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**Economic and Social Commission for Western Asia (ESCWA)**

Committee on Energy  
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Item 8 of the provisional agenda

**Round-table discussion:  
progress towards energy-related Sustainable Development Goals**

**Summary**

The present document provides an overview of the progress of the Arab region towards achieving Sustainable Development Goal 7 (SDG 7) on ensuring access to affordable, reliable, sustainable and modern energy for all. It also covers other SDGs that have explicit or implicit links to sustainable energy and sets out regional priority actions over the course of the next three years as well as policy implications and recommendations drawing the path towards 2030.

The Committee on Energy is invited to discuss the contents of the present document and discuss means to accelerate progress towards SDG 7 and related SDGs in the Arab region.

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## Introduction

1. The Arab region has recently made progress on achieving Sustainable Development Goal 7 (SDG 7) targets but must accelerate action. The ongoing war in Ukraine has triggered multiple crises, including energy crises in many regions, impacting the most vulnerable. Continued supply chain disruptions, economic downturns, conflict and instability in several Arab countries have slowed SDG progress, and urgent efforts are vital to achieve SDG 7 targets by 2030. In terms of policy, five Arab countries have pledged to achieve economy-wide net-zero emissions, with Oman and the United Arab Emirates aiming to achieve this target by 2050, and Bahrain, Kuwait and Saudi Arabia by 2060. Energy is at the heart of Arab sustainable development, and while the region overwhelmingly relies on fossil fuels, it has made substantial progress on utility-scale renewable generation in recent years and many world-leading projects are set to come online in 2023.

2. Access to electricity in the Arab region was at almost 91 per cent in 2021, leaving nearly 42 million people without electricity access. Rural areas suffered the largest deficits, with only 83 per cent of the rural population having electricity access compared to 98 per cent in urban areas. The rural-urban divide was most prominent in Arab least developed countries (LDCs), where urban electricity access was 84.5 per cent while in rural areas it was only 52 per cent. Around 52 million people in Arab countries did not have access to clean cooking, with large sub-regional disparities.

3. Renewable energy penetration rates continue to lag behind those of other regions, and most renewable energy comes from traditional biomass. Renewables accounted for only 5.1 per cent of total final energy consumption in the Arab region in 2020. Electricity generation from modern renewables, however, continues to accelerate. Utility-scale solar photovoltaics (PV) projects have been prominent, with some of the largest projects globally boasting record low prices for power set to be rolled out in the region, particularly in the Gulf Cooperation Council (GCC) countries.

4. Primary energy intensity is higher in the Arab region than the global average, increasing year over year, from 5.11 megajoules per constant 2017 purchasing power parity gross domestic product (MJ/\$2017 PPP GDP) in 2019 to 5.17 (MJ/\$2017 PPP GDP) in 2020. Over the past decade, however, energy intensity remained largely flat, from 5.2 (MJ/\$2017 PPP GDP) in 2010. Despite earlier improvements, the pace of improvement has slowed and is not set to meet SDG target 7.3 of improving energy intensity by 2.6 per cent per year till 2030.

5. The following priority actions should be taken:

(a) Over the next three years:

- Integrate energy policies with wider socioeconomic objectives to enable just and sustainable energy transitions which leave no one behind.
- Mitigate energy security risks by promoting energy efficiency measures and accelerating the uptake of renewable energy.
- Enact policies for economy-wide energy savings and strengthen human capacity and awareness on energy efficiency through education and training.
- Increase public investment in clean energy access, including off-grid solutions and promote policies which encourage private sector participation by de-risking projects.
- Implement targeted subsidies, technical assistance and capacity-building to provide electricity and clean cooking technologies to energy-poor households, particularly in rural areas.
- Synergize interlinkages between SDG 7 and other SDGs, particularly SDG 6 on clean water and sanitation, SDG 9 on industry, innovation and infrastructure, SDG 11 on sustainable cities and communities, and SDG 17 on partnerships.

(b) Towards 2030:

