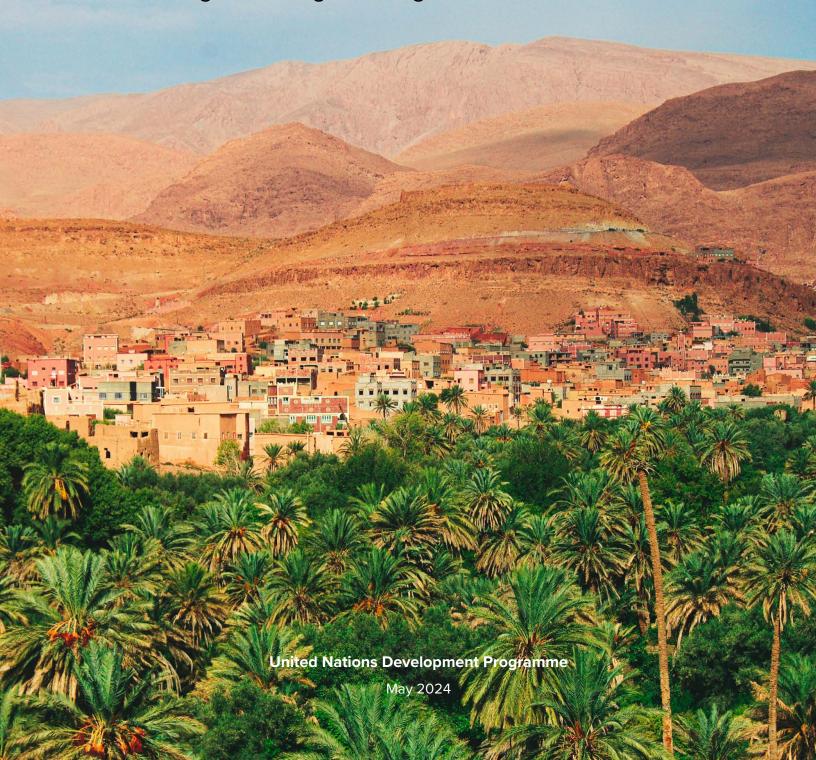




Increasing Private Climate Finance for Low-Carbon Pathways:

Achieving NDC mitigation targets in Arab States



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About this publication

This publication has been developed with contributions from the MENA Clean Energy Business Council (CEBC) under a partnership between UNDP's Regional Bureau for Arab States and CEBC that aims to strengthen collaboration and cooperation on climate change, sustainable energy, and the energy-water nexus.

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This report has been developed under the Climate Promise initiative, with support from Japan. Japan recognizes the climate crisis is a threat to the human security, and, in cooperation with UNDP, leads countries to accelerate their climate action.

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The CEBC is a non-government, non-profit member organization of leading local, regional, and international organizations operating in the Middle East and North Africa (MENA) clean energy sector. An umbrella organization, the CEBC offers corporates, startups, SMEs, and the public sector with an inclusive forum for idea sharing and best practice promotion in the area of clean energy. Members are drawn from amongst the industry's key players, including financiers, project developers, and service providers. Amongst the most important of the CEBC's objectives are to increase public awareness of clean energy and technological developments, address the availability and accessibility of region-wide data, and nurture a dialogue between the private and public sectors to achieve our mission of accelerating the development and deployment of clean energy in the MENA region.

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List of acronyms

AFD	French Development Agency
ADGM	Abu Dhabi Global Market
ADX	Abu Dhabi Securities Exchange
BAU	Business-as-usual
СВЕ	Central Bank of Egypt
CDM	Clean Development Mechanism
CSP	Concentrated Solar Power
DGF	Dubai Green Fund
DoE	Department of Energy
ESG	Environmental, Social, and Governance
ETU	Emissions Trading Unit
FTE	Fonds de transition énergétique (Energy Transition Fund)
GCF	Green Climate Fund
GHG	Greenhouse Gas
HVAC	Heating, Ventilation, and Air Conditioning
LPG	Liquefied Petroleum Gas
MASEN	Moroccan Agency for Sustainable Energy
MENA	Middle East and North Africa
NDC	Nationally Determined Contribution
PE	Private Equity
PJSC	Public Joint Stock Company
PPA	Power Purchase Agreement
PV	Photovoltaic
RCREEE	Regional Center for Renewable Energy and Energy Efficiency
SDG	Sustainable Development Goal
SME	Small- and Medium-sized Enterprise
SPPC	Sweihan PV Power Company
TSP	Tunisian Solar Plan
UAE	United Arab Emirates
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
VC	Venture Capital

Executive summary

This policy brief investigates the critical role that private sector finance plays in achieving Nationally Determined Contribution (NDC) targets in Arab States.

Despite having ambitious NDCs, countries in the region face major hurdles to NDC implementation that include limited access to climate finance and inadequate policy and regulatory frameworks. The financial requirements for mitigating climate change impacts are substantial, totaling around US\$600 billion by 2030 for the region, which is significantly higher than current climate finance flows to Arab States. The gap in climate finance required underscores the necessity of increasing overall climate finance flows to the region. To do so requires collaboration between all actors, including the private sector, and highlights the importance of public-private sector cooperation to finance low-carbon development pathways.

In turn, the policy brief discusses the importance of scaling up private sector finance in order to augment and leverage public sector climate finance and investments. It identifies barriers to private sector investment which include uncertainty around different sectors, lack of finance taxonomies, and perceived investment risks. It shows how countries like Egypt, Morocco, Saudi Arabia and the United Arab Emirates (UAE) have attracted private investments through risk mitigation and favourable policy frameworks.

Comprehensive recommendations are proposed for Arab States' governments to attract and strengthen private sector participation in climate action. These include policy de-risking, regulatory framework improvement, scaling up finance through incentives and support mechanisms, awareness raising, capacity building, and fostering partnerships between public and private sectors. By adopting these measures, the policy brief concludes that the region can unlock the potential of private finance to achieve NDC targets, thereby contributing to global climate goals and sustainable development in the region.



1. Introduction

Across the world, the negative consequences of climate change are being felt, and the Arab States region is no exception. Arab States are increasingly suffering from the adverse impacts of climate change such as water scarcity, flash floods, droughts, sea level rise, land degradation, heat waves, heat stress and dust storms.

