



The energy sector facing a major transition towards an energy transformation



Hydrogen can be produced in a decarbonated and economic way thanks to the electrolysis technology, which consists in separating a water molecule into Hydrogen (H₂) and Oxygen (O₂) by a contribution of electricity, providing that the electricity used to produce it is itself produced from renewable sources. The production of hydrogen by electrolysis of water is a structuring solution for the integration of renewable energy into the energy system. Produced in this way, hydrogen can accelerate the decarbonization of several sectors in industry, mobility and gas networks. Morocco does not want to lose time and aims to position itself quickly in relation to this green energy of the future, facing major regional competitors such as Saudi Arabia and Egypt.

Morocco has a prominent place in our next portfolio of green hydrogen projects. The country has the highest sunshine rate in the Mediterranean region and is geographically close to Europe, a continent to which we could export our energy.



Technical Committee meeting of AREI



With significant renewable energy resources, Africa can adopt innovative and sustainable technologies and play a leading role in the global effort to shape a sustainable energy future.

Africa's renewable potential could massively help overcome one of the continent's major socio-economic development challenges, namely the lack of access to electricity, particularly in the sub-Saharan region.

However, Africa's renewable energy potential is still largely untapped due to multiple and interrelated challenges and barriers. Political uncertainties, inadequate infrastructure including power grids, unstable financial situations, and limited access to private and foreign financing are just some of the major obstacles to the full exploitation of renewable energy in Africa.

Many African countries have put in place policies to promote renewable energy sources over the past decade. Forty-five African countries have set targets - and activities to support - the expansion of renewable energy as part of their nationally determined contributions (NDCs) under the Paris Agreement. In addition, many countries-including Morocco, Senegal, Egypt, South Africa, and Kenya-are showing encouraging trends in new renewable energy capacity, supported by increased political commitment and rapidly decline in renewable energy prices. Despite the positive momentum, legal and regulatory frameworks often remain poorly structured. Strong regulatory frameworks play a crucial role in attracting domestic and foreign private investment in renewable energy.

AREI is positioning itself as a federating framework for existing initiatives and other programs in the renewable energy sector on the Continent. AREI will collaborate with and will guide them, create the means to exchange best practices and experiences, and facilitate the identification and coordination of investment opportunities at the national, regional and continental levels.

The successful implementation of AREI will create the conditions for renewable energy to make a significant contribution (300 GW) to meeting the continent's estimated energy needs of about 600 GW by 2030.

In this regard, the Africa Renewable Energy Initiative (AREI) organized a technical platform in Morocco.

The main objective of these exchanges was to propose and exchange knowledge and establish consultation mechanisms for effective sustainable regulation in order to enrich the context and capacity of stakeholders, to successfully develop a coherent and synergistic set of regulations that are realistic and maximize the benefits and welfare of the African continent.

The various exchanges of the members of the Technical Committee revolved around the following points:

- The 60 EU projects
- Recruitment of the Head of the IDU
- The new job descriptions for the IDU consulting teams



TECHNICAL REPORTS

Mobilization of resources

The Africa Renewable Energy Initiative recognizes that the scale of Africa's energy challenges is enormous, as are the opportunities associated with them. Based on its commitment to transformative change and policy support, AREI's vision for 2030 is to support African countries in overcoming existing challenges related to sustainable energy deployment and energy access, and to stimulate the creation of adequate institutional and human capacity and effective collaborative frameworks to attract private investment in Africa's renewable energy sector and improve the continent's financial situation. In this regard, the AREI Resource Mobilization Strategy (RMS) outlines the resources required to support the implementation of AREI Phase II, which include the development of the planned 300 GW by 2030 and associated technical assistance, as well as the costs of running and operating the Independent Delivery Unit (IDU) and the Technical Committee.



The resource mobilization action plan builds on the additionality and impact of AREI by focusing on the following key pillars related to:

- (1) AREI's strong political will;
- (2) AREI's project pipeline and labeling program;
- (3) AREI's contribution to technical assistance to governments to promote supportive policy, institutional, regulatory and market frameworks; and
- (4) connecting AREI with African countries through the focal points.

In addition, the resource mobilization strategy takes into consideration the specific context and mechanisms recommended for fragile and vulnerable countries that suffer from unstable macroeconomic conditions, weak institutions and governance, and lack of infrastructure, with limited resources and capacity.

