WORKSHOP

Requested by the DEVE committee

European Parliament

Developing countries' energy needs and priorities under a sustainable development perspective: The specific case of Africa and green hydrogen

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DIRECTORATE-GENERAL FOR EXTERNAL POLICIES
POLICY DEPARTMENT

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ABSTRACT

Africa is the continent most affected by energy poverty, with more than 40 % of its population lacking access to electricity. This is in spite of an extremely high potential for renewable energy generation and an increasing number of fossil fuel developments on the continent. Through its development cooperation programmes, the EU has committed significant funds to reduce energy poverty in its partner countries in Africa. These programmes aim to help achieve the Sustainable Development Goal 7, which commits the international community to ensure universal access to affordable, reliable, sustainable and modern energy by 2030. This report takes stock of these efforts by investigating the major challenges to universal access to energy in Africa and the efficacy of the EU programmes trying to overcome them. It also examines how these efforts may interact with the external aspects of the EU's Green Hydrogen strategy, which foresees significant imports of green hydrogen from African partners by 2030. The report analyses the strategy from the perspective of the Policy Coherence for Development.

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BRIEFING

The European Union's development cooperation and energy poverty in Africa

ABSTRACT

In 2015, the United Nations approved Sustainable Development Goal 7 to ensure access to affordable, reliable, sustainable and modern energy for all. This Goal includes five key targets: ensure universal access; substantially increase the share of renewable energy; double the global rate of improvement in energy efficiency; promote access to research, technology and investments; expand infrastructure and upgrade technology. In 2022, people in Africa without access to electricity and clean cooking numbered 600 million and 970 million respectively. Worryingly, further increases will be evident by 2030 if additional efforts are not made. The European Union has a long history of energy cooperation with Africa and is the leading provider of Official Development Assistance (ODA) for Goal 7 projects. However, these projects have been more oriented towards promoting renewable energy and increasing countries' energy capacities through generation and the interconnection of transport networks rather than ensuring universal access to electricity and modern cooking services. Accordingly, in proposing some policy recommendations to overcome energy poverty, this briefing analyses cooperation from the perspectives of ODA amount and typology, geographic and sectoral focus, gender issues, support for modern cooking services and technical assistance.

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List of abbreviations

EFSD	European Fund for Sustainable Development
EFSD+	European Fund for Sustainable Development Plus
ENP	European Neighbourhood Policy
ESMAP	Energy Sector Management Assistance Program
EU	European Union
DFI	Development Finance Institution
DRC	Democratic Republic of Congo
JETP	Just Energy Transition Partnership
LDC	Least Developed Country
LEAP-RE	Europe-Africa Partnership on Renewable Energy
LPG	Liquefied Petroleum Gas
NDICI	Neighbourhood, Development and International Cooperation
ODA	Official Development Assistance
PCD	Policy Coherence for Development
RISE	Regulatory Indicators for Sustainable Energy
SDG	Sustainable Development Goal
SE4ALL	Sustainable Energy for All
TAF	Technical Assistance Facility
UN	United Nations
WHO	World Health Organization

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1 Introduction

Access to energy is an enabling element within overall development, a minimum universal provision which is essential for achieving the Sustainable Development Goals (SDGs). The SDG7's target which aims to guarantee universal access to affordable, reliable and modern energy services splits two ways: universal access to electricity along with universal access to clean fuels and technology (called clean cooking or modern cooking). **In 2022, people in Africa without access to electricity and clean cooking numbered 600 million (43 % of the total population) and 970 million (70 %) respectively**, most of them in the Sub-Saharanregion (International Energy Agency, 2022). If additional efforts are not made, these numbers will increase rather than decrease by 2030.

The European Union (EU) has a long tradition of energy cooperation in Africa and, together with its Members States, provided EUR 13.8 billion as a key provider of Official Development Assistance (ODA) for energy sector projects in Africa between 2014 and 2020.

European cooperation is guided by general principles and instruments, namely: the European Development Policy; the European Consensus on Development; the Policy Coherence for Development (PCD); the Development Effectiveness; the European Neighbourhood Policy (ENP); the African, Caribbean and Pacific – EU Partnership; the Neighbourhood, Development and International Cooperation Instrument (NDICI) – Global Europe; and the European Fund for Sustainable Development (EFSD) and EFSD+. Furthermore, energy cooperation has a specific strategic framework set out in the **Africa-EU Energy Partnership**, which was renewed in February 2022 to include the African Union's Agenda 2063 as well as the EU's priorities on climate change, energy security, REPowerEU and the Global Gateway, as discussed in section 3.

Sub-Saharan countries have subscribed to the Agenda 2030 and have implemented policies and plans to reach universal access to energy. In this context, between 2015 and 2020, **hundreds of projects were financed in most African countries**, using the full variety of financial and non-financial instruments available to the EU and its Member States. The most recent projects are included in the Africa-EU Green Energy Initiative, part of the Global Gateway Flagship projects.

This briefing examines **EU energy cooperation in Africa in support of universal access to affordable, reliable, sustainable and modern energy**, to propose some measures that might allow the EU to reorient its cooperation. The proposals are aimed at increasing effectiveness in the fight against energy poverty, that is, the situation in which households are unable to access essential energy services and products (Certoma, Corsini et al., 2023).

The assessment begins with an analysis of the current state of energy poverty in Africa and trends, followed by Section 2 on barriers and measures to overcome them. Section 3 describes the EU-Africa cooperation framework, relevant past and current programmes as well as partnerships. Section 4 discusses energy cooperation from the perspective of ODA amount and typology, geographic and sectoral focus, gender issues, support for modern cooking services and technical assistance. Finally, Section 5 presents some policy recommendations to tackle energy poverty in Africa.

2 The state of energy poverty in Africa

The lack of access to adequate and affordable energy services coupled with extreme poverty feeds into a vicious circle. People and communities with limited access suffer significant deprivation and have a lower level of development and income, which makes them 'unattractive' clients for energy utilities (Karekezi et al., 2012).

Africa is characterised by great diversity in terms of population, development, geopolitics and political stability, with significant differences between the North Africa and Sub-Saharan Africa regions. For instance, the latter is less developed and almost 40 % of its population lives in extreme poverty, with huge differences between people living in urban and rural areas. Within each region, there are also important differences, as shown by the Energy Sector Management Assistance Program (ESMAP)'s energy progress reports and its country reports[1]. Significantly, 'in 2019 the wealthiest 10 % of Africans owned 70 % of the continent's wealth. Both within-country and between-country inequality across Africa has increased since then, rebounding to levels from the early 2010s' (IEP, 2022).

According to the International Energy Agency (IEA), **'Africa is home to nearly 18 % of the world's population, yet accounts for less than 6 % of global energy use'** (IEA, 2022). The primary source of cooking fuel for 64 % are collected wood, along with agricultural and animal wastes (IEA, 2022). Moreover, 'Africa has the world's fastest-growing population: almost one-in-two people added to the global population over the next decade will be African'. 'Combined with increasing economic activity and household incomes, this will drive up demand for energy services' (IEA, 2022).

In 2015, the United Nations (UN) General Assembly approved the 2030 Agenda with its 17 SDGs, amongst which Goal 7 focuses on ensuring access to affordable, safe, sustainable and modern energy. Goal 7.1 specifically aims to secure 'access to affordable, reliable and modern energy services' by the year 2030 (UN General Assembly, 2015), in other words, access to electricity and modern cooking services. **Energy is an enabling element for development and the SDGs cannot be achieved without ensuring a minimum amount of access to energy for everyone**. The 2030 Agenda insists on leaving no one behind, with the concept of 'universal' implying every person, without distinction.

The 48 countries south of the Sahara have varying trajectories, not only in access rates but also in the quality of regulation, as ESMAP's Regulatory Indicators for Sustainable Energy (RISE) show[2]. Some countries are 'making significant progress in the field of energy access and clean cooking', such as South Africa, Rwanda, Ghana, Kenya, Côte d'Ivoire and Senegal 'so it is possible to achieve breakthroughs when there is political will and strategic support' (Eyl-Mazzega, 2023). However, most Sub-Saharan countries are 'lagging' behind in the race to achieve universal access.

2023 marks the halfway point for achieving this SDG. According to SDG 7 Tracking details, the International Energy Agency (IEA)'s Energy Progress report (IEA et al., 2023) states that: 'despite progress made over recent years, **if additional efforts are not made by 2030, there will be 660 million people in Sub-Saharan Africa who will continue without access to electricity**. **The situation is even worse in terms of access to clean cooking and if current trends continue, by 2030 more than 1 billion people will be affected'**. According to the IEA, annual targets to achieve universal access to energy by 2030 must include connecting 90 million people to electricity and 'shifting 130 million people away from dirty cooking fuels' (Paul, 2022).

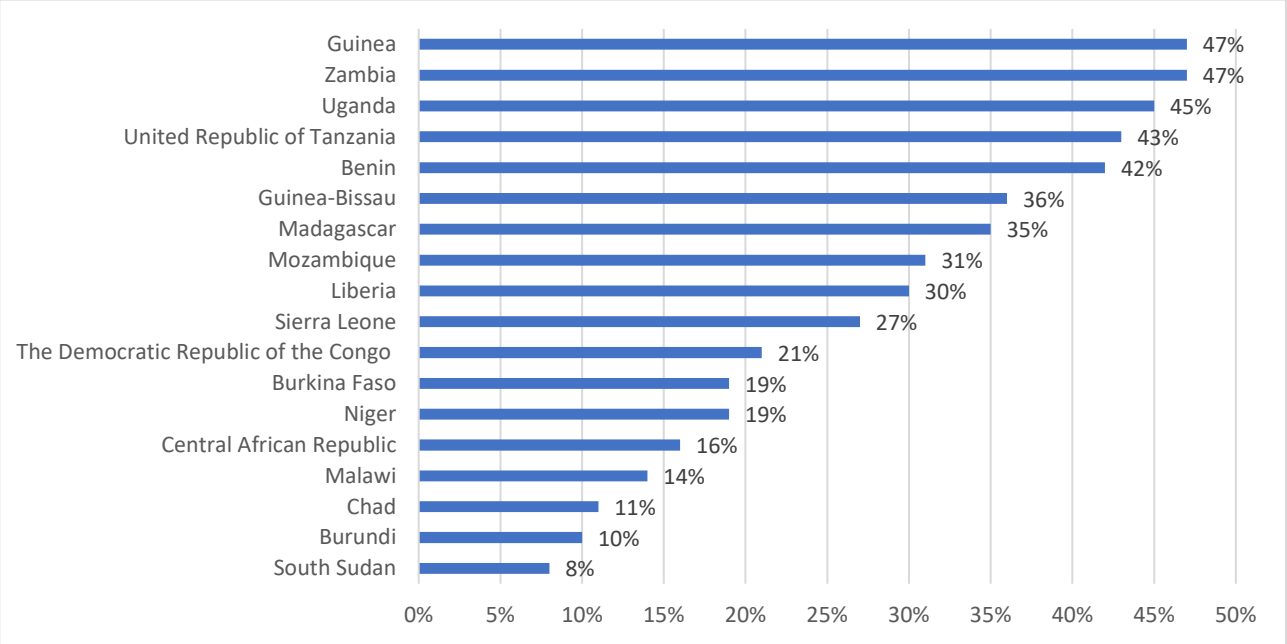
[1] These reports are available on the ESMAP website.

[2] ESMAP, 'Regulatory Indicators for Sustainable Energy (RISE)', webpage.

2.1 Access to electricity

Sub-Saharan Africa contains 18 of the 20 countries with the lowest rate of access to electricity in the world (IEA et al., 2023), as the following Figure 1 shows.

Figure 1: Share of the total population with access to electricity of the countries with the lowest rate in Sub-Saharan Africa



Source: Author's own elaboration based on IEA et al., 2023.

The complexity of access to electricity cannot be measured only through a simple quantitative index, such as a percentage of the population who are excluded. For a more accurate measure of access, ESMAP developed the Multi-Tier Framework(The World Bank, 2015), which considers: the power and energy that can be supplied, the number of hours required, the reliability and quality of supply, the affordability of the service for users, legal aspects and the safety conditions. For each parameter there is a scale ranging from 0 to 5, hence a standardised measurement of progress.

The majority of people lacking electricity live in rural areas, which are mostly remote and sparsely populated; hence network extensions become increasingly expensive as less populated areas are covered. In urban or peri-urban environments, the greatest lack of access is found in **large irregular settlements** with few infrastructures and where households often do not have title deeds. Another large group with access difficulties are individuals and families **forcibly displaced or refugees**, whose number grows every year. The supposedly transitory situation of these populations, added in some cases to host communities' hostility, hinders investment in energy systems. In areas where there is physical access to electricity, lower-income groups have more difficulty in paying bills.

When the population of many African countries has an electricity supply, service quality is often poor, with frequent outages. This means that many users (especially in the commercial and industrial sectors) must have backup systems, while the population is reluctant to pay any tariffs that would allow recovery of additional service costs (Jacquot et al., 2019).

The COVID-19 crisis affected access to electricity in Africa, with 4 % more people living without provision in 2021 than in 2019. During the pandemic, financial difficulties due to the increase in non-payments of invoices by households and businesses deepened for many utilities, increasing the risks of blackouts and

rationing. As highlighted above, **in 2022, 600 million people, or 43 % of the total population in Africa, lacked access to electricity**, most of them in Sub-Saharan Africa(IEA, 2022).

The access rate, policies and regulations, together with the resources that are mobilised vary greatly from country to country. Those such as Ghana, Kenya and Rwanda are on track for full access by 2030 and are moving at a much faster pace than other African countries.

A robust approach to large-scale electrification must include four basic principles: **universal access** to electricity; **integrated treatment of the three modes of electrification** (grid extension, isolated mini-grids and stand-alone solar home systems); the **financial viability of the business model**; and focus on the **development of electrified communities**. These principles are applied differently, depending on each country's context (Jacquot et al., 2020).

