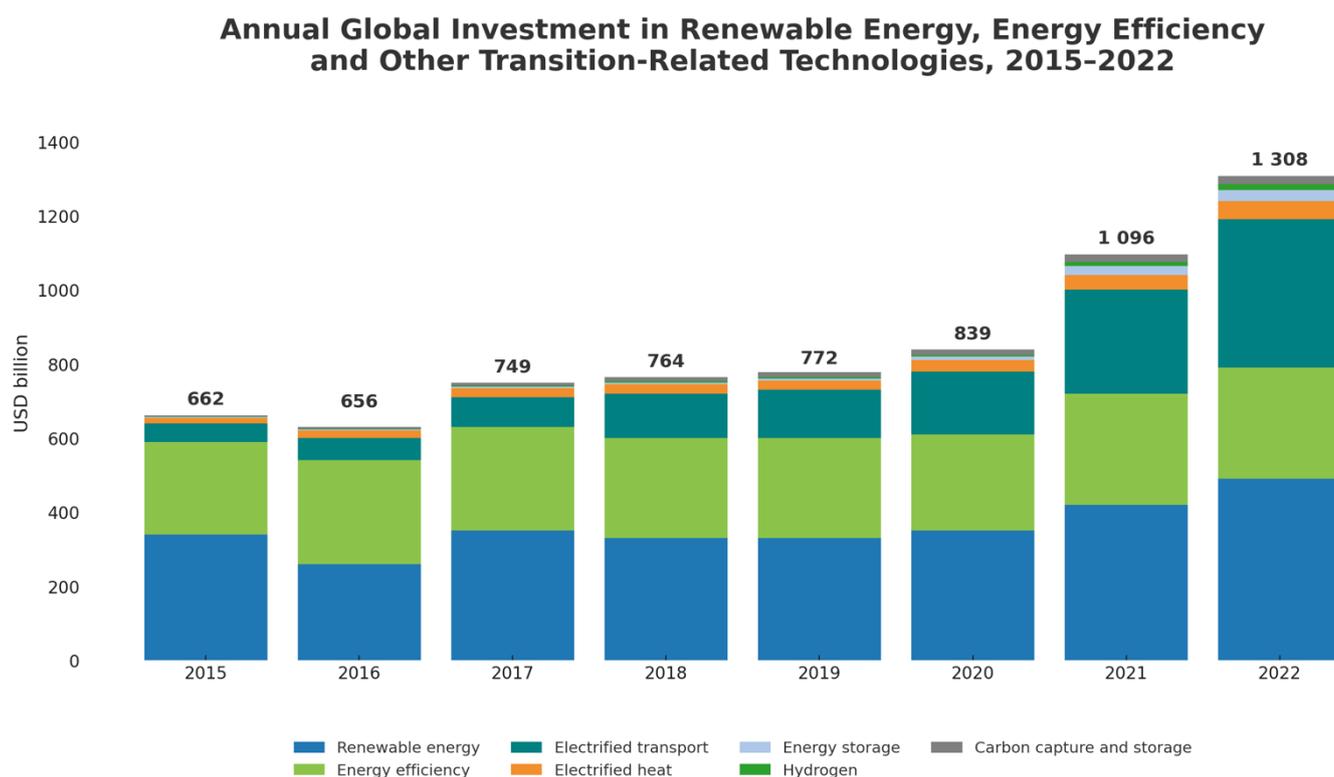
**Surging Installed Capacity:** In 2024, solar and wind are the fastest growing sources of electricity generation capacity. By the end of 2023, the aggregate solar PV capacity was nearly 1,419 GW and wind power 1,017 GW (IRENA, 2024). In this perspective, solar PV was only about 40 GW globally in 2010, an increase of more than thirty times in just a decade, wind was 180 GW in 2010, now again more than five times that value. Such massive growth has been enabled by constant annual capacity additions: in 2023 alone, 345 GW of solar PV and approximately 75 GW of wind have been added globally (IRENA, 2024). As already mentioned, most of the new power investments in 2023 have been in the form of renewable energy (primarily solar/wind) totalling 86% of the capacity additions (IRENA, 2024).

**Decreasing Costs:** A key driver to the current high level of investment in solar and wind has been their rapidly falling costs, which made them an affordable energy source, the record shows that the cost of electricity (LCOE) in utility-like solar PV dropped by an average of 82 percent between 2010 and 2019 (IRENA, 2020), and it continued to decline through the early 2020s. Onshore wind LCOE fell ~39% in the same 2010–2019 period (IRENA, 2020). These cost reductions have been propelled by technological improvements, economies of scale in manufacturing, more efficient supply chains, and greater developer experience. As a result, solar and wind are often the cheapest sources of new electricity. In 2020, IRENA reported that 56% of newly commissioned utility-scale renewable plants (solar/wind) had power costs lower than the cheapest new fossil fuel option (IRENA, 2020). By now, that percentage is likely even higher. Record-low auction prices have grabbed headlines: solar projects have achieved tariffs under 2 US cents per kWh in locations like UAE, Saudi Arabia, and Chile, and onshore wind for around 3 cents in places like Brazil. Such figures were almost unthinkable a decade ago. This cost competitiveness has drawn investment from not only traditional utilities but also oil majors, tech companies (through power purchase agreements

for green power), and financial investors.

**Investment Volume:** Investment flows into renewables have been rising. Global investment in energy transition technologies (renewables, efficiency, etc.) hit a record \$1.3 trillion in 2022 (IRENA, 2023), with renewables accounting for a significant share. Specifically, annual investments in just renewable energy capacity (excluding other transition tech) have been on an upward trend – by 2022 it was estimated at around \$0.5 trillion. Solar and wind are the most usual investments: in 2020, solar PV attracted 43 percent of all renewable energy investment, wind (onshore and offshore combined) about 47 percent, leaving just about 10 percent invested in other renewables (such as hydro, bioenergy, etc.). Furthermore, such investments are proven to be resilient, even during challenges such as the COVID-19 pandemic, the overall global renewable energy investment has not declined; in fact, during the period of 2020/2021, renewable energy investment continued strongly and, in many markets, it even increased (UNCTAD, 2021).

**Figure 7:** Annual Global Investment in Renewable Energy, Energy Efficiency and Other Transition-Related Technologies, 2015-2022, adapted from IRENA (2023). *Global Landscape of Renewable Energy Finance 2023. IRENA and Climate Policy Initiative, Abu Dhabi, p 10.*



**Shift in Investor Profile:** Originally, most of the renewable investments were initiated by specialized developers and utilities. Now, a broader set can be seen: oil & gas companies (e.g., Equinor, TotalEnergies, Repsol each have multi-GW renewable targets), institutional investors and infrastructure funds (attracted by stable yields of renewable projects under long-term PPAs), and corporate buyers (via direct procurement or joint ventures, as companies like Google, Amazon invest in renewables to power their operations). There is

also a surge in Green Bonds issuance: over the last few years, tens of billions in green bonds have been issued to finance renewable assets, allowing institutional fixed-income investors to indirectly fund solar/wind expansion.

**Technology Evolution and Scaling:** Technological improvements have continually increased the energy yield and reduced the cost of solar and wind projects, further spurring investment. Technological advancements have continuously increased the yield of energy and lowered the costs of solar and wind projects, hence driving investment. In solar PV, the world moved from average module efficiencies of ~12% in 2010 to over 20% for commercially available modules now, meaning more power from the same area. Advanced module designs (bifacial panels capturing reflected light, for instance) and tracking systems that rotate panels toward the sun have boosted output. In wind, turbines grew in size: average onshore turbine capacity has risen (now often 3-5 MW each, whereas a decade ago 1.5-2 MW was common), and offshore wind turbines have reached 10-15 MW scale each. Larger turbines mean fewer needed for a given farm size, and rotor diameter and hub height increases have enabled turbines to harness stronger, steadier winds, significantly raising capacity factors. For example, modern onshore wind farms can achieve 40%+ capacity factors in good locations (similar to coal plants in some cases). These technical gains improve project economics and attract more investors as returns solidify. The scaling of manufacturing (particularly in China for solar panels and increasingly for wind components) drove down equipment costs drastically, which combined with lower financing costs in a low interest rate environment (until 2022) made renewables very financially attractive.

**Geographical Spread:** Initially, Europe and the U.S., followed by China, led solar/wind installations. Now, China singlehandedly is the largest investor and installer by far (e.g., in 2023, China added ~150+ GW of solar and ~50 GW of wind alone). However, growth is truly global: India has become one of the largest solar markets; Brazil, Mexico, South Africa, and others had significant procurement rounds; the Middle East sells ultra-cheap solar and is now beginning large wind projects; Southeast Asia, though slower, is starting to invest more (Vietnam had a solar boom in 2019-2020 after introducing a feed-in tariff). The result is that by 2025, more renewable capacity will exist in developing and emerging economies than in developed (though much of that is dominated by China and India) (IEA, 2023).

**Integration and System Investments:** The massive rise of solar/wind also brings the need for investments in grid infrastructure and storage to integrate variable renewables. This is an emerging trend: for instance, grid expansion and upgrades are drawing more investment (in some cases by the same players or by governments). Utility-scale battery storage investments are ramping up (2021 saw record battery deployments, though from a smaller base, in places like the U.S., Australia, China). Some renewable projects now come hybridized with storage to provide firmer power. The broader energy transition investment includes these enabling technologies, and investors see opportunities there too (e.g., specialized

funds for energy storage, or companies like Tesla and others expanding battery manufacturing to meet not just EV but grid storage demand).

**COVID-19 and Recovery:** The COVID-19 pandemic in 2020 briefly disrupted supply chains but overall renewables proved resilient. Many governments included green recovery measures – for example, the EU’s recovery fund had a substantial green component, and the US in 2022 passed the Inflation Reduction Act which provides \$369 billion for energy security and climate, including major incentives for renewables (European Commission, 2020). These policy moves are set to further accelerate investment in the second half of the 2020s. The prediction is that annual solar and wind investment will continue to rise to meet climate targets, implying perhaps doubling the current annual capacity additions by 2030 (IEA’s Net Zero scenario even calls for roughly 630 GW solar and 390 GW wind per year by 2030 – an enormous scale-up) (IEA, 2021).

To conclude, renewables are now the default choice for new power generation in much of the world. For stakeholders in the energy sector, this trend represents a historic shift in capital allocation, away from traditional fossil projects toward clean energy. Companies are positioning themselves accordingly, and countries are competing to attract renewable investment and build domestic industries around it.

### ***1.5.2 Emerging Markets as Investment Destinations***

Emerging markets are becoming one of the important hubs for the growth of investments in renewable energy, such areas combine vast potential of untapped renewable resources with accelerating energy demand. Below are listed some trends and observations about emerging markets as solar and wind investment destinations.

**Growing Share of Investment:** In the past, most of renewable investments flowed to developed nations and a few to already large emerging economies (China, India, Brazil), now, investment is increasingly moving towards a broader range of emerging markets. The focus on renewable investment in some developing economies has also increased sharply: India, for example, continues to be one of the leading countries regarding renewable investment (attracting tens of billions annually as of the late 2010s and early 2020s) with extensive auction initiatives and targets (175 GW renewables by 2022, 450 GW renewables by 2030). The Middle East has turned out to be a solar hot spot for ultra-low-cost solar projects: the UAE, Saudi Arabia, and, more recently, Oman and Qatar have all conducted large-scale auctions awarding gigawatts of solar to foreign consortia, attracting international capital (IRENA, 2023).

**Africa’s Underinvestment and Potential:** Africa, in particular, stands out as a region with enormous renewable potential but currently low investment levels relative to need. UNCTAD noted that in 2023, Africa attracted over \$10 billion in project finance for wind and solar, with major projects in a few countries (Egypt, South Africa, Zimbabwe) (UNCTAD, 2024). FDI flows to Africa in clean energy have begun to pick up – for instance, Egypt has become a magnet with projects like Benban Solar Park (1.5 GW) which involved numerous foreign investors, and announcements of green hydrogen projects worth tens of billions. South Africa’s REIPPPP attracted around \$16 billions of FDI over a decade in renewables (with many

international participants). Morocco and Kenya have also drawn investment due to strong policies. However, a number of African countries have seen minimal renewable FDI to date. The reasons vary: some are very low-income and perceived high risk, some lack enabling policies or have small power systems that make large projects hard to integrate, and others have utilities in financial distress deterring investors.

**South-South Investment:** An interesting trend is the rise of investors from emerging markets themselves in cross-border renewable investment. Chinese companies have been extremely active – they not only lead domestically but also abroad, through involvement in projects funded under initiatives like the Belt and Road, or by winning competitive bids (Chinese firms have won tenders in Latin America, Middle East, Africa due to cost competitiveness and experience). For instance, Shanghai Electric and other Chinese firms are building some of the big Dubai solar projects. Likewise, companies from the Middle East (fuelled by petrodollar diversification) are investing in other emerging markets – Masdar from UAE and ACWA Power from Saudi have projects across the Middle East, North Africa, and beyond (e.g., Masdar in Uzbekistan solar and wind, ACWA in South Africa’s renewables, etc.). These South-South flows are important because they sometimes come with higher risk tolerance or state backing, addressing some hurdles that purely private Western investors might balk at.

**Challenges Holding Back Investment:** Despite the progress, emerging markets still face issues that temper investment inflows. This suggests many investors still concentrate on a few markets where risk is moderate and returns acceptable (for instance, advanced developing economies like UAE). To remedy this, international bodies and development finance institutions (DFIs) are pushing initiatives to de-risk investments in tougher markets, such as the World Bank’s Scaling Solar program in Africa, which packages together insurance, standardized documents, and DFI financing to make it easier for investors to enter countries like Zambia or Senegal, or the Climate Finance Partnership between BlackRock and governments/DFIs aims to mobilize institutional capital into emerging market renewables by providing a first-loss tranche from concessional sources.

### **Regional Highlights:**

- *Middle East & North Africa (MENA):* Rich in resources and capital, the GCC states (Saudi, UAE, Qatar, Oman) are moving from near-zero to significant capacity within a decade, with both domestic projects and international collaboration (like the cable projects to export solar from MENA to Europe or green hydrogen plans). North African countries (Morocco, Egypt, Tunisia) have strong European ties and have attracted European investor interest (Morocco’s Noor solar complex had foreign investment and loans; Egypt has European, Asian, and Gulf investors in its renewables). For foreign investors, MENA offers generally lower political risk (in terms of contract sanctity in GCC, though some currency risk in North Africa), and very large-scale opportunities as governments there undertake mega-projects.
  - *Sub-Saharan Africa:* As noted, a few countries lead (South Africa, Egypt (though often included in MENA), Morocco, Kenya, Ethiopia to a degree for geothermal/wind). In these, regulatory frameworks exist, and some track record is proven. Others are coming up: e.g.,

Senegal and Zambia have gotten solar under Scaling Solar at around 4-5 cents/kWh which is competitive; Nigeria just saw a surge in off-grid solar investment due to policy support for rural electrification. But broadly, Sub-Saharan Africa still only had about 2% of global renewable capacity in 2024 (excluding North Africa) and needs a tripling by 2030 to meet development and climate goals (Ecofin agency, 2025). The gap indicates an opportunity – given the right conditions, Africa could be a major destination for investment because of its huge unmet demand and resource richness - 60% of best solar resources, but minimal current capacity (IEA, 2022).

**Increasing Private Sector Role:** In many emerging markets, historically electricity was the domain of state utilities and donors. With renewables, a distinct trend is the opening for private sector involvement (via IPPs). Over Independent power producers are now widespread in emerging economies' renewables, bringing in FDI. Many countries that once relied on public generation now use IPP models, which is a shift in mentality and policy. This is partly out of necessity as governments realize they alone cannot finance the needed capacity, and partly due to the attractiveness of cheap renewable power bids delivered by competition.

To conclude, emerging markets are both the greatest opportunity and the greatest challenge for the future of renewable energy investment. They are where energy demand is growing and where renewables can have outsized benefits (both for development and climate). Those who successfully navigate early could secure strong positions as these industries take off locally. Conversely, not engaging with emerging markets could mean missing out on significant growth areas as developed markets saturate.

### ***1.5.3 Key Industry Players***

The renewable energy sector is characterized by different industry players, each of them with a distinct strategic role.

#### **1. Traditional Energy Majors (Oil & Gas and Utilities):**

- **Oil and Gas Majors:** Established energy corporations such as BP, Shell, TotalEnergies, Eni and Equinor are making a switch to cleaner energy, with the goal of reaching gigawatt-scale of renewable energy by 2030. Entry modes include acquisitions (e.g. Total's stake in Adani Green, SunPower's solar unit); joint ventures (e.g. BP and Lightsource); and green field projects. Shell has grown through JVs for offshore tenders and wind acquisitions (EOLFI, France). Even if they can bring capital and risk management expertise, the market share of renewables still remains minimal in their total spending (IEA, 2023).
- **Utilities:** Among the largest global owners of renewable there are Enel, Iberdrola, EDF, ENGIE, NextEra energy and Chinese state-owned companies (e.g. SPIC, China Three Gorges), Enel Green

Power alone produces over 67 GW all over the globe (Enel, 2023). Utilities prefer to own assets in the long term, which means entering into new markets through greenfield investments, or joint ventures (e.g. Enel with QIA). Iberdrola has expanded through acquisitions (e.g. PNMR in the US), while NextEra controls the solar/wind market (~30 GW) in the US.

## **2. Pure-Play Renewable Developers and IPPs:**

Emerging markets project origination is dominated by specialist firms such as Ørsted (offshore wind), ACWA Power and Masdar (MENA), Mainstream (Ireland), Scatec (Norway) and ReNew and Azure Power (India). They base their strategies on greenfield development, partnerships and government tenders. Masdar works in more than 30 countries through MOUs and joint projects. Ørsted has internationalized through offshore leases abroad in Europe, Asia, and the US. Mainstream and Scatec have been on the lead in the early development of renewables in South Africa, Chile, and Vietnam.

## **3. State-backed and Financial Investors:**

- **Sovereign Wealth & State-Owned:** Gulf funds (QIA, Mubadala) and development banks (JICA, KfW) provide equity or concessional finance, often co-investing for strategic or political goals.
- **Private Equity & Infrastructure Funds:** Brookfield, BlackRock, Actis, and Copenhagen Infrastructure Partners invest via acquisitions or platform creation. Actis has established IPPs which include Lekela Power (Africa) and Atlas (Latin America).

## **4. Manufacturers and EPCs:**

Some equipment makers have moved downstream: Vestas and Siemens Gamesa co-developed projects; Chinese solar companies such as Jinko, formed development teams. Through battery technology, Tesla indirectly shapes renewables. EPCs like ACCIONA and LL sometimes buy equity stakes.

### **Regional Leaders:**

- **China:** Public giants (SPIC, Three Gorges, CGN) dominate internally and grow abroad through Belt and Road projects.
- **Europe:** Enel, Iberdrola, Ørsted, and RWE are leaders, particularly in offshore wind.
- **US:** NextEra and Invenergy are the leading developers; oil majors remain slower.
- **Emerging Markets:** Middle Eastern ACWA and Masdar are broadening in the region. In Africa, IPPs like Globeleq complement incumbents such as Eskom.

### **Collaboration and Competition:**

Meaningful projects are usually delivered via consortia consisting in a combination of local companies, foreign utilities/oil companies, and financial investors. The Mohammed bin Rashid Solar Park (Dubai, 5 GW) is a clear example of these collaboration across phases, with partners such as ACWA, EDF, Masdar, and Chinese partners. European utilities and Chinese companies possess the largest portfolios in the world, followed by US firms and emerging-market specialists.

As illustrated above, different players influence the renewable industry, and the growing competition is pushing the market towards greater innovation, efficiency, and long-term sustainability.

## Chapter 2: FDI in Africa and the Middle East

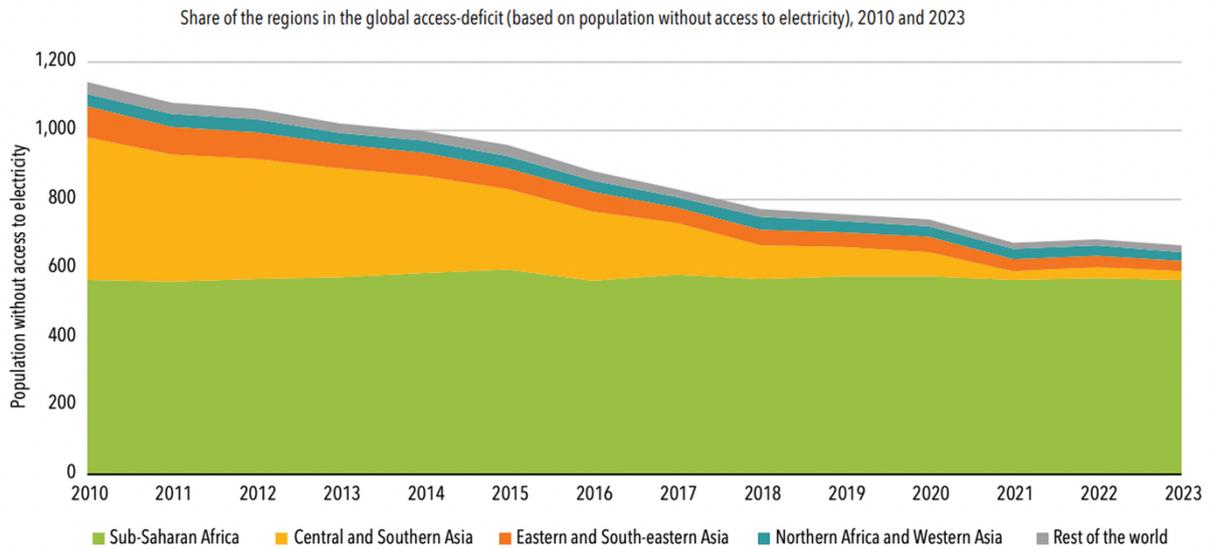
Having outlined the theoretical lenses and sectoral fundamentals, this chapter analyses the empirical context of Africa and the Middle East. The first section studies the energy context of the regions, outlining supply, demand and access fundamentals and the policy and market dynamics the sector. The second section turns to renewable-energy FDI activity, tracing investment growth and financial flows, illustrating major projects and case examples, and identifying the principal players and stakeholders across the value chain. The third section examines how firms actually enter these markets, mapping prevalent entry-mode patterns in Africa and in the Middle East and drawing comparative insights. The final section assesses the operating environment by balancing risks and constraints against incentives and opportunities, and by highlighting innovation, technology, and practical mitigation approaches.