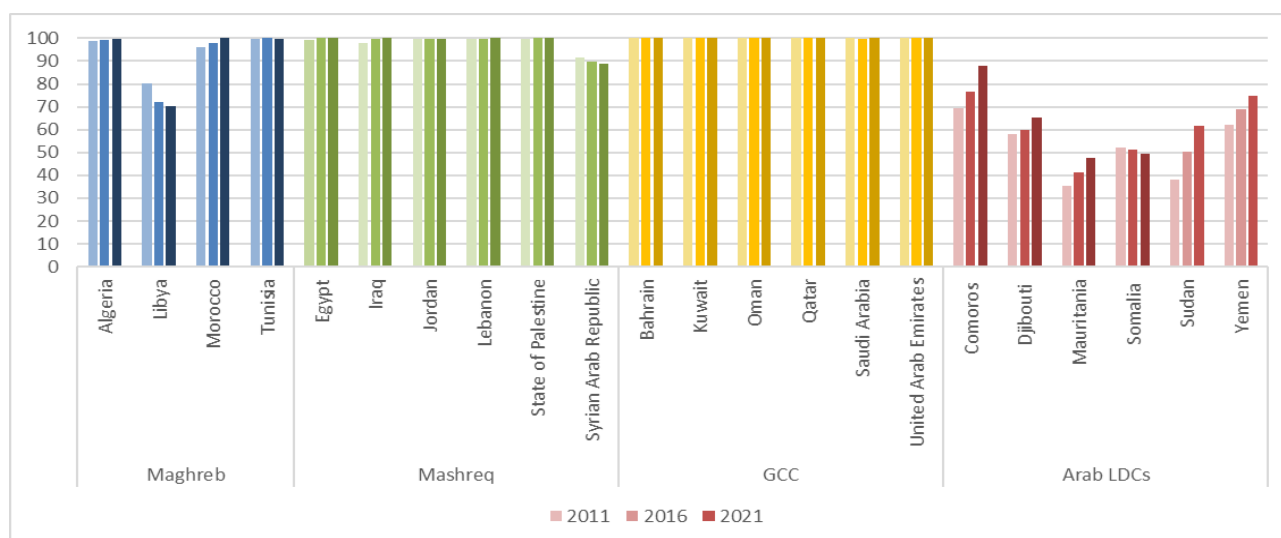
- Leverage innovation and digital technologies to increase access to modern energy services in rural and urban areas by providing regulatory clarity and clear strategic guidelines.
- Restructure energy pricing systems and ensure complementary policies to mitigate unintended negative consequences of reforms on vulnerable groups.
- Implement and enhance national, regional and international multi-stakeholder partnerships for energy.
- Integrate sustainable energy action plans into development strategies with clear SDG targets and set ambitious greenhouse gas (GHG) reduction targets, including net-zero commitments.

## I. Progress on the Sustainable Development Goal 7 indicators

### A. Energy Access

6. Electricity access rates in the Arab region<sup>1</sup> crossed the 90 per cent mark for the first time in 2017 and continue to increase, reaching 90.8 per cent in 2021. The total number of people without access to electricity in the Arab region stands at almost 42 million, with 89 per cent residing in Arab LDCs. Electricity access in Arab LDCs has been improving by 2 per cent annually since 2019 but access remains the lowest among the Arab sub-regions, reaching 63.5 per cent in 2021. Inequality remains, with approximately 52 per cent, 51 per cent and 38 per cent of the populations in Mauritania, Somalia and the Sudan, respectively, still without electricity access in 2021.<sup>2</sup>

**Figure 1. Share of population with electricity access in the Arab region, 2011, 2016 and 2021 (Percentage)**



Source: Data provided by the World Bank.

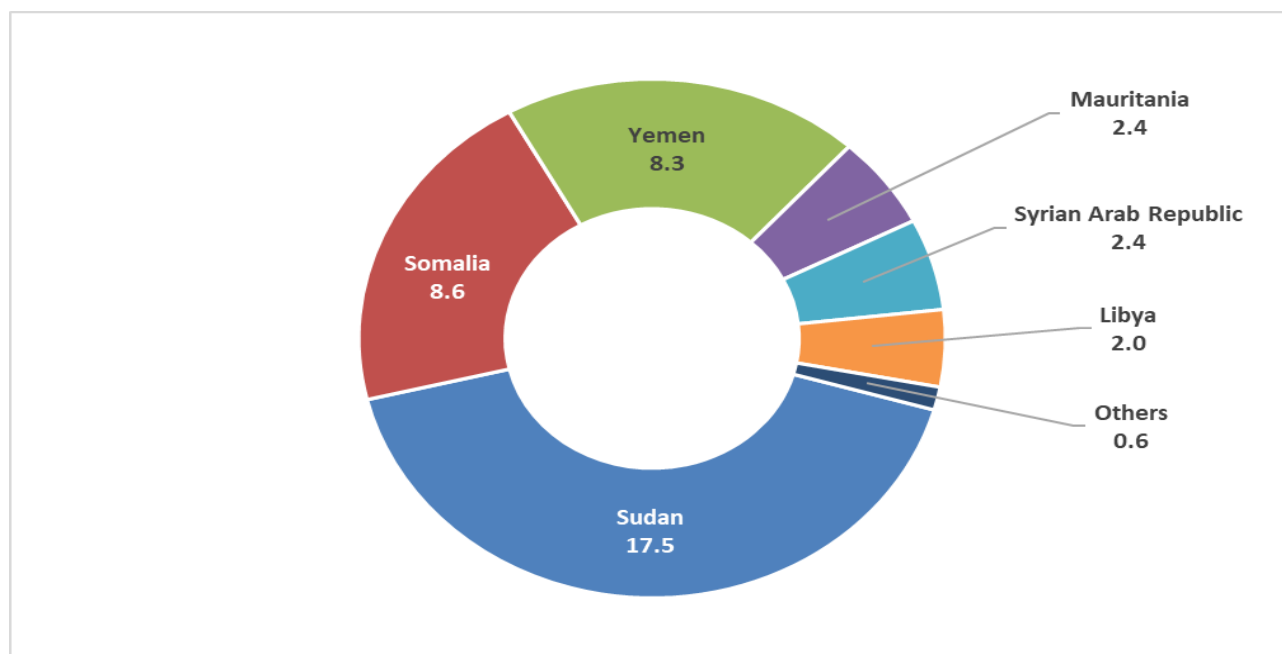
7. The Sudan (17.5 million), Somalia (8.6 million) and Yemen (8.3 million) combined have over 34 million people without access to electricity and rapid improvements are needed to provide access to all. Although there

