RES4AFRICA FOUNDATION

Scaling up a sustainable electrification in Africa, for Africa, with Africa

2023



Annual Report

www.res4africa.org

2023 IN NUMBERS

SOCIAL MEDIA

2,696
Total Followers

701
Total Followers

18,752
Total Followers

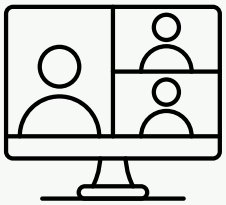
14,196
Total Subscribers

2,667
Total Followers

EVENTS



19 Events In-person events



5 online events



1,600+ Participants



Events in 10+ countries



Media
60 News and 18 Press Release



Over 450+ media mentions (News, articles, etc)



200+ Social Media Posts (In, FB, TW, IG)



40K Website visits
140K Total Impressions

REGIONAL PROGRAMMES

MED Programme

CONTEXT

Renewable Energy Solutions for the Mediterranean (RES4Med) is a platform that facilitates dialogue between the public and private sectors, working towards renewable energy solutions in the Mediterranean region. Its primary objective is to facilitate a just energy transition and meet the growing energy needs of Southern and Eastern Mediterranean countries. Since its establishment in 2012, RES4Med has actively engaged with local stakeholders promoting discussions and investments in renewable energy.

By leveraging the expertise and experiences of RES4Africa members and stakeholders, RES4Med aims to shape market-driven strategic analyses, solutions, and instruments. Over the past decade, the population in the Southern and Eastern Mediterranean regions has grown approximately 40%, and it is projected to reach around 724 million people by 2050. As urbanization rates increase and energy demands rise, RES4Med acknowledges the necessity of transitioning to renewable energy sources.

Despite the efforts made by Mediterranean countries to promote the energy transition and invest in renewable energy, North Africa has installed only 0.3% of additional renewable energy over the past decade. In response to this situation, the RES4Med program strives to analyze and advocate for the development and integration of clean electricity infrastructure, ensuring sustainable, affordable, and reliable electricity access for all.

PROJECT DESCRIPTION

The RES4Med programme includes the following areas of work:

Analysis:

- Conduct in-depth analysis to identify solutions that can effectively unlock the energy transition and mobilize clean energy investments at a larger scale.
- Prepare reports addressing increasingly specific and technical issues, taking into account the main barriers and critical factors influencing market evolutions.

Advocacy:

- Organize events and webinars to advocate the opportunities and benefits of clean energy investments.
- Promote dialogue and knowledge sharing to raise awareness and encourage stakeholders to invest in clean energy solutions.

Partnerships:

- Engage in bilateral meetings with local actors to strengthen RES4Africa's presence and influence in the Southern and Eastern Mediterranean region.
- Expand the network of partners to foster collaboration, knowledge exchange, and collective action in advancing renewable energy initiatives.

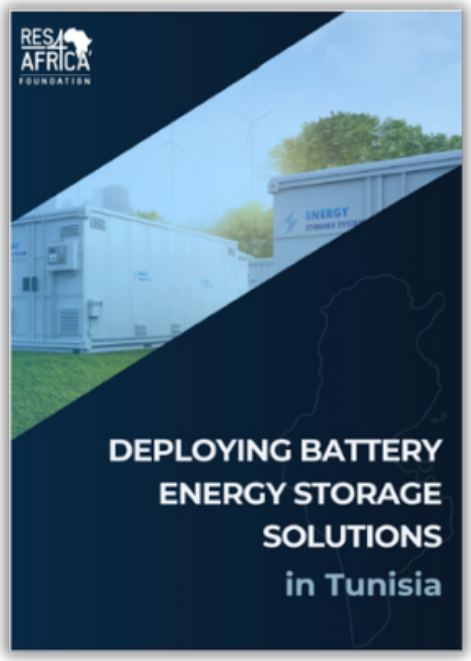
MED Programme

ACTIVITIES COMPLETED IN 2023

In 2023, several activities have been completed in line with the objectives identified at the beginning of the year.

Analysis:

Publication of the study ***Deploying Battery Energy Storage Solutions in Tunisia***: The Technical Report, started in 2022 in collaboration with RINA, analyses the adequacy of BESS as a solution to maintain levels of reliability and flexibility of power systems in the context of Tunisian national development, energy strategy, policy priorities, and infrastructure plans. It also includes a section on the country's market potential for BESS, how BESS can be integrated into the power system, and if they can be remunerated to expand renewable potential (stand-alone vs joint development with RE plants) and localized. This section also entails a regulatory analysis to identify gaps in policy, regulations, and financing and remuneration instruments to support the deployment of BESS, based on an international benchmark analysis.



Drafting of the report ***Etude des interconnexions électriques au Maroc*** for the Moroccan regulator ANRE: The report was requested by the Moroccan regulator to enhance and strengthen ANRE's understanding and capabilities in managing and regulating electricity interconnection. The objective was to conduct a comparative analysis and a review of electricity interconnections models. This included studying the legal and economic frameworks for interconnections in Europe, comparing technical and economic criteria for interconnection design in Europe and Morocco, reviewing business models for interconnection development, and developing methodologies for determining interconnection usage tariffs. The study has been prepared in collaboration with IANUS Consulting.



MED Programme

Publications of the study ***Towards a Green Hydrogen Ecosystem. Policy Implementation Strategies for Morocco and Egypt***: The study examines the most important aspects related to hydrogen production, transport and uses. Then it analyses the current situation in Morocco and Egypt, two countries in North Africa that are actively pursuing the advancement of green hydrogen industrial production by capitalizing on their local renewable energy potential. While there are some differences and specificities between their strategies, both countries have dual objectives. Firstly, they aim to utilize green hydrogen for domestic purposes and to foster the growth of their local industries. Secondly, they seek to export green hydrogen and its derivatives, such as ammonia or methanol, to international markets, including Europe.To address these multiple challenges and pave the way toward green hydrogen development in North Africa, RES4Africa identified seven recommendations and actionable measures that could foster green hydrogen potential as a key player in the global energy transition. The study has been prepared in collaboration with AFRY, CESI, GME, Prysmian, RINA.



Gender at the heart of a just energy transition: What can Morocco do to increase women's employment in the renewable energy sector? The energy transition represents a unique opportunity to unlock new potential in terms of job creation, innovation, and investment. This is especially critical for groups that have traditionally been marginalized, such as women and girls, who must be given the support and resources they need to thrive in the new economy. By prioritizing the needs of these groups and ensuring they have a place in the labor market, we can build a more inclusive and sustainable future that benefits everyone. This means not only investing in their skills and education but actively removing barriers that prevent them from reaching their full potential. Ultimately, a successful energy transition must be one that leaves no one behind and creates a more equitable and just society for all. RES4Med developed a study on this topic based on primary and secondary sources and tapping into a publicly available survey and a series of interviews.

MED Programme

Policy paper: Energy security in times of uncertainty:The energy geopolitical order in North Africa, between continuity and change: In North Africa, the global energy crisis has also exposed the adverse outcomes of energy dependency and increased the emphasis on energy security as a pressing concern. However, the impact has differed from country to country and has put net-energy exporters and importers on diverging growth paths. Net energy importers like Morocco and Tunisia, have been hardly hit by the consequences of the Russia-Ukraine war and this has increased the political push to diversify energy sources and brought energy security to the forefront. As for energy exporters, like Algeria, Libya, and Egypt, they have had more buffers protecting them from supply shocks and price increases. To prepare for the (possible) unforeseen disruptions, it is vital to undertake a thorough re-evaluation of energy security, with the goal of enhancing resilience to future shocks, without losing sight of reducing dependence on fossil fuels and accelerating the clean energy transition. North African countries could play a pivotal role in clean energy production in the coming future. This activity included the publication of a policy paper in partnership with the Policy Center for the New South. The results will be disseminated through a series of Podcast/Vodcasts.

ADVOCACY

Capacity building on De-risking investments in Renewable Energy in Egypt (7-8 March): The course, which spanned one and a half days, was suggested and jointly arranged with EgyptERA, the regulatory body in Egypt. The activity engaged a total of 8 trainers from the RES4Africa network and 53 participants representing key stakeholders in Egypt. It focused on examining the challenges and obstacles related to renewable energy projects, and facilitated discussions on strategies to alleviate those challenges. Additionally, it delved into Egypt's investment prospects, investigating both current and perceived barriers to investments in renewable energy. Moreover, the course offered insights from the private sector regarding project development in Egypt, and explored international tools and mechanisms that can encourage investments in renewable energy within the country.



MED Programme

Panel Renewable Energy Investments in Africa: The Role of Energy Storage for Rapid RES Development at K.EY Energy (23 March): RES4Africa organized a discussion on renewable energy in Africa, which took place at the K.EY - Italian Exhibition Group Energy Transition Expo in Rimini, Italy. The panel highlighted the significance of energy storage in facilitating the capture and release of energy generated from renewable sources. This plays a vital role in promoting energy security across African countries. Alongside the panel discussion, attendees had the opportunity to participate in a guided tour of stands belonging to RES4Africa's members and partners, including Enel Green Power, Convert Group, Prysmian Group, Soltec, and Nordex Group. This event proved to be an excellent platform for exploring investment prospects and stimulating economic growth and development within Africa's renewable energy sector.



Panel and closed-door meeting on Energy Storage at the Salon International de la Transition Énergétique in Tunis (26 October): As part of the Salon International de la Transition Énergétique in Tunis, which took place from October 25th to 27th, 2023, RES4Africa hosted a panel on energy storage in collaboration with the Chambre Syndicale du Photovoltaïque (CSPV). The panel, conducted in French as the primary language, featured presentations and an open discussion focusing on energy storage systems and their applications, with a specific focus on the Tunisian context. During the event, RES4Africa presented the Deploying Battery Energy Storage Solutions in Tunisia. RES4Africa also hosted a closed-door meeting with STEG top management, delving into BESS their applications, and the Tunisian case. The aim of the gathering was to facilitate an open public-private dialogue among key energy stakeholders in Tunisia and RES4Africa members active in the BESS sector (EGP, NIDEC, RINA, TERNA).





INTERVENTIONS IN OTHER RELEVANT EVENTS FOR THE ADVOCACY ACTIVITY:

- What Does it Take to Accelerate Investments in Water-Energy-Food Nexus Projects? (GIZ and R4A event in Cairo, 7 June)
- MEDCOP (Tangiers, 22-23 June)
- RENPOWER North Africa Storage (Rabat, 13 July)
- World Power to X Summit (Marrakesh, 19-21 September)
- Cairo Sustainable Energy Week (Cairo, 1-3 October)
- Master in Sustainability at Rome Business School (March and September)

PARTNERSHIPS:

RES4Africa has had a significant presence in Morocco, where it has established strong partnerships and made notable contributions to the country's energy transition. The Foundation signed a memorandum of understanding (MoU) in 2020, which paved the way for extensive cooperation in areas such as studies, technical assistance, training programs, and high-level conferences. To renew the commitment with the Ministry of Energy Transition and Sustainable Development, a new MoU was signed on October 25, 2023, with a focus on the period 2024-2025. The main objectives of this renewed partnership include creating a favorable investment environment for renewable energies, building capacity and skills to support renewable energy market development, and promoting public-private dialogue and collaboration in the sector. RES4Africa will work closely with Moroccan energy stakeholders and enhance triangular cooperation with Sub-Saharan countries, leveraging Morocco's influential role in the region. The partnership will involve various activities, such as capacity-building initiatives, joint analysis and dissemination of findings, advocacy actions to increase private sector participation, and participation in international research and development projects related to renewable energies. The Action Plan for 2024-2025 covers several areas aligned with RES4Africa's expertise, including capacity-building, renewable energy plants (both large and small-scale), grid infrastructure, energy storage systems, hydrogen, and the integration of renewable energy in the Water-Energy-Food Nexus. To ensure effective implementation and coordination, a monitoring committee will be established within six months of signing the MoU.

On a different note, after the closed-door meeting on Energy Storage at the Salon International de la Transition Énergétique in Tunis (26 October), RES4Africa signed an MoU with the Tunisian state-owned utility STEG to: develop training programs for Tunisian experts in renewable energies, facilitate constructive dialogues on the future of the energy system through national and regional events involving stakeholders, conduct joint analysis and provide policy recommendations on topics such as regulatory frameworks, renewable energy integration, investment readiness, seawater desalination coupling, agrivoltaics, and renewable energy needs in territories and cities, participate in international projects and calls for proposals to further support renewable energy development in Tunisia.