To address this global challenge, countries have developed national climate pledges, or Nationally Determined Contributions (NDCs), that set out targets and commitments to reduce greenhouse gas (GHG) emissions and build resilience to climate impacts. NDCs explain how to achieve these climate goals by prioritizing mitigation and adaptation sectors and measures, and by providing information on how to track progress and what a country's financing needs are. Under the Paris Agreement, every five years, countries are required to resubmit their NDC and encouraged to

increase ambition. Globally, counties will be submitting the next round of enhanced NDCs to the United Nations Framework Convention on Climate Change (UNFCCC) in 2025.

While Arab States are undoubtedly taking climate action, almost all countries face multiple hurdles to achieving their NDC targets. Limited access to climate finance and technology challenges coupled with a weak policy and regulatory environment for mitigation and adaptation action has presented a barrier to NDC implementation.

1.1. Background to climate finance landscape and private sector participation

The financial needs for climate action in the region remain immense. Currently, it is estimated that climate finance flows to the region, including those from the private sector (international and domestic), averaged \$US19 billion in 2021-22¹ yet a minimum of \$600 billion² is required to effectively tackle and navigate the challenges of climate change until 2030.

It is clear that Arab States require major increases in both public and private climate finance flows in order to meet climate targets. There is tremendous potential for significant benefits from increased investment in renewable energy and other low-carbon technologies. A 2020 IRENA report found that of the total global investment for renewable energy projects, 14 percent

¹ Climate Policy Initiative. (2023). Global Landscape of Climate Finance 2023.

² UNDP. (2022). The State of Climate Ambition- Arab States Snapshot.

came from the public sector and 86 percent from the private sector, illustrating how large a role business is already playing across the world.³ However, this high percentage of private sector investment has yet to manifest in the region, as countries continue to face substantial challenges in mobilizing the scale of private sector finance needed for mitigation action.

Nonetheless, the submitted NDCs by Arab States show priority areas and sectoral targets which can support the scaling up of private sector finance for mitigation action in the region. Several countries have introduced risk mitigation strategies to attract private investments, mainly for renewable energy and energy efficiency projects. Notably Jordan played a trailblazing role by

becoming the first country in the region to establish a solar Independent Power Producer (IPP) backed by a government-guaranteed Power Purchase Agreement (PPA). This move paved the way for innovative financing models to support renewable energy projects.

Additionally, countries such as Egypt, Morocco, Saudi Arabia and the United Arab Emirates (UAE) have adopted auction policies, associated with long-term PPAs, sovereign guarantees, low-rating financing mechanisms, and allocating and preparing lands for renewable energy projects. Such measures play a significant role in reducing project costs and unlocking the renewable energy market.

1.2. Policy brief objectives

This policy brief aims to identify major barriers and opportunities to scale up private sector finance for NDC implementation in Arab States and targets ten middle and high-income countries: Algeria, Bahrain, Egypt, Kuwait, Morocco, Oman, Qatar, the Kingdom of Saudi Arabia, Tunisia and the UAE. The countries targeted in this policy brief have prioritized the expansion of renewable energy in their electricity generation and established ambitious goals aimed at increasing the proportion of renewable energy in their power supply, as well as improving the energy efficiency in various sectors. Additionally, considering the critical importance of the energy sector to the economy, adapting energy systems to withstand the impacts of climate change will be necessary to build resilience and this has also been captured in the region's NDCs.

The policy brief provides useful insights for national governments and private sector stakeholders in the region regarding investment opportunities related to climate action. It begins by looking at the major emitting sectors in the region and NDC emission reduction and sectoral targets (Section 2). It then turns to NDC financing by exploring climate finance and finance gaps (Section 3) before moving to sustainable climate investment strategies including market mechanisms and venture capital to increase private sector investment (Section 4). Section 5 looks more in depth at case studies of country experiences with market mechanisms before concluding with a set of practical recommendations for scaling up private sector finance for NDC implementation (Section 6).

³ IRENA. (2020). Global Landscape of Renewable Energy Finance 2020.



2. Key emitting sectors and emissions reduction targets in Arab States' NDCs

Since the adoption of the Paris Agreement in 2015, 17 Arab States⁴ have submitted their NDCs that outline their mitigation and adaptation objectives. The ambition and scope of Arab States' NDCs vary, but there is a general trend towards low-carbon development pathways. Almost all countries in the region have set targets for reducing GHGs in their NDCs, especially within high emitting sectors such as energy, industry, transport and buildings (Table 1).

Table 1 CO₂ emissions from key mitigation sectors in target countries (MT)

Sector	Algeria	Bahrain	Egypt	Kuwait	Morocco	Oman	Qatar	Saudi Arabia	Tunisia	United Arab Emirates	Total per sector
Energy	139	60	192	92	31	77	124	443	15	130	1,303
Industry	55	10	121	43	38	40	42	327	15	132	822
Transport	50	4	67	13	25	13	11	156	9	39	387
Agriculture	16	0.05	38	1.3	13	2	0.7	-0.3	0.3	-6.2	65
Buildings	27	0.3	20	0.5	9	21	0.5	8	4	2	92

Source: World Data Lab. (2023). World---- Emissions Clock, (accessed January 2024).

⁴ Algeria, Bahrain, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Saudi Arabia, Somalia, State of Palestine, Sudan, Syria, Tunisia and Yemen.

Energy related GHG reduction targets take shape through diversifying energy sources, improving energy efficiency, and building the resilience of energy infrastructure to extreme weather events, among other critical mitigation measures (see Table 2). When looking at **diversifying energy sources**, all countries in the region have set a target to generate 190 GW of renewable energy capacity by 2030.5 Specifically, the UAE has set a target to increase the share of renewable energy in its energy mix to 50 percent by 2050.6 Similarly, Egypt's NDC includes a target to generate 42 percent⁷ of its electricity from renewable sources by 2030 through on-grid renewable energy projects. Morocco also seeks to generate 52 percent of its electricity from renewable sources by 2030.8 Algeria is aiming to reach 27 percent of electricity generated from renewable sources by 2030.9 To meet these targets, countries are undertaking a variety of strategies. For example, creating feed-in-tariff programmes to encourage renewable energy investment and developing large-scale solar and wind projects.