<sup>1</sup> The Arab region here includes the Maghreb (Algeria, Libya, Morocco and Tunisia), Mashreq (Egypt, Iraq, Jordan, Lebanon, the State of Palestine and the Syrian Arab Republic), GCC (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates), LDCs (Comoros, Djibouti, Mauritania, Somalia, the Sudan and Yemen).

<sup>2</sup> Data provided by the World Bank.

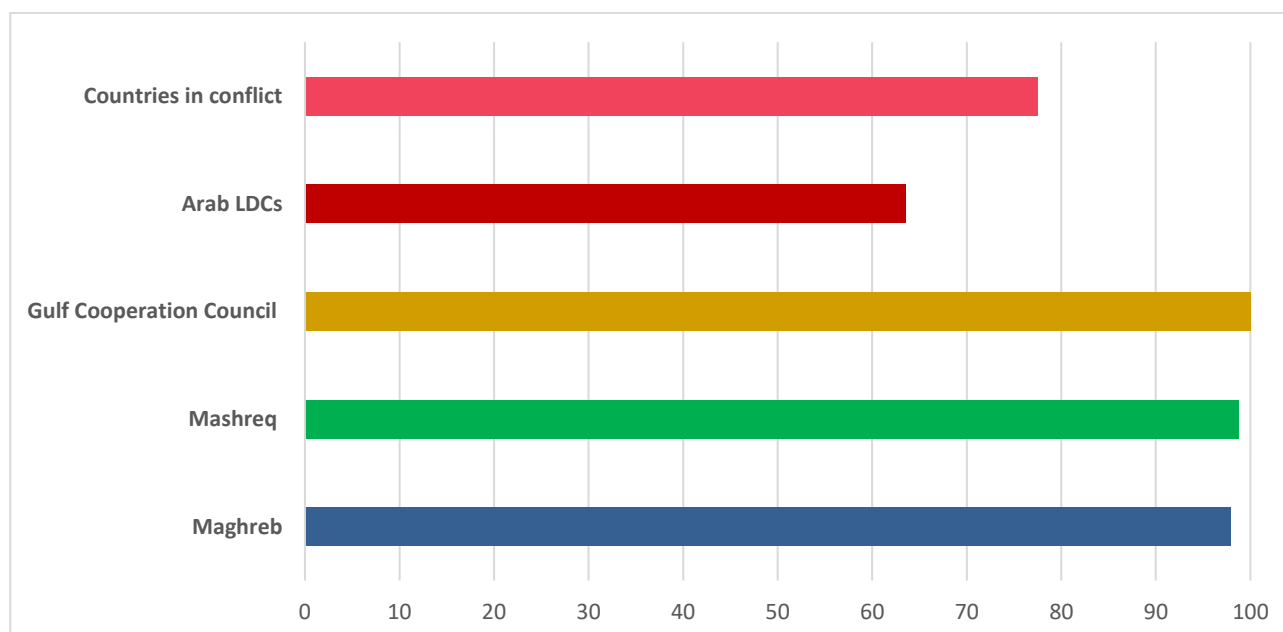
has been considerable improvement in electricity access in Arab LDCs since 2011, there is still a disparity in the improvement among countries. All GCC countries and most countries in the Mashreq region boast universal electricity access. There was also a slight improvement in access rates in countries in conflict, where the share of people with electricity access increased to an average of 77.5 per cent in 2021, up from 76.8 per cent in 2020 and 70.4 per cent in 2011.<sup>3</sup>

**Figure 2. Number of people without access to electricity in the Arab region, 2021 (Millions)**



Source: Data provided by the World Bank.

**Figure 3. Total access to electricity by sub-region, 2021 (Percentage)**



Source: Data provided by the World Bank.

<sup>3</sup> Data provided by the World Bank.

### 1. *Rural-urban divide*

8. In 2021, almost 98 per cent of urban areas in the Arab region had access to electricity but only 83 per cent of rural areas did. The rural-urban divide was most prominent in Arab LDCs, where urban electricity access was 84.5 per cent while in rural areas, access was only 52 per cent.<sup>4</sup>

### 2. *Electrification solutions*

9. Targeted subsidies based on household income are a viable solution for providing affordable electricity to energy-poor households. Decentralized renewable energy solutions are also emerging as a cost-effective alternate to electricity from the grid. New business models to provide on-demand energy access should be devised and implemented, especially in remote areas without grid connectivity.