### 2.1 The Energy Market: Characteristics and Trends

This section provides an overview of the energy context in Africa and the Middle East. It first sets out supply, demand and access fundamentals, highlighting Africa's low electrification, rapid demand growth and under-used solar and wind resources versus the Middle East's near-universal access, very high per-capita consumption and growing need to diversify. It then examines the policy and market architecture shaping outcomes: IPPs, PPAs and competitive procurement in Sub-Saharan Africa, and IPP/IWPP frameworks, centralised tenders and targeted regulatory reforms in the Middle East, clarifying their implications on renewable investments.

#### 2.1.1 Energy Supply, Demand, and Access

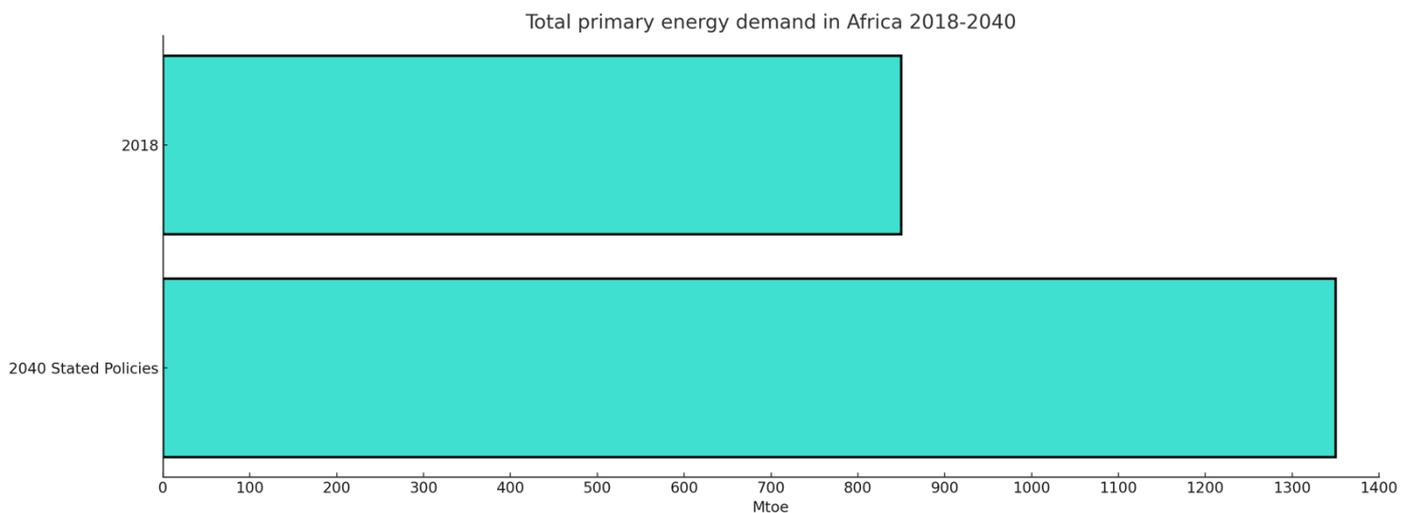
The energy situation in Africa is marked by low per-capita consumption rate, severe shortages of accessibility and a fast-increasing demand (IEA, 2022). As the chart below shows, the lowest rate of electrification in the world is recorded in Sub-Saharan Africa, more than 600 million people, about half of the entire population, remains unconnected to electricity, despite small improvements made over the past few years, it is estimated that nearly 595 million Africans in 2030 will lack of power unless action is taken to ensure that the current trend is reversed (Alex-Oke et al., 2025).



Source: World Bank 2025.

**Figure 8:** Number of people without access to electricity in selected regions, 2010-2023, from IEA, IRENA, UNSD, World Bank, & WHO. (2025). SDG7.1.1 – Access to Electricity 2025. In Tracking SDG7: The Energy Progress Report

Most African nations consume an average of a very small percentage of the world energy consumption, which is a result of both insufficiency of electricity and dependence on biomass. (Mo Ibrahim Foundation, 2022; IEA, 2022) Meanwhile, the growth of population and urbanization is leading to a sharp increase in energy demands. (World Bank, 2024; IEA, 2019) According to projections, the primary energy demand in Africa could grow by almost 50 percent by 2040 with the current policies (IEA, 2019), This is evidenced, the bar is total primary energy demand in 2040 under the IEA STEPS pathway; compared with 2018, demand strongly rises from around 800 Mtoe to more than 1300 Mtoe.<sup>7</sup>



**Figure 9:** Total primary energy demand in Africa 2018-2040, adapted from IEA (2019).

<sup>7</sup> 7 Mtoe equals million tons of oil equivalent, a standard unit that puts all fuels on the same scale (1 Mtoe ≈ 11.63 TWh).

Supply is often unable to keep this pace, power shortages and load-shedding are common in many African countries because of low investments and low power generation; the continent has not leveraged efficiently its abundant natural resources: natural gas, high solar irradiation, and so on; this insight sheds light on the presence of many opportunities to expand modern energy production if investments are executed. (IEA, 2023; World Bank, 2020) The African continent has optimal solar and wind potential, yet it has installed only about 1.7% of global solar PV capacity to date (Alex-Oke et al., 2025).

Similarly, the Middle East and North Africa region have enormous solar endowments – the sunlight falling on the Sahara each day could far exceed Europe’s power needs – but as of 2022 the entire MENA region had only around 17 GW of solar generation (about the same as a single European country like France) (Tanchum, 2024; IRENA, 2025). The table below, adapted from a 2025 IRENA report clearly shows this capacity lack.

## Solar Energy Capacity

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
<b>European Union</b>	86 604	90 182	94 633	102 072	117 646	135 188	160 275	193 942	246 868	304 412
<b>France</b>	7 138	7 702	8 610	9 629	10 738	11 926	14 612	<b>17 350</b>	20 551	21 528
<b>Middle East</b>	1 155	1 623	2 251	3 537	6 079	8 110	10 278	14 208	19 923	23 578
<b>Algeria</b>	62	262	355	367	367	367	451	462	462	462
<b>Egypt</b>	36	59	180	764	1 647	1 643	1 663	1 725	1 856	2 590
<b>Libya</b>	5	5	5	5	5	6	6	8	8	8
<b>Morocco</b>	200	202	204	734	734	774	854	854	854	951
<b>Tunisia</b>	28	38	47	64	80	96	97	199	508	775
<b>MENA</b>	<b>1 486</b>	<b>2 189</b>	<b>3 042</b>	<b>5 471</b>	<b>8 912</b>	<b>10 996</b>	<b>13 349</b>	<b>17 456</b>	<b>23 611</b>	<b>28 364</b>

Source: IRENA, Renewable Energy Statistics 2025

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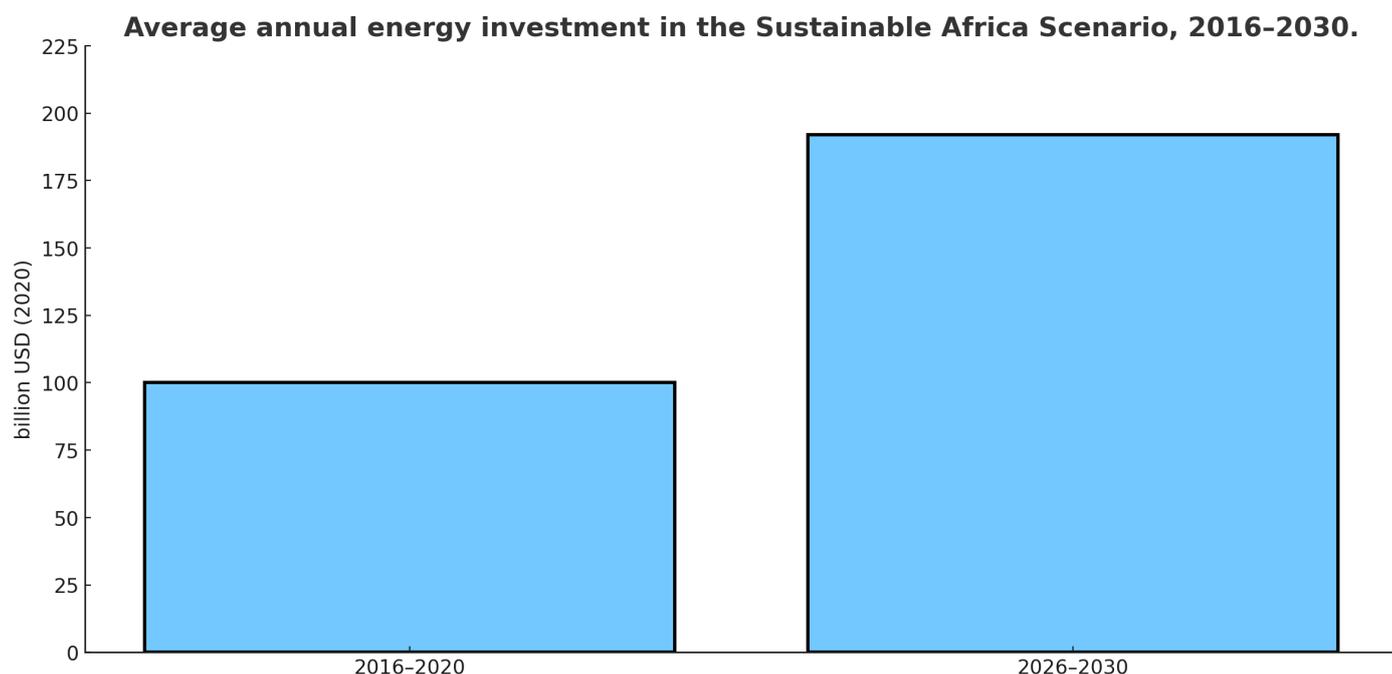
**Table 2:** Solar Energy Capacity, adapted from IRENA (2025)

These insights again shed light on a massive development potential in the provision of clean energy in the two regions (REN21, 2024; IEA, 2023). It is estimated by the International Energy Agency (IEA) that approximately 25 billion dollars per year of energy investment is needed in Africa by 2030 to grow generation and access, a cost that is a very small portion of global energy expenditure, but far higher than the level of investment today. More broadly, (as the graph below shows) according to IEA’s Sustainable Africa Scenario<sup>9</sup>, to achieve Africa’s energy and climate goals over 190 billion dollars per year are required in

<sup>8</sup> Data shown in MegaWatts (MW); 1000 MWs = 1 GW.

<sup>9</sup> IEA’s Sustainable Africa Scenario (SAS) is a normative pathway outlining how Africa can meet all energy-related goals on time—including universal access to electricity and clean cooking by 2030—while fully implementing its climate pledges; it’s a goal-consistent roadmap (not a forecast) that quantifies the policies and investment required.

2026–2030 (about two-thirds for clean energy), roughly 6.1% of Africa’s GDP yet only around 5% of global investment in the IEA’s Net Zero pathway (Alex-Oke et al., 2025; IEA, 2023).



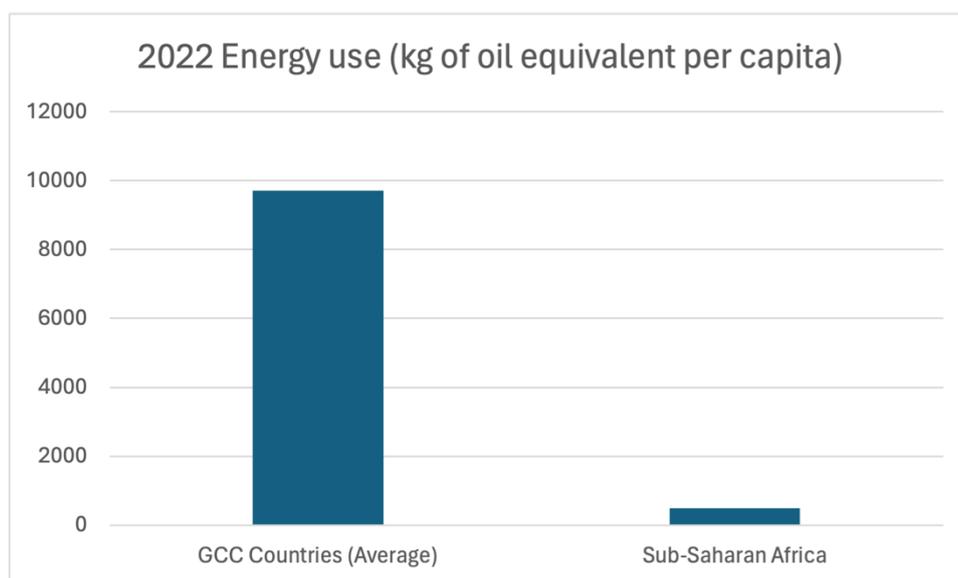
**Figure 10:** Average annual energy investment in the Sustainable Africa Scenario, 2016–2030, adapted from IEA (2025).

Conversely, the majority of countries in the Middle East have almost universal access to electricity and high per-capita rates of energy use but have different issues of supply and demand (Kim & Shin, 2025; IEA, 2022). The states of the Gulf Cooperation Council (GCC) are especially characterized by the highest energy consumption rates in the world due to oil-based economic development and the existence of highly subsidized energy prices (IEA, 2022). As shown in the table below, the GCC average was computed from Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates using the World Development Indicators on the World Bank Data portal (indicator EG.USE.PCAP.KG.OE, i.e., energy use per capita measured in kilograms of oil equivalent). The series extends only to 2022 due to data unavailability at the source; even within this window, per-capita energy consumption in the GCC is substantially higher than the Sub-Saharan Africa average.

**Energy use (kg of oil equivalent per capita)**

	2015	2016	2017	2018	2019	2020	2021	2022
<b>Bahrain</b>	10405,6	9878,7	9444,4	9533,9	10388,2	10832,9	10666,1	10701,8
<b>Kuwait</b>	9731,5	9684,9	9526,7	9772,0	8352,8	8871,9	8570,6	9129,6
<b>Oman</b>	6027,4	5557,3	5765,2	5543,5	5104,1	5696,2	5933,5	5867,3
<b>Qatar</b>	16427,8	15178,9	16718,2	16139,8	15760,7	14869,3	17100,8	16683,7
<b>Saudi Arabia</b>	7786,9	7521,6	7707,1	7650,7	7668,2	7170,9	7465,9	7529,6
<b>United Arab Emirates</b>	10146,4	10355,5	8521,1	8482,3	8816,5	8154,4	8674,2	8335,8
<b>GCC Countries (Average)</b>	10087,6	9696,1	9613,8	9520,3	9348,4	9265,9	9735,2	<b>9708,0</b>
<b>Sub-Saharan Africa</b>	501,1	503,0	492,7	482,5	490,6	475,1	484,9	<b>482,3</b>

*Table 3: Per-capita energy use for GCC members and Sub-Saharan Africa, 2015–2022*



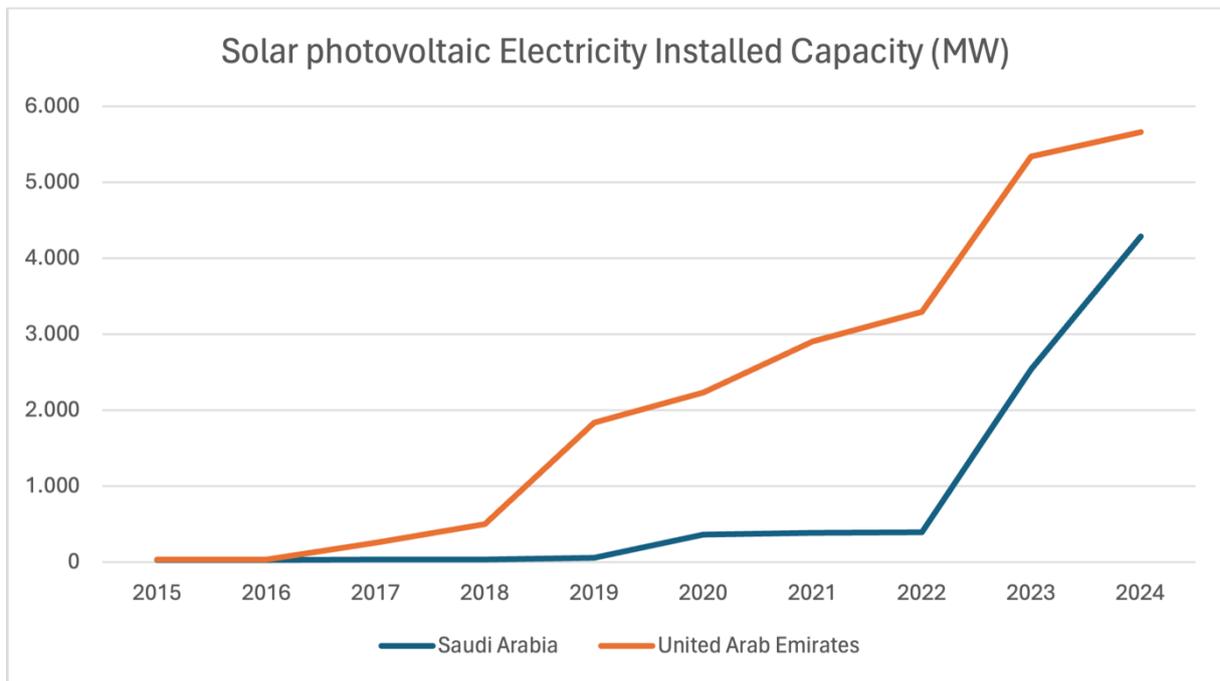
**Figure 11:** Bar chart of 2022 per-capita energy use (kg of oil equivalent), comparing GCC countries (average) with Sub-Saharan Africa.

The average electricity access in the Middle East and North Africa (MENA) exceeds more than 95 percent of the population worldwide, except in areas of conflict (Kim and Shin, 2025). In the past, hydrocarbons have dominated energy supply in this region, more than 90 percent of the power installed in MENA has been fossil-fuel-fired (Kim and Shin, 2025). This history of plentiful domestic oil and gas has given rise to a stable electricity supply but created also carbon intensive systems and increasing domestic fuel consumption (REN21, 2024). Today, the governments of the Middle East are dealing with the increased demand of power (which is increasing at an average of 3 percent in most states) as well as with the necessity to diversify the energy sources (IEA, 2022; REN21, 2024). To counter this, many nations such as Saudi Arabia and the United Arab Emirates have started investing in massive solar power plants to enhance supply and export oil and gas (Alfehaid & Young, 2024; REN21, 2024). These investments are shown in the table and chart below, data were extracted from IRENA’s IRENASTAT PxWeb table, “Electricity statistics by Country/area, Technology, Data Type, Grid connection and Year” (filters: Solar photovoltaic → Electricity Installed Capacity (MW); Countries: Saudi Arabia and United Arab Emirates; Years: 2015–2024), compiled into a table, and plotted in a corresponding chart.

#### Solar photovoltaic Electricity Installed Capacity (MW)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Saudi Arabia	24,25	24,25	34,37	34,37	59,37	359,37	389,37	389,87	2535,37	4290,37
United Arab Emirates	31,42	35,3	253,36	499,78	1835,12	2232,49	2902,27	3296,2	5342,3	5659,2

**Table 4:** Solar PV electricity installed capacity (MW) in Saudi Arabia and the United Arab Emirates, 2015–2024. Source: IRENASTAT (end-of-year values).



*Figure 12: Solar PV installed capacity (MW), Saudi Arabia vs UAE, 2015–2024 — both trends upward; UAE leads overall, with rapid late-period growth in Saudi Arabia.*

In general, the problem of basic access to energy is not that challenging in the majority of the Middle East, but the issue of this region is to make the increase of generation capacity sustainable to address the demand growth in the future, decrease the use of fossil fuels, and improve the further long-term energy security (REN21, 2024).

African nations must address fundamental supply shortages and connect hundreds of millions to modern energy services (Alex-Oke et al., 2025). Middle Eastern countries must manage demand growth and transition their established energy systems towards cleaner sources. These differing environments create chances for foreign direct investment in the energy industry: in Africa, there is a critical capital requirement to develop generation and grids to reach under-served populations, and in the Middle East, it is possible to invest in diversification and efficiency improvements in relatively well-developed markets (UNCTAD, 2024).

### **2.1.2 Policy and Market Dynamics**

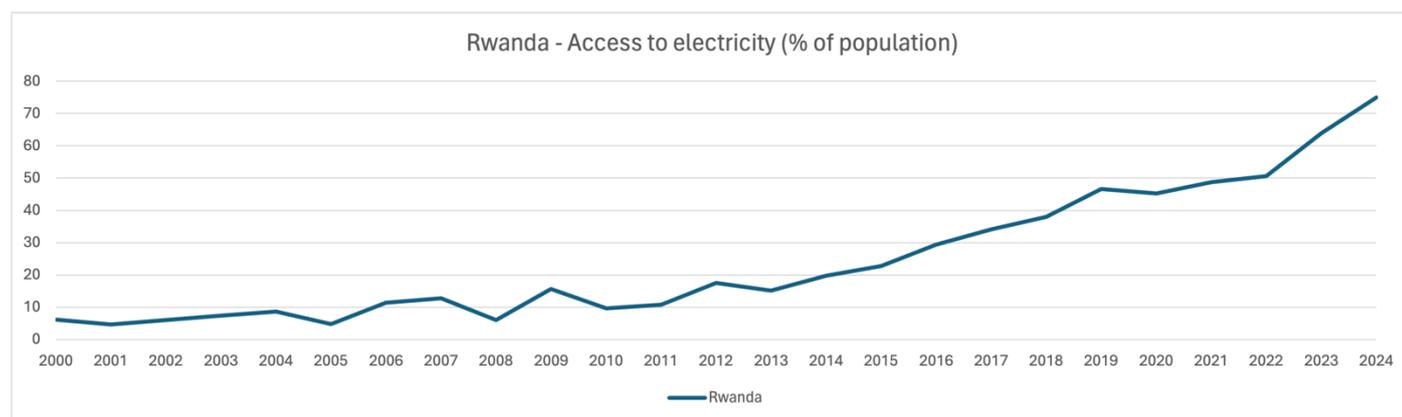
The African and Middle Eastern nations have taken different policy directions in developing their energy markets particularly on the participation of the private sector (Eberhard et al., 2014). Since the 1990s power sector reforms in Sub-Saharan Africa have progressively opened up to independent power producers (IPPs) and foreign investment, albeit in sporadic and uneven ways (World Bank, 2020). A large number of nations privatized state-owned utilities into independent generation, transmission, and distribution entities and formed electricity regulatory authorities to regulate tariffs and procurement. In mid-2010s, almost 60 IPPs had been developed in sub-Saharan Africa (excluding South Africa), ending the monopoly of state generation in many countries (Eberhard et al., 2017). In 2011, the South African Renewable Energy Independent Power Producer Procurement Programme (REIPPP) brought a landmark to competitive

auctions of renewable energy in Africa (Eberhard et al., 2014). In its first decade, more than 30 billion USD of private investment was provided to 92 solar and wind projects through REIPPPP (approximately 12 GW capacity) (Eberhard et al., 2017). The achievements of this program, established on transparent tenders and 20-year power purchase agreements (PPAs) with government guarantees, illustrated how predictable policy frameworks can massively mobilize FDI. Clear and bankable PPAs are commonly interpreted as the key to attract investors, and robust institutions are required with stable and non-punitive regulation to stimulate private finance (Baumli & Jamasb, 2020). A case in point is a feed-in tariff that was adopted in Rwanda in 2012 which assisted in triggering a surge in private investment and led to an increase in electrification (from 6% in 2008 to 75% in 2024) (Esom, 2024). The data below were downloaded from the World Bank’s World Development Indicators for Rwanda (indicator EG.ELC.ACCS.ZS: Access to electricity, % of population). The series (2000–2024) was compiled into a table and plotted in a chart.

