

# TOWARDS A PROSPEROUS AND SUSTAINABLE AFRICA

MAXIMISING THE SOCIO-ECONOMIC GAINS  
OF AFRICA'S ENERGY TRANSITION



## EXECUTIVE SUMMARY

This document is a product of the staff of the three collaborating organisations, namely the RES4Africa Foundation, the International Renewable Energy Agency, the United Nations Economic Commission for Africa. The findings, interpretations, and conclusions expressed in this work do not necessarily reflect the views of these organisations, their governing bodies, members, or the governments they represent.

This publication and the material herein are provided “as is”. All reasonable precautions have been taken by the collaborating organisations to verify the reliability of the material in this publication. However, the collaborating organisations do not guarantee the accuracy, completeness, or currency of the data included in this work and do not assume responsibility for any errors, omissions, or discrepancies in the information, or liability with respect to the use of or failure to use the information, methods, processes, or conclusions set forth.

The information contained herein does not necessarily represent the views of all Members, or parties, or agents of the collaborating organisations. The mention of specific companies or certain projects or products does not imply that they are endorsed or recommended by the collaborating organisations in preference to others of a similar nature that are not mentioned.

The boundaries, colours, denominations, and other information shown on any map in this work do not imply any judgment on the part of the collaborating organisations concerning the legal status of or sovereignty over any territory or the endorsement or acceptance of such boundaries.

### RIGHTS AND PERMISSION

Unless otherwise stated, material in this publication may be freely used, shared, copied, reproduced, printed and/or stored, provided that appropriate acknowledgement is given of the RES4Africa Foundation, the International Renewable Energy Agency, the United Nations Economic Commission for Africa. Material in this publication that is attributed to third parties may be subject to separate terms of use and restrictions, and appropriate permissions from these third parties may need to be secured before any use of such material.

You may not use this work for commercial purposes.

### CITATION

RES4A, IRENA, and UNECA, 2022. Towards a prosperous and sustainable Africa: Maximising the socio-economic gains of Africa’s energy transition. RES4Africa Foundation, Rome.

© RES4Africa Foundation, 2022  
Via Ticino, 14 - 00198 Rome - Italy  
[www.res4africa.org](http://www.res4africa.org)

## ABOUT

### About

#### RES4Africa Flagship Report

Each year, RES4Africa Foundation releases a Flagship publication serving as a high-level resource and providing timely insights in support of dialogue and awareness-raising. The themes focus on key policy issues relevant to Africa’s renewable energy market development. The publication seeks to:

- Shed light on specific issues to raise awareness and build consensus between, and within, the international development community and renewable energy business leaders;
- Convey high-level policy messages and calls for action to decision-makers on relevant and timely themes;
- Contribute to accelerating progress towards the achievement of universal electricity access in Africa by 2030, in line with Sustainable Development Goal #7 (SDG7).

### About

#### RES4Africa Foundation

Founded in 2012, RES4Africa (Renewable Energy Solutions for Africa) is a Foundation with a vision to support Africa’s just energy transition. Its mission is to work towards creating favourable conditions for scaling up investments in clean energy technologies across the continent. Functioning as a bridge between Europe and Africa, RES4Africa envisions a sustainable transformation of the continent’s electricity systems to provide reliable and affordable electricity access and enable socio-economic progress.

### About

#### IRENA

The International Renewable Energy Agency (IRENA) serves as the principal platform for international cooperation, a centre of excellence, a repository of policy, technology, resource, and financial knowledge, and a driver of action on the ground to advance the transformation of the global energy system. A global intergovernmental organisation established in 2011, IRENA promotes the widespread adoption and sustainable use of all forms of renewable energy, including bioenergy, geothermal, hydropower, ocean, solar, and wind energy, in the pursuit of sustainable development, energy access, energy security, and low-carbon economic growth and prosperity.