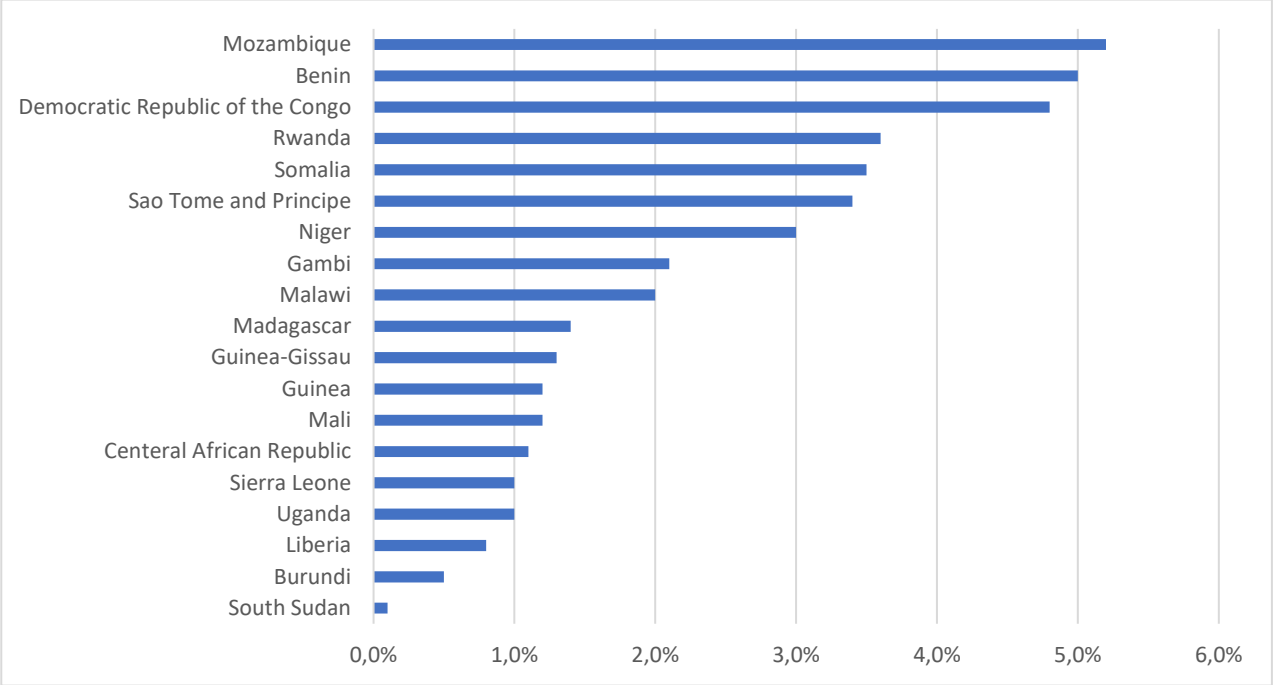
'Extending national grids is the least costly and most prudent option for almost 45 % of those gaining access by 2030. In rural areas, where over 80 % of the electricity-deprived live,**mini-grids and stand-alone systems**mostly solar-based, are the most viable solutions' (IEA, 2022). However, the off-grid sector in African countries is facing many difficulties. The private developers struggle to reach economic and financial viability due to the inability of populations to pay for electricity, with a lack of investors willing to support them, a weak regulatory environment, and some security challenges.

The electricity sector's viability and 'its ability to attract private investment hinges ultimately on **the strength of the distribution sector'** (MIT Energy Initiative, 2019). On the one hand, 'generators and transmission operators rely on distribution companies' to have reliable customers in terms of demand and payment. On the other hand, it is the company in charge of distribution that is 'closest to consumers' and thus 'directly influences the quality of service delivered' as well as 'the efficiency of retail processes' (including billing and proper use of electricity as a factor of development) (MIT Energy Initiative, 2019). The distribution sectors of almost all countries with low rates of access to electricity have a very poor performance, both technically and financially. Hence repairing this segment is critical as a prerequisite for ensuring a quality universal service. It is important to use concessions to ensure universality in electrification programmes and explore new ways of planning, financing and regulating. An example of new models is the integrated distribution framework, which propose concession agreements designed at the utility level (Jacquot et al., 2020).

2.2 Access to modern cooking

Sub-Saharan Africa contains 19 of the 20 countries with the lowest rate of access to clean cooking in the world: (IEA et al., 2023), as the following Figure 2 shows:

Figure 2: Share of the total population with access to clean cooking of the countries with the lowest rate in Sub-Saharan Africa



Source: Author's own elaboration based on IEA et al., 2023.

The lack of access to modern cooking in Africa has huge social and environmental consequences. In the area of health, indoor air pollution causes ischemic heart disease, strokes, pneumonia, chronic obstructive pulmonary diseases and cancer. From an environmental point of view, an estimated 30 % of the firewood for cooking or charcoal is obtained unsustainably, at a rate higher than that of natural regeneration. In many places, the problem of forest degradation is exacerbated, as are the associated impacts of soil erosion, loss of biodiversity, loss of water sources, or increased risk of floods and landslides. Using biomass in an unsustainable way and black carbon emissions are factors that increase climate change. According to the International Energy Agency (2023), in Sub-Saharan Africa, **household air pollution** is the **second-largest cause of premature death among women and children globally**, and the households without clean cooking access typically spend an average of two hours per day collecting fuel and an additional three hours for cooking and food preparation, including tending to the fire.

The World Bank specialist Yabey Zhang (2022) cites three main difficulties faced by the clean cooking sector:

- It is an '**orphan**' sector in that it affects health, energy, the environment, climate change and the improvement of women's living conditions, but none of these sectors takes up this issue by paying it sufficient attention. Therefore, it is ignored in national and international policies.
- It is an '**invisible**' sector since the impacts are unknown to most or not present in national policies.
- It is an '**expensive**´ sector since cooking is an energy-intensive activity and energy in general is expensive.

Not only is there generally little attention paid to the problem of clean cooking in political and media discourse, but this issue is also generally absent from political agendas. In some cases, the current situation is justified with allusions to traditions that are difficult to change, thus omitting the negative impacts being generated. Furthermore, most of the initiatives launched have been carried out only on a small scale, which makes it difficult to reduce costs due to economies of scale.

The primary cause for lack of access to modern cooking is material poverty. There are other cultural, social or educational factors, but in all countries, segments of the population with more household income use more modern cooking technologies, while those with fewer resources tend to collect firewood for free or buy the cheapest fuels, mainly fuelwood and charcoal.

As mentioned at the outset of this briefing, **in 2022, 970 million Africans lacked access to clean cooking** (IEA, 2022). Liquefied petroleum gas (LPG) is 'the leading solution in urban areas in Africa, but recent price spikes are making it unaffordable for 30 million people across Africa, pushing many to revert to traditional use of biomass' (IEA, 2022). In addition, **many countries are sourcing LPG – a derivate of fossil fuels and hence environmentally unsustainable – via international markets**.

There are many barriers to accessing modern cooking services, such as the lack of financial resources, poor national strategies based on promoting low-potential technologies, lack of a multi-tech approach at home, lack of rigorous planning at a national level and women's difficulty in influencing the public agenda.

Bringing about any structural change over the coming years will require **a new vision of modern cooking,** strongly supporting genuinely clean technologies instead of improved cookstoves that do not meet World Health Organization (WHO) requirements. Furthermore, **leadership from the energy sector is needed**, which has more financial resources and technical capacities than other sectors in many countries, together with **integrated planning at the national level**.

Over recent years, **the use of electricity from renewable sources is beginning to be considered by leading international institutions in their promotion of 'clean cooking' as the most sustainable long-term option.** Furthermore, many measures can be implemented to promote this transition, *inter alia*: stimulating an enabling environment; promoting infrastructure and industry; changing user perception; and better incorporating a gender perspective (Sánchez, 2021).

3 EU support to overcome energy poverty in Africa

European cooperation on access to energy is based on the European Development Policy, which 'fosters sustainable development and stability in developing countries, with the ultimate goal of eradicating extreme poverty'. This policy is complemented by:

- the European Consensus on Development, adopted in 2017 as part of its response to the 2015 UN 2030 Agenda and its SDGs, which defines the 'vision and action framework for development cooperation';
- the PCD, which aims 'to minimise contradictions and build synergies between different EU policies' and;
- the Development Effectiveness, which promotes the definition of objectives based on partner countries' development priorities and provides more support through coordinated aid modalities, such as budget allocation.

In geographical terms, the policy towards North African countries (Algeria, Egypt, Libya, Morocco and Tunisia) is guided by the ENP, which prioritises economic development for stabilisation, together with security, migration and mobility. The remaining countries of Sub-Saharan Africa are covered by the African, Caribbean and Pacific–EU Partnership, aimed at supporting sustainable development and climate action,

building on the UN 2030 Agenda, the European Consensus on Development and the 2015 Paris Agreement. Operationally, the EU has the NDICI – Global Europe instrument, which defines geographical programmes for countries and thematic programmes such as the Global Challenges, which has an allocation of EUR 793 million for green transition and sustainable energy between 2021 and 2027. In addition, the EU has different Development Finance Institutions (DFIs) such as the European Development Bank for Reconstruction and Development (EBRD) and the European Investment Bank (EIB), that provide financing for investment programmes.

African countries and the EU have a shared interest in promoting access to clean energy for their citizens**. In the field of energy, cooperation is strategically based on the Africa-EU Energy Partnership**, signed by 80 African and European heads of state and government in 2007, at the Lisbon Summit.

Africa's new regional priorities have been embodied in the African Union's Agenda 2063, a set of initiatives which proposes 'harnessing all African energy resources to **ensure modern, efficient, reliable, cost-effective, renewable and environmentally friendly energy to all African households, businesses, industries and institutions'**. This is to be carried out through: the 'mobilisation of adequate financing' from all available sources (both domestic and international); the acceleration of 'regional integration to create large markets for energy development'; together with the development and 'harmonisation of policies and regulatory frameworks' that create new markets. Agenda 2063 also includes the implementation of frameworks and initiatives that encourage; 'technology innovation and transfer; technical cooperation; and technical capacity building (African Union, 2022). In 2022, the African Union also clearly stated that gas is to be regarded as 'a transition energy in its own right and has defined a common position' that emphasises 'development, an inclusive energy transition and the diversity of trajectories'. Another demand clearly formulated is to 'turn the page on development aid, perceived as prescriptive', and build mutually beneficial 'partnerships between equals' (Eyl-Mazzega, 2023).

For its part, the EU is incorporating guidelines on thematic areas such as climate change and energy security, together with programmes such as REPowerEU and Global Gateway, with explicit objectives to promote renewable energy generation and hydrogen in African countries for export to Europe.

Commitment to the Africa-EU Energy Partnership was renewed by both the EU and the African Union during the 6th EU-AU Summit in Brussels on 17-18 February 2022. In financial terms, an investment package of approximately EUR 150 billion from 2021 until 2027 was announced 'to support the continents' common ambitions for the 2030 Agenda and the African Union Agenda 2063'. In programmatic terms, this new approach has taken shape through the Africa-EU Green Energy Initiative, which is part of the Global Gateway Africa – Europe Investment Package and bilateral agreements not only for the production of green hydrogen but also for enhancing electrical interconnection with the countries of North Africa.

3.1 Past and current relevant programmes and partnerships

The EU has a long tradition of energy cooperation in Africa and, together with its Member States, provided EUR 13.8 billion and the vast majority of ODA financing for SDG 7 projects in Africa between 2014 and 2020. The Commission alone allocated EUR 3 billion of grants to energy in more than 30 countries in Africa whereas a substantial part of the team Europe disbursement took the form of loans. According to Commission's Directorate-General for International Partnerships, support from the European Commission has contributed to the installation of 9 GW of renewable energy generation and the access to electricity for more than 27 million people, in particularly in Rwanda, Kenya, Tanzania, Mozambique, Ivory Coast, Zambia, Uganda, Nigeria and South Africa.

Hundreds of projects were financed in most African countries, mainly in the areas of renewable energy (EUR 7.5 billion) as well as transport and distribution (EUR 4.6 billion), using the full variety of financial and non-financial instruments available to the EU and its Member States. This largely took the **form of loans**,

averaging 53 % over the six-year period. For example, the financing distribution in 2020 was EUR 1.3 billion (68 %) in ODA loans, EUR 466 million (24 %) in ODA grants, EUR 87 million (4 %) in ODA equity investments and EUR 71 million (4 %) of other official flows (Non-ODA) (Africa-EU Energy Partnership, 2022).

One of the best-known financial instruments has been the **Electrification Financing Initiative**, launched in 2015 during the COP21. This initiative was funded by the EU, other European countries and USAID, and is valued at EUR 277 million; it is earmarked through the global window with a budget of EUR 126 million as well as the country windows, developed in partnership with EU delegations and host governments, offering dedicated funding for selected countries. The first country windows (launched in 2018) were allocated to Zambia (EUR 31 million), Nigeria (EUR 30 million), Côte d'Ivoire (EUR 10 million), Benin (EUR 5 million) and Pacific (EUR 8 million). The second tranche deploys specific funding for Kenya (EUR 46.6 million), Burundi (EUR 9.3 million), Eswatini (EUR 5 million) and Uganda (EUR 5 million). A third tranche (under contract phase) is adding funds for Benin, Mozambique and the Democratic Republic of Congo (DRC).

Another important instrument has been the **EU Technical Assistance Facility (TAF)**. This was initially designed for the period 2014-2020 titled EU's TAF for the Sustainable Energy for All 'to assist partner countries in fine-tuning their energy policies and regulatory frameworks', thereby encouraging 'increased investments in the energy sector'. It supports countries dedicated to achieving the SDG 7 objectives, in particular those 'who selected energy not only as one of the priority areas in their national policy agendas' but also 'as a focal sector in their bilateral cooperation with the EU for the period'. The second phase of this initiative extends from 2020 to 2024 and is referred to as the EU Global TAF for Sustainable Energy. The second phase has a budget of EUR 31.5 million, albeit it also supports non-African countries.

