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Post COVID-19: A Potential for Green Recovery in the Arab Gulf States

by Aisha Al-Sarihi

Introduction

The COVID-19 crisis is an economic as well as a health crisis. As the six Gulf Cooperation Council (GCC) states – Bahrain, Kuwait, Qatar, Oman, Saudi Arabia and the United Arab Emirates (UAE) – are highly reliant on oil export revenues, the implementation of local lockdown measures aimed at containing the spread of the coronavirus has not only harmed domestic businesses and governmental activities, but

Executive Summary

Given their high reliance on oil export revenues, the six Gulf Cooperation Council (GCC) states – Bahrain, Kuwait, Qatar, Oman, Saudi Arabia and the United Arab Emirates – have faced an unprecedented dual economic shock as a result of the novel coronavirus pandemic (COVID-19). The implementation of global and local lockdown measures, aimed at containing the spread of the coronavirus, has harmed GCC domestic businesses and governmental activities. Simultaneously, all GCC countries have experienced a dramatic decline in the major source of governmental revenues, as both demand and the price of oil have decreased to historic low levels. The novel coronavirus pandemic has disrupted the GCC's focus on environmental sustainability projects, as shoring up economies and protecting human health have become top priorities for governmental countermeasures. This Brief argues that associating COVID-19 economic recovery packages with measures aimed to safeguard the environment and tackle climate change, towards a so-called 'green recovery', will not only ensure long-term resilience and sustainability of economies as countries recover from the pandemic, but also boost economic activity, generate income and create jobs.

has also negatively affected oil revenues, the GCC states' major source of income. Global lockdown measures – including the closures of schools, universities and public spaces; the implementation of remote working policies; minimization of public transport use; and postponement or suspension of international travel – have led to a dramatic decline in oil demand and thus a historic collapse in oil prices. The latter has exacerbated the existing fiscal challenges caused by a prolonged decline in oil prices since mid-2014.

In response, the GCC states have pursued a range of measures to both protect human health and minimize the economic harm to businesses and governmental activities. In April 2020, the Organization of the Petroleum Exporting Countries (OPEC), led by Saudi Arabia, and its oil producing allies reached a historic agreement to cut production by 9.7 million barrels per day in an attempt to increase oil prices and shore up revenues from oil exports. Along with austerity measures, borrowing, and economic reforms such as the introduction or increase of taxes, the Gulf Arab states have pledged over USD 120 billion to help their economies mitigate the short-term impacts of the coronavirus.

Acknowledging that protection of human health and the economy should indeed be top priority in GCC economic recovery packages, this Brief argues that without associating COVID-19 economic recovery packages with measures aiming at safeguarding the environment and tackling climate change, a so-called green recovery, the GCC could miss the opportunity of ensuring the long-term

sustainability and resilience of their economic recovery packages. As each country is already being negatively impacted by climate change, any GCC economic recovery packages that put the efforts against climate change on hold will result in unintended costly consequences and may lock out many economic, social and environmental opportunities associated with climate-friendly investments. Essentially, climate-friendly investments could support Arab Gulf states in their efforts to reduce economic vulnerability to oil prices by diversifying their economies and expanding their production sector beyond hydrocarbon dependency.

This Brief provides a rationale for why the Gulf Arab states should consider aligning their short-term economic recovery measures with their long-term economic diversification and climate mitigation and adaptation objectives. It also provides an evaluation of whether the Gulf states' economic recovery packages are inclusive of climate and environmental objectives, and concludes with policy recommendations that could enable the governments of the Arab Gulf states to pursue a green recovery together with their economic pandemic recovery efforts.

Rationale for Supporting Green Recovery in the GCC

The latest report of the Intergovernmental Panel on Climate Change (IPCC) stresses the importance of limiting global warming to 1.5°C by the end of this century, in order to avoid tipping points and irreversible changes

in our environment.¹ Importantly, it asserts that delayed climate action implies significantly higher costs, as it locks economies into carbon-intensive infrastructure and reduces flexibility in future response options.² Climate change poses serious threats to the Arab Gulf states due to their patterns of energy consumption, their reliance on oil and gas export revenues, and their fragile natural environment.