### About

#### UNECA

Established by the Economic and Social Council (ECOSOC) of the United Nations (UN) in 1958 as one of the UN’s five regional commissions, UNECA’s mandate is to promote the economic and social development of its member States, foster intra-regional integration, and promote international cooperation for Africa’s development. Made up of 54 member States, and playing a dual role as a regional arm of the UN and as a key component of the African institutional landscape, UNECA is well-positioned to make unique contributions to address the Continent’s development challenges. UNECA’s mission is to deliver ideas and actions for an empowered and transformed Africa, informed by the 2030 Sustainable Development Agenda and Africa’s Agenda 2063.

## EXECUTIVE SUMMARY

# TOWARDS A PROSPEROUS AND SUSTAINABLE AFRICA

MAXIMISING THE SOCIO-ECONOMIC GAINS OF AFRICA'S ENERGY TRANSITION

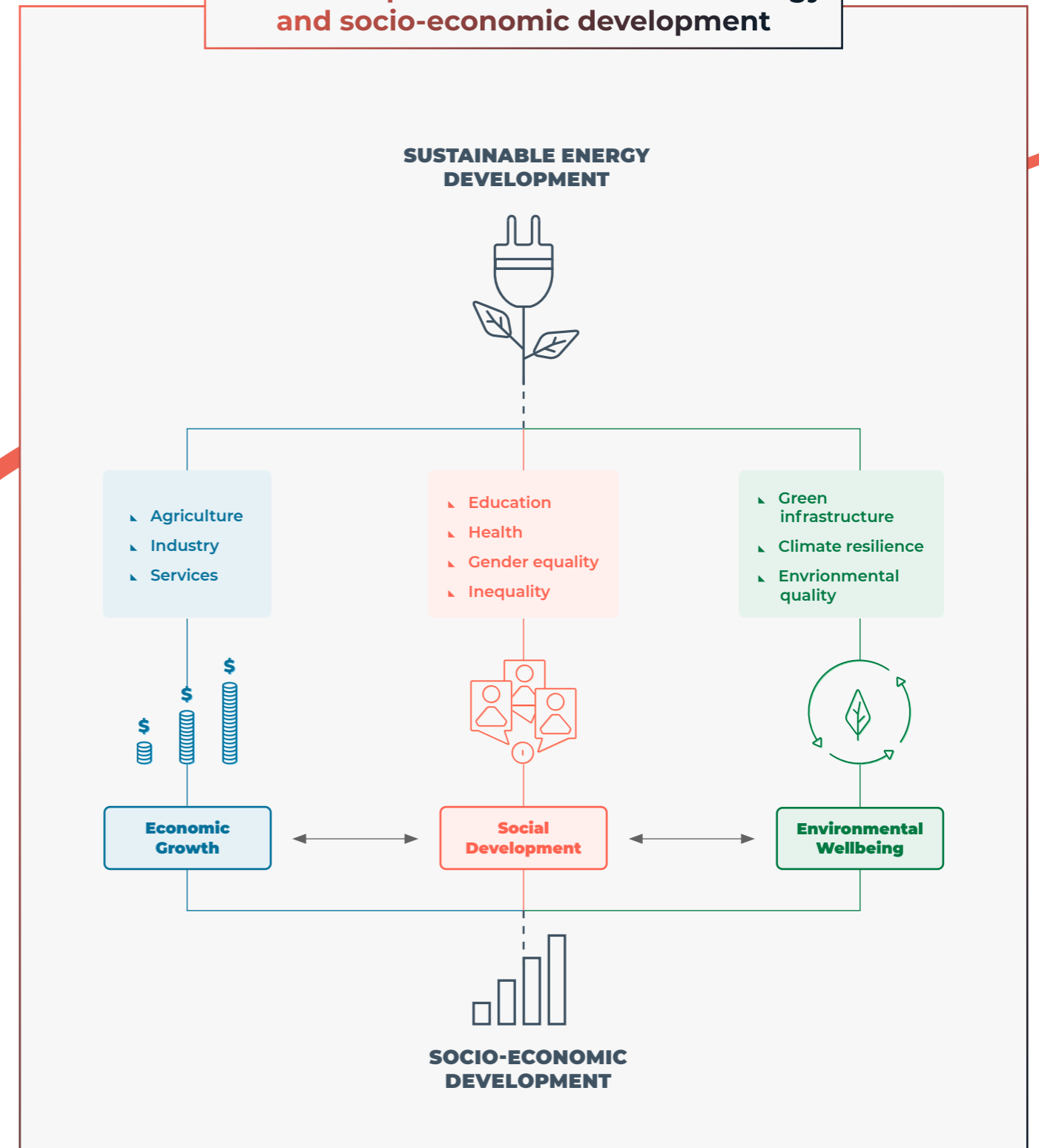
## UNDERSTANDING THE SOCIO-ECONOMIC

## BENEFITS OF SUSTAINABLE ENERGY ACCESS

Fundamental to providing reliable, affordable, and sustainable electricity access to all, renewable energy investments at scale can contribute to supporting Africa's prosperity.

The positive links between economic development and investments in sustainable energy infrastructure at large are widely established. Indeed, sustainable energy is an important input to agricultural, industrial, and services outputs and value addition. On social development, energy plays a key role in improving the quality of social services provided, such as in healthcare and education. As such, African countries are encouraging further commitments and investment in sustainable energy development, linked to the socioeconomic development goals and aspirations of the continent.