The projects underway since 2021 are part of the Africa-EU Green Energy Initiative, which aims to support the deployment of at least 50 GW of renewable electricity, providing more than 100 million people with access to electricity (European Commission, 2022). The EU has committed EUR 3.4 billion in grants to engage European as well as African public and private sector actors. According to the European Commission, '[part] of this will be used to leverage private sector investments via guarantees and blending under the European Fund for Sustainable Development Plus (EFDS+)' (see also European Union, 2022).

The Africa-EU Green Energy Initiative projects announced at Sharm el-Sheikh's COP27 in November 2022 are grouped into four components:

1. **The regional electricity interconnections and market integration.** This component comprises several projects. For instance, the '200 km transmission line between the DRC and Zambia intend to connect the Zambia Electricity Supply Corporation Limited network to the future Congolese National Electricity Company's grid' (European Union, 2022). Another project will construct a 400 KV interconnection line between Zambia and Tanzania, which is part of the 'Zambia-Tanzania-Kenya transmission and that will link the Eastern Africa Power Pool and Southern African Power Pool'; and the 'Angola-Namibia interconnection (ANNA), part of the Southern Africa Interconnection corridor'. The EU will persist in its support of 'the study on a Continental African Transmission master plan and implementation of the African Single Electricity Market' (European Union, 2022).

2. **Renewable energy, access to energy and promoting sustainable energy uses.** The EU committed EUR 117 million for projects on these issues for 2021-2022. The supported projects include investment in solar or hydropower plans; in transmission lines and interconnectors (European Union, 2022). Furthermore funding was provided for projects to increase access to electricity for schools and health centres and to extend electricity utilisation through mini-grid and decentralised systems in countries such as Benin, Cameroon, the Gambia, Ghana, Mozambique, Madagascar, Niger, Nigeria, Togo and Zambia. The EU will also contribute to improving the

regulatory framework in over 20 African countries. This component also includes green hydrogen production projects in Namibia and Egypt.

3. **Just Energy Transition Partnerships (JETPs) in Africa.** This is aimed at helping partner countries' energy transition, including 'the greening of their energy mix through key investments in areas such as renewable energy and storage, energy efficiency in key sectors of the economy (industry, buildings and appliances, transport) and enhanced interconnected energy systems' (European Union, 2022). The first projects involving these components are the JETPs with South Africa and Senegal, the EU has committed EUR 3 billion in the former case for implementing an investment plan adopted at the COP27 in Egypt.

4. **Access to energy through decentralised systems**.

On 1 March 2023, as part of its **Global Gateway Flagship Projects,** (European Commission, 2023) the EU presented those projects due to be instigated over the year, *inter alia*:

- Construction of the Ruzizi III hydropower plant for the DRC, Rwanda and Burundi.
- Construction of a National Control Centre for energy infrastructure as well as upgrades in the reliability and sustainability of power supplies in Mozambique.
- Development of hybrid and solar power plants with extension of the energy network in Niger.
- Implementation of a partnership on raw materials value chains and renewable hydrogen in Namibia.
- Expansion of a biogas plant from animal waste and other waste sources in South Africa.

There are other initiatives aimed at promoting renewable energies in Africa financed by the EU, but from areas other than development cooperation, such as the **Europe-Africa Partnership on Renewable Energy (LEAP-RE) programme**. This initiative is funded by Horizon 2020 and seeks to create a long-term partnership between African and European stakeholders, such as: governments (programme owners and funding agencies); research institutions and academia; as well as private sector and civil society organisations. 'The aim is to reduce fragmentation by aligning existing bilateral and multilateral frameworks. LEAP-RE establishes and jointly implements research, innovation and capacity-building activities'[3].

4 Analysis of European cooperation in Africa

The large number and enormous variety of projects as well as countries supported by the EU prevent any individualised analysis within the scope of this briefing. However, some general characteristics can be presented.

4.1 Grants and loans

To reach the 'Sustainable Africa Scenario' for SDG 7 as detailed in IEA's 2022 Africa Energy Outlook, **the IEA (2022) estimates that EUR 200 billion is needed between 2022 and 2030**, equivalent to EUR 25 billion annually (IEA, 2022). The combination of ODA, private investment and African national government spending on energy was EUR 21 billion in 2020, far from the EUR 25 billion required. ODA in energy is a catalyst for other investments for which the EU and its Member states (Team Europe) are the main providers in Africa.

As many as 21 low-income countries in Africa are in, or at risk of debt distress (Harcourt and Robertson, 2023). Although the approach of using limited official development finance to stimulate larger inflows of

[3] LEAP-RE, 'About LEAP-RE', webpage.

public and private capital can deter the emergence of unsustainable debt levels, **the only risk-free way to guarantee that the debt burden remains unaffected is to increase the proportion of grants**. At the same time, there should be caution so that loans covered through the EFSD+ do not generate unsustainable debt, especially in the Least Developed Countries (LDCs) (Wemanya et al., 2022).

4.2 Geographic targeting

'While the Mediterranean is a natural, physical border with Africa, the zone of stability and prosperity essential to Europe's southern frontier extends far into the heart of the continent, beyond the Sahel' (Eyl-Mazzega, 2023). Morocco received the highest amount of commitment from Team Europe with EUR 2.5 billion provided between 2014-2020, followed by South Africa, with EUR 1.2 billion. Amongst the top ten recipients, only three were LDCs. Morocco has an electricity access rate of 100 % and South Africa 89 % (IEA et al, 2023), while LDCs have the lowest access rates. **In the past, the orientation of resources has not been channelled towards reducing access rates. This trend will continue in the future**, since the Global Gateway Initiative will dedicate 31 % of its grants to North Africa, which is not home to the LDCs, having a high level of access to electricity and accounting for less than 20 % of Africa's population.

4.3 Sectoral allocation

Most projects are aimed at promoting large electricity generation infrastructures and the interconnection of transmission networks to create integrated electricity markets. These types of projects are necessary to improve the energy capacity of countries and attract private investment, but **they have a greater environmental and social impact on the communities** in which they are carried out and **a lower impact on increasing access to electricity for others.**

EU funding for the distribution segment is small, despite being essential to accelerate access to electricity. Conversely, there are **few electrification projects for productive uses**, such as electric irrigation pumps, which would **increase household incomes,** thus making the **payment of electricity tariffs more affordable and increasing network extension profitability**.

As one of its key performance indicators, the NDICI includes levels of renewable energy generation capacity installed with EU support, but nothing explicitly on access to energy.

4.4 Gender

The EU's Gender Action Plan III makes the mainstreaming of gender perspective in all policies and actions obligatory, requiring that at least '85 % of all new actions throughout external relations will contribute to gender equality and women's empowerment by 2025'. The lack of access to energy has a more extensive negative impact on women than men. This impact is much worse on women when clean cooking is lacking due to reinforced gender roles, yet **the EU is progressively incorporating this gender perspective when designing its energy policies and programmes**. Hence analysis from such a standpoint would reveal the importance of advancing more quickly in access to clean cooking. **Projects with grant-based 'micro-financing and re-structuring of blended finance** to assure women, women's organisations and enterprises (micro-, small-, and medium-sized enterprises)' – are considered (Wemanya et al., 2022).

4.5 Modern cooking

Despite both the modern cooking target of SDG 7 being furthest from being met and the impact that lack of access has on health, the environment, climate and women's quality of life, **EU funding in clean cooking is marginal**. In 2020, for example, Team Europe dedicated less than 2 % of its resources devoted to the global energy sector (Africa-EU Energy Partnership, 2022).

4.6 Technical assistance

In many countries, the lack of proper regulation within the electricity sector, including major reforms and the strengthening of institutions, is hindering the proper functioning of companies and makes 'investors often perceive the energy sector in partner countries as difficult and risky'[4]. By way of illustration, for a comparable solar project in Europe or Africa, the 'capital cost disparities vary by a factor of six' (Eyl-Mazzega, 2023). In this regard, it is entirely pertinent for the EU to finance technical assistance for improving regulatory frameworks, enhancing institutional capacities as well as mobilising and de-risking investments. **There is little information on the guidance and support being provided by the EU TAF.**

5 Policy recommendations to overcome energy poverty in Africa

Despite efforts made in recent years, **Sub-Saharan Africa is far from achieving universal access to electricity and modern cooking services**. If no additional efforts are made, it is estimated that by 2030 there will still be more than 600 million people without electricity and more than one billion without clean cooking services (IEA, 2022).

The EU is the main ODA donor for the energy sector in Africa, with a long-term strategy as well as a variety of instruments for financing new projects and promoting structural reforms. However, the **European financial flows on SDG7 to Africa have been more oriented towards promoting renewable energies and increasing the energy capacity of countries** through generation projects along with the interconnection of transport networks rather **than ensuring universal access to electricity and modern cooking services.**

The following measures might allow the EU to reorient its cooperation to make it more effective in the fight against energy poverty:

To reach the EUR 25 billion/year required to achieve the IEA's 'Sustainable Africa Scenario', the EU, in all its institutions and especially the European Commission and the European DFIs, should:

- **Continue its role as an investment catalyst and increase the amount of ODA it devotes to the energy sector in Africa**, **prioritising grants over loans in countries at risk of debt distress.** To increase funding, the EU must use climate finance resources, such as those committed to in the Paris Agreement, new resources, for example, those generated through the new Carbon Border Adjustment Mechanism, and further involve European DFIs, creating synergies between different instruments.
- **Reorient financing towards countries with lower rates of access to electricity**, given that focusing on both large-scale and smaller-scale projects can enhance inclusivity and local participation. The synergy between SDG 7 and other SDGs (and other development goals, such as the 2015 Paris Agreement) is also important for the deployment of an integral strategy of cooperation. Sub-regional specific strategies can be more sensitive to socioeconomic settings and socio-political conditions, including political volatility and/or stability.
- **Give much more weight to the distribution segment** as a strategic element to reach universal access to energy. **Large-scale projects should be complemented by smaller-scale projects** that facilitate the participation of local businesses and rural communities, off-grid systems for rural, remote, last-mile communities and productive uses.

[4] European Commission, 'The EU Global Technical Assistance Facility for Sustainable Energy (EU GTAF)', project webpage.

- **Incorporate a gender perspective into the design of EU development policies and programmes on energy in Africa**. Current and past projects should be evaluated with consideration given to possible differentiated impacts on women and men. The design of new projects should guarantee the participation of women and their organisations, incorporating activities that promote their inclusion as workers and entrepreneurs, as well as the empowerment of women and the reduction of inequalities. Progress on these issues should be explicitly included in the annual report on SDG 7 made by the Africa-EU Energy Partnership.
- **The EU should continue to support its partners with electricity systems reforms and the strengthening of institutions,** aiming to establish stable regulatory frameworks that guarantee a good quality of service, the economic sustainability of generation, transmission and distribution companies as well as affordable connection and lifeline tariffs for the entire population**. To guarantee universal service, companies that are given the distribution concession of an area should be required to provide electricity to the entire population living in that area**, either by extension of the network or off-grid systems.
- **Make access to clean cooking a priority within EU energy cooperation** because of its impact on women's health, the environment and quality of life. The magnitude of this problem requires the energy to implement national strategies and provide strong leadership. **The progressive use of electricity from renewable sources for cooking should be promoted, while the use of LPG should be questioned** for being non-renewable and a derivative of fossil fuels. This also applies to the use of **modernised cookstoves**, which do not meet WHO requirements.
- **Report on how the projects and programmes supported contribute to improving energy access indicators** (for example, through the attributes of the Multi-Tier Framework) **and the regulation of the energy sector** (for example, through RISE). Indicators can play a pivotal role by not only assessing progress but also identifying potential challenges and opportunities.
- **The EU TAF should continue its support for countries to improve regulatory frameworks**, enhance institutional capacities and mobilise investments. However, there must be more information on the recommendations that they are making to partner countries.

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BRIEFING

Is the European Union's green hydrogen strategy in Africa coherent with sustainable development?

ABSTRACT

In line with the European Union (EU)'s goal to achieve climate neutrality by 2050, the European Commission introduced a new external energy strategy as part of the REPowerEU plan in May 2022. In order to reach the target of ten million tons of renewable hydrogen imports annually by 2030, the strategy focuses on preferred partnerships with potential exporting countries to ensure a stable supply of renewable energy imports. This Briefing evaluates the strategy's alignment with the Policy Coherence for Development by assessing its support for African partner countries in achieving their Sustainable Development Goals (SDGs), analysing partnership agreements with Namibia and Egypt, as well as considering Africa's energy transition status and uncertainties in the global renewable hydrogen trade. Policy recommendations emphasise the need for a stronger, long-term EU commitment to safeguard the renewable hydrogen export industry's sustainability and adopt a more comprehensive approach to SDGs in partnership agreements.

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List of abbreviations

EIB	European Investment Bank
ESG	Environmental, Social and Governance
EU	European Union
IRENA	International Renewable Energy Agency
GDP	Gross Domestic Product
MoU	Memoranda of Understanding
NGO	Non-Governmental Organisation
PCD	Policy Coherence for Development
SCZONE	Suez Canal Economic Zone
SDG	Sustainable Development Goal
VPA	Voluntary Partnership Agreement

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1 Introduction: REPowerEU and cooperation with Africa

In May 2022, the European Commission introduced its REPowerEU plan to secure affordable and reliable energy for Europe (European Commission, 2022b). This plan was unveiled in response both to Russia's invasion of Ukraine and the existential threat posed by climate change. It aims to accelerate the energy transition, thereby decreasing Europe's reliance on energy external sources and promoting a more diversified renewable energy supply.

The quest for new partners to meet Europe's future renewable energy demand has been elaborated further in the 'EU external energy engagement in a changing world' strategy ('EU strategy') (European Commission, 2022c), presented just days after announcing REPowerEU. While immediate actions are focused on diversifying Europe's fossil natural gas supply, the overarching objective of this strategy is to prepare the European Union (EU) for renewable hydrogen trade, facilitating imports of ten million tons (Mt) of hydrogen annually by 2030.

