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Progress in the field of energy: related Sustainable Development Goals in the Arab region

Summary

The present document provides an overview of progress in the Arab region towards achieving Sustainable Development Goal 7 (SDG 7) on ensuring access to affordable, reliable, sustainable and modern energy for all. Progress is evaluated in terms of the Goal's indicators for energy access, energy efficiency and renewable energy.

The present document also covers other SDGs that have explicit or implicit links to sustainable energy, and sets out regional priority actions for the next four years as well as policy implications and recommendations drawing the path towards 2030.

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Introduction

1. Sustainable-energy development is a priority for all Arab countries. It is essential for advancing all Sustainable Development Goals (SDGs) in the face of growing climate challenges in all countries. Progress on SDG 7 is a critical contributing factor to managing the multifaceted challenges faced by Arab countries over the coming years and decades.
2. The Arab region lacks capacity in sustainable resource management in the areas of energy efficiency and renewable energy, while retaining a considerable reliance on fossil fuels for all its energy needs. War, political instability and consequent displacement and migration, particularly in low- and lower-middle-income countries, further exacerbate pressure on wellbeing, urban living space and resources. As populations and economies grow, so do their young people's expectations for economic opportunities, environmental sustainability and higher living standards, which require an exponentially increasing pool of natural resources.
3. The Arab region's electrification rate rose from 88.4 per cent in 2010 to 92.5 per cent in 2017, at an average annual electrification growth rate of 0.7 per cent, making it the most electrified regional group of countries in the developing world. However, electricity access deficit is predominantly a rural problem. It is important to highlight that in 2017, 88 per cent of the Arab least developed countries' (LDCs) urban population had access to electricity while around 50 per cent of the rural population had no access to electricity. Moreover, unplanned service disruption is a challenge for electricity users, irrespective of the urban-rural divide or income divide.
4. Access to clean fuel technologies (CFTs) is encouragingly high in the Arab region. In 2017, 14 countries had access rates above 95 per cent. Region-wide access to CFTs grew at a slow annual growth rate of 0.2 per cent since 2010, driven primarily by significant improvements in access in the Arab LDCs, which largely account for the region's access deficit.
5. While the Arab region historically has not been one of the most energy-intensive regions globally, its energy intensity has been relatively stable over the past 25 years, while other higher intensity regions have reduced energy intensity. Energy consumption, however, has more than doubled in the Arab region since 1990, with a direct increase in greenhouse gas emissions. The Arab region is continuing a long-term flat trend of energy intensities at 4.7 MJ/USD2011ppp, which highlights a significant need to address energy efficiency in Arab countries. Transport remains by far the most energy-intensive sector in the Arab region, followed by industry and agriculture.
6. Renewable energy plays a marginal role in the Arab region's energy consumption reflecting the region's globally unparalleled reliance on non-renewable sources. In 2016, renewable energy, including biomass, accounted for some 10 per cent of the region's final energy consumption. Harvesting the significant benefits of modern renewable energy and the considerable potential of modern technologies, such as wind and solar power, requires far more dedicated policy design and investment than is currently available in the Arab region.
7. Priority actions:
 - (a) Over the next four years:
 - Focus on more efficient use of the region's valuable fossil fuel resources while exploring potential energy alternatives, in particular renewable energy;
 - Develop/enhance legislative and subsidy settings to rationalize demand-and-supply patterns and increase sustainable energy;
 - Build institutional capacity, transparency, accountability, data collection, dissemination and information sharing between institutions and provide greater support to science and research;

- Strengthen local governance and communication between Government, financial institutions and public and private companies, and reinforce the role of civil society.