## Relationship between sustainable energy and socio-economic development



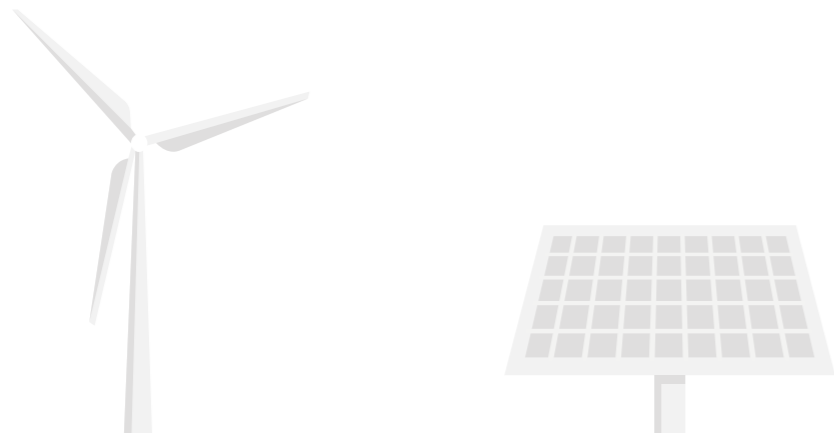
**TOWARDS A PROSPEROUS AND SUSTAINABLE AFRICA**  
MAXIMISING THE SOCIO-ECONOMIC GAINS OF AFRICA'S ENERGY TRANSITION

**MEASURING THE SOCIO-ECONOMIC FOOTPRINT  
OF AFRICA'S ENERGY TRANSITION**



A pathway to a renewables-based energy system promises substantial gains in GDP, employment, and human welfare in the African continent.

If an energy decarbonisation roadmap is pursued – the **1.5°C Scenario** in line with limiting global temperature increase to below 1.5°C relative to pre-industrial levels –, Africa stands to gain more socio-economically than if governments follow current energy plans and policies – the **Planned Energy Scenario (PES)**. Led by government spending, GDP will be higher, by an average of 6.4 per cent to 2050, than in the **PES**. Similarly, economy-wide employment is 3.5 per cent higher on average in the **1.5°C Scenario** compared to the **PES**. The energy sector will have at least 28 million jobs in 2050, with renewable energy jobs rising from more than 0.3 million today to 8 million by 2050. The five welfare dimensions analysed – economic, social, environmental, distributional, and access – all fare better under the **1.5°C Scenario**.



**IRENA's Energy Scenarios**

**PES**

The **Planned Energy Scenario (PES)** is the primary reference case for this study, providing a perspective on energy system developments based on governments' current energy plans and other planned targets and policies, including Nationally Determined Contributions (NDCs) under the Paris Agreement.

