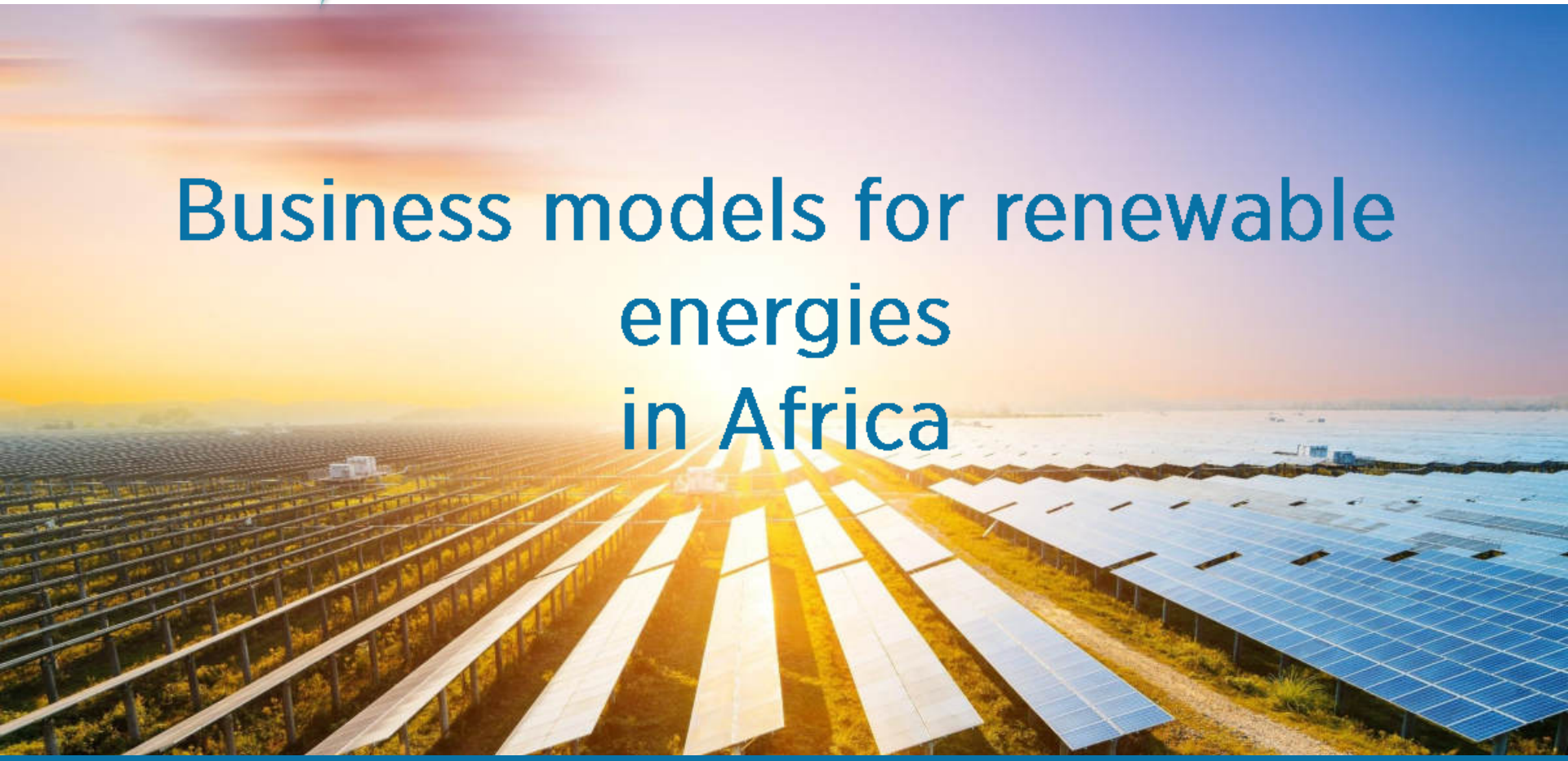
IRENA PROJECT NAVIGATOR

IRENA
International Renewable Energy Agency



Business models for renewable energies in Africa

Energie Forum, Dresden
Roland Roesch, 1. Dezember 2017

OVERVIEW

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MANDATE

To promote the widespread adoption and sustainable use of **all forms of renewable energy** worldwide

OBJECTIVE

To serve as a **network hub**, an **advisory resource** and an **authoritative, unified, global voice** for renewable energy

SCOPE

All renewable energy sources produced in a **sustainable manner**

KEY FACTS

IRENA
International Renewable Energy Agency

- Established in 2011
- First global intergovernmental organisation headquartered in Middle East
- Headquarters in Masdar City, Abu Dhabi, UAE
- IRENA Innovation and Technology Centre – Bonn, Germany
- Permanent Observer to the United Nations – New York