(b) Towards 2030:

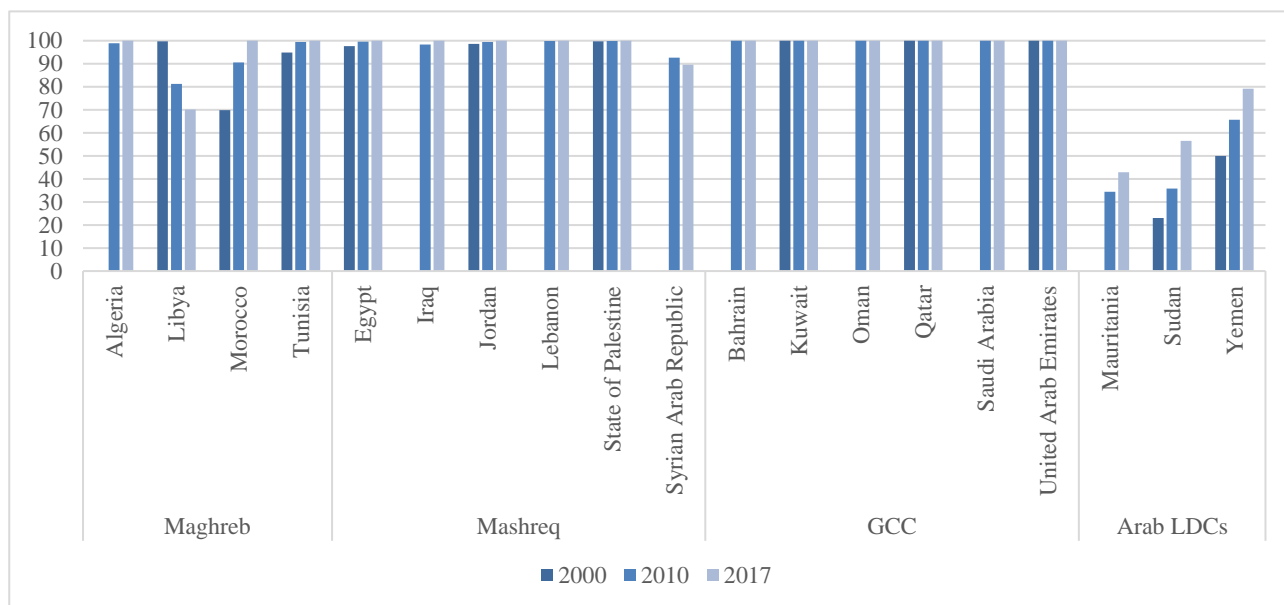
- Adopt proactive and integrated policies that manage natural resources more sustainably, especially the water-energy-food nexus to address these multidisciplinary energy-related issues tied to the empowerment of women and the Arab region's highly educated young people;
- Establish effective supply-side management and achieve diversification of energy supply and regional energy trade to ensure more sustainable, resilient and cost-effective energy systems in the Arab region;
- Enhance regional trade in energy between Arab countries to achieve substantial benefits for all parties, including greater security of supply, access to cleaner energy and considerable potential for job creation by developing local manufacturing industries for components of clean technologies.

I. PROGRESS ON SDG 7 INDICATORS

A. ENERGY ACCESS

8. Access to electricity is a bright spot in the Arab region's sustainable development agenda.* Access to electricity, and to clean cooking fuels and technologies, is now near-universal in the Maghreb, the Mashreq and Gulf Cooperation Council (GCC) countries – an impressive achievement, allowing the Arab region to stand out from other regions with a high share of developing economies (figure 1).

Figure 1. Share of population with electricity access in the Arab region, 2010 and 2017 (%)



Source: IEA, IRENA, UNSD, WB and WHO, Tracking SDG7: the energy progress report 2019.

* The Arab region includes the Maghreb (Algeria, Morocco, Libya, Tunisia), the Mashreq (Egypt, Iraq, Jordan, Lebanon, State of Palestine, Syrian Arab Republic), GCC countries (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates), and Arab LDCs (Mauritania, Sudan and Yemen).

9. Despite positive developments in electricity access since the 1990s, some significant gaps in access to energy remain in the Arab region. Overall, access to electricity is close to universal in cities across the Arab region, although rural access remains incomplete in five Arab countries, with the largest access deficit in the Arab LDCs where rural access ranges from 0 per cent in Mauritania to 69 per cent in Yemen. Around 30 million Arabs did not have any access to electricity in 2017, primarily in the Arab LDCs, with small numbers of people without electricity access in the Maghreb and Mashreq. However, unplanned service disruptions and reliability remain a challenge for electricity users, irrespective of the urban-rural divide or income divide.