The methodology adopted is based on:

- Assessing the sustainable energy context in Africa and identifying the challenges and potential opportunities for renewable energy development that will promote climate finance in Africa, with a focus on the role that AREI plays in overcoming identified barriers impeding the development of green energy in Africa and supporting the promotion and deployment of sustainable energy across the continent;
- The presentation of the additionality and relevant benefits of AREI Phase II and its contribution to achieving 300 GW by 2030;
- The identification of available financing opportunities that could help Africa achieve its 300 GW target by 2030;
- The development of the resource mobilization strategy, including the resources needed, objectives, channels and mechanisms, communication strategy, role and responsibility of AREI, action plan, recommendations, and procedure for implementing this strategy.

The Interview of the Month



Mr. Mohamed ABDALLA

Minister of Energy and Petroleum of SUDAN

The Sudanese oil sector is administered and managed by the Ministry of Oil and the Sudanese Oil Company, which set policies and plans for managing the oil sector.

The ministry's mission will be to explore, produce, refine, transport and distribute oil wealth through the acquisition of technology and knowledge based on international standards of quality and environmental cleanliness. The mission includes capacity building of Sudanese human resources through the development of training programs.

(1) Could you tell us about your country and its commitments on renewable energy, Mr. Minister?

For a considerable period, humanity has utilized renewable energy sources such as water flows and nuclear energy to generate electricity. However, with scientific advancements and technological progress in recent times, we have developed our understanding and gained access to alternative energy sources like solar and wind energy, which offer lower costs compared to fossil fuels. As the world anticipates a steady increase in Earth's temperatures in the coming years because of the expanding use of fossil fuel, Sudan has committed to reducing greenhouse gas emissions as a signatory to the Paris Agreement (COP 21). To achieve this, Sudan has a comprehensive strategy focused on electricity, particularly the "least cost plan," which aims to integrate renewable energy, particularly solar and wind energy, with a capacity of 700MW for the national electricity grid and off-grid areas. Additionally, the government has prepared the rooftops solar plan system targeting to connect 250 MW solar PV rooftop in urban area until 2033 using the net-metering method for project implementation between electricity consumers and producers, beside that we have prepared a plan for the off grids and rural areas targeting electrification for 1.1 million solar home system with capacity of 50-100- 200 watts, in addition we aiming to electrify small agriculture projects by using solar pumps to irrigate farms Unfortunately, these initiatives lack funding and investors to execute them entirely, as these are necessary to realize progress on the ground.

However, these commitments pose serious issues, particularly for African countries, which have the lowest carbon emission levels globally, and over 60% of the population lacks access to energy. Additionally, many African nations have massive oil potential that has not been fully exploited, Preventing the exploitation of these oil resources has serious repercussions on the political, economic and security stability of these countries and deprived millions of citizens of job opportunities. Ignoring these factors could lead to significant problems, such as political and economic instability. As such, Africa must discover ways to meet its carbon emission reduction targets while exploiting available fossil oil and coal resources.

(2) As you know, Mr. Minister, AREI is an African political initiative born at COP 21 in 2016. Today we display the 1st phase successfully achieved on schedule with the realization of the 10 GW planned. Could you share your recommendations in this regard in the light of the experience of Sudan?

AREI's efforts are highly appreciated and deserve commendation. Reaching 10 gigawatts is an outstanding accomplishment and a promising indication that we can achieve our goal of expanding renewable energy usage in Africa. This commendable step can assist in fulfilling the energy demands of the continent, albeit more work needs to be done. Firstly, policies, regulations, consultations and structures must be developed and cooperation should be encouraged to enhance the skills and capabilities of individuals working on renewable energy projects. Secondly, it is crucial to establish a harmonious relationship between the public and private sectors involved in renewable energies. Lastly, a strategy to expand renewable energies, channel projects and develop the technology industry in Africa's with its abundant resources can play a crucial role in the industrialization process.

(3) Do you think AREI will be able to meet the challenge of phase 2, i.e. 300 GW by the end of 2030?

