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## **GCC SWFs as Enablers of the Energy Transition**



Energy Research Paper

The Al-Attiyah Foundation



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The last decade has seen a sharp rise in GCC SWFs' investments in developed countries, as a result of which their accumulated assets have dramatically increased. Although investments in large, advanced economies and prominent emerging markets are likely to continue in the next few years, GCC SWFs are now increasingly recycling part of their petrodollar inflows into developing economies in the Middle East, Africa, and Central Asia, and least developed countries (LDCs).

Is this shift borne out of strategic considerations, financial attractiveness, or the desire to be recognised as partners of the global transition? And can it enable the energy transition in these countries?

## ENERGY RESEARCH PAPER

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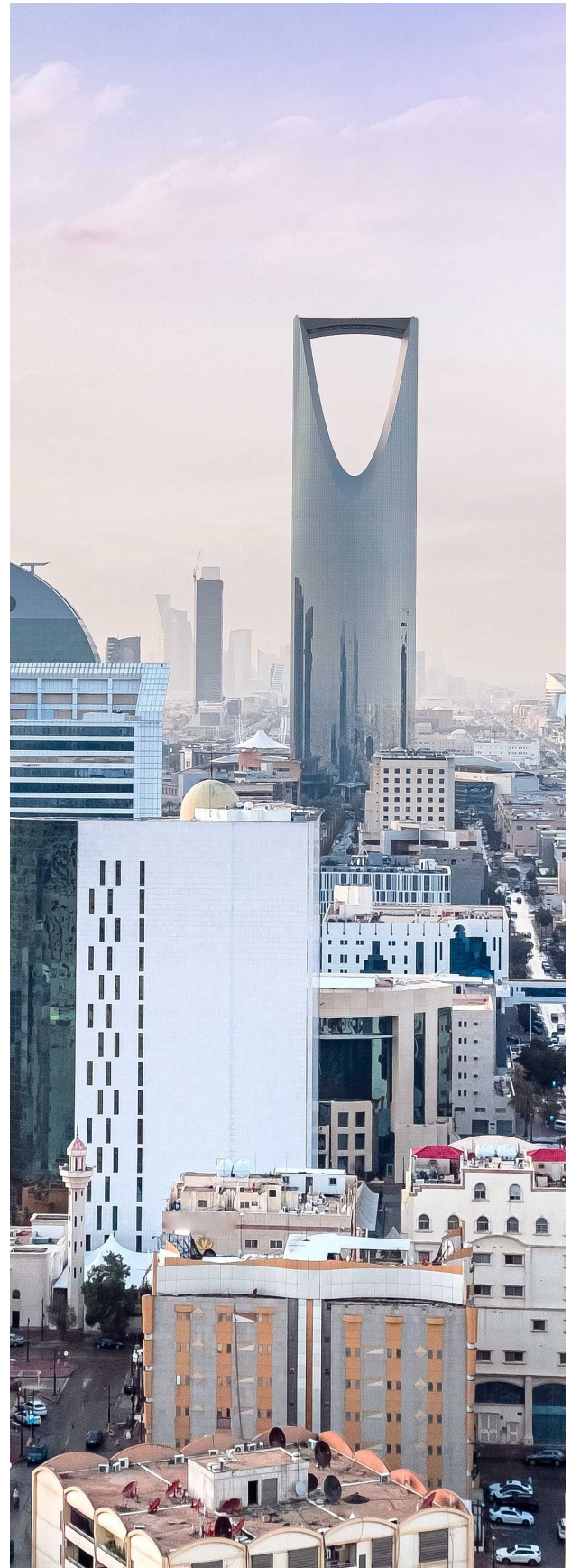


- All of the GCC sovereign wealth funds (SWFs) have witnessed an increase in their assets under management in 2022 thanks to asset appreciation and new inflows and have raised the number of deals concluded by them. Out of 60 recorded megadeals, 25 were carried out by the GCC funds, 32% of which involved non-American and non-European businesses.
- Most GCC SWFs require an internal rate of return (IRR) of 15% for their direct investments, and a minimum equity stake of at least US\$ 50 M, meaning that emerging and frontier markets (such as in Africa and the non-GCC Middle East region) were previously regarded as less investment-worthy, despite having a large pipeline of projects in sectors of strategic interest.
- Clean energy has gained tremendous traction as an investable sector for the GCC SWFs due to SWFs' plans to decarbonise their portfolios and achieve net-zero goals; the global shift from traditional energy commodities towards cleaner ones; the rapidly escalating demand for essential materials; and the opportunity to position GCC SWFs as a global leader in climate action.
- A higher risk tolerance positions GCC SWFs towards a greater allocation of alternative, illiquid asset classes such as private equity and venture capital. In the GCC, these asset classes are typically pooled across an investment portfolio such as an infrastructure portfolio, energy portfolio, and/or natural resource portfolio.
- One aspect of GCC SWFs' risk diversifying framework has been to invest in climate-focussed investments aggressively and competitively abroad, while building out domestic low-emissions opportunities from continued hydrocarbon activity, for example, blue hydrogen industries and carbon capture.
- For the GCC SWFs, outbound investment in renewables and other forms of clean energy in developing markets builds a framework for specific political and commercial engagements by acting as a "thematic" bridge between foreign policy issues and the continued diversification and expansion of the GCC's economies and investment patterns.
- By investing in developing markets' clean energy sectors, the GCC SWFs also have a opening to insert themselves into cultural and social projects that are often eagerly supported by receiving governments.