In terms of increasing energy efficiency, countries are promoting energy efficiency initiatives and enhancing energy efficiency in electricity generation through the maintenance, digitalization, modernization and replacement of ageing power facilities. Improving energy efficiency is especially important in the building, transport and industrial sectors. For example, this involves measures like enhancing insulation, optimizing HVAC systems, using energy-efficient appliances, and installing rooftop solar panels. Saudi Arabia aims to cut building sector energy consumption by 30 percent by 2030, while Oman plans to implement energy efficiency standards for air conditioners. Energy-intensive industries like cement, steel and petrochemicals contribute significantly to GHGs, prompting countries to promote energy efficiency and low-carbon processes. Saudi Arabia targets a 10 percent emissions reduction from the cement industry by 2030. Addressing transport emissions involves private sector investments in electric vehicles and public transport. The UAE aims for a 30 percent share of public transport in urban areas and increased electric vehicle adoption by 2030.

While countries set ambitious emission reduction goals, public budgets alone are insufficient, necessitating private sector involvement in climate change mitigation.¹⁰

When turning to quantifying emissions reductions, several Arab States have enhanced targets. In July 2021, Morocco's updated NDC strengthened its' earlier pledge. The revised goal calls for an unconditional cut in emissions of 18.3 percent below business-as-usual (BAU) by the year 2030. This is an increase from the previous NDCs which called for a reduction of 17 percent. This new target translates to an absolute emissions level that is 21 percent lower than the previous target thanks to an updated BAU scenario. The initial NDC called for a decrease of 42 percent, but this has since been increased to 45 percent below BAU as the conditional aim for the second NDC.¹¹

In Tunisia, the updated NDC raised ambition from a 41 percent reduction to a 45 percent reduction in carbon intensity. The UAE's NDC considerably strengthened the country's previous contribution to reduce GHG emissions which resulted in an increased target from 23.5 to 31 percent by 2030 relative to BAU, with the objective to accelerate the transition to a green economy while maintaining sustainable and balanced economic growth. The UAE intends to diversify its economy and employ a knowledge-based strategy to achieve its development objectives. These increased ambitions reflect a growing recognition of the urgency of addressing climate change in the region.

⁵ RECREE and UNDP. (2023). Arab Future Energy Index, 2023.

⁶ United Arab Emirates. (2023). Third Update of Second NDC for the UAE.

⁷ Government of Egypt. (2023). Egypt's Second Updated Nationally Determined Contribution.

⁸ Government of Morocco. (2021). <u>Updated Nationally Determined Contribution, Morocco.</u>

⁹ Government of Algeria. (2015). INDC-Alegria.

¹⁰ Tom Kerr and Aditi Maheshwari. (2017). Unlocking Private Finance To Help Governments Achieve Their Climate Goals.

¹¹ Government of Morocco. (2021). <u>Updated Nationally Determined Contribution</u>, <u>Morocco</u>.

¹² Government of Tunisia. (2021). <u>Updated Nationally Determined Contribution</u>.

 Table 2: Key GHG emission and sector targets in NDCs from selected Arab States

Country	NDC	Target areas	GHG emission reduction targets	Key sectoral targets	Previous GHG emission reductions targets
	year	Mitigation			
Algeria	2016	Energy Transport Cities Industry Waste Forests	Total 7 - 22% GHG emission reductions by 2030	 9% reduction in energy consumption by 2030 27% of its electricity from renewable sources by 2030 1% reduction in gas flaring 1 million vehicles converted to LPG 20,000 buses converted to LPG 	No previous NDC submission
Bahrain	2021	Energy	Not specified	 6% reduction in energy consumption by 2025 5% peak energy capacity from renewable by 2025, 10% by 2035 	Not specified
Egypt	2023	Energy Transport Industry Cities Tourism Waste	 - 37% GHG emission reduction by 2030 from electricity generation transmission and distribution - 65% GHG emission reduction by 2030 from oil and gas activities - 7% GHG emission reduction by 2030 from transport sector 	 Increase renewable energy generation contribution to be 42% of generation mix by 2030 10% decrease in thermal energy consumption by the iron, steel, fertilizers, and ceramic tiles industries 95% waste collection efficiency by year 2025 60% of the collected waste utilized 20% of collected waste utilized for waste-to-energy 	33% GHG emission reduction by 2030 from electricity generation transmission and distribution
Kuwait	2021	Energy Industry	- 7.4% total commitment for GHG emissions avoidance by 2035 (Unconditional)	 Energy sector: CO₂Eq 8.34 million tonnes by 2024 Carbon reuse: CO₂Eq 327,000 tonnes by 2022 	No previous NDC submission
Morocco	2021	Energy Industry Transport Waste Agriculture Forests Cities	Total commitment for GHG emission reduction by 2030: 18,3% Unconditional; 45.5% Conditional	52% of the electricity generation by 2030: • 20% solar • 20% wind • 12% hydro	Unconditional emissions reduction: 17% by 2030 Conditional target: 42% by 2030 Morocco also revised downwards the BAU scenario, to which the reduction targets are applied. For the unconditional target, this leads to 21% lower emissions in 2030 compared to the first NDC submission, and 29% for the conditional target.
Oman	2021	Energy	7% GHG emission reduction by 20304% Unconditional3% Conditional	 Energy sector: 20% of electricity from renewables by 2027 (2,660 MW; 79% solar photovoltaic (PV) with and 21% wind) Energy sector: 63% increase in efficiency gasfired plants by 2027 	Intended Nationally Determined Contributions (INDCs) to reduce their absolute GHG emission by 2% by 2030