#### **Box 1. Decentralized project finance via blockchain**

Digital technologies like blockchain are enabling new, innovative ways to increase electricity access in rural areas through decentralized financing. To start, the company identifies schools, businesses and organizations that want to use solar energy. Solar engineers then work with local solar construction partners to evaluate proposed solar projects and ensure they meet certain criteria. Once solar projects have been accepted as viable, a crowd sale is initiated for the solar PV modules that will power the project. Any individual or organization, anywhere in the world, can sign up to have a stake in the project. Once a crowd sale sells out, installation of the solar project begins. Investor leases start when the project starts generating electricity. Schools, businesses, and organizations pay investors to use the clean electricity generated by the PV systems. Investors receive monthly returns, net of insurance and servicing fees, into their digital wallet in either local currency of the project or cryptocurrencies like Bitcoin or Ether.

### 3. *Clean Cooking*

10. 88 per cent of people have access to clean fuels and technology for cooking in the Arab region but there are large sub-regional disparities. In 2021, 52 million people in the Arab region did not have access to clean cooking, a slight increase from 2019, with 88 per cent of those lacking access in Somalia, the Sudan and Yemen. The countries with the highest share of their populations lacking access to clean fuels, at more than 90 per cent, are Djibouti and Somalia.<sup>5</sup>

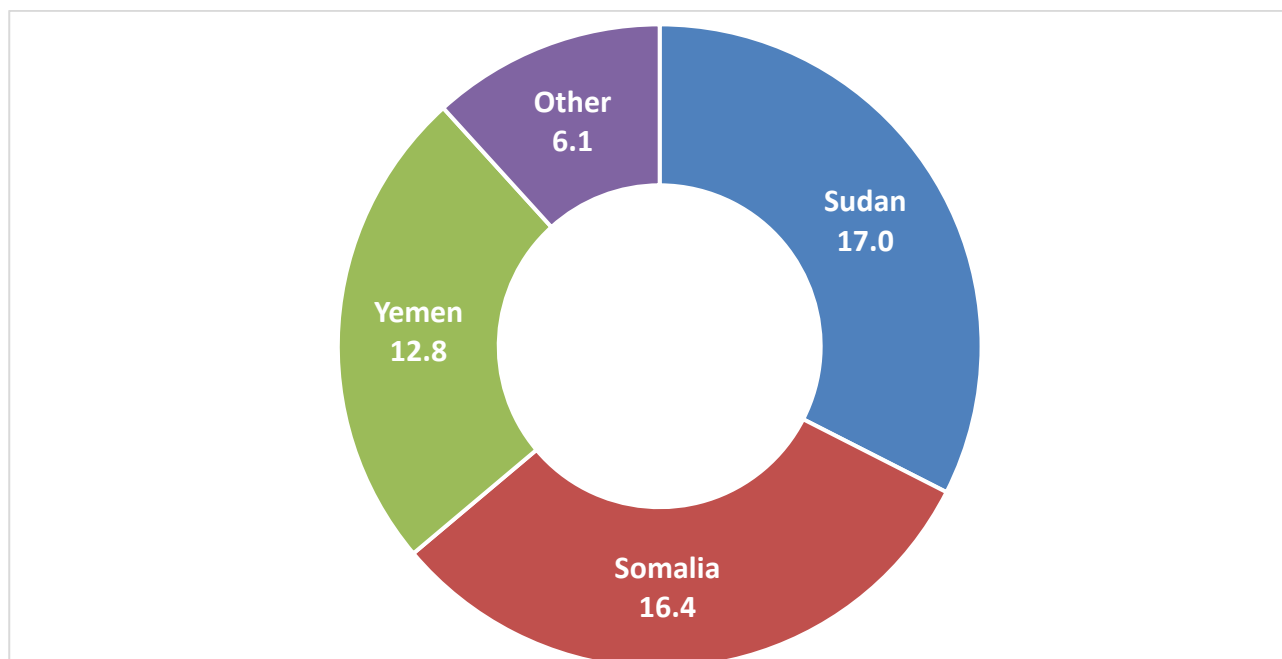
11. The urban-rural divide is also evident for clean cooking, with a deficit for populations in rural areas. In the Arab region, 5.5 per cent of urban populations did not have access to clean cooking in 2021, while 21 per cent of the rural population suffered from a clean cooking deficit. The urban-rural divide was most evident in Comoros, Mauritania, the Sudan and Yemen.

12. Clean cooking needs to be prioritized in national policy agendas for implementation on the ground. As clean cooking attracts only a limited amount of international and local finance, multilateral lending agencies should partner with national Governments to provide low-cost capital along with technical assistance, expert advice and capacity-building programmes based on successful global projects for clean cooking solutions. Small-scale solar panels can power electric cooking appliances and are increasingly becoming viable alternatives. Coordinated action from Governments, supported by partnerships with international non-governmental organizations (NGOs), with the involvement of local actors can accelerate the successful deployment of clean cooking in deprived communities.