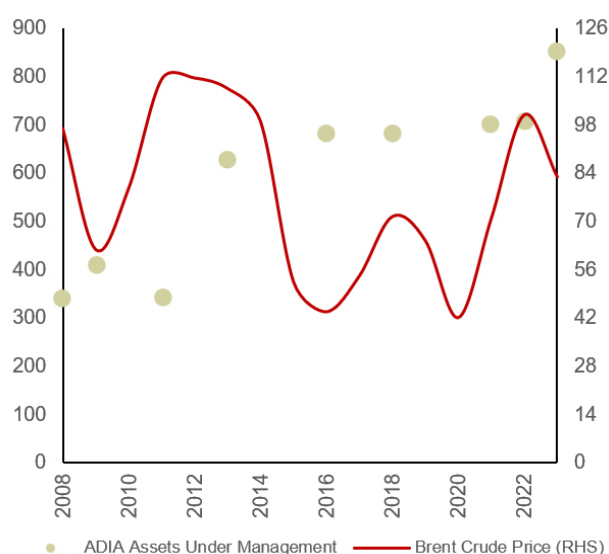


- GCC SWFs are underpinned by the revenues from their national oil companies (NOCs). This exposes them to systemic risks from energy transition, if it brings higher carbon costs, and lower oil and gas demand and/or prices. As Norway's SWF has recognised, they should apply a more strategic and systematic approach to the energy transition across their investment portfolios.
- For one, they can adopt and implement transition-related policies that take into account material risks and opportunities in core investment decision making.
- NOCs can assist their SWFs by understanding the transition more holistically. Instead of pursuing transition-based opportunities as a single investment, they should work with their SWFs to integrate the transition with risk reduction and diversification strategies for the sovereign.
- GCC SWFs should seek talent and expertise to devise strategies that can integrate their low-carbon offering (such as renewables expertise) with future demand growth markets' needs. This would establish a "thematic" bridge that connects commercial opportunities with geopolitical and socioeconomic benefits.
- NOCs can help their SWFs in setting up a fund for the cohort of developing countries which will be adding the greatest energy generation capacity through 2040, in order to prepare them to reap benefits of the additional technological shifts of the transition, such as further price drops and performance gains of key decarbonisation technologies.



The SWFs of GCC countries manage around 40% of SWFs' global assets<sup>i</sup>. Typically, they have been in the midst of purchasing, intending to purchase, or investing in significant institutions in developed markets to generate greater returns and diversify their investment portfolios. They have been supplemented by their countries' substantial oil rents, especially during periods when crude oil prices were at record highs (reaching an average price for Brent higher than US\$ 96/b in 2008, US\$ 111/b in 2011-12, and US\$ 100/b in 2022), and have created a new class of investors.

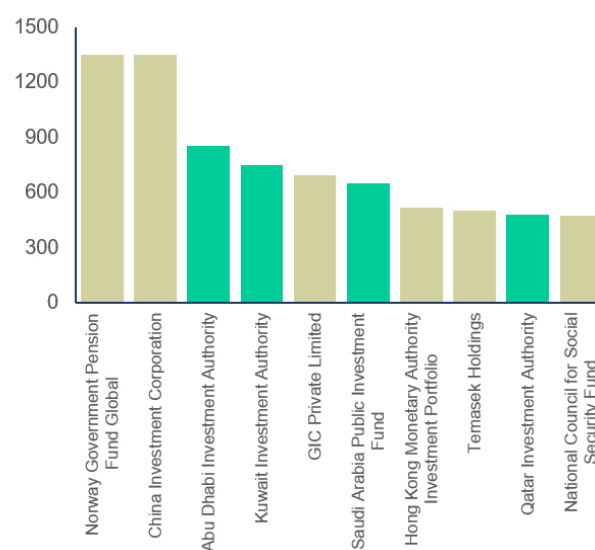
Figure 1 ADIA Assets Under Management (US\$ B, LHS) versus Brent Crude Price (US\$/b, RHS)<sup>ii</sup>



The largest fund in the GCC is the Abu Dhabi Investment Authority (ADIA) who manages the third-largest portfolio in the world, after Norway's Government Pension Fund and the China Investment Corporation. Three other GCC SWFs make up the world's ten largest by assets under management. These include the Kuwait Investment Authority, Saudi Arabia's Public Investment Fund, and the Qatar Investment Authority. Other large GCC funds outside the top ten include the Investment Corporation of

