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Energy Partnership

AEEP Energy Talks

SPOTLIGHT

Utilising Renewable Hydrogen to Decarbonise Value Chains and Drive Development in Africa and the EU

The AEEP is supported by its Steering Group:

COMESA

Ministry of Electricity and Renewable Energy

Federal Ministry for Economic Cooperation and Development

African Union

SUMMARY

The 10th edition of the AEEP Energy Talks, organized by the Africa-EU Energy Partnership (AEEP), focused on the topic of "Utilizing Renewable Hydrogen for Decarbonizing Value Chains and Promoting Development in Africa and the EU." This event delved into the possibilities offered by renewable hydrogen in reshaping the energy sector in Africa and the EU, shedding light on the various opportunities and obstacles linked to producing and distributing renewable hydrogen.

Renewable hydrogen is a clean energy source that holds immense potential for decarbonising the energy sector. By harnessing renewable hydrogen, Africa and the EU can work towards achieving their net-zero emissions goals while fostering economic growth. The webinar highlighted the initiatives that promote collaboration on clean hydrogen production in Africa.

Africa and Europe both see renewable hydrogen as instrumental for achieving climate goals and fostering global partnerships. The AEEP Energy Talks expert panelists from various sectors discussed how to scale up renewable hydrogen production, regulatory frameworks, and the role of hydrogen in driving sustainable economic growth.

. The speakers concluded that it is important to consider of social acceptance, local engagement, and adherence to social and environmental standards in all renewable hydrogen projects. They stressed the need for collaboration, innovation, and policy frameworks to harness the full benefits of renewable hydrogen in decarbonising value chains and driving development in Africa and the EU.

Introduction and background

On 3 May , 2023, the Africa-EU Energy Partnership (AEEP) held the 10th edition of its Energy Talks on "**Utilising Renewable Hydrogen to Decarbonise Value Chains and Drive Development in Africa and the EU**". The webinar explored the potential of renewable hydrogen to transform the energy landscape on both continents and discussed the opportunities and challenges in renewable hydrogen production and distribution.

Renewable hydrogen is a clean energy source that has the potential to decarbonise the last mile of the energy sector. Africa and the EU can benefit from the production and use of renewable hydrogen to support net-zero emissions by 2050 and drive economic growth.

In July 2020, the European Commission (EC) proposed a hydrogen strategy for a climate-neutral Europe, with the launch of the European Clean Hydrogen Alliance and the EU Innovation Fund, the formation of Hydrogen Valleys, and the promotion of Important Projects of Common European Interest (IPCEIs) to foster the European hydrogen economy. To transform the European hydrogen strategy into a concrete policy framework, the EC announced the Fit-for-55 package in July 2021, which aligns EU policies with climate goals.

Following the consequences of the Russian aggression on Ukraine, and the international gas crisis, in 2022, the EC presented the REPowerEU strategy for more affordable, secure, and sustainable energy and proposed ramping up renewable hydrogen production by 2030. To advance collaboration on renewable hydrogen with partner countries and regions, the EU haslaunched of the Global Gateway Investment Package, and the Africa Europe Green Energy Initiative (AEGEI). Among other things the AEIGEI targets new opportunities for cooperation on clean hydrogen production in Africa, and joint research and innovation on the topic.

In Africa, although not specifically mentioning green hydrogen, the African Union adopted the African Common Position on the Energy Access and Just Transition in July 2022 during the 41st Ordinary session of the Executive Council., The comprehensive approach charts Africa's short and long-term vision on the energy developments to accelerate universal energy access and transition without compromising its development imperatives. Led by the AUC and in collaboration with pan-African institutions the Common Position stipulates that Africa will continue to deploy all forms of its abundant energy resources, including renewable and non-renewable energy to address Africa's energy demand. The African Union Commissioner for Infrastructure and Energy, H.E Amani Abou-Zeid has stated that the African Union attaches high importance to the implementation of ambitious energy goals designed to build resilient energy infrastructure in the continent calling on stakeholders to back initiatives such as the African Single Energy Market (AfSEM), the Continental Power System Master Plan (CMP) and the Program for Infrastructure Development in Africa (PIDA).

The AUC is working on an African position on the technical, economic, social, and political implications of green hydrogen development in Africa. While the report has been validated by Regional Economic Communities (RECs) and awaiting a validation workshop by Member States and other stakeholders, bilateral agreements between Europe and Africa are rapidly taking shape.