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<sup>4</sup> Data provided by the World Bank.

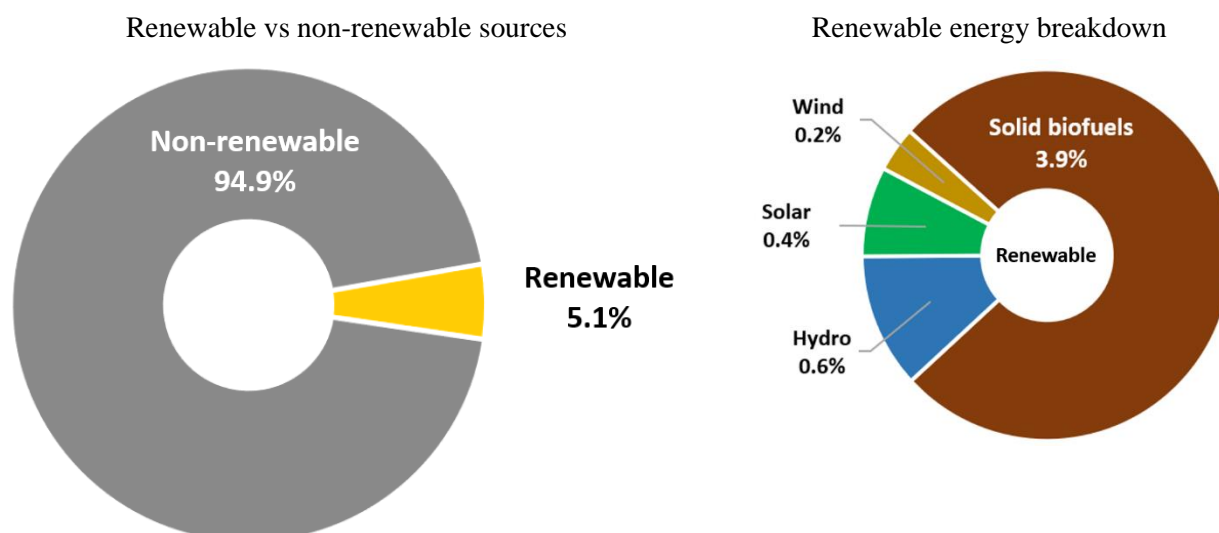
<sup>5</sup> Data provided by the World Health Organization (WHO).

**Figure 4. The Arab region's clean cooking access-deficit in population numbers, 2021 (Millions)**

Source: Data provided by the World Health Organization (WHO).

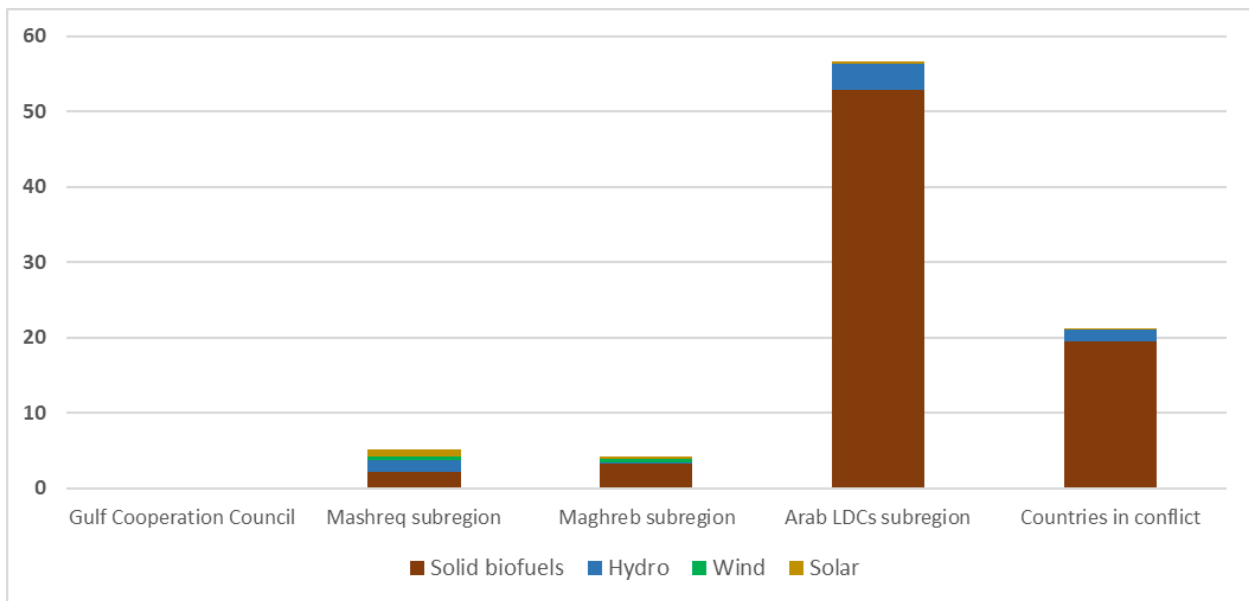
### B. Renewable energy

13. Renewable energy penetration rates continue to lag behind those of other regions, with only 5.1 per cent of the region's total final energy consumption generated by renewables in 2020, mainly from solid biofuels. Three countries (Egypt, Somalia and the Sudan) account for 72 per cent of the region's renewable energy consumption, mainly from traditional solid biofuels which account for 78 per cent of renewable energy in the region.

