1. Africa is transforming into a continent of opportunity and growth

- Fast-paced urbanisation
- Stable GDP growth
- Expanding middle class & changing lifestyles
- Young, digitally connected, entrepreneurial
- Sustained population growth
2. Triple growth challenge: many Africans lack access to basic resources while growth trends and climate change further stress resource access in coming decades

1. Sub-Saharan Africans already lack access to basic resources

   - Lack access to electricity: 600 million people
   - Lack access to safely-managed drinking water: 737 million people
   - Experience severe food insecurity: 374 million people

2. Expected growth will increase demand for these resources in coming decades

   - Food demand: +60% by 2030 (compared to 2015 levels)
   - Water consumption: +283% by 2030 (compared to 2005 levels)
   - Electricity demand: +70% by 2030 (compared to 2016 levels)
Africa is the most vulnerable continent to climate change impact

3. Climate change impact will add further stress on already limited resource supply systems and infrastructure.

- Overall negative effect on yields of major cereal crops with possible pressure on food prices of basic cereals
- Increased challenges from existing stressors on ocean systems, as overexploitation of resources, habitat degradation, loss of biodiversity and negative impact on fisheries
- Freshwater ecosystems are at risk from anthropogenic land use change, over-extraction of water and diversions from rivers and lakes
- Livestock systems face multiple stressors that can interact with climate change to amplify the vulnerability of livestock-keeping communities
- Changing temperature and precipitation patterns could worsen malnutrition, diarrheal diseases, and malaria and other vector-borne diseases
3. Improving access to affordable, reliable and sustainable energy is key to enable Africa’s sustainable development and growth.

There is a huge need to invest in Africa’s new energy infrastructure.
4. Africa’s energy future lies in the renewable energy resources it has been blessed with

1. Huge local renewable energy sources
   - On average 2,000 kWh/m² of irradiance level for more than 320 d/y
   - 1,300 GW of wind energy onshore and offshore
   - 15 GW of geothermal energy (mainly in the Rift Valley)
   - 283 GW of hydropower energy

2. Cost-competitive modular technologies

3. Easily scalable to address Africa’s energy access challenge
5. Achieving universal access to energy in Africa requires a grand strategy of multiple and versatile solutions

ELECTRIFICATION SOLUTIONS

MINI GRID + OFF-GRID SOLUTIONS

SMART EXTENSION

GRID EXTENSION

A holistic strategy of multiple, versatile and innovative solutions are needed to achieve universal energy access in Africa.
6. Connecting the dots: The Water-Energy-Food Nexus

**Energy** is required to extract, process and distribute water, as well as power agricultural and agri-business processes;

**Water** is central to all form of energy generation, human needs and all agricultural production;

**Food** requires vast amounts of water and energy for production, processing, distribution, storage and disposal of food products;

WATER, ENERGY AND FOOD ARE THE BUILDING BLOCKS OF ANY ECONOMY AND SOCIETY
7. WEF Nexus reveals innovative approaches to overcome energy access gaps by focusing on how energy acts as an enabler of development

Drives new markets, business and demand

Enables higher productivity

Electrification drives more efficient processes

Impacts ability to pay

Improved community welfare and livelihood

Improved resource management and access to resources

Stimulate new economic sectors, business growth and job creation

Reduced GHG emissions and pollution

Economic development impact

Beneficiaries become customers

Productive uses stimulate demand and create markets

Business models appear for sustainable development

Sustainable development impact
8. Opportunities for impact: Nexus-business models can unlock opportunities for market growth and sustainable development in African communities

- A WEF integrated approach can lead to **business cases** for investment to **stimulate bottom-of-pyramid markets** and enable **last-mile connectivity**;

- Applied at **scale**, these cases can **trigger energy access demand**, increase economic **productive capacity**, and drive **sustainable development**;

- The WEF Nexus has the **transformative power** to build **new energy access markets** and to **enable the development impact** that is needed to **meet the SDGs**.
9. A key empowering role for private sector

- Private sector is key to turn priority into action;
- Sustainability has become a strategy for business transformation;
- Companies can do well by doing good when they address social needs (CSV approach);
- The WEF Nexus can provide business opportunities for private sector and development opportunities for local communities.

Creating Shared Value (2011), Kramer & Porter
10. Do the benefits translate? Case study: Ikondo-Matembwe project

- Exploring the added value of RE-based WEF Nexus projects is key to make a case for scalability;

- Micro-economic modelling CB-analysis* was ran of a local multi-service integrated project in rural Tanzania;

A CASE STUDY APPLICATION OF THE WEF TRANSFORMATION APPROACH

SOLE ENERGY INVESTMENT

INTEGRATED WEF INVESTMENT

5,940,652

12,479,239

ENPV

IRR

16,0%

22,6%

3,1

4,5

BENEFIT / COST

Analysis confirms that WEF integrated projects can engender more significant development impact for local communities compared to single-service projects*.

*direct, indirect and induced benefits
11. RES4Africa’s call for action: to scale up WEF Nexus investment through innovative, inclusive, and result-oriented collaboration

Take-aways:

*Energy Access can achieve more than we think.*

Paradigm shift 1: *Energy enables development*
Paradigm shift 2: *Energy is interlinked with other key sectors*

- Opportunities for market and business growth
- Opportunities for virtuous sustainable development cycles

Need for:
- Inclusive partnerships and cross-sectoral collaboration
12. A Call for Action: scaling up the WEF Nexus through partnerships

- Define national development objectives and conduct strategic planning
- Support governments in creating and implementing an enabling environment for WEF Nexus applications
- Commit resources, technologies and funding to implement energy projects or services
- Design appropriate financing and de-risking instruments to achieve greater bankability of projects
- Commit resources and technologies to implement water or agribusiness projects or services
- Support creation of local capacities and support local communities’ engagement
- Participate in decision-making processes for local development initiatives
13. Recommendations for action

1. Break the silo mentality and embrace a WEF Nexus strategy

2. Walk the WEF Nexus talk and step up financing

3. Build an inclusive and supportive WEF Nexus business environment

4. Dedicate efforts to capacity building on the WEF Nexus

5. Fill the WEF Nexus information gap

6. Innovate business models by exploring partnership potentials
**Key messages**

**Africa** stands at **new horizons of growth and access to energy** is a **fundamental pillar** to ensure Africa’s sustainable development;

**Renewables are key** to leapfrog towards Africa’s sustainable energy future;

Energy is an **enabler for development** because it empowers **livelihoods and productive uses**;

**WEF Nexus**: water, energy, food are an economy’s building blocks. Energy is strongly interlinked with these sectors, revealing opportunities for synergy;

RE-based WEF Nexus business models create opportunities to solve **access to basic service and resource needs, create new markets and grow local economies**;

WEF Nexus approach allows **companies to create share value by addressing social needs**;

Investing in **integrated water-energy-food projects bring greater development impact** for local communities compared to single-sector energy-only business models;

Next step is to **scale-up WEF Nexus cases** through innovative partnerships and cross-sectoral cooperation.
Thank you
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