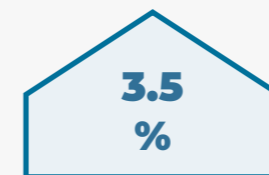
**1.5-S**

The **1.5°C Scenario (1.5-S)** describes an energy transition pathway aligned with the 1.5°C climate ambition - that is, to limit global average temperature increase by the end of the present century to 1.5°C, relative to pre-industrial levels. It prioritises readily available technology solutions, which can be scaled up at the necessary pace for the 1.5°C goal.

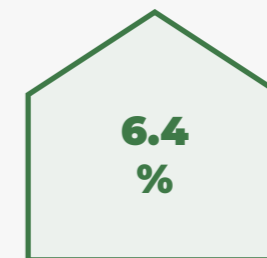
Source: IRENA, 2021

**Average difference between 1.5-S and PES in the 2021-2050 period**

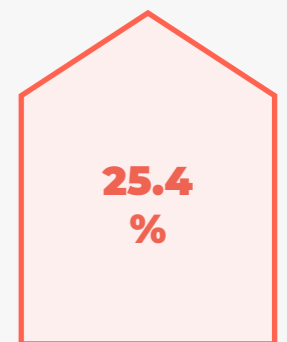
**More economy-wide jobs**



**More GDP**



**Higher welfare index**



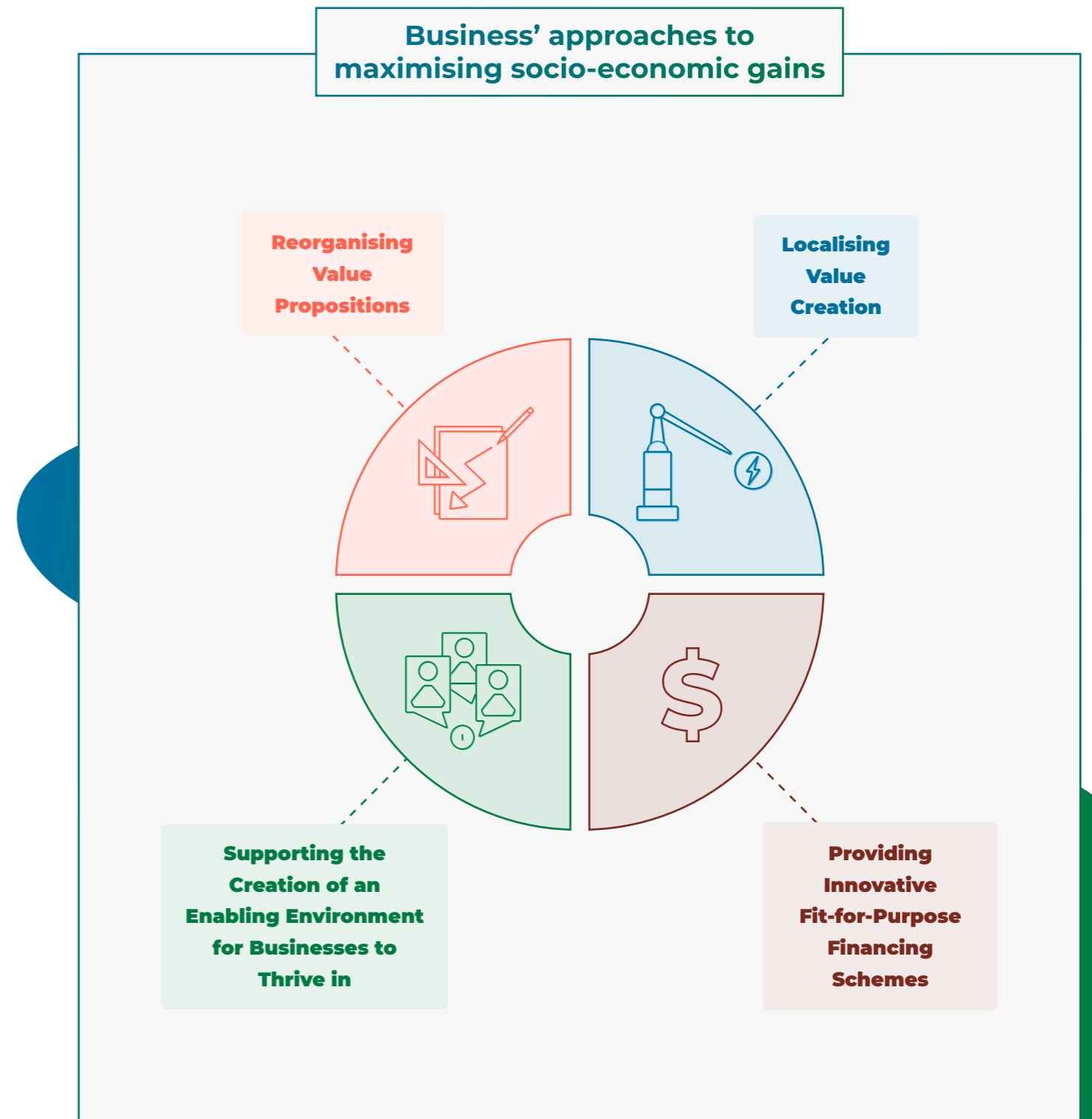
Source: IRENA, 2021

**TOWARDS A PROSPEROUS AND SUSTAINABLE AFRICA**  
MAXIMISING THE SOCIO-ECONOMIC GAINS OF AFRICA'S ENERGY TRANSITION

**EXPLORING THE ROLE OF THE RENEWABLE ENERGY  
INDUSTRY IN DELIVERING DEVELOPMENT OUTCOMES**

The renewable energy industry is adjusting its business strategy and modus operandi in order to generate cascading socio-economic benefits and augment its positive impact.

The private sector has a great role to play in making these potential socio-economic benefits materialise. Recognising the inherent value of sustainability, renewable energy industry participants are taking important steps to augment the socio-economic gains associated with their projects. They are doing so by reorganising value propositions to address customer needs at the bottom of the economic pyramid, localising value creation, supporting the creation of an enabling environment for businesses to thrive through training, awareness-raising, and public-private dialogue, and providing innovative fit-for-purpose financing schemes designed to better adapt to the local context of energy projects in African countries.

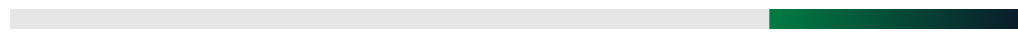


**EXECUTIVE SUMMARY**

**TOWARDS A PROSPEROUS AND SUSTAINABLE AFRICA**  
MAXIMISING THE SOCIO-ECONOMIC GAINS OF AFRICA'S ENERGY TRANSITION

