

Renewable Energy: Now and Future

Doubling RE share in Global Energy?

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International Seminar on Market Challenges and Opportunities
for Renewable Energy in Asia and Africa

Tokyo, Japan, *7 February 2014*

1. IRENA overview
2. Renewable Energy Now ?
3. Doubling RE share in 2030?
4. What are IRENA's Actions?

1

IRENA OVERVIEW

IRENA is an intergovernmental organisation for renewable energy

Established: April 2011

(Innovation and Technology Centre: October 2011)

Mission: Accelerate deployment of renewable energy

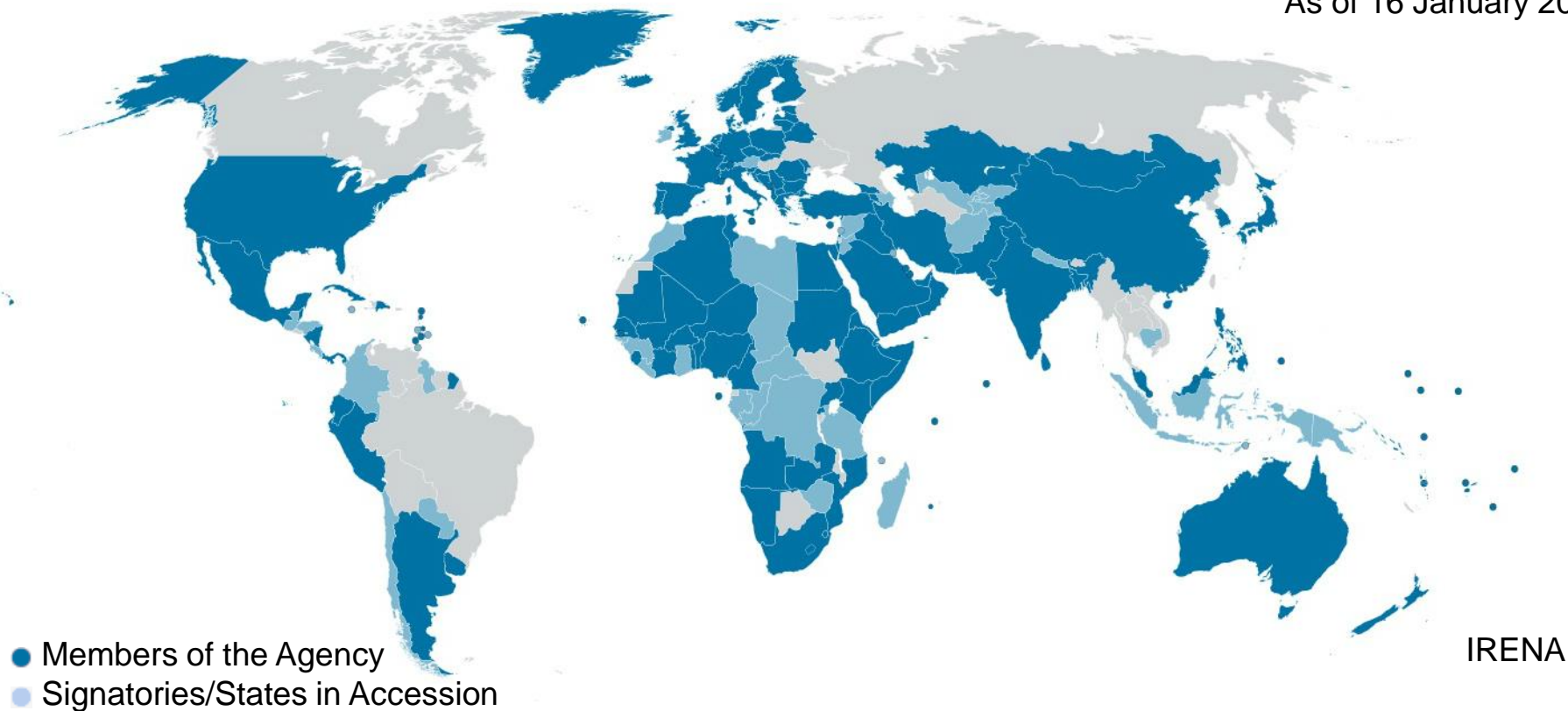
Scope: Hub, voice and source of objective information for renewable energy

Mandate: Sustainable deployment of the six RE resources
(Biomass, Geothermal, Hydro, Ocean, Solar, Wind)

Location: Headquarters - Abu Dhabi, United Arab Emirates
Innovation and Technology Centre - Bonn, Germany

IRENA Membership

As of 16 January 2014



Members: States and regional intergovernmental economic integration organisations
124 members (123 States and European Union)
43 Signatories/States in Accession, 1 Applicant for membership

Organs

Assembly: Supreme Organ of the Agency / All Members / Annual

Council: At least 11 but not more than 21 members / Semi-annual

Secretariat: Director-General and Staff

Secretariat

Director-General: Adnan Z. Amin

Organisational Structure of Secretariat: Three programmatic divisions

- Knowledge, Policy and Finance Centre (KPFC)
- IRENA Innovation and Technology Centre (IITC)
- Country Support and Partnership (CSP)