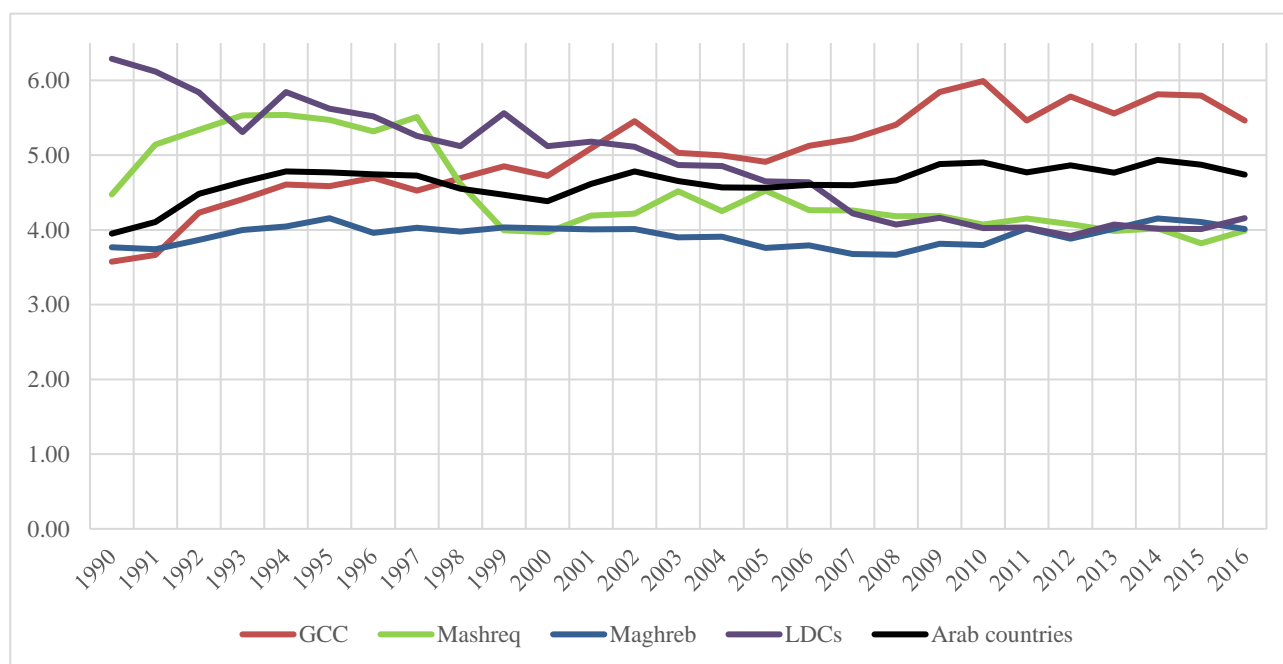
10. War and regional instability have had a devastating impact on essential services, including energy access, in a number of Arab countries, thus exacerbating the unparalleled humanitarian catastrophe unfolding in the region in recent years. Mass migration of some 7 million refugees and around 11 million internally displaced persons according to data from the Office of the United Nations High Commissioner for Refugees (UNHCR) – primarily from Iraq, Libya, the Syrian Arab Republic and Yemen – imposes tremendous material and logistical challenges for host countries and communities, while depriving millions of refugees of secure access to energy and to other essential services such as clean water, sanitation, food and health care. Moreover, given its multifaceted links to various fields of socioeconomic development, weak energy access is a major obstacle to national development efforts in the Arab LDCs.

11. A key dilemma facing the Arab region is whether primary energy and electricity should remain what has been effectively a ‘public good’ supplied at low cost by the State to its citizens, or whether the region’s emerging economies need to redefine the way energy is used and supplied within their domestic market.