**OVERCOMING THE BARRIERS TO SCALE UP**

**ENERGY TRANSITION EFFORTS**



To see socio-economic projections materialise on the African continent and enable the maximisation of the socio-economic benefits of energy transition strategies, a rethink and scale-up of current efforts is needed.

Despite the bold steps taken by forward-looking renewable energy companies, accomplishments and success stories remain limited in scope and scale. While a substantial scaling-up of efforts from all sides is necessary to achieve the SDGs in Africa, bottlenecks and barriers emerge at three interconnected levels:

**CONSTRAINTS EMERGING AT THE MACRO-ENVIRONMENT LEVEL**

The macroeconomic context of a number of African markets poses challenges and places barriers to private investment. Gaps in governance frameworks and national institutional capacity reduce the ability of governments to conceive, adopt, and implement policies. These are needed to provide long-term signals to private players to plan investments. Moreover, limited human capital infrastructure could dampen the outlook for project implementation and local gains.

**CONSTRAINTS EMERGING AT THE INDUSTRY VALUE CHAIN LEVEL**

Africa continues to face marginal integration into global supply chains, coupled with inadequate investments in innovation and technology adoption. Suppressed or intermittent demand for electricity services further limits market size and the stability of demand for renewables.

**CONSTRAINTS EMERGING AT THE BUSINESS ENVIRONMENT LEVEL**

At the business environment level, inadequate or poorly implemented policies and regulations, as well as the high-risk perception associated with the African business environment impact the bankability of project pipelines. The combination of these factors with structural challenges for revenue streams associated with current business models reduce the appetite of investors and hamper scaled renewable energy deployment in the continent.