The COVID-19 crisis presents unprecedented health, social and economic challenges that require immediate governmental design and implementation of COVID-19 recovery measures. However, if managed properly, it arguably also offers an opportunity to both address the long-term impacts of climate change as well as unlock many social, environmental and economic benefits associated with climate action. These include:

- **Consideration of climate risks in the GCC economic recovery packages will help to minimize the harm caused by climate change and simultaneously support their economic diversification ambitions.** Within oil-producing countries, all economic sectors are exposed to climate change risks. Non-oil economic sectors – such as

agriculture, food security, water, fisheries, tourism, and infrastructure – are already negatively affected by the biophysical impacts of climate change, due to rising temperatures, falling annual rainfall, sea level rise, and increased exposure to extreme events such as intense rainfall. A 2018 study suggests that the impact of 3°C warming could cause the GCC large gross domestic product (GDP) losses of 0.2 to 0.5 percent annually after 2027, and 1.5 to 3 percent annually by 2067.³ Such GDP losses could stem from sea-level rise, decrease in work productivity due to heat/humidity exposure, and proliferation of infectious diseases. Oil-based economic sectors, already vulnerable to oil price shocks, are also vulnerable to the outcomes of global climate change mitigation measures aimed to keep climate change at a (relatively) safe level. That is, global actions to cut greenhouse gas (GHG) emissions through policies aiming to reduce fossil fuel consumption could impose direct economic losses on the Arab Gulf states.⁴ These losses are likely to resemble the impact of COVID-19, which has already led to a major global decline in oil demand, leading to a historic collapse in oil prices and thus unprecedented decline in the major sources of income for

1 IPCC (2018): *Global Warming of 1.5°C. An IPCC Special Report on the Impacts of Global Warming of 1.5°C above Pre-Industrial Levels and Related Global Greenhouse Gas Emission Pathways, in the Context of Strengthening the Global Response to the Threat of Climate Change, Sustainable Development, and Efforts to Eradicate Poverty*, Geneva. Available at <https://www.ipcc.ch/sr15/> (16.12.2020).

2 Kahn, Matthew E., Kamiar Mohaddes, Ryan N.C. Ng, M. Hashem Pesaran, Mehdi Raissi, and Jui-Chung Yang (2019): *Long-Term Macroeconomic Effects of Climate Change: A Cross-Country Analysis*, Working Paper No. 19/215, National Bureau of Economic Research. Available at <https://www.imf.org/en/Publications/WP/Issues/2019/10/11/Long-Term-Macroeconomic-Effects-of-Climate-Change-A-Cross-Country-Analysis-48691> (08.12.2020); Klenert, David, Franziska Funke, Linus Mattauch and Brian O'Callaghan (2020): 'Five lessons from COVID-19 for advancing climate change mitigation', in: *Environmental and Resource Economics* 76, pp. 751–78.

3 Kompas, Tom, V. Ha Pha and Tuong N. Che (2018): 'The effects of climate change on GDP by country and the global economic gains from complying with the Paris Climate Accord', in: *Earth's Future* 6/8, pp. 1153–73.

4 IEA (2018): *Outlook for Producer Economies*, Paris. Available at <https://www.iea.org/reports/outlook-for-producer-economies> (17.12.2020); Manley, David, James Cust and Giorgina Cecchinato (2017): *Stranded Nations? The Climate Policy Implications for Fossil Fuel-Rich Developing Countries*, Working Paper 34, Oxford Centre for the Analysis of Resource Rich Economies.