**Figure 5. Total final energy consumption (TFEC) breakdown by source in the Arab region, 2020 (Percentage)**

Source: Data provided by the International Energy Agency (IEA).

**Figure 6. Share of individual renewable energy sources in total final energy consumption, by Arab sub-region, 2020 (Percentage)**



Source: Data provided by IEA.

14. Solid biofuels continue to account for the largest share of renewable energy consumed in the Arab region. Arab LDCs continue to be the largest consumer of solid biofuels, with these fuels accounting for nearly 53 per cent of the sub-region's TFEC. Most of the region's solid biofuel is traditional and is largely used for cooking, heating and even lighting, with low efficiency levels which adversely affects health due to indoor air pollution. Modern renewable energy solutions are required to close this gap.

### **Box 2. Promoting small-scale renewable energy technologies and applications in rural areas of the Arab region**

Initiatives such as the United Nations Economic and Social Commission for Western Asia (ESCWA) Regional Initiative to Promote Small-Scale Renewable Energy Applications in Rural Areas of the Arab Region (REGEND) aim to improve the livelihoods, economic benefits, social inclusion and gender equality of Arab rural communities, particularly marginalized groups, by addressing energy poverty, water scarcity, vulnerability to climate change, and other natural resource challenges. Appropriate small-scale renewable energy technologies are used to conduct productive activities (water pumping, food manufacturing and packaging, agricultural practices, embroidery, and others), support entrepreneurial development, and ensure women's empowerment, with an emphasis on creating jobs and developing robust value chains to promote a sustainable economy. So far, REGEND has implemented 31 renewable energy projects totalling 257 kilowatts peak (kWp), benefiting 2,900 local community members in rural areas of Jordan, Lebanon and Tunisia.

15. Total installed renewable electricity capacity in the Arab region has roughly doubled over the past decade, reaching a little over 22 gigawatts (GW) in 2021.<sup>6</sup> In 2020, solar and wind energy accounted for nearly 12 per cent of the region's renewable energy consumption, up from 11 per cent in 2019, with solar being the fastest growing renewable energy source of power generation. Jordan, Lebanon, the State of Palestine and Yemen exhibit the highest shares of solar in their energy mixes, while Morocco is leading the way in wind

<sup>6</sup> The International Renewable Energy Agency (IRENA) (2022). [Renewable Capacity Statistics 2022](#).



energy, accounting for 46 per cent of the region's total wind energy consumption. Unlike solar, wind resources are unequally distributed in the region, but wind power is making ground in several countries, including Egypt and Jordan.

16. The rise in renewable energy investment in the Arab region could see capacity increase by 33 GW between 2022 and 2026, with around 26 GW as utility and distributed solar.<sup>7</sup> Moreover, enhanced regional electricity grid connectivity will enable greater integration of renewables in the Arab region by connecting demand centres with remote sources of low-cost renewable energy while increasing system flexibility.

17. Several large utility-scale renewable energy projects are set to come online in the coming years, including the 2,060 megawatt (MW) Al Shuaibah solar PV plant in Saudi Arabia, the 1,500 MW Sudair solar PV plant in Saudi Arabia, and the 2,000 MW Al Dhafra solar PV plant in the United Arab Emirates, some of the largest anywhere on earth. Recently completed megaprojects include the 580 MW Ouarzazate concentrated solar power farm in Morocco and the 200 MW Baynouna solar PV project in Jordan.

18. Diversifying the energy mix is a key aspect of the energy transition in the Arab region. Beyond accelerating the uptake of renewable energy and electrifying relevant sectors, alternative energy carriers including hydrogen and hydrogen derivatives are being explored as ways to leverage the region's renewable resource potential. Low-carbon hydrogen development could diversify Arab export revenues and reduce energy-related emissions. It could also be an important part of a toolbox of clean energy solutions to address the environmental and economic vulnerability to which the region is exposed, leveraging the region's natural gas resources (paired with carbon capture use and storage) and expansive renewable energy potential (for green hydrogen).<sup>8</sup>