NDC submission	Target areas	GHG emission reduction targets	Key sectoral targets	Previous GHG emission reductions targets
	Mitigation			
Qatar 2021	Energy Industry Transport Cities Waste Tourism	• 25% Total GHG emission reduction by 2030 (Unconditional)		No previous NDC submission
Kingdom of Saudi 2021 Arabia	Energy	 Unconditional reduction and avoidance GHG emissions by 278 million tonnes of CO₂eq annually by 2030 	 Increase of energy efficiency in the industry: 38% Energy sector: renewable energy target: 3815 MW by 2030 	Tunisia's first NDC aimed to reduce its carbon intensity by 41% between 2010 and 2030
Tunisia 2021	Energy Industry Agriculture Forestry Water	 Total commitment 45% reduction of GHG emissions by 2030: 27% Unconditional, 18% Conditional Energy sector: emission reduction of 72% by 2030 Other Land Uses: emission reduction of 13% by 2030 Greenhouse gases Industrial Processes: emission reduction of 9% by 2030 Waste Processes: emission reduction of 9% by 2030 	UAE Energy Strategy 2050 targets a 30% clean energy capacity mix by 2031 (and 50% by 2050) Electricity generation: 19.8GW of clean energy sources Reduction of final energy demand through individual and institutional consumption efficiency to 45% by 2050 National Water and Energy Demand Side Management programme 2050 targets a 40% reduction in energy consumption and 51% in water consumption compared to BAU by 2050	Unconditional target: 17% GHG emission by 2030
United Arab 2023 Emirates	Energy Industry Transport Waste Agriculture Forestry Cities	 19% - Total commitment to reduce GHG emissions by 2030 (31% Unconditional) 100% net zero by 2050 51% GHG reduction of electricity generated emissions by 2030 1% GHG reduction of transport emissions by 2030 5% reduction of industry emissions from energy demand by 2030 56% GHG reduction of buildings emissions by 2030 22% GHG reduction of agriculture emissions by 2030 		

Source: National NDCs, accessed at UNFCCC's NDC Registry.



3. NDC financing needs and gaps

Global public and private financing for climate mitigation and adaptation solutions fall substantially short of what is required to achieve GHG reduction and resilience goals. In 2021-22 the region received an estimated \$19 billion in climate finance.

Yet, it is estimated that by 2030, a total of approximately \$600 billion¹³ will be required to implement NDCs in the region. It is worth noting that Algeria, Bahrain, Oman, Qatar, Saudi Arabia, Syrian Arab Republic, UAE and Yemen did not include the cost of their identified needs in NDCs and that a large share of the required finance (approximately 76 percent) was identified by Egypt, Iraq and Morocco.¹⁴ This indicates that the finance required for the region is likely underestimated since it does not include the NDC financing needs of each country. Additionally, while data exists around climate finance in the renewable energy, energy efficiency and transport sectors, data gaps in tracking climate finance across other sectors has meant that estimates about financing needs can vary.

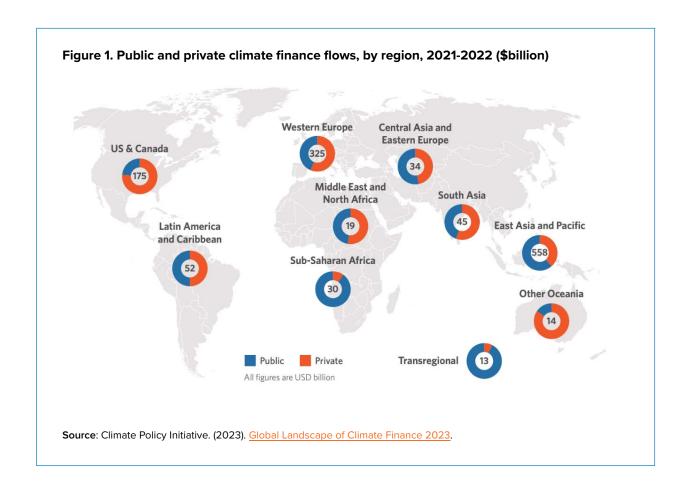
To meet these robust needs, both international and domestic public financing falls far short and the private sector continues to struggle to attract large-scale financing, as projects often do not satisfy lending criteria of size, tenor and risks.

Domestically, governments have limited financial resources and capacities to support the financial gap. For the resources they do commit to climate action, they underutilize blended finance approaches that could maximize the impact of these resources. Notably, the amount of public and private finance to the region is quite balanced, however, the region receives some of the lowest amounts of finance in comparison to other regions (Figure 1). In addition, private sector financing is frequently focused on local solutions, while not being able to fully support national projects that achieve broader socio-economic resilience. According to IRENA, the finance gaps for NDC implementation in the region vary by country and depend on the specific priorities and targets outlined in each country's NDC. However, most countries in the region have identified significant finance gaps that need to be addressed to fully implement their NDCs.15

¹³ UNDP. (2023). The State of Climate Ambition- Arab States Snapshot.

¹⁴ UNFCCC. (2022). <u>Technical Assessment of Climate Finance in the Arab States: Annex to the Arab States Climate Finance Access and Mobilization Strategy</u>, 2022.

¹⁵ IRENA. (2020). Global Landscape of Renewable Energy Finance 2020.



In Egypt, the minimum financial resources required to implement the updated NDCs through 2030 are estimated to be \$246 billion. The cost of mitigation interventions are \$196 billion, while the cost of adaptation interventions are \$50 billion.16 The financial estimates are derived from the required up-front capital expenditures to implement mitigation and adaptation programs, capacity development and technology transfer, and the required human resources to implement the actions. For Egypt, and for most countries in the region, the actual implementation of these mitigation and adaptation measures is contingent upon the availability of adequate and appropriate international financing in the form of highly concessional financing and grants, as well as substantive private investment. This includes funding for renewable energy, energy efficiency, transportation, and adaptation measures such as coastal protection and water resource management. In Morocco it is estimated that \$50 billion in total funding is needed to achieve national emission reduction targets, including \$24 billion in international support.¹⁷

In Tunisia, NDC implementation is estimated to cost \$19.3 billion over the period 2021-2030, of which \$14.3 billion is for mitigation.

These examples illustrate that the finance gap for NDC implementation in Arab States is significant and will require a combination of domestic and international public funding and private sector capital. Development of blended and innovative financing mechanisms will be crucial to attract private sector capital as part of achieving national climate objectives and to build resilience to the impacts of climate change.

¹⁶ Government of Egypt. (2023). Egypt's Second Updated Nationally Determined Contribution.

¹⁷ NDC Partnership. (2024). NDC Country Outlook Morocco (accessed January 2024).



4. Increasing private sector investment in climate action

4.1. Private sector NDC investment challenges

A United Nations Environment Programme (UNEP) 2022 study undertaken with banks in Arab States identified several barriers to financing climate action. These include: a need for countries to identify clear sectoral climate priorities that banks can focus on; a lack of climate finance taxonomies that can guide banks and financial institutions lending portfolios; and a lack of awareness building to mainstream climate finance, internally within banks, across competitors and with financial regulators. Most banks in the region have short-term funding and avoid the maturity mismatch implied in the financing of long-term climate-related projects.