IRENA Activity Highlights

I. Planning for the global energy transition

Water, Energy and Land Nexus

REmap 2030

A Renewable Energy Roadmap

II. Gateway to knowledge on renewable energy

GlobalAtlas
FOR RENEWABLE ENERGY

irelp IRENA
Renewable Energy
Learning Partnership

Your Renewable Energy Future is just one Click away

COSTS
Renewable Energy Costs, Technologies and Markets

IRENA Renewable
COSTING ALLIANCE

Coalition for Public Support

III. Enabling investment and growth

irevalue
A knowledge building platform on the socio-economic value of renewable energy

IRENA ADFD
Supporting Energy Transition

IV. Renewable energy access for sustainable livelihoods

IOREC
International Off-Grid Renewable
Energy Conference & Exhibition

Mini Grids / Off Grid

V. Islands: lighthouses for renewable energy deployment

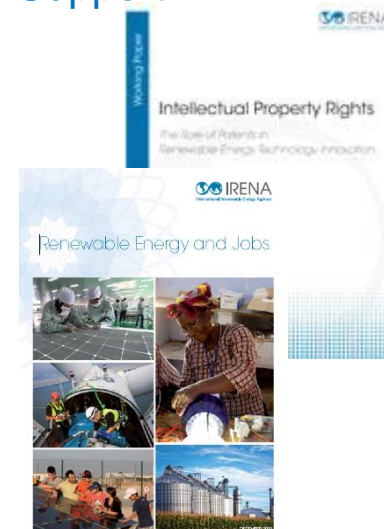
GREIN

Partnerships for Action in SIDS

VI. Regional action agenda

Africa Clean
Energy Corridor

Central America Clean Energy Corridor

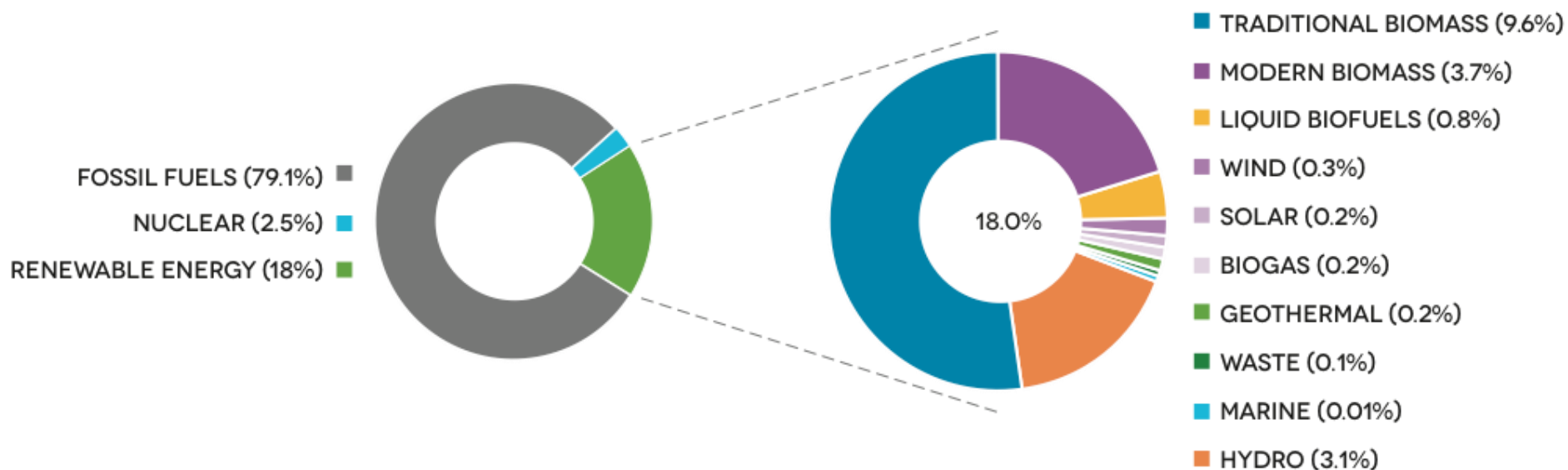


2

Renewable Energy Now ?