Sub-Saharan Programme

CONTEXT, BARRIERS, AND CRITICAL FACTORS

Thanks to its vast natural resources combined with a growing population and economy, Sub-Saharan Africa is one of the most promising world regions for clean energy sources. However, despite great leaps forwards in recent years, installed renewables capacity and access to affordable and reliable electricity is very low: many countries dependent on biomass and fossil fuel consumption, stifling economic development and the provision of goods and services.Variable renewable energy sources such as solar and wind power have an enormous potential, but the frameworks in place to support their development can often be lacklustre and out of date.

OUR ACTION PLAN

The programme aims to expand RES4Africa's reach and direct involvement in a greater number of SSA countries. Together with the renewAfrica and Connecting the Dots initiatives, the SSA programme work to expand its footprint and connections in the region providing timely and pertinent studies and analyses, with a strong commitment to expanding the network in the region to new countries and with new organisations.

OUR WORK SO FAR

Since the Foundation's decision to expand to sub-Saharan Africa in 2016, the Sub-Saharan Programme has been active with conferences, workshops, seminars, and a series of articles and reports.

Research & analysis

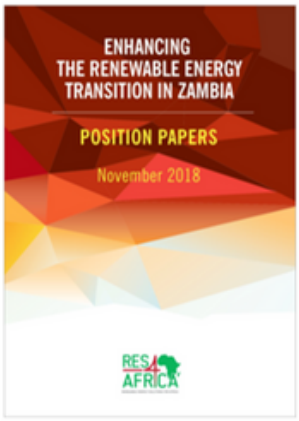


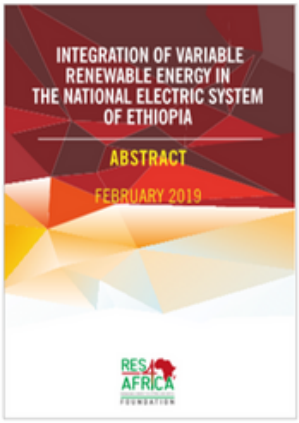






Sub-Saharan Programme









Our connecting the dots series, looking at the development of renewable energy in the past 10 years has been a central aspect of our work in the region.







STAKEHOLDER ENGAGEMENT & DISSEMINATION

Conferences and events since 2016 formed an integral part of the programme's advocacy work in the region, fundamental to its rapid growth and creation of a wide network in the renewable energy sector of key countries such as Kenya, Ethiopia, Senegal and Ivory Coast.

Most recently, 2022 was a focus year for Kenya with the goal of revitalizing our presence and contacts in the country post-Covid. RES4Africa organised 1 event and subsequently was invited in a further 2 in 2022:

1.Kenya Renewable Energy Exchange
a. Discussions on Procurement through auctions, battery energy storage systems, and maximising the potential of Kenya's grid
b. Publication and distribution of a RES4Africa position paper on adoption of auctions for procurement in Kenya and the integration of storage.

2.Kenya Power Expo
a.Invitation to moderate and speak two separate sessions at KPLC's first ever event with representatives from all the energy sector institutions including the Minister of Energy.

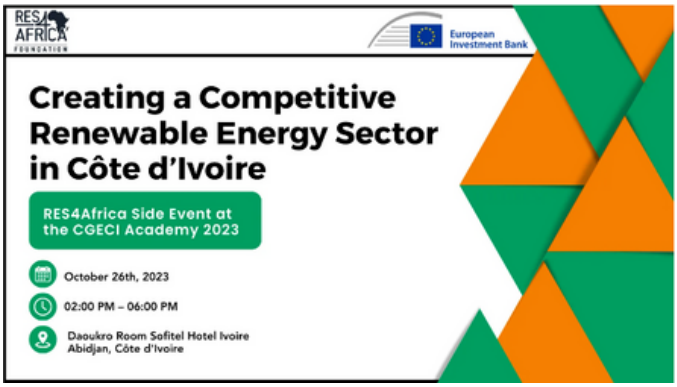
3.RENPOWER Kenya
a.Invitation to present at and moderate session at RENPOWER Kenya with over 100 people from all across East Africa.

OUR WORK IN 2023: RENEWAFRICA

renewAfrica was launched in 2019 by RES4Africa Foundation as an industry-backed initiative to advocate for the creation of an EU-led programme supporting renewables investments in Africa. The proposal for such a programme was to deliver comprehensive end-to-end support along the entire project lifecycle for all RE technologies, infrastructure and grids, in all African countries, giving a priority focus to utility-scale projects.

In 2022, the approval by the Commission of the RISE ("Renewable Infrastructure & Sustainable Energy Partnership Africa-EU") proposal presented by the European Investment Bank and Cassa Depositi e Prestiti, partially incorporating renewAfrica's recommendations, marked the completion of the Initiative's first phase. In 2023 and with the new phase, renewAfrica set out to consolidate and expand its activities through awarness raising before European Institutions, stakeholder engagement and country outreach missions in Africa, and capacity building activities.

In this framework, RES4Africa, in collaboration and with the support of the European Investment Bank, organized a tailored side event in Côte d'Ivoire to further the discussion of the country's green transition goal and investment opportunities



Consistent with the objective of the "Sustainable Growth of Businesses in Africa: Focus on Competitiveness" event organized by the Confédération Générale des Entreprises de Côte d'Ivoire (CGECI),

Sub-Saharan Programme

RES4Africa's side event brought together public and private sector actors to highlight the opportunities in Côte d'Ivoire's renewable energy sector and how it can become a competitive regional and continental player in the energy transition.



The event served as the launch of a report developed and published by IRENA Coalition for Action, and co-authored by RES4Africa and Enel Green Power, focused on "Scaling up renewable energy investments in West Africa" and that look at regional power decarbonisation and trading opportunities in West Africa for more affordable and secure access to energy.

CONNECTING THE DOTS

Regional market and infrastructure reforms, coupled with industrial policies and advancements in innovation are preparatory to an increase in the deployment of renewable energy sources in East Africa, and for a subsequent stronger resilience and adaptation to climate change. These are the main findings of the new study A Challenging Transition: Exploring East Africa's Last 10 Years of Renewable Energy, developed in collaboration with Enel Green Power. The publication is the fourth study of the Connecting the Dots series, and it was presented during the virtual event on November 23.

East African countries can boast an abundance of renewable energy natural endowments, potentially sufficient to ferry the region towards full and sustainable energy access. In total, East Africa added almost 7 GW of new electricity generation capacity between 2011 to 2021, reaching 16.3 GW in 2021.



This substantial increase reflects a commendable effort to diversify the energy mix and meet the growing demands of the region, showcasing a significant commitment to renewable energy development over the past decade. RES4Africa's new publication takes stock of the last 10 years of the East African REs landscape, analysing hindrances, examining political commitment and renewable energy targets, and proposing recommendations for policymaking, sustainable finance, and energy transition pathways.

OTHER OUTREACH ACTIVITIES AND ANALYSIS

Integration of Captive Power in to the Electricity Grid and Aggregators business models

On March 23, RES4Africa, in collaboration with the Electricity Sector Association of Kenya (ESAK), hosted the Integration of Captive Power Plants into the Electricity Grid event. With more than 120 attendees, and participants from the Ministry of Energy, EPRA, University of Nairobi, EGP and AFRY, the event was an occasion to discuss the future of energy and infrastructure in Kenya. The event hosted the presentation of the baseline study on captive power generation, that highlighted the country's excellent regulatory performance as well as facing challenges in the industry, such as voltage dips and demand for green enterprises. In addition, RES4Africa's analysis on "Accelerating investment in renewables through energy aggregators" developed in collaboration with AFRY was presented as a benchmark for this segment.





South Africa Energy Transition

CONTEXT, BARRIERS, AND CRITICAL FACTORS

South Africa's energy market is undergoing an unprecedented period of change with a spate of measures, mostly only announced, to immensely increase South Africa's generation capacity and the role of renewables in such.

The proposed regulatory steps will be contributing to what is an already shifting energy sector which promises increased growth, competition, and most importantly, reliability of supply.

Although there are many facets which must be thoroughly set to ensure the most effective and consistent introduction of these changes at regulatory and operational level, huge opportunities are already available in the market for international investors and local communities.

OUR ACTION PLAN

RES4Africa, with its local partners, aims to support South Africa's transition through a series of new studies and well established tailor made initiatives, including:
AM-Powering Connexions: recurrent open discussions for the South African energy community to share thoughts and proposals on market's hot topics - organised in partnership with the Embassy of Italy in Pretoria, CSIR, Nedbank, SAESA, SAPVIA and SAWEA;

Regional excecutive training: held locally by RES4Africa, in cooperation with its members and with local academic and knowledge partners (Pretoria University, CSIR, etc) to respond to specific training needs emerged from the egagement with key local stakeholders.

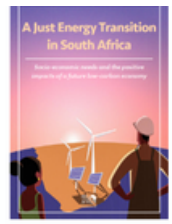
STRATEGIC STUDIES AND REPORTS

As an evidence of the trust and and collaboration estabilished among the Foundation and the local leading entities of the sector, a wide range of studies has been carried out so far and new ones are being developed, expanding support on increasingly specific and technical issues in line with the main barriers and critical factors driving the market evolutions.

South Africa Energy Transition

RES4AFRICA FOUNDATION

STUDIES DEVELOPED SO FAR:









NUMBER OF JOBS generated by renewables under the IRP 2019
REQUIRED SKILLS to linke the existing gaps and framework for the re-skilling of coal sector workers
n.5 **INTERNATIONAL LESSONS LEARNED** on transition to a low-carbon economy

WORLDWIDE EXPERIENCES on power sector reform and transmission unbundling
ECONOMIC AND TARIFF REGULATION of transmission system operators
VRE DEPLOYMENT AND POSSIBLE ROADMAP for the transition

C&I LANDSCAPE IN RSA: key regulation, economics and tariffs
BENEFITS AND CHALLENGES for all the impacted parties
INTERNATIONAL BEST PRACTICES in establishing C&I markets

RECOMMENDATIONS FOR A POSSIBLE ROADMAP FOR THE COUNTRY'S DECARBONIZATION

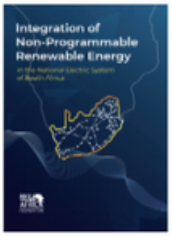
INTERNATIONAL REGULATORY BENCHMARKS: UK, California, and Chile
POLICY AND REGULATORY RECOMMENDATIONS to accelerate the deployment of **BESS**

Geospatial analysis aimed at identifying **POSSIBLE IDEAL LOCATIONS FOR INTEGRATING NEW RENEWABLE PROJECTS** into the constrained South African Grid

Regulatory analysis of the existing **WHEELING FRAMEWORK IN SOUTH AFRICA**
INTERNATIONAL CASE STUDY ASSESSMENT of India, California, Italy
KEY PRINCIPLES TO INCREASE WHEELING in South Africa







Integration of Non-Programmable Renewable Energy in to the National Electric System of South Africa PHASE 2

Technical analysis of the optimal V-RES mix by geographic area of the country that maximizes the contemporaneity between V-RES (PV, wind), storage generation, and load supply. To be used by Eskom as a base for the evolution of the Generation-Connection-Capacity-Assessment, that regulates the grid access from IPPs.

IN COLLABORATION WITH: Eskom

Grid access queuing mechanism

To support the growth of both the C&I market and of the REIPPP programme as a means to the end of the energy crisis in South Africa, a queuing mechanism or other grid connection management systems should be implemented. The study will analyse what options are available to South Africa's grid operators and what impact this could have on increasing electricity procurement.

EVENTS AND CAPACITY BUILDING

The findings of the strategic studies are presented through dedicated dissemination events. Continuous dialogue with local stakeholders will be enhanced through, in-person and virtual AM-Powering Connexions sessions. Am-Powering Connexions held in 2023 were::

- Grid access queueing mechanisms and their potential in the REIPPPP
- The Future of South Africa’s Energy Sector: Yout Perspectives and Grid Innovation (in-person)
- National wheeling framework for Municipalities
- Re-shaping the RIPPPP: considerations from an updated GCCA and Interim Grid Capacity Rules

In March 2023 RES4Africa hosted, in cooperation with Nedbank, its annual South Africa Conference in Cape Town. The event provided a high-level platform for discussion on energy security as fundamental to the economic growth and development of any G20 country such as South Africa.