This strategy acknowledges that the EU will rely on imports to meet its future renewable energy demand. Furthermore, the document names various African countries as potential partners for importing renewable hydrogen and its derivatives, which share favourable access to renewable energy sources and the potential for cost-effective renewable hydrogen production. The strategy proposes establishing dedicated partnership agreements with these African countries to foster long-term, mutually beneficial relationships while promoting a global rules-based and transparent hydrogen market. As a secondary objective, these agreements will enable partner countries to enhance their climate ambitions and contribute to a just and inclusive energy transition, in line with Sustainable Development Goal (SDG) 7: Affordable and clean energy.

Thus, hydrogen partnerships primarily seek to set long-term cooperation with reliable partner countries with high potential for green hydrogen production with a focus on building a global hydrogen economy based on an open and undistorted trade. These agreements are inherently different from existing cooperation between the EU and African nations, which target primarily sustainable development within partner countries or their relationship with the EU. Policies to support inclusive and sustainable industrial development target entrepreneurship and training with a focus on small and medium-sized enterprises (United Nations Industrial Development Organization, 2015). Cooperation agreements related to the energy sector strongly focus on access to secure, affordable and clean energy in partner countries (SDG 7), such as the Africa-EU Energy Partnership, the Africa-EU Green Energy Initiative and Just Transition Partnerships. Other areas of cooperation, such as Voluntary Partnership Agreements (VPA)[1] for the trade of timber and timber products, make existing trade flows and value chains more sustainable, enhancing the SDG performance of the EU and their partners (European Commission, 2021).

For partnership agreements to align with the EU Policy Coherence for Development (PCD), they should not only concentrate on the energy transition but also enable partner countries to achieve the entirety of SDGs. Hence, policy-makers must be mindful of potential trade-offs with other SDGs beyond SDG 7 and ensure that pursuing an export-oriented hydrogen economy does not negatively impact other aspects of the partner country's development.

This Briefing examines challenges faced by the EU's green[2] hydrogen strategy in Africa through the lens of PCD. It does so by thoroughly assessing the EU partnership agreements with Namibia and Egypt, signed

[1] Ratified VPAs with African countries such as Cameroon, the Central African Republic, Ghana, Liberia and the Republic of Congo.
[2] In the context of this briefing, the term 'renewable' refers to hydrogen and its derivates produced from renewable sources of energy (wind power, solar power, hydroelectric power, ocean energy, geothermal energy, biomass and biofuels), while 'green' refers to legal initiatives and all energy sources aligned with EU´s climate-neutrality targets.

during the COP27 in November 2022. The primary objective is to present policy recommendations that foster just and sustainable cooperation between the EU and its partners in Africa.

Such an assessment must depart from the current state of the energy transition and any challenges to its sustainable development in Africa (Section 2) by considering uncertainties surrounding the prospective transition towards a global hydrogen economy (Section 3). Against this background, the briefing critically analyses the Memoranda of Understanding (MoU) from the partnership agreements with Namibia and Egypt within their specific national contexts, focusing on country-specific challenges to sustainable development (Section 4). Finally, the Briefing proposes recommendations for fostering the sustainable development of renewable hydrogen sectors in partner countries (Section 5). These measures aim to ensure that cooperation aligns more closely with PCD principles by promoting just and inclusive sustainable development.

2 The state of the energy transition in Africa

Africa is home to 18 % of the global population, residing in 54 countries. However, each of these countries finds itself at a different development stage, with significant regional variations between Northern Africa, Sub-Saharan countries and South Africa, one of its most industrialised economies. Despite these differences, some general observations can be made about various challenges faced in energy transition today, according to the International Energy Agency (2022a):

- African nations account for only 6 % of global energy use, with 600 million people or 43 % of the population without access to electricity. At the same time, Africa is responsible for only 3 % of the world's energy-related carbon dioxide emissions.
- Most Northern African countries and South Africa can be characterised by having more advanced access to affordable and clean energy (SDG 7) due to a high degree of access to electricity and clean fuels as well as technology for cooking. However, in almost all African countries, energy sources are emission-intensive and hence the share of renewable energy in total final consumption has remained low.
- In many Sub-Saharan countries, general access to electricity remains low. The harsh economic impact of COVID-19 and overlapping crises in many African energy systems resulted in reduced electricity affordability, with 4 % more people without supply in 2021 than in 2019. Across the continent, the use of gathered wood, agricultural and animal wastes for cooking makes up 64 % of cooking fuels, with the number of people without access to clean fuels increasing from about 500 million in 2010 to 970 million in 2021.

Delivering affordable and clean energy is constrained by inadequate or non-existent infrastructure and high energy costs. Sánchez et al. (2022) highlight that connecting consumers in rural areas, informal rural settlements and refugee camps remains particularly challenging. The current state of energy transition significantly jeopardises sustainable development across all SDGs, hindering sustainable growth, human development and environmental sustainability (Figure 1). Conversely, major challenges can function as barriers to energy transition in efforts to achieve other SDGs, such as those related to peace, justice and strong institutions (SDG 16), decent work and economic growth (SDG 8) or industry, innovation and infrastructure (SDG 9).

Similarly, better access to affordable and clean energy is key to enhancing sustainable development in other areas. It is seen as a golden thread to: unlock sustainable economic growth; improve human health and well-being; enable women and children to lead more productive lives; and build resilience against poverty-driven migration (Corfee-Morlot et al., 2018).

Figure 1: Affordable and clean energy supports all SDGs

Source: International Renewable Energy Agency, 'REthinking Energy 2017: Accelerating the global energy transformation', IRENA, 2017.

3 The uncertainty dimensions of hydrogen trade

The underlying premise for partner countries seeking to export renewable hydrogen to the EU by 2030 relies on robust demand and competitive prices for imported hydrogen on EU markets. However, there are significant uncertainties regarding the volume of prospective hydrogen demand, transport costs and feasibility as well as the competitiveness of potential import routes against domestic European production; these issues all raise doubts about the business case for African hydrogen imports to Europe. The REPowerEU plan envisions importing 10 Mt of renewable hydrogen to Europe annually by 2030, with an additional 10 Mt to be produced domestically. Hence, imported hydrogen would account for 1.1 % of the EU's final energy consumption by 2030[3]. These projections present only one potential demand scenario. A recent study by the Commission's Joint Research Centre reveals that, on average, most public and private sector organisations foresee a much lower EU renewable hydrogen demand of 12 Mt by 2030, thereby predicting significantly less than the REPowerEU plan (Tarvydas, 2022).

[3] Based on a targeted final energy demand of not more than 763 million tonnes of oil equivalent (Mtoe) by 2030, as agreed in the trilogue between Council and Parliament in March 2023. European Parliament, 'Energy Efficiency Directive' website, 2021/0203(COD), 2021.

Box 1: Hydrogen export initiatives in Africa

Many African countries are actively pursuing an export-oriented hydrogen economy. Algeria, Egypt, Morocco, Namibia and South Africa have already presented national strategies with at least 18 more countries actively developing their own plans (Yohannes-Kassahun, 2023). Countries that want to become hydrogen exporters can be found across the entire continent. Namibia's neighbours South Africa and Angola are investing in hydrogen projects. Angola aims to export renewable ammonia to Germany by 2025 (Reuters, 2022), similarly a private-sector consortium wants to realise exports from Mauritania in the western Sahara starting in 2028 (Reuters, 2023a). Kenya, an east African country, signed a Joint Declaration on Renewable Clean Hydrogen with the European Investment Bank (EIB) in March 2023 (EIB, 2023), while multiple other export-oriented renewable hydrogen projects have been announced across the continent.

Many countries with favourable renewable energy conditions aim to export renewable hydrogen to the EU, particularly in the African context (Box 1). However, low production costs alone will not result in low EU import costs. The IEA estimates that by 2030 renewable hydrogen transport by ship in the form of ammonia[4] may cost an additional USD 2/kgH_2, while for liquid hydrogen the cost would be closer to USD 2.5/kgH_2, which would increase by USD 0.1/kgH2 every 5 000 km for ammonia and every 2 000 km for liquid hydrogen transport (IEA, 2022b). Currently, no commercial-scale liquid hydrogen tankers exist, and renewable ammonia is not shipped across the globe. Hence, cost and uncertainty about transportation contribute to major differences of opinion regarding potential trade routes' significance. The Hydrogen Council estimates that pipeline transportation is more cost-effective than shipping, suggesting that all EU import demands could be met by Norway in 2030 (Hydrogen Council and McKinsey & Company, 2022). By contrast, experts from Deloitte expect almost all imports to Europe to originate from North Africa (Johannes, Pradeep, and Lorentz, 2023).

Relative transport costs will be lower for imported hydrogen derivates that are not transformed back into hydrogen. Today, the most important hydrogen derivate is ammonia used for fertiliser production (Kneebone and Piebalgs, 2023). However, ammonia-based fertiliser use is not expected to increase in the EU and rather it should decline to improve agricultural sustainability (SDG 2). The current European conventional ammonia consumption (19 Mt) would correspond to hydrogen imports of only 3.42 Mt[5][6]. At the same time, important projects for inter-European renewable ammonia trade by ship are also advancing, for example, the H2Sines.RDAM project agreed between Portuguese and Dutch port authorities along with industry partners (Port of Rotterdam, 2022).

In their report about the geopolitics of hydrogen trade, the International Renewable Energy Agency describes the emergence of diverse global hydrogen markets up to 2050 but highlights various challenges that emerging hydrogen exporters might face (IRENA, 2022). Given such uncertainty about development, global markets, face high risks of stranded infrastructure assets, which are further subject to the maturity of their energy sector, level of economic competitiveness and potential socio-economic effects. IRENA suggests that hydrogen trade should be based on bilateral agreements to mitigate such risks. Furthermore, it should follow the principle of additionality. Renewable electricity generation capacity used for hydrogen

[4] Nowadays, ammonia is widely used worldwide to produce fertilizers and as feedstock in the chemical industry. Most of this ammonia is obtained through the Haber-Bosch process in which atmospheric nitrogen reacts with hydrogen under certain conditions of temperature and pressure. Today's hydrogen is obtained from fossil fuels emitting significant amounts of greenhouse gases. In the future, ammonia could also be used as a carrier for transporting hydrogen over long distances at lower costs as compared to, for instance, liquid hydrogen. Moreover, it can be used directly as fuel for ships, thus supporting the decarbonisation of maritime transport. However, this requires replacing hydrogen of fossil origin with renewable hydrogen.

[5] 1kg of ammonia (NH_3) contains approximately 0.18 kg of hydrogen (H_2).

[6] IEA, 'Production, consumption and trade of ammonia in selected countries and regions, 2020 – Charts – Data & Statistics' webpage, 14 June 2022 (accessed on 31 July 2023).

production must be installed in addition to investments for decarbonising domestic energy systems to meet both national and global transition targets.

Emerging exporters prioritising renewable energy build-up to produce hydrogen for exports could potentially jeopardise their domestic energy transition and boost fossil fuel consumption in their electricity mix. For instance, should an increase in domestic electricity demand be met by new or increases in existing fossil-based generation capacity, it can be expected that these installations will remain in operation over their entire design life, perhaps exceeding 30 years or more. Such a scenario may result in a fossil-based technology lock-in.

Investments already announced[7] covering additional renewable energy sources to produce hydrogen for export might comply with certification requirements for renewable hydrogen production, as defined in Delegated Regulation 2023/1184 (additionality, temporal correlation, etc.) (European Commission, 2023b). However, significant regulatory uncertainties remain in accounting for emission savings for imported hydrogen stemming from processing and transporting hydrogen as well as its derivatives from producer countries to the EU (Box 2). Aside from EU demand uncertainty, rushed investment in partner countries may result in the development of production capacity that is not considered to be 'green' under EU law, risking not only stranded assets but also higher debt burdens for developing countries which support investments with co-financing stemming from sovereign wealth funds.

Box 2: Requirement for imported green hydrogen and green hydrogen derivatives

Not all hydrogen can be deemed green or sustainable. In fact, most hydrogen produced nowadays is obtained from fossil natural gas through a process known as 'steam methane reforming' with an emission rate of approximately 9-10kg of CO_2 per kg of hydrogen. Conversely, green hydrogen production projects are based on the electrolysis of water, which uses electricity as the main input (besides water itself). Accordingly, electrolytic hydrogen will be green to the extent that the electricity used for its production can be considered as such.

For renewable fuels of non-biological origin (essentially hydrogen and its derivatives), the Renewable Energy Directive sets a minimum threshold for emissions savings of 70 % with respect to the fossil fuel comparator. This is a reference value set by the European Commission Delegated Regulation (EU) 2023/1185 at 94 gCO_2eq/MJ, which in the case of pure H_2 is equivalent to approximately 11.2 $kgCO_2/kgH_2$. It is essential to highlight that this threshold must be observed as including not only emissions associated with electricity used as input, but also those associated with all the associated conversions (e.g. to green ammonia) and transport (especially relevant to international trade).

Hence, EU imports of green hydrogen and green derivatives may struggle to comply with this EU regulation threshold even if the input electricity can be considered as fully renewable and thus complying with additionality, correlation and other requirements.

[7] In the African context, investments in export capacity for renewable hydrogen have been announced by Egypt, Mauritania, Morocco, Namibia and South Africa (Deloitte, 2023).

4 SDG coherence of EU partnership agreements

Cooperation between the EU and its partner countries in developing a hydrogen economy is founded upon shared commitments to the United Nations (UN) SDGs. However, uncertainties regarding the global hydrogen trade's role in addressing climate change add complexity to this endeavour. Tasked with ensuring policy coherence to 'avoid EU policies having negative impacts on poor and vulnerable people in developing countries and to seek and take advantage of opportunities to achieve synergies' (European Parliament, 2021), policy-makers must, therefore, carefully evaluate agreements for their potential positive and negative effects on enabling partner countries to achieve sustainable development.

The following analysis evaluates the MoUs for the EU-Namibia partnership and EU-Egypt agreements, primarily to assess their coherence with the UN SDGs. These MoUs are non-binding statements of intent, outlining objectives and target areas of cooperation which can be characterised by relatively open and vague language. Hence, the assessment here aims to provide context by scrutinising the agreed formulations following Namibia's and Egypt's country-specific SDG performance, ongoing renewable hydrogen projects in both nations, their national plans and the uncertain prospects of a global hydrogen economy. Additionally, there is some reflection on potential reasons for policy non-coherence that have been identified for other EU policy initiatives (Box 3).