The task at hand is quite daunting, however, if accomplished, it will significantly contribute towards bridging the energy deficit in Africa and promote the use of renewable energy. This will have a positive impact on the economy, by creating employment opportunities, tapping into the vast natural resources in Africa and ushering in an era of manufacturing rather than relying on raw materials exports. With our eyes set on a brighter future, we in Sudan are eager to strengthen our collaboration with the African initiative AREI and establish sustainable projects within our country.

(4) What are our continent's strengths and weaknesses in renewable energy?

- In this context, what are your recommendations for other countries on the continent to accelerate their development in renewable energy?

The African continent possesses abundant and diverse sources of renewable energy. Solar energy is readily available for most of the year, with the sun shining for over ten hours per day. Other sources of energy such as wind, geothermal, and waterfalls can also be utilized in green hydrogen projects. The adoption of this concept will position the continent as a major player in the future energy market. However, limited funds and technology remain a challenge. To overcome this challenge, AREI can play a vital role in promoting human capacity building projects, developing and localizing renewable technology, coordinating and facilitating financing, as well as setting up policies and structures that regulate energy work.

Regarding recommendations to other countries, Sudan is still in the early stages of developing renewable energy. Many African countries have progressed significantly in this field, and it's crucial to learn from their experiences. In this regard, bilateral and regional relations between countries are essential in exchanging and enriching knowledge. Groups like the African Energy Initiative can play a vital role in facilitating coordination and linkages between different countries. A genuine partnership between the public and private sectors is crucial in the renewable energy industry.

(5) What are Sudan's renewable energy ambitions by 2030?

- Do you think you can export clean energy?

Our objective for Sudan is to achieve a renewable energy capacity of 5000 MW to represent 33% in our total capacity of Sudan energy mix. Our renewable power resources are not only sufficient for our domestic needs but are also potential for future export. Nevertheless, this can only be possible if we collaborate and coordinate with various entities operating in this industry, particularly the private sector and regional, continental, and international alliances/organizations. Attaining this objective requires funding, technology, policy preparation, structural organization, skilled workforce, and efficient coordination to achieve optimal outcomes. All these efforts should be cost-effective and deliver high efficiency.

(6) Hydrogen is the great subject of the future of our continent - more than 65% of the world's resources are African - What role could hydrogen play for the development of Africa, Mr. Minister?

Energy serves as the backbone of the economy, enabling development and economic growth opportunities. The continent of Africa possesses vast quantities of renewable sources of energy, rendering it well-positioned to take a leading role in clean energy for the future worldwide. A method has been developed for transferring renewable energy using chemical molecules, particularly relying on hydrogen. With these resources, Africa is positioned to become energy-independent, supplying the international community with clean energy while also extracting value from its raw materials and generating employment opportunities.

However, achieving this goal requires prioritizing scientific research and technological development on renewable energy, which is not only feasible but also necessitates a shared vision and strategy. The Energy and Infrastructure Commission of the African Union, African financing institutions, and the AREI can all play a crucial role in achieving clean energy goals. Strengthening the connections between these organizations, research institutions, and technology firms will facilitate collaboration towards meeting our shared goals for a sustainable energy future.

Technical Training Platforms of the focal points

AREI ACADEMY



AREI Academy was announced at the second AREI Forum held in Cairo in July 2022 and the idea was well received by the various AREI partners who called for the idea to be developed and made a reality.

- The main reason for this ambitious idea for AREI was to reach out to people in the regions of the continent and to address all levels of expertise, from the grassroots to the top, in order to ensure maximum benefits for Africans.
- AREI, with AREI Academy, will also seek to assist civil society, particularly youth and women in African countries, and governments by improving the quality of personnel at all levels, thus enabling the private sector to further develop its commitment to renewable energy.



AREI Academy, as a multi-stakeholder platform, will foster an open dialogue between African renewable energy stakeholders, regulators, policy makers, academics, utilities, NGOs, mini-grid developers, solar home system companies, consultants, investors, financial institutions, energy users and any other stakeholder concerned with the development of the renewable energy sector in Africa. AREI Academy will aim to build local capacity using a multi-stakeholder approach to develop, teach and disseminate sound energy regulation and policy in Africa.