MEMBERSHIP

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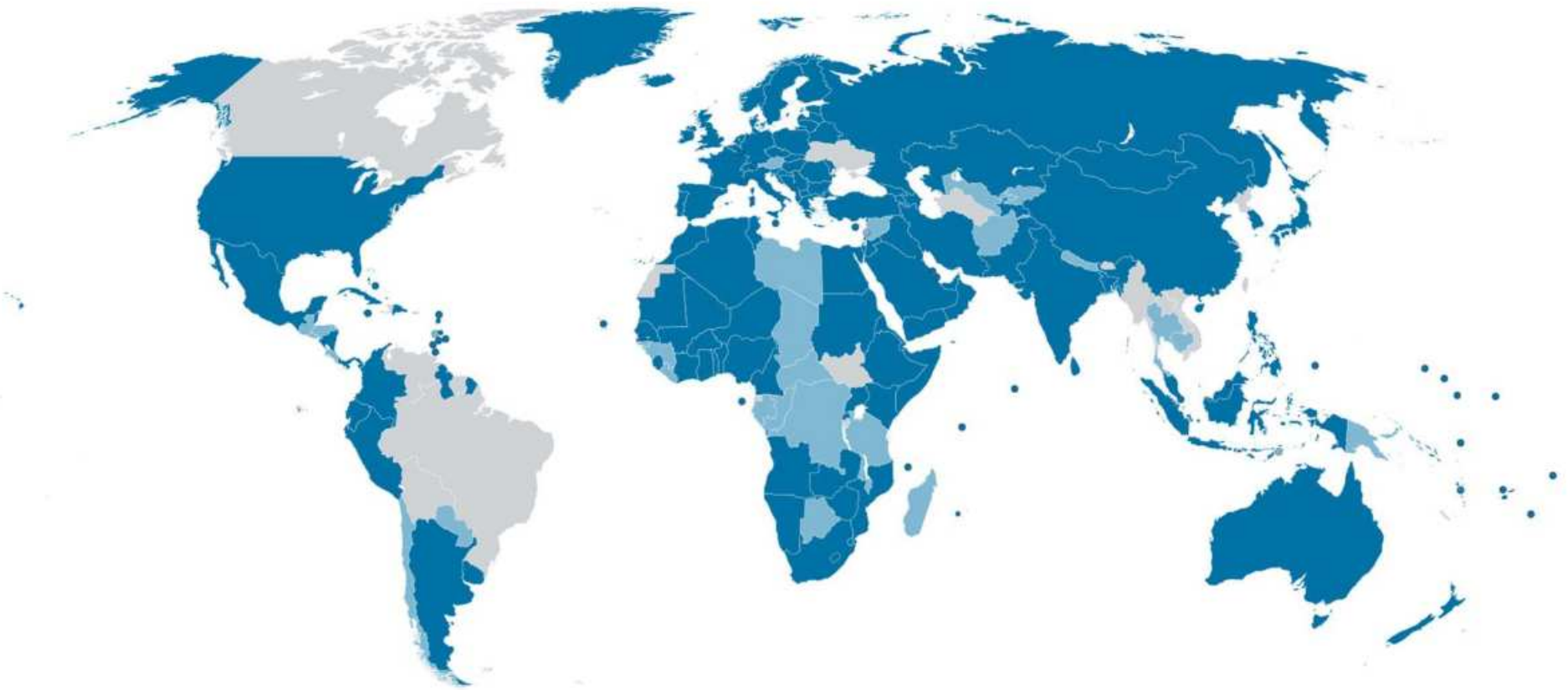

154 Members

26 States in Accession

Utility-scale Solar PV Installation Costs in Africa

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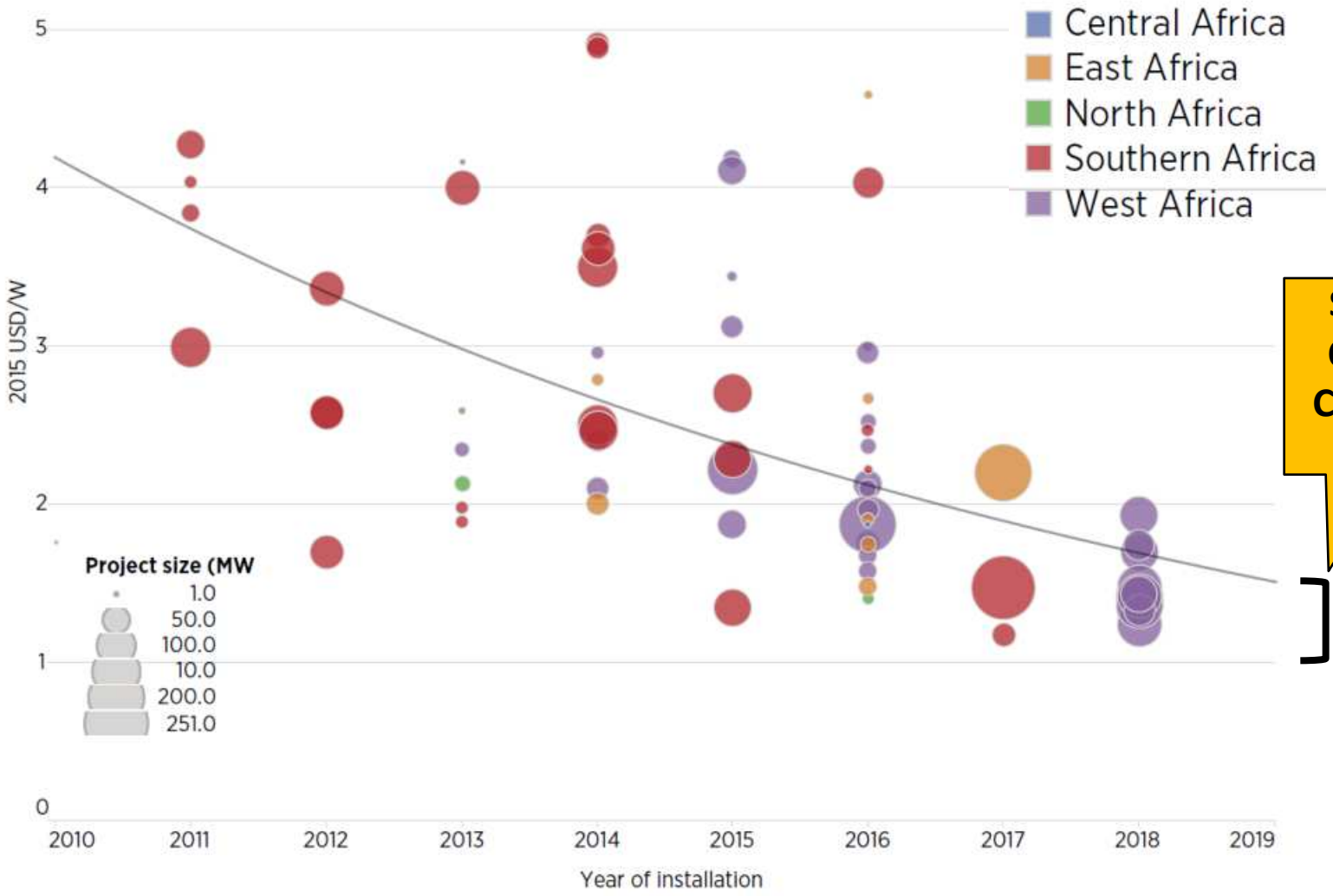