Box 3: Practical Barriers to Policy Coherence

A recent study funded by the Horizon 2020-supported SMART project highlights various reasons why EU initiatives struggle to achieve policy coherence for sustainable development (Ahlström and Sjåfjell, 2023):

- Failure to '**break the silos**' by inadequately aligning all involved institutions to a unified vision of policy coherence can hinder effective coordination and cooperation among different actors involved in policy design;
- **Prioritisation or sequencing** of policy objectives often places EU economic growth above other crucial aspects, such as addressing climate change, considering human rights impacts, or achieving other sustainable development goals. Such skewed prioritisation can undermine efforts to achieve comprehensive and balanced sustainable development outcomes;
- Policies may **incentivise change** but lack holistic, **global value-chain thinking**. Considering the interconnectedness of various economic and social systems, overlooking the broader impacts of policies can result in unintended consequences that hinder progress toward sustainable development.

The study primarily focuses on the EU's Circular Economy, Sustainable Finance and Sustainable Corporate Governance Initiatives, albeit findings may equally apply to other EU policies.

4.1 Namibia

4.1.1 Background

Namibia is sparsely populated (3 people/km^2) with 2.53 million inhabitants. While the country has an important mining industry, contributing up to 40 % of the national gross domestic product (GDP), it is currently a net energy importer (Namibia Statistics Agency, 2023). About 60 % of its electricity demand was met by imports in 2020, mainly from South Africa, while only 35 % of the population in rural areas had access to electricity (GIZ, 2022). Given the country's excellent solar and wind conditions, gaining energy independence by ramping up renewable generation capacity and potentially exporting renewable hydrogen along with its derivatives was identified as one of the key objectives for economic advancements

in the government's national action plan, the Harambee Prosperity Plan II, for the period 2021-2025 (Government of Namibia, 2021).

In November 2022, the government published its Green Hydrogen and Derivatives Strategy, which foresees the build-up of an export-oriented hydrogen production industry by establishing three hydrogen valleys in Namibia's southern region at the Luderitz port, its central region at Walvis Bay port and its northern region, the third requiring construction of a new port (GH2 Namibia, 2022). The southern valley is due to be developed first. A deal for the USD 10 billion Hyphen project, installing 3000 MW of electrolysers to export 2 million tonnes of renewable ammonia annually to Europe before 2030 was signed with the Germany-headquartered company, Enertrag SE, in May 2023 (Reuters, 2023). This investment would correspond to 80 % of Namibia's GDP in 2021 and should be realised within the boundaries of the Tsau ǁKhaebNational Park. According to the country's hydrogen strategy, its public infrastructure fund, SDG Namibia One, will heavily support this investment to reduce financing costs. A local non-governmental organisation (NGO), named The Institute for Public Policy Research, has greatly criticised the award procedure as 'non-transparent', questioning the integrity of project partners (Links, 2022). Enertrag SE constructs and operates renewable energy systems with an annual turnover of just EUR 251 million in 2021/2022 and has been active in South Africa since 2017 (Enertrag SE, 2022). Their joint venture partner is Nicholas Holdings Limited, a subsidiary of the Principal Capital Group, which has a long track record of non-energy industry investments in South Africa.

Hydrogen production is highly scalable given the modular design of electrolysers and it is assumed that scalability effects on cost reductions are marginal beyond 100 MW of installed capacity (Böhm et al., 2020). Conversely, large conventional ammonia plants have a capacity greater than 600 thousand tonnes per year with three-quarters of the European plants considered to be of small or medium scale (Egenhofer et al., 2014). Hence, the motivation for the proposed large project scope of Hyphen remains unclear.

4.1.2 SDG performance

Namibia is a developing country that still faces major challenges in achieving the most basic SDG levels, such as no poverty (SDG 1), zero hunger (SDG 2) and good health and well-being (SDG 3). Moreover, access to clean water and sanitation (SDG 6) and affordable energy (SDG 7) must be improved significantly. Major challenges to improving on SDG 8 (decent work and economic growth) also remain, while high corruption perception, as well as limited access and affordability of justice, negatively impact the performance of SDG 16 (peace, justice and strong institutions) (see Figure 2 below).

Figure 2: 2023 SDG dashboards and trends for Namibia

Source: J.D. Sachs, G. Lafortune, G. Fuller, and E. Drumm, 'Implementing the SDG Stimulus. Sustainable Development Report 2023: Sustainable Development Report 2023', Dublin University Press, 2023.

4.1.3 The EU-Namibia partnership agreement

The EU-Namibia strategic partnership agreement MoU covers sustainable raw materials value chains and renewable hydrogen, having been signed in Sharm El-Sheikh on 8 November 2022 (European Commission, 2022a). Although many of the following observations also apply to mining activities and raw material value chains, this analysis focuses solely on the partnership for renewable hydrogen.

This MoU states three main objectives for the EU-Namibia partnership, with the second and third objectives concerning renewable hydrogen. 'Support the development of renewable energy sources, taking into account their contribution to energy security, […] with a particular focus on renewable hydrogen potential' (second objective) represents Namibian domestic interests. The objective 'to create a well-functioning renewable hydrogen market and promote new channels for investment and trade opportunities' (third objective) reflects Namibia's interest in exporting renewable hydrogen which the EU will then import.

Based on these formulations, the EU's prioritised objective is the creation of an open hydrogen economy. In doing so, and referencing the REPowerEU plan, the EU intends to increase its energy security with renewable hydrogen. Equally, Namibia expects an accelerated build-up of renewable energy capacity to ensure its energy independence, while at the same time diversifying its economy and creating employment opportunities.

The strong focus of these objectives is on affordable and clean energy (SDG 7) together with decent work and economic growth (SDG 8). However, the principal areas of cooperation for this partnership, formulated within six main pillars, fail to explain exactly how cooperation is intended to improve SDG 7 performance. The planned renewable investments would certainly allow the country to decarbonise its electricity generation and end import dependence from South Africa, reducing the emission intensity of the electricity supply. However, there is no mention of other key challenges which are being faced in seeking to improve overall SDG 7 performance, namely affordability and a lack of distribution infrastructure to connect geographically dispersed communities (Section 2). Hence, the impact of this partnership on improved energy access for the local population remains vague.

The pillars of cooperation are very much oriented towards the success of Namibia's transformation into a renewable hydrogen producer and exporter by *value chain integration*, *Environmental Social and Governance (ESG) criteria alignment*, *financing*, *training and skills development*, *research and innovation* and

regulatory alignment[8]. Here, the question should not be whether the partnership will enable Namibia to improve its performance *vis-à-vis* certain SDGs, but whether it mitigates the sustainable development risks that transformation to a hydrogen producer entails. Coherence with SDG principles requires identifying and mitigating the potential negative impact on sustainable development. However, the following examples further demonstrate some MoU shortcomings.

The MoU does not reflect on any risk that Namibia's renewable hydrogen exports might not be competitive within global markets (Section 3) nor how the EU might help offset this risk. For instance, any risk exposure within Namibia's infrastructure fund could have significant consequences for the country's financial stability and hence impose major challenges in achieving SDG 8. Instead, the MoU repeatedly refers to the objective of creating competitive and well-functioning markets.

Furthermore, the MoU does not mention support in strengthening those SDG areas that might be negatively affected by Namibia's transformation to a renewable hydrogen exporter. Given criticism concerning the Hyphen project award procedure's lack of transparency and the planned construction within the Tsau ǁKhaebNational Park, the project might impose major challenges to SDG 15 (life on land) and SDG 16. Additionally, even if the Hyphen project plans to deploy water desalination plants for hydrogen production, access to clean water for the local population (SDG 6) might conflict with the additional water consumption needed for constructing such a large infrastructure project in one of Africa's most arid regions (Mapani et al., 2023). Here, the current lack of access to and affordability of justice in Namibia compromises the ability of local communities to express and defend their rights (SDG 16).

Pillars of cooperation, such as regulatory alignment or leveraging ESG criteria, can be the starting point for defining a coherent SDG policy as part of the strategic partnership roadmap with Namibia which is currently under development. However, regulatory alignment is a long-term process that might be completed only when the current infrastructure projects have already been implemented.

4.2 Egypt

4.2.1 Background

Egypt has 109.3 million inhabitants, with its population highly concentrated in the Nile Delta (1 000 people/km^2) and an average density of 113 people/km^2. The country is Africa's third-biggest natural gas producer and covers most of its domestic liquid fuel consumption with national production (US Energy Information Administration, 2022). Over the past decade, the oil and gas industry's importance has increased significantly from a contribution of USD 9 billion in 2014/2015 to USD 47.9 billion in 2019/2020, representing about 24 % of Egypt's GDP, the fastest-growing economic activity over this period (US International Trade Administration, 2022). Increasing electricity demand has primarily been met by oil and gas-fired generation, with a current share of nearly 90 %. In contrast, renewable generation has increased only marginally over the last few years[9].

Significantly, the country has not committed to net-zero targets in its 2050 strategy (Egyptian Environmental Affairs Agency, 2022). However, it does aim to generate a 42 % share of renewable electricity by 2035 and simultaneously wants to build up a renewable hydrogen export industry by 2030 (Egyptian Cabinet Information and Decision Support Center, 2022). Here, renewable hydrogen exports are aimed at the European market to meet the EU's 2030 import targets (Bakr, 2023).

In July 2023, the government announced various projects that would significantly increase conventional refining and petrochemical production by investing USD 9 billion (Egypt State Information Service, 2023), in addition to currently ongoing extension projects (Ministry of Petroleum & Mineral Resources, 2020).

[8] Italics added by the authors.
[9] Ember, 'Egypt | Electricity Transition' website, May 2023, (accessed on 28 July 2023).

At the same time, certain multi-billion US-dollar renewable hydrogen projects have been announced that focus on exporting renewable ammonia and are partially financed by the Egyptian government under the umbrella of a new 'golden licence' scheme (Collins, 2022). Some projects include European partners, such as the Norwegian renewables developer Scatec or the Dutch fertiliser producer OCI Global. However, the most significant licence for a USD 5.5 billion project was awarded to an unknown company without publicly disclosed information about their ownership structure.

This golden licence scheme centralises all industrial projects' needs by introducing a single one-stop licence for projects that are primarily focused on exports (Egyptian Regulatory Reform and Development Activity, 2023), while also financially supporting these projects via the Sovereign Fund of Egypt (Bakr, 2023). Some of these projects are planned in the Suez Canal economic zone (SCZONE).

4.2.2 SDG performance

Egypt is an emerging market economy, though some challenges are still being faced regarding certain most basic SDG requirements. For instance, performance on no poverty (SDG 1) decreased while stagnating or increasing performance has been reported for all other categories. General access to clean water and sanitation (SDG 6) has been improving, but the country still faces major challenges with freshwater withdrawal corresponding to 140 % of available resources. Egypt has achieved universal access to electricity. However, the total share of renewable energy in total final energy consumption has stagnated, with significant challenges to affordable and clean energy access (SDG 7) remaining. The provision of decent work conditions is confronted with major problems concerning the recognition of fundamental labour rights (SDG 8). Egypt also faces major problems in seeking to improve peace, justice and strong institutions (SDG 16), given its poor performance in corruption perception, timeliness of administrative proceedings, lawfulness of expropriations, access and affordability of justice and press freedom. Significant issues are still unresolved *vis-à-vis* the protection of both life below water (SDG 14) and life on land (SDG 15) (see Figure 3 below).

Figure 3: 2023 SDG dashboards and trends for Egypt

Source: J.D. Sachs, G. Lafortune, G. Fuller, and E. Drumm, 'Implementing the SDG Stimulus. Sustainable Development Report 2023: Sustainable Development Report 2023', Dublin University Press, 2023.

4.2.3 The EU-Egypt partnership agreement

The EU-Egypt strategic partnership agreement on renewable hydrogen MoU was signed in Sharm El-Sheikh on 16 November 2022. It states three objectives, of which the first (EU imports) and the third (Egyptian exports) reflect the future renewable hydrogen trade relationship between both sides. The

second objective is designed to support Egypt along its 'pathway to low emissions and climate-resilient development […] to accelerate the Egyptian's energy transition and decarbonisation activities'.

As with the EU-Namibia strategy, the EU's relevant objective is to open hydrogen markets thereby improving supply security, although the REPowerEU plan and specific EU import targets are not explicitly mentioned. On the Egyptian side, opportunities for exporting renewable hydrogen and its derivatives for Economic growth (SDG 8) are repeatedly stated in the context of diversification and decarbonisation of energy supply, hence improving the achievement of SDG 7. The MoU identifies seven different areas of cooperation to achieve these objectives (highlighted in *italics*):

Accelerated deployment of renewable power generation is highly relevant. However, whether or not the MoU refers to renewable deployment in addition to the level of renewable capacity required for hydrogen production remains unclear. Considering the current state of Egypt's energy system, there is a risk that preferred deployment of renewables dedicated to hydrogen exports under the 'golden licence' scheme might delay investments in providing clean energy to Egyptian citizens, given that available funds and favourable locations are used for export-oriented renewable capacity. Hence, such a regulatory fast track for export-oriented hydrogen projects might instead complicate Egypt's ability to improve on SDG 7, given that renewable energy projects for domestic consumption are not eligible for the golden licence scheme.

Cooperation on the renewable hydrogen *demand side* and technology *supply side* focuses only on the renewable hydrogen export business. Here, renewable energy consumption is not mentioned in the context of Egypt's transformation. As detailed above, Egypt seems to focus on extending conventional production plants, often in highly populated areas such as Alexandria. Given the important role of public investments, the country is heading towards a fossil-based technology lock-in (Section 3), which would not only disincentivise any moves towards much-needed transition in the transport sector but also pose major challenges concerning efforts to achieve, *inter alia*, sustainable cities and communities (SDG 11) as well as climate actions (SDG 13). Here, *infrastructure* cooperation, which could help improve SDG 9 achievement, focuses only on the hydrogen export infrastructure but does not mention potential benefits or harm to the local population.