B. ENERGY EFFICIENCY

12. Between 2000 and 2016, the Arab region maintained relatively low energy intensities at around 4.7 MJ/USD2011ppp, which highlight the significant need to address energy efficiency in Arab countries (figure 2). Energy intensity rates differ considerably across the Arab region. Energy net exporting countries drive regional trends given that they have based their historical industrial growth on fossil fuels and energy-intensive industries. Net energy importers have seen fairly low and falling energy intensity rates.

Figure 2. Energy intensity in the Arab region by subregion, 1990–2016 (MJ/2011 PPP US\$)



Source: IEA, IRENA, UNSD, WB and WHO, Tracking SDG7: the energy progress report 2019.

13. The region's aggregate data has recently shown a moderate trend towards falling energy intensity levels in agriculture and transport, with declining intensity rates in industry in some economies. Power generation efficiency reflects ongoing progress in advanced gas turbine technologies and integrated power and water plants. Transport, however, remains by far the most energy-intensive sector in the Arab region, followed by industry and agriculture.

14. At the regional aggregate level, transport is more fuel-intensive than any other region of the world, reflecting increasing mobility across dispersed population centres, low fuel costs, and an absence of vehicle fuel standards. Mobility improvements are necessary, enabling progress in a number of social development indicators, such as access to education and health care, and rising income levels. On the other hand, most Arab countries' socioeconomic development models have been built around the concept of cheap and personal transport. There remains a significant lag in the availability of public transport systems, which are inadequate in many Arab cities, suburbs and rural areas.

15. Many Arab cities suffer from significant traffic congestion, in addition to some of the highest rates of urban air pollution. Massive investments in roadworks have not kept pace with increasing vehicle numbers, thus exacerbating congestion. The large additional investments required for road infrastructure and vehicles, and a lack of funds and policy priority on public transport perpetuate unsustainable transport systems.

16. Rising pressure for food production has driven significant efforts to increase the energy efficiency of the agricultural sector indirectly. The dispersed nature of agriculture, with many small farms outside the reach of centralized urban policymaking and legislation, further complicates the implementation of energy efficiency and renewables measures in agriculture, while most financial markets in the Arab region lack financial products suited to the needs of farmers.

17. Low subsidized prices for energy, electricity and water, combined with a lack of energy efficiency regulations in various economic sectors, have resulted in a large increase in per capita water and electricity consumption throughout the Arab region.

18. Where economies and living standards have been growing, market incentives to conserve energy have lagged across the entire Arab region. Measures that help increase energy efficiency and therefore energy productivity over time, particularly on the regulatory side, have been sketchy and piecemeal in many parts of the Arab region. Even in Arab high-income countries, policy focus and hands-on reform efforts differ markedly between countries, with historical priority given to rapid development and quick improvements in living standards. The market structure of the energy industry in the Arab region further affects incentives for energy efficiency.