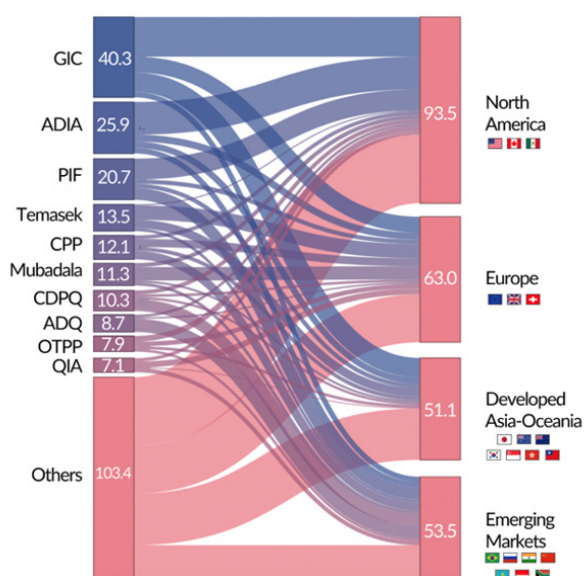
Dubai (\$341 billion), Mubadala (\$276 billion, including a leading stake in clean energy company Masdar), and Abu Dhabi holding company ADQ (\$199 billion)<sup>iii</sup>.

Figure 2 Total assets under management of the world's largest SWFs<sup>iv</sup>



All of the GCC SWFs have witnessed an increase in their assets under management in 2022 thanks to continuing inflows and asset appreciation. This has allowed them to raise the number of deals they concluded. Out of 60 recorded megadeals, 25 were carried out by the GCC funds, 32% of which involved non-American and non-European businesses (Figure 3).

Figure 3 Regions of focus of major SWFs' 2022 investments (US\$ B)<sup>v</sup>

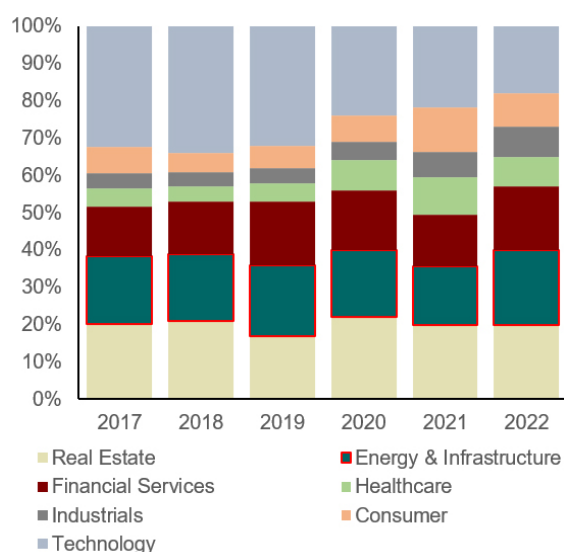


These large SWFs have an appetite for direct investments. Traditionally they have favoured investments in mature, developed markets, and recently selective emerging markets which provide more stable cash flows with lower regulatory and political liability (for example, Asia and Latin America). Most GCC SWFs require an IRR of 15% from their direct investments and a minimum equity stake of at least US\$ 50 M, meaning that other emerging and frontier markets (such as in Africa and the non-GCC Middle East region) might be regarded as less investment-worthy, despite having a large pipeline of projects in sectors of strategic interest.

Sectors of interest mainly include financial services, real estate, retail / e-commerce, energy, telecommunications, infrastructure (transportation, utilities, and industry), healthcare and pharmaceuticals, entertainment, and technology. Even with several asset classes, the portfolio structures of these SWFs are still majorly focussed on equities and fixed income, representing their still-conservative investment philosophy.

However, this philosophy has come under strain as the amount and quality of available assets with suitable returns in mature markets has declined since the 2008 financial crisis, and then again after the 2015/16 oil price crash. Shortages have become more acute following the 2020 oil market crash and the 2022 volatility in energy commodities. The share of SWF investment in energy did rise a little from 2017 to 2022, from 18% to 20%.

Figure 4 Sectors of investment by the world's SWFs, 2017-2022<sup>vi</sup>





Clean energy has gained tremendous traction post-CoVid as an investable sector for the GCC SWFs. This is driven by four key considerations, and a fifth lesser consideration:

1. SWFs' plans to decarbonise their portfolios and achieve net-zero goals, as well as the increase in state support for the energy transition. Clean energy, particularly clean energy infrastructure as an investable opportunity, still has a high barrier of entry that prevents competitors, giving its operators a quasi-monopolistic position in the market.
2. The global shift from traditional energy commodities towards cleaner ones, which inevitably tilts trade flows to originate from regions with a large clean energy resource and/or with strategic connectivity to future clean energy markets.
3. The rapidly escalating demand for essential materials to meet national and international climate commitments (such as critical minerals for renewable energy infrastructure, or electrolyzers for hydrogen), many of which are concentrated in emerging frontier markets and least developed countries (LDCs).
4. The opportunity to position GCC SWFs as a global leader in climate action, enhancing their international reputation by driving forward a shared global agenda, and thereby indirectly reducing scrutiny of their countries' shortcomings in meeting national and/or domestic climate goals (such as reducing the use of fossil fuels).

5. By 2050, clean energy is expected to become the sector with one of the largest working-age populations in the world. A critical strategic play will be to raise the productivity of the sector. Backing investments into clean energy will ignite a productivity-led virtuous cycle that delivers higher returns on global capital, thus attracting more talent.