The use of water as a scarce resource is the key focus area of cooperation on *environmental sustainability*. At the same time, Egypt faces major challenges regarding protecting life on land (SDG 15) and sea (SDG 14), currently looking after only a small share of sites important for biodiversity. Parts of the SCZONE might be close to crucial biodiversity areas, especially on the Mediterranean coast (Arab Republic of Egypt Ministry of Environment, 2016). Environmental aspects are considered only selectively without a broader environmental assessment.

In this regard, cooperation on a *regulatory framework* might be needed that covers more areas than: the production and transport of hydrogen; certification; as well as rules for competitive and transparent markets. As recently as 2020, the Organization for Economic Co-operation and Development (OECD) highlighted many shortcomings regarding the legal investment framework in Egypt, including: transparent and inconsistent proceedings; conflicting authorities; and unclear land ownership (OECD, 2020). Hence, it remains doubtful whether these shortcomings are addressed by the golden licence scheme, especially concerning the rights of citizens in affected areas, given the low performance on SDG 16. Furthermore, the lack of transparency about already awarded golden licences reinforces this impression.

Cooperation on *financing* primarily focuses on access to funding for renewable hydrogen projects by both sides. When considering Egypt's role as a major conventional ammonia and fertiliser producer and its continual focus on increasing its conventional production capacity, access to EU funding might increase the availability of national funds that are invested in conventional technologies, thereby reinforcing the carbon lock-in, posing additional challenges to the country's sustainable development.

Lastly, the MoU's implementation and governance plan includes only industry and governmental stakeholders, leaving no room for civil society when cooperating with a country that faces major challenges on human rights-related SDGs and performance indicators.

5 Policy recommendations

The MoUs for partnership agreements with Namibia and Egypt represent a first step towards establishing renewable hydrogen cooperation with African partner countries. Both MoUs can be mutually beneficial for the EU and partner countries and are aligned with the EU strategy vision. However, they may also serve as examples for highlighting shortcomings.

The EU strategy and both agreements prioritise economic exploitation of renewable hydrogen trade over sustainable development towards achievement not only of SDG 7 but also all other SDGs. Target areas or pillars in the MoUs aim for cooperation technologies, finance, training, knowledge exchange or regulation needed to ramp up renewable hydrogen production and trade. However, both MoUs have in common an absence of formulated metrics or measurable targets that would facilitate any evaluation of the partnerships' success.

Even though sustainable development towards the attainment of SDG 7 is mentioned as a key priority in the EU strategy and both reviewed partnership agreements, the main shortcomings that would allow both countries to create a clean and affordable energy system are not addressed. Synergies between a hydrogen export-oriented economy and challenges to sustainable development are too limited. As such, the partnerships can neither significantly improve access to electricity for geographically dispersed communities (Namibia) nor ensure that highly fossil-based energy systems decarbonise (Egypt).

The greatest shortcoming of both reviewed MoUs for partnership agreements is the lack of policy coherence with SDGs beyond economic growth. Such silo thinking obscures specific risks that partner countries might face when building an export-oriented renewable hydrogen economy whilst simultaneously trying to achieve sustainable development. This shortcoming is especially prominent when considering the potential impact of the partnerships on local communities. Undoubtedly, the successful establishment of an export-oriented hydrogen economy may bring certain benefits to local populations, such as employment. However, sustainable development implies the identification, consideration and mitigation of challenges faced in achieving all SDGs, which requires inclusive cooperation with local communities as part of the partnership agreements. Such issues are missing in both MoUs.

The following measures are offered, which could help the EU and partner countries identify, share and mitigate risks concerning not only the future development of global hydrogen trade (Section 3) but also the sustainable development of a domestic hydrogen economy in partner countries (Section 4) as part of their cooperation:

- **Long-term commitments and bilateral offtake agreements supported by the European Hydrogen Bank** (European Commission, 2023c)[10] as a key activity of partnership agreements to avoid stranded assets and ensure sustainable infrastructure build-up. The partnership could work towards preparing the successful participation in competitive public tenders for hydrogen production premia.
- **Co-financing of projects by the EIB, Member States or other EU funds** to ensure that projects comply with EU sustainability standards and public procurement criteria, including a transparent tendering procedure. Such involvement would provide the EU and its Member States with

[10] The European Hydrogen Bank will be an instrument by the European Commission which provides, among others, financing mechanisms for imported renewable hydrogen. A ten-year fixed premium mechanism for hydrogen imports shall cover the difference between production costs of imports and the off-taker price for EU consumers.

opportunities to evaluate the adequacy of projects given the global hydrogen economy's uncertain dimensions. Regulatory alignment, as proposed by the MoUs, is a long-term process, unlikely to be concluded in time to meet the 2030 hydrogen trade targets.

- **Limitations to the export dedication of supported projects** to ensure that renewable electricity generation and renewable hydrogen production capacity are not only used for exports but also support countries' sustainable transition.
- **An inclusive governance framework** for partnership agreements that includes civil society and NGOs to ensure that scope and cooperation do not harm local communities or biodiversity.
- **A commitment to measurable targets** in partnership agreements that allow for assessing its broader impact on SDG performance and monitoring related risks.
- **Coordinated alignment of sustainable development partnerships** to ensure that cooperation on renewable hydrogen supports the objectives of, for example, the European Consensus on Development, Peace and Governance as well as Sustainable Growth and Jobs initiatives. Non-cooperation of potential partner countries on specific fields of sustainable development should disqualify countries from renewable hydrogen partnerships.

The European Parliament may use these recommendations to encourage the European Commission to focus more on sustainable development in active and future partnership agreements[11].

[11] In the case of the MoU with Namibia, the European Commission could clarify the EU position via the Strategic Partnership Roadmap that is currently under development. The MoU signed with Egypt leaves less room for re-adjustment, though, a refinement of the Commission's mandate could shape the work of the EU-Egypt Hydrogen Coordination Group and push for a re-assessment of the partnership initiative at the first annual Ministerial Meeting between both sides.

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DIRECTORATE-GENERAL FOR EXTERNAL POLICIES
POLICY DEPARTMENT

WORKSHOP PROCEEDINGS

Developing countries' energy needs and priorities under a sustainable development perspective: The specific case of Africa and green hydrogen

EP/EXPO/DEVE/FWC/2019-01/Lot3/1/C/13
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EN

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Table of Contents

List of abbreviations

AEGEI	Africa-EU Green Energy Initiative
AU	African Union
DG INTPA	Directorate General for International Partnerships
DG NEAR	Directorate-General for Neighbourhood and Enlargement Negotiations
ElectriFi	Electrification Financing Initiative
EP	European Parliament
EPP	European People's Party
EU	European Union
GDP	Gross Domestic Product
Greens/EFA	Greens/European Free Alliance
ICAI	Instituto Católico de Artes e Industrias
INI	Own-initiative Procedure
MIT	Massachusetts Institute of Technology
MoU	Memoranda of Understanding
SDG	Sustainable Development Goal
S&D	Socialists & Democrats

1 Workshop programme

For the Committee on Development (DEVE)

WORKSHOP DEVELOPING COUNTRIES' ENERGY NEEDS AND PRIORITIES

Wednesday 20 September 2023, 10.30 – 12.00

Brussels, Altiero Spinelli building, room 5E2

PROGRAMME

10:46-10:49 **Introductory remarks**

Welcome by **Stéphane Bijoux**, MEP, Vice-Chair of the Committee on Development

10:50-11:01 **Presentation of the Briefing on 'EU development cooperation and energy poverty in Africa'**

- **Dr Eduardo Sánchez Jacob**, Independent consultant, Industrial Engineer and Associate Researcher at the Massachusetts Institute of Technology (MIT) Energy Initiative

11:01-11:12 **Presentation of the Briefing on 'Is the EU's green hydrogen strategy in Africa coherent with sustainable development?'**

- **Dr Rafael Cossent**, Researcher at the Institute for Research in Technology of Instituto Católico de Artes e Industrias (ICAI) School of Engineering, Comillas Pontifical University

11:12-11:25 **Contributions from the European Commission**

- **Mr Arnaud Demoor**, Deputy Head of Unit for Climate Change and Sustainable Energy, Directorate General for International Partnerships (DG INTPA), European Commission
- **Mr Florian Ermacora**, Head of Unit for North Africa, Directorate-General for Neighbourhood and Enlargement Negotiations (DG NEAR), European Commission

11:-25-11:59 **Debate**

- Intervention by **Mounir Satouri**, MEP, Greens/European Free Alliance (Greens/EFA)

- Intervention by **Hildegard Bentele**, MEP, European People's Party (EPP)
- Intervention by **Mónica Silvana González**, MEP, Socialists & Democrats (S&D)
- Intervention by **Stéphane Bijoux**, MEP, Vice-Chair of the Committee on Development, Renew Europe (Renew)
- Intervention by **Christophe Clergeau**, MEP (S&D)
- Intervention by **Carlos Zorrinho**, MEP (S&D)

11:59-12:01 **Concluding remarks**

Concluding remarks by **Tomas Tobé**, Chair of the Committee on Development, MEP (EPP)

2 Introduction

The workshop entitled 'Developing countries' energy needs and priorities under a sustainable development perspective – The specific case of Africa and green hydrogen' was organised by the Committee on Development (DEVE) and the EP Directorate-General for External Policies. It took place on 20 September 2023 under the chairmanship of Tomas Tobé, MEP (EPP, SE), Chair of the Committee on Development and Stéphane Bijoux, MEP (Renew, FR),Vice-Chair of the Committee on Development.

The workshop aimed to contribute to the own-initiative (INI) report of the DEVE Committee on 'EU development cooperation in support of access to energy in developing countries', prepared by the Rapporteur Caroline Roose, MEP (Greens/EFA, FR). Therefore, external experts and representatives of the European Commission were invited to present their work and engage in an open discussion with MEPs.

Opening remarks were given by Stéphane Bijoux, MEP (Renew, FR), DEVE's Vice-Chair. He highlighted the significance of the debate on energy needs and the green transition in developing countries, with a specific focus on Africa. He acknowledged that Africa, in particular, faces a fundamental paradox. On one hand, more than 600 million people – almost half of Africa's total population – lack access to electricity. On the other hand, it has vast potential for harnessing renewable energy sources – including solar, wind, and hydropower – which could all significantly contribute to meeting energy needs in a sustainable and decarbonised manner. The goal of providing electricity to all, while using the greenest and most decarbonised energy sources available, aligns with the EU's policies and strategies, especially as the EU has committed significant funds to deploy renewable energy in Africa.

3 Presentation by academic experts

3.1 Dr Eduardo Sánchez Jacob (independent consultant and associate researcher at MIT Energy Initiative)

Dr Eduardo Sánchez Jacob presented the Briefing on 'EU development cooperation and energy poverty in Africa'. He began by defining **energy poverty as the lack of access to essential energy services and products**, with a particular focus on **electricity** and **clean cooking** in Africa. In 2022, alarming statistics revealed that 600 million people – 43 % of the population in Africa – lacked access to electricity, while 970 million people – 70 % – lacked clean cooking facilities. Furthermore, if additional efforts are not made by 2030, these numbers are projected to rise to 660 million and 1 billion, respectively.

Sub-Saharan Africa faces significant challenges in **electricity access**, with **18 of the 20 countries having the lowest access rates globally.** Even when access is available, the quality of services is often poor, and rural areas, informal settlements, displaced populations and refugees are disproportionately affected. Solutions involve grid extension, isolated mini-grids, and standalone systems, with the **distribution segment being often the weakest**, but vital for clean cooking access.

Dr Eduardo Sánchez Jacob highlighted that, in relation to energy poverty, **access to clean cooking emerges as a crucial concern** due to its profound social and environmental implications. It adversely affects the health of women and girls typically cooking, contributes to deforestation, and worsens climate change through emissions. Unfortunately, **clean cooking remains an 'orphan', an underfunded and largely unnoticed sector** in Africa – 19 out of the 20 countries there have the lowest access rate to clean cooking in the world – especially as there is no international organisation providing leadership on the issue.

Dr Sánchez Jacob then discussed the **EU's efforts to overcome energy poverty** in Africa. Various frameworks and partnerships guide these efforts with significant funding allocated to energy projects. He specifically highlighted three areas of frameworks:

- **cooperation** frameworks (such as the European consensus on Development, Policy Coherence for Development and the Development effectiveness);
- **regional** frameworks (ACP-EU energy partnership, the Neighbourhood Development and International Cooperation Instrument [NDICI] and the Global Gateway Africa-Europe Investment Package);
- **energy** frameworks (the Africa-EU energy partnership, the Africa EU green energy initiative, thematic orientations about climate change and security, REPowerEU, the Global gateway, Team Europe and the Africa-EU Green Initiative).

However, he emphasised that a larger part of ODA funding for the energy sector in Africa in the period 2014-2020 came in the form of loans, which poses **challenges for countries at risk of debt distress**.

A critical analysis of **European cooperation in Africa** revealed **several concerns.** While the funding is substantial, achieving universal and sustainable access to energy remains a challenge. The **geographical targeting** of projects often prioritised countries like Morocco and South Africa, rather than those with greater access needs. Funding mainly focuses on large electricity generation projects, with **limited investment in distribution and user segments**. He also highlighted that the **gender perspective** is insufficiently integrated into EU energy policies and programmes, and clean cooking receives minimal funding.

He also emphasised the **importance of technical assistance** in addressing regulatory challenges in many African countries. However, there is limited information available about the support provided by the EU's Technical Assistance Facility.

Lastly, Dr Sánchez Jacob concluded with **seven policy recommendations**. These include:

1. increasing grant-oriented Official Development Assistance (ODA) in the energy sector;
2. redirecting financing to countries with lower electricity access rates;
3. prioritising the distribution segment;
4. integrating a gender perspective;
5. continuing electricity system reforms;
6. emphasising clean cooking access and;
7. implementing robust monitoring and reporting mechanisms for energy access projects.