- oil-producing countries. Against this backdrop, the considerations of climate risks in economic recovery packages could contribute to minimizing current and anticipated long-term losses facing both oil and non-oil economic sectors. Further, early consideration of climate risks in economic planning and development, even in times of crisis, would arguably foster the GCC economic diversification processes which target the expansion of less-oil dependent economic sectors, such as the private sector, logistics, tourism, fisheries, agriculture, infrastructure and downstream petrochemical industries.
- **Global movements to accommodate green recovery packages might change future market competitiveness beyond oil.** In response to COVID-19, there is a growing number of governments around the world that have pledged to factor climate action and sustainability in their economic recovery packages, including the EU, Spain, Italy, Germany, France, China, Canada, France, and South Korea.⁵ Other countries are also looking to advance carbon pricing policies amid the COVID-19 crisis, in the belief that advancing carbon pricing would generate revenues to help fund COVID-19 recovery measures,⁶ and at the same time fund investments in clean energy technologies.⁷ Advancing climate action through stimulus measures could translate into an increase in global trade of climate-related goods and services, especially if climate-friendly trade measures are implemented to leverage global climate action. Joining global efforts to advance climate action and sustainability would not only ensure a GCC transition towards a sustainable and diversified economy beyond oil, but also enhance their competitiveness in future markets.
 - **Growing global climate action will probably maintain low oil prices for the longer term.** According to IPCC reports, fossil fuels (coal, oil and gas) account for over 85 percent of global energy consumption and have contributed significantly to the historic increase in anthropogenic GHG emissions and thus to the observed increase in the global average temperature. The 25th Conference of Parties, held in Madrid in December 2019, was the final conference before the 2015 Paris Climate Agreement comes into full effect. Starting in 2020, parties to the agreement are required to strengthen their climate action ambitions and will be subject to an assessment every five years. The advancement of climate change mitigation policies post-2020, especially with the USA now due to rejoin the Paris Climate Accord under President-elect Joe Biden, may lead to declining demand for fossil fuel exports and further prolonged decline of oil prices. Without the fostering of economic diversification and climate action, the economies of the GCC states – host to around 30 percent of the world's proven oil reserves and 15 percent

⁵ Vivid Economics (2020): *Green Stimulus Index: An Assessment of the Orientation of COVID-19 Stimulus in Relation to Climate Change, Biodiversity and Other Environmental Impacts*. Available at https://www.vivideconomics.com/wp-content/uploads/2020/05/200518-Stimulus-Green-Index-v2_shared.pdf (28.12.2020).

⁶ World Bank (2020): *State and Trends of Carbon Pricing 2020*. Washington DC.

⁷ Martin, Ralf and John van Reenen (2020): *The Case for a COVID-19 Carbon Tax*. LSE COVID-19 blog, London School of Economics and Political Science. Available at <https://blogs.lse.ac.uk/covid19/2020/06/02/the-case-for-a-covid-19-carbon-tax/> (08.12.2020).

- of the world's proven gas reserves⁸ (which accounted for nearly 45.6 percent of the GCC's GDP during high oil prices⁹) – might be directly jeopardized due to the decline in the oil export revenues. Global efforts to reduce carbon emissions and improve energy efficiency are underway, not only in many developed countries but also in emerging economies such as China, Brazil, South Africa and India. This continued drive to reduce emissions would have major implications for the GCC states, whose top trade partners in 2015, according to the European Commission, were the European Union with 14.7 percent of the trade balance; China with 13 percent; Japan with 11.5 percent; and India with 10.4 percent. All are major importers of Gulf oil and gas; but all have also either pledged to factor green investments in their recovery packages or to accommodate net zero emissions targets. These pledges could well translate into reducing future demand for GCC oil.
- **GCC countries are net importers of goods and services.** The GCC countries are highly dependent on imported goods, especially food. Since the 1960s, imports of goods and services, and their GDP percentage, have continued to increase in the Gulf countries, with the exception of Bahrain. In 2015, imported goods and services accounted for more than 83 percent of GDP in the UAE, 45 percent in Kuwait, 52 percent in Oman, 37 percent in Saudi Arabia, 36 percent in Qatar, and 35 percent in Bahrain. International constraints on the use of fossil fuel energy (e.g., fossil fuel taxes and carbon pricing) could increase production costs and hence prices of exported goods and services. This means that the Arab Gulf states would be negatively affected, both in terms of import costs and the decline of revenues needed to buy expensive goods and services.
 - **Green recovery would help the GCC to meet their NDC climate mitigation and adaptation ambitions.** All the Arab Gulf states have signed and ratified the Paris Climate Agreement¹⁰ and have prepared and communicated their Nationally Determined Contributions (NDCs) to the United Nations Framework Convention for Climate Change (UNFCCC), listing their mitigation and adaptation ambitions (see Table 1). Now the challenge for the GCC states is to translate these ambitions into action on the ground and strengthen their climate adaptation and mitigation actions every five years. All of the Gulf states have made progress in addressing climate change: But by the end of 2019, only the UAE and Oman had established national climate action plans.¹¹ GCC states should make further use of their COVID-19 responses by ramping up policies and investments targeting climate mitigation and adaptation ambitions. Climate-related challenges will not be paused by the current COVID-19 crisis. If climate issues are put on hold while dealing with

8 BP (2020): *BP Statistical Review of World Energy*, London.

9 World Bank (2020): *Oil Rents (% of GDP)*. Washington DC; Statista (2020): *Average Annual OPEC Crude Oil Price from 1960 to 2020*. Available at <https://www.statista.com/statistics/262858/change-in-opec-crude-oil-prices-since-1960/> (17.12.2020).