Due to perceived risks or ambiguity around the expected rewards, investors may be reluctant to finance clean energy initiatives. However, to obtain capital for these kinds of projects, banks may find it difficult to get investments for sustainable initiatives according to the high risk registered for these projects and the complexity of procedures for lenders, particularly if they have a long payback time or are viewed as risks. As a result, banks might not have the capacity in place or mechanisms to assess sustainable investment opportunities and efficiently manage projects. In the same vein, finding and evaluating an acceptable investment opportunity may be difficult as well. Nonetheless, the investment needs for climate action in Arab States are substantive and indeed require contribution from the private sector. However, the private sector is still not well engaged in NDC implementation in many Arab States due the barriers discussed: lack of supporting policies, financial incentives, and investment risk measures.

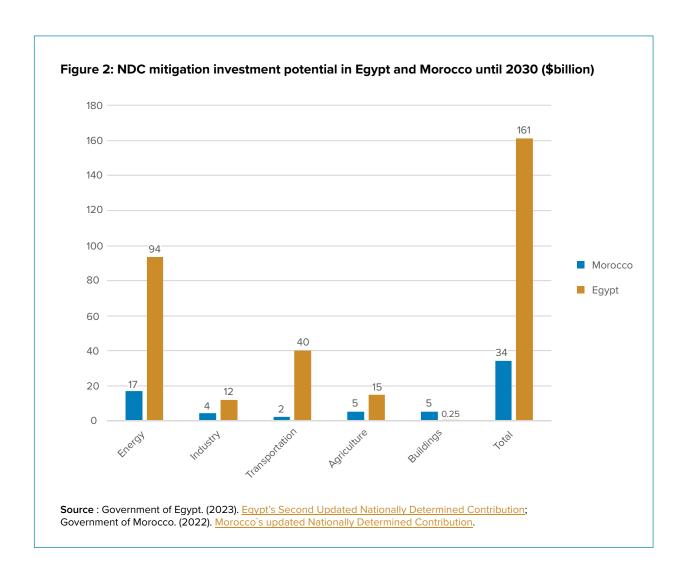
4.2. Private sector NDC investment opportunities

While total private sector investment in mitigation action may still be low in Arab States compared to needs, there are valuable reasons why private sector actors have interest to engage in climate mitigation investment opportunities. For instance, there are investors who search for profitable investment opportunities and/or for opening new markets, while others aim to reduce climate risks that may affect their businesses.¹⁹ While estimating

the total investment potential for the region is limited by data, some countries have listed investment needs in their NDCs, which can be instructive for the region. In Egypt and Morocco, the total climate-investment potential until 2030 is estimated to be over \$195 billion for energy transition, industries, transportation, agriculture and climate-resilient buildings (Figure 2).

¹⁸ UNEP. (2022). Scaling Private Sector Climate Finance in the MENA Region.

¹⁹ Government of Eswatini and the Commonwealth Secretariat. (2021). Strategy to Enhance Private Sector Engagement in Eswatini NDC Actions.



Two specific opportunities for strengthening private sector investment and participation in mitigation action include leveraging public resources and exploring venture capital for SMEs, both discussed below.

Leveraging domestic public capacity and resources:

Ambitious targets and innovative policies serve as the foundation for attracting private investment, reforming energy subsidies, establishing renewable energy institutions and special renewable energy development zones across the region. Through a strategic partnership between governments, multilateral agencies and development banks, donors' community, private sector companies, philanthropy, and civil society, new capacities can be developed to support interventions with the potential to expedite the attainment of both NDC targets and SDG7.

Through innovation, new business and financial models, these partnerships will be crucial for modernizing and decarbonizing energy infrastructure. This should be accompanied by new financial mechanisms and policy risk-mitigation strategies to channel public and private climate finance where it will have the greatest impact and be most required. For instance, the value of green bonds issued by Arab States has shown appreciable growth in recent years. The total issuance of green and sustainability-linked debt in the region reached \$18.7 billion, more than a fourfold increase over \$4.5 billion in 2020.20 Yet, the green bond market has scope to greatly expand and truly move the needle toward net-zero goals, financial regulators can incentivize that growth in several ways. Examples of how governments can leverage public funds to strengthen private investment in climate action are presented in Box 1.

²⁰ https://www.bcg.com/publications/2022/financing-net-zero-middle-east

Box 1

Morocco – Employing green bonds to finance the clean energy transition

To support NDC implementation Morocco is using green bonds to finance clean energy initiatives. The Moroccan Capital Market Authority created a <u>guide</u> for the use of green bonds, which has been utilized to finance large-scale renewable energy initiatives. The 580 MW Ouarzazate Solar Power Station (NOOR I, II, and III), costing \$2.45 billion, was primarily financed by domestic and international green bonds. In November 2016, the Moroccan Agency for Sustainable Energy (MASEN) issued the nation's first green bond in the amount of \$115 million to finance the NOOR Solar Thermal Plant. Further project financing was primarily provided by the Climate Investment Fund, the World Bank, the African Development Bank, and KfW Development Bank (over \$64 million in total). Additionally, the World Bank and the French Development Agency (AFD) issued \$150 million in green bonds to the *Banque Centrale Populaire du Maroc* to finance a wide range of renewable energy initiatives across the country. Given the size, technology and financing structure of the NOOR initiative, it is considered the first of its kind in Africa.

The UAE – National green finance instruments

A variety of green finance instruments and initiatives are being developed and implemented in the UAE. For instance, the 2016-established Dubai Green Fund (DGF) provides low-interest loans to businesses in the renewable energy sector. Instruments for financing sustainability initiatives have emerged in the form of green bonds/sukuk issued by leading UAE corporations. In 2020, the emirate of Abu Dhabi launched the Green Bond Programme, a joint initiative of the Abu Dhabi Department of Energy (DoE), Abu Dhabi Global Market (ADGM), and Abu Dhabi Securities Exchange (ADX) that aims to develop a transparent framework for green bonds to assure impact and increase investor confidence. Also, TAQA announced in 2022 that Sweihan PV Power Company PJSC (SPPC) had successfully priced green senior secured bonds with a principal amount of \$700.8 million.