At COP27 in Egypt, the EU signed a memorandum of understanding with Namibia on critical raw materials and hydrogen to support a green and digital transformation in Egypt.EU Member States like Germany are deepening ties with Africa for climate and energy stability by increasing research capacity into renewable energy and green hydrogen. Austria is also exploring a possible partnership on green hydrogen with Tunisia as the country is aiming to expand its renewable energy programme.

Furthermore, two separate initiatives, the Mediterranean Green Hydrogen Partnership (MGHP) and the H2Global Mechanism, seek to build upon Africa's hydrogen potential through "hydrogen diplomacy" and funding, increasing investment in Africa's electrolysis capacity and the underlying renewable energy projects necessary to facilitate green hydrogen production Backed by Hydrogen Europe and its CEO, Jorgo Chatzimarkakis, the MGHP is expected to be officially launched at COP28, creating a governing body for hydrogen trade between the EU and the North African nations of Algeria, Egypt, Morocco, Tunisia and Libya.

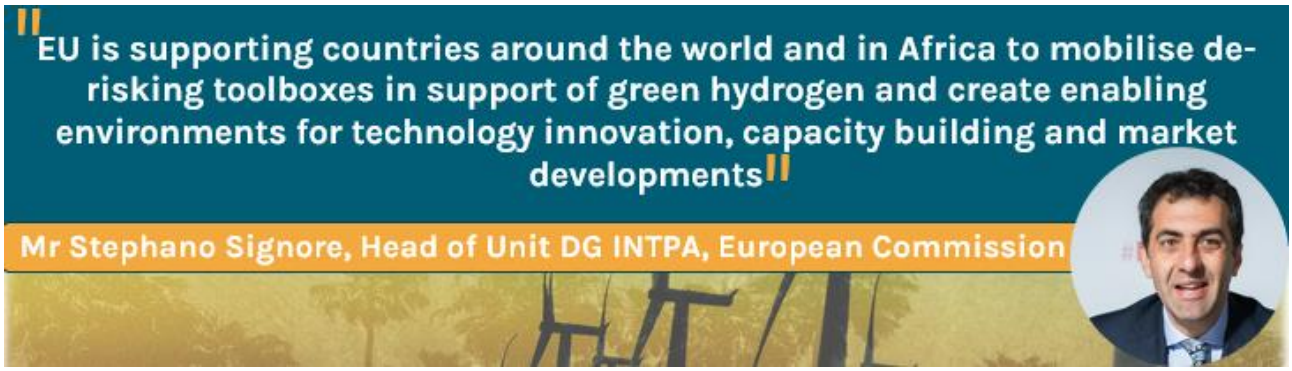
Opening Remarks

The AEEP Energy Talks was opened with remarks from the European Commission and the African Union Commission. A panel including **Ms Louise Paulsen, Mr Frank Mischler,** and **Dr Tobias Bischof-Niemz** followed, where the speakers shared their insights on how to scale up the production of renewable hydrogen and the regulatory frameworks required to encourage private sector investment. The webinar was moderated by AEEP's Head of Secretariat, **Mr Johan van den Berg**.

Mr Joseph Mwangi, Acting Head of Energy Division, speaking on behalf of Dr Kamugisha Kazaura, Director Infrastructure and Energy, African Union Commission (AUC), commenced the Energy Talks by highlighting the potential of renewable hydrogen in accelerating the energy transition agenda in Africa and Europe. He outlined the many benefits of hydrogen, including its versatility and ability to help ensure a low-carbon system on a global and continental level. He also noted the essential role of hydrogen in multiple sectors such as transport and aviation, enabling Africa to export energy to Europe.

Mr Mwangi asserted that the use of green hydrogen markets in Africa was recommended by the continent's energy ministers and noted Africa is prepared to establish partnerships and frameworks to utilise this resource effectively. The adoption of renewable hydrogen, he said, could benefit Africa in the economic, social, and energy sectors. Mr Mwangi also underlined the need to establish partnerships with the EU to develop mutually beneficial markets on both continents, specifically by building a consensus among relevant stakeholders, integrating green

hydrogen technologies, developing appropriate policies, designing innovative initiatives, and enhancing technical capacity building for the adoption of hydrogen production. Finally, he thanked the EU for its financial and technical assistance in Africa and expressed the AUC's commitment to enable the development of green hydrogen technologies.