AREI Academy – Potential partners



With this objective in mind and the firm belief that Agenda 2030 and Agenda 2063 are common agendas, AREI can promote cooperation within Africa and between African and international universities in order to have the appropriate critical mass to work together on national, regional, continental and international levels. This approach will equip current and future workers and professionals with the appropriate instrument and tools to meet the enormous technological, economic and societal challenges and train them properly to be able to help their families and communities cope with large projects as well as smaller solar systems, in addition to supporting the policy making process and the effectiveness of regulatory systems.

In the field of science diplomacy, AREI Academy can also have the role of assimilating scientific results in a way that can be useful for the socio-economic development of the citizens and the community as a whole while enhancing African science. There is already an experience of cooperation in the EU-AU framework of a deep commitment to African research institutions, even at the level of the Co-foundation, thus proving that this is not a dream but a long-term effort requiring, once again, a strong coordination between the relevant actors in the field of RES for the EU-AU partnership.

A very important aspect of the science and policy dimensions will be developed in conjunction with the African Union departments. Indeed, infrastructure and energy but also education commissioners must be actively involved in this aspect of science diplomacy and ensure continental coherence with Africa-wide strategies.

A similar action will be to seek convergence and synergies with and support capacity building of Regional Centers for Renewable Energy and Energy Efficiency (RECREEE), regional power pools, countries, African regional development finance institutions (DFIs) and RE-friendly financial institutions.

In Africa:

- o Universities in countries with experience in RE and EE such as Egypt, Morocco and South Africa.
- o Regional Centers for Renewable Energy and Energy Efficiency (RECREEE)
- o Major organizations on the continent, such as the African Union, Regional Economic Communities (RECs) and other institutions, who have the same mandate.
- o UNECA and Africa School of Regulation.

Outside of Africa :

- School of regulation of Florence
- LEAP-RE Europe-Africa Long-Term Renewable Energy Partnership, active under the HLPD on the EU-AU STI Partnership).
- The IHEA Italian Higher Education with Africa which is a foundation of the 6 largest public universities in Africa.
- The IDEA League university network: a strategic alliance between five leading European universities in the field of science and technology.

HIGHLIGHT : Central African Republic



After three years of work, the Sakai photovoltaic power plant is operational. It was inaugurated on March 27, 2023 by President Faustin Achange Touadéra

Mr Moussa OUSMAN Director General of the Ministry in charge of Energy in the Central African Republic and AREI focal point participated in the inauguration today of the Sakaï-Ndjongo solar power plant with a capacity of 15 MW in Bangui in the Central African Republic as part of the cooperation with the People's Republic of China.

This project, which is the result of China-Central African Republic cooperation, was concluded between the two countries following the meeting between the Chinese president and his counterpart **Faustin Archange Touadéra** on the sidelines of the China-Africa summit in Beijing, and was made concrete by the agreement signed in 2020. The project was launched on January 17, 2020 with the laying of the foundation stone. With a production capacity of 15MW, the implementation of this plant aims to solve the electricity problems in the Central African Republic. This first power plant will reduce power outages. In inaugurating the power plant, President **Faustin Archange Touadéra** expressed his gratitude to the Chinese government for its considerable support for the well-being of the Central African population. Energy is at the heart of development and economic engine, said the Head of State. It should be noted that this Sakai photovoltaic power station completes the capacities already installed, notably Boali 2 BIS (10W) and the Bangui Thermal Power Station (10MW). At the time of the laying of the foundation stone, the Head of State had declared:

"The construction of this photovoltaic plant is in line with the program of institutional strengthening of the energy sector, one of the priority programs of the Central African Energy Policy and is part of the objectives set, during the COP 21 in Paris."



Digitalization of renewable energy

The energy sector is now in a deep transition towards a very important energy transformation, and digitalization is one of the main enablers to ensure its realization.

Digital technologies have radically transformed the way we live over the past few decades. The way we produce, distribute. Energy consumption is no exception.

The proliferation of digital technologies has contributed to an explosion of data in our economy and our lives, as the number of connected digital devices increases, data from phones, computers, appliances and distributed energy sources is also growing exponentially. This is true in both developed and developing economies.



In the energy system, digitalization is key to integrating renewable energy into power systems, improving the reliability of power grids, and reducing the cost of access to electricity, thereby contributing to a more just and equitable energy transition. Digitalization offers the opportunity to leverage the data we already have to get sustainable energy to where it needs to be.