10 UNFCCC (2020): Paris Agreement – Status of Ratification. Available at <https://unfccc.int/process/the-paris-agreement/status-of-ratification> (29.12.2020).

11 Al-Sarihi, Aisha (2019): *The Gulf Arab States' Mixed Record on Climate Action*. The Arab Gulf States Institute in Washington, Washington DC. Available at <https://agsiw.org/the-gulf-arab-states-mixed-record-on-climate-action/> (04.01.2021).

the pandemic, they will not disappear, but rather continue to grow. Excluding them from present COVID-19 measures would be more costly than the losses associated with the short-term COVID-19 crisis.

Current State of Climate Inclusion in GCC's COVID-19 Economic Recovery Responses

In response to the dual economic shock caused by the COVID-19 crisis, the GCC states have pursued a range of measures to both minimize the economic harm to businesses and governmental activities and to protect human health. Austerity, borrowing and stimulus measures have been the most frequently implemented actions across the GCC states.

The six GCC states have pledged over USD 120 billion in economic stimulus packages aiming, amongst others, to provide financial and economic incentives for the private sector; support small and medium-sized enterprises (SMEs); enhance the liquidity of financial institutions; exempt tourism-related companies from tourism levies; and in some cases, subsidize or grant water and electricity utility bill exemptions for civilian, commercial and industrial activities. The supported sectors are important pillars of most GCC economic diversification ambitions, including private sector empowerment and reduction of the soaring rates of unemployment.

While shoring up economies should indeed be a top priority in the short-term, the GCC states could take further advantage of current COVID-19 cure responses by addressing long-term effects of COVID-19 response measures, including evaluating whether the measures are climate-resilient and sustainable in the long-run. At present, economic stimulus measures across the six GCC states do potentially serve the sectors targeted by economic diversification ambitions, including the empowerment of private sector, logistics, tourism, and downstream petrochemical industries (Table 1). The scale of the coronavirus shock to the GCC states and their limited options in dealing with the pandemic, however, have left almost no window for the GCC states to associate their COVID-19 recovery plans with other long-term persistent threats, such as climate change. All GCC states have submitted their Nationally Determined Contribution (NDC) reports to the UNFCCC, listing their climate mitigation and adaptation ambitions in pursuit of economic diversification co-benefits. However, a survey of GCC's COVID-19 responses indicates that their climate mitigation and adaptation ambitions have been shelved amid the pandemic crisis, and none of the six GCC states have factored climate risks and opportunities in their COVID-19 responses (Table 1). A prominent example is the Kuwaiti cabinet's cancellation of plans to construct the USD 1.4 billion al-Dabdaba solar plant, a 1.5 GW project (part of the 3 GW al-Shagaya project).¹²

¹² Reuters (14.07.2020): 'Kuwait cancels Al-Dabdaba solar plant project due to coronavirus', in: *Reuters*.

Table 1: Economic visions, climate action reports, and COVID-19 response measures in the six GCC states

	Economic visions				Climate action ambitions (NDC reports)		Targeted sectors by COVID-19 policy responses
	Year	Vision	Aims	Leading sectors	Targeted mitigation sectors	Adaptation areas	
Bahrain	2008	Economic Vision 2030	To double household income by 2030; secure employment; make Bahraini workforce the preferred choice of labor; knowledge-based society	Financial; tourism; business services; manufacturing; logistics	Energy efficiency (Kingdom of Bahrain Energy Efficiency Programme: KEEP); renewable energy; carbon capture and utilization/storage	Coastal zones; water resources; human health; biodiversity	Private sector; financial institutions
Qatar	2008	Qatar National Vision 2030	Knowledge-based society; economic diversification; sound economic management: responsible exploitation of oil and gas	Oil and gas; education	Energy efficiency; renewable energy; public transportation	Water and waste water management	Hospitality; tourism; retail; commercial complexes; logistics
Kuwait	2010	Kuwait Vision 2035	Economic diversification; GDP growth, spurred by state investments in infrastructure, services, education; institutional reforms	Gas sector; infrastructure; trade and finance	Energy efficiency (e.g. district cooling); renewable energy; public transport; waste management	Natural disaster management; coastal zones; water desalination; efficient use of water; agriculture; biodiversity	Financial and private sector companies; SMEs; health sectors