These considerations highlight the changing trajectory of the region's funds' future investments. The first change is that clean energy will become a major share of these SWFs' portfolios as the momentum towards global net-zero accelerates. The second change is that emerging, and frontier markets will become the major recipients of Gulf SWF investments for two reasons:

1. To satisfy many of the Gulf SWFs' ambition to become a "global investment powerhouse", which they cannot achieve if they continue targeting investments in mature markets at the expense of developing ones.
2. As most of these markets are essential for the GCC SWFs to realise their own decarbonisation agendas, be it due to their critical / essential resource wealth, their connectivity to key markets, and / or their status as important markets of future demand.



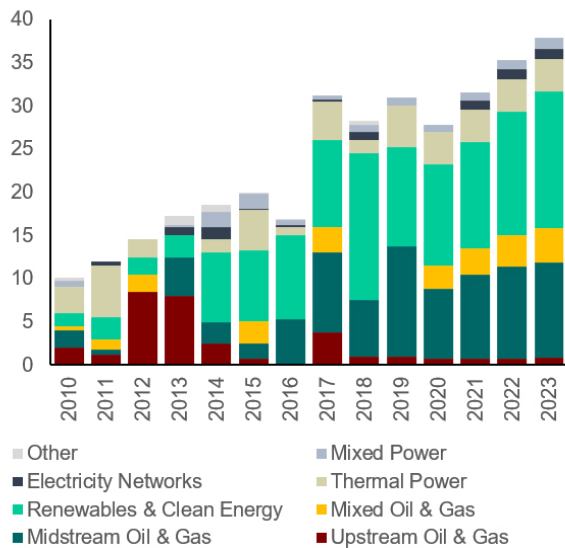
GCC SWFs' preference for equities over bonds reflects their essential makeup, seeing that they were created to move out on the risk-return curve. While in past years they pursued equity investments in mature markets (due to the stable cash flows, lower risk, and an overall stable legal, economic, and political environment), their capacity today to express long-term views – resulting from their superior liquidity and lack of leverage – should permit them to capitalise on opportunities in markets that other funds, including private institutional funds, may find illiquid.

In a long-only portfolio (given that most SWFs are constrained to long-only investments), emerging market equities mark one end of the efficient frontier, i.e., high return and high volatility. By investing in these emerging markets, oil-based SWFs can raise the global risk-return tolerance, as they are supplemented by oil rents.

However, other considerations will also be important for portfolio development, such as the urgency to diversify and decarbonise, which could raise the risk tolerance of a GCC SWF if it invests in perceived risk assets with negative correlations to oil, such as green hydrogen infrastructure in an emerging market (as it could reduce oil demand).

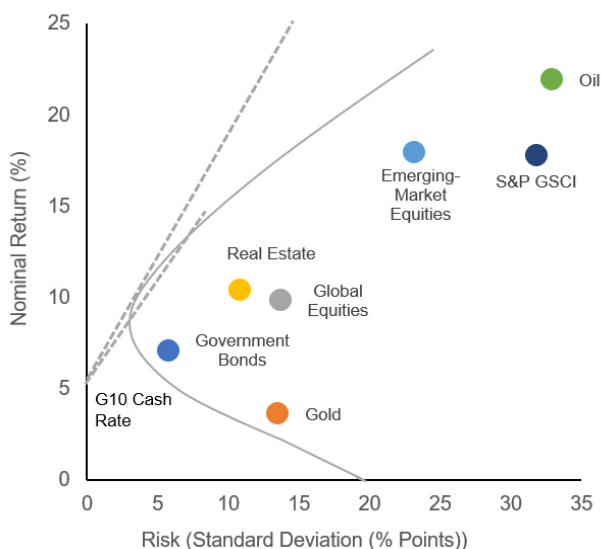
Still, crude has become a high-volatility investment over the last three years, despite the high returns. As non-oil technologies improve, bringing a long-term decline in oil demand and/or prices, institutional investment in energy will shift more dedicatedly towards acquiring and refinancing assets with perceived reliable cash flows, mainly renewables and infrastructure. Among these, equities shareholding and equity stakes in assets will be the preferred investment model of GCC SWFs, although bonds purchase and pooled investment vehicles (based on energy assets) might also grow.

Figure 5 Institutional investment in acquisition and refinancing of energy assets, US\$ B<sup>vii</sup>



A higher risk tolerance therefore positions GCC SWFs towards a greater allocation of alternative, illiquid asset classes such as private equity and venture capital. In the GCC, these asset classes are typically pooled across an investment portfolio such as an infrastructure portfolio, energy portfolio, and/or natural resource portfolio (consider Masdar and Mubadala Energy in the UAE).

Figure 6 Risk-return profiles of different asset classes for oil-based SWFs<sup>viii</sup>



Depending on their individual investment strategies and asset allocation processes, these portfolios are beginning to shift towards an endowment model of structuring, which is riskier compared to the traditional Norway model (which involves investing primarily in publicly listed securities such as equities or fixed income), allocating capital across illiquid alternative and private markets, which include private equity funds and hedge funds, and energy and infrastructure assets.