Renewable Energy in Total Final Energy Consumption

Globally 18% RE in Total Final Energy Consumption in 2010
Half is traditional biomass, 8.4% modern renewables



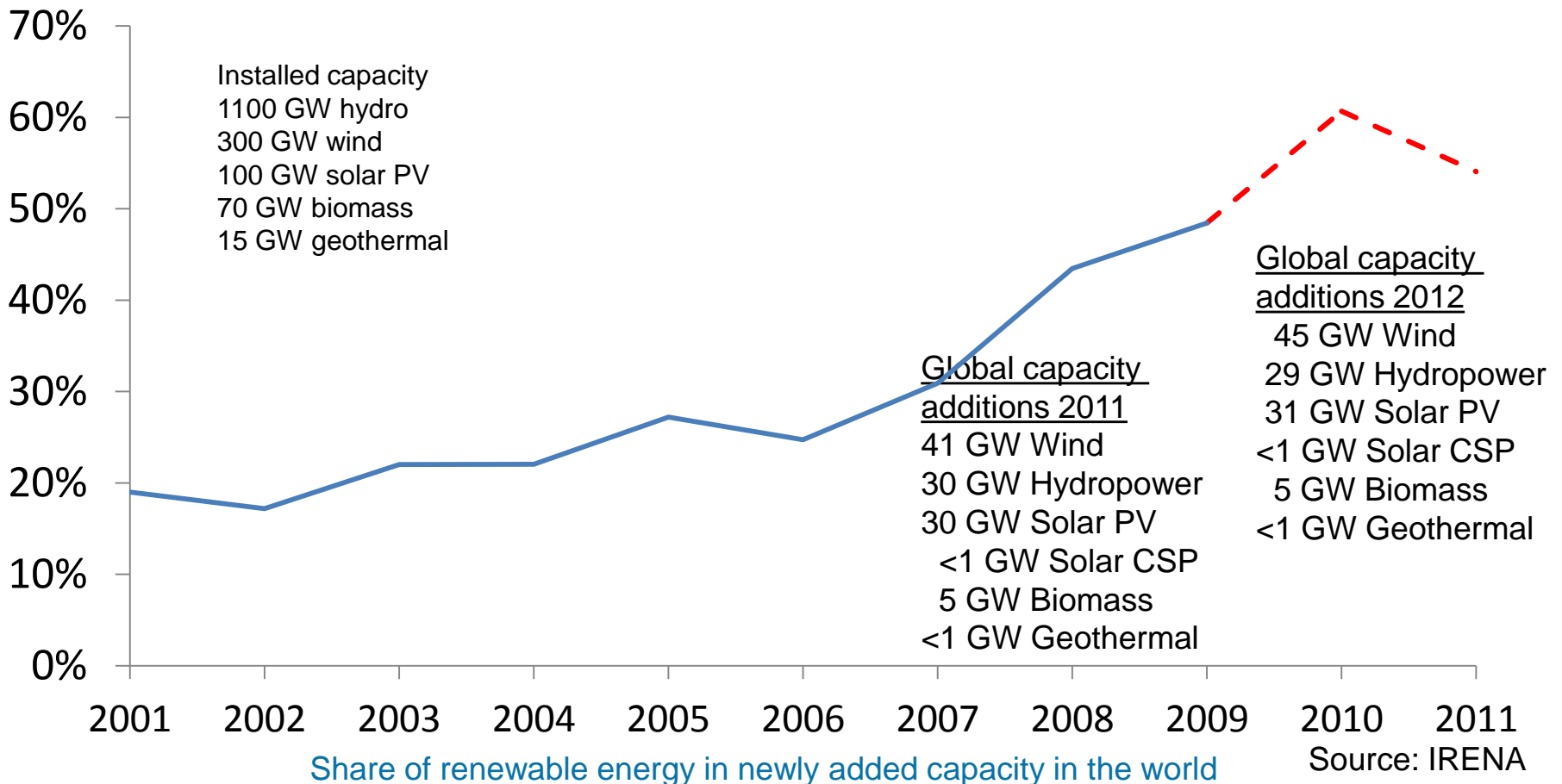
SHARE OF RENEWABLE ENERGY IN GLOBAL TFEC, 2010