**RECOMMENDATIONS**

Calibration and tailoring

- 6 Enhance public awareness about the benefits of green industrialisation to build social support and acceptance.
- 8 Scale-up investments in science, technology, research, and innovation to promote sustainable technology uptake and local production.
- 9 Set up smart local content regulations to support local value creation opportunities aligned with national competitive advantages.
- 10 Reinforce technical and vocational training programs to build the skills set required to develop energy transition sectors.
- 11 Expand the innovative project and corporate financing schemes, such as green and SDG bonds, to increase capital availability for sustainable and impactful projects.
- 13 Expand the availability and accessibility of de-risking tools and products to decrease the cost of capital for sustainable projects.

Condition for joint efforts

- 3 Align energy infrastructure development planning to socio-economic development agendas and priorities.
- 4 Define and create appropriate multi-stakeholder consultative platforms and partnerships for policies definition and targets implementation.
- 7 Leverage South-South economic and industrial integration to build competitive African supply chains and manufacturing capacities.
- 12 Increase the participation of domestic financing and local financial institutions in support of sustainable energy projects.
- 14 Improve the openness, attractiveness, and readiness of electricity markets through fit-for-purpose policies and regulatory reforms and improvements.
- 15 Redirect public support such as incentives and subsidies to sustain fragile populations and sustainable energy consumption behaviours.

The Base

- 1 Integrate inclusiveness and social justice principles in the definition of energy strategies to leave no one behind.
- 2 Establishing sound governance and capacitate institutions to deliver on inclusive energy transition and sustainable development goals.
- 5 Reinforce investments in the social infrastructure needed to deliver on sustainable economic and energy transition priorities.

As joint authors of this report, UNECA, IRENA, and RES4Africa call for enhanced cooperation among countries, public and private sectors, and the international community to accelerate sustainable development goals in Africa and support a just and inclusive energy transition. Joint recommendations are presented below to support the sustainable transformation of Africa's energy system and maximise its consequent socio-economic gains.

**OUTCOMES**

Calibration and tailoring

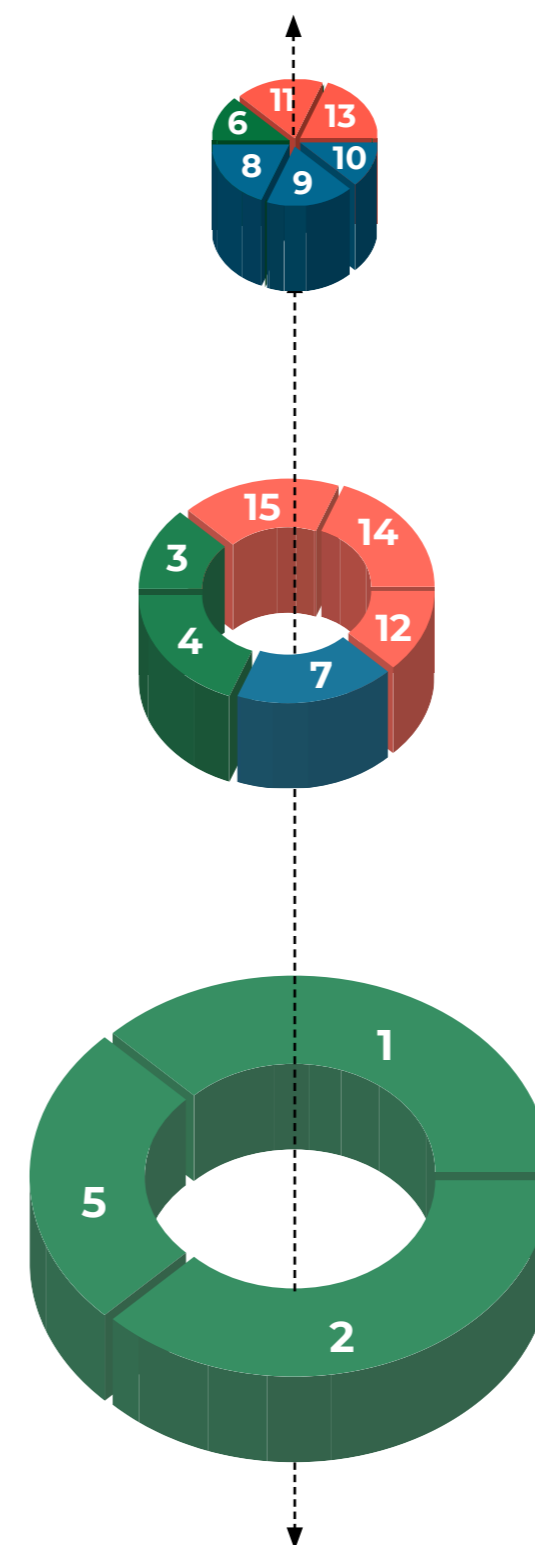
- ▲ Planning is fit-for-purpose
- ▲ Resources are allocated more efficiently toward energy transition goals
- ▲ African regional markets are consolidated
- ▲ Favourable business conditions are ensured
- ▲ Stakeholders are included in decision-making