Venture capital for SMEs

At the global level, there has been a significant improvement in the value of venture capital (VC) investment in climate technologies over the years. In the period from 2013 to 2019, total venture funding globally for climate technologies had more than a 3,750 percent increase, however, the MENA region's share remained limited, standing at only around 1.5 percent of the total VC investment made during this time.21 While VC financing for energy projects in Arab States is still relatively new, it is constantly growing as governments and investors seek to diversify their economies and promote renewable energy. Several VC firms have been established in the region to invest in renewable energy projects, particularly solar and wind energy. This growth is not isolated but should be understood in the context of the broader private financing options available, including private equity (PE), angel investors, traditional bank loans, and newer crowdfunding platforms.

What sets VC apart from these alternatives is its agility, its capacity for sharing risk with entrepreneurs, and its potential for providing not just capital but also mentorship and invaluable access to expansive networks. This makes VC a strategic choice for energy projects in the region where governments are promoting renewable energy through the introduction of regulatory frameworks and incentives and renewable energy targets in NDCs (see Table 2).

Companies such as Yellow Door Energy, Enerwhere, and Cleanergy Middle East demonstrate that there are opportunities for innovative start-ups to succeed in the region through the support of VC (Box 2). Encouragingly, as more venture capital firms enter the market, government's increase support provided to renewable energy projects. This beneficial relationship is expected to see more success stories come to fruition in the coming years.

²¹ CEBC. (2022). Venture Capital in MENA Climate Tech-White Paper.

Box 2

Yellow Door Energy - Dubai, the UAE

Yellow Door Energy is a company based in Dubai that provides solar power solutions for commercial and industrial customers in the Middle East and Africa. The company was founded in 2015 and has raised \$65 million in VC funding. Its' success can be attributed to focusing on providing cost-effective and reliable solar power solutions for businesses, as well as its strong partnerships with local governments and businesses. The company has implemented over 110 solar projects across the region, including a 6.6 MW solar project in Dubai that is one of the largest rooftop solar installations in the world.

Enerwhere – Dubai, the UAE

Enerwhere is a Dubai-based company that provides mobile solar power solutions for remote and off-grid locations. The company was founded in 2012 and has since raised over \$1.5 million in VC funding. Enerwhere's success can be attributed to its innovative business model, which provides a cost-effective and sustainable alternative to traditional diesel generators for remote locations. The company's mobile solar power systems have been used in several high-profile projects, including the Abu Dhabi Grand Prix and the Dubai Expo 2020.

Cleanergy - Sweden

Cleanergy is a Swedish company that provides concentrated solar power (CSP) solutions for industrial applications. The company has a subsidiary in Dubai, Cleanergy Middle East, which was established in 2017 to focus on the Arab Region. Cleanergy Middle East has received VC funding from several investors, including Masdar Capital and Chalmers Ventures. The company's CSP solutions can be used in a wide range of applications, from desalination to industrial heating and cooling.

While the examples in Box 2 illustrate successful examples of VC funding supporting commercial energy initiatives, there still remain a set of challenges to fully realizing this financing potential, especially for SMEs. They include:

- Lack of investment-ready projects: Many SMEs in the energy sector struggle to develop investmentready projects that meet the criteria of VC investors. This can be due to a lack of technical expertise, limited access to financing and insufficient market research.
- Limited access to networks: SMEs may struggle to connect with VC firms due to a lack of access to networks and business connections. This can make it difficult for them to identify suitable investors and build relationships with them.
- High risk perception: VC firms often perceive energy projects as high-risk investments due to the complexity of the industry, regulatory uncertainties, and the volatility of energy markets. This can make it difficult for SMEs to attract investment and secure favorable terms.

- Limited financial resources: SMEs may not have the financial resources to develop and implement energy projects at a large scale, which can make it difficult for them to attract VC investment.
- Lack of suitable regulatory frameworks: The absence of suitable regulatory frameworks for renewable energy projects can create legal and regulatory uncertainties, which can deter VC firms from investing in energy projects.
- Limited pool of experienced management teams:
 VC firms may be hesitant to invest in energy projects
 if they are not confident in the management team's
 ability to execute the project. SMEs may struggle to
 attract experienced management teams due to a
 limited pool of talent in the energy sector.



5. Case studies on different market mechanisms for NDC Implementation

5.1. Egypt - pioneering clean energy transition in the region

The Government of Egypt is attempting to diversify its energy supply and boost the amount of electricity generated from renewable sources, mainly wind and solar (42 percent of renewable energy in the generation mix by 2030), due to the country's expanding domestic energy demand, which continues to exceed generation capacity and expansion. Through energy savings programmes and new transmission and accounting systems, the country is working on creating new regulatory models to boost energy production and efficiency, particularly for utilities and, ultimately, their consumers. Egypt has committed to performing thorough energy sector studies to establish the impact that climate would play in energy demand, an important step to increase the adaptive capability of the energy sector.

Between 2014 and December 2021, a total of 28.3 GW was added to the system, resulting in a total installed capacity of 59.5 GW, which comprises both conventional and renewable energy sources. This was done through multiple initiatives including a \$2.7 billion fast-track project that installed 3.636 GW of energy in 8.5 months. A deal was signed with Siemens in March 2015 that built three mega combined power cycle plants, resulting in

the addition of 14.4 GW in 2.5 years. The power sector in Egypt worked to convert old simple cycle power plants to combined cycle power plants and this provided another 1.85 GW to the system. In addition, energy efficiency practices in the power sector led to GHG reductions.

Egypt has roughly 1.375 GW of wind power plants in operation (as of the third quarter of FY 2020/2021)²², which mostly fall under the New and Renewable Energy Authority (NREA) while one project is controlled by the private sector with a capacity of 250 MW. In addition, there are 1.623 GW of PV energy and 20 MW of CSP installed. There are 2.832 GW of installed hydropower.²³ By the end of 2021, various renewable energy sources were installed and totalled 5.872 GW.

Egypt is well-positioned to further maximize its potential in energy production and market liberalization, with plans to increase its connections to Europe, Africa and across the Middle East. The 2015 Power Law made fundamental changes to the electricity market, making it completely competitive. Unbundling the ownership of production, transmission, and distribution operations, giving third parties grid access without

²² Ministry of Electricity and Energy, Government of Egypt. (2020). Egyptian electricity holding company annual reports, 2020.