#### Access to electricity (% of population)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Rwanda	6,2	4,7	6	7,4	8,7	4,8	11,4	12,8	6	15,6	9,7	10,8	17,5	15,2	19,8	22,8	29,4	34,1	38	46,6	45,2	48,7	50,6	63,9	75

**Table 5:** Rwanda access to electricity (% of population), 2000–2024.



*Figure 13: Rwanda, graph showing the increase of access to electricity in the past years.*

A wider shift towards competitive procurement across Africa has taken place in recent years, countries such as Zambia, Senegal, and Ethiopia have been implementing models of auction for solar and wind, making possible record-low renewable prices with the assistance of development finance institutions. (REN21, 2024) In general, although the paths of reform vary, the African trend has been towards market-driven approaches supported by government guarantees and donor-backed risk mitigation, with the aim of promoting foreign investment into power generation (World Bank, 2020).

The dynamics of the energy market in the Middle East have been more centrally planned but with gradual liberalization (Eyges, 2012). Traditionally, the electricity industries in the Gulf and most MENA states were controlled by state owned vertically integrated utility companies and there was little-to-no foreign ownership (Eyges, 2012). In the last 20 years, the Middle Eastern governments have, however, unveiled the models of public-private partnerships in order to increase generation capacity, especially under the IPP/IWPP

(Independent Water and Power Producer) model (Whitney, 2020). The single-buyer IPP model, initially pioneered in Abu Dhabi in the late 1990s, has been used throughout the whole GCC (Eyges, 2012). In this model, a new power project is normally tendered to a consortium of foreign and local firms by the state utility, which will have a majority equity ownership and will purchase all the output through long-term PPAs. All the IPPs are owned by the government of Abu Dhabi by 60 percent, while the other 40 percent is held by foreign partners (Eyges, 2012), this structure, coupled with sovereign guarantees of payments, has assured investors in a market that would be otherwise controlled by the state. As a result, the GCC countries have managed to draw in leading international power developers and finance institutions to build large power plants (including renewables) under build-own-operate contracts (Whitney, 2020). Government policy in the Middle East has also driven rapid adoption of competitive bidding for renewables (REN21, 2024). Ambitious national targets, such as the United Arab Emirates' goal for 50% clean electricity by 2050 and Saudi Arabia's Vision 2030 renewable goals, are implemented via centralized procurement programs, (United States Department of Commerce, 2025; Alfehaid & Young, 2024). Saudi Arabia created a dedicated Renewable Energy Project Development Office to oversee tendering, and countries like the UAE, Oman, and Jordan have all run multiple auction rounds for solar and wind. These tenders have delivered some of the world's lowest-cost renewable power. In 2020 a joint venture of EDF (France) and JinkoSolar (China) won Abu Dhabi's Al Dhafra solar project with a tariff of just \$13.5 per MWh (1.35 US cents/kWh), a world record low price at the time (Whitney, 2020). Such outcomes reflect strong competition under clear rules, abundant cheap financing, and the favourable solar conditions of the region. Middle Eastern governments have further supported renewables by enacting regulatory reforms (for instance, allowing 100% foreign ownership of renewable ventures in special economic zones, or introducing net metering programs in markets like Dubai and Jordan). Nonetheless, the state still retains a leading role, with measures such as local content requirements or directing investment by state-controlled organizations, so that the involvement of the private does not conflict with national targets (Alfehaid & Young, 2024). To conclude, the policy trend in the Middle East can be defined as a controlled liberalization: generation has been opened to foreign investors in the form of well managed PPP agreements and competitive tenders, while using long-term plans and targets to drive along the market. This balance has enabled the Middle East states to exploit private capital and expertise to meet the growing demand requirements and start the development of renewable energy, all under a close government regulation (Whitney, 2020).

## **2.2 FDI in Renewables in Africa and the Middle East**

Having examined the market context, this section analyses FDI in renewables across the two regions, detailing investment growth and financial flows, major projects and case examples, and the key players and stakeholders.

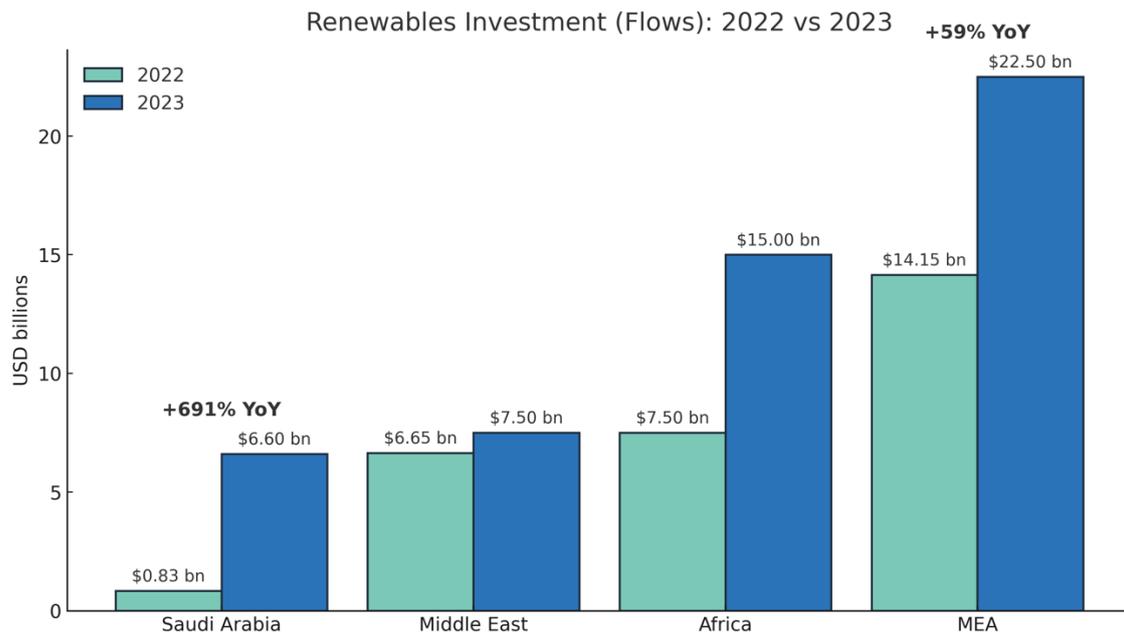
### ***2.2.1 Investment Growth and Financial Flows***

Foreign investment in renewable energy has surged in both Africa and the Middle East over the past decade, although from a very low base and still at levels far below what is needed to meet development and

climate goals. In the early 2010s, annual renewable energy investments in Africa were negligible – often only a few small projects per year – but have grown exponentially as policies improved and costs fell (REN21, 2024; UNCTAD, 2024). By 2020s, multi-billion renewable projects started to flow into Africa, in 2023 a record of approximately 15 billions of investments in renewable energy was registered in the continent, which is more than two times higher than the sum reached in 2022 (BloombergNEF, 2024). This was driven by a handful of large utility-scale solar and wind projects reaching financial close in countries like Egypt, Morocco, Kenya, and South Africa (BloombergNEF, 2024). North African economies in particular have drawn substantial FDI into renewables – for example, Morocco’s solar and wind programs and Egypt’s Benban solar park (one of the largest in the world) were financed by consortia of foreign investors and development banks (UNCTAD, 2024; IFC, 2017). South Africa has also been a major recipient, accounting for a significant share of renewable FDI through its competitive IPP procurements. Even smaller economies are now on the radar: in West Africa, Senegal and Côte d’Ivoire have seen their first utility-scale solar farms financed by foreign capital in recent years, and countries like Namibia and Mauritania are leveraging foreign investors for ambitious green hydrogen plans (World Bank, 2020; UNCTAD, 2024).

This rise in renewable energy FDI has similarly occurred in the Middle East in the late 2010s and early 2020s (REN21, 2024). In historical terms, the region had not been very dependent on foreign capital in power generation as most of the projects were financed by domestic oil revenues, however, this situation has changed due to the shift to renewables and sheer scale of planned capacity.

In 2023, combined investment in renewable energy across the Middle East and Africa jumped 59% to reach about \$22.5 billion (REN21, 2024). Saudi Arabia became the region’s largest destination for clean energy investment that year, with an estimated \$6.6 billion committed – a 691% increase over the prior year as the kingdom’s renewables program ramped up (REN21, 2024). International investors also contributed with large sums to the development of large solar parks and wind power plants in the United Arab Emirates and Egypt. The figure below shows this clearly, data were taken from REN21 (2024) for MEA totals and year-on-year change and from BloombergNEF (2024) for Africa. The 2022–2023 bars highlight the jump in Saudi Arabia (+691%, to \$6.6 bn) and the MEA-wide increase (+59%, to \$22.5 bn), both shown as annual investment flows.



**Figure 14:** Annual investment flows; MEA= Middle East + Africa. Sources: REN21 (2024); BloombergNEF (2024).

Nevertheless, the combined Middle East and Africa still contributed just about 3.6 to the annual global investment in renewable energy in 2023 (REN21, 2024), highlighting the continued under-investment compared to the demands and potential of these regions. It is estimated that 1.7 trillion of clean energy investments are needed by developing nations annually, yet only 544 billion was invested in clean energy FDI in 2022, and only a small portion of it was directed to Africa or the Middle East (UNCTAD, 2023). Several high-profile projects illustrate the new scale of FDI flows into renewables. In Africa, a consortium of foreign firms has announced plans for a \$34 billion green hydrogen project in Mauritania – a single investment that dwarfs the country’s GDP and exemplifies investors’ growing appetite for Africa’s renewable potential (UNCTAD, 2024). Similarly, international investors have committed over €2.3 billion to Morocco’s Noor Ouarzazate solar complex (580 MW) and about \$0.8 billion to Kenya’s Lake Turkana wind farm (310 MW) in recent years, blending equity from European utilities with loans from development banks (UNCTAD, 2024). In the Middle East, foreign-invested mega-projects have also proliferated: the Al Dhafra PV park in Abu Dhabi (2 GW) – backed by French and Chinese investors – and Saudi Arabia’s Dumat al-Jandal wind farm (400 MW) and Sakaka solar plant (300 MW) (each developed by international consortia) – have brought in hundreds of millions of dollars in FDI (Whitney, 2020; REN21, 2024). The region is also seeing FDI in manufacturing linked to renewables; for instance, a \$6.4 billion electric vehicle battery factory was announced in 2023 in Morocco to build on the country’s clean energy and critical minerals strengths (UNCTAD, 2024). Another feature of renewable FDIs in such regions is that they are highly characterized by the presence of public finance and non-traditional investors alongside commercial players. Renewable projects are commonly de-risked for private investments by co-financing them with multilateral development banks and export credit agencies. Such blended finance has been a very significant factor in the investment in renewable energy in Africa and the Middle East (REN21, 2024). This is evident in many deals: the World Bank’s IFC and European development finance institutions have provided debt or guarantees for

numerous African solar parks, while Japan's and China's export-import banks have funded large Middle Eastern projects (IFC, 2017; Kiryakova et al., 2025). These partnerships mean that FDI flows in renewables are not solely coming from traditional multinational energy companies, but also from state-backed enterprises and South–South investors. Chinese state-owned companies and banks have become key participants: China is the largest exporter of solar panels and wind turbines in the world, and almost one-third of all Chinese foreign energy financing over the last decade has been directed to African activities (Kiryakova et al., 2025). At the same time, Gulf investors are increasingly active across the wider region: UAE's Masdar and Saudi Arabia's ACWA Power (both government-linked entities) have invested in renewable projects in North Africa, the Middle East, and even sub-Saharan Africa. Other large foreign investors in African and Middle Eastern clean energy assets also include European renewable developers such as EDF Renewables, Enel Green Power and TotalEnergies, which leverage their technical expertise and climate commitments (REN21, 2024).

Notably, the main economies holding FDI stock in Africa's energy sector – the UK, France, the US, and China – are now channelling a growing share of those investments into renewables rather than fossil fuels (UNCTAD, 2024). Despite this gaining momentum, the current state of renewable energy FDI is still not as high as it needs to be in order to pursue transformational energy transition in these areas: the investments growth has been concentrated in quite few countries. Three-quarters of recent renewable FDI in Africa has been concentrated in only four countries (South Africa, Morocco, Egypt, and Kenya), because of more developed policy frameworks and market size of those countries. Smaller or poorer African states have not experienced important foreign-financed investment yet due to high-risk perception or lack of project pipeline. In the Middle East, investment has so far been largely focused in the wealthier GCC states and a few frontrunners like Jordan and Morocco, while countries with unstable political environments (such as Yemen, Syria, or Libya) have unsurprisingly lagged. The challenge ahead is how to scale up and broaden the distribution of renewable FDI. However, the trend is obviously positive: investment in renewable power in Africa and the Middle East has almost tripled since mid-2010s (UNCTAD, 2023), these areas are already firmly relevant in the international landscape of clean energy investments and in the future the international financial flows will increasingly contribute to fund the massive growth of solar, wind, and other renewables needed across Africa and the Middle East.

### ***2.2.2 Major Projects and Case Examples***

The growth of foreign direct investment (FDI) in renewable energy in Africa and the Middle East has been rapid over the last few years, characterized by some high-profile projects and an international mix of investors. In Africa, a defining example is the emergence of mega-projects in clean energy. The continent attracted at least six greenfield renewable “megaprojects” each valued above \$5 billion in 2023. Topping these was an enormous green hydrogen venture in Mauritania, expected to mobilize \$34 billion, an investment volume several times the country's GDP (UNCTAD, 2024). This is a project driven by international developers that highlights the magnitude of the new opportunities in the energy transition in Africa. Similarly, over \$10 billions of wind and solar generation projects came to a financial close during

2023 with the biggest installations located in Egypt, South Africa, and Zimbabwe (UNCTAD, 2024). For instance, the Benban Solar Park (1.65 GW), one of the largest solar farms in the world situated in Egypt, was built through a consortium of more than 30 foreign and Egyptian firms that mobilized more than 4 billion dollars in international funding (IFC, 2017). This is a clear example of how African countries are using FDI to deliver utility-scale renewables. Another important program is the Renewable Energy Independent Power Producer Programme (REIPPPP) of South Africa initiated in 2011 that has attracted many foreign independent power producers. Over its initial bidding rounds, 64 renewable projects were awarded involving more than 100 different shareholder entities, including international utilities, developers, and financiers. Major global energy firms – Italy’s Enel, France’s EDF, Ireland’s Mainstream Renewable Power, among others – have become key players in South Africa’s wind and solar sector, often partnering with local firms. This competitive IPP program demonstrates how a transparent framework can channel substantial foreign capital into clean power (over \$13.7 billion by 2014) while driving down costs (Eberhard et al., 2014). North African countries have likewise drawn marquee foreign investors through large-scale renewable initiatives. Morocco’s Noor Ouarzazate solar complex (580 MW CSP/PV) – spearheaded by a consortium including a Saudi utility (ACWA Power), a UAE investor (Masdar), and European partners – exemplifies cross-border collaboration in financing and expertise (UNCTAD, 2024). Morocco has, in fact, been the continent’s top recipient of solar energy finance (over \$3 billion in the last decade), supported by European lenders like the EIB (Lartey, 2024). China has also become a prominent player in North Africa’s renewables. Substantial Chinese FDI has flowed to Moroccan projects and to Egypt’s renewables sector, reflecting China’s expanding influence (Kiryakova et al., 2025). In Egypt, regional investors from the Gulf are especially noteworthy – Bahrain has emerged as the single largest source of renewable FDI into Egypt, highlighting the importance of intra-regional capital (Lartey, 2024). Indeed, Middle Eastern (Gulf) investors are increasingly funding Africa’s green energy. The United Arab Emirates and Saudi Arabia have committed hundreds of millions of dollars to African solar and wind projects, seeing Africa’s vast solar resources as a strategic opportunity (REN21, 2024). For instance, UAE’s Masdar has partnered on projects in Egypt, Morocco, and Mauritania, while Saudi firms have explored green hydrogen ventures in North and West Africa (Alfehaid & Young, 2024). This South–South investment trend signals new key players on the continent beyond the traditional Western sources.

Turning to the Middle East region, FDI in renewables has also gained momentum, albeit in a context often dominated by state-led projects. Gulf Cooperation Council (GCC) countries historically relied on government utilities, but the past decade introduced Independent Power Producer (IPP) models that welcome foreign equity participation (Whitney, 2020). The United Arab Emirates and Saudi Arabia, in particular, have tendered massive solar and wind projects that brought in foreign partners (REN21, 2024). In Saudi Arabia’s 400 MW Dumat Al Jandal wind farm (the country’s first utility-scale wind project) a consortium of France’s EDF Renewables and UAE’s Masdar financed and built the project under a long-term contract. Similarly, the UAE’s Mohammed bin Rashid Solar Park in Dubai (targeting 5 GW) has seen phases developed by consortia involving foreign firms (such as EDF and ACWA) alongside the local utility DEWA. These examples

indicate how foreign energy firms have turned into co-investors in GCC renewables, typically through joint ventures with state-linked companies. Out of the Gulf, Jordan and Morocco have actively attracted foreign developers through renewable energy auctions and through public-private partnerships (REN21, 2024). The solar and wind IPPs in Jordan have drawn the attention of European, Chinese, and Arab investors, leveraging strong power purchase agreements in order to raise funds (World Bank, 2020).

Key corporate players across the Middle East's renewables now include European utilities (e.g. EDF, Engie, Enel), Asian companies (e.g. JinkoSolar from China supplying UAE projects), and regional energy companies (e.g. ACWA Power of Saudi, which invests in solar parks across MENA). Notably, Masdar (UAE) and ACWA (Saudi) have become internationally active renewable investors, acting both as hosts and sources of FDI – for example, Masdar has stakes in projects from Jordan to North Africa, while ACWA has led bids in Morocco and South Africa. The Middle East's oil majors are also entering renewables: TotalEnergies and BP have begun funding solar ventures in the Gulf, seeing the region's ample solar irradiation as a profitable arena (REN21, 2024).

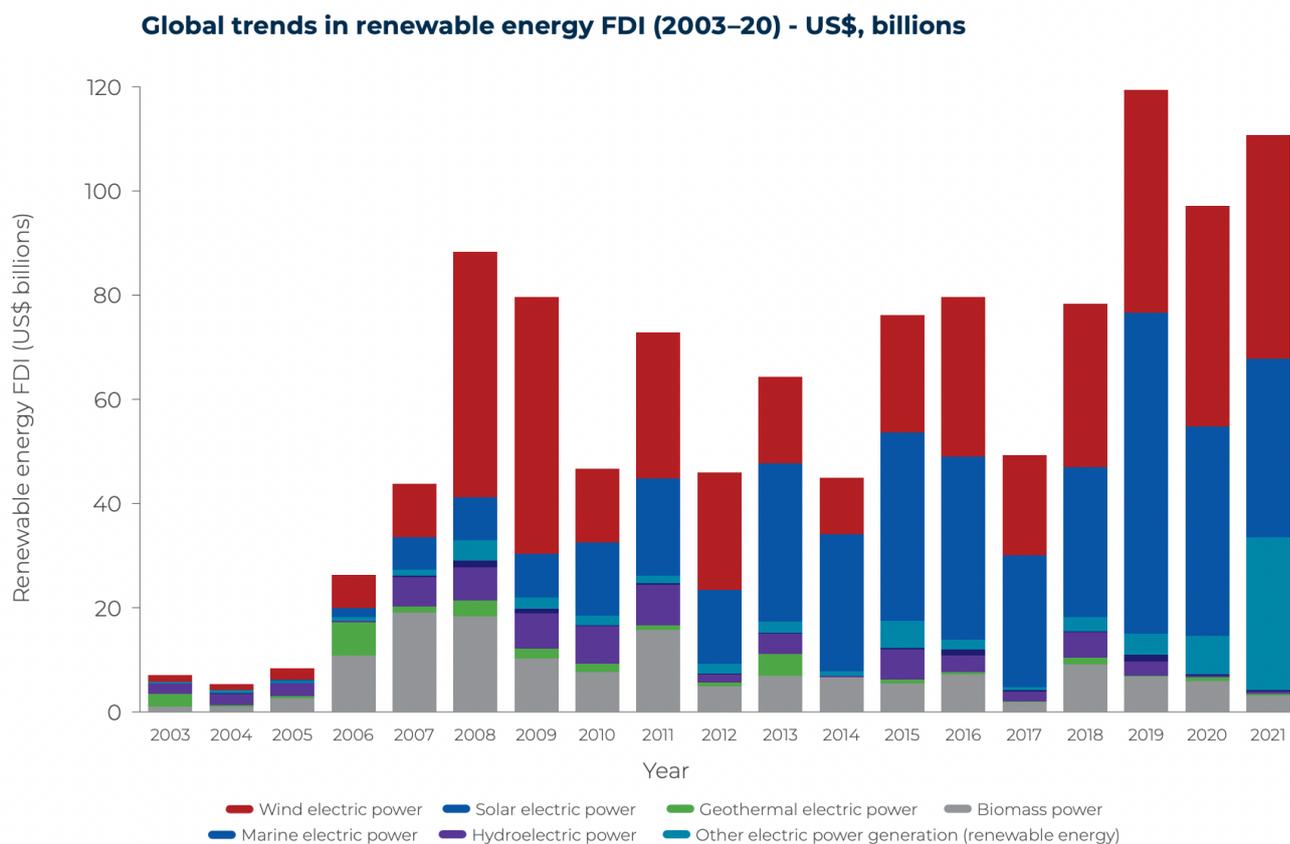
Collectively, these case examples underscore a broader trajectory: foreign investment in African and Middle Eastern renewables is now driven by a mix of industrialized-country firms, emerging market financiers, and regional players. The European nations (particularly the Netherlands, France, and the United Kingdom) own the biggest shares by FDI stock in Africa, followed by the United States and China (UNCTAD, 2024). Meanwhile, China's role has rapidly expanded: Chinese companies and banks have financed numerous large hydro, solar, and transmission projects (often as part of the Belt and Road Initiative), such that one-third of China's Belt and Road projects in Africa now centre on renewable energy or related infrastructure (Kiryakova et al., 2025). The Gulf states are also crucial new investors: the UAE and Saudi Arabia have injected capital into North African solar plants and even into sub-Saharan ventures as part of their global diversification strategies. In summary, the key players in renewable FDI span multinational utility companies, specialized renewable developers, sovereign wealth and state-owned enterprises, and multilateral financiers. Africa's primary FDI recipients – South Africa, Egypt, Nigeria, and Morocco – have each cultivated a network of foreign partners: e.g. South Africa's IPPs draw on investors from Ireland, France, Italy, Saudi Arabia, and the US, Nigeria's nascent renewables see interest from North America (USA, Canada), while Morocco benefits from Chinese and European capital (Lartey, 2024).