### Box 3. Sustainable hydrogen

The Arab region is well-placed to dominate sustainable hydrogen (green and blue) exports by 2050, supplying up to 20 per cent of global markets,<sup>a</sup> due to the low cost of renewable power and experience with oil and gas exports. The most adequate near-term applications in the region are the petrochemicals and refining industries (which currently depend on grey hydrogen), steel and aluminium smelters, ammonia and methanol. In the medium to long term, large-scale seasonal energy storage, long-haul transportation and maritime shipping are prospective applications. When it comes to hydrogen use in industry, the Arab region currently dominates direct reduced iron (DRI) production using hydrogen, with 40 per cent of global production. One DRI project with carbon capture use and storage (CCUS) launched in 2016 – the Al Reyadah carbon capture project in the United Arab Emirates – produces an estimated 70 kilotonnes (kt) annually of low-emission hydrogen. However, it is the only project of its type in operation today. No similar projects of this scale are under development. Egypt, Mauritania, Morocco, Oman, Saudi Arabia and the United Arab Emirates all have green hydrogen projects under development. Saudi Arabia is developing a \$8.5 billion 3.5 GW green hydrogen plant at Neom which aims to produce 219,000 tonnes of hydrogen and 1.2 million tonnes of ammonia annually.<sup>b</sup> On an even larger scale, Mauritania recently signed a memorandum of understanding with partners in Germany, Egypt and the United Arab Emirates to develop a 10GW green hydrogen project with an annual capacity of up to 8 million tonnes of green hydrogen and derivatives, with phase one to be completed by 2028.<sup>c</sup>

<sup>a</sup> ESCWA (2022). [Potential blue and green hydrogen developments in the Arab region](#).

<sup>b</sup> ACWA Power (2023). [NEOM Green Hydrogen Project](#).

<sup>c</sup> The National (2023). [Infinity Power and Conjuncta to develop green hydrogen project in Mauritania](#).

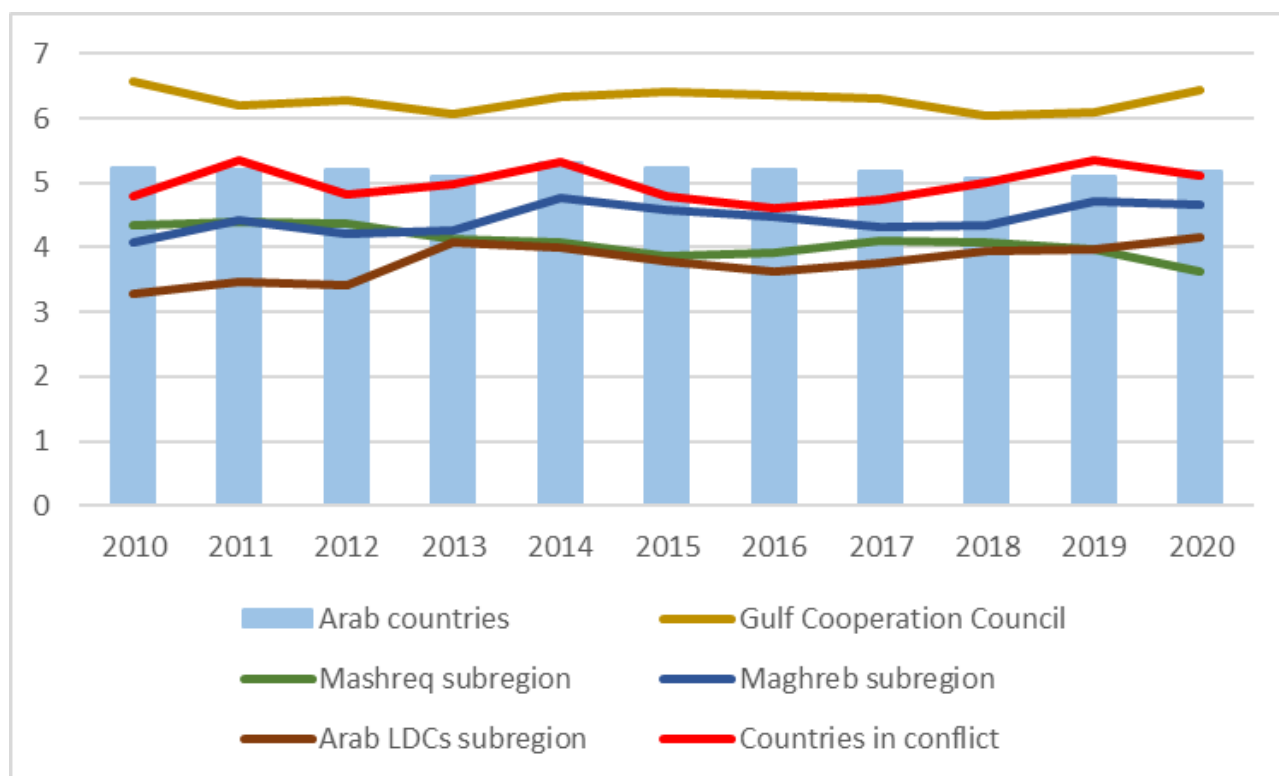
<sup>7</sup> Arab Petroleum Investments Corporation (APICORP) (2022). [MENA's sustainability journey in light of COP27](#).

<sup>8</sup> ESCWA (2022). [Potential blue and green hydrogen developments in the Arab region](#).