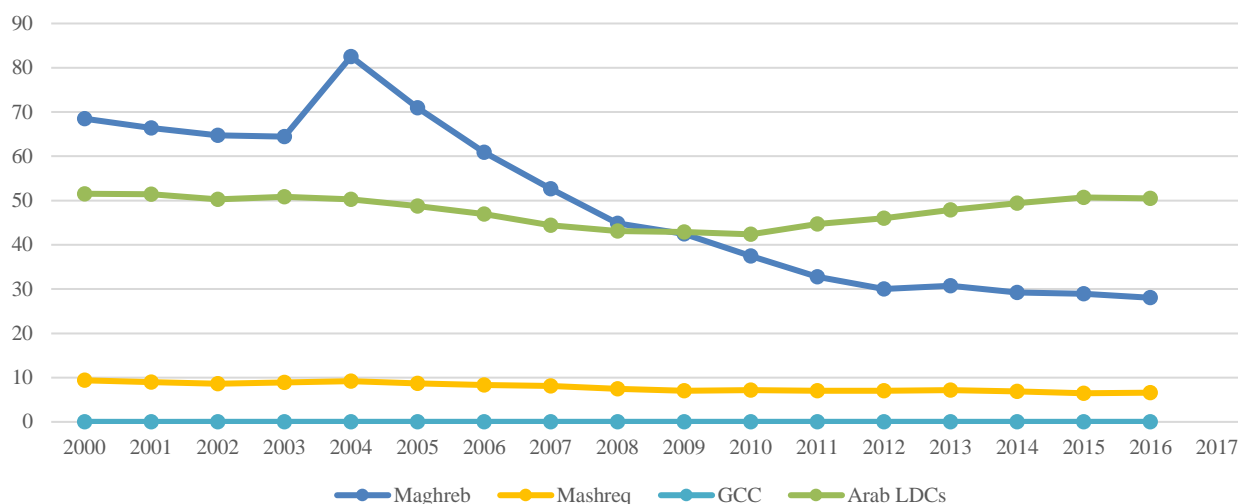
C. RENEWABLE ENERGY

19. Renewable energy, despite progress through a number of high-profile deployment projects in recent years, is still a largely untapped resource in the Arab region (figure 3). In 2016, renewable energy, including biomass, accounted for 10 per cent of the region's final energy consumption. This is despite considerable potential for renewable energy, in particular modern technologies such as wind and solar power, given the region's favourable geography and climate conditions.

20. Over 80 per cent of the region's consumption of renewable energy is based on solid biofuel, accounted for by a small number of countries whose primarily rural populations continue to use biomass.

21. Renewable energy sources have played a marginal and declining role in the region's energy mix. In most parts of the Arab region, conventional fossil fuels have for many decades underpinned the systematic expansion of modern energy access, leading to near-universal access rates of electricity and clean cooking fuels.

Figure 3. Share of renewable energy in total final energy consumption in the Arab region by subregion (%)



Source: IEA, IRENA, UNSD, WB and WHO, Tracking SDG7: the energy progress report 2019.

22. The weak presence of renewable energy stems from the absence of targeted policy initiatives, and the prevalence of State-owned energy utilities and the widespread use of fossil-fuel subsidies, which have traditionally discouraged the use of new non-fossil fuel-based technologies. However, this rationale has started to change in recent years in some parts of the region, and the share of modern renewable energy stabilized over the period 2014-2017. Renewable energy costs have also been falling, making investments, particularly in wind and solar power, more attractive.

23. Recent years have seen an increase in modern renewable energy technologies, particularly solar power. Solar resources are plentiful in the region, and solar technology has proven to be both flexible and cost-competitive. Although deployment has been accelerated, it lags considerably behind the technology's vast potential in the region.

24. Nonetheless, long-term policy obstacles to deploying renewables remain in place, and while new initiatives such as competitive auctions and public-private partnerships hold considerable potential for the future of the energy sector, such business models have yet to prove their popularity regionally.

25. While the Arab region's recent trend in solar- and wind-power energy deployment is currently driven by a few countries, more dedicated policies to establish these technologies could substantially increase the level of deployment over the coming decades. This includes allowing markets to establish a business case for alternative technologies. In a market that remains dominated by fossil fuels, this will require not only more systematic reform to open up utility sectors, but also enabling factors for small-scale applications such as off-grid use, through mechanisms such as transparent pricing and funding.

26. Decentralized generation offers significant market potential, including in conflict-affected countries. While in the past, solar and wind power were primarily driven by the deployment of individual utility-size projects, the development of solar stand-alone systems in countries such as Jordan, Lebanon, the State of Palestine and Yemen over the period 2014-2017 suggests greater policy focus should be placed on distributed generation.

27. More market uptake requires more proactive legislation. Harvesting the significant benefits of modern renewable energy requires more dedicated policy design and investment. Effective legislation and a business-friendly environment have been an important driving force behind recent successes in deploying low-cost, large-scale solar and wind projects in the Arab region. Further growth, including in the off-grid sector, will

depend on the affordability of the technology and access to financing, as well as effective quality control for solar home-based products.