SOURCE: IEA

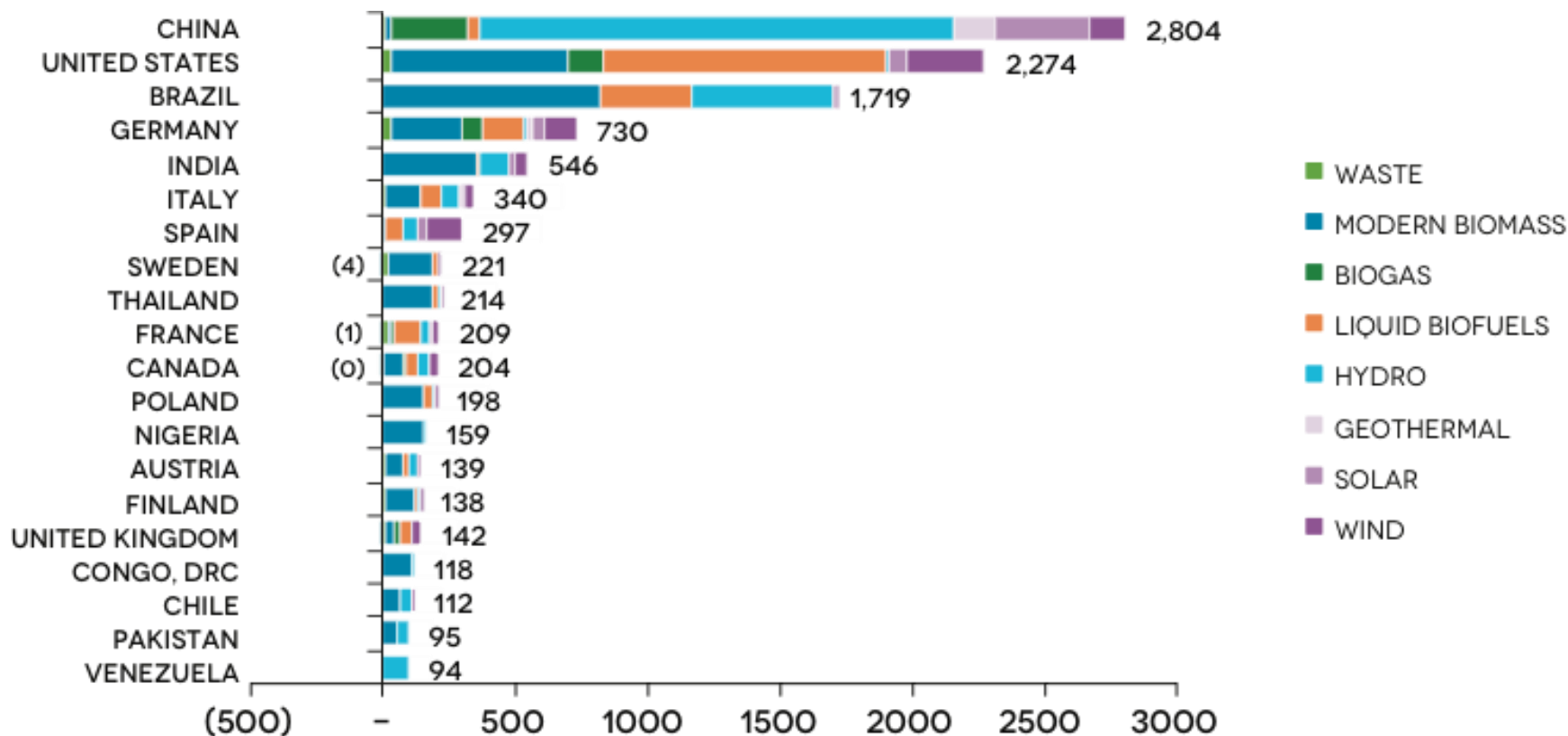
Source: Global Tracking Report, 2013

The share has doubled in recent years

About half of the new electricity generation capacity worldwide is based on renewable energy