### ***2.2.3 Historical Trajectory of Renewable Energy FDI in Africa and the Middle East***

The historical trend on renewable energy FDI in Africa and Middle East indicates that there is a late but accelerating uptake, with very distinct phases in the last twenty years (UNCTAD, 2024). At the beginning of the 2000s-decade, foreign investment into the power sector in the region was relatively low and focused exclusively on standard energy and large hydropower (often with the support of state funding or development assistance) (World Bank, 2020). There were limited renewable projects, which usually were either donor funded pilot projects or small-scale private ventures.

As the chart below shows, in mid-2000 the world of renewables has been characterized by sharply growing

investments because of the decreasing prices of both wind-turbines and solar PV technology, but Africa and the Middle East initially captured only a tiny share of this boom (IEA, 2023).



**Figure 15:** Global trends in renewable energy FDI; from World Bank, 2023 - data source: *fDi Markets, a Financial Times data set.*

Between 2004 and 2009, the majority of renewable FDI was directed towards Europe, North America, and emerging Asia because of a lack of policy regimes and relatively high-risk perception by investors in Africa/Middle East. However, by 2010 there was a shift towards clean energy in developing countries because of international climate trends and instability of oil prices, in Both Africa and the Middle East FDI in renewables started to pick up pace during the decade (IEA, 2023; UNCTAD, 2024).

Countries like South Africa (from 2011) and Morocco (from 2009) launched competitive renewable procurement programs, which markedly increased foreign investor participation. South Africa’s REIPPPP, as already mentioned, catalysed over \$15 billion in private investments (domestic and foreign) in less than a decade (Eberhard et al., 2014). Likewise, Morocco’s 2010s solar and wind projects attracted consortium investments from Europe, the Gulf, and China (UNCTAD, 2024). A range of other achievements defined the direction: Egypt adopted feed-in tariffs (2014), then competitive auctions, enabling the gigantic Benban solar park by 2019 with a wide international support. (World Bank, 2020)

Jordan and UAE in the mid-2010s also began awarding renewable IPP contracts to foreign-led consortia, normalizing FDI in a sector once dominated by state utilities (Whitney, 2020). As a result, annual renewable FDI project counts in the Middle East & Africa rose significantly after 2012, in line with a global upward trend (UNCTAD, 2024). By the late 2010s, Africa and the Middle East were hosting some of the world’s largest single-site renewables (e.g. Morocco’s Noor, UAE’s Sweihan solar PV), signalling a new era of

investor confidence (REN21, 2024). By 2019–2021, Africa attracted less than 2% of worldwide clean energy spending, reflecting the continued disparity in capital flows.

In the following decade, renewable FDIs in the areas has further quickened but without symmetry. Despite pandemic related conditions slowed investment in 2020 (as many new project announcements stalled around the world at the time), investment recovered firmly in 2021–2022: as mentioned earlier, in 2024 there was a record FDI inflow in Africa. Renewable energy was the only industry where there was a significant growth of project finance in Africa in 2024 with seven major deals totalling around 17 billion dollars (e.g. offshore wind and grid infrastructure in Egypt, and solar farms in Namibia and Tunisia) (UNCTAD, 2025).

This indicates a historical shift from sporadic projects to multiple big-ticket investments in a single year. Middle Eastern countries, meanwhile, have raised their renewable targets (e.g. Saudi Arabia's 50% clean power by 2030 goal) and begun integrating renewables into long-term economic strategies, drawing more foreign partnerships in the process (Alfehaid & Young, 2024). The announcement of green hydrogen projects – such as the \$8.5 billion NEOM hydrogen plant in Saudi Arabia (backed by foreign investors from the US and others) – illustrates the new frontier of FDI in the region. The historical trajectory can thus be summarised as a late start followed by exponential growth: where virtually no large foreign-funded renewables existed in Africa/Middle East circa 2000, today both regions host multiple multi-billion-dollar renewable investments. Importantly, this trajectory has been underpinned by improving policy environments and global technology trends, but also remains fragile. Africa's clean energy investment, for example, is still only 0.6% of global total (as of 2021), up from near-zero in the early 2000s (UNCTAD, 2023). Nevertheless, the clear upward trend in the 2010s and early 2020s suggests that renewable FDI, once a marginal phenomenon, is becoming an integral component of the development pathway in Africa and the Middle East (UNCTAD, 2024).

### **2.3 Entry Mode Patterns in the Energy Industry**

Having mapped flows and the historical trajectory of FDI, this section analyses entry-mode patterns in the renewable energy industry, identifying prevalent approaches in Africa and in the Middle East and drawing comparative insights.

#### ***2.3.1 Prevalent Entry Modes in Africa***

FDI entry modes in the renewable energy sector in Africa is significantly influenced by the necessity of dealing with risk management and host country requirements, therefore there is a predominance of green field investments through joint ventures or building of a consortium based new project companies (Oguji & Owusu, 2021).

Given that most renewable capacity in Africa is newly built (rather than acquired), foreign energy firms typically enter through greenfield projects – establishing a local project company (often as an independent power producer, IPP) to build and operate a solar farm, wind park, or other facility (REN21, 2024). These project companies frequently involve joint ownership between the foreign investor and local partners. One common structure is a public–private partnership (PPP) model, where the foreign firm partners with a host-

government entity or state utility in a project. For example, in Kenya's Lake Turkana Wind Power project (310 MW), foreign developers and financiers (from the Netherlands, Denmark, etc.) established a consortium with Kenyan investors to spread equity and risk, based on a government-offtaker PPA (World Bank, 2020). These consortia are common in African IPPs, enabling foreign companies to merge capital and expertise with local knowledge and political support.

In South Africa's REIPPPP, regulations actively encouraged this mode: bidders had to include local shareholding (including community trusts and black-owned enterprises), which led to almost every foreign investor teaming up with local partners (Eberhard et al., 2014). As a result, the entry mode was typically a joint venture SPV (special purpose vehicle) where the foreign developer might hold 40–60% and local entities the remainder, ensuring both compliance and a degree of local buy-in. Foreign firms may prefer JVs in Africa to obtain local knowledge, assist in dealing with regulatory authorities, and perhaps enhance the project acceptance (so-called "local legitimacy") (Oguji & Owusu, 2021).

Greenfield wholly-owned subsidiaries – where a foreign company sets up an African affiliate and retains 100% ownership – have been less common in renewables, but not absent. In relatively stable markets with supportive policies, some large international developers have established fully owned project companies. For instance, a few European renewable firms in North Africa and anglophone Africa have built projects as wholly foreign-owned IPPs when regulations permit. However, even in these cases, foreign investors often engage local subcontractors or co-investors to some extent. The complexities of Africa's business environment (from bureaucratic red tape to community relations) mean that having a local partner can significantly facilitate project execution. Moreover, several African countries informally favour joint ventures – while they may not mandate local equity, they may offer faster permitting or public support to projects with domestic participation (World Bank, 2020). Mergers and acquisitions (M&A) as an entry mode – i.e. foreign investors buying existing local renewable assets or firms – have been relatively limited in Africa's renewables, mainly because the industry is young and most capacity is new. There have been instances of brownfield acquisitions, such as private equity funds acquiring operational solar plants from the original developers. For example, the UK-based private equity fund Actis created a platform (Lekela Power) that acquired and operated wind farms in Egypt, Senegal, and South Africa, before selling the portfolio to African investors. Such M&A deals are growing in number as early projects mature, but they still lag greenfield entry (UNCTAD, 2024). The dominant pattern is that foreign companies enter to develop new projects from scratch, rather than to purchase existing ones, given the scarcity of established renewable assets on the market in Africa.

Within greenfield investments, consortium entry is a hallmark of African renewables. In large projects, a consortium of foreign and local players with their respective strength is common; in a solar IPP, the consortium might be composed by a foreign developer (lead equity sponsor), a technical partner (perhaps the supplier of the PV panels or an EPC contractor), local investors (to address empowerment or local content requirements) and a development finance institution (to source subordinate debt or equity). This multi-

partner structure spreads risk and capital requirements – crucial in African contexts where single investors may be wary of taking on full exposure.

For instance, Morocco's Noor solar project company had about 25% ownership by the Moroccan agency MASEN and 75% by a group led by ACWA Power (Saudi) alongside Spanish and other partners – a structure that helped secure international loans on favourable terms (UNCTAD, 2024). Another common entry mode can be made by partnering with state-owned enterprises (SOEs), there are cases in countries such as Ethiopia and Ghana when foreign firms conclude JVs with the national power utility or the sovereign investment fund for renewable projects. Overall, the prevalent entry mode for energy firms in Africa's renewable sector is partnership-based greenfield investment. This choice is an indicator of the risk profile and regulatory environment in the continent. The entry mode through collaboration enables foreign companies to share the risks associated with the market and with politics and this factor plays a critical role with countries having a changing regulatory environment or limited enforceability of contracts (World Bank, 2020).

In addition, many African markets are small or developing; entering with a local partner can help foreign companies navigate customer relations, community engagement, and government expectations more effectively (addressing external legitimacy concerns). Even highly experienced international developers (from Europe, China, etc.) usually seek a local joint venture when entering sub-Saharan markets – for example, Enel Green Power (Italy) partnered with Ethiopian firms for a solar project bid, and TotalEnergies (France) has co-developed projects in Ghana with local IPPs (REN21, 2024). The joint venture mode is thus not only imposed by policy but often chosen as a strategic entry approach. Exceptions exist, such as foreign firms operating wholly owned subsidiaries in more investor-friendly environments like South Africa's commercial/industrial solar market, but they are in minority. Overall, African FDI renewable environment is characterized by a combination of foreign capital and local partnerships that is manifested in greenfield joint ventures, consortia, and PPPs (World Bank, 2020).

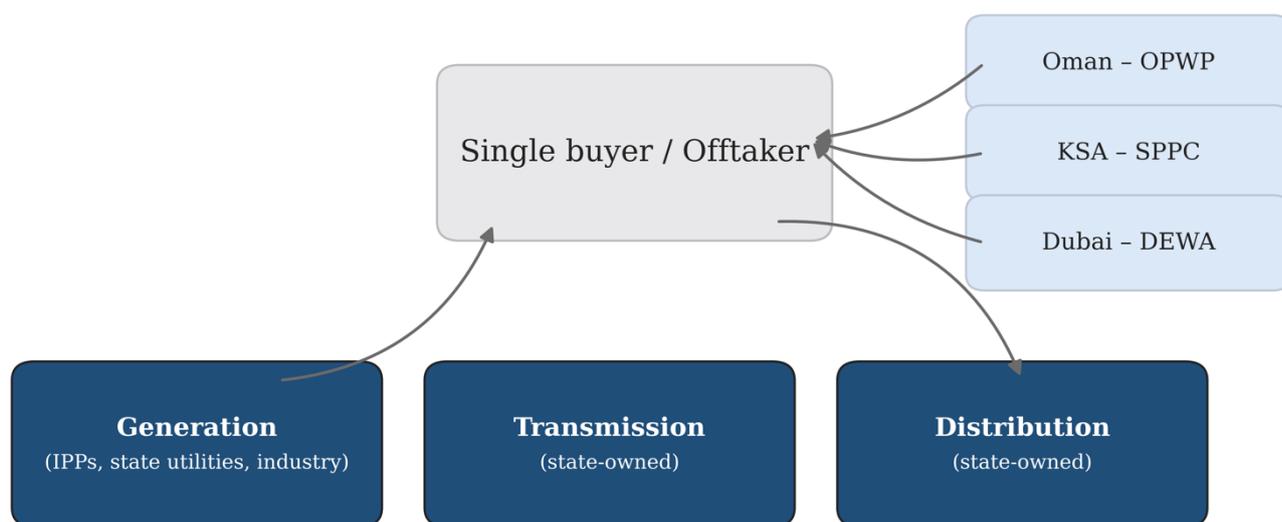
### ***2.3.2 Prevalent Entry Modes in the Middle East***

The unique political economy and market structure of the Middle East have conditioned the choice of entry modes in renewable energy. The states that form the Gulf Cooperation Council (GCC), including Saudi Arabia, the UAE, Qatar, Oman, Kuwait, and Bahrain, traditionally operated electricity industry in the form of monopolies (Eyges, 2012). Turning to renewables, these countries have followed an independent power producer (IPP) approach which remains highly state-oriented, but open to foreigners.

As mentioned before, a hallmark entry mode in the GCC is the joint venture IPP: foreign energy firms enter via project-specific joint ventures with local government entities or their nominees. Typically, the host country's utility or a sovereign investment arm retains a majority stake (often around 50–70%) in the project company, while the foreign investor (or a consortium of investors) holds the remaining equity. The entry mode is thus a public–private joint venture under a long-term concession/PPA, the foreign firm gains access to the market and a share in project revenues, while the host government maintains control and assures alignment with national interests. Such JV IPPs tend to be modelled as Build-Own-Operate (BOO), or Build-

Own-Operate-Transfer (BOOT) projects where the consortium has a defined time to operate the plant (typically 20-25 years) on contract (Whitney, 2020). This mode has proven very successful in attracting FDI to GCC renewables, given the low political risk and creditworthy off takers in these countries. Indeed, the GCC’s IPP framework, pioneered in the 1990s for conventional power, has been a key factor enabling foreign investment in renewables by providing stable, long-term project finance arrangements. In most GCC systems, renewable IPPs transact with a single buyer/offtaker rather than a competitive wholesale market. Generation (IPPs and state plants) signs long-term PPAs with the single buyer (e.g., Oman’s OPWP; Saudi Arabia’s SPPC; Dubai’s DEWA), which then supplies state-owned transmission and distribution companies, this structure supports the JV BOO/BOOT concessions discussed above.

## The single-buyer model



10

**Figure 16:** The single buyer/offtaker model common in GCC electricity markets: generation sells to a central buyer (e.g., OPWP, SPPC, DEWA), which serves state-owned transmission and distribution.

Outside the Gulf, other Middle Eastern countries have seen a mix of entry modes. Jordan and Morocco (often grouped with MENA) have liberalized their power sectors more fully, allowing wholly foreign-owned IPPs in renewable generation (REN21, 2024). In Jordan’s renewable energy program, for instance, several solar and wind farms are 100% owned by foreign firms or foreign-dominated consortia (e.g. developers from Europe or Asia setting up a local subsidiary as the project company). However, even in these cases, foreign investors frequently engage in informal partnerships with local stakeholders – for example, hiring local developers or taking on minority local shareholders – to smooth permitting and community relations (World Bank, 2020). Egypt provides an interesting hybrid: during its solar Feed-in-Tariff round (2014–2015), Egypt permitted foreign companies to own projects outright in renewable energy zones. Consequently, numerous wholly foreign project companies (from Europe, Asia, GCC) were established for 50 MW solar plants at the Benban park. Yet, when Egypt moved to competitive bidding, a consortium approach re-emerged, with bids

10 OPWP = Oman Power and Water Procurement Company; SPPC = Saudi Power Procurement Company; DEWA = Dubai Electricity and Water Authority.

often coming from joint ventures (e.g. Scatec Solar (Norway) partnered with local firm Orascom for several projects). This indicates that while formal rules might allow 100% foreign entry, in practice consortia and joint ventures remain prevalent to pool resources and meet implicit expectations (such as involving local contractors or financiers) (IFC, 2017).

In North African countries like Algeria and Tunisia, governments initially insisted on majority local ownership for renewable projects. For example, Algeria for years mandated a 51% local to 49% foreign ownership structure for strategic sectors (including power), forcing foreign renewable investors into minority joint ventures with Algerian public or private entities. This significantly limited pure foreign ownership entry. Tunisia similarly has used competitive tenders that favour bids with local partnership. As a result, the common entry mode in these countries has been minority foreign stakes in joint project companies, or foreign technical involvement with local equity leadership. However, these policies are evolving as governments recognize the need for more foreign capital; Tunisia recently eased some restrictions to allow up to 100% foreign project ownership in renewable generation. In practice though, even where 100% foreign-owned entry is allowed, foreign firms often voluntarily partner with local investors for risk-sharing and to satisfy “local content” preferences (e.g. employing local staff, sourcing locally).

Merger and acquisition (M&A) entry in Middle Eastern renewables has been limited but is emerging. Because many Middle East renewable projects are backed by governments or recent IPPs, outright acquisitions are less common (one cannot “buy” a state solar plant in the Gulf, for instance, as it’s structured via contracts). That said, in secondary markets like Jordan or Egypt, some foreign investors have acquired stakes in operational renewable assets from other private owners. For example, in 2021, UAE’s Masdar purchased a 50% stake of a 500 MW Egyptian wind facility that was previously owned by another consortium, effectively entering through acquisition (REN21, 2024).

Also, intra-regional acquisitions occur: Qatar’s Nebras Power has purchased shares in Jordanian and Omani independent power companies, making it an investor through acquisition. These cases, while notable, remain far fewer than greenfield joint ventures. The prevalent mode is still entry at project inception rather than via later-stage takeover.

Consortium bidding is another feature of Middle Eastern entry modes. For large projects, foreign companies often form consortia among themselves to bid. In Saudi Arabia’s renewable tenders, for example, it is common to see a foreign developer consort with a foreign equipment manufacturer and a local Saudi company (for political/contracting support). An illustration is the Sakaka solar project in Saudi Arabia: ACWA Power led the bid but partnered with international technology firms, spreading roles among the consortium members. Similarly, Dubai’s solar park Phase IV (700 MW CSP + PV) was won by a consortium of ACWA (Saudi) and Shanghai Electric (China) – a cross-border partnership entering together. These temporary consortium arrangements serve as entry vehicles that often solidify into the project company’s ownership if successful (Whitney, 2020).

In conclusion, the most predominant entry mode of foreign investors in renewable energy in the Middle East- and the gulf in particular- is in the form of joint venture with local state or private partners. This kind

of model fits well into the historical preference of the region of sharing ownership with the locals and keeping control of critical infrastructures.

### ***2.3.3 Comparative Insights***

A comparison of entry modes in Africa and the Middle East shows that there are similarities in the dependency on partnership-based investment and differences that arise due to the regulatory regimes and the level of maturity of the market. Green field developments are prevalent in the two regions in terms of renewable energy FDI, foreign investors usually come in by establishing new project companies to develop generation assets. Similarly, joint ventures and consortium structures are widespread (being the preferred vehicles) in Africa and the Middle East. The root causes are similar: the intense capital intensity and risk nature of energy projects motivate the risk-sharing among more than one sponsor, and host governments are often willing or even need local inclusion due to politics and economics (World Bank, 2020).

In Africa and the Middle East alike, it is uncommon to see a lone foreign company unilaterally developing a large renewable project without any local partners or co-investors. Project finance principles further reinforce this convergence: banks financing these projects feel more secure when reputable local stakeholders or government-backed entities are part of the deal, reducing counterparty risk. In this way, the entry through consortiums has been the standard in both settings, ensuring that FDI is not just a foreign implant, but rather embedded in the local context.

Despite these similarities, there are remarkable differences, one key divergence is the role of the state as an equity partner. In the Middle East (and GCC in particular), foreign entrants nearly always enter directly into a partnership with state-owned utility (or a sovereign) that assumes an equity interest (often majority) in projects. This institutionalized public-private entry mode is a hallmark of Gulf renewable projects (Whitney, 2020). In contrast, across much of Africa, direct state equity in IPP projects is less common (with some exceptions in North Africa). African governments typically participate by granting licenses or off-take agreements, but the equity in project companies is often held by private actors (foreign and domestic). For example, Kenya's and South Africa's renewable IPPs usually have local private investors (or community trusts) rather than government agencies as co-shareholders. This means Middle Eastern entry frequently involves formal JV with government, whereas African entry leans toward joint ventures with local private sector (or no local partner if not mandated, though local content rules often ensure some participation). The regulatory role also differs: in Africa, a number of countries do not legally compel joint ventures but *de facto* encourage them (e.g. via bid scoring for local equity), whereas in the Middle East's conservative markets, joint ventures (often with the state) are *de jure* and *de facto* required for access (World Bank, 2020).

Another distinction is the incidence of wholly owned foreign entry. It has been somewhat more feasible in Africa, where a few countries allow independent foreign IPPs with 100% ownership (for instance, a European firm could set up a wholly owned subsidiary to build a solar plant in Namibia or Ghana). In the Middle East, wholly foreign-owned renewable projects are rare – until recently, most Gulf countries did not permit 100% foreign ownership in the power sector, and even as laws liberalize (e.g. Qatar's 2020 law allowing full foreign ownership in many sectors), in practice the big power projects still feature government

partners. This means Africa has seen a bit more diversity in entry modes – including instances of sole foreign ownership or foreign-led consortia with no public stakeholder – whereas Middle East projects almost always involve public partnership in some form. However, even in Africa, the trend in practice is toward partnerships; wholly owned ventures tend to be smaller-scale or in niche markets (e.g. off-grid companies, or commercial solar providers) rather than the large grid-connected plants that attract major FDI. Middle Eastern markets also tend to centralize procurement (e.g. auctions by a single national authority) which fosters a structured JV model, whereas Africa’s investment landscape is more fragmented across dozens of countries, with varying rules that sometimes allow more flexibility in entry mode (World Bank, 2020). Risk considerations further shape differences. African markets generally present higher perceived political and commercial risk, which often compels foreign firms to seek local partners as a risk mitigation strategy (providing local knowledge, legitimacy, and sharing of downside) (Asiedu, 2006; Dube & Horvey, 2023). In the Middle East, some markets (like the GCC) are relatively low risk but foreign investors partner with the state due to policy structure rather than risk. In higher-risk Middle Eastern environments (e.g. Yemen, Iraq, which currently see minimal FDI), the question of entry mode is secondary to basic risk avoidance. By comparison, in many African countries with moderate risk, foreign firms calibrate ownership carefully – balancing the control advantages of a majority stake against the risk reduction of bringing in local co-owners. For instance, studies find that in high-risk African countries, multinationals often opt for joint ventures to gain external legitimacy and buffer political uncertainties. This dynamic is less applicable in stable Gulf states, where a foreign investor might be quite willing to invest wholly owned if allowed, but it’s the regulatory framework that imposes partnership.