²³ International Trade Administration. (2022). Electricity and Renewable Energy.

bias, and guaranteeing the energy regulatory agency's independence, competency and responsibility were among the measures taken. Furthermore, Egypt's Central Bank is taking steps to establish a sustainable banking system. These measure supports private sector action as it fosters a financial environment conducive to investment and growth. By ensuring the integrity and resilience of the banking system, the Central Bank provides confidence to both domestic and international investors, encouraging them to participate in Egypt's economic development initiatives. A sustainable

banking system also facilitates access to financing for energy projects and infrastructure development, crucial components for further advancing Egypt's energy sector. This alignment between regulatory measure and financial stability empowers the private sector to innovate and expand, driving economic prosperity and sustainable energy practices for the nation's future low-carbon development. Box 3 below provides an example of how the Central Bank of Egypt is scaling up climate finance to advance low-carbon development in the country.

Box 3: The Central Bank of Egypt- scaling up climate finance

The Central Bank of Egypt (CBE) is taking steps to implement the <u>UN Principles for Responsible Banking</u> across the entire banking sector. These principles provide a distinctive framework for establishing a sustainable banking system and demonstrating the industry's potential to make a favourable impact on society. The key principles of the initiative are as follows:

- Alignment: The adaptation of the strategies of banking institutions to support the attainment of the SDGs and the Paris Climate Agreement.
- **Impact**: This involves amplifying the positive impacts of banking institutions while minimizing the negative effects on the environment and society. It also entails implementing environmental and social risk management measures in response to the impact of their banking practices.
- Clients and customers: Work closely with clients, promoting sustainable practices and enabling
 sustainable economic activities that create opportunities for growth and prosperity for both
 present and future generations. This involves engaging with stakeholders and consulting and
 communicating with all parties concerned to achieve society's goals.
- **Stakeholders**: Proactively engage and responsibly consult, engage and partner with relevant stakeholders to achieve society's goals.
- Governance and targets setting: Activation of governance policies and the establishment of a culture of responsible banking requires a focus on governance and target setting.
- Transparency and accountability are also essential, necessitating regular reviews of the individual
 and collective implementation of principles to ensure that financial institutions are transparent
 and accountable in disclosing their business practices and their positive and negative effects on
 society's objectives.

5.2. Egypt - Benban solar park and special economic zone

The Benban Solar Park is located withing the Aswan Governorate in Egypt and is part of an area that was designated as a special economic zone for renewable energy projects. This designation is part of Egypt's efforts to attract investment in the renewable energy sector and promote the development of large-scale solar projects.

The Government of Egypt created a specific framework for the Benban Solar Complex to encourage private investment in solar power generation. This includes incentives such as tax breaks, net metering, reduced fees, and streamlined administrative processes to facilitate the implementation of the projects. The project attracted significant private sector investment with several dozens of international and domestic companies

participating. The infusion of over \$4 billion of public and private capital was instrumental in financing the construction and development of the solar park.²⁴ The development of the area (~40km²) with renewable energy technologies provided economic benefits, creating around 20,000 jobs during construction period and 6,000 permanent positions by the companies

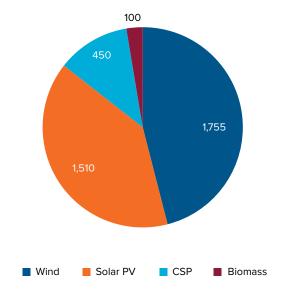
operating the park.²⁵ Establishing this solar park as a special economic zone for renewable energy provides Egypt leverage to utilize abundant solar resources, to increase its renewable energy capacity and to reduce reliance on conventional fossil fuels. The initiative created a very successful precedent that should be replicated and scaled up in other countries of the region.

5.3. Tunisia - Regulatory and energy sector reforms

Tunisia has an abundance of solar and wind resources, providing sustainable and cost-competitive options to meet the country's growing energy demand. Tunisia established a target²⁶ of 30 percent renewable electricity production by 2030 in the Tunisian Solar Plan, first published in 2009 and revised in 2012.

Figure 3 provides a summary of Tunisia's current renewable energy targets. To boost renewable energy development in Tunisia, the Law No. 12 on renewable electricity production was issued in 2015. Box 4 describes its main focus areas and Box 5 outlines energy reforms undertaken.

Figure 3: Tunisia's renewable energy targets, MW



Source: RECREE and UNDP. (2023). Arab Future Energy Index.

Box 4: Regulatory reforms in Tunisia

Regulatory reforms in 2015 took place through a new law (Law No. 2015-12) relating to the production of electricity from renewable energy. The objectives were to:

- Establish a legal framework that is conducive to private sector investment in the production of electricity that will arise from renewable energy sources through three new regulatory regimes:
 - 1 Self-generation/consumption;
 - 2 Independent power production for local consumption (concession and authorization);
 - 3 Independent power production for export.
- · Enabling policy initiatives.
- Update of the current documentation surrounding current electricity purchase agreements.
- Establishment of guarantees to encourage the development of renewable energy.

The Energy Transition Fund (FTE – Fonds de transition énergétique) is the principal financing tool for energy policy including efficiency and renewable energy activities in Tunisia. Through the creation of this new fund, the Tunisian state seeks to boost the country's energy transition through diversification by providing funding to:

- Encourage investment in the field of energy conservation.
- Support creation and promotion of energy companies.
- Facilitate implementation of national programmes contributing to energy conservation.

²⁴ NS Energy. (n/d). Benban Solar Park (accessed January 2024).

²⁵ AFDB. (2023). "Egypt: Benban, a model of clean energy production in Africa."

²⁶ IEA. (2019). National Strategy of Sustainable Development 2030.

The FTE may provide subsidized loans for renewable energy projects. The conditions for receiving these loans are as follows:

- The need for a bank to participate in the financing of the project.
- The maximum amount of the FTE loan must not exceed 50 percent of the cost of the investment.
- The amount of the FTE loan must not exceed the amount of credit granted by the bank.
- The repayment period of the loan must not exceed seven years.
- The maximum grace period is two years.

It is worth mentioning, that FTE is financed from several financing channels that include:

- Taxes on the first registration of cars, air-conditioning appliances, energy products consumed, and used engine and spare part imports.
- Donations and grants from individuals and legal entities to the fund.
- Resources from the fund's interventions.

It also could be financed through other resources that can be allocated for its benefit, including funding provided by international development funds:

- Direct subsidies for tangible and intangible investments.
- Additional credits to loans granted by banking institutions, investment funding in the form of equity investment.
- Funding of national projects and programmes initiated by the state and local communities.