Growth 1990-2010 by country

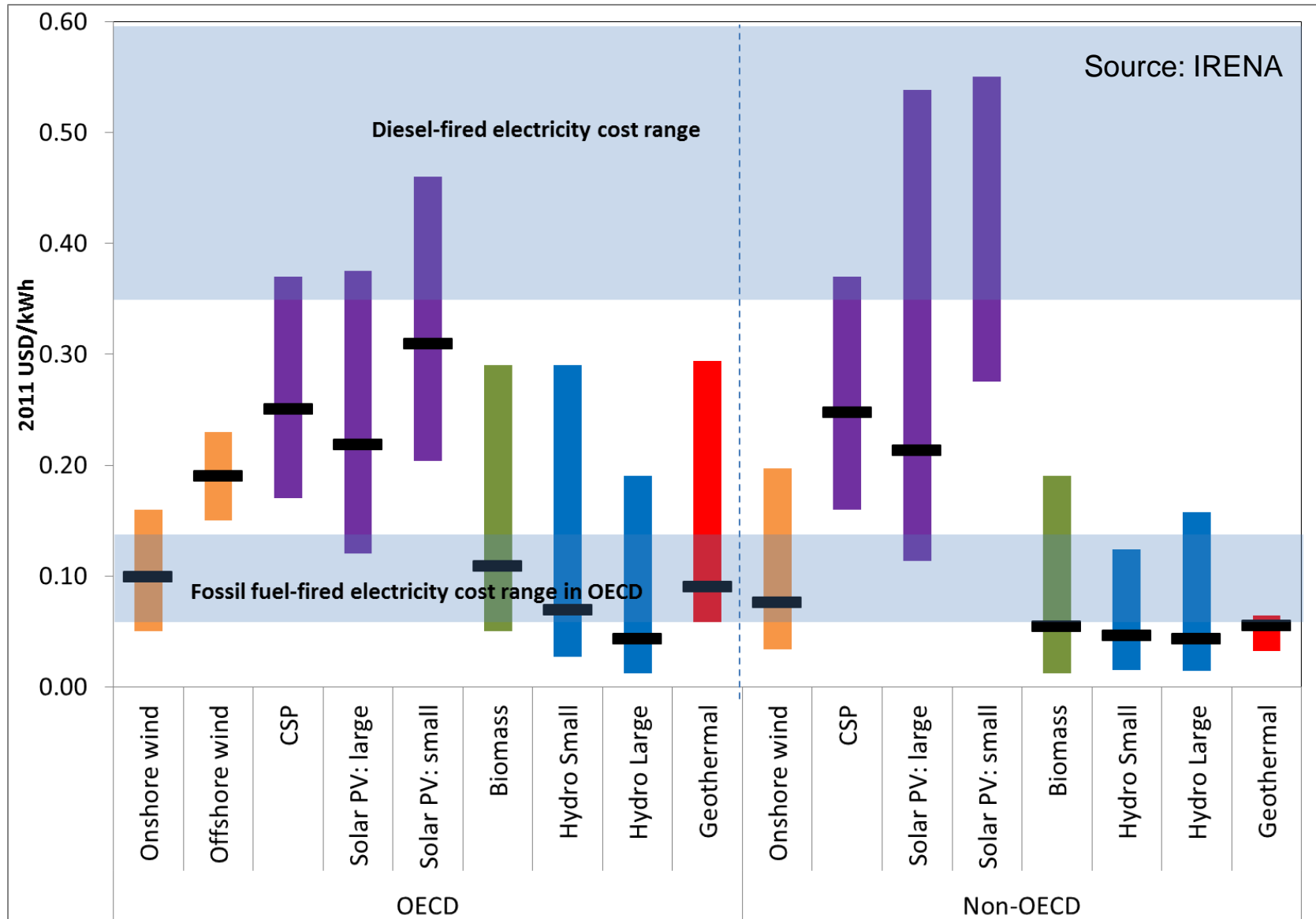


SOURCE: IEA 2012A.

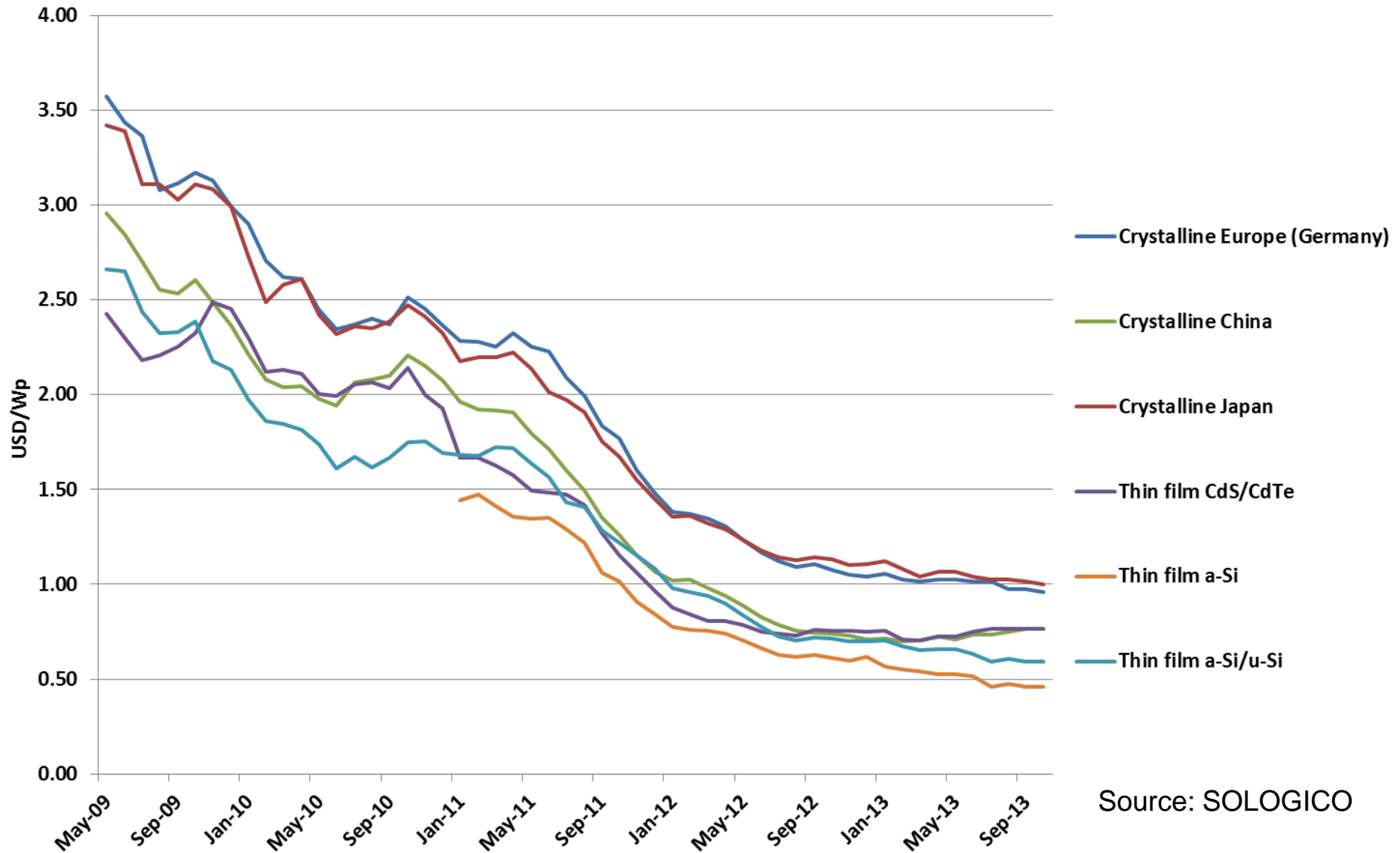
NOTE: "INCREMENTAL CONSUMPTION" INDICATES ADDITIONAL CONSUMPTION OF RENEWABLE ENERGY OVER AND ABOVE THE LEVEL OF CONSUMPTION IN 1990. DRC = DEMOCRATIC REPUBLIC OF CONGO.