Condition for joint efforts

- ▲ The availability of skills matches demand
- ▲ Innovation and finance are tailored to local needs
- ▲ Stakeholders take ownership of projects

The Base

- ▲ Policies integrate socio-economic considerations
- ▲ Institutions are prepared to lead the transition
- ▲ Education and health of the population is ensured



## WAY FORWARD

Africa's future can be bright. An ambitious energy transition can help pave the way to full access to clean and affordable energy, yield new socio-economic opportunities, and promote sustainable development. African governments and stakeholders can leverage international cooperation, including South-South cooperation frameworks, to address socio-economic challenges and plan appropriately for the longer term. Faster, more focused, and more successful progress can be made with well-designed strategies and dedicated implementation, supported by appropriate instruments to maximise the socio-economic benefits of the energy transition in Africa. IRENA, UNECA, and RES4Africa stand ready to support the energy transition efforts of African countries. We encourage all players to move forward better by committing to the recommendations and partnering for their implementation.

An energy system centred on renewable and sustainable energy can contribute to addressing many of Africa's social, economic, health and environmental challenges. Africa can resolve these challenges by working together inclusively with a wide range of stakeholders to expand energy access, create decent jobs, eradicate poverty, and improve the welfare of all its citizens. While this may seem like a daunting task, African nations have already demonstrated their capacity to confront such formidable challenges with impressive results. By acting together, and acting now, we can ensure that Africa's bright future lives up to its potential.

## ACKNOWLEDGEMENTS

### PARTNERSHIP

The 4th edition of the RES4Africa Flagship publication is a product of the close collaboration between the RES4Africa Foundation, the International Renewable Energy Agency, and the United Nations Economic Commission for Africa.

RES4Africa is grateful for the generous support of Enel Foundation, which made this publication possible.

### AUTHORSHIP

Technical leadership of this publication was the shared responsibility of Rabia Ferroukhi (IRENA), Roberto Vigotti (RES4Africa), and Robert Lisinge (UNECA).

The valuable comments and insights provided by David Lecoque (Alliance for Rural Electrification), Amy Todd and Colm Fay (Clean Cooking Alliance), Amith Singh and Hlatse Nkune (Nedbank), Amr Kandil (Schneider Electric), Kristian Heydenreich (Vestas) through interviews are also gratefully acknowledged.

Editorial support was provided by: Rence Events

The report was designed by: Gate44

The cover was designed by: Charles Crouzat

- ▶ **Chapter 1** was developed by UNECA and authored by Yohannes G. Hailu.
- ▶ **Chapter 2** was developed by IRENA and authored by Carlos Guadarrama and Ulrike Lehr. The modelling and interpretation of results were provided by Xavier Casals and Álvaro López-Peña (consultants), as well as Ha Bui, Alistair Smith, and Jon Stenning (E3ME, Cambridge Econometrics).
- ▶ **Chapter 3** was developed by RES4Africa Foundation and authored by Iarina Ciceu, Andrea Renzulli, and Gus Schellekens.
- ▶ **Chapter 4** was jointly developed by the collaborating institutions.







United Nations  
Economic Commission for Africa



**IRENA**  
International Renewable Energy Agency