### C. Energy Efficiency

19. Energy intensity in the Arab region increased year over year, from 5.11 (MJ/\$2017 PPP GDP) in 2019 to 5.17 (MJ/\$2017 PPP GDP) in 2020. Over the past decade, however, energy intensity decreased from 5.2 (MJ/\$2017 PPP GDP) in 2010. The gradual decline in energy intensity since 2010 is driven by lower energy intensity in the GCC and the Mashreq sub-regions. However, energy intensity in the Maghreb and Arab LDC sub-regions has increased since 2010. Energy intensity in the Maghreb region reached 4.67 (MJ/\$2017 PPP GDP) in 2020, up from 4.07 (MJ/\$2017 PPP GDP) in 2010, while the Arab LDC region witnessed an even bigger increase, from 3.27 (MJ/\$2017 PPP GDP) in 2010 to 4.16 (MJ/\$2017 PPP GDP) in 2020. Growth in energy supply was the highest in countries in conflict in 2019-2020 despite them having a GDP contraction.

**Figure 7. Arab sub-region energy intensity trends from 2010 to 2020 (MJ/\$ 2017 PPP)**



Source: Data provided by IEA.

20. Continued shortfalls – below rates that would meet the SDG 7.3 target – imply that energy efficiency policies are not yielding the desired results and more efforts are needed from all countries. Further, each year's shortfall in meeting the target increases the average rate of improvement required in the remaining years till 2030. The annual rate of improvement in energy efficiency would now need to be 3.2 per cent through 2030 to make up for slow progress in previous years.<sup>9</sup> Early action on energy efficiency through well-designed and implemented energy efficiency policies can deliver multiple benefits additional to lifetime savings relating to energy and GHG emissions. Price signals also play a vital role in attracting private investment in energy efficiency and countries in the Arab region need to progress with gradual rationalization of energy prices to accelerate efforts to meet the SDG 7.3 target.

<sup>9</sup> International Energy Agency (IEA), IRENA, United Nations Statistics Division (UNSD), The World Bank, World Health Organization (WHO) (2022). [Tracking SDG 7: The Energy Progress Report](#).

#### Box 4. Circular carbon economy

Energy-intensive industries such as cement, steel and chemical production are integral components of the global economy and development aspirations of the Arab region. They jointly represent around 20 per cent of energy and process-related emissions globally, making their decarbonization a critical aspect of a just, inclusive transition. By implementing the principles of the [circular carbon economy](#), the Arab region can reduce emissions while accelerating economic growth and building local capacity and green skills development through job retraining and vocational education, benefiting young people and women in particular. International collaboration and partnerships, including initiatives such as the [Middle East Green Initiative](#), are essential to accelerate the deployment of breakthrough technologies in the Arab region.

As part of the [Saudi and Middle East Green Initiatives](#), the Regional Investment Fund for Circular Carbon Economy technology solutions is being launched to advance energy efficiency (EE) innovation throughout the region. These initiatives aim to reduce emissions from hydrocarbon production in the region by more than 60 per cent. Within this framework, the first phase of the region's largest CCUS hub was launched in Jubail, Saudi Arabia, with a capacity of 9 million tons annually, reaching a maximum capacity of 44 million tons annually by 2035. Innovative technologies for capturing and reusing carbon are being trialled and implemented in the region but government policies and regulations are needed to accelerate further innovation and encourage industries to adopt circular production and consumption models and to increase the availability of green financing.

## II. Policy implications and recommendations

21. **Increase public investment in clean energy access and energy efficiency.** Governments should make energy access and efficiency top political priorities by setting ambitious targets, plans and policies while implementing specific projects. Detailed implementation plans for on-grid as well as off-grid access solutions should be backed by public investment and technical and financial support from the international community to achieve progress. Private sector involvement will enable scaling up of pilot programmes and will catalyse investment in energy efficiency which provides economy-wide savings.
22. **Synergize interlinkages with other SDGs.** There are strong interlinkages between SDG 7 and other SDGs such as SDG 6 on clean water and sanitation, SDG 9 on industry, innovation and infrastructure, SDG 11 on sustainable cities and communities, and SDG 17 on partnerships. These interlinkages must be clearly identified at the regional and national levels, risks of trade-offs must be managed, impacts on gender equality must be considered, and synergies between them must be harnessed to achieve multiple benefits.
23. **Strengthen multi-stakeholder partnerships.** Multi-stakeholder partnerships with international agencies can be leveraged to provide technical assistance and expert advice and build capacity based on lessons learned from successful global programmes. Collaborative decision-making processes and programmes involving local actors such as NGOs, civil society and entrepreneurs can accelerate clean energy projects. The involvement of private companies and new business models will complement international and national efforts. Increased regional grid interconnection also needs to be strengthened.
24. **Reinforce coordinated action from Governments.** High-level policies, enhanced coordination between ministries, and clear allocation of responsibilities of implementing agencies is essential to increasing the pace of the implementation of SDG 7. Attention should be paid to strengthening energy governance, building strong institutions, developing technological capacity, and reskilling human resources. Clear targets on GHG emissions mitigation, including economy-wide net-zero targets by mid-century, must be set.

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