LCOE ranges and averages

*RE is cost effective today
in many cases*

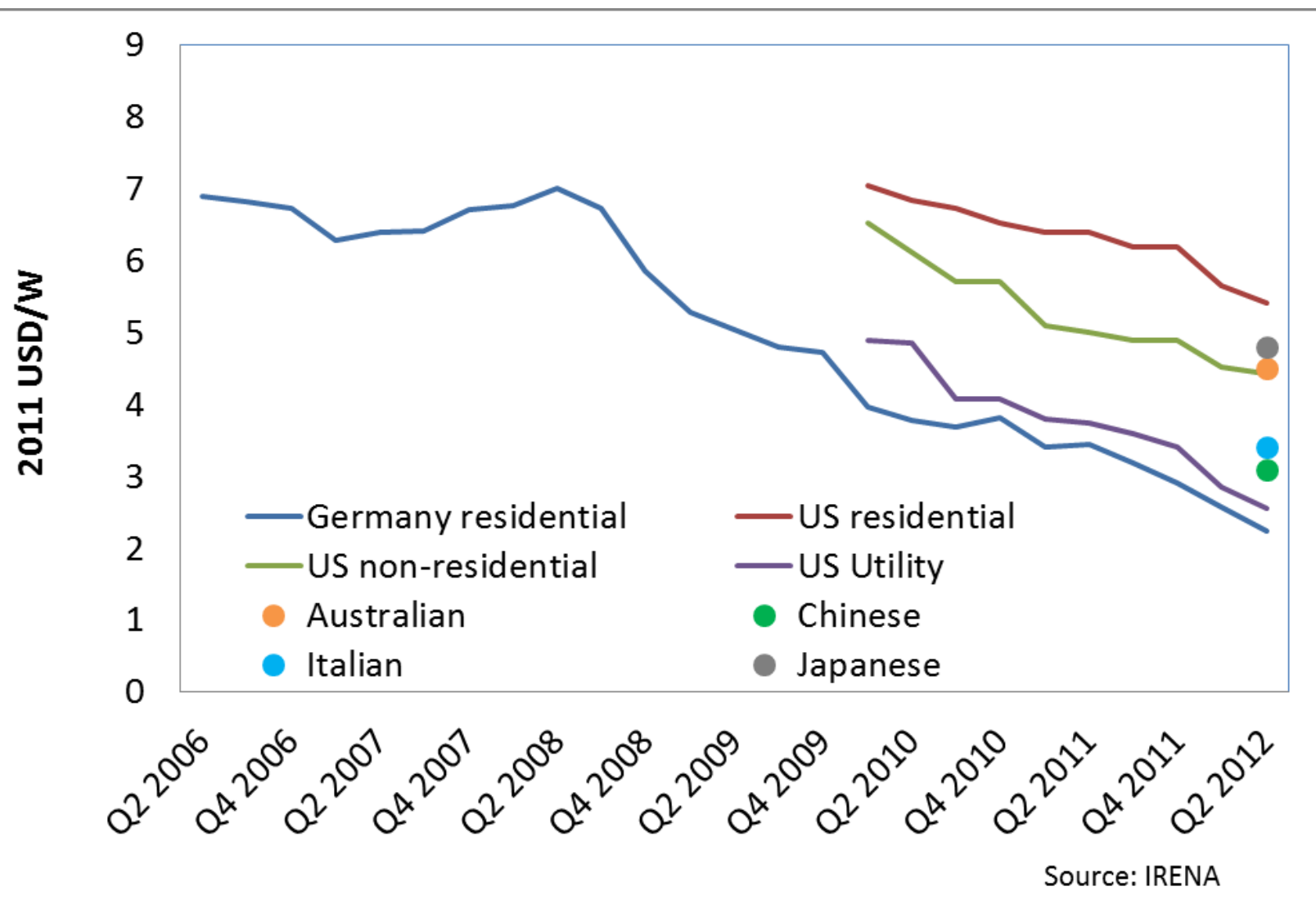


PV modules prices



Source: SOLOGICO

Solar PV installed costs



More Costing information

search 

Contact us about costs

 **IRENA**
International Renewable Energy Agency

 **COSTS**
Renewable Energy Costs, Technologies and Markets

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About Costing
IRENA's goal is to become THE source for renewable cost data...
[Read More](#)