Access to affordable, reliable and sufficient energy is a key enabler of livelihoods, public services including the provision of modern health and education, agricultural productivity - and thus food security, industrial development and the ability of communities and businesses to adapt to shocks.

As we know, many students in Africa attend schools without electricity, leaving them without power for lighting, e-books, tablets, computers, internet connectivity, printers, projectors, digital interactive whiteboard, etc. This has huge implications for their academic success and achievement and especially their learning abilities. Without lighting, they have very limited reading and study time, without computers, they cannot acquire computer skills, without the Internet, they are cut off from a world of free educational tools and resources, this will have a negative impact on their preparation for the job market. It is found that ICT and digital tools bring more motivation for children who are learning from the material in schools.



**Meeting of AREI Technical Committee
of voting and non-voting members**



After having adopted the agenda, discussions followed on the **Presentation of the final report of the evaluation of the phase 1 of AREI - Recommendations for the phase 2 of AREI** and appreciation was addressed to the European Union for the realization of the evaluation of the first phase of AREI by two high level experts. This will be very useful for the phase II of AREI which also constitutes a balance sheet but will also allow AREI to have new partnerships and to mobilize resources. The document takes into account all the recommendations that were formulated and it will be presented to the next Board of Directors.

Concerning the **situation of the IDU offices**, it was recalled the context of the request for the relocation of the AREI offices from the AfDB headquarters in Abidjan to the one in Tunis, and announced its validation by the AfDB President. The modalities will be discussed between the IDU and the AfDB even if some constraints are to be noted - which were pointed out by Mr. Daniel Schroth.

Concerning the situation on the projects, it was informed during the meeting that 60 projects of the EU were labelled and that these projects will be submitted to the next Board as well as the implementation of the archives and the database of AREI. Thus, if AREI was to leave the AfDB, all its documents and reports would be safe in AREI's internal archives since they were stored in the AfDB archives.

Concerning the presentation of the program of activities, the assembly was informed that the list of activities planned for 2023-2024 was shared with all the members and that it is subject to modification. France was thanked for the positive answer concerning its support and its participation in the event that the AREI will organize in Paris.

Regarding the priorities and strategies of AREI phase 2, Mr. Nicolas Ritzenthaler was asked about the EU funding mechanism to allow the private sector to be more involved. A recommendation to define a time to present this mechanism would be very important. As well as the importance of the participation of the AREI partners in the event that AREI will organize in Europe (Paris or Brussels) to present the result of the first phase and the ongoing projects to the private sector. It was recalled that during the first meeting in 2019, President Alpha Conde attended and opened the AREI event with the OECD in Paris, and it is expected that the Interim Chair of the Board of Directors opens this second edition and announces the implementation of phase 2 of AREI.

2023 AGENDA OF RENEWABLE ENERGY

AGENDA AREI

April-May Windhoek | Ministerial Meeting

- Technical Continental Platform (Hybrid): Elements of a Bankable PPA
- AREI CT Meeting April Virtual
- Continental Technical Platform (virtual): Accelerating the production and use of green hydrogen in Africa
- AREI CT Meeting

April 27-May 3 | Djibouti/Kenya

- Continental Technical Platform (Virtual): Geothermal financing and risk mitigation in East Africa - the case of Djibouti/Kenya
- AREI CT Meeting

May 22-25 or June 05-09 | Paris

- Event organized in France
- Continental (Hybrid) Technical Platform: Renewable Energy Policy Programs.
- AREI CT Meeting

GREEN ENERGY AGENDA



NAEPEC 2023 March 13-16, 2023 Barcelona - Spain

NAEPEC is the largest and most influential international exhibition and conference in North Africa, Europe and the Mediterranean in the hydrocarbon and energy sectors.



World Electrolysis Congress | March 14-16, 2023 | Dusseldorf - Germany

World Electrolysis Congress is the event focused solely on the opportunities and challenges of electrolyser technology.



National Renewable Hydrogen Conference | March 15, 2023 | Paris - Ministry of Economy and Finance

The H2 Entreprises conference was a day of round tables covering all the fundamental topics of renewable hydrogen. The discussions between experts, scientists, institutions and companies pioneering the use of renewable hydrogen allowed to draw up a French and international state of play, to understand the technological and economic stakes, and to shed light on the three main uses of renewable hydrogen: for mobility, industry and heat.