Overall, the consortium joint ventures are the most common mode of entry in renewables in both Africa and the Middle East, as the industry is capital intensive and partnership based. The most important point of comparison is that the FDI entry in the Middle East is more state linked (where host governments are co-investors in most cases), compared to African FDI entry where private joint ventures are common, and the foreign ownership may face more autonomy. Such trends reflect larger variations in political structures: the power industry in the Middle East continues to be state controlled and in Africa it is the opposite with some cases of complete liberalization.

The table below summarises the comparative insights across Africa and the Middle East analysed in this section.

Theme	Africa	Middle East / GCC	Illustrative example
Predominant vehicle	Private JV/consortium; state typically not an equity holder.	JV-IPP with state/sovereign as equity partner (often majority).	Benban solar SPVs (Egypt); GCC JV-IPP with state utility.
Role of the state in equity	Government usually non-equity (licenses/PPAs instead); equity mainly private (foreign + local).	State utility/sovereign fund frequently takes equity, often controlling.	Gulf tender SPVs with state utility equity.
Wholly-foreign ownership (utility-scale)	Permitted in some markets but uncommon for large grid-connected projects.	Rare in practice even where nominally allowed.	Select 100% IPPs in Namibia/Ghana (case-by-case).
Consortium/JV rationale	Risk-sharing, local legitimacy, smoother permitting/land access, lender comfort.	Policy design/access requirement; alignment with public objectives.	SA REIPPPP local-equity scoring; GCC mandated JV access.
Procurement & offtaker	Fragmented across regulators; single-buyer PPAs common but vary by country.	Centralized national auctions; single creditworthy state offtaker.	REIPPPP (South Africa) vs national auctions (KSA/UAE).
Legal compulsion vs practice	Often de facto via scoring/local content; fewer de jure mandates.	De jure and de facto JV with the state is common for access.	Algeria 51/49 rule (historic); GCC JV-IPP standard.
Risk lens & ownership choice	Higher perceived political/commercial risk → partner to reduce risk and gain legitimacy.	Lower risk in GCC; partnership mainly policy-driven rather than risk-driven.	SSA projects with local co-owners vs GCC JV with state.
Where wholly-owned appears	Off-grid/C&I and smaller niches more likely than large grid-connected plants.	Very rare; limited C&I under liberalization.	Commercial rooftop PV developers; limited in GCC.

**Table 6:** Comparative insight between prevalent entry modes and drivers across Africa and the Middle East in utility-scale renewables, data from World Bank (2020); Whitney (2020); Asiedu (2006); Dube & Horvey (2023).

## 2.4 Barriers and opportunities

With dominant entry patterns clarified, this section evaluates the operating environment, political and economic risks, infrastructure and market barriers, incentives and investment opportunities, and innovation, technology and mitigation approaches.

### **2.4.1 Political and Economic Risks**

Political and economic risks in host countries present some of the greatest challenges to foreign investors in renewable energy, often dictating both the viability of investment and the structuring of entry. Political risks include instability or conflict, government turnover and policy reversals, expropriation or nationalization risks, and weak governance (corruption, rule-of-law issues) (World Bank, 2020). Economic risks include currency volatility and convertibility, inflation, debt crises, and broad macroeconomic instability. In Africa and parts of the Middle East, these risks can be pronounced and, on some occasion, have undermined possible renewable projects. For example, countries that experienced conflict or severe unrest – such as Libya, Yemen, Syria in the 2010s – saw foreign energy investments amount to zero as safety and order broke down (REN21, 2024). Even in more stable countries, investors remain wary of sudden political shifts; a newly elected government might renegotiate or cancel contracts signed by predecessors, as has occurred in the past with infrastructure deals in some African states. Consequently, foreign renewable developers often adopt risk mitigation strategies as a condition of entry: they may insist on international arbitration clauses in PPAs, purchase political risk insurance (e.g. from MIGA, the World Bank’s Multilateral Investment Guarantee Agency), or partner with development finance institutions whose presence can dissuade host governments from capricious actions (IFC, 2017). The need for such measures is evidenced by the fact that most clean energy investors in Africa are development finance institutions or have DFI support, precisely because these institutions can shoulder political risk or provide guarantees that private investors alone cannot (IEA, 2023).

A major political risk in the power sector is the creditworthiness of state-owned off takers (utilities). Many African utilities are financially strained or politically mandated to sell electricity below cost, resulting in chronic deficits. This creates a risk that the utility will default on payments to IPPs or delay payments significantly (almost a political considering utility finances often depend on government subsidies). Foreign investors keenly evaluate this risk; in countries where the utility’s solvency is doubtful (e.g. Zambia’s ZESCO or Eskom in certain periods), investors either demand government guarantees for PPA payments or avoid investing. For instance, in some Nigerian solar IPP agreements, the government had to provide a Put-Call Option Agreement (PCOA) guaranteeing termination payments, to compensate for the weak balance sheet of the offtaker. Where such assurances are not available, the perceived risk often “deters private investments at the necessary scale,” as the IEA observes for Africa. In fragile states or those with high political risk, many investors conclude that the risks “can be too high” and thus projects do not find financiers. The result is a dearth of bankable projects in those markets, a significant barrier in itself (IEA, 2023).

Currency risk is a critical economic risk in many African and Middle Eastern countries (outside the dollar-pegged Gulf states). Renewable projects typically have costs and often debt in foreign currency, but revenues in local currency. If a local currency depreciates substantially, the project’s revenue can fall short of debt service in hard currency. Several African countries (e.g. Nigeria, Egypt, Angola) have experienced sharp devaluations that would severely impact IPP project economics if not hedged. As a result, foreign investors

often either seek tariffs indexed to a hard currency or inflation (which governments resist due to consumer impacts) or rely on external hedging instruments. There are specialized funds like TCX (The Currency Exchange Fund) that can offer hedges, but at a cost. Where hedging is unavailable or too expensive, currency risk remains a barrier that raises the cost of capital dramatically. Studies indicate that the cost of capital for utility-scale renewables in Africa is at least 2–3 times higher than in advanced economies largely due to macroeconomic and political risks. This drives up required tariffs and can make projects uncompetitive or “uncommercial”. Many foreign investors simply choose not to invest where they see uncontrollable currency risk, or they require government/DFI guarantees on convertibility. Some governments (like Ethiopia in recent solar tenders) have enlisted the local central bank or World Bank guarantees to assure dollar convertibility of PPA payments, directly addressing investor fears. Without such mechanisms, currency volatility remains an ever-present risk deterring FDI (SEI, 2023).

Political instability or violence not only threatens physical assets but also the broader investment climate. For renewables, which often involve infrastructure spread over large areas (wind farms, transmission lines), conflict or insurgency can physically disrupt projects. Investors will therefore rate countries on political stability indexes and often exclude those below a threshold from their investment universe. Terrorism or insurgency risk in parts of the Sahel or Horn of Africa, for example, has meant that otherwise resource-rich areas see little renewable FDI. When investors do venture into higher-risk areas, they embed high risk premiums: requiring returns that may only be feasible with concessional finance or grants blended in. This is why in some high-risk African countries; the only renewables being built are donor-funded or carried out by Chinese companies backed by state-to-state agreements (since they can obtain sovereign guarantees or have strategic motivations beyond pure profit). Western private investors mostly stay away, which is reflected in the uneven distribution of FDI – ten African countries accounted for 77% of energy finance from G20 and MDB sources from 2012–2021, meaning many smaller or riskier states got very little (IEA, 2023).

Regime change risk can also play in more subtle ways: even if a country is not in conflict, a change in leadership might bring different priorities. A new administration might, for example, favour fossil projects over renewables, or might accuse past contracts of being unfavourable and seek renegotiation. Investors therefore analyse not just current policy but the durability of policy. Countries that have enshrined renewable targets in law or have independent regulators give some comfort that policy is less subject to individual politicians, mitigating this risk.

In the Middle East, economic risks often tie to oil price fluctuations and fiscal health of states. For foreign investors in Gulf renewables, a concern could be that if oil prices plunge and government budgets strain, the government-owned off taker may not curtail payments or support. On the whole, Gulf states have strong finances and pegged currencies, meaning economic risk to foreign investors is low compared to many African countries. Thus, in places like the UAE or Saudi Arabia, political/economic risks are perceived as manageable (stable regimes, hard currency or pegged currency, strong sovereign backing) and have not been a major barrier; the main issues there are more about policy framework. However, in some other MENA countries (e.g. Egypt, which faced a currency crisis and IMF program in recent years), economic risk is

significant. Egypt's sharp devaluation in 2016, for instance, affected some foreign investors under the feed-in tariff program, since suddenly the tariff in Egyptian pounds was worth much less in dollar terms. The government had to adjust and allow some indexation to keep projects alive. This illustrates how macroeconomic swings can directly hit renewable FDI profitability (World Bank, 2020).

Overall, political and economic risks are crucial factors, they raise the cost of financing, induce risk mitigation practices, and can preclude investment when they are too high. Investors may react in three different ways, either not investing in high-risk markets; demanding protection and greater returns; or finally setting up the investment spreading risk (via guarantees, insurances or joint ventures with entities such as DFIs or host governments). In a practical perspective, the heavy dependence on DFIs and concessional funds in African renewables today reflect those risks. Political stability, stable macroeconomic management and trustworthy institutions are not therefore abstract notions, but concrete preconditions for large-scale renewable FDIs. Countries that make improvements in these areas, have an increase in investors' interest (Kenya became one of the top clean energies FDI destinations in East Africa due to relative stability and regulatory reforms). As UNCTAD notes, Africa's FDI remains concentrated in relatively fewer, more stable economies – highlighting how risk and FDI are inversely related. Reducing these political and economic risks is thus pivotal to unlocking greater renewable investment in both regions (UNCTAD, 2024).

The table below summarises the principal political and economic risks affecting renewable FDI in Africa and the Middle East, their project-level implications, and the typical risk-mitigation responses adopted by investors, with brief illustrative cases.

#### ***2.4.2 Infrastructure and Market Barriers***

In addition to political-economic risks, investors in renewable projects in Africa and the Middle East also face real infrastructure and market impediments that may slow the viability and scale of projects. The barriers that exist in infrastructure are mostly associated with electrical grid and related systems required to incorporate renewable energy. In most parts of Africa, the electricity grids are poorly developed with limited geographical coverage, low transmission capacity and old equipment. This constitutes a massive barrier: even if an investor may be willing to construct a solar or wind-powered farm, the current grid situation might be unable to support the electricity or to distribute it to the demand centres (World Bank, 2024).

For example, grid bottlenecks in Kenya and Ethiopia have at times forced wind farms to curtail output because transmission lines were delayed or overloaded. For foreign investors, such constraints reduce revenue certainty and therefore dampen investment appetite. They might demand that grid expansion be part of the project (sometimes structuring deals to include building transmission lines), or they might favour smaller projects that better match local grid capacity. In some cases, the lack of grid infrastructure shifts the entry opportunity towards off-grid or mini-grid solutions; however, those often involve smaller scale investments with different business models (selling to communities rather than a utility), which not all large investors are geared for. The International Energy Agency notes that even where African renewable resources are excellent, “multiple barriers hinder the development of bankable clean energy opportunities,” among them the paucity of “investable projects” due to infrastructure gaps. Many investors thus perceive a

shortage of ready projects partly because grid or site infrastructure is not in place to support them (IEA, 2023).

Another infrastructure barrier is access to project sites and necessary inputs. Renewable projects, especially wind, require moving bulky equipment (turbine blades, etc.) to often remote locations. Poor transport infrastructure – bad roads, weak ports – in some African countries raises costs and complexities. A foreign developer might find that delivering wind turbines to a land-locked country with weak roads is logistically risky or expensive, making the project less attractive. Such deficits in infrastructure, might require a government or donor-led coordination to improve, or investors will target countries with superior logistics. Soft infrastructures such as grid frequency control systems and reliable telecommunications are also important for the integrating of variable renewables. Countries with no operational grid management systems present operational issues to large-scale solar/wind, this has been an issue in some sub-Saharan African countries where grid operators are not experienced with intermittent renewable, resulting in curtailment or grid instability (World Bank, 2024). Consequently, investors may be wary to invest at a certain rate on renewables until grid upgrades (such as battery storage, or smarter dispatch) are installed. Market barriers influence the structural and demand side of the electricity market. A fundamental market barrier is low ability or willingness to pay among consumers. In many African countries, a significant share of the population has very low incomes, and electricity tariffs are subsidized or kept artificially low for social reasons. While laudable for access, this undermines the financial viability of new generation investments unless subsidies cover the gap. Private investors worry about entering markets where the utility cannot charge cost-reflective tariffs – it raises default risk. For instance, if a utility is selling power at half the cost of production due to political pressure, its debts to IPPs may mount. This barrier is linked to political risk but fundamentally is a market structure issue: lack of cost-reflectivity and inefficient subsidies. Some countries have addressed this by guaranteeing payments via government or donors, but where that is absent, it's a barrier. Another market barrier is simply market size and growth. Very small national grids (some under 500 MW peak demand) can only absorb limited new capacity. A foreign investor might see little opportunity in a tiny market because after one modest project, the market is saturated. Moreover, small markets lack economies of scale in development and often are served by a single buyer (monopsony) with significant bargaining power. This can deter larger international players who prefer bigger markets. That said, smaller niche players might step in, but the overall FDI quantum remains limited (World Bank, 2020).

Monopoly market structures can also be a barrier. In some regions, vertically integrated monopolies (especially state-owned) control generation, transmission, and distribution. If these monopolies are resistant to independent power producers, they can create entry barriers through bureaucracy or outright refusal to sign PPAs. Some utilities may view IPPs as competition or a threat to jobs, etc. For example, in countries where the national utility is politically powerful and lukewarm on renewables (perhaps due to vested interests in fossil generation), IPPs face a hostile environment – delays in negotiations, grid access hurdles, or failure to agree on tariffs. This “market culture” barrier often necessitates high-level political support to overcome. It is notable that the most successful IPP programs (Morocco, South Africa) had clear government

mandates to the utility to procure renewables; in places without that, IPPs often hit a wall of utility reluctance (Eberhard et al., 2014).

Another barrier is financing infrastructure: local financial markets in much of Africa are not deep enough to provide long-term project finance in local currency. This means projects depend on international finance, which introduces currency risk as discussed. The lack of local capital markets to shoulder some investment is a barrier because it means every project must clear a higher hurdle rate to attract hard-currency financing. Efforts by development banks to develop local currency financing for renewables (e.g. via green bonds or local pension funds) are underway, but until successful, this remains an impediment (World Bank, 2020). To conclude, softer market impediments can be human and institutional capacity. Other countries have a lack of qualified engineers, project managers, or regulatory staff familiar with renewables. This issue can make foreign firms more reliant on expatriate staff, raising costs. Over time these capacity issues are improving, but initially they pose barriers – often addressed by investors via training or by bringing in their own teams. In sum, infrastructure and market barriers manifest in weak grids, small or subsidized markets, monopolistic structures, and limited local capacity. These factors can make even politically stable countries less attractive if the basic market conditions for selling power are not robust. The IEA notes that despite favourable economics of renewables, “most investors feel there are not enough investable projects” in Africa, a statement underlining that structural market barriers – not just financing – limit the pipeline of bankable opportunities. Overcoming these barriers often requires parallel investments in grid infrastructure (sometimes bundled with generation projects) and market reforms (such as tariff reform, utility restructuring, regional power pool development to expand market size). For foreign investors, until such changes occur, these barriers can be as prohibitive as overt political risks. They respond by either selecting only those markets where infrastructure and market conditions are adequate (creating a bias towards a handful of countries), or by engaging in smaller-scale and innovative solutions (like off-grid projects directly serving consumers who can pay) as an alternative entry where the main grid market is unworkable. Both approaches are evident: most large FDI flows have gone to countries with relatively better infrastructure/market setup (e.g. South Africa, Morocco, Egypt), whereas in other countries, foreign investment has targeted off-grid sectors or remained absent.

### ***2.4.3 Incentives and Investment Opportunities***

While numerous obstacles remain, in Africa and the Middle East, governments and agencies have added numerous incentives to attract renewable FDI and the dynamic energy environment presents considerable investment opportunities that can be readily leveraged by investors. Investment incentives come in forms such as tax breaks, favourable tariffs, grants, and streamlined permitting processes. For example, numerous African countries offer tax holidays or import duty exemptions for renewable energy equipment. Kenya and Tanzania, among others, have exempted solar panels and wind turbines from VAT and import duties to reduce project costs. These kinds of fiscal incentives enhance the economics of projects and signal political support, making entry more attractive to foreign investors.

Another incentive mechanism are feed-in tariffs (FiTs): in the early 2010s, some countries such as Rwanda, Uganda and Ghana introduced FiTs that ensured a premium above the market price on renewable electricity, leading to a start in foreign-led projects. According to the case, the 2012 FiT regulations in Rwanda, along with other reforms, have created an enabling environment through which electricity access has increased significantly (6% to 75% between 2009 and 2024) in part by catalysing private investments in generation (Esom, 2024).

Although FiTs have given way to auctions in many cases, they played a critical role in initially luring investors who valued the guaranteed revenue. In the Middle East, auction schemes themselves serve as a form of incentive: by offering long-term power purchase agreements (20–25 years) with government-backed utilities, countries like UAE, Saudi Arabia, and Jordan effectively de-risk projects and attract dozens of international bidders, as seen by the record-low solar tariffs achieved. Additionally, Gulf states often provide concessional finance or land for projects. In Abu Dhabi, for instance, the government may provide land at nominal rent and connect infrastructure for free, while in Saudi Arabia the Public Investment Fund has co-invested alongside foreigners in some projects, reducing capital costs. These implicit incentives have been crucial for making projects bankable and enticing foreign developers to enter very competitive tenders (like UAE's solar which hit below 1.5¢/kWh, viable partly due to low-cost land and finance).

Beyond direct incentives, international climate finance and donor programs have unlocked investment opportunities. The formation of initiatives such as the Scaling Solar program by the World Bank has given investors a template of pre-arranged incentives (e.g. government guarantees, standardized contracts) in countries like Senegal and Ethiopia, creating opportunities to invest with mitigated risk (IFC, 2021). Many foreign investors have flocked to these programs since they bundle incentives and risk reduction, leading to successful solar auctions in several African countries that otherwise might not have attracted FDI. Similarly, the AfCFTA (African Continental Free Trade Area), once fully operational, is anticipated to catalyse freer flow of clean energy goods and investments across African borders. For investors, a larger integrated market could mean opportunities to build projects that sell power regionally (e.g. a big Saharan solar farm exporting to multiple countries via a regional grid). This is an emerging opportunity tied to policy incentives for regional integration (WEF, 2024).

On the investment opportunities side, Africa and the Middle East are endowed with vast renewable resources that represent lucrative long-term markets as global decarbonization accelerates. Africa has been dubbed the “new frontier” for renewables, given its 40% of the world's solar potential and significant wind, hydro, and geothermal resources. This translates into opportunities for large projects like the planned Grand Inga hydropower scheme in the D.R. Congo (potentially the world's biggest dam) or the numerous solar IPPs being set up across the Sahel and Sub-Saharan Africa. Foreign investors with a strategic vision see these opportunities: for instance, European utilities and Middle Eastern sovereign funds are studying prospects for exporting African solar power northward (the Morocco-UK Xlinks undersea cable proposal is one bold example of this, aiming to supply UK homes with Moroccan solar/wind) (Tanchum, 2024).

In the Middle East, opportunities abound in the nascent green hydrogen economy. Countries like Oman, Saudi Arabia, UAE, and Morocco are pushing major green hydrogen/ammonia projects, leveraging their excellent renewables plus existing export infrastructure. These multi-billion-dollar projects (such as Oman's 25 GW hydrogen plan, Saudi's NEOM project) are drawing consortia of international energy companies – an opportunity to invest not just in power plants but in the entire value chain of producing green fuels for export (Alfehaid & Young, 2024).

Another set of opportunities comes from government targets and diversification plans. Saudi Arabia's Vision 2030 and similar plans in the UAE envision tens of gigawatts of renewables, essentially creating a huge market for projects. Foreign firms recognize that meeting these targets will require substantial foreign capital and expertise, presenting opportunities to capture market share. Indeed, the competition by foreign developers to win Saudi and Emirati tenders indicates the perceived scale of opportunity. Emerging markets within Africa like Egypt's renewables boom (aiming for 42% of power from renewables by 2035) and South Africa's renewables procurement reboot (as it transitions from coal) also signal multi-billion-dollar investment opportunities for which foreign IPPs are positioning themselves. For instance, South Africa's latest bid windows have attracted European, Chinese, and other investors as the country seeks to add dozens of new IPPs to alleviate power shortages. This intersection of need and opportunity in large economies is particularly attractive (REN21, 2024).

Incentives around localization and export also create opportunities. Some countries offer incentives for investors to develop manufacturing locally – e.g. Morocco incentivized wind turbine and solar panel factories by guaranteeing purchase of locally made components for projects. Siemens Gamesa built a blade factory in Tangier under such conditions, an FDI in manufacturing piggybacking on the renewable's rollout (Tanchum, 2024). Similarly, opportunities exist to invest in supply chain facilities (like battery assembly, inverter manufacturing) in regions looking to become renewables hubs (the Middle East has plans to become a solar and green equipment manufacturing hub, leveraging cheap energy).

On the demand side, Africa's energy access gap (over 600 million without electricity) is an immense opportunity for innovative renewable solutions – mini-grids, solar home systems, etc. Many foreign impact investors and specialized companies (from Europe, China, etc.) are entering this off-grid market, which is incentivized by programs like Nigeria's government grants for solar home systems or the World Bank's funding for mini-grids. While smaller in project size, this segment collectively represents a multi-billion-dollar opportunity and has seen dynamic FDI flows into companies like M-Kopa (solar home system firm operating in East Africa) or foreign-backed mini-grid developers in Nigeria and beyond. Some African governments provide incentives like tariff subsidies or result-based financing to stimulate this market, indirectly benefiting foreign players in the sector.

Lastly, international climate funding commitments (such as the \$8.5 billion Just Energy Transition Partnership for South Africa by wealthy nations) signify forthcoming capital injections that will create opportunities for private investors to co-invest. When donors put up concessional funds to de-risk projects, it effectively acts as an incentive for private FDI to come in alongside. Investors are watching such initiatives

in Indonesia, South Africa, Senegal, etc., as they could pave the way for more bankable large-scale projects. Overall, FDI into renewables is being attracted by a mix of specific incentives (FiTs, tax credits, guaranteed PPAs, risk guarantees) and the large scale of untapped opportunities (vast resources, increasing demand, green hydrogen, localized power trade).