LCOE of Utility-scale Renewables, 2010-2014

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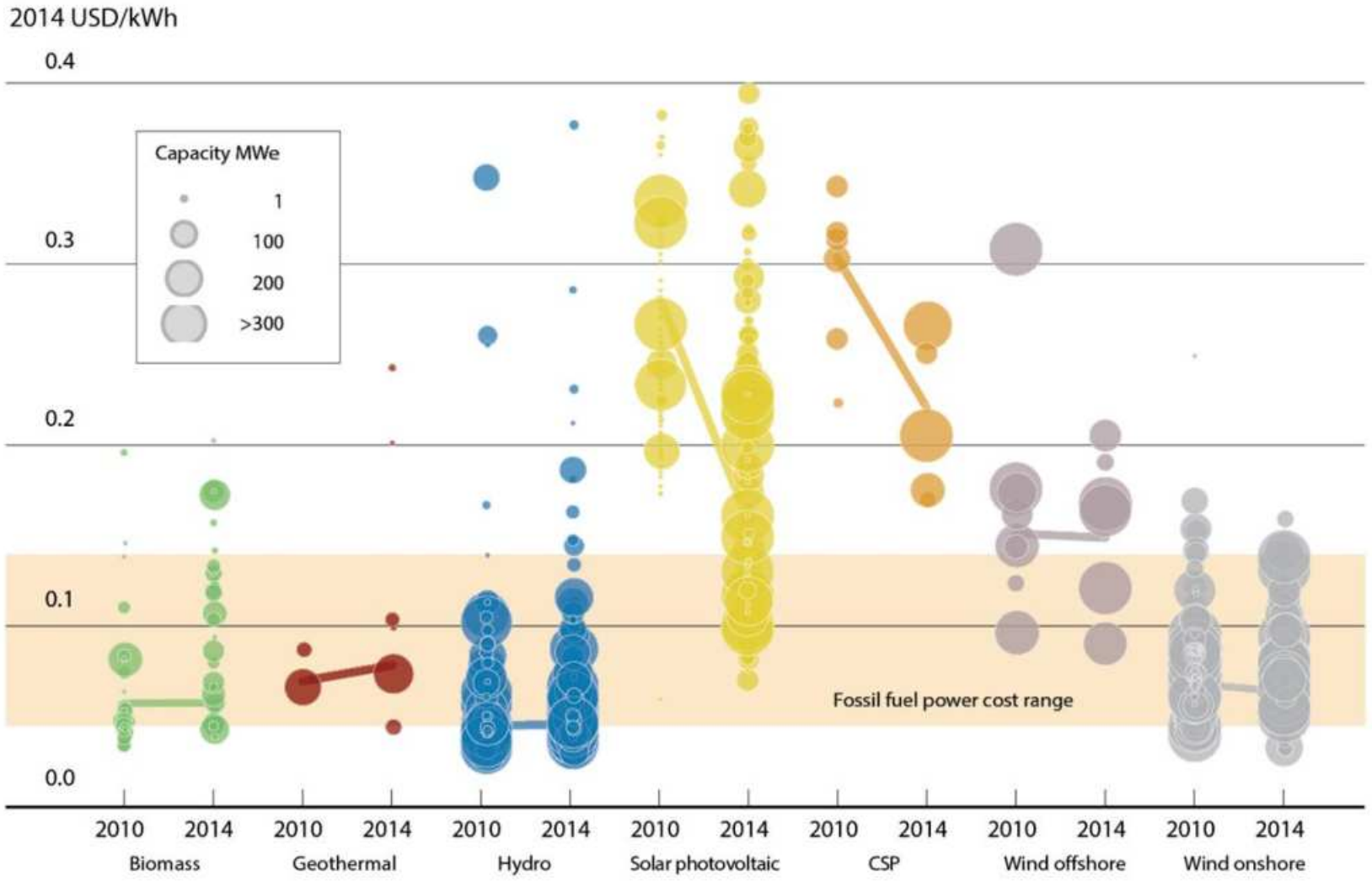
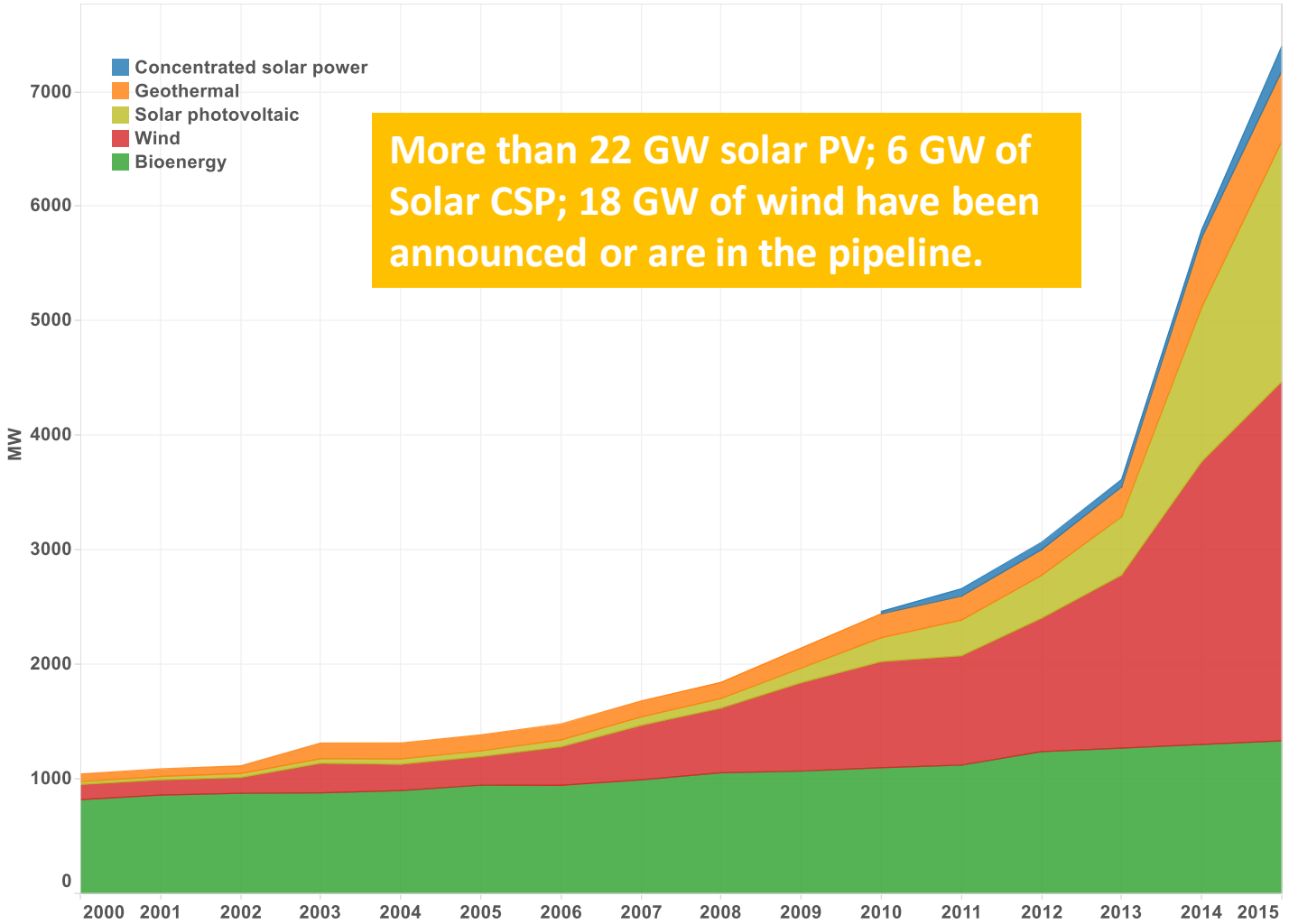