This shift is important, as it becomes a key driver in providing the finance needed to meet climate goals, particularly in poorer countries. By extension, it also helps ensure the 2030 Agenda for Sustainable Development's mandate of "leaving no one behind" is implemented.





For example, investing in green and sustainable infrastructure can allow GCC SWFs to diversify the risk associated with climate change across their portfolios. Since 2017, there has been an increased focus on direct green infrastructure investment and green bond allocation from SWFs in the GCC, with all embracing ESG policies, prompting investors to align with their objectives. All of the UAE's SWFs have committed to net-zero goals or targets, with most of the drive towards being carbon neutral occurring within the past five years. Saudi Arabia's PIF is targeting net-zero emissions by 2050<sup>ix</sup>, while the QIA has committed to deploying "no new investments in hydrocarbons"<sup>x</sup>.

The ramped-up focus on climate is evident also through the establishment of the One Planet Sovereign Wealth Fund (OPSWF) coalition (founded by ADIA, PIF, QIA, KIA, Norway-based NBIM (which manages Norway's 'Oil Fund') and New Zealand-based NZSF) that aims to integrate financial risks and opportunities related to climate change through a risk diversifying framework.

A risk-diversifying framework for these oil and gas-based funds might look much different from those based on goods-trade surpluses or net capital inflows. For one, the management of their asset pools (mainly large and long-term) will have to be analysed through a climate change lens much more stringently, which could have implications for their resilience and growth. As such, the GCC SWFs have worked swiftly to diversify their portfolios to include more clean energy and climate-focused investments, but do not intend to change their investment strategies to divest some or all hydrocarbon assets, as NBIM and NZSF have done.

Another aspect of their risk-diversifying framework has been to pursue climate-focused investments aggressively and competitively abroad, while building out domestic low-emissions opportunities from continued hydrocarbon activity, for example, blue hydrogen industries and carbon capture. Still, this aspect varies between different investment locations.

For example, these funds have pursued large-scale downstream refining ventures in Asian markets (such as South and Southeast Asia) to limit their exposure to declining demand and climate scrutiny from western markets, whilst pursuing climate action-oriented investments in markets with access to future clean energy demand centres (such as Egypt).



Table 1 GCC SWFs preferred climate change risk diversification strategies<sup>xi</sup>

Strategy	Description	Preference		Example Opportunities	Pursued By	
Horizontal Diversification	Investing in different assets within the same industry. GCC SWFs are oil and gas-based, meaning they prefer to diversify their portfolios by investing in different oil and gas-related opportunities. This can help reduce risks associated with investing in a single company, not just domestically, but also internationally	ADQ	● ● ●	Blue hydrogen, refining, downstream petrochemical integration, carbon capture technologies	ADQ	● ● ●
		PIF	● ● ●		PIF	● ● ●
		QIA	● ● ●		QIA	● ●
		KIA	● ●		KIA	●
Vertical Diversification	Investing in different assets within the same supply chain. GCC SWFs prefer to diversify their portfolios by investing in supply chain opportunities for the oil and gas sector, such as equipment, machinery, and technology	ADQ	● ● ●	Logistics, hub and hub infrastructure, industry 4.0 technology, machinery	ADQ	● ● ●
		PIF	● ●		PIF	● ●
		QIA	● ●		QIA	●
		KIA	●		KIA	~
Conglomerate Diversification	Investing in the supply chain or production of a non-oil and gas asset, such as disruptive technologies (AI, etc.). Investment opportunities can be domestic, but are pursued more aggressively in foreign markets, particularly with respect to essential materials and future supply chains	ADIA	● ● ●	Bitcoin, AI, batteries, solar panels, critical minerals, smart grid, microgrids, energy storage	ADIA	● ● ●
		PIF	● ●		PIF	● ●
		QIA	●		QIA	● ●
		KIA	~		KIA	~
Concentric Diversification	Investing in assets that are related to the SWF's core business but not within the same industry, such as renewable energy or electrolysis-based hydrogen. Investments are often equally balanced between domestic and international opportunities	ADIA	● ● ●	Solar and wind power, green hydrogen, pink hydrogen, 2 <sup>nd</sup> generation power, synthetic fuels, power-to-X	ADIA	● ● ●
		PIF	● ● ●		PIF	● ●
		QIA	● ●		QIA	● ●
		KIA	●		KIA	~

Following from this, some have established special units for clean energy investment. Most notably, UAE's Mubadala has partnered with state-owned national oil company ADNOC and fellow SWF ADQ (Abu Dhabi's third largest) to establish the Abu Dhabi Hydrogen Alliance. The alliance's official aim is to establish the UAE as a leader in hydrogen and build a substantial green hydrogen economy and is underpinned by a National Hydrogen Strategy that targets equal volumes of natural gas with CCUS-based hydrogen and electrolysis-based hydrogen from the UAE by 2050.

While the investments of its domestic-focussed funds could be regarded as safeguarding the UAE's oil and gas sector for as long as possible, its clean energy investment vehicle, Masdar, owned by Mubadala, has made a growing number of green investments abroad, including in Central Asia and Sub-Saharan Africa, to meet a target of 100 GW renewables deployed globally by 2030 (it claims about 20 GW existing or in construction or negotiation today).