Many African and Middle Eastern governments have recognized that offering the right incentives is crucial: several have been adapting policy to sweeten deals – for instance, Egypt moved from FiTs to competitive auctions coupled with currency guarantees and land provisions, improving investment uptake. The presence of these incentives and opportunities is gradually shifting the narrative from one solely of barriers to one of a potentially enormous emerging market for clean energy investment. Foreign investment decisions weigh the risks described earlier against these incentives and opportunities; where the latter tip the balance (through risk mitigation and attractive returns), FDI flows have begun to materialize robustly.

#### ***2.4.4 Innovation, Technology, and Mitigation Approaches***

Innovative technology and finance are some of the major ways to overcome the above barriers and facilitate FDI in renewables by effectively reducing the risks and enabling projects that before would not have been viable. Financial innovation in risk mitigation is one of the main instruments. Some of the tools developed by agencies and investors to facilitate renewable projects in high-risk markets include political risk insurance, credit guarantees, liquidity facilities and currency hedges. For instance, the guarantee instrument of the World Bank and the MIGA insurance have been effectively implemented to guarantee the obligations of payment by governments and reduce political risks in most African IPPs. These tools also reduce subjective risk, so that the required returns of private investors can be lower. Blended finance models - involving concessional funds with private capital - are also getting common. By using concessional tranches to absorb first losses or currency volatility, projects become bankable. An illustration is the Facility for Energy Inclusion in Africa, which provides mezzanine financing to renewable projects, thereby crowding in senior lenders. Likewise, local currency financing solutions are being piloted: the TCX fund offers long-term hedges for African currencies, and some projects (e.g. solar farms in West Africa) have obtained partially hedged local currency loans, mitigating forex risk. These financial innovations are slowly setting the door open to investment - an SEI research project concludes that the targeted application of guarantees and currency instruments can significantly enhance investor trust and speed up the implementation of renewables (SEI, 2023).

On the technology front, advancements are mitigating operational and integration risks, making projects more feasible. Energy storage systems (particularly battery storage) are being introduced alongside solar and wind projects to smooth output and provide grid services. This innovation addresses the intermittency barrier, assuring grid operators and investors that renewable plants can deliver more reliable power. Several new hybrid projects in the Middle East – for instance, the pairing of the Mohammed bin Rashid solar park with storage in Dubai – showcase this trend. By improving grid stability through storage, countries can raise the cap on intermittent renewables, enabling larger FDI projects. Smart grid and forecasting technologies are likewise being implemented; better solar and wind forecasting reduces curtailment risk and allows more

efficient dispatch, which improves project revenues and reduces uncertainty (REN21, 2024).

Another area of innovation is business models for off-grid and distributed renewables, which tackle market barriers. Pay-as-you-go solar home systems, pioneered by firms like M-Kopa and supported by mobile payment tech, have shown that you can achieve scale and repayment in low-income markets by innovating on payment and distribution. These companies attracted significant FDI from impact investors and corporates because the technology (mobile metering, remote disconnect) mitigates credit risk of customers by allowing very small, frequent payments and enforcement. Mini-grid developers are innovating with anchor-client models (pairing solar mini-grids with a telecom tower or agro-processor to ensure a base revenue) and with modular scalable systems. Such innovations make rural electrification projects more bankable, and donors have provided result-based financing to encourage them. UNCDF reports demonstrate how early-stage concessional loans to off-grid start-ups helped mobilize millions in follow-on private debt, an innovation in blended finance approach.

Regional integration and cross-border projects represent another innovative mitigation approach. By linking countries' grids (e.g. under the West African Power Pool or GCC interconnection), countries can share renewable resources and buffer variability, making each project more attractive. A wind farm in one country can export surplus to a neighbour, reducing curtailment. This regional market concept is being pursued in Africa under AfCFTA and power pools, offering a structural mitigation to the market size barrier by effectively enlarging the market and diversifying risk. Projects like the planned North Africa-Europe subsea cables (e.g. Tunisia-Italy or Morocco-UK) are important innovation to enable African renewables to access European markets, which would mitigate demand and lower currency risk by ensuring hard-currency revenue. Despite the challenges, these concepts are on the move and are attracting the interest from large investor (WEF, 2024). Digital solutions and data are used from investors and insurers to mitigate risks. For example, resource risks are measured by satellite data and artificial intelligence in order to minimize uncertainty in the yield. Blockchain technology is being tested to improve transparency in power trading and even to tokenize renewable assets, potentially broadening the investor base (as seen in some pilot projects where investors can buy tokens representing a share of a solar farm, spreading risk). In addition, climate risk insurance products are changing - e.g. index-based weather insurance can protect a solar plant against unusual cloudy years. Regarding finance, green bonds and climate funds are innovative sources of funds that move capital into these geographical areas. There are nations such as Nigeria, Egypt, and UAE, which have issued the green bonds to fund renewable infrastructure, accessing a wider base of investors that may not necessarily invest directly through FDI but will purchase the bonds if well structured. This indirectly promotes FDI by establishing domestic financing ability for projects (since local banks or government will be able to on-lend bond proceeds to projects).

Lastly, it's worth mentioning capacity-building and institutional innovations, certain countries have established special renewable energy departments or one-stop shops to streamline processes (e.g. Egypt's Benban solar park had a unified framework for 32 developers, an institutional innovation that greatly reduced transaction costs). Through training programs (like Enel Foundation's Open Africa Power), local

technical capacity is improving, which in turn mitigates operational risks and fosters smoother investor experience (IFC, 2017).

In summary, a combination of technological innovations (storage, digital tools) and financial innovations (risk mitigation instruments, blended finance, new business models) is helping to surmount barriers that once stymied projects. These approaches are increasingly deployed: as an example, the use of risk mitigation in African projects is growing – a 2023 workshop found best practices like guarantees and political insurance significantly improve project bankability in West and Central Africa. Over time, these innovations reduce the risk premium investors assign, thus lowering the cost of capital and attracting more FDI. The continued evolution and scaling up of such solutions – coupled with supportive policy – will be crucial to converting Africa and the Middle East’s immense renewables potential into realized projects on the ground. Investors themselves, along with international institutions, are actively pushing these innovations because they recognize that unlocking these markets is a major growth opportunity if risks can be managed. In effect, innovation is the key to bridging the gap between theoretical potential and actual investment, making previously marginal projects feasible and enabling the energy transition in these regions to accelerate despite challenging starting conditions.

## Chapter 3: The case – TotalEnergies

This chapter sets out the research design and reports the empirical findings. It first presents the single-case methodology following Yin, defines the embedded units and propositions, and explains the use of pattern-matching and explanation-building. It then describes the evidence base: documentary sources and counts, the table of sources, and the design and procedures of sector interviews with professionals outside the focal firm. The TotalEnergies case narrative follows, including a chronology of investments, a portfolio-level classification of entry modes across embedded units, and the institutional and financing determinants of mode choice. The chapter closes by answering the research question through concise findings, systematic pattern-matching with the propositions and rival explanations, and an analytic generalisation that clarifies the study's contribution to the research gap.

### 3.1 Case Study Methodology

This research adopts a single-case study design following Yin's (2018) methodology. The primary case is TotalEnergies' strategy in renewable energy in Africa and the Middle East, with embedded units of analysis (individual projects or country implementations). The study is guided by research questions and theoretical propositions established in Chapters 1 and 2. Section 3.1.1 outlines Yin's general case study approach (data-proposition linkage, evidence, validity). Section 3.1.2 describes its specific application to the TotalEnergies context.

#### 3.1.1 Yin's Case Study Approach

The case study approach is structured by explicit research questions and propositions (from Chapters 1–2) and requires clear definition of units and boundaries (Yin, 2018). The main case is TotalEnergies' corporate strategy in context, with embedded units of analysis comprising its individual projects. Case boundaries (such as time frame, geographies, and sectors) are defined in advance. To link empirical data to the propositions, this study applies Yin's analytic techniques: pattern matching and explanation building. Pattern matching is a process for comparing the observed project data against theoretically predicted patterns. Explanation building involves building a causal explanation of outcome, in which alternative propositions (rival explanations) are tested explicitly. A project cycle logic model (origination-contracting-financing-operation) structures the analysis identifying the choice points where entry modes are decided. There are diverse sources of evidence to provide analytic rigour. Documentary evidence (company reports, regulatory filings, power purchase agreements, MDB releases, industry databases, news articles) and semi-structured interviews are convergent sources of information. Triangulation of the sources strengthens construct validity, and all the collected materials are recorded in a formal case study database. A case study protocol organises data collection and maintains a clear chain of evidence, linking research questions to data to findings. Quality is assured following Yin's validity and reliability requirement. Extracting measures from multiple sources of evidence and with a clear chain of evidence, adds strength to the construct validity and ensures that measures accurately capture the intended concepts. Internal validity (causal inference) is enhanced

through pattern-matching and explanation-building processes, including testing rival propositions. The target of generalization is analytic (theoretical) rather than statistical. Reliability is supported by using a standardized protocol and case database, so the study's procedures could be repeated or audited.

Regarding interviews, ethical and data governance standards were followed, interviews were conducted with informed consent and participants were anonymized for ethical reasons. Personal data are minimized and stored securely in compliance with ethical standards. Overall, this Yin-inspired design combines a robust single-case study with interviews from experts of the sector, and the conclusions can be generalised analytically to theory.

### ***3.1.2 Application to this Dissertation***

The study's single case is TotalEnergies, with embedded units representing selected utility-scale solar and wind projects in Africa and the Middle East (2015–2025). Projects were chosen to capture variation in institutional and market conditions (e.g. regulatory environment, risk levels), contractual arrangements (e.g. PPA versus integrated utility structures), financing architectures (e.g. involvement of DFIs or local banks), and timing. This purposeful sampling covers the dimensions underlying the theoretical propositions from Chapters 1 and 2. The mapped projects will be furtherly illustrated in future sections.

Case boundaries are defined by sector (grid-connected utility renewables) and geography (Africa/Middle East). Upstream oil and gas activities and small distributed-generation projects are excluded, unless they offer insight into entry-mode logic. The time frame (2015–2025) aligns with TotalEnergies' recent strategic planning cycle. These boundaries reflect Yin's guidance on explicitly distinguishing what is inside versus outside the case.

Evidence comes from multiple sources. Many documentary sources were consulted, including TotalEnergies corporate and project reports, host-country regulations, auction documents and power purchase agreements as well as announcements from the Multilateral Development Banks. In addition, reliable databases, industry and major newswires were used to supplement these. Semi-structured interviews of the professionals involved in the sector, including managers, executives, project developers, financiers, and government officials explain the rationale for general decision-making. Interviews were conducted with explicit consent and were transcribed and stored anonymously as "Interview A", "Interview B" and so on (see the table in section 3.2.3 for more information on the participants).

A formal protocol governed data collection across two distinct evidence streams: (i) the TotalEnergies single-case (documentary evidence only), and (ii) sector interviews with professionals not employed by TotalEnergies. For the case stream, pre-specified search strings and screening rules (e.g., combinations of 'TotalEnergies', country, project identifiers, 'PPA') were applied to company filings, host-country documents, MDB/DFI releases, reputable databases, and major newswires. All retrieved items were screened against inclusion criteria and logged in a case-study database with source metadata (author, date, document type), ensuring a transparent chain of evidence.

For the interview stream, semi-structured interviews with managers, developers, financiers, advisors, and officials operating in Africa/Middle East renewables were conducted under informed consent;

recordings/transcripts were anonymised (Interview A, B, ...) and stored in the same database. Triangulation was applied as follows: factual claims about specific TotalEnergies projects derive from documentary sources; interview material is used to interpret mechanisms, context conditions, and to test rival explanations observed in the case. The analysis will proceed using Yin's pattern-matching and explanation-building strategy. Project narratives will be systematically compared to the propositions, with explanation-building tracing how entry-mode decisions unfolded. The origination→contracting→financing→operation model guides identification of decision "gates" (e.g. partner selection, financing choices) where modes were set. Alternative explanations (e.g. changes in market conditions) will be evaluated to test rival propositions and strengthen causal inferences.

Limitations: Single case systematic research does not permit statistical generalisation: the focus is on analytic generalisation to theory. The focus on TotalEnergies may limit the direct application of this research to other companies, but the theoretical results may be applied to similar contexts as well. The triangulation between multiple data sources helps to ensure that potential biases (e.g. interviewee bias) are mitigated. The analysis proceeds against four pre-specified, architecture-first working propositions derived from procurement, credit, legitimacy, and financing arrangements; these are stated in section 3.4 and tested via pattern matching and rival-proposition checks.

In sum, this operationalisation provides a rigorous, transparent case study design consistent with Yin's methodology.

## **3.2 Data and Evidence**

This section outlines the data collection and evidence pipeline for the case study. Two streams of evidence were employed: documentary sources (the basis for factual projects) and qualitative interviews (used to interpret and contextualize the findings). All empirical facts in Section 3.3 are grounded in publicly available, verifiable records, each cross-checked by at least two independent sources. The following subsections detail the documentary search strategy and the interview design.

### **3.2.1 Documentary sources**

A formal documentary research protocol was followed to collect all case-specific data. Guided by Yin's single-case design and a clear analytic framework, explicit search strings were defined (e.g. "TotalEnergies" + country + project name + "PPA") and systematically multiple evidence repositories were queried.

Consulted portals included official government or utility procurement websites (e.g. South Africa's IPP Office, QatarEnergy/Kahramaa announcements, Saudi NREP updates), multilateral and development bank project sites (World Bank/IFC and AfDB project portfolios, EBRD press releases), and regulatory filings. Corporate and partner pressrooms (TotalEnergies, Sonangol, Marubeni, Hydra, etc.) were also searched for signed agreements, and industry news outlets (PV Tech, MEED, Africa Energy, Renewables Now, Reuters, Bloomberg New Energy Finance, etc.) and academic databases for background and context. Each retrieved item was scanned for inclusion criteria: it had to document a firm milestone (e.g. PPA signature, final investment decision, and commercial operation date, closed financing, or executed joint venture agreement)

in 2015 - 2025 as well as being specific to utility-scaled solar or wind projects in the Africa / Middle East region. Informal or prospective data (such as MoUs, bid announcements or rumours) were explicitly excluded. This helped to ensure that only concrete completed events were recorded in the dataset. To ensure validity there was a rule of two source verification: every factual claim (i.e. “project X reached financial close in Month Year”) was confirmed by at least two independent sources. For example, a PPA signing would be included only if reported in both a primary source (such as a governmental auction notice or company report) and a secondary source (like an industry news story). This journalistic-style standard guards against circular reporting and unverifiable claims. In practice, official documents (signed contracts, auction results, bank press releases) were treated as highest authority; company press releases and reputable trade journals as secondary. Academic articles or analyses were used mainly for context and were not allowed as sole evidence of a milestone. Redundant reports of the same event were logged but marked as duplicative; unique events were deduplicated in the case database.

All searched documents were catalogued in a structured case-study database. Metadata (source type, date, author, URL) were recorded to maintain a clear chain of evidence. Throughout, care was taken to judge source credibility. Methodological literature warns that documentary sources must be scrutinized for authenticity, provenance, and bias. Accordingly, any unclear or incomplete item was either supplemented by follow-up searches or omitted if it could not be fully validated. By combining diverse documentary threads and logging each in the database, construct validity and traceability were secured.

In sum, this rigorous documentary pipeline (guided by pre-defined search terms and inclusion rules) yielded the factual foundation for Section 3.3. Only verified, “closed” project milestones were used in the case narratives; all were drawn from the recorded evidence base described above. The resulting dataset underpins the analysis of TotalEnergies’ entry modes and satisfies the methodological standards of triangulation and transparency required for case-study research.

### ***3.2.2 Table of sources***

The table at the end of this section summarises the range of the evidence based by source category. It shows that a wide variety of channels were consulted: government/auction records, MDB releases, industry press and media, company newsrooms, and academic/industry reports. The “Consulted” column of Table is large in each category, reflecting broad preliminary searching, while the “Used” column is smaller, reflecting the filtering to firm milestones. This indicates that the study drew on diverse inputs but only retained those meeting the strict criteria.

The pattern of overlap also reveals the degree of triangulation. Key milestones were typically covered by multiple source types: for instance, a South African IPP award might appear both on the government procurement portal and in industry media, or an MDB financing announcement might be mirrored in a corporate press release. The Table’s structure shows that each embedded case study (see Section 3.3) is supported by at least two independent lines of evidence.

Some information gaps are noted as “undisclosed” or omitted. For example, where financing terms or equity percentages were not publicly revealed, the table flags these as lacking external data. These undisclosed

elements are therefore treated as internal or confidential – they were excluded from the chapter’s factual account (since they could not be verified by public sources).

Each project (“embedded unit”) in Section 3.3 maps onto rows/columns of the Table. For instance, the Mulilo-Prieska solar project (South Africa) drew on government IPP tender announcements and local media reports, whereas the Qatar Al Kharsaah solar farm relied on press releases from Kahramaa, QatarEnergy, and TotalEnergies (reflected in the MDB and corporate press categories). The South African RMIPPPP hybrid plant was documented via DOE/RMIWPPC records and multilateral bank communications, and the Saudi Rabigh 2 project via partner statements and Gulf energy news. In every case, the Table indicates how many and which types of sources were used and found useful to describe the projects. This mapping ensures that the narrative in Section 3.3 is grounded in multiple corroborating sources for each unit.

By summarizing source diversity, the Table demonstrates that no single information channel dominates, and that the analysis relied on cross-verification across categories. It highlights, for example, that where official disclosures were scant, independent media filled in context, and vice versa. In this way, the Table reflects the robust triangulation of data and the care taken to handle undisclosed items. It follows that the key events of each project case are documented by at least two distinct sources (per the two-source rule) and that any missing data points are explicitly noted as such.

**Table 7:** Source categories and counts (Consulted | Used (cited) | Useful)

Source category	Consulted	Used (cited)	Useful
Academic journal articles / scholarly publications	8	3	6
Company press releases / official statements (TotalEnergies + partners)	24	16	22
Government tender / PPA / IPP documentation	12	8	11
MDB / DFI disclosures (e.g., World Bank, APICORP, DBSA)	9	6	8
Reputable newswires (e.g., Reuters, Bloomberg)	11	7	10
Trade & industry media (PV Tech, PV magazine, MEED)	16	9	14
Market/sector reports (IEA, IRENA, UNCTAD, REN21)	7	4	6
Corporate filings & investor presentations	4	2	4
Conference presentations / press briefings	3	1	2
Project/statistical databases (IRENASTAT, national regulators)	10	6	8
<b>Totals</b>	<b>104</b>	<b>62</b>	<b>91</b>

*Notes — Consulted: reviewed sources; Used (cited): cited in Section 3.3; Useful: informed analysis even if not cited.*

### 3.2.3 Interview design and procedures

Complementing the documentary evidence, semi-structured interviews were conducted with industry experts to gain insight into decision processes. Participants were recruited through purposive sampling – targeting professionals with direct experience in renewables project investment and partnership in Africa/Middle East – and then snowball sampling to identify additional contacts. In total, nine interviewees (labelled A–I) were interviewed, representing diverse roles in energy firms, financiers, consultancies and a project developer (see Table 8). Examples of positions include M&A and business-development managers at European energy

majors, legal and tax advisors in international firms, an EPC project director for regional renewables, and senior executives overseeing international project portfolios. This combination of corporate, developer, advisory and financial perspectives was selected so as to allow triangulation of qualitative information across organisational levels and functions.

Interviews have taken place online (usually using a videoconference app) between May and September 2025. To ensure consistency, the interview guide was standardised. The guide was structured around the thesis's theoretical lenses and propositions (foregrounding the institution-based view, with OLI (ownership/internalization) and the RBV (capability fit) used as complementary criteria as set out in Chapters 1 and 2) and covered topics such as site selection, partner selection, contracting strategy, financing arrangements, and local market constraints. Participants were asked to explain why new projects were selected, what approach was taken to form partnerships and what was the source of risk or regulatory pressures which drove decisions. This ensured that key themes (entry-mode drivers, contractual structure, etc.) were systematically covered in each interview; semi-structured open-ended questions encouraged the exploration of unexpected factors as well.

Ethical research practices were strictly observed. All interviewees provided informed consent under an approved protocol. Interviews were audio-recorded and transcribed. To protect confidentiality, transcripts were anonymized, and each respondent is referred to only by a code (Interview A, B, ...) in order to generalize personal data and details. Participants were informed that they could skip questions or withdraw at any time. No direct quotations are published in this thesis, and illustrative comments (if used) will be paraphrased to preserve anonymity.

Transcribed interviews were coded and analysed using qualitative methods. An initial codebook was developed based on the study's propositions (e.g. bankability concerns, resource motivations, institutional barriers) and refined as new items emerged. Each transcript was coded independently by the researcher to identify relevant segments. Codes were organized into thematic categories aligned with the entry-mode framework (Ownership, Location, Internalization factors) and with specific processes (origination, contracting, financing, operation). Reflective note-taking and constant comparison techniques were applied to ensure consistency.

The table below summarises the anonymised profiles of participants A–I (role and organisation type).

<b>Participant</b>	<b>Organisation Type</b>	<b>Department</b>	<b>Core Responsibilities (kept high-level)</b>
Interviewee A	Energy Major (Europe)	Mergers & Acquisitions	Evaluates opportunities and partnership options; supports equity transactions and governance arrangements.
Interviewee B	Consultancy (Strategy & Transactions)	Strategy & Transactions (Energy)	Advises clients on market entry approaches and

			partnership structures; supports due diligence.
Interviewee C	EPC / Installer (ME/A)	Operations (Utility-Scale Projects)	Oversees day-to-day construction interfaces with project sponsors/SPVs; coordinates contractor workflows as operations manager.
Interviewee D	Energy Major (Europe)	Business Development / Partnerships	Identifies markets and local partners; develops partnership models and coordinates JV/WOS set-ups at a high level.
Interviewee E	Consultancy (Large Firm)	International Tax / Structuring	Designs cross-border holding and SPV structures; advises on tax-efficient M&A and profit repatriation frameworks.
Interviewee F	M&A Boutique	M&A Advisory	Manager who led a flagship transaction in the Middle East; supports deal execution and consortium arrangements.
Interviewee G	Diversified European Conglomerate – Did Not Invest	Legal	Head of Legal overseeing investment appraisals; assesses contractual and regulatory risk profiles informing no-go decisions.
Interviewee H	Former Executive	International Projects (former role)	Directed international project portfolios; contributed to high-level investment and partnership decisions.
Interviewee I	Energy Major (Europe)	Tax / Holding Structures	Supports cross-border structuring and compliance; evaluates tax incentives relevant to renewables entry decisions.