3.2 Dr Rafael Cossent (researcher at ICAI School of Engineering, Comillas Pontifical University)

Dr Rafael Cossent Arín presented the Briefing entitled 'Is the European Union's green hydrogen strategy in Africa coherent with sustainable development?'. He started by providing some context as to the relevance of the topic for the Committee on Development. He reminded the audience that the REPowerEU plan presented by the European Commission in May 2022 set ambitious targets in terms of diversifying supply and increasing Europe's energy security, including *inter alia* importing ten million tonnes of green hydrogen annually by 2030. A key instrument to achieve this goal are strategic partnerships with African nations.

In November 2022, the European Commission signed **two Memoranda of Understanding (MoUs) for strategic renewable hydrogen partnerships with Namibia and Egypt**. The briefing, co-authored by Dr Cossent and Dr Timo Gerres, aimed to assess these partnerships' alignment with the Sustainable Development Goals (SDG), and to provide recommendations to ensure that cooperation aligns more closely with SDGs.

Dr Cossent then described the **state of play of SDGs' implementation in these two countries**, focusing particularly on clean water and sanitation (SDG 6), on affordable and clean energy (SDG 7) and on peace, justice and strong institutions (SDG 16). For his insights, he used two case studies: Namibia and Egypt.

Dr Cossent underlined that Namibia faces major challenges in reaching basic SDG levels, including ensuring access to clean water and access to electricity (with only 35 % of the rural population having access to electricity). In addition, 60 % of the energy consumed in Namibia is imported mostly from South Africa, where the main energy source is coal – that is, not a clean energy source. Furthermore, a large number of citizens perceive their country as highly corrupt, which negatively affects the performance on SDG 6.

Moving to Egypt, the expert highlighted that there has been some progress in terms of providing access to clean water, but at the expense of overexploiting available freshwater resources. Furthermore, while universal access to electricity has been achieved, the country is a major oil and gas producer (with 90 % of electricity being produced from these sources) and only marginal progress has been achieved with renewables. Major challenges also remain when it comes to the implementation of SDG 16.

Having described the context of the two countries, Dr Cossent moved on to discuss the **challenges linked to hydrogen trade**. The REPowerEU plan envisions importing 10 million tonnes of renewable hydrogen annually to the EU by 2030, in addition to 10 million tonnes to be produced domestically. **Significant uncertainties remain** over this volume, warned the expert, as there currently is no such thing as a market for renewable hydrogen, and many projections foresee a much lower consumption of green hydrogen by 2030. Another challenge lies in the transport costs and technological uncertainties of green hydrogen, which may jeopardise the advantages of low production costs. For example, while green ammonia is considered a low-cost carrier for green hydrogen, transporting it over long distances and converting it into hydrogen once in Europe increases costs and emissions.

Looking at the MoU with Namibia, Dr Cossent reminded participants that the latter covers both renewable hydrogen trade and sustainable raw materials value chains. He highlighted that Namibia has a very ambitious energy strategy that foresees three hydrogen valleys, with the first one being developed in Southern Namibia. Here, the Hyphen project foresees up to three gigawatts of electrolysis. The investment (around USD 10 billion) amounts to approximately 80 % of Namibia's gross domestic product (GDP), which entails a certain **financial risk for the country.** The expert also highlighted the risk that, while **water desalinisation** is foreseen as a solution for the production of green hydrogen, it **may not be possible in such an arid region** to meet the significant water needs of construction and of the population. Lastly, **energy access is also an important challenge**, as major transmission infrastructure will be necessary to make generated electricity accessible to the population.

In the case of Egypt, many of the hydrogen-related projects are planned for the Suez Canal Economic Zone. Many of these projects are funded under the '**golden license'** scheme, which *de facto* allows **circumventing many regulatory requirements** and permitting processes, which raises some doubts from the SDG perspective. In particular, the expert warned that access to EU funding might in this case increase the availability of national funds for conventional technologies, risking leading the Egyptian energy system into a fossil lock-in and delaying plans for national decarbonisation.

Lastly, Dr Cossent offered some **policy recommendations** to Members of the DEVE Committee.

Firstly, he noted that to mitigate the financial risks of these projects due to uncertainties as to the size of green hydrogen demand, there is **a need for long-term commitments and bilateral offtake agreements.**

Secondly, the EU should make sure that **renewable capacity is not used only for exports and enhancing Europe's energy security**, but that these projects also lead to benefits for these countries in terms of SDG 7 implementation.

Thirdly, he stressed **the need for indicators to measure progress in SDG compliance**. The expert reminded participants that the MoU with Egypt includes a section devoted to governance, but **civil society or local communities are not considered** among the local stakeholders. In the case of Namibia, the MoU does not include a section on governance. Instead, it states that both parties will prepare a strategic roadmap within six months of the signature of the MoU (May 2023) – however, to the expert's knowledge, no such roadmap has been made public to this day. He thus recommended that EU institutions address some of these SDG-related concerns in the governance and implementation framework of the partnership.

4 Contributions from the European Commission

Mr Arnaud Demoor (Deputy Head of Unit for Climate Change and Sustainable Energy at DG INTPA, European Commission) provided an overview of ongoing and planned EU initiatives in the field. The EU, he noted, is a major player when it comes to supporting the energy sector in Africa. For example, between 2014 and 2020 the European Commission, together with the European Investment Bank and the Bank for Reconstruction and Development and EU Member States, allocated around EUR 13,8 billion towards the energy sector in Africa, with the European Commission alone providing EUR 3 billion. This investment reached over 30 countries in Africa. This resulted in nine gigawatts of renewable energy production capacity and gave 27 million people access to electricity in countries like Rwanda, Kenya, Tanzania, Mozambique, Ivory Coast, Zambia, Uganda, Nigeria, South Africa and others. Support for diversified investment in sustainable energy through both on and off/mini-grid networks also had a positive impact on the regulatory environment and job creation, strengthening social cohesion, promoting gender equality and supporting innovative financial instruments.

Mr Demoor reminded the audience that the last EU-African Union (AU) summit in February 2022 saw the launch of the Africa-EU Green Energy Initiative (AEGEI). By 2030, the initiative aims to support, including with EUR 3.4 billion in EU grants, the deployment of at least 50 Gigawatts of renewable electricity generation, providing at least 100 million people with access to electricity while improving energy efficiency including via clean cooking.

Looking at mini-grid and off-grid systems, Mr Demoor highlighted challenges in terms of the economic viability of private developers, the capacity of payment of the population, lack of investors, weak regulatory environment and security. However, he also mentioned several achievements and ongoing projects, such as the Electrification Financing Initiative (ElectriFi), or technical assistance to help governments improve their regulatory environment, which is a precondition for investments in the energy system.

He then moved to the issue of clean cooking, mentioning several challenges existing in this sector, such as the fragmented nature of the market, the question of the affordability of artisanal cooking solutions, the accessibility of firewood and charcoal compared to the high cost of more efficient and modern solutions, and users' habits. Mr Demoor highlighted that the European Commission supported different programmes at global, regional and national levels in this field, for example programmes aimed at strengthening the entrepreneurship ecosystems in Africa (particularly in Uganda and Ethiopia) but also in Asia, a new regional programme in western Africa, and several bilateral programmes in Tanzania, Zambia, Rwanda and Ivory Coast. Overall, he concluded, there is a rising trend of increasing support for clean cooking.

Moving to the issue of green hydrogen, Mr Demoor highlighted that the latter has emerged as a rising enabler for a multi-sectoral transition towards a low-carbon economy based on renewable energy. In this context, the MoUs are a critical milestone for energy transition in cooperation with partner countries and are in line with the EU's commitment to take a lead in speeding up the global green transition in cooperation with international partners.

Finally, when it comes to the implementation of MoUs, Mr Demoor stressed the need to work on environmental and social governance, regulatory framework and standards, as well as social, environmental and economic sustainability.

Mr Florian Ermacora (Head of Unit for North Africa at DG NEAR, European Commission) took the floor to discuss hydrogen cooperation with northern Africa. He highlighted the opportunities brought about by this cooperation, particularly the fact that the halt of imports of fossil fuels from Russia represents a unique opportunity to make a relatively quick shift to renewable energy sources. The European hydrogen strategy, he underlined, does not foresee autarchy in terms of energy provision, so the EU will still need imports. The European Commission has defined corridors for green hydrogen imports, for example from Ukraine and from northern Africa. Mr Ermacora stressed the need to start the work on cooperation on green hydrogen with northern Africa quickly, as this region is perfectly placed to meet Europe's green hydrogen and green electricity demand, thanks also to geographic proximity. He then emphasised the need for private investments into these countries, which in turn require attention to the local regulatory framework and overall investment conditions. The profit for local investors, he underlines, will not come from local consumption in the short term: there has to be a focus on exports, but at the same time, this should not result in a situation that hampers these countries' own decarbonisation. Therefore, the EU needs to help governments from the region develop strategies where investors can export, but also feed the domestic market to some extent.

Looking at green hydrogen, Mr Ermacora underlined an ongoing 'race to subsidies' at the global level (with examples such as the US Inflation Reduction Act or the EU's European Hydrogen Bank initiative). Northern Africa, he noted, is left out of this, which entails a risk that the locations best suited to the production of green hydrogen in the EU's proximity will not be used. He also stressed the need to look at infrastructure and notably interconnection through hydrogen pipelines.

Lastly, he addressed the issue of water scarcity and argued that purifying a part of wastewater and using it for hydrogen production could be a solution to preserve local water consumption. He thus underlined the need for enhancing the efficiency of wastewater management and purification.

He concluded his address by highlighting the opportunities offered on numerous fronts by this cooperation, including the security of energy supply, decarbonisation and economic prosperity for these countries.

5 Debate with Members

Questions from MEPs

Mounir Satouri, MEP (Greens/EFA, FR), representing MEP and Rapporteur Caroline Roose, described the elements emphasised in Ms Roose's report in favour of promoting access to energy in third countries, particularly in Africa, where 40 % of the population lacks electricity. He highlighted the disproportionate impact of energy poverty on women and families who rely on wood and charcoal for cooking. Mr Satouri mentioned the EU's history of energy cooperation with African nations but noted that many of these countries are low-income and now over-indebted, requiring a shift from loans to subsidies for energy

projects. He stressed the need for a comprehensive approach that includes universal access to electricity, integrated treatment of various energy modes, and a focus on distribution.

Additionally, Mr Satouri emphasised the challenges faced by developing countries in adopting renewable energies due to technology and financing constraints. In her report, Ms Roose calls on the EU to provide technical and financial support for sustainable energy solutions that align with climate goals, to create clean energy adapted to people's needs.

Mr Satouri posed several questions to the Commission and researchers on behalf of Ms Roose. Addressing Mr Ermacora, he asked the Commission to provide data on the impact of the 2012 'Energising development' initiative to extend energy access to 500 million people in developing countries by 2030. He furthermore inquired about investments in renewable energy and energy development through EU-funded investment funds. Finally, addressing the researchers, he asked whether the EU's efforts adequately address energy poverty and whether progress has been made in eliminating subsidies for fossil fuels harmful to the environment.

Hildegade Bentele, MEP (EPP, DE) expressed serious concern about the issue of clean cooking. She expressed surprise that clean cooking remains an invisible topic that is challenging and expensive to address, given that it is such an overarching issue. She requested more information about it from the panel, namely on why it is so difficult to tackle this issue and why only 1 % of financing is allocated to this critical issue. On the topic of hydrogen, Ms Bentele highlighted that partnerships with African countries were not imposed but the result of their efforts to be part of the global economy. She also noted the absence of subsidies in this context and suggested that Europe should be present in these projects, leveraging its own experiences. Ms Bentele stressed the need for creating local opportunities in developing countries and emphasised that electricity, development and distribution should be integral to partnerships. She hinted that MEPs would closely follow these matters.

Mónica Silvana González, MEP (S&D, ES) commended the speakers for their presentations and stressed the importance of aligning efforts with the 2030 agenda and the ongoing UN discussions in New York. She noted the opportunity presented by the revision of the multiannual financial framework in 2027 to redirect and refine strategies. Ms González posed three key questions. Addressing the Commission, she inquired about the prioritisation of certain countries, such as Morocco and South Africa, in large investment packages like the Global Gateway initiative. She questioned, besides the aforementioned lack of subsidies, why these relatively developed countries receive priority over others with greater needs for electrification.

Furthermore, Ms González addressed the issue of gender in energy programmes and asked what steps the Commission plans to take to ensure energy initiatives are achieving gender equality. She underscored the concern regarding clean cooking and emphasised the importance of gender inclusion in energy projects.

Lastly, Ms González directed a question to Dr Cossent regarding the green hydrogen strategy for Africa and its implications for sustainable development. She sought insights into how due diligence in clean hydrogen can be applied not only to Africa but also within the EU, referencing the report's findings in Namibia and the risks of prioritising economic growth without taking into account climate change.

Stéphane Bijoux, MEP (Renew, FR) began by expressing gratitude to the Commission and the experts. He highlighted the ongoing discussions at the UN regarding the Sustainable Development Goals (SDGs) and the urgency of translating these goals into action. Mr Bijoux mentioned the summit for a 'New Financial Pact' convened by French President Emmanuel Macron where African leaders stressed that Africa is a 'land' of solutions and innovations to respond to global challenges, particularly in terms of renewable energy and ecology. He pointed out that Africa possesses significant untapped resources, namely 60 % of global solar energy potential and 50 % of global wind energy potential. Mr Bijoux underscores that there is a vast potential 'to free' it and that the European political responsibility is to take all essential measures to facilitate this transition. Mr Bijoux then posed a question: How can the EU take specific actions to increase

financing for harnessing this vast renewable energy potential in Africa? Lastly, he highlighted the essential role of innovation in funding and the double challenge of economic development and ecological transition.

Christophe Clergeau, MEP (S&D, FR) emphasised the importance of this discussion within the DEVE committee, followed by an INI report, and further suggested engaging with African stakeholders and African Members of Parliament, within the ACP-EU framework.