II. INTERLINKAGES WITH OTHER SUSTAINABLE DEVELOPMENT GOALS

28. Progress in sustainable energy can no longer be seen as separate from other socioeconomic development goals in the Arab region. Modern energy access is essential for the achievement of virtually all development goals, including combating poverty (SDG 1), supporting greater gender equality (SDG 5), ensuring decent work opportunities and economic growth (SDG 8), and developing modern industries, innovation and infrastructure (SDG 9). The fragile natural resource balance in many parts of the Arab region, coupled with rapid and rising economic expectations from the region's young and increasingly educated populations, means that managing the natural assets of Arab countries is vital to ensuring that future generations can lead stable and successful lives.

29. Energy is crucially interconnected with a whole range of other factors for development success. Accessible and affordable energy remains the 'engine' for development. Given its close links to water and food security, sustainable energy is key to driving progress in development goals such as the following:

- (a) Universalizing access to modern health services and education;
- (b) Supporting gender equality and women empowerment;
- (c) Creating sustainable living spaces;
- (d) Driving technology innovation and productivity;
- (e) Ensuring progress in mitigating and adapting to climate change.

III. POLICY IMPLICATIONS AND RECOMMENDATIONS

30. Improving efficient natural resource governance and policy plays a pivotal role in driving the Arab region's energy transition. Existing market mechanisms provide insufficient incentives for a change in production and consumption patterns in the Arab region. Missing minimum efficiency regulation, consumer information, and enforcement of existing regulations throughout the region have further increased the energy intensity of regional economic growth.

31. Improving energy efficiency and using renewables can provide significant reductions in energy demand and near-term financial savings, as well as multiple benefits across the SDGs. In the longer term, such changes will provide significant cost savings to national economies and reduce resource waste.

A. INITIATING A PROACTIVE POLICYMAKING APPROACH TOWARDS SUSTAINABLE ENERGY IN THE ARAB REGION

32. Strengthening the link between sustainable energy and environmental management and social and economic development goals: this includes a more efficient use of the region's valuable fossil-fuel resources, and exploiting the economic potential of renewable energy alternatives to deliver wellbeing and positive environmental outcomes to combat emerging climate stresses. Moreover, the Arab region has a wide range of experience in regulating energy efficiency, with a significant gap between the potential benefits of energy efficiency regulation and the actual progress achieved. In the case of high-income Arab countries, progress in energy efficiency lags behind income levels, thus creating a significant gap between the situation on the ground and expected progress and sophistication of regulatory tools. It is therefore vital to reconsider legislative settings that discourage wasteful consumption and production patterns; and adapt energy subsidies to favour sustainable outcomes.

33. Using innovative policy approaches: the deployment of renewable energy in the Arab region in recent years has begun registering positive outcomes. Public-private partnerships in this context are becoming an

increasingly attractive solution for Arab countries aiming to attract private financing for sustainable-energy projects, but must be based on sound public policy foundations for sustainable energy and a sustainable society.

34. Ensuring that new policies, plans and targets are stringent, and that compliance is enforced: this is of particular importance in buildings, appliances and vehicle technologies, where regulatory efforts to implement global best practices in efficiency levels are critical to sustainable outcomes.

35. Effective government communication and strategies: the most effective way to promote a positive energy transition is creating complementary policies between various government bodies that integrate individual policy changes. Regulations must support a wider sustainable strategy, which targets the most efficient use and management of energy for wellbeing. Such policies promote energy efficiency and renewable energy in the national interest, thus resulting in new legislation and regulations from various ministries in coordination with each other. Sustainable policy principles should identify the full cost of business-as-usual compared with sustainable scenarios, consulting rather than just informing, and should use quantifiable goals and targets that help the public understand progress and motivate sustainable change.

36. Enhance research, development and innovation in the field of sustainable energy and environmental technologies and services, as follows:

(a) Improving research and innovation to further identify and adapt technologies to the current challenges facing the region, particularly in the light of the water-energy-food nexus;

(b) Promoting the diversification of the Arab region's energy mix, which requires capital and management skills and greater capacity for technology innovation. This can be achieved through pilot projects, competition, investment in research and development, and community-based projects;

(c) Increasing capacity for technology innovation through dedicated public policies, and providing incubation, financing and incentives for entrepreneurs to scale up innovation.