In his opening remarks, **Mr Stefano Signore**, Head of Unit DG INTPA, European Commission, reminded that renewable hydrogen is a clear priority within Europe, both to achieve the net zero target by 2050 and to cooperate with partners around the world. He noted the relevance of renewable hydrogen in energy storage and for the decarbonisation of construction and transport sectors, but also emphasised its potential for win-win partnerships.

Mr Signore highlighted the prospects of developing global green hydrogen economies, and outlined two levels of action the EU is taking to support countries around the world and in Africa:

- Mobilising a de-risking toolbox in support of green hydrogen, and;
- Enabling an environment for technology innovation, capacity building, market, and grid development.

Mr Signore mentioned the EU's active collaboration with Namibia, Kenya, and Mauritania, among other countries. He also acknowledged the complexity, scale, and contractual risks associated with the sector, as well as market revenue risks that rely on bankable off-take schemes and long-term stability and regulatory predictability. Finally, Mr Signore stressed the importance of local value chains, asserting that introducing renewable hydrogen to the local economy would contribute to market stability, increased incomes, and industrialisation. Mr Signore concluded that the renewable hydrogen value chain would start a development chain among the countries where it is implemented.

Panel Introduction

Ms Louise Paulsen, Vice President of Renewables at Sasol, works with the company's commitment to driving growth and a decarbonisation strategy through multiple renewable energy projects. As a leader in South Africa's industrialisation, Sasol has traditionally been a heavy polluter, but the company is making efforts to change that and use the sun and wind to their advantage. **Ms Paulsen** added that Sasol has an aspiration to export to the EU and Asia and further decarbonise the business.

Mr Frank Mischler, Policy & European Cooperation, PtX hub, is working to decarbonise value chains in Kenya by identifying niches where green hydrogen can be developed. **Mr Mischler** explained that his work involves bringing European and global experts together to learn from each other and

strengthen their climate action. They translate EU´s climate diplomacy and strategic goals into concrete climate programs and actions and conduct innovative conferences and workshops on climate action. **Mr Mischler** expressed his hopes to move Kenya's entire economy forward with PtX.

Dr Tobias Bischof-Niemz, Head of Corporate Business Development, ENERTRAG AG, explained how hydrogen will fit into the global energy system as a primary enabler of sustainable economic growth. **Dr Bischof-Niemz** noted that solar and wind energy will dominate the primary energy share in the net-zero world of 2050. However, hydrogen can play a crucial role in decarbonising the energy system, with global demand estimated at 600 million tons of green hydrogen per year. He also noted how Africa, with its abundant renewable resources and long coastline, could take advantage of this growing market and become a cost-competitive producer of green hydrogen and its derivatives, including methanol, ammonia, kerosene, and raw iron.

Panel Discussion

Exploring the Transformative Impact of Renewable Hydrogen

Mr Johan van den Berg, Head of Secretariat, Africa-EU Energy Partnership (AEEP), and moderator for the AEEP Energy Talks, opened the panel discussion by providing a sense of scale regarding the transformative impact of renewable hydrogen. He highlighted the significance of installed solar capacity to exemplify the potential impact renewable hydrogen can have. Considering Sub-Saharan Africa currently has an estimated installed capacity of around 60 gigawatts, Mr van den Berg asked the panellists to shed light on their own plans and those of other stakeholders in terms of magnitude.

Dr Bischof-Niemz, shared insights on the Hyphen project. This project entails a three-gigawatt electrolyser capacity and six to seven gigawatts of renewable generation capacity. In terms of the overall installed base, it accounts for approximately 10%. While the project relies on wind and solar energy, which have lower capacity factors, it still represents a significant development. With the potential for 40 to 50 similar-sized projects in Namibia alone, the country could achieve an installed renewable generation capacity of 300 to 350 gigawatts, a substantial amount for a nation with a population of around three million. Moreover, doubling the capacity would result in a region-wide installed capacity of two times 300 gigawatts from wind and solar sources. Notably, around 20% of the electricity generated would cater to Namibia's domestic consumption, and the surplus energy from export-oriented projects would significantly contribute to the South African electricity market.

Mr Mischler stressed the importance of countries understanding their own capabilities and goals in renewable hydrogen development. For instance, Namibia's suitability lies in its superb conditions for ammonia production and export. Each country has its own approach and benefits to gain from hydrogen and its derivatives, such as power trades and industry development. Mr Mischler also commended on the long-term vision of countries like Mauritania, with favourable conditions for producing high-quality hydrogen.