The gathering consisted of 3 sessions:

- Energy security while transitioning
- Enhancing investor confidence
- Maximising the potential of available connection capacity

The conference inspired new topics for the continuation of the programme over the year and strengthen collaborations with local stakeholders and entities. Follow ups include among the others:

South Africa Energy Transition

- MoU signed with Pretoria University as a main knowledge partner for all the regional capacity building initiatives
- Development of a Regional excecutive training (local ATC) for South African policy and decision makers – October 2023 (TBC)
- Integration of non-programmable renewable energy follow-up study to offer greater details to the analysis of localization of RES sites, based on the combination of wind, solar and BESS – to be completed by October 2023
- Explorative discussions to see how to further support Eskom on the execution of the Transmission Development Plan
- Nedbank Foundation as a potential partner of the Re-skilling Lab, toscale the impact in terms of numbers of individuals trained, entrepreneurship and employability





TRAINING PROGRAMMES

RES4Africa Academy

CONTEXT

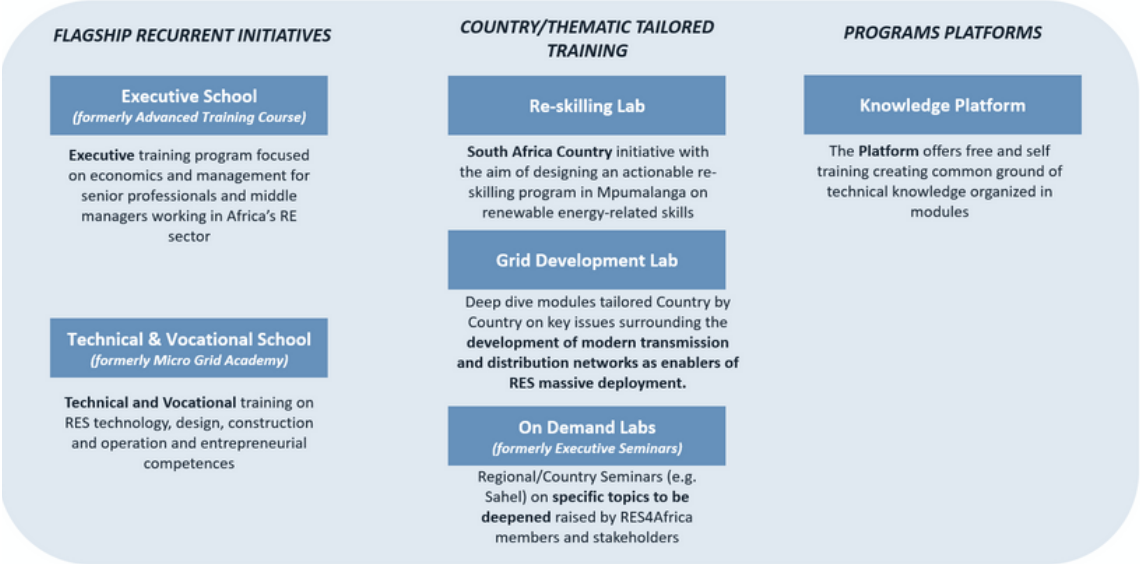
The African continent at its current stage of growth and population suffers a desperate lack of energy, electricity in particular. Hundreds of thousand people live without access to energy. Furthermore, it is expected in the next decades a huge increase in energy needs both for the exponential growth of population and for the increasing power needs of new generations. This growth can determine an unbearable cost from a social and environmental point of view or can evolve towards a conscious approach to respecting nature, deploying not pollutant and renewable sources. Since its creation RES4Africa Foundation is perceiving the goal to have a significant and measurable impact on the use of sustainable and renewable resources for energy use acting in four the dimensions: support the adoption of sustainable solutions to answer to Africa's electricity needs, analyse solutions to expand energy access and mobilise clean energy investments, advocate for the opportunities and benefits of clean energy investments in order to become the backbone of a prosperous Africa, train individuals and institutions to build the human capital necessary for leading the sustainable transformation of Africa's electricity sectors. With regard to the latter, Res4Africa Academy is the operative Initiative to fulfill the mission.

PROGRAMME GENERAL DESCRIPTION

The Programme is organized following three main categories of initiatives:

- Flagship Recurrent Schools;
- Tailored per Country and/or Topic Training Labs;
- Knowledge Platform.

RES4AFRICA ACADEMY: THE ARTICULATION



RES4Africa Academy

TECHNICAL AND VOCATIONAL SCHOOL

Technical and Vocational School, formerly Micro-Grid Academy (MGA), is a Technical and Vocational Capacity Building Programme born in 2018 in Nairobi with the aim to create skilled and conscious african workforce to deploy decentralized renewable energy solutions (micro and mini grids) within the East-Africa region in order to enhance more and more the access to energy in urban, peri-irban and rural communities while promoting youth empowerment by strengthening local enterprises and job creation. The initiave developed in collaboration with Kenyan Utility KPLC, Strathmore University, AVSI Foundation and St. Kizito Vocational Training Institute, supported by Enel Foundation, endorsed by EACREEE, RCREEE and SACREEE and with active collaboration of various partners and institutions**.**

RESULTS ACHIEVED SO FAR

1. **Training modules**

- Since January 2018, 31 training editions have been held, both in-person and online, training over 1850 participants from more than 45 countries in East Africa, SADC, MENA region and beyond.
- 2 Training of Trainers were implemented in 2020 and 2023 in Kenya and Mozambique, respectively.
- A hybrid mini-grid is under construction at St. Kizito VTI in Nairobi, Kenya, as a didactic asset to complement theory with practical learning. The project is supported by the Italian Agency for Development Cooperation, in partnership with AVSI Foundation.

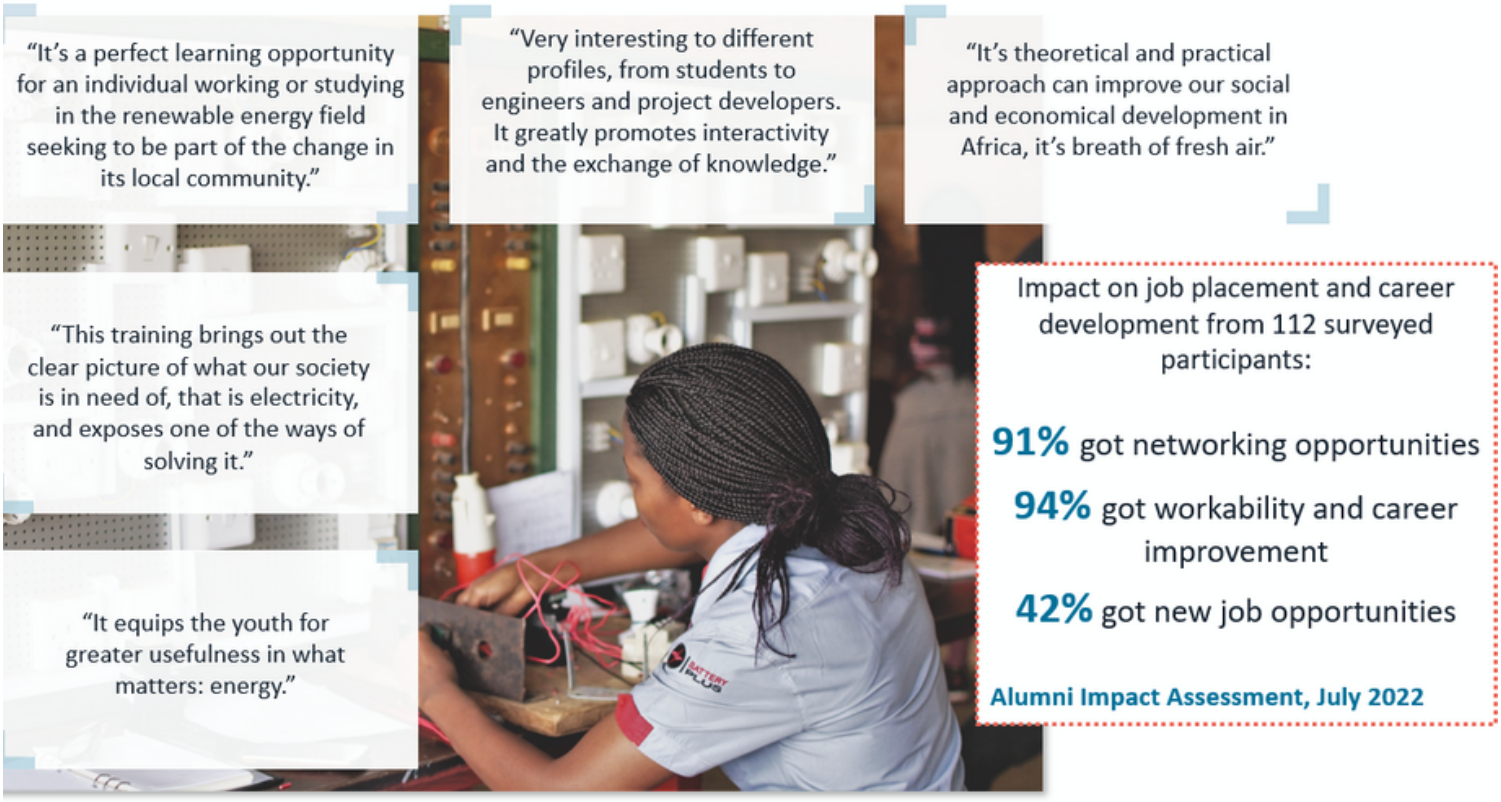
2. **Didactic content development**

- 1 didactic curriculum, consisting of 4 modules on Decentralized Renewable Energy (DRE) systems, specifically photovoltaics and mini-grids, developed with Strathmore University and accredited to the National Industrial Training Authority (NITA) in Kenya for formal certification.

3. **Participation**

- Mailing list with over 1000 contacts, 31 WhatsApp groups and 1 LinkedIn group to promote networking, disseminate news and information as well as job opportunities in the renewable energy sector.

RES4Africa Academy



DELIVERABLES AND EXPECTED RESULTS FOR 2024

Training modules

As part of its new strategy, RES4Africa acknowledges the importance of fostering local ownership to ensure the programme's long-term sustainability. This process has begun in Kenya, building on RES4Africa's strong positioning in the country and on the partners Strathmore University, St. Kizito VTI and AVSI Foundation. For the first semester of 2024, RES4Africa is committed to implementing 2 new training modules on the field (1 more module already delivered in 2023), inviting participants from all over East Africa to strengthen their technical knowledge on design, installation and O&M of photovoltaic systems, including a focus on entrepreneurship and stress on the concept of Productive Use of Energy to enhance energy access in rural communities. In doing so, employment and business opportunities for the participants will be promoted throughout.

RES4Africa Academy

EXECUTIVE SCHOOL

CONTEXT

Capacity building and trainings are the key to effectively support the emergence of new renewable energy technologies and their rapid spread in Africa. It is important that the revolution in energy access and the transition to renewable energies would not stalled by the lack of human competences.

Achieving a green socio-economic growth for the continent requires the creation of shared responsibility and long-term engagement among all the stakeholders both public and private.

Thre's no future where there are no investments in people: a skilled local workforce and a properly trained managerial staff, are pivotal factors to foster local ownership to enhance project sustainability, build jobs, and guarantee a long-term development of local RE markets, as well as to contribute to Increase development and stability within African local communities.

The last edition (the tenth), was held in Milan from the 6th of November to the 17th of November 2023 with the participation of 40 African high-level professionals.

- 2 weeks – 50 hours lectures on the main technical, regulatory and economics features of RE
- 40 high-level African professionals that benefit an entirely free scholarship that cover the cost of class lectures, laboratories, plants visit, training materials, flights, accommodation, board and transportation.
- 15 African countries involved (Algeria, Cabo, Verde, Egypt, Ethiopia, Ghana, Kenya, Lybia, Morocco, Mozambique, Tunisia, Senegal, South Africa, Uganda, Zimbawe, Zambia)
- All the lessons have been provided by our members and international experts

RES4Africa Academy

MEMBERS AND PARTNERS INVOLVED IN THE LAST EDITION



RE-SKILLING LAB

CONTEXT, AIMS, AND CORE VALUES

With Eskom's ambitious coal plant decommissioning plan underway, RES4Africa strives to support South Africa's efforts to implement a Just Energy Transition (JET) which addresses the socio-economic needs of workers and communities reliant on coal. To this end, the Foundation in partnership with a range of local and international entities established the Re-skilling Lab: a training initiative that enables local TVET colleges in Mpumalanga province to equip youth and women with renewable energy-related skills necessary to operate on utility level projects.