Mubadala itself has stakes in other forms of green infrastructure, including the US residential solar energy company GoodLeap<sup>xii</sup>, offshore wind developer Skyborn Renewables<sup>xiii</sup>, Egyptian joint venture Infinity Power which in March 2023 bought Lekela Power, an African wind developer, and India's Tata Power Renewables (alongside BlackRock Real Estate), as well its single biggest investment to date, the London Array, a 1 GW wind farm in which it holds a 20% stake via Masdar since 2008<sup>xiv</sup>.

Similar investments have been undertaken by the PIF, who is pursuing green infrastructure developments at home, including the flagship NEOM project and MoUs with international firms like Engie for the development of green hydrogen derivatives<sup>xv</sup>, as well as international ventures in clean energy, most notably a 62.7% stake in luxury EV maker Lucid Motors<sup>xvi</sup>, who is building its first overseas production facility in Saudi Arabia<sup>xvii</sup>, and a 10% stake in Brazil's Vale Base Metals alongside state-owned mining company Ma'aden to expand the production of copper and nickel across its asset portfolio<sup>xviii</sup>.

Qatar meanwhile is pursuing joint forces with Enel to develop renewables in Sub-Saharan Africa, holds a minority stake in India's Adani Green Energy, and has invested over US\$ 2.5 B in German Asia-Pacific-focussed multinational energy company RWE AG to support its accelerated "Growing Green" strategy<sup>xix</sup>. It is also the only GCC SWF to hold significant stakes in midstream crude businesses, including a US\$ 550 M investment in the Permian Basin's largest privately held midstream crude operator, Oryx<sup>xx</sup>.

In contrast, the UAE's Mubadala Energy has upstream oil and gas interests in Malaysia, Thailand, Indonesia, and Oman, and one downstream one in Pakistan for the marketing and distribution of LPG<sup>xxi</sup>.

These investments are carefully structured to allow the GCC countries room to navigate the best possible approaches to protect, and as far as possible continue, their oil and gas businesses in a way that retains their productivity and at the same time does just enough to avoid excessive criticism or scrutiny by the global climate action movement.

From a risk perspective, such a structure can also help them defend their role as important high risk-return wealth funds, compared to trade goods surplus-based and capital inflows-based funds, since continued inflows of oil and gas revenues can help limit distinct liabilities.





## 13 CAN GCC SWFS ACTUALLY ENABLE AN ENERGY TRANSITION IN OTHER MARKETS?



GCC SWFs' increasing energy investments in developing markets, including in LDCs and small island nation states (SIDs) are clearly part of a strategy play that prioritises international cooperation on areas where there is significant opportunity to enhance their country's reputation as a leader.

This is perhaps most apparent in the example of Central Asian investments. Gulf outreach over the last five years is a result of a growing great power competition, particularly in markets like Kazakhstan, where political developments have laid the groundwork for external influence to shape the favours of future governments. Legacy power holders such as Russia, China, the US, and Europe have deep ties with the leaderships of the resource-rich region, but these are in some cases strained or suffering from lack of attention. GCC countries are relatively neutral players, comfortable with working with all sides.

For these SWFs, investment in renewables, and by extension, other forms of clean energy, builds a framework for specific political and commercial engagements by acting as a "thematic" bridge between foreign policy issues and the continued diversification and expansion of the GCC's economies and investment patterns. It also allows them to quickly acquire technical expertise and existing project pipelines, noting that many of the energy investment arms of these SWFs are still very young and/or recently established.

As a result, despite apparently having a large amount of installed capacity in their pipeline, many of these companies have limited experience implementing and managing projects abroad from the ground up, although this varies depending on the individual capacities and capabilities of each fund.