**Table 8:** Background profile of interviewees (anonymised)

It is important to specify that the interview data were not used as evidence in the case’s project chronologies; those sections rely exclusively on documentary records (with the two-source rule) for factual claims. Instead,

the interviews serve to interpret the documentary findings and to explore underlying mechanisms. In later parts of this chapter (e.g. analysis and discussion), interview insights help explain why TotalEnergies chose particular entry modes and how context shaped those decisions. Thus, the interviews support the study's theoretical propositions by providing contextual and explanatory depth, rather than by supplying new project milestones.

Overall, the combined documentary and interview design ensures methodological rigour. The documentary stream established a solid factual base while the interview stream adds rich context. Together, they satisfy the requirements for data triangulation and validity in case-study research. All procedures (consent, anonymization, coding) were conducted in accordance with ethics guidelines. In summary, the evidence from interviews complements but does not substitute for the documentary evidence used in the embedded case analysis.

### **3.3: Overview of TotalEnergies' Solar and Wind Projects**

This section provides an analysis of TotalEnergies' large-scale utility solar and onshore wind projects in Africa and the Middle East (2015-2025). It highlights the company's strategic project milestones (PPAs, FIDs, commissioning or acquisition, JV agreements) and entry modes (i.e. joint ventures, acquisitions, CPPA transactions) over time. The narrative first summarises key deals chronologically (2015–2025), then profiles selected project case studies (“embed units”), and finally analyses the institutional and financial factors that shaped TotalEnergies' entry-mode choices. All factual details are supported by industry press releases, news reports, and official documents to meet the two-source rule.

#### ***3.3.1 Chronology of TotalEnergies' Solar and Wind Activities (2015–2025)***

In 2016 TotalEnergies entered South Africa's renewables market by commissioning the 86 MW Mulilo-Prieska solar farm in the Northern Cape. Built under the government's Renewable IPP Program, this project was developed by a special-purpose consortium (Mulilo Prieska PV) in which TotalEnergies held a 27% stake, with the power sold under a 20-year PPA to the state utility Eskom. This milestone marked the company's first utility-scale renewables deployment in sub-Saharan Africa.

By 2022 TotalEnergies had begun implementing its “multi-energy” strategy in oil-producing countries. In July 2022 it announced a new solar concession in Angola, the 35 MW Quilemba PV plant in Huíla province. TotalEnergies secured 51% of this joint venture (JV) alongside state oil company Sonangol (30%) and local developer Greentech (19%). A fixed-price PPA with the Angolan government was signed under the concession, reflecting TotalEnergies' integration with its existing oil investments in Angola. Construction began in May 2025, and the plant is scheduled to come on stream in the first half of 2026, with a potential second phase (+45 MWp) that would take the complex to ~80 MWp.

Also in 2022 TotalEnergies achieved a major milestone in the Middle East. In October 2022 it inaugurated the 800 MWp Al Kharsaah solar plant in Qatar. This project was developed by Siraj 1, a consortium (TotalEnergies 49% / Marubeni 51%) which owns 40% of the plant, with the remaining 60% held by QatarEnergy Renewable Solutions. A 25-year PPA was signed with Qatar's grid operator (Kahramaa) at a

record-low tariff (QAR0.0571/kWh) won in a competitive tender. TotalEnergies' CEO Patrick Pouyanné described Al Kharsaah as “a giant project” demonstrating support for a producing country's energy transition. The plant was connected to the grid in late 2022 and supplies roughly 10% of Qatar's peak load. In early 2023 TotalEnergies significantly expanded its Southern African footprint in renewables. In February 2023 its South African subsidiary signed two long-term corporate PPAs (CPPAs) totalling 260 MW (120 MW solar + 140 MW wind) to supply chemical and industrial customers. Under 20-year agreements, TotalEnergies (via TotalEnergies Marketing SA, 70% equity) will sell all output to Sasol and Air Liquide at their Secunda site in Mpumalanga. The project is being developed by a local consortium (TotalEnergies SA 70%, BEE partner Reatile 13%, Mulilo 17%) and is expected to come online in 2025. These CPPA deals represent a distinct entry mode (corporate offtakers rather than government PPA) in South Africa's market. Later in 2023 TotalEnergies announced that financial close had been reached on a 216 MW hybrid project in South Africa. This Northern Cape plant combines 216 MW PV and 500 MWh battery storage to supply Eskom under the Risk Mitigation IPP Program. The project is being developed by a South African consortium (TotalEnergies 35%, Hydra Storage Holding 35%, BEE partner Reatile 30%) and had achieved FC in December 2023. It is due to be operational in 2025. These 2023 deals signalled TotalEnergies' deepening commitment: the acquisitions of projects and the formation of local joint ventures highlight the company's “profitable growth” in renewables under its Integrated Power unit.

Also in mid-2023 TotalEnergies completed a full acquisition of Total Eren, its previously partly owned renewables affiliate. In July 2023 TotalEnergies bought out outside shareholders to raise its stake from ~30% to 100%. The deal (enterprise value €3.8 billion) brought under TotalEnergies control Total Eren's global portfolio (~3.5 GW operational, 10 GW pipeline) and key African assets (e.g. ~150 MW in operation in Egypt, Burkina Faso and Uganda). This acquisition integrated TotalEnergies' subsidiary network and expanded its pipeline of African solar and wind projects, aligning with its stated ambition (35 GW by 2025) to become a top-five renewables producer.

In 2024 TotalEnergies extended into the Middle East and North Africa. In July 2024 it agreed to acquire 28.3% of Uganda's 250 MW Bujagali hydropower (via SN Power) – a concession project outside the scope of wind/solar – but also announced partnerships for solar in the region. Most notably, in December 2024 TotalEnergies and Saudi partner Aljomaih Energy & Water signed a 25-year PPA for the 300 MW Rabigh 2 solar farm. This award came in Saudi Arabia's Round 5 renewables tender, aimed at 50/50 gas and renewables by 2030. The Rabigh 2 plant (expected grid connection 2026) will be developed, built and operated by the TE–Aljomaih consortium. The same announcement noted that TotalEnergies was already constructing the 119 MW Wadi Al Dawasir solar plant (scheduled COD early 2025). These developments underscore TotalEnergies' expansion into Gulf solar.

By early 2025, TotalEnergies had firmly positioned itself in the Africa/Middle East wind and solar market through a variety of entry modes: majority JVs with national energy companies (e.g. QatarEnergy in Qatar, Sonangol in Angola) and with local investors (South African BEE firms, Saudi developers), as well as 100% ownership via controlled subsidiaries (Total Eren). The projects span IPP sales to utilities (Eskom,

Kahramaa, SPPC), corporate PPAs (Sasol/Air Liquide) and captive/self-usage arrangements, reflecting each market’s offtaker landscape. The table below summarises the verified project attributes referenced in the subsequent case narratives.

**Table 9: Project summary — Africa & Middle East (2015–2025)**

Country	Project	Capacity	TotalEnergies equity (%)	Procurement	Offtaker
South Africa	Mulilo-Prieska Solar	86 MW	27%	REIPPPP tender	Eskom
Angola	Quilemba Solar	35 MWp	51%	Government concession	Government (state grid)
Qatar	Al Kharsaah (Siraj)	800 MWp	19.6%	Competitive tender	Kahramaa
Saudi Arabia	Wadi Al Dawasir	119 MWp	Not disclosed publicly	NREP Round 3 (IPP tender)	SPPC
Saudi Arabia	Rabigh 2	300 MW	Not disclosed publicly	NREP Round 5 (IPP tender)	SPPC
South Africa	Sasol / Air Liquide CPPAs	260 MW (120 MW solar + 140 MW wind)	70%	Corporate PPAs (bilateral)	Sasol & Air Liquide
South Africa	Sirius Solar + Storage	216 MW PV + 500 MWh BESS	35%	RMIPPPP tender	Eskom

### 3.3.2 Embedded Project Case Studies

**South Africa – Prieska Solar (86 MW, 2016):** TotalEnergies entered Africa’s utility-scale solar market via Prieska, Northern Cape. This plant was developed under SA’s REIPPPP by the SPV Mulilo Prieska PV (Mulilo and Sonnedix lead the consortium). TotalEnergies owned 27% of the SPV; other shareholders include Calulo (25%), IDC (15%), Futuregrowth (10%) and the local municipality (5%). Construction began in 2015 and the plant reached commercial operation in December 2016. The entry mode was a minority equity JV: TotalEnergies provided development capital and became the O&M contractor (via its SunPower affiliate). Financing was conventional project debt raised by the SPV, with support from development finance institutions (EBRD et al.). The off-taker is Eskom under a 20-year PPA (75 MW delivered). This case illustrates an international IPP model: TotalEnergies’ partner assets included local BEE/DFI shareholders and EPC/O&M expertise (Juwi as EPC).

**Angola – Quilemba Solar (35 MW, 2025):** In Angola TotalEnergies pursued a government-concession model. In October 2021, TotalEnergies-led consortium, Quilemba Solar Lda (TE 51% - Sonangol 30% - Maurel & Prom (through Greentech) 19%) received rights for it to build the 35 MW Quilemba PV plant. The split in equity reflects the majority stake of TotalEnergies, reflecting its multi-energy strategy, with Sonangol bringing in access to the Angolan infrastructure and Greentech as a local developer. TotalEnergies’ entry mode is a majority-JV; it won a fixed-price, long-term PPA for government supply. Finances came from government/grant sources and debt likely guaranteed by Angolan institutions. The plant

(commissioning expected in 2025) will sell all power to the state grid, “delivering significant savings” versus diesel generation. Quilemba exemplifies an oil-linked market entry: TotalEnergies leveraged its long-term Angolan presence, partnered with national entities, and secured contractual offtake via a concession-style PPA.

**Qatar – Al Kharsaah Solar** (800 MW, 2022): Al Kharsaah is one of the largest solar projects in the region. TotalEnergies (via its affiliate Siraj 1) owns 49% of Siraj Consortium, with partner Marubeni (51% of that 40%) and QatarEnergy Renewable Solutions owning the remaining 60%. Entry mode: a strategic JV with the state energy company. Construction began in 2020 under a public tender; the plant was inaugurated Oct 2022. It sold power under a record 25-year PPA with Kahramaa at QAR0.0571/kWh (approx. USD0.0157/kWh). The financing architecture combined equity from the consortium and project debt from local/international banks. All output (an estimated 1.8 TWh/year) goes to the national grid. TotalEnergies contributes engineering, financing and operations, while QatarEnergy provided 60% project finance and offtake guarantees. This case highlights an international consortium JV in a rich Gulf market: TotalEnergies as minority partner but with key technology role, a long PPA to a creditworthy utility, and financing that relies on the Qatari sovereign’s backing.

**Saudi Arabia – Rabigh 2 Solar** (300 MW, PPA 2024): In late 2024 TotalEnergies formed a 50:50 consortium with Aljomaih Energy & Water (AEW), a Saudi conglomerate. They were awarded Round 5 of the Kingdom’s NREP to build, own and operate the 300 MW Rabigh 2 PV plant. The parties signed a 25-year PPA with the Saudi Power Procurement Company (SPPC) in Dec 2024. The plant (expected online in 2026) will be financed via project debt with local content requirements. TotalEnergies’ entry mode is a foreign JV: its partner AEW provides local market expertise, while TotalEnergies provides capital and engineering. Offtaker risk is low given SPPC/Saudi government backing. Notably, the award was announced during the French President’s visit, underscoring geopolitics as a factor. The project sits alongside TotalEnergies’ 119 MW Wadi Al Dawasir plant (owned 33.3% by TE as of 2022), showing a consistent Saudi strategy.

**South Africa – Sasol/Air Liquide CPPA** (260 MW, PPA 2023): TotalEnergies tailored a corporate PPA solution. In Feb 2023 it signed two 20-year CPPAs (120 MW solar and 140 MW wind) with Sasol and Air Liquide. The project is being developed by a local SPV (TotalEnergies Marketing South Africa 70%, Mulilo 17%, Reatile 13%) and will sell all output directly to these industrial off-takers. The entry mode here is a vertically integrated supply contract rather than an open tender: TotalEnergies (through its South African marketing arm) acts as developer, equity investor, and power marketer. Financing is structured via non-recourse project debt, with EBRD and commercial banks arranging capital (not published here, but typical of SA IPP deals). By using a CPPA, TotalEnergies bypassed the traditional Eskom IPP program. This configuration is distinct: offtakers are creditworthy corporates seeking clean energy (with 85% of output pledged to Air Liquide’s hydrogen plant), enabling flexible PPA terms.

**South Africa – Sirius Solar + Storage** (216 MW, PPA 2023): In 2023 TotalEnergies also pursued a public tender project under Eskom’s Risk Mitigation IPP Procurement Programme. The winning bid was a hybrid

plant (216 MW solar + 500 MWh battery) in the Northern Cape. The consortium is TotalEnergies 35%, Hydra Storage 35%, and Reatile 30%. A 20-year PPA was signed with Eskom's offtake program (to mitigate rolling blackouts). Financial close was achieved in Dec 2023 and construction is underway. Financing combines equity and long-term project debt; local B-BBEE equity (Reatile) satisfied South African ownership rules. Of note, the hybrid design and Eskom PPA reflect institutional drivers: Eskom's RFP prioritized dispatchable renewables (hence battery) and fixed-price Eskom offtake. This project demonstrates a joint-venture with mandated local participation (Reatile as a 51% B-BBEE partner) and collaboration with domestic technology providers. The offtaker is Eskom itself (via a government-backed scheme), which enhances bankability.

These embedded cases span diverse configurations of entry mode, finance and offtake: from majority-held JVs with national utilities (Angola), to minority stakes with local developers (Prieska), to full CPPA structures (South Africa), illustrating TotalEnergies' flexible approaches across Africa/ME regions. Each project's equity structure, partners and financing reflect its local context and offtaker model.

### ***3.3.3 Determinants of Entry-Mode Choice***

The analysis of these projects reveals clear institutional and financial drivers behind TotalEnergies' market entry modes. Bankability and context of institutions were of paramount importance. Each project was dependent on long-term revenue guarantees - mostly 20-25 year PPAs - in order to attract investment and debt. For example Qatar's Al Kharsaah and Saudi Rabigh 2 made PPAs for a term of 25 years with state procurement companies, and the South African Sirius had a 20-year Eskom PPA. These long-lasting contracts help to accommodate off-taker risk and fits the usual project-finance model. The credit quality of the offtaker also influenced entry mode: projects tied to government entities (Kahramaa, SPPC, Eskom) could be structured as IPPs with bank debt, whereas the Sasol/Air Liquide project required specialized corporate PPAs because the buyers were private firms. In other words, in markets where governments were the primary buyers, TotalEnergies could participate via regulated tenders; where corporate demand existed, it used direct offtake contracts.

Financing architecture varied accordingly. Public-utility PPAs (Angola, Qatar, Saudi) often involved multilateral or local development banks providing low-cost, long-tenor loans, given sovereign or quasi-sovereign guarantees. For instance, the Angola concession came with a fixed-price PPA expected to "deliver significant savings" to the government, likely making lenders comfortable. By contrast, the South African CPPA (Sasol/Air Liquide) was financed on commercial terms, leveraging Eskom as a credit enhancer indirectly. The record-low bid tariff in Qatar (QAR0.0571/kWh) also illustrates intense competition and the need for highly optimized finance (no excess return margin). In all cases, the presence of an export credit or development bank often bolstered financing, for example, EBRD previously financed many SA IPPs, though details are outside these sources.

Partner and capability assets were equally decisive. In every project, TotalEnergies partnered with established local or regional players to meet regulatory requirements and leverage local know-how. In African projects, majority stakes were typically shared with national oil companies or governments (e.g.

Sonangol in Angola, QatarEnergy in Qatar, local PDV car and EPC), ensuring political support. In South Africa, projects included a Broad-Based Black Economic Empowerment (B-BBEE) partner as mandated by law. For example, the Sirius SPV includes Reatile Renewables (51%), satisfying B-BBEE ownership rules. Similarly, the Rabigh consortium relies on Aljomaih's local footprint and relationships in Saudi Arabia. These partnerships addressed institutional requirements (local ownership thresholds, content rules) and provided operational assets (land access, grid interconnections, offtake facilitation).

Other determinants also emerge from tender rules and market conditions. South Africa's RMIPPPP expressly required B-BBEE and even gender targets, shaping consortium structures. Angola's tender was linked to multi-energy strategy, favouring integrated players. Bid regulations in Qatar and Saudi (e.g. demands for cost competitiveness and domestic job creation) meant that projects had to minimize costs (yielding record-low tariffs) and include local employment plans. The need for technical capability also directed entry mode: complex hybrid projects (e.g. Sirius solar+storage) were undertaken only with experienced international partners (Hydra, which specializes in batteries) under TotalEnergies' lead.

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### **3.4 Findings in relation to the research question**

This section tests four pre-specified propositions against TotalEnergies' project evidence. It was found that procurement regimes, offtaker credit quality, and local ownership rules strongly shaped equity structures. Formal, rule-based auctions (especially in the Gulf) led to standardized joint-venture consortia with defined state or local roles, whereas ad hoc or episodic procurement (common in Africa) produced broader, syndicated coalitions. Solid sovereign backed PPAs enabled concentrated foreign stakes and bankable finance, while weak utilities drove multi-partner agreements. Binding local-content mandates consistently yielded parity or local-majority equity. Overall, these patterns confirm the expected links between market architecture and entry mode. In the following sections, the analysis will match observed entry modes against

pre-specified propositions, divergences and rival explanations (including outliers), and the analytic generalization and contribution to the research gap will be derived.

### ***3.4.1 Pattern matching against propositions***

This subsection tests the four pre-specified propositions proposition-by-proposition, using architecture-first pattern matching to the case evidence and, where relevant, triangulating with interview themes on procurement design, offtaker credit/bankability, local legitimacy requirements, and financing structure.

**Proposition 1 (Procurement Architecture):** In rule-based sovereign auctions, ownership outcomes tend to take the form of structured joint ventures with predefined local roles and relatively stable foreign sponsor shares.

The case evidence strongly supports that programmatic, rules-based tenders yield structured consortia, whereas negotiated or sporadic procurement shows greater variability in coalition breadth. In Qatar and Saudi Arabia, TotalEnergies entered via formal competitive tenders and settled into pre-defined joint ventures with national co-owners. For example, the 300 MW Rabigh 2 solar award (Saudi Arabia) arose from NREP Round 5 and yielded a 50:50 JV between TE and Saudi partner Aljomaih. In this case, the procurement architecture dictated stable, balanced shareholdings and required local partnership roles. Interviewees noted that Middle Eastern renewables procurement is centralized, rules-based, and scaled through sequential tenders, with predictable rules and a built-in expectation of public co-ownership. This predictability compressed risk and enabled sharper tariff competition, but sponsors acknowledged that assets are typically not operated by a single foreign sponsor, ensuring foreign entries took the form of institutional JVs. In short, rule-bound auctions produced the structured joint ventures with predetermined local roles predicted by Proposition 1.

By contrast, in Africa procurement was more heterogeneous and often ad hoc, which coincided with wider syndication of equity. South Africa's REIPPPP and RMIPPPP used auctions, but these still mandated Broad-Based Black Economic Empowerment (B-BBEE) partners, leading to minority foreign stakes. For instance, TotalEnergies' first African project (Prieska, 86 MW, 2016) was won through South Africa's IPP Program yet resulted in a 27% stake for TE and a consortium of local investors (including local municipalities and development funds). The Sirius hybrid project (216 MW solar + storage, 2023) was also procured by tender, but TE's share was only 35% in a consortium with Reatile (51% B-BBEE) and a battery specialist. Even under tender, these deals followed the logic that the procurement program required domestic inclusion. Interviewees observed that in Africa procurement is heterogeneous and often episodic, combining auctions with negotiated deals, and that sponsors therefore formed broad coalitions of technical, financial, and local partners to get projects to bankability. Equity was commonly syndicated to align stakeholders and share risk in a volatile process.

Negotiated or concessionary allocations also yielded diverse partnerships. In Angola's solar concession (Quilemba, 35 MW, 2025), awarded by government concession rather than auction, TE led a consortium (51% TE, 30% Sonangol, 19% local Greentech). Here, TE's majority share reflected its oil-sector

incumbency, but the coalition was still broad, including state and local firms, as predicted for non-auction awards. In contrast to Prop1's expectation of broad equity under negotiated deals, the Angolan JV was nonetheless a relatively concentrated 3-partner group (rather than a large syndicate) – likely a product of Sonangol's role and Angola's targeted strategy. In South Africa's corporate PPAs (the Sasol/Air Liquide deals, 260 MW, 2023), procured bilaterally rather than by public tender, TotalEnergies nevertheless took 70% equity with only two local partners. This again differs from Prop1's simple "negotiated = dispersed" claim. The CPPA was a closed negotiation with large industrial buyers, and TE acted as lead developer; the resulting consortium was tighter, reflecting commercial matching more than a broad-risk-sharing consortium. These instances suggest that while rule-based auctions reliably led to structured JVs with defined roles (confirming the core of Prop1), negotiated deals could vary – some yielding broader coalitions (as in the multi-investor Prieska consortium) and some yielding tighter majority-led JVs (as in the Sasol CPPA).

In summary, TotalEnergies' pattern accords with Proposition 1 in that formal auctions tended to produce stable joint ventures with local partners (as in Qatar, Saudi Arabia, and South Africa's renewables programs), whereas more episodic or corporate-driven procurement in Africa resulted in more openly syndicated equity structures. The interview data underline that procurement design (centralized versus fragmented) is a primary architect of coalition size and composition. The one qualification is that factors like host-government involvement and incumbent advantage can modulate the basic rule: for example, the Angolan concession and the Sasol CPPA were negotiated but still limited the number of sponsors, reflecting the particular institutional bargains in those cases.

**Proposition 2 (Credit Backbone/Bankability):** When the offtaker credit is investment-grade or sovereign-wrapped, foreign sponsors tend to hold larger equity shares with fewer co-sponsors.

The evidence also supports the idea that stronger offtaker credit encourages concentrated foreign equity, while weak offtakers lead to risk-sharing syndicates. TotalEnergies' projects with investment-grade or sovereign-backed customers indeed featured large foreign stakes and straightforward funding. Qatar's Kahramaa (utility) PPA was backed by the state, enabling competitive pricing and bankable financing. In that case, TotalEnergies held 19.6% of the SPV (with Siraj Energy 60% and Marubeni 20.4%), a substantial position supported by a 25-year state PPA. In Saudi Arabia, the SPPC's 25-year PPA similarly underpinned a two-sponsor JV for Rabigh 2 (TotalEnergies with Aljomaih), with only one local partner. In Angola, a government PPA allowed TE to lead with 51%. These contexts – long-tenor PPAs to quasi-sovereign offtakers – match Prop2's "creditworthy offtaker = focused ownership." The case data explicitly note that these state backed PPAs were critical for attracting finance and that projects tied to governments could be structured as standard IPPs with project debt.