In Focus
Renewables hit the road!
Costs of renewable transport options
[Read More](#)

Publications
IRENA's groundbreaking analysis of real-world project costs published in a series of reports...
[Read More](#)



Charts
Power generation costs

Advanced biodiesel costs


Renewable Energy Costs:

- ➔ Power Generation
- ➔ Transport
- ➔ Stationary applications: industry and building



Technology Costs

Hydro

Presentations


IRENA Renewable Costing Alliance
The IRENA Renewable Costing Alliance brings together those with real-world renewable energy project cost data to share, confidentially, their data to reduce the barrier the lack of this data presents.
[Read More](#) [Login](#)

Events
Workshops, webinars and other events about the costs of renewables.
[Read More](#)

Fast facts Advanced biofuels to be competitive with fossil fuels by 2020 Solar PV module prices of around USD 0

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<http://costing.irena.org/>

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Doubling RE share in 2030?

Sustainable Energy for All and REmap 2030

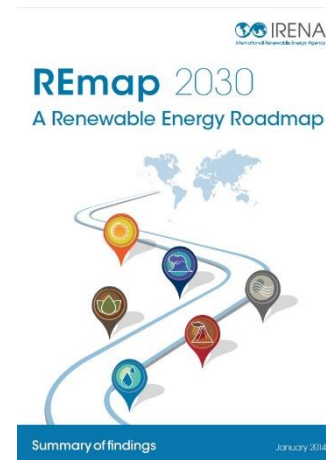


The UN Secretary-General's initiative, "Sustainability for All" has three interlinked objectives to be achieved by 2030:

1. Ensure universal access to modern energy services
2. Double the global rate of improvement in energy efficiency
3. Double the share of renewable energy in the global energy mix

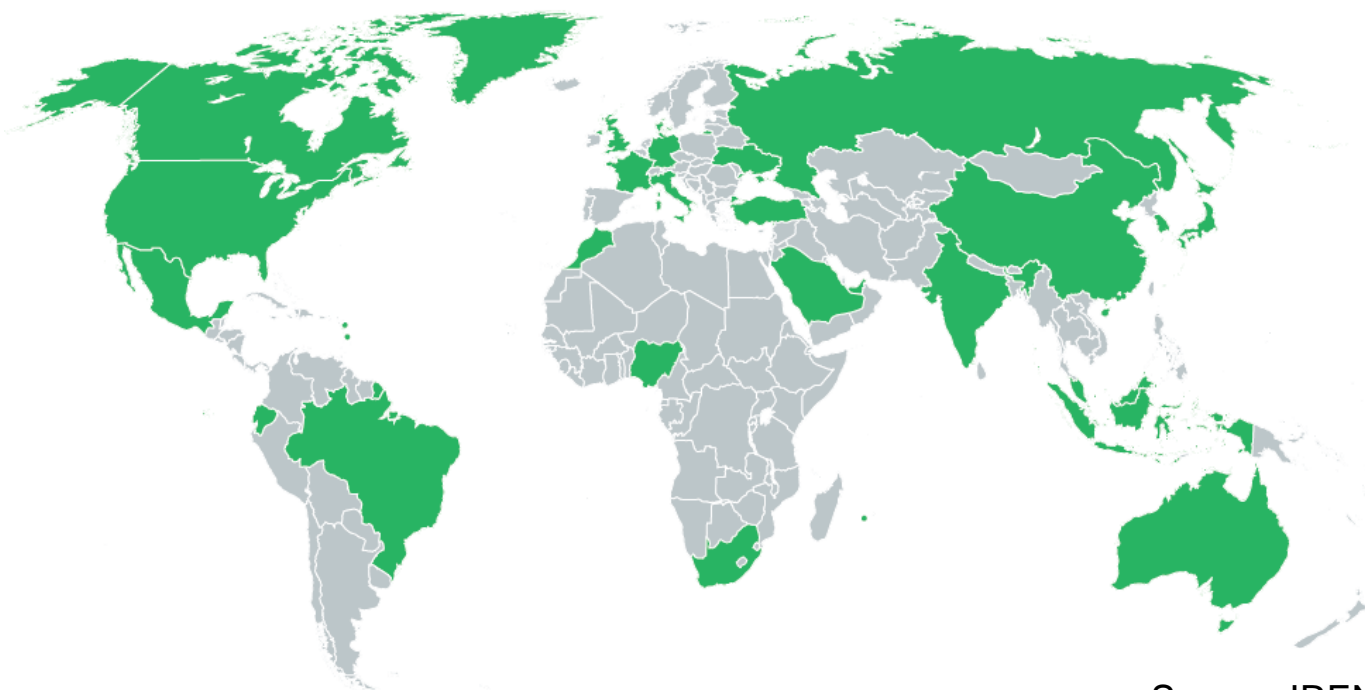
The REmap 2030 shows the pathways for a doubling of the global RE share;