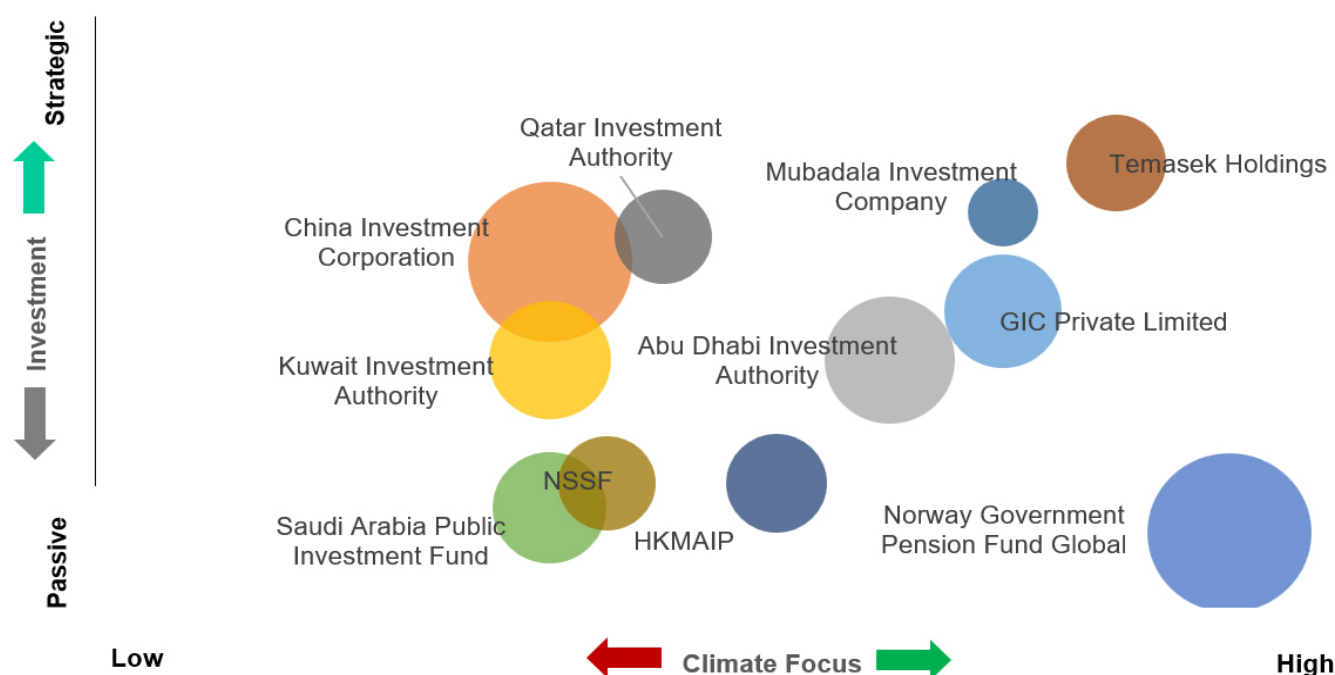
Amongst the countries in the GCC with the largest SWFs, the UAE has been at the forefront of leveraging international connections built over the last decade to guarantee the success of its SWFs' outbound investments, which is true for Kazakhstan and other Central Asian countries like Azerbaijan, where Masdar has leveraged the UAE's existing connections to expand into the country's renewable energy sector. A process of economic liberalisation in Uzbekistan has opened opportunities for both Masdar and the PIF-backed Acwa Power, the region's leading private renewable developer (although half-owned by PIF, it is listed on the Tadawul).

The QIA has similar ambitions to pump investment into Central Asia's biggest economies. This is to support the economic

diplomacy and "soft power" considerations of the Qatari government, as well as snap up as much technical expertise in renewables investments as possible to become a contender for major global projects that typically feature large, mature firms from western countries.

The GCC funds are mindful of the significant geopolitical implications of such investments. Most of Central Asia has sought to balance its relations between Russia, the West, and China. The advent of the Belt and Road Initiative has moved the region closer to Beijing, potentially placing it in the centre of new "Great Power" rivalry. Such rivalry gives it significant agency, which has generated the interest of Gulf funds eager to assert their strategic interests.

Figure 7 Matrix of GCC SWFs investment strategies versus climate focus (Bubble size = AUM in US\$ B)<sup>xxii</sup>





Investments and economic involvement also go hand-in-hand with cultural influence over the religious narrative in the region, which has a Muslim majority. The “thematic” bridge considers strategic partnerships for cooperation on socially relevant issues, including culture and education, which extends bilateral relations beyond the economic sphere. By investing in the region’s clean energy potential to build their own expertise, diversify, and present themselves as partners of the global climate action movement, these SWFs have a pretext to insert themselves into cultural and social projects that are often eagerly supported by receiving governments.

A similar trend is also observed in other investment regions, such as Africa, including in LDCs, and to a lesser degree in Pacific SIDs.

Investments in these countries are often humanitarian aid-based, although they too are underpinned by geopolitical and cultural influence considerations. They also allow the GCC funds room to lead investments on their terms and gain expertise and experience, compared to more complex regulatory jurisdictions, such as in South and Southeast Asia. Another important consideration is that African states are important food exporters to the Gulf region. By investing in these markets, the Gulf SWFs can stabilise trade and international relations with their partners in Africa, thereby reducing risks to the ability of these countries to supply food.

In the South and Southeast Asia countries, investments are led with a focus to match local Gulf-based companies with opportunities that have the right investment climate.



Markets like the Indian subcontinent, China, and further south-east, such as Indonesia, Malaysia, Thailand, and Vietnam, are important for the strategic utilisation of commercial connections that the Gulf states already enjoy with respect to oil, gas, and petrochemical exports. Currently, these ties can be utilised in a wider scope to support the export of clean, low-carbon energy forms other than just renewables, such as low-carbon hydrogen and ammonia, which are imperative to the net zero ambitions of many of these countries.

Building a framework for coordination will also open doors further down the road to collaboration on broader resource management challenges. Broadly speaking, Asian countries which currently struggle to meet energy demand in a sustainable manner also face a future that will be defined by the interactions within the clean energy-energy security nexus. For the GCC SWFs, early investments in technologies like solar-desalination and a growing focus on hydrogen and ammonia for energy security mean that they could play a key role in supporting effective global management of similar nexus issues in the future.