In terms of investments, **Mr Mischler** highlighted that the current focus of renewable hydrogen production is not necessarily on countries with the best conditions, but rather on regions like Texas in the US, Europe, and Australia, where proximity to demand centres, strong credit ratings,

and established infrastructure create conducive environments. The local economy and demand play significant roles in attracting investments. It is crucial for countries to assess their circumstances, leverage their strengths, and create favourable environments for renewable hydrogen development.

Ms Paulsen emphasised that both South Africa and Namibia are strategically positioned geographically, which provides them with a significant advantage. From a geopolitical standpoint, South Africa is viewed as a reliable supplier to key markets, particularly considering the ongoing developments in Europe. Furthermore, historical export relationships with the European Union and the United Kingdom further strengthen their position. South Africa's decision to prioritise green hydrogen is driven by policy documents that underscore the strategic importance of this sector. These policies are influenced by existing trade relationships and government support, which are evident in large-scale projects, off-take agreements, and national procurement programs such as H2 Global.

Energy Access and Renewable Hydrogen in Africa and Europe

Mr van den Berg raised concerns about maintaining a focus on energy access while venturing into the renewable hydrogen sector, rather than diverting attention solely towards exports. He emphasised the differing stages of the energy transition with Europe's focus on transitioning existing systems and Africa's priority on energy access for its people. The challenge lies in ensuring energy access remains at the forefront, even as the renewable hydrogen sector gains momentum. This balance between renewable hydrogen development and accelerating energy access emerged as a vital consideration for both Africa and Europe.

Ms Paulsen highlighted the importance of ensuring energy supply and inclusive growth. Sasol, as a major energy company, integrates regulations into their decarbonisation programs to promote local ownership, skill transfer, and opportunities for communities. Collaborating with Eskom, the South African public utility, and aligning with the national agenda, Sasol works on grid development to expand electricity access. African stakeholders also actively participate in shaping the energy transition narrative through social and political panels, prioritising energy supply for societal progress and economic empowerment.

Mr Mischler agreed with Paulsen's point, emphasising the importance of engaging with the local community and ensuring social acceptance for renewable energy projects. He highlighted the risks associated with investing in countries like South Africa and Namibia, particularly the

political and economic risks that can impact long-term investments for decades. To mitigate these risks, Mr Mischler stressed the need for stability and collaboration with the government and the local population. He emphasised the value of early engagement, such as involving the community in the pre-feasibility stage and exploring partnerships for shared benefits. By oversizing infrastructure and contributing to housing and other public projects, investors can de-risk their investments while directly benefiting the local population. Mr Mischler emphasised that the renewable energy sector offers more tangible and hands-on opportunities compared to the distant revenue prospects of traditional oil and gas investments. He also highlighted the win-win situation that arises when the interests of the government and the local populations overlap.

In response to a question from the audience about safeguards for renewable hydrogen projects, **Dr Bischof-Niemz** emphasised the significance of adhering to the Equator Principles, which define social and environmental standards for renewable projects. Compliance with these principles is essential to secure bank finance for capital-intensive and highly competitive renewable ventures. Despite being the most cost-effective energy source, many countries, however, fail to implement renewables due to the absence of a viable business case. Regarding green hydrogen, Dr Bischof-Niemz highlighted that the EU currently holds the authority to define its parameters. Nevertheless, there is a notable absence of representation from supplier countries in this decision-making process.

Mr Mischler acknowledged the EU's logical framework for defining green hydrogen but noted that certain concepts may not be applicable to the African context. He mentioned forthcoming consultations with the EU to explore opportunities for energy exportation. Additionally, **Mr Mischler** built on **Dr Bischof-Niemz's** point by referring to the ISO standard as a methodology for calculating greenhouse gas emissions associated with green hydrogen.

Navigating Challenges and Fostering Collaboration

Mr van den Berg asked the panelists about difficulties encountered in generating enthusiasm for renewable hydrogen among local communities. In response, **Ms Paulsen** shed light on the prevailing sentiments, noting that while people are not inherently negative towards new projects, they often struggle to grasp the magnitude of the proposed endeavors. Ms Paulsen additionally highlighted the adoption of a masterplan approach, ensuring early community engagement.This approach encompasses various considerations, including project size, technology selection, and

the pivotal role of community involvement. By addressing these challenges, the path to successful renewable hydrogen adoption becomes clearer and more achievable.