	Economic visions				Climate action ambitions (NDC reports)		Targeted sectors by COVID-19 policy responses
	Year	Vision	Aims	Leading sectors	Targeted mitigation sectors	Adaptation areas	
Saudi Arabia	2016	Saudi Vision 2030	Education-based economy; privatization; boosting SMEs; improving business environment	Private sector; education; business services	Cut up to USD 130 million tons of CO ₂ e avoided by 2030 annually; energy efficiency; renewable energy; carbon capture and utilization/storage; utilization of gas; methane recovery and flare minimization	Water and waste water management; urban planning (public transport); marine protection; reduced desertification	Finance and private sector; non-oil fiscal income; agriculture, industrial, education and health sectors
UAE	2010	Vision 2021	To become one of the best places in the world to do business; diversification away from oil	Financial services; aviation; trade and commerce	Increase clean energy to 24 percent of total energy mix by 2021; energy efficiency (tariff reform, building standards, district cooling, appliance efficiency); water efficiency; flare minimization from oil industries; carbon capture and utilization/storage; transport and infrastructure (fuel pricing reform, rail network, shift 25% of government vehicle fleets to compressed natural gas, introduce comprehensive regulations for electric vehicles); waste management	Water and waste water management; wetlands, coastal and marine environment conservation; education and research (Masdar, Dubai Centre of Excellence for Innovative Energy and Water Solutions, Solar Innovation Centre); local, national, regional climate change assessment programs; awareness campaigns (Waterwise, Powerwise, Heroes of the UAE)	Private sector; SMEs; tourism and hospitality; infrastructure; water and electricity subsidies
Oman	1995	Oman 2020: Visions for Oman's Economy	Economic diversification; investments in industrialization, human resources; privatization; employment	Tourism, logistics, manufacturing	Target: 2 percent reduction in GHG emission between 2020-2030; flare minimization from oil industries; renewable energy; energy efficiency; reduction of hydrochlorofluorocarbon (HCFC)	Extreme events (e.g. tropical storms); coastal zones; water security; marine protection; agriculture, biodiversity	Financial; private and SMEs; health sectors

Sources: GCC Economic Vision Documents; INDC reports; and IMF COVID-19 Policy Tracker.

Conclusions and Policy Recommendations

The novel coronavirus pandemic has disrupted the focus of the GCC states on environmental sustainability projects, as countermeasures to shore up their economies and protect human health have become the priority for governments. This Brief argues that while the economy and human health should indeed be at the top of the GCC countries' economic recovery agenda, to additionally

factor in climate risks and opportunities will ensure long-lasting economic, social and environmental benefits. The Brief also recognizes that, to date, the current economic recovery packages do not include any support to environmental sustainability projects.

Over the last few decades, the Gulf states have shown a growing interest in aligning environmental sustainability with their economic development. Along with making environmental sustainability an integral part of

Table 2: Current vs. recommended measures to support green recovery per sector: Saudi Arabia

	Current projects/measures	Recommended green recovery measures
Industry	<ul style="list-style-type: none"> • CCUS (Uthmaniyah CO2-EOR Demonstration Project; Jubail CO2 to chemical plant by SABIC) • Methane recovery and flare minimization • Electricity price reform (0.037-0.048 USD/kWh in 2015-2018) • Fuel reform (e.g. diesel and natural gas price increases between 2015-2018) • Energy efficiency programs to improve industrial energy intensity by 1 percent per year 	<ul style="list-style-type: none"> • Scale up the implementation of CCE (e.g. through funding more CCUS projects) • Invest in renewable energy projects in downstream energy-intensive industries (e.g. petrochemicals) • Continue monitoring and evaluation of fuel/ electricity price reforms
Buildings	<ul style="list-style-type: none"> • Energy efficiency program; stronger minimum energy performance standards; strong enforcement to stamp out non-compliant imports; High Efficiency AC Program up to USD 1,440 for new split systems per household; new national energy services company (Tarshid) to develop and finance projects 	<ul style="list-style-type: none"> • Continue monitoring and evaluation of fuel/ electricity price reforms to attract investments in energy efficiency • Incentivize private investors and SMEs to invest in retrofit buildings for energy efficiency • Support smart-meter programs • Support solar rooftop installations
Transport	<ul style="list-style-type: none"> • Riyadh metro and bus network (under construction) • Fuel price reforms (e.g. 95 and 91 gasoline price increases between 2015-2018) • Stronger energy efficiency requirements for vehicles 	<ul style="list-style-type: none"> • Incentives to buy and use electric vehicles (EV) • Fund construction of EV charging networks • Support public transport infrastructure in and beyond Riyadh • Continue monitoring and evaluation of fuel price reforms
Electricity	<ul style="list-style-type: none"> • Electricity price reforms (2015-2018) • Renewable energy projects (Sakaka and Dawmat al-Jandal) • Smart Metering Project to install 10 million smart meters 	<ul style="list-style-type: none"> • Invest in energy storage • Support smart-grid infrastructure • Accelerate investments to meet 2030 renewable energy targets