Rapid RE power growth in Africa



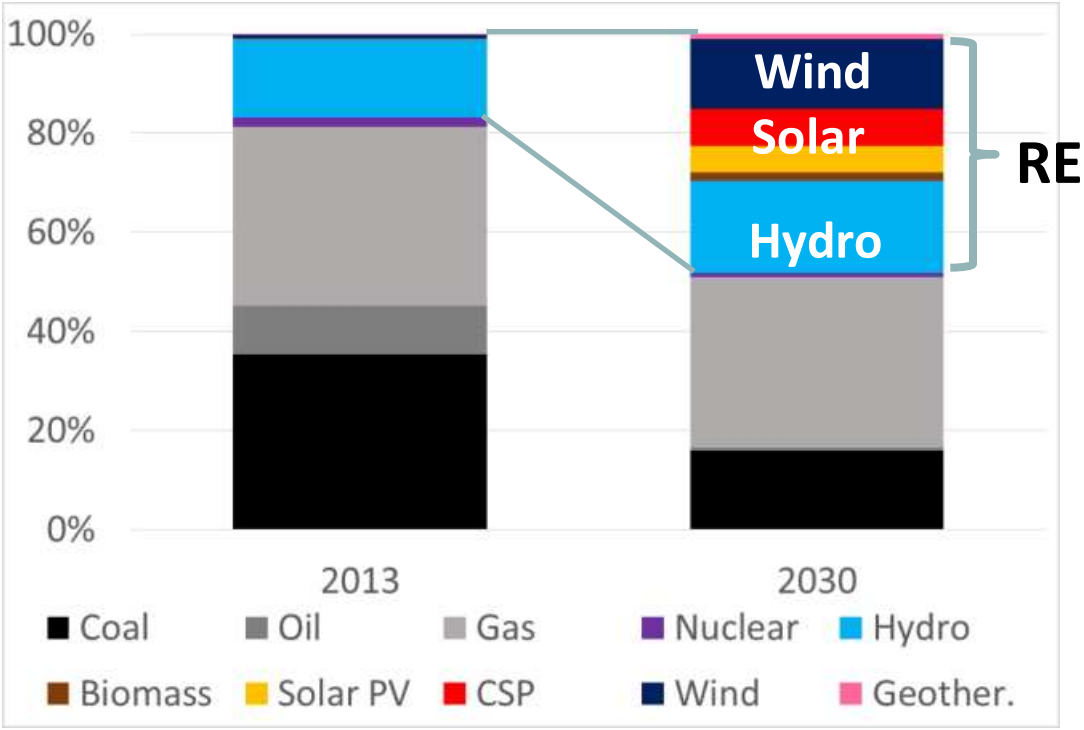
29.4 GW hydropower not shown

Diversified power generation mix

- Total installed capacity by 2030: 610 GW, up to 310 GW renewables – more than an 8-fold increase from 2013 level

- REmap options
  - Hydro: 100 GW
  - Wind: 100 GW
  - Solar PV: 55 GW
  - CSP: 38 GW
  - Biomass: 32 GW