RES4Africa Academy



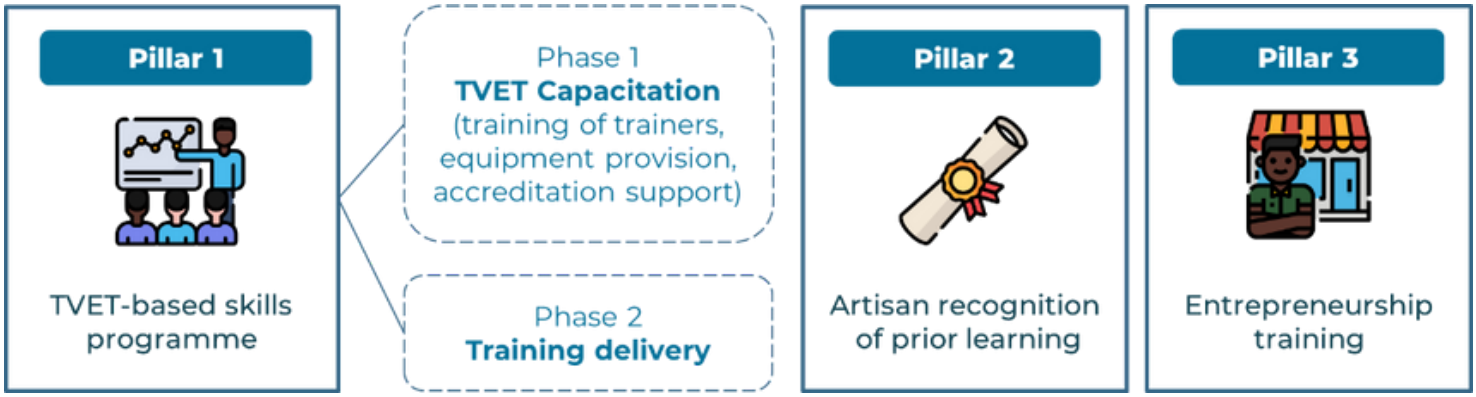
WHAT - a training hub that enables local education entities to deliver **renewable energy-related training on the ground**

GOAL - to accelerate the **mind shift to a sustainable economy** by preparing a skilled future workforce in Mpumalanga

TARGET - **young learners from technical colleges**, current coal-workforce, low-skilled community members

The Re-skilling Lab model and pilot project

In this framework, the Re-skilling Lab launched a pilot project in November 2022 focused on the area around the Komati Power station as the first coal plant decommissioned by Eskom, still successfully operated with the Nkangala TVET college.



Re-skilling Lab consists of three pillars, designed to prepare target audiences to approach the renewables market, offering a balance between formal certifications and practical skills needed for employability.

Pillar 1 targets the youth studying in TVET Colleges, aiming to offer them formal and industry-accredited skills programmes focused on renewable energy. This pillar consists of two phases that can be replicated across TVET Colleges and skills programmes.

The first phase of the project consists of the capacitation of the College. This features a “training of trainers” (ToT), preparing them to deliver various renewable energy courses, the provision of equipment for the College workshop to enable practical training, and support to the College throughout the accreditation process to allow the issuing of formal statements of results/certifications for the new skills programmes.
The second phase refers to the first delivery of the new (certified) skills programmes to learners, in other words the "Training of Learners" (ToL). The TVET College is mentored throughout, and lecturers may be offered additional support (e.g. further training or practical exposure) to allow them to confidently deliver the new courses and integrate them into the TVET’s standard offering.

Pillars 2 and 3 target the wider local community and are also implemented through the TVET College.

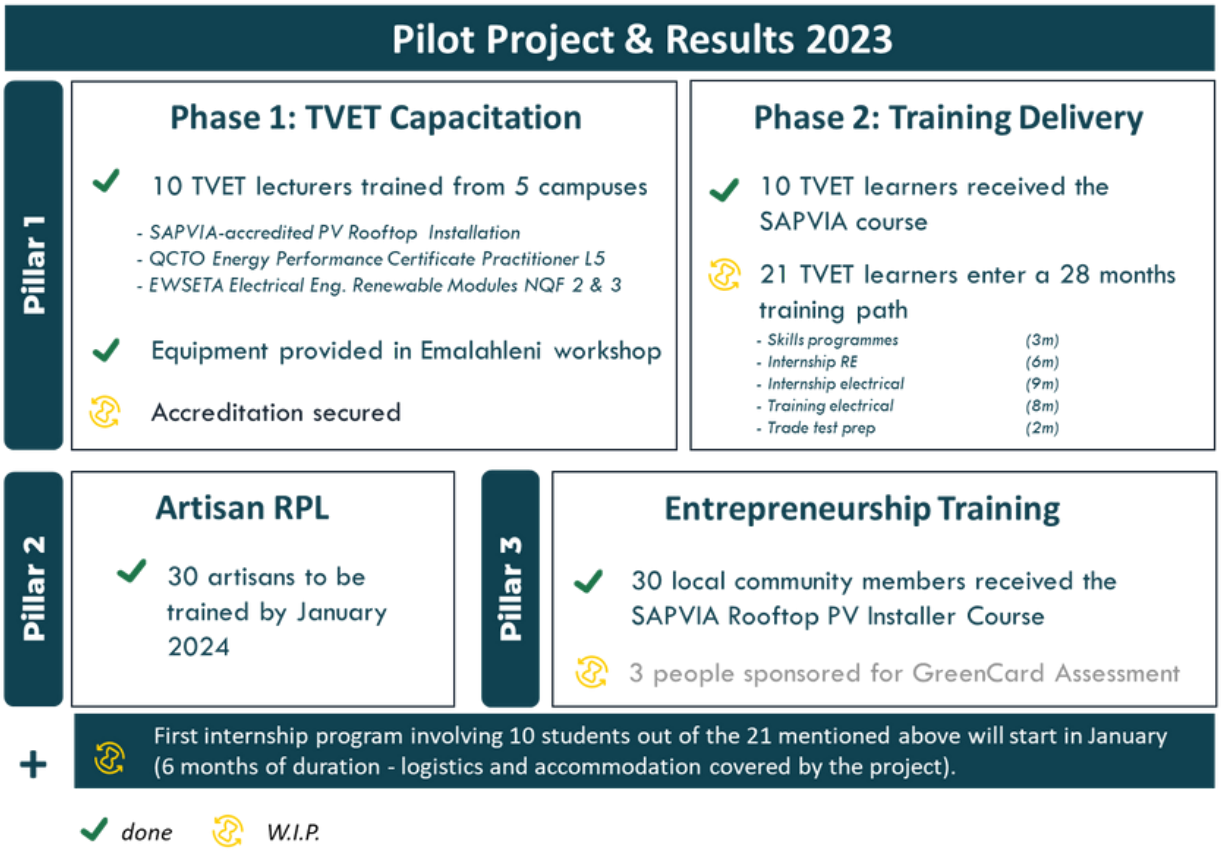
Pillar 2 supports the TVET in offering unqualified electricians the opportunity to complete the artisan recognition of prior learning.

Pillar 3 aims to offer broader – not necessarily certified – training to community members focused on renewables and entrepreneurship skills to help them acquire and leverage new skills for seeking employment or starting a business in the developing renewables market in Mpumalanga.
Achievements so far

On 28th of November 2023 RES4Africa Foundation and Nkangala TVET College celebrated a successful Year-End Closing Event for the Re-skilling Lab initiative in Mpumalanga.

The event showcased the transformative impact of the initiative in empowering local training entities and youth with renewable energy-related training and catalyzing a paradigm shift within the community.

RES4Africa Academy



THE ACHIEVEMENTS THIS YEAR INCLUDE:

- Three outreach events in Mpumalanga (Re-skilling Lab Launch, Orientation Day promoting awareness through networking with industry players, Pilot Project year-end Closing).
- Nkangala TVET capacitation (training-of-trainers completed by 10 teachers, installation of the equipment and path to formal accreditation of the training).
- The first cohort of 10 TVET students received the SAPVIA PV installer course and 21 additional students, awarded by EWSETA, entered a comprehensive 28 month RE training programme.
- Solar Photovoltaic Installer Entrepreneurial Training taught by the trainers of Nkangala TVET, previously trained by the project, in collaboration with industry leaders from the RES4Africa network, has been delivered to 30 qualified and unqualified electricians from the local community to help them establish or seek employment in solar PV businesses.
- 6-month on-site renewable energy internship programme offered by Enel Green Power RSA for 10 of the TVET learners going through the renewables study pathway designed by the Re-skilling Lab, will take place from January 2024.

STRATEGIC PROGRAMMES

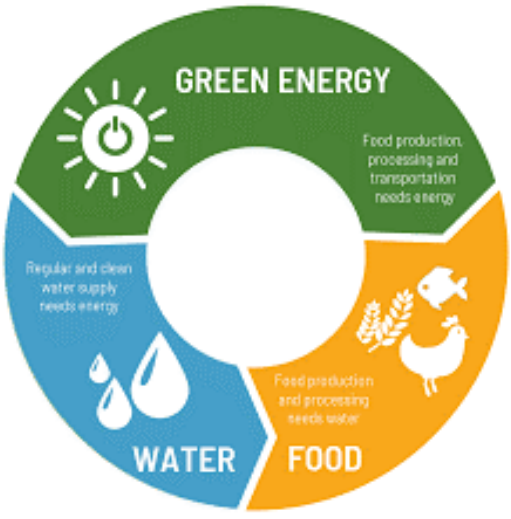
Access to Energy

OUR ACTIVITIES IN THE WATER ENERGY FOOD NEXUS

CONTEXT

The WEF Nexus offers an innovative perspective on bridging the energy access gap by considering energy as an enabler for development and by emphasising the interdependencies between water, energy and food supply systems. Innovative solutions based on a mix of grid extension and off-grid solutions are needed to accelerate the green energy transition and access to energy. Rural electrification is still strongly dependent on grants and subsidies: a water-energy-food integrated approach can bridge the gap between viable and non-viable projects by leveraging the productive use of energy and looking beyond the sole electricity supply. RES4Africa applies the WEF Nexus by working on a double front: on field-projects and studies and, in this framework, we are cooperating with relevant international agencies to bring forward the nexus approach:

-The Nexus Regional Dialogues Programme (NRDP) Phase II (2020-2023), funded by the EU and BMZ (German Federal Ministry for Economic Cooperation and Development) and implemented by GIZ, aims to mainstream WEF Nexus approaches In the MENA Region and In the Niger Basin through increased investor awareness, capacity building, concrete projects and expansion of knowledge management. the proposed activities will contribute to institutionalise the WEF NEXUS approach in national and regional governance structures, increase investors' awareness, and strengthen capacities of local actors (e.g., project developers).



-IFAD and the Ethiopian Ministry of Agriculture (MoA) are developing the Participatory Small-scale Irrigation Development Programme Phase II (PASIDP II) which includes, among its components, the realization of 150 small-scale irrigation projects to foster the development of Ethiopia's rural areas. IFAD, RES4Africa and its technical partner RINA, have already collaborated in the screening of the pipeline and realization of a pre-feasibility study on 3 sites, which led to the selection of the Mena river site for the full feasibility study.

Access to Energy

PROJECT 1: WHAT DOES IT TAKE TO ACCELERATE INVESTMENT IN INTEGRATED WEF PROJECTS?

R4A Contribution to GIZs' Nexus Regional Dialogue Program

The Project is composed of three main set of activities:

- Analysis of WEF nexus business models, and innovative characteristics, aimed at the identification of the most promising WEF project categories and the analysis of international, regional and national financing mechanisms that can encourage the realization of WEF Nexus projects, for private and public stakeholders, in the MENA and Niger Basin Regions;
- Public Stakeholders and Institutions analysis for the definition of Technical Assistance packages, related to WEF projects planning, implementation and promotion;
- Dissemination of project results, Advocacy and support to capacity building through participation in international and national events and workshops.

Results:

-1 Blue Print Report on WEF Nexus Business Models available on RES4frica website.
-1 Blue Print Report on Financial Mechanism Analysis available on RES4frica website.
-Needs Assessement of Public Instiurion with regard to the WEF Nexus approch.
-Partecipation and organization of national and international events.



Figure 1 - RES4Africa team participated (June 2022) as trainer and evaluator to a bootcamp for African start-ups organized by the Centre d'Incubation et d'Entrepreneuriat of the Institut 2iE in Ouagadougou, Burkina Faso.



Figure 2 - RCREE-RES4Africa event on WEF Nexus at COP 27 in Egypt (November 2022) where RES4Africa presented the results of the analysis carried out in collaboration with GIZ.

.



Figure 3 - On June 7 2023, RES4Africa Foundation, GIZ and Gebal Egypt held the event "What Does it Take to Accelerate Investments in Water-Energy-Food Nexus Projects? " in Cairo, Egypt.



Figure 4 - On 19-20 June 2023, RES4Africa participated to the NRDP final event in Bonn organized by GIZ, presenting the results of the analysis on business models and financing mechanisms for WEF Nexus.

PROJECT 2: RE TO POWER IRRIGATION AND PROVIDE ACCESS TO ELECTRICITY IN ETHIOPIA

R4A Contribution to IFAD's Participatory Small-scale Irrigation Development Programme Phase II

The general objective of this project is to provide IFAD with an assessment of the feasibility of powering the Mena river irrigation system and 6 surrounding villages to improve the current rain-fed agriculture and foster local socio-economic conditions.