Box 5: Energy sector reforms in Tunisia

Tunisia has set ambitious targets for the development of renewable energy, particularly in the power sector, and has undertaken several measures such as:

- · Adoption of the Tunisian Solar Plan (TSP);
- Creation of an independent regulatory authority for the electricity sector to enhance the framework for the mobilization of renewable energy investment;
- Development of innovative financing tools for promoting renewables in the residential sector;
- Auctions for small-medium scale renewable energy projects "10 MW for solar photovoltaic and 30 MW for wind"; and
- Strengthening the Energy Transition Fund.



6. Recommendations to scale up private sector finance for NDC implementation

Private sector involvement and investment is necessary to meet NDC targets that support low-carbon development in Arab States. Yet, attracting private sector finance to Arab States is fraught with difficulties for the banking and financial sector.

To overcome these barriers, the region's governments, banks, regulators, investors, and other relevant stakeholders will need to work together strategically to advance private sector finance that supports NDCs and regional sustainable development.

This policy brief has highlighted NDCs in Arab States and showed that countries are setting more ambitious targets and developing innovative financing mechanisms to implement actions to meet these targets. It has also showed that there is still much work to be done to fully implement NDCs.

The following recommended interventions are for Arab States' governments to consider to strengthen private sector participation in the implementation of their country's NDC.

1. Policy de-risking and regulatory framework improvement

- Create an enabling environment that includes a robust framework for public-private partnerships and that creates investment incentives and mitigates risk.
- Develop policies, regulatory frameworks and financial incentives that align with NDC and national commitments. Ensure that the legal and regulatory frameworks incentivize private sector participation in climate action. This can include grants, loans, green bonds, carbon taxes, tax exemption/reduction

mechanisms, carbon border adjustment, dedicated subsidies, procurement policies that promote sustainable practices, promotion of special economic zones, and the establishment of dedicated funds or financial mechanisms that prioritize investments aligned with national commitments and NDCs. It is critical to ensure that the mix of integrated fiscal policies are revenue neutral and do not cause additional weight on the budget to support the policies.

- Implement mechanisms to monitor and report private sector contributions towards NDCs. Encourage companies to disclose their emissions, mitigation efforts, and progress towards sustainability goals.
 This transparency can help track the private sector's alignment with national commitments and identify areas for improvement.
- Maintain an ongoing dialogue with the private sector to assess progress, identify challenges, and refine strategies. Regularly review and update policies, regulations, and targets as necessary to ensure continued alignment with NDCs. Engage in discussions with industry associations, business leaders and civil society organizations to gather feedback and improve the effectiveness of private sector engagement.
- Support policy and financial de-risking through investment environment improvement and by providing blended, concessional public finance through a variety of products and structures, such as risk-sharing facilities and reduced interest rates.
- Align sector policies and budgets to NDC commitments and ensure that budgets also align to national development strategies and budgeting. This can assist in transitioning often vague NDC targets to establishing implementing regulations with clear and consistent policies, such as performance standards, carbon pricing, removal of fossil fuel subsidies and market-based support.
- In close cooperation with international development partners, strengthen the enabling environment to promote SMEs' growth.
- Develop finance mechanisms that provide a secure and sustainable environment for equity investment

- for sustainable energy SMEs and projects. This measure will help to leverage larger amounts of investment and pave the way for private equity investments.
- Support development of a VC ecosystem that can help build a conducive private sector environment by utilizing tools and methods such as:
 - Public leadership to encourage investments:
 Governments should play a leading role both in terms of stimulating innovation and encouraging VC and private equity investors to allocate more of their capital into the mitigation sphere. Stimulus investments in low-carbon initiatives will diversify the economy, provide opportunities for high-tech job creation, and attract investors' attention in this area. Deepening involvement in the earlier-stage and riskier projects, the governments can utilize their different funding instruments to support low-carbon projects and startups.
 - Promote public-private partnerships: It is an important element for major stakeholders – governments, state-owned enterprises, and the private sector – to work together to support and make sure that ambitious climate and low-carbon policies can be implemented.
 - Provide public funding to support research and development work: Allocation of the budget for research institutions will allow Arab States governments to pursue regionally developed low-carbon solutions.
 - Accelerate development of an entrepreneurial ecosystem by establishing incubator programmes specialized on low-carbon startups.

2. Awareness raising and capacity-building

- Effectively communicate NDC targets and other relevant national commitments to the private sector. This involves sharing information on climate goals, targets, and the role of the private sector in achieving them. Engage with private sector stakeholders through workshops, forums, and consultations to foster understanding and collaboration.
- Develop NDC investment plans that clearly prioritize mitigation actions, indicate gaps in the investment policies and incentives, and are linked to a pipeline of bankable projects.
- Support capacity-building initiatives for the private sector, including training programs, workshops, and knowledge sharing platforms. Enhance the private sector's understanding of climate change risks and opportunities, as well as sustainable business

- practices. This can empower companies to align their strategies with NDCs and contribute effectively.
- Recognize and reward private sector entities that demonstrate leadership in aligning their operations with NDCs and national commitments. Acknowledge companies that go beyond compliance and make significant contributions to climate action. This can inspire others to follow suit and create a positive competitive environment.
- Engage and build the capacity of all stakeholders and actors in the financial sector to provide climate financing solutions (i.e., long-term concessional loans) for climate mitigation related projects.

3. Partnership

- Foster partnerships between the public and private sectors to leverage expertise and resources.
 Encourage collaborative initiatives that align with NDCs, such as joint research and development projects, technology transfer and capacity-building programs. These partnerships can help bridge gaps and accelerate the implementation of climate actions.
- Adopt gender-responsive and transformative approaches to ensure gender considerations are actively incorporated into private sector participation through clean energy projects to promote equality and inclusivity.
- Promote country-to-country and regional interaction and shared learning, recognizing sub-regional patterns.

- Working with national and international climate champion businesses, utilizing these actors as change agents or solution suppliers.
- Within the context of climate change, transformative change can be understood as systemic change towards climate-resilient societies. There is a need to address climate change and sustainable development challenges in a holistic and coordinated way. Approaching transformative climate solutions requires involving the corporate sector in the identification and co-creation of transformative climate solutions through cross-sectoral, systemslevel analysis.





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