37. Building institutional capacity, transparency and accountability requires effective and credible institutions with sufficient access to information and data; skilled human resources and the professionalization of the public sector; clear institutional mandates to design, implement and monitor policies; reinforced local governance and city roles; and greater use of existing competence by strengthening communication channels between government institutions, financial institutions and public and private companies, and by strengthening civil society institutions that are able to communicate to their constituencies far more credibly than government institutions.

B. RESTRUCTURING DOMESTIC ENERGY AND WATER PRICING

38. Pricing policies are of pivotal importance for the allocation of scarce resources, including energy. The Arab region's slowly changing pricing environment for energy could be one of the most important structural drivers of gradual improvement in energy efficiency and renewables, if social contract energy subsidies are redirected toward sustainable energy outcomes. For example, supplying a household with a PV system negates the need for ongoing subsidies by creating energy independence, and minimizes further upstream supply investments. Wider energy and utility markets regulation and liberalization remains a key area for further development in the Arab region over the coming decades, offering benefits to many different parties.

C. PREPARING FINANCIAL MARKETS

39. Access to finance is a key factor in determining market uptake of more sustainable energy technologies. A number of financing solutions have been demonstrated to drive clean-energy deployment in the Arab region. These include microcredits for small-scale applications, especially in the off-grid segment; international sources of funding, with an increase in initiatives linked to clean-energy development in developing countries; and locally oriented national policies specific to each country. To offset social contract energy subsidies, Governments need to stimulate demand for investment in energy efficiency and renewables.

D. SUSTAINABLE PUBLIC TRANSPORT INFRASTRUCTURE

40. Public transport infrastructure is key to guaranteeing the dual developmental objectives of ensuring people's mobility, while managing domestic energy demand for transport fuels. Providing sustainable public transport solutions is also critical to ensuring the mobility of women and children, who are often disproportionately affected by the absence of safe transport options, leading to weak access to education, work and health care. Sustainable public transport solutions are also critical to the reconstruction process currently underway in several Arab countries, or in those that recently experienced war and political conflict resulting in the systematic destruction of infrastructure. Important areas of government action are the expansion of safe, effective and sufficient public transport options in cities and in rural areas; and the safeguard of more energy efficient forms of public transport, such as fuel-efficient public vehicle fleets and, where feasible, the electrification of public transport.

E. REGIONAL ENERGY TRADE

41. Intraregional cooperation on energy could result in more sustainable, resilient and cost-effective energy systems in the Arab region, contributing towards economic growth, shared prosperity and reduced poverty. Arab countries should seize opportunities for regional cooperation and public-private partnerships to expand markets for investment and trade in cleaner and more efficient technologies, goods and services in key sectors.

42. Enhancing regional trade in energy between Arab countries, such as through interconnected electricity grids, would result in substantial benefits for all parties, including greater security of supply; access to cleaner energy produced in bulk where it is cheapest; and considerable potential for job creation by developing local manufacturing industries for components of technologies whose greater deployment could be driven by increasing regional cooperation on renewable energy.

F. STRENGTHENING INFORMATION QUALITY AND AWARENESS-CREATION

43. The Arab region's fast socioeconomic development over the past three decades has triggered a rise in energy consumption, but it has not been accompanied by a parallel shift in public awareness on the need for rational energy use and environmental protection. Information management and consumer motivation are critical components in upgrading an economy's energy performance, because behavioural changes and investments in upgraded energy efficient technology require time to recoup initial investment costs. Many innovative solutions, such as rooftop solar panels, require consumer action that is frequently hampered by lack of information.

44. Access to data and information plays a pivotal role in government and business decisions to invest in sustainable technologies and guide consumer behaviour. Progress in improving information access in the Arab region relies on a number of factors, including strengthening data collection and dissemination, sharing information between institutions, communicating with final consumers, re-prioritizing sustainable energy use, promoting environmental consciousness in the public discourse, ensuring greater freedom of science, research and media, and depoliticizing data.

45. In the longer term, achieving the SDGs, including in the field of energy, will require a degree of data dissemination and media reporting, thus empowering civil society to present their interests and help Governments in assess society's needs and preferences.