The action is built on five pillars which address strategic priorities of IFAD and the Italian Ministry of Foreign Affairs and International Cooperation (MAECI):

- *Contribute to mitigate climate change effects by reducing CO2 emissions in agriculture.*
- *Promote innovative partnerships between public and private sectors, as well as food and energy sector players.*
- *Strengthen agriculture productivity and local food value-chain through RE-powered food transformation processes.*
- *Validate a sustainable and replicable business model based on the integration of renewable energy in agriculture projects.*
- *Promote national policies for sustainable, profitable and inclusive food systems.*

Access to Energy

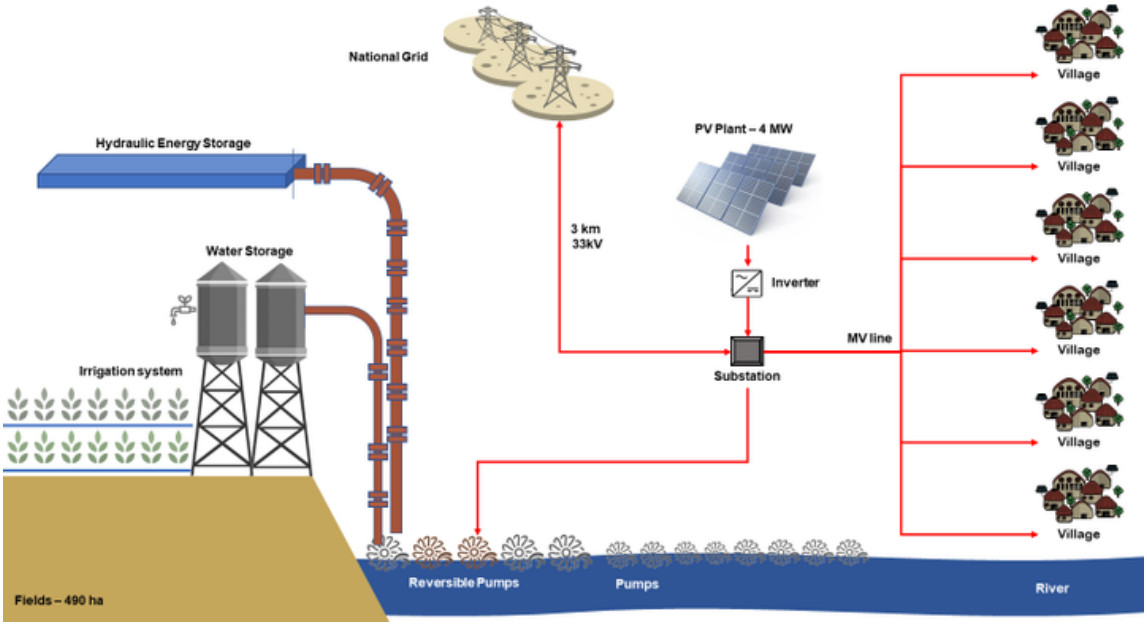


Figure 4 Powering the pumps through a Renewable Energy system in Ethiopia

RESULTS

- 1 Full technical Feasibility Study (field acitivities are planned for the I quarter of 2024).

Prove that is possible to make profitable investments by selling electricity with a cost reflective tariff.

Validate a sustainable business model for private investments at scale, which do not rely on donor and grant support.

Provide reliable, clean and affordable energy services, with tarrif 20-30% lower than diesel solution.

Promote innovative partnerships between food and energy sector players to increase agriculture productivity and access to electricity.

Youth Empowerment

CONTEXT

In the 10 years that have passed since the creation of RES4Africa Foundation, the place occupied by Youth in the international debate has shifted dramatically. Making greater use of the digital networking's infinite possibilities, young people have today the instruments to be viewed as equal partners in shaping the future of Africa's just energy transition. RES4Africa Foundation demonstrated, since its creation 10 years ago, constant attention on raising awareness and upgrading the know-how of young Africans through our flagship capacity-building training programs. Nevertheless, in the long run what we as a Foundation consider to be the timespan of our action, voicing the demands of younger generations is essential in defining priority policies and initiatives. In that light, it is key to scale up youth engagement from final beneficiaries to real actors in the creative process of our strategic roadmap for the Foundation's next decade of action. Indeed, youth are Africa's greatest asset, with both the youngest population and the fastest-growing youth population in the world. In 2020, 258 million Africans were aged 15-24, a number expected to more than triple and reach over 830 million by 2050. From this perspective, RES4Africa identifies the youth and young entrepreneurs as an essential component of Africa's sustainable energy future.

PROJECT 1: RAISEAFRICA

In Africa, SMEs provide an estimated 80% of jobs across the continent, representing an important driver of economic growth. Sub-Saharan Africa alone has 44 million SMEs, almost all of which are micro. Moreover, the African startup ecosystem has been growing rapidly in recent years, with the continent's increasing number of entrepreneurs launching innovative businesses in various sectors. However, despite this growth, African startups still face significant challenges, including limited access to funding and know-how, inadequate infrastructure, and regulatory barriers. Geographically, the key hubs In the Continent are Nigeria, South Africa, Kenya, Egypt and Morocco.

Fundings secured by African start-ups have grown more than 10-fold in 5 years, reaching a historical 3b USD in 2022. However, there is still a long way ahead for additional expansion. Sector-wise, the energy and agri sectors are still unexploited. Fintech dominates the ecosystem, followed by E-commerce and E-health. This discrepancy is also reflected in terms of less accelerators/incubators solely focused on renewable energy enterprises. Thus, there is need and space for new players to support start-ups both in terms of technical assistance and access to finance.

Youth Empowerment

All In all, this context creates a strong case for the establishment of RAISEAfrica, based on:

- *The African startup ecosystem is flourishing across different regions. Its extended footprint in the Continent and international position make RES4Africa a potential key player in this market;*
- *RES4Africa Academy has a strong track record of successful capacity-building projects which demonstrates the Foundation's skills and expertise in supporting young entrepreneurs and professionals;*
- *RES4Africa members' involvement in RAISEAfrica as partners;*
- *Therefore, RAISEAfrica represents a suitable enabler of growth. By deploying both internal expertise and the skills of our industrial members, we will be able to accelerate startup growth through specialized focused programs and tailored economic support.*

PROJECT DESCRIPTION

The project builds on the partnership between RES4Africa, Enel Green Power, EDP, CSIR and SAICA ED and their proven experience in the renewable and innovation sector. Through this project, the partners will develop a pre-acceleration and acceleration initiative focused on the renewable energy sector in Africa. RAISEAfrica has the overall objective to "support and scale up renewable energy-focused projects within the African startup ecosystem". This will be achieved by "supporting innovative business ideas from aspiring and established entrepreneurs in the African renewable energy sector by developing and scaling up their businesses".

The project will provide African startups with the necessary resources, mentorship, and funding to overcome key challenges and thrive. Both programmes are comprised of mentoring, coaching, networking and visibility, and fundraising - among many other activities.

- *The Pre-Accelerator targets prospective entrepreneurs who are working on an early stage business idea. The core objective is to develop and validate their business plan, to develop a Minimum Viable Product and a functional access to the market;*
- *The Accelerator targets entrepreneurs who are seeking market validation and business' expansion. The core objective Is to develop a bankable product, finalise a working team, establish an ever-expanding business network, and solidify a recurring clientele.*

The project has been launched during a side event organized by RES4Africa at COP28 on December 8th 2023, attended by numerous high-level delegates.

Youth Empowerment

PROJECT 2: YOUTH TASK FORCE

The Foundation seeks to collaborate with Youth to find innovative sustainable solutions by offering an opportunity of dialogue relying on its well-established cooperative approach and serving as a convening platform between private and public sectors. RES4Africa activates an extended network of both local and regional partners of youth organizations to implement its activities in the countries and regions where it operates and aims to amplify the voice of Youth in this network. In this context, RES4Africa decided to set-up a comprehensive and focus-driven Youth program encouraging the empowerment of young leaders in the international discussion's forum. In order to translate our drive into concrete action, RES4Africa is creating a new narrative, inviting youth in many dimensions of our actions through the following pillars: Educate, Support and Engage, which reflects the three main areas. The Youth Empowerment programme concentrates its work mainly on the last pillar.

ACTION PLAN, DELIVERABLES AND EVENTS:

I.RES4Africa Advisory Board: To ensure the widest spectrum of views and ideas within the newly instated RES4Africa Advisory Board, two young representatives of well-established international organizations have been invited to join the Board, bringing their specific perspective to the table; Involvement of two young representatives of youth international organizations to share their unique perspective on R4A's strategic priorities and promoting their engagement in the Foundation for the definition of innovative and forward-looking strategies and initiatives.

II. Youth task force: RES4Africa created the Youth Task Force to activate an extended network of both local and regional partners of youth organizations to advocate and implement activities in the countries and regions where it operates and aims to involve the voice of youth in this network as well as its present initiatives. The Youth task force should act as an incubator, bringing different youth networks together with the Foundation and its members to pinpoint the most relevant and yet pressuring issues with a raising focus on the role played by youth.

YOUTH TASK FORCE ACTIVITIES:

- *Youth Task Force development: creation of thematic Working Groups to deepen discussion on relevant subject: capacity building, gender inclusion, innovation/finance and water-energy-food nexus. Members have been asked to express their interests in the WGs, depending on personal knowledge and interests. The sub-WGs will also be an important tool to engage R4A partners on specific issues as well as thematic-oriented youth organization (in particular, but not limited to gender issues);*

Youth Empowerment

- *Youth Energy Transition Commission (YETC): led by SE4All, the YTF has been invited to join, as an African regional specialist, to integrate this global initiative that should culminate in an event to be held in autumn 2023. Participation of R4A Youth Task Force representatives to the YETC in-presence event, back-to-back with the high-level international conference;*
- *Youth4Climate: ongoing cooperation with the Italian Ministry of Environment and Energy Security on the initiative with a particular focus on the hub's digital library. RES4Africa will provide access to its knowledge platform online;*
- *Africa Climate Week 2023: in collaboration with UNFCCC and Youth4Climate, a representation of the YTF will be asked to participate with a panel at the event on the road to COP28.*

Further activities:

- *Council on Enabling Youth Action for SDG: RES4Africa's Secretary-General has been invited to join the Council. It will be an excellent opportunity to leverage the Foundation's youth program, promote the Foundation's work and build further partnerships within the network of SDG 7 leaders. The Global Councils on Sustainable Development Goals (SDGs) is an initiative by the UAE Government, launched at the World Government Summit (WGS) in Dubai in February 2018. It represents an interdisciplinary network of decision-makers from governments, international organizations, academia, and the private sector, who gather to share innovative practices and discuss the creative implementation of the SDGs at the national and global levels. In its first term is led by IRENA Executive Director. Cooperation in the framework of the WG in support of IRENA Youth Forum (Abu Dhabi, 13 Jan 2023) on the production of a Youth position paper, in particular on the role the private sector, based on the 2022 Youth Survey outcomes;*
- *Collaboration with UNDP Center for Climate Action and Energy Transition: support in the creation of projects pipeline in Focus Countries in the framework of the UNDP Energy Sustainability Hub. R4A Youth Task Force: in-presence meeting to be held in Rome at the UNDP Center for Climate action and Energy Transition.*

Grids4Africa

CONTEXT, BARRIERS, AND CRITICAL FACTORS

Electricity networks are the bedrock of our power systems – key for the security of the electricity supply, for ensuring access, and for the integration of renewables. Africa is making progress towards universal access to affordable, reliable, sustainable and modern energy (SDG7), yet its limited and ageing power infrastructure poses significant challenges. The incorporation of increasing amounts of intermittent generation and the growing need for flexibility further add to the complexity of the issue. Addressing these challenges requires substantial investments and yet most public utilities are not in a position to make them. Moreover, private participation - although growing in the electricity generation segment - remains marginal in transmission and distribution and it must increase significantly to contribute to the large investments investment necessary to address the challenges of the next decade.

The Foundation will support the expansion of access to electricity, the improvement of service quality, and a successful energy transition in Africa – all tied to the extension, reinforcement, and modernization of grids – through a dedicated Grids4Africa Programme. Leveraging on the expertise of RES4Africa's members with experience in electricity networks, the Programme will consist of studies and reports, events, and custom capacity building initiatives.