Mr van den Berg then posed a crucial question regarding the role of governments in Africa in supporting the private sector's development of renewable hydrogen initiatives. **Ms Paulsen** responded by underlining the improved interaction between SASOL and various government ministries, highlighting the progress made in establishing a collective approach towards renewable hydrogen. Although definitive policy regulations may not yet be in place, the country has embraced the importance of renewable hydrogen and engaged in meaningful discussions. Paulsen reminded about the ongoing need for government support through incentives to facilitate the implementation of renewable hydrogen projects.

Dr Bischof-Niemz pointed out that the eventual cessation of oil and gas exploration and production is inevitable. He recommended to approach the issue with fairness. It is essential to recognise that Africa cannot be urged to halt its oil and gas production while other regions, such as Europe, continue to utilise these resources. The global transition away from fossil fuels must be a collective effort.

Mr Van den Berg also acknowledged that the burden of the transitions should not solely fall on African nations. Recognising the importance of addressing climate change, it is crucial to ensure a fair and equitable distribution of responsibilities and costs among nations worldwide. Collaboration and shared efforts are key to navigating this complex landscape and achieving a sustainable energy future.

On the topic of fairness between continents Dr **Bischof-Niemz** highlighted Namibia's proactive approach through a competitive procurement process, allowing development investors to participate in large-scale projects. By establishing a robust legal framework, Namibia sets the stage for future endeavours. Emphasising the positive impact of financial investments in green hydrogen, Dr Bischof-Niemz stressed the importance of a settled package.

Mr Mischler echoed Bischof-Niemz's remarks, highlighting the huge potential for Africa while acknowledging the investments being made in other regions. He emphasised the importance of starting with small projects, gradually scaling them up, and tailoring them to each country's unique context. Learning from these experiences and identifying niches will contribute to the region's growth in the renewable hydrogen market.

Paulsen shared insights into ongoing workshops involving various stakeholders, including environmental organizations and NGOs. These discussions aim to translate ideas into actionable plans for future projects. The focus is on meaningful actions that prioritise social justice and address specific concerns.

Closing Remarks - Paving the Way for a Sustainable and Fair Future

Finally, **Mr van den Berg** inquired about the priorities for Africa and Europe in the coming years, asking what areas they should concentrate on.

Dr Bischof-Niemz underscored the necessity of decarbonisation and enhanced energy security. Redesigning energy systems becomes crucial, with the EU giving precedence to investments in countries that align with its values while ensuring their own security of supply. This strategic approach lays the foundation for building a robust and sustainable system.

Mr Mischler emphasised the importance of moving beyond mere announcements and translating intentions into tangible projects. He highlighted the significance of collaboration between the EU and AU.

Ms Paulsen tied the discussion to the broader theme of social justice, drawing upon lessons learned from the renewables sector in South Africa. She stressed the need for in-depth discussions addressing equality of opportunities, attracting people to these opportunities, and fostering real skill transfer.

By promoting fairness, meaningful engagement, and social justice, stakeholders can collectively navigate the renewable hydrogen landscape, turning aspirations into reality while fostering a sustainable and inclusive future.

AEEP Energy Talk Conclusions - Utilising Renewable Hydrogen to Decarbonise Value Chains and Drive Development in Africa and the EU

- **The African Union Commission (AUC) recognises the potential of renewable hydrogen to accelerate the energy transition**, emphasising its versatility and benefits for a low-carbon system, and calls for partnerships and frameworks to effectively utilise this resource in Africa.
- **The European Commission prioritises renewable hydrogen** to achieve the continent's net-zero target, highlighting its relevance in energy storage and sector decarbonisation, and supports Africa through de-risking tools and through creating enabling environment for technology innovation, capacity building, and market development.
- **Renewable hydrogen initiatives have the potential to significantly transform the energy landscape in Africa**, with the capacity for large-scale installations that can contribute to the regional electricity market and export-oriented markets, driving economic growth and energy transition.
- **Countries need to assess their circumstances**, leverage their strengths, and create favorable environments **for renewable hydrogen development**, considering factors such as their own capabilities, goals, local economy, demand, and geopolitical advantages.
- Overcoming challenges in **generating enthusiasm for renewable hydrogen** requires addressing the grid constraints and adopting a comprehensive masterplan approach that **includes community engagement, project size considerations, technology selection, and government support through incentives**.
- Achieving **a global transition** away from fossil fuels **requires recognising the need for fairness and collective effort**, ensuring a fair distribution of responsibilities and costs among nations worldwide, and avoiding the disproportionate burden falling on African nations. Collaboration and shared efforts are essential for a sustainable energy future.