By contrast, projects facing weaker offtakers or novel offtake models had more dispersed equity. South Africa's Eskom, a sub-investment-grade and financially stressed utility, required major sharing of risk. The Prieska solar and Sirius hybrid projects were financed by conjoining DFIs and local lenders, and TE held

only 27% and 35%, respectively, with the remainder split among multiple equity partners. The Sasol/Air Liquide CPPA is a special case: the buyers are creditworthy corporates but not sovereign, and TE held 70%. However, even here TE arranged project debt with local lenders under a standard SPV structure, reflecting the need to find bankable support. The patterns indicate that in the absence of a bulletproof sovereign offtaker, sponsors syndicated equity widely to meet banks' risk requirements. Interviewees explicitly contrasted African projects needing multi-layered guarantees, liquidity support, and hard-currency structuring (backed by DFIs) with Middle Eastern projects, where local banks and sovereign credit provided standard long-term debt.

Thus, consistent with Proposition 2, all projects with truly robust offtakers (Qatar, Saudi) or government guarantees saw TE participate as a primary sponsor with few co-owners, whereas projects with untested or weaker revenue sources saw TE share stakes. Exceptions are instructive: Qatar is sovereign-backed yet TE is not majority, but this is due to Prop3 forces (a local champion holds 60%). Angola had a strong PPA and TE majority. In weaker-credit Africa, including South Africa, equity was syndicated. This concurs with the analysis that in African markets with weak institutions and offtaker credit, even large sponsors form multi-party consortia, while in Middle Eastern contexts with transparent tenders but expected local equity, foreign firms still invest predominantly through structured joint ventures. Overall the data affirm that stronger credit backbones allow concentrated equity, and weaker ones necessitate broader coalitions.

**Proposition 3 (Local Legitimacy Requirements):** Where binding local ownership/content rules apply, equity is typically arranged as parity or local-majority co-lead structures.

TotalEnergies' equity structures clearly responded to local-ownership or content rules by forming parity or local-majority alliances. In South Africa, mandatory B-BBEE requirements are well known. Every South African project included a Black empowerment partner, in several cases at majority or co-majority level. For example, the Sirius SPV included Reatile Renewables with 51%, satisfying the law, and in the 2016 Prieska deal the remaining equity was held by local firm Calulo and others. In Saudi Arabia, national energy policy commonly yields joint ventures with domestic partners: the Rabigh 2 consortium was structured as a JV with a domestic partner. Interviews confirmed that Middle Eastern frameworks codify public co-ownership, stating that there is a stable expectation that a domestic public entity will hold a meaningful equity position, effectively mandating joint ventures rather than sole foreign ownership. Similarly, Qatar required a state co-sponsor (QatarEnergy), so foreign share was capped.

Even in negotiated settings, local rules played out. Angola's multi-energy concession involved Sonangol with 30% equity and Maurel & Prom with 19%; TE took 51%. Although TE took 51%, the remaining 49% local share was not a statutory maximum; rather, the split reflected domestic arrangements. Thus, while TE ended up majority, the equity split respected domestic ledgers. In South Africa's corporate PPA, while there is no formal content rule for corporates, TE still formed a joint venture with a B-BBEE partner (Reatile with 51%), reflecting a market expectation of local inclusion even outside formal auctions.

These patterns consistently support Proposition 3: binding local-content or ownership requirements force foreign investors into parity or subordinate roles. The case data emphasizes that TotalEnergies partnered with established local or regional players to meet regulatory requirements in every project. Local partners provided the institutional legitimacy and assets (land, permits, grid access) necessary for project success. In several African cases there was a major state/NOC or public finance partner, and in all South African projects a Black empowerment partner. In the Gulf, public entities routinely take a large share or otherwise shape participation. Thus foreign equity was always constrained by domestic policies, in line with the prediction that projects under local-ownership rules yield lower foreign equity shares than different comparable settings. All examined projects appear compliant with local-ownership mandates and slight differences in TotalEnergies' equity position are attributable to the underlying transaction structure.

**Proposition 4 (Sequencing under Uncertainty):** In new or high-uncertainty jurisdictions, sponsors often begin with low-control/minority positions and step up equity once procurement and credit conditions stabilize.

In new or high-risk markets, TotalEnergies often began with modest stakes and expanded later. It's very first African utility-scale solar JV (Prieska, 2016) was only 27% held by TE. Similarly, TotalEnergies initially entered the 119 MW Wadi Al Dawasir plant as a minority partner, later bidding for Rabigh 2 as a co-sponsor in a compact two-party JV once some project pipeline was established. Notably, in mid-2023 TE acquired full ownership of Total Eren (raising its stake from ~30% to 100%), substantially increasing control over its existing renewables portfolio. These moves illustrate the "step up" dynamic: TE entered cautiously, then consolidated when assets proved bankable or when its strategic plan (35 GW by 2025) required scale. Interviews echo this: minority stakes were described as a strategic, planned entry methodology to gain access and preserve flexibility, with mechanisms (rights of first offer, protective governance) allowing later expansion. One participant noted firms may take a small equity position in early projects and step up only after the PPA performs and operations settle. This is exactly Proposition 4's logic. In practice, as credit conditions or procurement systems become routine, sponsors in this sector tend to move toward greater control. For example, once South Africa's IPP program matured and TE built its local team, it transitioned from minority investments to leading large projects with majority ownership.

However, not all projects followed this pattern strictly. TotalEnergies took a 51% stake immediately in the Angola concession despite it being a relatively new market for renewables, likely reflecting long-standing oil sector ties. In such cases, TE's existing capabilities and host-country relationships allowed it to bypass a "start small" phase. But even there, interviews suggest that any such majority position came with protective co-ownership (Sonangol's 30%) to mitigate host-country risk. On balance, the case largely conforms with Proposition 4: where uncertainty was high (new IPP programs, untested markets), TE and its partners indeed preferred conservative initial shares, expanding later. The few deviations highlight firm-specific factors (legacy presence, competitive strategy) rather than a systematic contradiction.

In conclusion, the TotalEnergies case aligns well with the four propositions. Clear patterns emerged: rule-based auctions (Prop1) correlated with joint-venture equity consortia, while negotiation-driven processes produced broader syndicates; strong offtaker credit (Prop2) enabled concentrated foreign stakes, while weaker credit required equity pooling; strict local rules (Prop3) forced parity or local-majority stakes; and in uncertain environments (Prop4) sponsors started with minority positions and later increased control. These findings were triangulated by interviews, which consistently emphasized procurement design, credit architecture, and local-content mandates as primary forces shaping how equity was distributed. The evidence thus supports the propositions overall, with only a few context-specific nuances discussed below.

### ***3.4.2 Divergences, rival explanations, and outliers***

While the core propositions capture the dominant tendencies, several cases deviate or reveal competing explanations. These divergences highlight the limits of a single factor view and point to additional drivers. One divergence relates to **Prop1** (Procurement Architecture). The proposition suggests that negotiated procurements produce more dispersed equity. Yet in Angola (a negotiated concession), TE led a tight 3-partner JV (51/30/19 split) rather than a very broad coalition. Likewise, the Sasol CPPA (a bilateral procurement) yielded a relatively narrow consortium (70% TE, 17% Mulilo, 13% Reatile) rather than dozens of co-sponsors. These examples imply that procurement procedure alone does not guarantee dispersion. A rival explanation is that the nature of the offtaker or the integration of the project into a firm's existing business mattered. In Angola, TotalEnergies' entrenched oil presence and multi-energy concessions may have streamlined negotiations and limited the number of partners (State agencies like Sonangol plus one developer). In South Africa's CPPA, the corporate buyers required a specialized structure (TE as developer and marketer) that naturally involved fewer parties. Thus, while procurement design exerts strong influence, firm strategy and offtaker identity can override it.

For **Prop2** (Credit Backbone), most cases fit the pattern, but Qatar's Al Kharsaah stands out. Qatar's grid operator is fully creditworthy, yet TE's stake is 19.6% while the state holds 60%. According to Prop2, one might expect TE to concentrate equity in such a safe PPA. However, local-ownership mandates overrode this: Qatar's RFP required government participation and limited foreign share. This shows interplay with Prop3 (local rules). A competing factor was the "ultra-low tariff" environment in Qatar: fierce price competition (QAR0.057/kWh bid) left little margin for any one sponsor, making a larger local anchor necessary. In South Africa, if Eskom's credit is weak, Prop2 predicts syndicated equity, as observed. But the Sasol/Air Liquide project contradicts Prop2 somewhat: corporate offtakers are moderately creditworthy, yet TE held a 70% majority. This suggests additional dynamics: TE's own marketing subsidiary (TotalEnergies Marketing SA) was the developer and power seller, reflecting an integrated supply strategy. In effect, TE internalized much of the risk through its group structure, allowing it to take a large equity share despite Prop2's broad prediction. So here corporate involvement and corporate-sponsor integration provided an alternative path to majority control even without a sovereign PPA.

Regarding **Prop3** (Local Legitimacy), there were few outright counterexamples – local content rules uniformly bound equity. The only partial exception is that Angola's deal could have theoretically been

structured with a majority foreign owner, but instead TE agreed to parity (majority by a single vote) with a strong local ally. A possible rival factor is politics: host governments may use equity to align strategic interests beyond just “legitimacy.” For instance, in Saudi Arabia the timing of Rabigh 2 (announced during a French presidential visit) suggests a geopolitical backdrop. In such cases, the foreign investor’s national affiliation or bilateral relations may influence share allocation. But such effects are consistent with the framework insofar as they reflect a form of “social legitimation” demand by the host.

**Prop4** (Sequencing) sees the most variations. The hypothesis is that sponsors enter new markets as minorities and move to majority later. This pattern is evident in the Prieska→Sirius trajectory and in the Total Eren acquisition. However, TotalEnergies did not sequentially ramp up in every country. In Qatar and Saudi tenders, TE committed early to substantial positions (19.6% within a 60% local structure in Qatar, and a co-sponsor role in a two-party JV in Saudi), rather than starting small. In Angola it bid and took 51% on the first attempt. These decisions suggest that when a firm perceives an environment as structured (even if new) or when it has strong ownership advantages, it may not delay control. The interviews hint at this: firms will take majority stake if they can secure necessary guarantees and political alignment. For example, in the Gulf the high certainty of process and credit (though with local partner required) may have given TE confidence to commit large capital up front.

An alternative explanation for sequencing is project pipeline and opportunity timing. TE’s minority entry in Prieska could partly reflect the fact that the company was just launching in renewables, not yet fully invested in business development. By contrast, later projects came after TE had built global renewables capacity (via Total Eren) and was executing an ambitious growth target. Thus, maturity of corporate strategy, not just market signals, shaped stake size. In other words, growing internal capabilities (an “ownership advantage”) allowed TE to pursue majority positions earlier as the 2020s progressed.

Other outliers include the role of finance structure and development banks. Proposition 2 did not explicitly discuss developmental financing, but the case shows DFIs often co-invest or offer concessional debt to projects with strong development impact (not strictly captured by market institutions). For instance, many South African IPPs used DFI and local development bank debt (e.g., IFC, DBSA). In these instances, the presence of DFIs helped overcome risk and may have indirectly influenced equity splits (by accepting some delays in return for inclusivity). While DFIs are classified under “credit architecture,” one could argue they introduce a separate dynamic: their own mandate to include local equity can reinforce Prop3 independently of government rules.

Finally, consider sector-specific factors. One might propose that technology type (solar vs wind) or plant size could drive entry mode. In this case, however, there is no clear pattern: TE’s modes do not systematically vary by technology. All solar projects show the same influence of institutions, as do the few wind projects. Similarly, larger projects (Al Kharsaah 800 MW) had similar architecture to mid-size ones (Rabigh 300 MW). Thus these factors seem less salient than the institutional architecture.

In sum, the divergences underscore that entry modes are not determined by a single variable. Instead, multiple conditions interplay. The cases generally affirm that procurement rules, offtaker strength, and local

mandates are the primary architecture drivers, but firm strategy, legacy presence, geopolitical timing, and finance partners also modulate outcomes. As an interview summary notes, entry-mode choice follows a configuration logic: strong capabilities plus credible institutions lead to high control, whereas weaker context leads to shared control. This configurational view aligns with the findings. The propositions capture major forces, but the full explanation of any project often required considering several contextual layers. The observed outliers do not invalidate the propositions but refine them. For example, Prop1 still holds that auctions create narrow windows of entry, but the cases show that even in negotiated processes a smaller-scale lead sponsor can emerge if one partner has significant leverage. Likewise, Prop2 is robust regarding the need for bankability, but actual shareholding may be influenced by the investor's ability to self-insure through other means (corporate ownership, export credits). Recognizing these nuances is important: it suggests rival explanations (incumbency, geo-strategy) are not fundamentally at odds with the propositions but often reflect deeper ownership or governance conditions that are incorporated into the analysis.

### ***3.4.3 Analytic generalisation and contribution to the research gap***

This analysis contributes to theory by showing how specific institutional architectures shape entry-mode outcomes, thereby bridging a gap in understanding FDI in project-financed renewables. The case of TotalEnergies demonstrates that foreign equity structures are not ad hoc but follow a consistent "architecture-first" logic. The empirical patterns generalize to theory in that they confirm Dunning's OLI paradigm in a context-specific, configuration-based way. In other words, entry strategies emerged from a "triple fit" of ownership advantages, location conditions, and governance rules rather than any one factor alone. This resolves the previously identified gap: prior literature provided little detail on how procurement design and credit architecture specifically shape equity in renewables projects. The findings articulate that link explicitly.

The contribution is twofold. First, the four propositions themselves examine the key dimensions of architecture that entry-mode research had not fully examined. By confirming them with data, this study establishes an analytic generalization: procurement regime, offtaker quality, local rules, and market maturity together determine the configuration of equity participation. For example, transparent tenders with strong government guarantees set the stage for equity alliances with a major local co-sponsor (structured JVs), whereas non-transparent processes with untested buyers yield syndicated multi-sponsor financing. This outcome logic can be abstracted to similar contexts: firms entering emerging-market renewables should anticipate that auctions tend to impose standardized consortium formats, that weak utility credit often necessitates additional co-investors, and that strict local-content laws may cap foreign share. These propositions thus offer predictive value beyond the case.

Second, the results advance the theoretical framework by integrating financing considerations into entry-mode theory. The classic entry-mode literature (e.g., wholly owned subsidiaries vs. joint ventures) often ignores the credit terms of project finance. Here it is shown that long-tenor PPAs and state backstops function as institutional supports for high-control modes, while their absence nudges investors toward partnerships. In doing so, the Ownership-Location-Internalization (OLI) paradigm is extended: the

“Internalisation” choice in this setting is not just about transaction costs, but about contractual and financial architectures that determine how much risk an investor can bear internally. By highlighting how elements like PPA tenure and sovereign guarantees function as governance tools, the gap is addressed by explicitly linking these factors to observed equity patterns in renewables.

The findings also contribute a new typology of entry modes in the context of project finance. While the case study is of a single firm, the dynamics are instructive for others. For instance, the contrast between the Middle East and Africa in this analysis illustrates how regional institutional systems channel different entry types. Thus, a manager in a Middle Eastern country with a known tender can expect a JV with a government partner, whereas one in a fragmented African market should prepare to syndicate among DFIs, local firms, and development agencies. This type of analytic generalisation (linking entry outcomes to procurement and financing environments) was exactly the research gap identified at the start.

Furthermore, the study underscores the role of policy in shaping investment. By demonstrating how procurement rules and local-ownership laws shape equity, it suggests that host-country institutions are not passive backdrop but active design parameters. This insight bridges international business with energy policy: it shows, for example, that if a government wants to attract foreign capital while maintaining control, it will naturally end up with the observed joint-venture structures. Conversely, if it liberalizes procurement (or if corporates become offtakers), foreign investors may take larger shares. Articulating this link helps to clarify how public auction design and content regulations influence private entry decisions.

Finally, the coherence of the propositions, all supported in one case, indicates that entry-mode choice in renewables must be understood in an integrated framework. This contrasts with some prior work that treated factors in isolation. For TotalEnergies, it was found that no single hypothesis sufficed: the portfolio of projects only made sense when considering procurement design, credit, local rules, and firm strategy together. In this way, the contribution is methodological as well as substantive: it demonstrates the value of a pattern-matching, case-study approach for entry-mode research in project finance.

In sum, this chapter’s analytic generalization is that entry-mode outcomes are configured by context-specific contracts and finance. This confirms and refines the propositions: energy firms navigate a configuration space defined by procurement and financial architecture. The findings explicitly contribute to the identified gap by offering a synthesised, theory-backed account of how these elements play out. Future research can apply this model to other firms or regions, but the present work has already shown that in renewable projects, the focus should firstly be on the architecture (the tender rules and financing arrangements) when predicting equity structure. By doing so, the literature on FDI entry mode has advanced in emerging markets’ green energy, clarifying that the interplay of these interlinked conditions systematically shapes investment decisions and modes.

## Conclusion

This dissertation examined how major energy firms select and structure foreign entry modes for utility-scale solar and wind investments in Africa and the Middle East, using TotalEnergies as a single case with embedded projects and triangulating documentary evidence with sector interviews. Anchored in Yin's case-study methodology, the research employed pattern-matching and explanation-building against pre-specified propositions derived from the theoretical lenses developed in Chapter 1 and operationalised an origination→contracting→financing→operation logic model to identify decision “gates” where entry modes are set. The design emphasised analytic (not statistical) generalisation, a formal protocol and database, and a two-stream evidence strategy distinguishing project-level facts (documents) from interpretive mechanisms (interviews).

Across the embedded projects, the analysis demonstrates that entry-mode outcomes are systematically configured by the institutional and financial architecture in which projects are originated, tendered, contracted and financed. In rule-based auction regimes in the Gulf, outcomes converged on structured joint ventures with predefined local roles and relatively stable foreign sponsor shares. In more heterogeneous or episodic procurement environments common in parts of Africa, equity was more widely syndicated to distribute risk and satisfy domestic inclusion requirements. Where sovereign-backed, long-tenor PPAs with credible offtakers were present, sponsors could assume higher control with bankable finance; in settings characterised by weak utilities or payment risk, multi-partner consortia were the dominant form. Binding local-ownership or content rules consistently translated into parity or local-majority stakes. These patterns confirm the expected link between procurement design, credit architecture and local legitimacy requirements on the one hand, and equity structure and control on the other.

At project level, the determinants of entry mode reflected a recurring trio: bankability conditions (tenure and enforceability of PPAs, offtaker credit), financing architecture (availability of DFI, ECA or local-bank debt at suitable tenor and cost), and partner assets (regulatory fit, local legitimacy, and operational capabilities). These elements interacted with specific tender rules—such as B-BBEE thresholds in South Africa or localisation aims in GCC programs—to shape the feasible coalition set and the distribution of equity and control. The result is a configuration logic rather than a one-factor rule: similar ownership structures appear when the underlying contractual and financial conditions are similar, even across different technologies and sizes, whereas different institutional settings channel otherwise comparable sponsors into distinct coalitions and shares.

Set against the propositions, the evidence supports an “architecture-first” account of entry-mode choice in project-financed renewables. Procurement architecture (Prop 1) strongly predicted structured JVs in programmatic tenders (e.g., Saudi Arabia's NREP rounds, Qatar), while negotiated or concessionary processes invited broader coalitions; credit quality and PPA bankability (Prop 2) aligned with higher control only where long-tenor, enforceable contracts and credible buyers underpinned non-recourse finance; local-

ownership and content rules (Prop 3) reliably translated into equity allocations that embed domestic participation; and sequencing (Prop 4) was contingent—minority “toe-holds” could precede control where learning was required, but where process certainty and guarantees were strong, sponsors sometimes committed to substantial stakes ab initio. Rival explanations—incumbency, geo-strategic fit, and timing—modulated but did not overturn this architecture-first logic.

Theoretically, the study refines and extends established frameworks in two ways. First, it integrates project-finance realities into entry-mode theory by making explicit how PPA tenure, sovereign backstops and risk-mitigation instruments operate as governance mechanisms that enable or constrain internalisation choices. In this context, the “I” in OLI is not exhausted by generic transaction-cost reasoning: it is concretely instantiated in the contractual and financial scaffolding that determines how much risk a sponsor can bear internally versus share through equity syndication. Second, it advances a configuration-based reading of OLI, showing that ownership advantages, location conditions and governance rules must jointly “fit” for a given entry mode to materialise. This moves beyond factor-isolation to a structured account of how procurement and financing architectures channel otherwise similar firms toward different ownership outcomes.

Methodologically, the dissertation also contributes to case-based research on entry modes by demonstrating the value of architecture-first pattern matching over a portfolio of embedded units, with explicit rival-proposition testing and interview triangulation to separate project facts from mechanism inference. The analytic payoff is an empirically grounded, theory-compatible generalisation: in renewables IPPs in emerging markets, entry-mode outcomes are best predicted not by technology or sponsor identity alone, but by the interplay of procurement design, credit architecture and local legitimacy rules.

The study’s scope and evidence strategy suggest clear limitations. As a single-firm case, the results generalise analytically to theory rather than statistically to populations; firm-specific capabilities and legacy positions may condition observed outcomes in ways not fully separable from context. Interviews were conducted with sector professionals rather than with employees of the focal firm; while this strengthens external validity on mechanisms and context, it limits access to internal decision rationales. Finally, documentary constraints mean some financing details remain outside the public domain. These limitations are acknowledged in the design and are mitigated through protocol-driven triangulation and rival-explanation checks, but they remain pertinent boundaries of inference.

Future research can build on this work in at least three directions. First, comparative multiple-case designs across firms (including state-backed and private sponsors) and regions could test the external validity of the architecture-first model and quantify its predictive power for equity concentration and control. Second, longitudinal analyses could track sequencing dynamics as markets mature, mapping when and how sponsors transition from minority to control positions as credit architectures and policy regimes stabilise. Third, extensions into adjacent technologies (e.g., storage-hybrids, green hydrogen) and offtake models (corporate PPAs) would probe whether the same configuration logic holds as contractual forms diversify. Such studies

would further integrate international business with energy-finance by detailing how specific policy and credit designs shape the ownership geometry of clean-energy FDI.

In sum, by tracing how procurement rules, offtaker creditworthiness and local-participation mandates jointly shape the coalitions and equity shares through which projects are delivered, the dissertation clarifies the institutional and financial foundations of entry-mode choice in renewables IPPs. It thereby advances a configuration-based, architecture-first account of OLI in project-financed settings, offers practice-relevant diagnostics for sponsors and hosts, and delineates a pathway for cumulative research at the intersection of international business, project finance and energy policy.

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