Grids4Africa Added Value

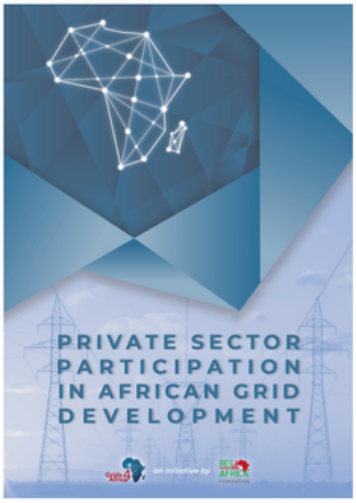


Grids4Africa

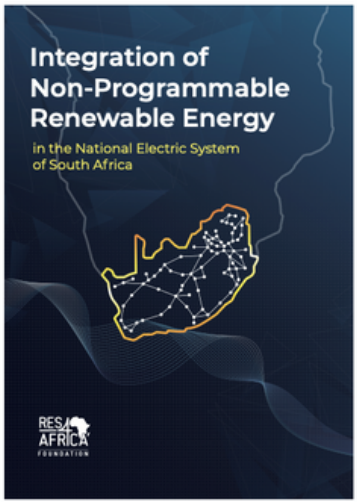
OUR WORK SO FAR

Research & analysis

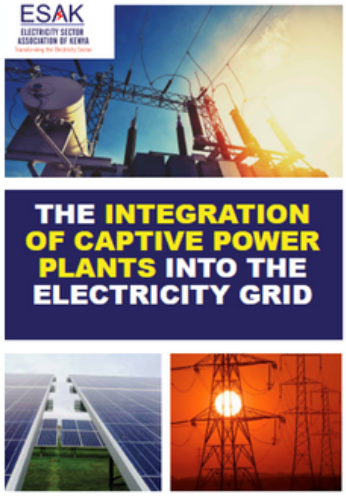
Private Participation Study



Integration of VRES



Captive Power Integration



DP Forum Position Paper



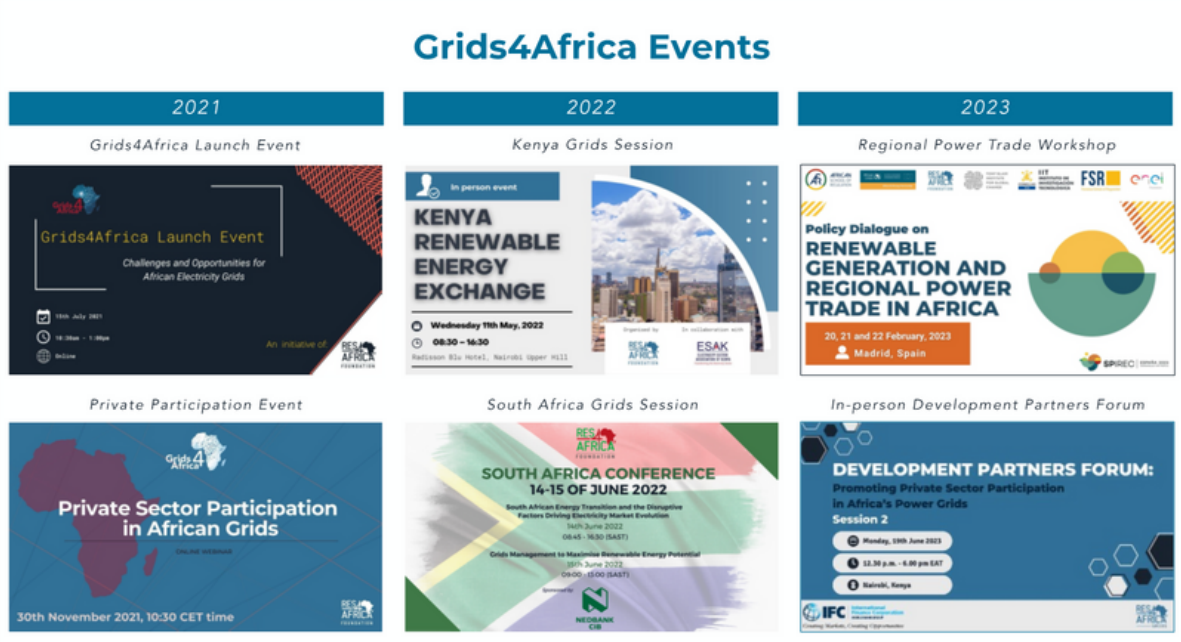
In addition to studies shown above, in 2023, RES4Africa published two grid-focused policy papers – one on Grid Codes and one on Net Metering, as well as a study on Developing South Africa's Electricity Wheeling Framework: Barriers and Key Principles. Additionally, a study was developed on Distribution Tariff Methodologies in Morocco at the request of the Autorité Nationale de Régulation de l'Electricité (ANRE).
Stakeholder engagement & dissemination

Since its inception, Grids4Africa has hosted a number of stakeholder engagement and dissemination events, both virtually and in person. Following the initial Grids4Africa Launch Event and the Private Sector Participation in African Grids Event in 2021, which saw the publication of the Grids4Africa Position Paper and the Private Participation Study respectively, 2022 saw two in-person country focus events (Kenya and South Africa). Both events featured dedicated Grids4Africa sessions focusing on challenges to private involvement in the national grid, creating suitable grid regulation and distribution grid management. The South African Grids4Africa session was followed by a a closed-door roundtable with representatives from Eskom, the South African IPP Office and RES4Africa Members focusing on potential solutions to grid constraint challenges in the country to enable the integration of increasing amounts of renewable energy.

Both events cemented local engagement and paved the way for invitations to bring the Grids4Africa perspective to subsequent local events, such as Renpower Kenya and the KPLC Expo in July 2022, as well as resulting in requests for additional research and capacity-building activities focused on grid infrastructure at national level.

Additionally, in November 2022, a closed-door online event was held in collaboration with the International Finance Corporation – the "Development Partners Forum" – to discuss how to increase the financing of transmission infrastructure projects in Africa. Attendees were Development Finance Institutions from across the globe, African utilities, grid operators, regulators and others. A position paper summarising the discussions was published in 2023.

In 2023, the second session of the Development Partners Forum was held in-person in Nairobi on the margins of the first-ever Africa Energy Forum to take place in Africa. The insightful discussions conducted in Nairobi built on the previous session of the Forum. The outcomes of this session will also be published as a position paper in Q4 2023. In early 2023, Grids4Africa also played an active role in the organisation of a Policy Dialogue on Renewable Energy Generation and Regional Power Trade in Africa in partnership with the African School of Regulation, the Tony Blair Institute for Global Change, the Africa EU Energy Partnership and Enel Foundation. The 3-day workshop took place in Madrid, under the auspices of REN21's International Conference on Renewable Energies.



Following multiple requests from local partners in various countries, the Grid & Storage Labs, a dedicated training programme focused exclusively on grids, was created. As of June 2023, the following Grid & Storage Labs have taken place:

- October 2022 – Zambia I (in collaboration with Kafue Gorge Research & Training Centre and ILO)
- November 2022 – South Africa I (for Eskom)
- February-March 2023 – Morocco I (for ONEE)
- March 2023 – South Africa II (for Eskom)
- May 2023 – Morocco II (for ONEE)
- July 2023 – Zambia II (in collaboration with Kafue Gorge Research & Training Centre and ILO)

Each Grid & Storage Lab was tailored to the request of local stakeholders. Collectively, they touched on the integration of variable renewable generation into the grid, the use of GIS and grid management models, the identification of ideal sites for renewable plants based on resource availability and grid capacity, battery energy storage solutions and regulation for private investment in grids.

THE MISSING LINK

Advancing Africa's electricity regulatory reform agenda: enhancing markets' openness, attractiveness and readiness through regulatory reforms

SETTING THE CONTEXT AND PROGRAMME BACKGROUND

The relevance of electricity infrastructures for economic development is well reflected in Agenda 2063, which aims to develop world class infrastructure in Africa, and by the UN's Sustainable Development Goals, particularly SDG7 ambitioning to reach universal access to modern, reliable and sustainable energy for all by 2030. Achieving the goals set by the Agenda 2063 and the SDGs requires substantial investment in electricity infrastructures over the next decade. Africa's installed electricity generation capacity needs to double from the current 260 GW to 510 GW by 2030. Both centralised and decentralised infrastructures need to expand to connect about 90 million new customers per year, of which 70 million live in rural areas. Africa's electricity grids require improvements to raise levels of reliability and expand in national and regional markets, requiring investments in electric grid to triple by 2026 to reach 40 billion per year.

Thus far, African governments have shouldered an almost exclusive responsibility to finance energy infrastructure development through public resources and bilateral and multilateral financial arrangements in partnership with DFIs. With rising debt-to-GDP ratio, low tax-to-GDP ratio and the narrowing space for public spending, complementary financial models are essential to sustain progress towards the Africa We Want. Crowding-in private sector investment is, therefore, essential to provide sustainable finance and support infrastructure development. However, private sector still represents a marginal share of annual investments in electricity infrastructures in Africa.

The role of conducive policy and regulatory (P&R) frameworks in crowding-in private investments is widely recognised. In the African context, however, policy and regulatory frameworks are still perceived by investors as a major barrier and a deterrent to enter African electricity markets. While no one-size-fits-all solution exists in terms of policy and regulatory reforms, their impact in ensuring appropriate openness, attractiveness and readiness of electricity markets towards private investments has to be carefully considered by decision-makers.

PROGRAMME RATIONALE

It is with this backdrop that R4A is looking at the policy and regulatory environment in Africa's energy sectors as a crucial element to enhancing the effective engagement of the private sector along the entire sector's value chain.

THE MISSING LINK

Moved by this ambition, RES4Africa Foundation partnered with the United Nations Economic Commission for Africa (UNECA) to improve the preparedness of legislative and regulatory frameworks to crowd-in private-led investments in electricity infrastructures and develop a software (R.O.A.R - Regulatory Openness, Attractiveness, and Readiness) which, by evaluating policies and regulations, assesses the readiness of national regulatory frameworks or private sector investments.

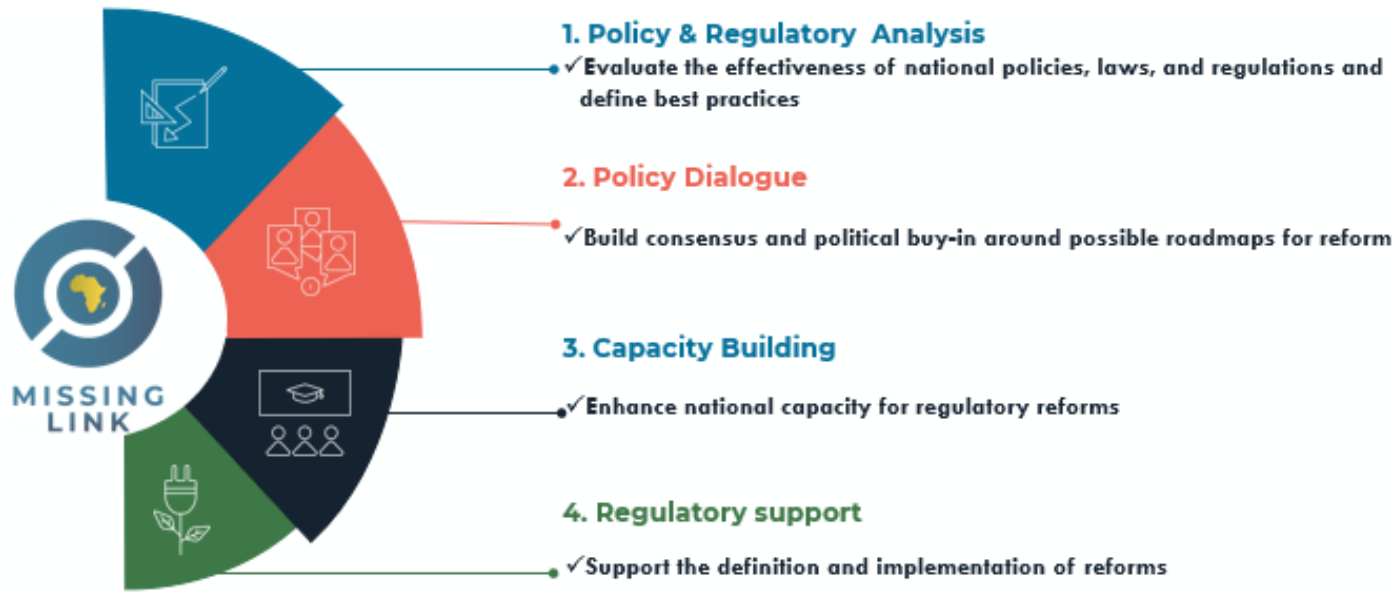
The Missing Link is a strategic, multi-year programme implemented by RES4Africa Foundation in partnership with UNECA. The main target of the programme is to support the progress of Africa's electricity sector reform agenda in order to crowd-in private investments at scale.

The reaching of this target will be helped through a set of intermediate outcomes:

- Increasing awareness on the effectiveness of national electricity policy and regulatory frameworks in ensuring appropriate market openness, attractiveness and readiness for private participation;
- Sharing experiences and lessons learned on successful policy and regulatory reforms in Africa to advance electricity sector reform agenda;
- Enhancing national capacity to conceive, adopt and implement regulatory reforms;
- Building continental consensus on policies and regulatory measures able to enhance market openness, attractiveness and readiness.