The "cross-pollination" of energy transition opportunities can also help boost their own technology sectors. For example, the potential for hydrogen offtake by these markets can help cement the GCC countries' ambitions to become important low-carbon fuel hubs and guarantee demand for their oil and gas, even if utilised with carbon capture.

While the UAE leads in Asian-focussed investments from the region, mainly through its US\$ 243 B Mubadala SWF (who leads energy investments in the Asian market under

Mubadala Energy), other regional competitors are also stepping on the gas to increase their Asian exposure.

Qatar has taken active steps to establish a presence in Asia, with the QIA setting up a Singapore office in 2021, noting that the region's growth has made it an appealing investment opportunity.

Southeast Asian companies, especially start-ups with a focus on decarbonisation technologies (for example, alternate material electrolyser manufacturers), have become a key focus of the GCC SWFs' investment strategies over the last couple of years. They are increasingly under pressure to produce more returns. Regional funds that started investing in local start-ups in the last seven years have reported a median return of 4%, compared to 10% in India and 50% in China<sup>xxiii</sup>. The injection of new capital, underpinned by connections to the right off-takers for start-ups and SMEs businesses, has increased the region's receptiveness to Gulf SWFs' investments focussed on decarbonisation.

Such investments help the GCC funds' own climate targets in two ways: one, by increasing the quantity of low-carbon assets in their portfolios, but two, by reducing and mitigating the total emissions produced by their portfolios. If a SWF looks for emissions reductions in their portfolio company as a low-carbon investment opportunity, then this provides an impetus to seek similar opportunities in markets with related strategic benefits, exercise climate-aligned active ownership of projects, and execute portfolio-wide targets for emissions reduction.

For the GCC SWFs, there is a clear opportunity to strategically target investments in countries with high energy demand growth in order to support the broader transition. By being the early movers in transition-focussed investments over the next five years, their countries will be better poised to take advantage of the price drop of critical technologies. For example, they could set up a fund for the cohort of developing countries which will be adding the greatest energy generation capacity through 2040, in order to prepare them to reap benefits of the additional technological shifts like battery storage and anticipated price drops in green hydrogen and ammonia through the late 2020s.

Many of the GCC funds have spent significant effort and financial resources on developing a reputation as leaders in clean energy. However, they are yet to take full advantage of their niche expertise. More robustly incorporating the sustainable development goals (SDGs), such as SDG-7, into their strategic guidelines for outbound investments would help promote private sector interest and reduce the impact of oil and gas volatility.

The GCC SWFs can and should play a leading role in developing / emerging and frontier markets' energy transitions. These markets are growing quickly and face challenges of rising energy demand, moving up the value-added chain, and diversifying their economies. Engagement with the GCC funds indicates significant interest in learning from the region's successes, particularly with respect to costs and the technology and policy shifts needed to support the transition. Notably, lessons learned in the GCC depend on top-down leadership and executive authority structures that are also present in many of these target markets.

## APPENDIX

- i- Al Habtoor Research Centre, “Rise of GCC Sovereign Wealth Funds: Magic Wand?”, March 2023, <https://www.habtoorresearch.com/programmes/rise-of-gcc-sovereign-wealth-funds-magic-wand/>
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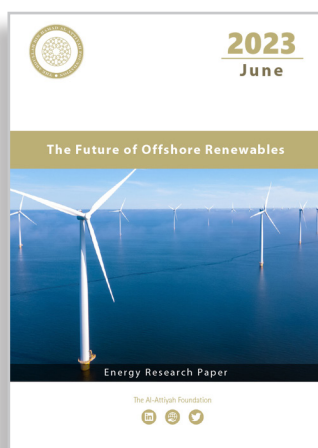
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### Future of Unconventionals in a Low-Carbon World

Over the past 20 years, unconventional resources have become a significant part of the global energy mix, accounting for onethird of the world's total oil & gas supplies. However, to achieve net-zero goals by 2050-2070 and the Paris Agreement's target of keeping global temperature increases below 1.5°C, a significant transition is required in the next 30 years.



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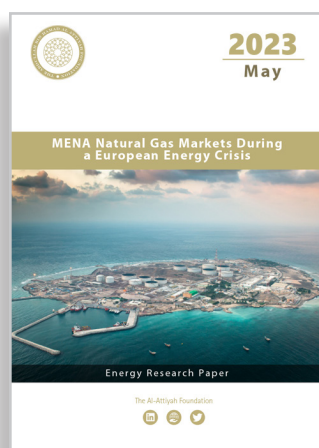
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### The Future of Offshore Renewables

Offshore renewable resources can be captured through various technologies such as offshore fixed or floating wind turbines, floating solar photovoltaic panels, wave and tidal conversion systems, and other ocean energy technologies such as ocean thermal energy conversion and salinity gradient.



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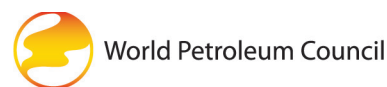
### MENA Natural Gas Markets During a European Energy Crisis

The Middle East and North Africa (MENA) region has always been a strategic cornerstone of the European energy mix, but now it has gained newfound value for the continent as it adapts rapidly to a "Russia-less" energy world. In the shortterm, these MENA countries are set to be instrumental to European energy security.



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