Source: Author's compilation.

their long-term economic development and diversification plans,¹³ the Gulf states have already embarked on implementing policies and projects to ensure vitality of their natural environment, including air quality, sanitation and drinking water, waste management, biodiversity, fisheries, climate change and pollution. This Brief, however, argues that the fiscal crisis created by the coronavirus crisis should not pause GCC progress towards climate action. The GCC states can continue to support environmental sustainability projects and ensure long-term sustainability of different economic sectors even in times of crisis. This can be done either by direct funding from the government or by sending market-signals in the form of clearly identified market-based policy instruments. Carefully designed standards and regulations and implementation of necessary reforms could unlock private investment in renewable energy, energy efficiency and low-carbon vehicles, without requiring large public expenditure.¹⁴ Table 2 outlines the example of Saudi Arabia's effective implementation of policy items.

It is recommended that the GCC governments:

- **Support research and evidence-based policy making.** Currently there is limited technical and human capacity that is essential for data collection and, in some cases, a lack of data sharing. Thus, the availability, quality and accessibility of climate-related data are serious challenges for policy makers in the region.¹⁵ GCC governments should

coordinate with research entities to enhance data collection and ensure that data and information are shared. GCC government can play a role in facilitating raising awareness regarding the green recovery at different levels, including between research institutions and the political level, private sector, and other business sectors. Importantly, governments should support science-based policy making in order to ensure an implementation of cost-effective green recovery measures.

- **Enhance buy-in for implementation of green recovery measures.** This can be done by offering incentives and public finance that encourage private investors and SMEs to pursue low-carbon investments; encourage the recipients of government bailouts to factor climate risks and opportunities in their business models; and develop performance indicators to help stakeholders to respond and engage with reporting on their climate action and contribution to economic diversification.
- **Strengthen cooperation at both national and regional levels to support meeting medium- and long-term climate and economic diversification aspirations.** Both economic diversification and climate action are cross-sectoral in nature, and require collective action and coordination between actors representing different sectors and institutions. Studies indicate that, at least to some extent, the institutional settings in and between GCC states are characterized by a silo approach towards climate

¹³ Al-Sarhi, Aisha (2018): *Integrating Climate Change Policies with Economic Diversification Strategies: Challenges and Opportunities in Oman and the UAE*, Brief no. 07.16.18. Rice University's Baker Institute for Public Policy.

¹⁴ Zenghelis, Dimitri (2011): *A Macroeconomic Plan for a Green Recovery*, Policy Paper, Centre for Climate Change Economics and Policy and Grantham Research Institute on Climate Change and the Environment.

¹⁵ Al-Sarhi (2018).

change.¹⁶ GCC states should take advantage of existing institutional arrangements conducive to economic diversification. Additionally, enhanced coordination among different institutions (e.g. between public,

private, financial and academic) and sectors while planning for green recovery measures is necessary to reduce risks of conflicting strategies, additional regulatory burdens and inefficient budget allocation.

16 Ibid.; Al-Sarihi, Aisha and Mari Luomi (2019): *Climate Change Governance and Cooperation in the Arab Region. New Governance for the Environment in the Arab Region Series*, EDA Insight. Emirates Diplomatic Academy. Available at <https://eda.ac.ae/research/energy-climate-change-and-sustainable-development> (08.12.2020).

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