Generation mix in 2013 and with REmap options



2030 energy mix to be characterized by diversified power sources

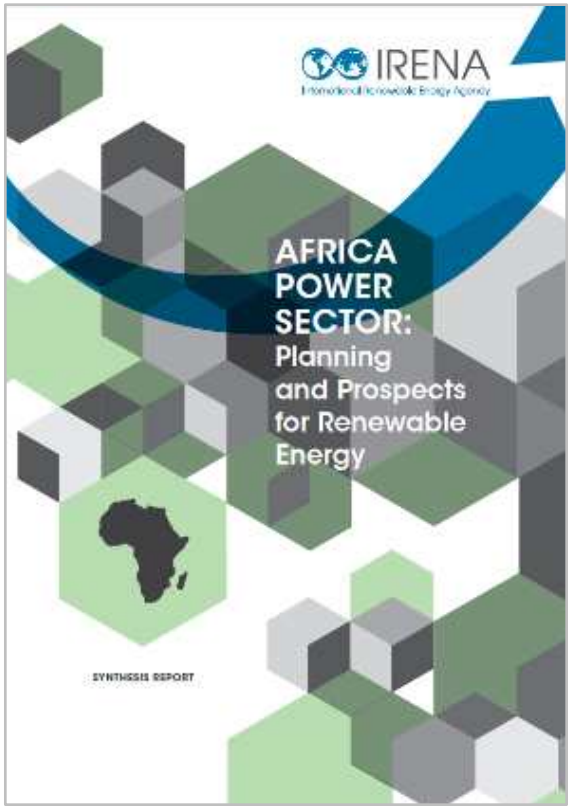
Investment needs

Investment needs between 2015 and 2030:

70 billion per year for the power sector

including

- 7 billion for hydro
- 25 billion for other renewable generation options
- 25 billion for T&D



Different solutions for different regions

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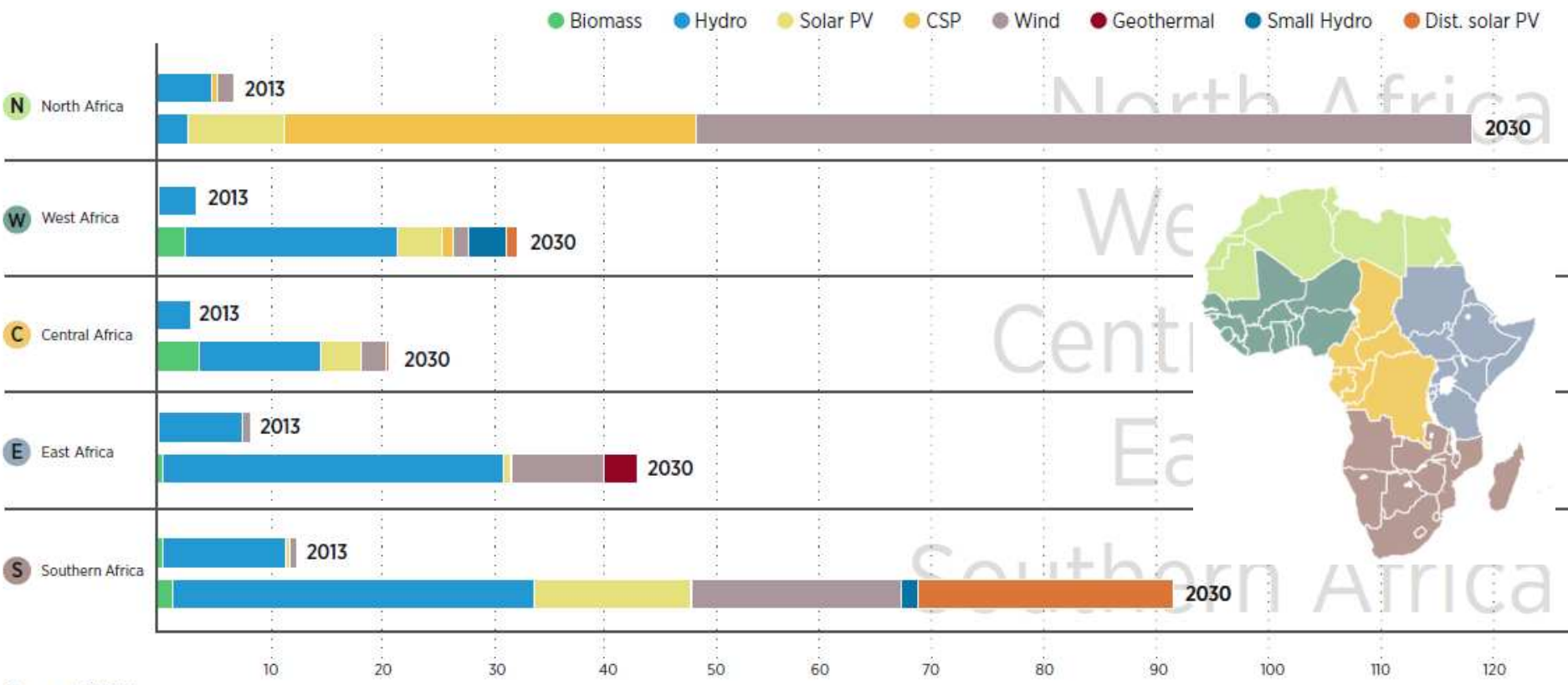

Source: IRENA

Emerging markets as Africa face risk of substandard technology entering the market