VALUE PROPOSITION

The Missing Link programme is implemented through 4 main pillars of activities, based on RES4Africa's value proposition: (i) analysis and researches; (ii) advocacy and policy dialogue; (iii) trainings and capacity development; (iv) advisory and regulatory reform support.



THE MISSING LINK

GEOGRAPHICAL SCOPE

The Programme covers a total of 16 African countries, providing an extensive coverage and representation of all African regions.

Covered Countries	
Angola	Morocco
Cameroon	Mozambique
DRC	Rwanda
Egypt	Seychelles
Ethiopia	Senegal
Ghana	South Africa
Kenya	Uganda
Mauritania	Zambia



THE METHODOLOGICAL APPROACH

The programme establishes an innovative and comprehensive analytical framework (Regulatory Openness, Attractiveness and Readiness R.O.A.R.) to investigate the ability of electricity policy and regulatory framework in enabling private-led investments in generation, transmission, distribution and off-grid systems. Taking a private sector perspective, the underlying project methodology clusters electricity sector-related policies, legislation and regulatory texts under three main dimensions:

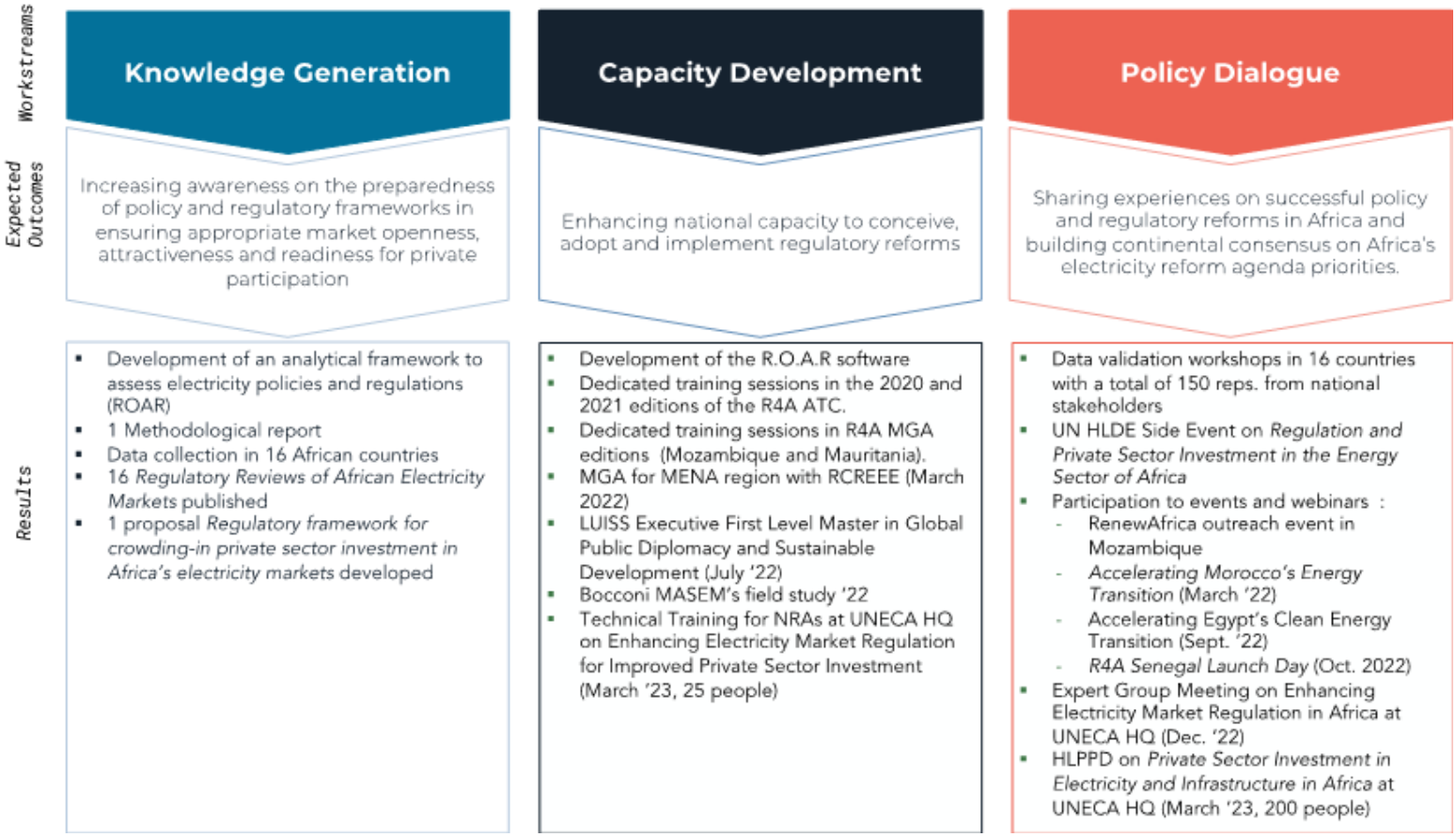
- Openness – The openness dimension investigates whether a country´s regulatory environment allows for the desired investment and to what degree the market is accessible and evolved;
- Attractiveness – The attractiveness dimension investigates whether a country´s regulatory environment allows for the desired investment to be profitable;
- Readiness – The readiness dimension investigates technical regulations and operational rules in relation to efficient integration and effective operation of new infrastructure into the system.



THE MISSING LINK

AN OVERVIEW OF OUR RESULTS

Over the last three years RES4Africa and UNECA led a comprehensive set of activities to: (i) assess the preparedness of African electricity P&R in crowding in private investors; (ii) define tools and instruments that can help decision-makers and regulators take well informed decision; (iii) support the development of national capacities in planning, conceiving and implementing policy and regulatory reforms; (iv) enhance public-private dialogue around what is need to ensure satisfactory market openness, attractiveness and readiness of African electricity markets.



In 2023, the partnership between UNECA and RES4Africa culminated in the organisation of the High-Level Public-Private Dialogue on Private Sector Investment in Electricity and Infrastructure Development in Africa, hold at UNECA HQ in Addis Ababa on March and two executive seminars on the R.O.A.R. Software. The organisation of this High-Level Dialogue (HLPPD), which gathered over 200 participants from 15 African countries and saw the honourable participation of 4 African Ministries and over 30 high-level speakers, was made possible thanks to the generous contribution of the Italian Ministry of Foreign Affairs

THE MISSING LINK

For RES4Africa and UNECA this 1st edition of the HLPPD was the opportunity to bring high-political visibility around their collaboration, acknowledging the importance of public-private coordination for scaling up infrastructure investments in Africa. Furthermore, it represented a new endorsement of their R.O.A.R approach as useful tool for policy and regulatory reforms planning and supported the building of active communication between R4A, UNECA and African delegations on new possible ways of cooperating for advancing the electricity reform agendas at national levels. This tool has been presented on the occasion of two online trainings and two Executive seminars: Advancing market openness, attractiveness and readiness through policy and regulatory reforms, held on the 29th-30th March 2023 at the UN Conference Center in Addis Ababa, Ethiopia; Promouvoir l'ouverture, l'attractivité et la préparation des marchés électriques par le biais de réformes politiques et réglementaires, held on the 11th-12th October 2023 at the IDEP Conference Center, Dakar. Overall, 40 regulatory experts have been trained from 17 African national regulatory institutiong including from Algeria, Cameroon, DRC, Egypt, Ethiopia, Ghana, Kenya, Mali, Mauritania, Mozambique, Morocco, Senegal, Seychelles, Tunisia, Uganda, Zambia, and Zimbabwe.

PROGRAMME PARTNERS

REAS4Africa and UNECA works together with senior national experts and rely on the support of national electricity sector authorities to validate and disseminate the main findings of the programme. Furthermore, Gestore dei Servizi Energetici, building upon the experience RES4Africa and UNECA gathered over the past years, works on the implementation of the project proposal "Advancing Africa's electricity reform agenda: towards increased private sector participation in clean energy infrastructure - Phase 2" which aims to support electricity sector decision-makers in conceiving and designing electricity sector investment-grade policies and regulations. Afry Management Consulting has been selected as the main technical partners of the Missing Link programme, along with other consultants providing additional technical expertise to RES4Africa and UNECA teams.The Missing Link programme and activities are supported by the invaluable contribution of Enel Foundation, acting as knowledge partner of R4A and as co-sponsors of the initiative with UNECA.

United Nations Economic Commission for Africa

AFRY ÅF PÖYRY

Knowledge partner:

enel Foundation

Green Hydrogen Working Group

CONTEXT

The world is setting a course towards decarbonization by 2050 and Africa will be part of this global trend. To reach this objective, all Africans -whether living in urban or rural areas- will need access to affordable, clean, efficient, reliable, climate-proof, and renewable energy for both residential and productive uses.

Sustainable energy for all will contribute to tackling environmental challenges, including land degradation, deforestation, biodiversity loss, extreme vulnerability to climate change, and, at the same time, respond to immediate problems, such as universal energy access. Nearly 600 million people on the continent still live without access to electricity, and more than 900 million lack access to clean cooking solutions. Green hydrogen, produced with renewable power, could have a role in the world's overarching objective of cutting emissions, and rapidly decarbonizing hard-to-abate industrial sectors such as steel, chemicals, fertilizers, shipping, and long-distance transport. Many African countries are well-suited to develop green hydrogen, with strong solar and wind energy potential and large tranches of non-arable land. This could provide Africans with new access to clean energy sources, job opportunities in a net zero economy, public health benefits such as cleaner air, domestic wealth creation, and export revenues. As African economies continue to further their green ambitions, green hydrogen is increasingly viewed as an important component of a decarbonized energy mix and as a sustainable feedstock for industries.

RESULTS ACHIEVED SO FAR

- A Working Group on Green Hydrogen of RES4Africa members has been created.

KEY RES4AFRICA MEMBERS

Green Hydrogen Working Group

EXTERNAL STAKEHOLDERS

Release of the position paper 'Towards a green hydrogen ecosystem – Policy priorities and implementation strategies for Morocco and Egypt'.

The report has been prepared as a collaborative effort between RES4Africa Foundation and its GH2 Working Group members and aims at providing an overview of the status of green hydrogen development in Morocco and Egypt, highlighting both the opportunities and challenges associated with its implementation.



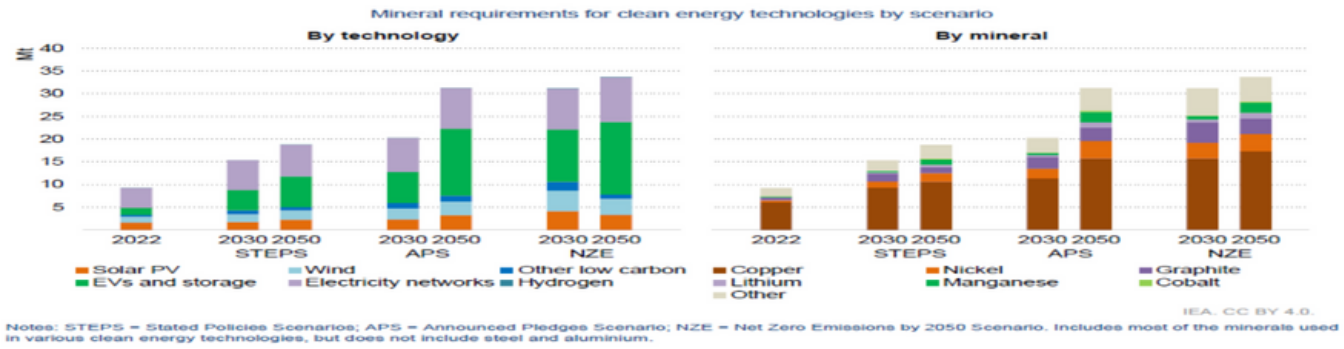
NEXT STEPS

- ·Building consortiums to prepare applications for Horizon Calls focused on green hydrogen development In Africa.
- ·In depth analysis of green hydrogen development strategies in selected African/Mena countries (follow up of the position paper on GH2).

Critical Raw Materials

CONTEXT

Demand of CRM is set to grow by up to 3.5 times to 2030. EV's and battery storage are the main growth driver, with major contribution from electricity network.