He raised two specific questions. Regarding the EU investments in South Africa and Morocco, which account for 30 % of the global effort, Mr Clergeau sought clarification on how this funding is specifically allocated in these countries. Regarding green hydrogen, Mr Clergeau noted the extremely harsh, but strong, arguments presented by Dr Cossent about the case of Namibia. He asked about the identities of the private investors involved in the African hydrogen project.

Finally, Mr Clergeau raised a few points to the attention of the Rapporteur. He highlighted the need for comprehensive planning in renewable energy production. He stressed the importance of finding a balance between land use for renewables and water resources, which is also a local issue related to the consent of local populations, access to energy (including clean cooking), investments in networks and grids, decarbonisation in various sectors (such as agriculture and transport), and the production of renewables or green hydrogen for export. He expressed concern that a fragmented approach, without a holistic view shared by both Europeans and African leaders, could lead to an unsustainable exploitation of African resources without adequately meeting the essential needs of the African population, especially in terms of access to electricity. Mr Clergeau's concerns centred on the potential imbalance between investments and objectives, using the case of Egypt and Namibia to illustrate this point.

Carlos Zorrinho, MEP (S&D, PO) commended the timely and informative workshop, acknowledging the transformative potential of green hydrogen in global energy systems. He stressed its role as a driver for positive change not only within the European Union but also worldwide. Mr Zorrinho highlighted the multiple benefits of green hydrogen, such as decarbonisation, climate change mitigation and addressing energy poverty.

Mr Zorrinho drew attention to the upcoming Post-Cotonou agreement, set to take effect on January 1, 2024, and emphasised the EU's commitment to fostering a partnership for sustainable development and the SDGs with Africa, the Caribbean, and the Pacific. Drawing from his last mission in Africa, he mentioned co-created green hydrogen projects under the Global Gateway initiative and emphasised the importance of learning from these on-the-ground initiatives within the framework of the new agreement.

His question centred on the concept of co-creation and how to incentivise measures that promote sustainable development through green hydrogen projects. He specifically highlighted the need to focus on technology transfers, local skill development, and leveraging green hydrogen for the benefit of the green transition and socio-economic development in African countries. Mr Zorrinho asked the panellists for their perspectives on the strategies needed to promote the effective use of green hydrogen. Specifically, he was interested in how to generate sufficient interest in sectors like energy, data, water and circular economy while aligning with the EU's sustainable development approach in the context of green hydrogen initiatives.

Responses from the panel

Dr Eduardo Sánchez Jacob addressed several questions from the Members. Concerning clean cooking, he discussed the challenge of providing access to remote areas. The first issue is that mini-grids and isolated solutions, while effective, tend to be expensive. The cost per kilowatt-hour (kWh) in such areas is high and there currently are no appropriate business models for enterprises. Dr Sánchez Jacob repeated

that clean cooking often remains an overlooked issue, an 'orphan sector' especially as it deals with health, environment, energy and gender equality. Hence, he stressed, a second issue arises because when discussing clean cooking, the attention often gravitates towards concerns about pollution. This happens because clean cooking is often perceived as a 'women's issue', and there is usually a tendency to prioritise other matters over women's concerns. The third challenge stems from the cost factor, as cooking typically requires a substantial amount of energy, which can be expensive.

Dr Sánchez Jacob proposed solutions to address these challenges. Firstly, he stressed the importance of leadership from energy ministries, as they possess the capacity to build networks and implement large-scale projects. Secondly, he also advocated for integrated national planning, recognising that clean cooking is a widespread issue that affects many countries. Thirdly, he suggested shifting the approach to modern solutions, as improved cooking stoves do not meet the World Health Organization's standards on air quality. Specifically, he highlighted the use of electric cooking, which could align well with electrification efforts and improve air quality.

On the topic of financing, Dr Sánchez Jacob mentioned that countries with debt risks often hinder project launches in many countries, underscoring the need for more grants to facilitate clean energy initiatives. He also emphasised the importance of long-term strategies in addressing these complex issues.

Regarding Morocco and South Africa's leadership in renewable energy, he expressed support for the countries' efforts to change their energy mix and encouraged the continuation of such strategies. Specifically, he emphasised the importance of expanding these initiatives to involve other countries to further drive change in the energy sector.

Dr Rafael Cossent addressed several questions, primarily focusing on the Commission's concerns regarding Briefing 2, which appeared to place excessive emphasis on the risks associated with green hydrogen projects. He acknowledged that while opportunities exist, his presentation aimed to highlight the risks. Dr Cossent emphasised the complexity of green hydrogen projects, involving multiple parties and the need to establish supply chains for products that currently do not exist in the market, such as green ammonia and hydrogen shipping. Beyond the study of MoUs, he stressed the importance of monitoring and tracking these risks during project implementation.

To ensure effective implementation, a one-size-fits-all approach would not suffice, because each country, from the Caribbean to Kenya has distinct contextual factors. Hence, a recommendation provided for this Briefing is to establish monitoring mechanisms that can adapt to diverse contexts. The key focus is to raise awareness of potential risks, actively monitor them and maintain detailed records.

Dr Cossent also explained that even within the EU, countries struggle to make production plants and infrastructure operational, citing issues with the reliability of hydrogen-based transport infrastructure. He raised concerns about the scalability of these risks when engaging in international trade. He questioned how much of the European demand for hydrogen would materialise and cautioned against the risk of stranded assets if demand falls short of expectations.

Furthermore, Dr Cossent highlighted the challenge of transitioning certain industries from natural gas to hydrogen, emphasising that it is neither a straightforward process nor an immediate substitute, as it requires a completely new infrastructure. Industries like ceramics and glass require significant technological changes and investments to accommodate hydrogen use. He urged careful consideration of when and how to incorporate hydrogen into different sectors.

Lastly, Dr Cossent touched on the issue of wastewater usage in hydrogen production, noting that numerous projects, including in Spain, are turning to wastewater as a resource not necessarily because it is the optimal choice, but rather because it is the only available option due to the absence of regulations. He highlighted the need to address regulatory barriers and delays that affect the request for permits in the

framework of hydrogen production – a novel activity that authorities are not familiar with. Dr Cossent highlighted that this issue extends well beyond the EU.

Mr Arnaud Demoor (DG INTPA, European Commission) began by addressing the planning issue, highlighting the Africa Europe Green Energy Initiative, which involves collaboration between AU member states and EU Member States. They are working on developing a 'continental power master plan', essentially a strategic vision and continental electricity grid network for the entire continent that goes hand in hand with the objective of establishing an African single electricity market with stakeholders at different levels (continental, regional via power pools and national). This initiative aims to align with the broader sustainability agenda and could become a joint EU-AU flagship initiative.

Regarding the projects in Namibia and other countries, Mr Demoor emphasised that they are usually part of a broader Team Europe initiative linked to the Green Deal. These projects take a comprehensive approach by addressing multiple aspects, including water and energy, to ensure a holistic impact. However, the involvement in such projects depends on the willingness and commitment of the host country (so far mainly involving Namibia, South Africa, Kenya and Mauritania). In this context, the European Commission starts with foundational work, such as supporting partner countries' regulatory and legal frameworks and establishing norms and standards to allow the definition of their national strategies. Following this, roadmaps are then developed in collaboration with these countries, as exemplified in Kenya and Namibia.

Mr Demoor touched upon the issue of leveraging financing, acknowledging that the European Commission's primary funding source is grants (EUR 3.4 billion) under the AEGEI. Still, the Commission's objective is to leverage loans (while taking care of debt sustainability) and mobilise private sector investment.

On the topic of gender equality and clean cooking, Mr Demoor noted the presence of comprehensive EU gender strategy action plans in each country. Gender equality objectives are applied to all initiatives, including those in the energy sector, although there is still room for improvement and expansion of these efforts in each Team Europe bilateral cooperation. Mr Demoor also addressed the challenge of coordinating clean cooking initiatives, as they often span various ministries (energy, environment or agriculture/forestry). He emphasised the importance of building a comprehensive ecosystem and encouraging entrepreneurship and innovation to advance clean cooking solutions.

Responding to Mr Satouri, he reiterated Team Europe's commitment under AEGEI to a comprehensive approach to enable 100 million Africans to access electricity, focusing on production, distribution, and transmission, while further collaborating with various partners such as the African Development Bank and the World Bank. Specifically, he mentioned initiatives such as the Just Energy Transition Partnership in South Africa and Senegal that provide a greater emphasis on just energy and climate transitions.

Mr Florian Ermacora (DG NEAR, European Commission) highlighted a significant transformation in the energy access landscape across northern Africa. Except for Libya, most northern African countries have now achieved nearly 100 % access to electricity. Thus, the focus has evolved towards integrating these countries into the European electricity market and the hydrogen and gas market overall. This integration, according to Mr Ermacora, hinges primarily not on public financing but on the critical factors of attracting private investors and establishing a robust regulatory framework.

Mr Ermacora acknowledged the importance of public funding for infrastructure projects, especially for the connection between Europe and northern Africa, as such projects are too ambitious to rely on private investment alone. He emphasised the need to transition away from fossil fuels in the northern African energy mix and establish programmes to 'kick out' natural gas and coal and 'get in' renewables. He also

stressed the importance of financial support to bridge the cost gap between grey hydrogen, currently used by industries, and green hydrogen, which is more environmentally friendly.

Lastly, on the question of investors, Mr Ermacora noted an interesting development where potential consumers of green hydrogen in Europe, such as the steel, refining, and chemical industries, are actively exploring green hydrogen projects in northern Africa themselves, not relying on traditional energy companies. These European consuming industries are forming consortia to develop large-scale infrastructure projects, for instance, the hydrogen connection between Algeria, Tunisia, Italy, Austria, and Germany (South H2 Corridor). He concluded by saying that this growing momentum and the increasing involvement of various sectors represent numerous opportunities in the region.

6 Concluding remarks

In his closing remarks, **Tomas Tobé, MEP (EPP, SE)** thanked all speakers and participants for the fruitful exchange. He highlighted the significance of the discussions and their relevance not only to the DEVE report on energy, but also to broader scrutiny efforts regarding sustainable energy policies.

Annex 1 – Speakers' bios

Dr Eduardo Sánchez Jacob (PhD Polytechnic University of Madrid) is an Industrial Engineer and an Associate Researcher in the MIT Energy Initiative (Center for Energy and Environmental Policy Research) and a member of the Universal Energy Access Lab of MIT and the University of Comillas. Since 1993 he works in the field of international cooperation for development, with experience in African countries such as Niger, Senegal, Tanzania, Mozambique, Namibia, Senegal, Mauritania and Algeria. Dr Sánchez Jacob received his PhD in 2022, on clean cooking planning and its synergies with electrical planning, from the Polytechnical University of Madrid. He has more than 20 publications in the area of energy poverty. Between 1994 and 2019, has occupied several functions of the Spain-based ONGAWA NGO, formerly Engineering without borders. Since 2019, Dr Sánchez Jacob has been working as an Independent Consultant for Sustainable Energy for All (SEforALL), the Spanish Agency for International Development Cooperation (AECID), other international agencies, and development NGOs such as Doctors of the World, Action Against Hunger or Action Aid.

Dr Rafael Cossent (PhD Comillas Pontifical University-ICAI), Researcher at the Institute for Research in Technology of ICAI School of Engineering at Comillas Pontifical University. He is the Co-Director of the Chair for Low Carbon Hydrogen Studies, a joint Center between the ICAI School of Engineering and the ICADE Faculty of Economics sponsored by eight institutions with a relevant presence all across the Spanish hydrogen value chain. Dr Cossent holds an Industrial Engineering degree from Comillas Pontifical University-ICAI and a PhD (2013) in Electrical Engineering from the same university. His research interests are in the area of energy systems decarbonisation, energy transition, and energy economics and regulation. Referring specifically to hydrogen, his work focuses on end-use applications, business models, economics and regulation, and infrastructure planning. He has participated in over 50 research and consultancy projects dealing with energy sector decarbonisation, energy policy, power sector regulation, and renewable energy integration. He has published over 50 papers in scientific journals and conferences on these topics. Dr Cossent was a visiting researcher at INESC (Porto, Portugal) and Heriot-Watt University (Edinburgh, Scotland) in 2010 and 2011 respectively.

Mr Arnaud Demoor (DG INTPA, European Commission)

Mr Arnaud Demoor is the Deputy Head of Unit on Climate Change, Sustainable Energy and Nuclear Safety in the DG International Partnership of the European Commission since September 2022. His main focus is currently on Sustainable Energy in Sub Saharan Africa and the European Green Deal. Within the EU, Arnaud has a vast experience in partnering with sub Saharan African countries, having served as Head of Cooperation with Cameroon, and previously worked in Ethiopia and Rwanda. He also coordinated cooperation with Western and Central Africa regions as Team leader for Sahel countries and then as Deputy Head of Unit for Central Africa from Headquarters. As a former French government official, Arnaud used to work for several Ministries (Agriculture, Foreign Affairs) including in French overseas territories or abroad.

Mr Florian Ermacora (DG NEAR, European Commission) studied law at the Universities of Innsbruck and Paris and received his doctorate in Vienna. Since 1996, he has been working as an official for the European Commission (DG for Environment; DG for Internal Market; DG for Energy). In between, from 2001-2004, he worked for the international law firm Schönherr in Vienna. From February 2010 to November 2012, Mr Ermacora was the Assistant to the Director General for Energy, Mr Philip Lowe. From November 2012 to December 2014, he was the Head of the Communication and Interinstitutional Relations Unit of the Directorate General for Energy. Between January 2015 and January 2021, Mr Ermacora was responsible for the Wholesale Electricity and Gas Markets Unit of the DG for Energy. Between January 2021 and March 2023, Mr Ermacora headed the Unit Neighbourhood Policies and international relations of the Directorate General for Energy, which became in 2022 part of the EU Energy Platform Task Force as Unit for

International Energy relations. As of March 2023, he holds the position of Head of the North Africa Unit in the DG NEAR. Mr Ermacora has published several books and articles in the areas of European environmental, energy and business law.

Annex 2 – Photos from the workshop

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