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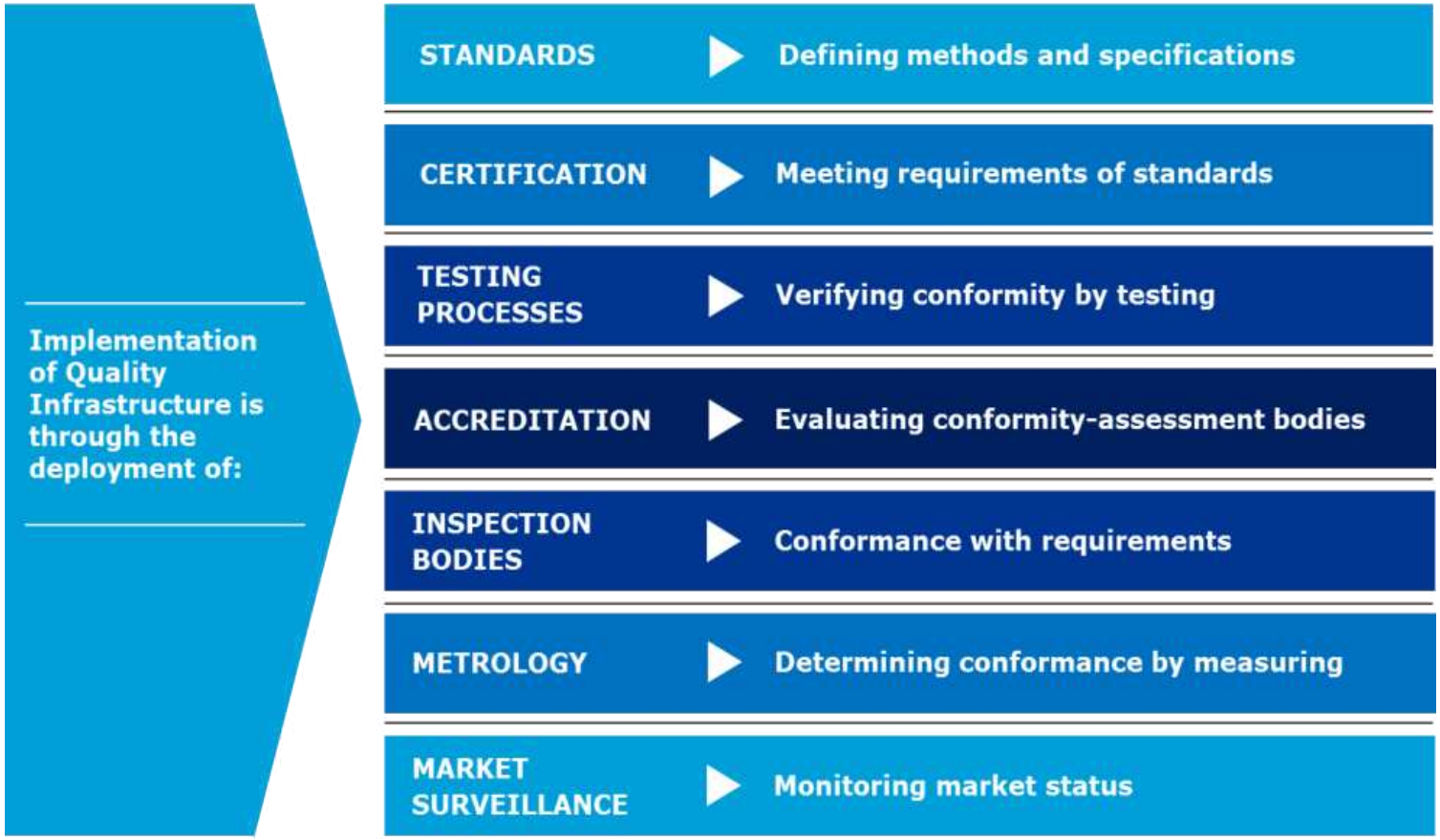
Quality infrastructure is a powerful instrument to mitigate technical risk and harmonise international requirements for globalised RE markets. However:

- It is a complex system with many players
- It requires strong international cooperation networks and technical understanding

IRENA is supporting countries to build up a Quality Infrastructure for RE



IRENA – Sample of activities in Quality Assurance & Standards

REQUESTS

- ✓ **Mauritania:** Request for support on grid connection codes
- ✓ **Tanzania:** Solar thermal
- ✓ **Latin American region:** In cooperation with PTB, quality control for solar thermal and PV systems
- ✓ **MENA region:** In cooperation with EU GCC testing for PV systems
- ✓ **China:** Technical standards for Offshore Wind technology
- ✓ **Japan:** quality control for PV and Wind technologies in extreme weather conditions
- ✓ **UAE:** International Standards for PV systems
- ✓ **Colombia:** Grid codes

PARTNERS

- ✓ **German Metrology Institute- PTB:** Seconded staff, Quality infrastructure support, Regional Workshops
- ✓ **International Electrotechnical Commission - IEC:** Workshops for Countries on use of standards, INSPIRE
- ✓ **ENTSO-E, SolarPower Europe and Solar United**: PV and grid codes

- ✓ **IEA PVPS Task 13:** Solar Bankability
- ✓ **WWEA:** Standards in small wind technologies

- ✓ **EU GCC Clean Energy Technology Network :** GCC Inception meeting & training-Solar Photovoltaic Testing Centres Network

IRENA Project Navigator

The challenge of RET projects

- Failing to prove project bankability to funding institutions
- Insufficient knowledge on project proposal development
  - Higher project development costs
  - Higher risk of project failure

Objectives

- Increase the bankability of projects by:
  - Strengthening the project development base
  - Enhancing the quality of project proposals
  - Reducing costs and mitigating risks through proper planning and efficient use of funds
  - Facilitating effective implementation

Scope

- All RETs
- Different finance types: grants, loans, equity
- Project sizes: from individual use to utility scale projects
- Global: all geographical regions

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www.irena.org/navigator

Learning Section

- Project development and technical guidelines
- Best practices
- Examples & Case Studies

Start a Project

- Personal and private workspace
- Tools, templates, checklists
- Stepwise approach
- Track your progress
- Export documents

Financial Navigator

- Information on multiple funds
- Filter by region and technology
- Information includes fund types, requirements and contact details among others.