Source: IEA

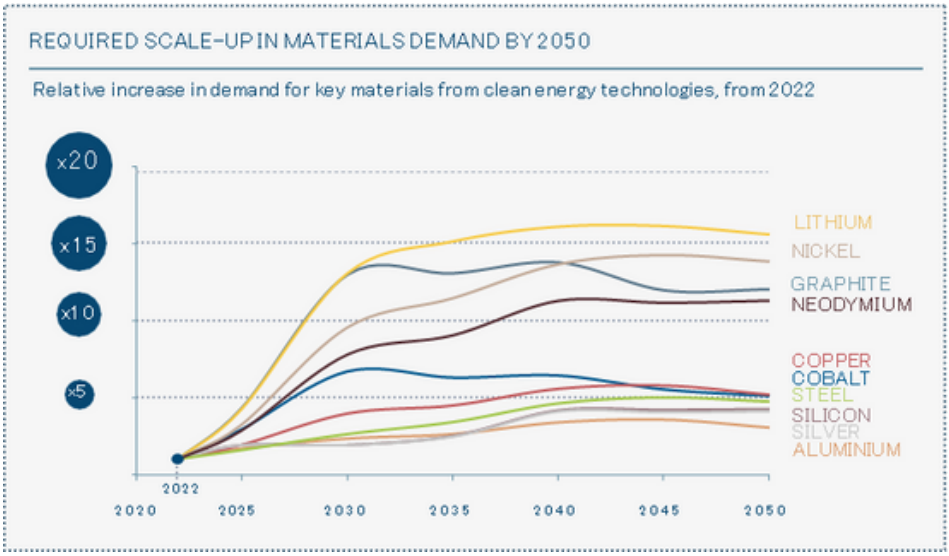
In order to reach the requirements within 2030 some key steps need to be taken into account: Investment in R&D, to improve material efficiency; design optimization and introduction of new material (i.e. silicon based anodes; sodium-ion batteries).

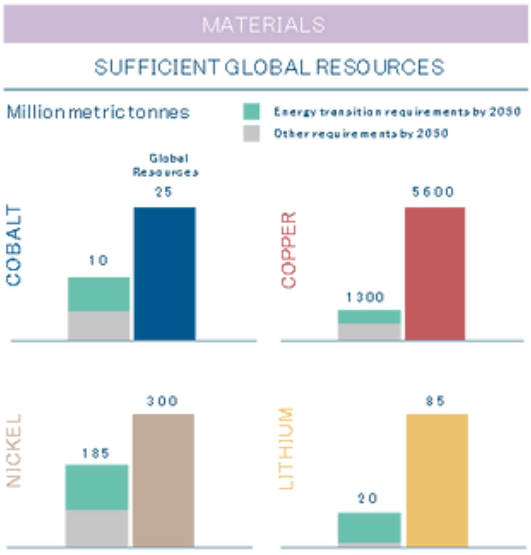
On the other hand, to reach long-mid-terms results from late 20230 onward, secondary supply will play a major role in meeting demand as product reach EOL. Today many key materials (i.e. Lithium) have a low and very expensive recovery, while copper and nickel have a high rate of recovery.

In 2050, it is plausible that most new demand requirements from clean energy technologies could be met by secondary supply. Strong actions are required to ensure that policy, incentives, and infrastructure are in place to scale up the role of recycling.
Moreover, there is growing recognition that policy interventions are needed to ensure adequate and sustainable mineral supplies and the proliferation of such initiatives includes the European Union's Critical Raw Materials (CRM) Act, the United States' Inflation Reduction Act and many other acts.

Over the long term there are sufficient resources of critical raw materials to support energy transition; capability for transforming them into reserves and mining plus refining them are limited. Hence the difficulty to keep up with the rapid demand growth towards 2050 needs.

Critical Raw Materials





Source : Energy Transmission Commission

Africa Is a continuing evolving country with huge demographic growth and high potentiality regarding CRM. Raise awareness and capacity building in the continent and, in a second moment, assess reserve-resource with a mapping campaign, might be the first pillars to include **Africa in the future energy world and new possibilities of Jobs creation.**

CRITICAL RAW MATERIALS: OPPORTUNITIES AND GUIDELINES FOR AFRICA

A summary of key elements to keep in mind to reinforce Africa role in the CRM context is as follows:

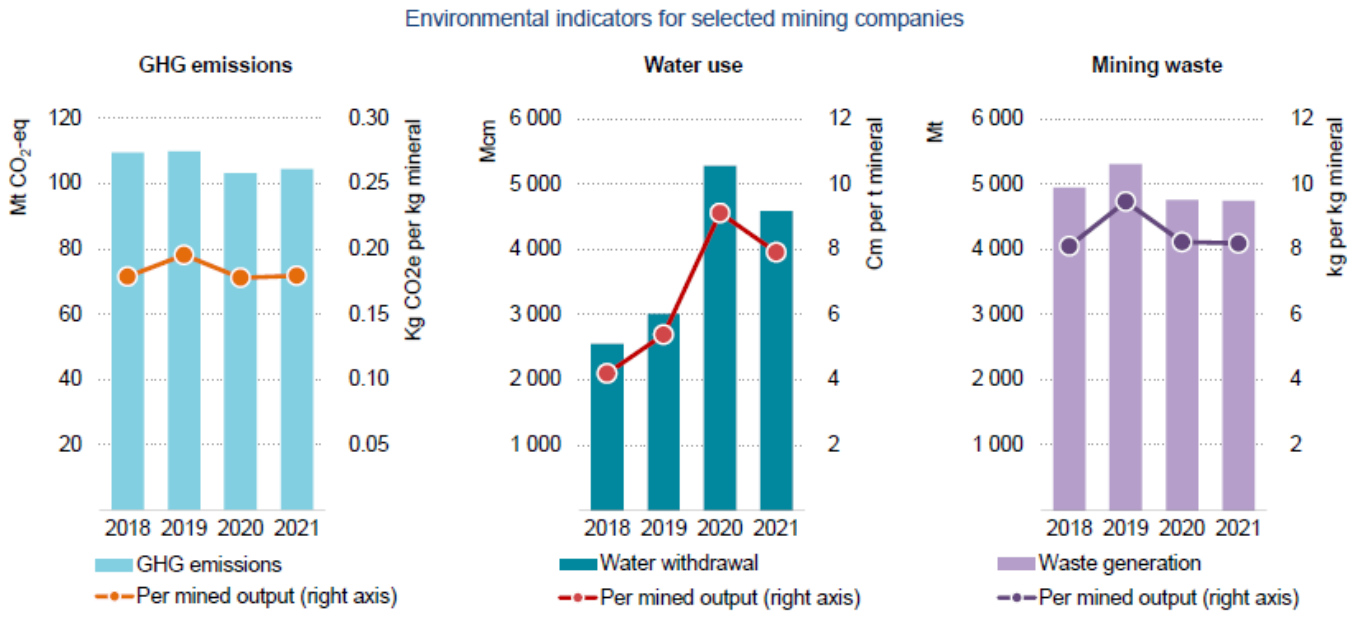
- Need of external partnership to diversify, increase and enhance resilience of critical materials supply chain;
- Regulation: simplify permitting procedures for extraction, processing, and recycling;
- National programs for exploring geological resources. Proven reserves are less concentrated than current production. Critical mineral mapping initiative: many developing regions remain underexplored and lack basic geological mapping (example Australia mapping initiatives that cover 60 countries). Opportunities of new resource & reserves assessment;
- Investing in research, innovation;
- Improving circularity and sustainability of CMR;

- Ensure the environmental and social acceptance of new mining projects by local communities. Work with local governments and civil society to find ways to provide socio-economic benefits to the people living in areas of operation;
- Revamp or construct raw material information system (data collection and reporting) to provide knowledge on CRM primary (extraction) and secondary i.e. recycling;
- Use dismissed or next to EOL mines to recycle waste material with some concentration of critical materials. Assessment the use of biotechnology both for processing and waste management.

STEPS FORWARD.

At the executive school 2023, RES4Africa and Cesi held 2 hours lesson on "CRM: overcoming bottlenecking for renewable energy technology". This Is the first time that the subject is addressed at the executive school and R4A thinks to implement lessons on CRM in other training course, to raise awareness and focus on how better exploit the potential In Africa.

As a second step, RES4Africa is going to prepare a position paper, together with some members interested in working on the subject (Enel and Cesi are already on board). Possible focus of the position paper might be to develop guidelines for a sustainable CRM exploitation, addressing the environmental issues and social impacts.



Notes: CO_2-eq = carbon dioxide equivalent. Aggregated data for Albemarle, Anglo American, BHP, CMOC (only for GHG emissions), Codelco (only for GHG emissions and water use), First Quantum Minerals, Freeport-McMoRan, Ganfeng Lithium (only for GHG emissions and waste), Glencore, Mineral Resources, Norilsk Nickel, Rio Tinto, SQM (only for GHG emissions and waste), Teck Resources, and Tianqi Lithium. Considers reported data for all operations.
Source: IEA analysis based on company annual reports and S&P Global.

Source: IEA

International Partnerships

SECURING THE FOUNDATION'S POSITIONING IN THE AFRICAN AND INTERNATIONAL RENEWABLE ENERGY LANDSCAPE OF STAKEHOLDERS

International partnerships allow to enhance RES4Africa Foundation's presence in the renewable energy sector within Africa, the European sphere, and on the global stage. At the same time, international partnerships help boost visibility, credibility, and exposure to a diverse range of stakeholders, while maintaining valuable connections and relations with preferred partners for information sharing and exchanging perspectives. Additionally, they streamline the implementation of activities and collaborative approaches with partners, reinforcing existing RES4Africa initiatives and overarching components, also identifying opportunities for future collaborative endeavors and areas of impact.

INTERNATIONAL PARTNERSHIPS IN 2023

In 2023, the most relevant international partnerships were consolidated and pursued through meetings held on a regular basis:

Biweekly

- As part of IRENA Coalition for Action, regular meetings were held with EGP, a member of the initiative's steering committee.

Monthly

- EGP Bruxelles, due to their contacts with DG INTPA, in order to gather insights about status of RISE, EFSD+, and general INTPA guidelines on renewables in Africa;
- EDFI, with the goal of information sharing and valuable input with respect to climate and energy finance of the EU.

Bi-monthly

- IRENA Coalition for Action, on several topics relevant to the promotion of RE on the continent.;
- DG INTPA, exchanges mainly concerning the status of RISE, EFSD+, and general INTPA guidelines on renewables in Africa, including regular involvement in the Private Sector MidTerm Review on Multiannual Financial Framework;
- DG NEAR / DG ENER, to understand developments in bilateral EU-North Africa countries on energy and provide important background information for RES4Africa Morocco, Algeria, Tunisia and Egypt work programmes, activities and missions;

International Partnerships

- Friends of Europe – Africa Europe Foundation, to discuss the broader state of affairs on AU-EU relations on energy.

Annual

- IRENA Coalition for Action, participation in the annual meeting taking place on the sidelines of the IRENA General Assembly.

Follow-ups for 2024

- Continue exchanges with stable partners such as EIB (sponsorship renewal and extension for 2024) and Africa-EU Energy Partnership – AEEP (advocacy and policy partner since 2017 regarding AU and EU collaboration on renewable energy);
- The Global Energy Alliance for People and Planet – GEAPP;
- IFC (potential MoU);
- CSR Europe;
- SolarPower Europe.

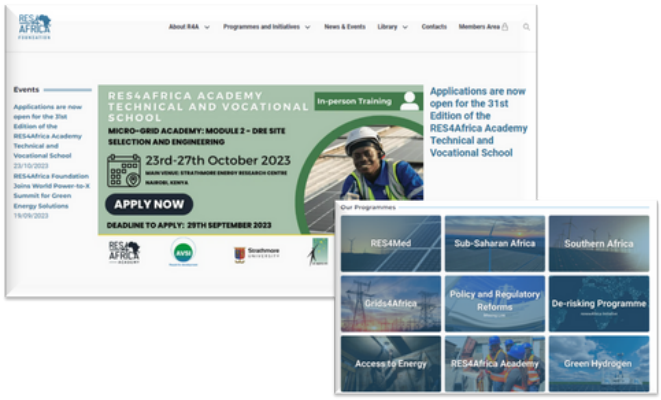
Communications

ONLINE TOOLS

Digital tools have enabled direct dialogue with audiences worldwide who use online platforms as a way not only to access information but also to engage on relevant issues.

New Website

A newly designed user-friendly engaging and informative website to better showcase our work and help us reach more stakeholders with a clearer organization for our programmes and a restructured library section.





Brochure

A re-designed official brochure, with an updated layout, more concise and straightforward in its textual description and showcasing programmes according to an updated subdivision. French and italian versions of the brochure are also available on our website.

Media Partnerships

With the aim of enhancing our content, every month RES4Afria wrote opinion pieces and articles for international magazines and newsletters dedicated to the African continent and/or the international energy sector, continuously informing the press about its activities through press releases and notes.

Events

RES4Africa Foundation organized and hosted more than 19 events in 2023, In total, RES4africa gathered more than 1600+ participants and attendees to both online and in-person meetings, with a majority from African countries. In particular these meetings marked the return of RES4africa teams to core countries such as Morocco, Egypt, Kenya and South Africa.