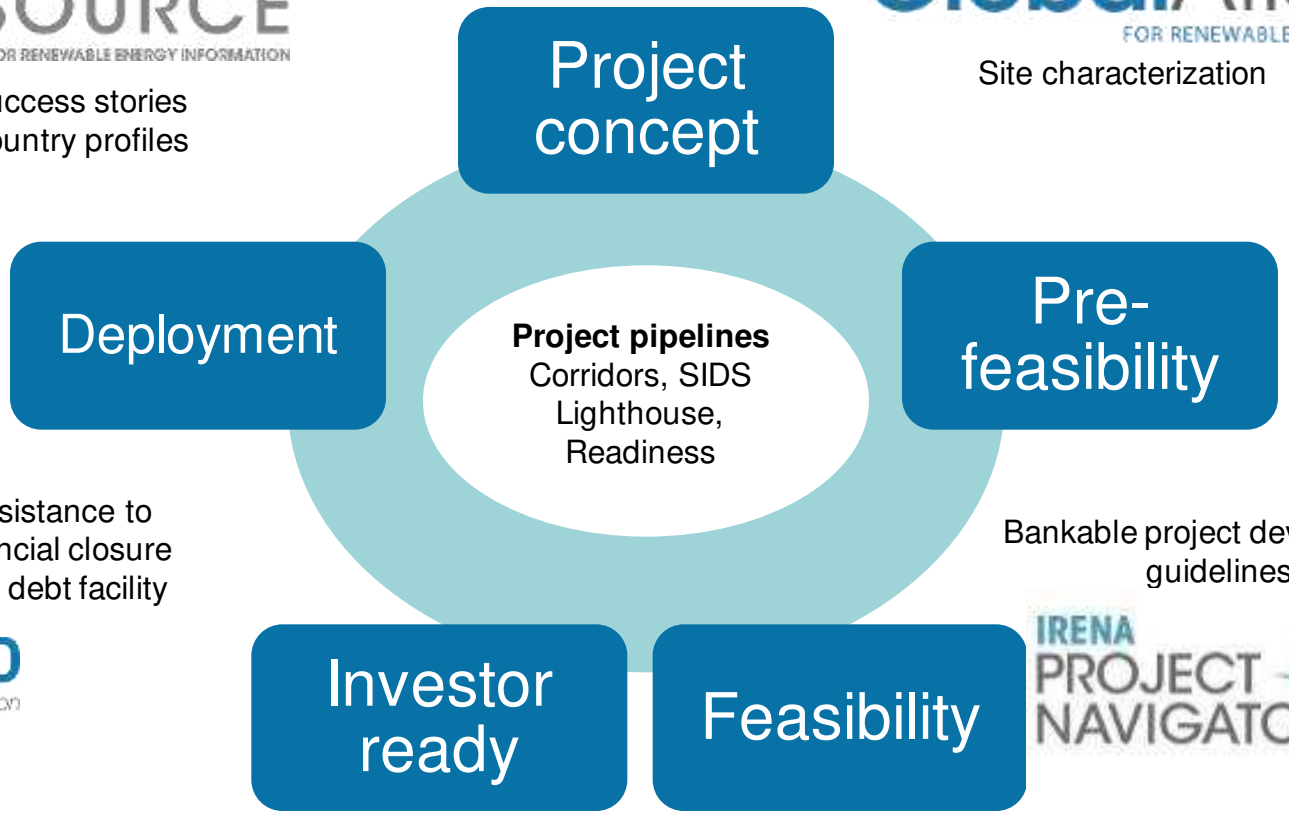
IRENA Project Facilitation approach

RESOURCE
YOUR SOURCE FOR RENEWABLE ENERGY INFORMATION

Success stories
Country profiles

GlobalAtlas
FOR RENEWABLE ENERGY

Site characterization



Assistance to financial closure and debt facility

IRENA ADFD
Supporting Energy Transition

Bankable project development guidelines

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Evaluate, technical assistance

SUSTAINABLE ENERGY MARKETPLACE

Project Navigator: outreach in Africa

IRENA has organized together with ECREEE several workshops to train local developers on bankable project development for Solar and Mini-Grids projects. It also organizes remote training through regular webinars targeted at African stakeholders

Training workshop in Senegal

Residential PV
African entrepreneurship facility in Senégal

60 local project developers trained

Training workshop in Nigeria

Mini-Grids and Solar PV
training workshop at ECOWAS in Nigera

50 local project developers trained

Mini-Grids Webinar

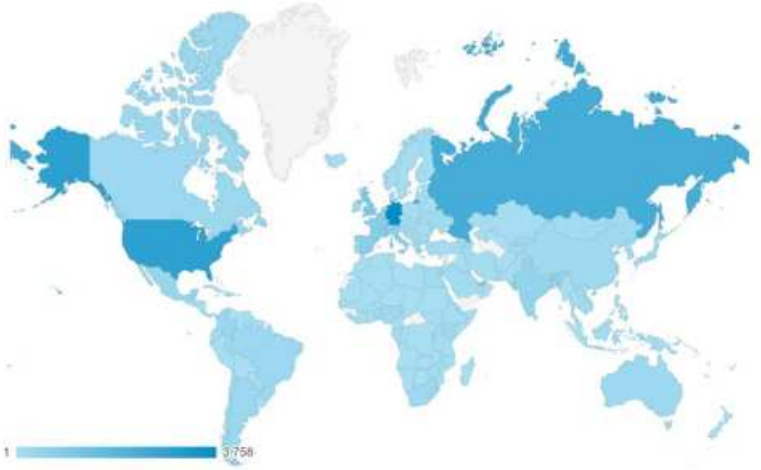
Mini-Grids in Africa
training webinar

500+ participants trained

Similar program is planned for Western & Southern Africa in 2018

IRENA Project Navigator

- Launched Q2 2015
  - 4000+ registered users
  - Across 190+ countries
- Technical Concept Guidelines
  - Wind
  - Utility-scale PV
  - Bioenergy
  - Mini-grid applications
  - Rooftop PV
  - Geothermal
  - Small Hydro



Supporting renewable energy in Africa:

- ECREEE-IRENA Solar PV Entrepreneurship Facility
- Africa Union Bioenergy facility
- Training workshop in Sénégal, Nigeria, Djibouti, Ethiopia and more planned

Biofuel Potential in Sub-Saharan Africa: raising food yields, reducing food waste, utilizing residues

SUMMARY SLIDES
GBEP Ghana Workshop
and other events

Types of Biofuel Potential Examined

- **Farm Residues (more thorough collection)**
- **Forest Wood (sustainable extraction) – in progress**
- **Freeing Land with Higher Food Yields**
- **Freeing Land with Reduced Food Waste**

- **Not considered, but also important globally:**
  - **Better Use of Pasture Land: 950 M ha**
  - **Forest Landscape Restoration: 350 M ha**

Yield Gap: Illustrated by Maize

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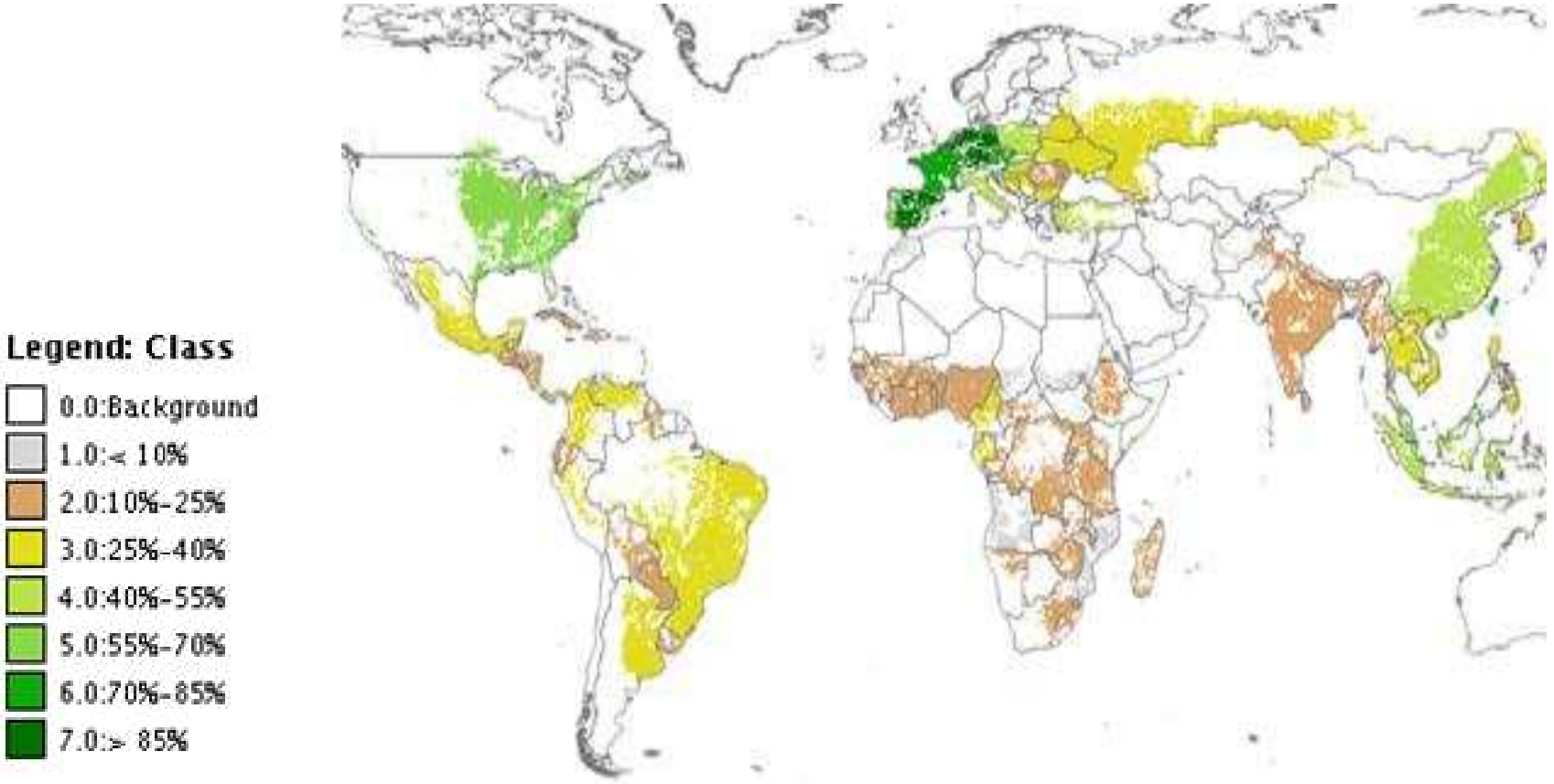
Ratio of Actual to Potential Yield for Maize (Year 2000)



Source: Global Agro-Ecological Zones

Some SS Africa Biomass Potentials

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Country	Residues Potential with 50% Collection (PJ/year)	Potential from Closing Yield Gap (PJ/year)	Potential from Reduced Waste If Yield Gap Is Closed (PJ/year)	Total Primary Energy Potential (PJ/year)	Converted 40% to Advanced Biofuel (PJ/year)
Ghana	399	1,269	246	1,914	766
Mozambique	429	1,026	260	1,715	686
Nigeria	2,090	5,668	1,285	9,043	3,617
South Africa	424	701	636	1,761	704
Uganda	534	735	752	2,021	808
Total	**3,876**	**9,399**	**3,179**	**16,454**	**6,582**

Source: IEA/OECD Transport Fuel Data: IRENA Analysis of FAO and Other Forest Data

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BOOSTING BIOFUELS

Sustainable Paths to Greater Energy Security

Biofuel Potential in Southeast Asia:

Raising food yields, reducing food waste and utilising residues

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Renewable Energy in Africa

Enabling Frameworks, Project Development, Private Investments

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