- Doubling total renewables implies a tripling of modern RE
- Technology options to meet the objective
- Opportunities for international cooperation to realize this vision



www.irena.org/remap

REmap 2030 coverage



Source: IRENA

REmap Countries:

AUSTRALIA
BRAZIL
CANADA
CHINA
DENMARK
ECUADOR
FRANCE
GERMANY
INDIA
INDONESIA
ITALY
JAPAN
MALAYSIA
MEXICO
MOROCCO
NIGERIA
RUSSIA
SAUDI ARABIA
SOUTH AFRICA
SOUTH KOREA
TONGA
TURKEY
UNITED ARAB EMIRATES
UNITED KINGDOM
UNITED STATES
UKRAINE

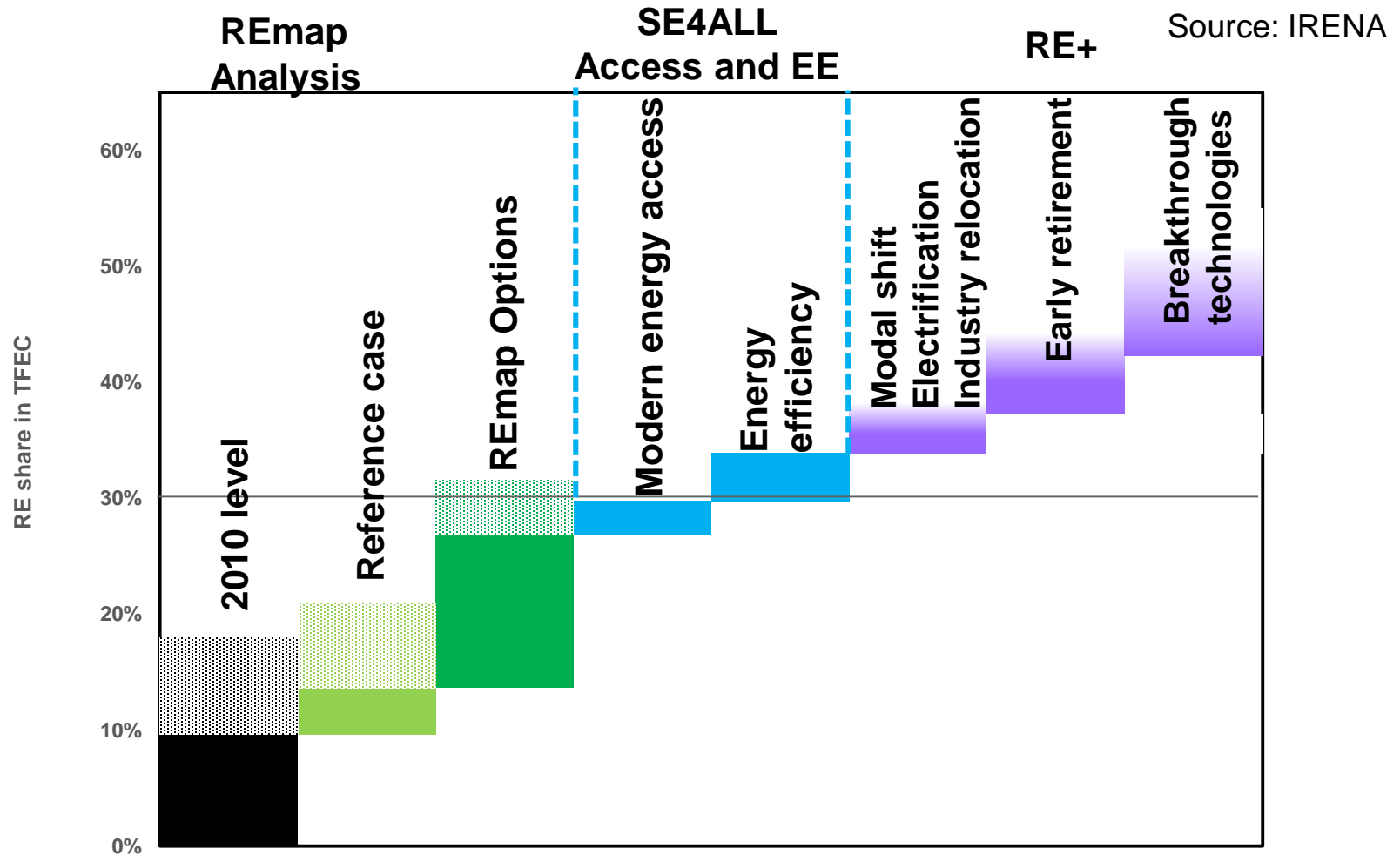
26 countries representing **75% of global energy demand** in 2030

Represents **58% of world population** in 2012, 56% in 2030

60% of global GDP in 2012

Country results are aggregated and extrapolated to global findings

The global RE share can reach and exceed 30% by 2030



There is a need to unleash innovation (RE+), notably for end-use sectors

Global RE use in 2030

including REmap options

RE shares incl. electricity from renewables

Buildings 38%

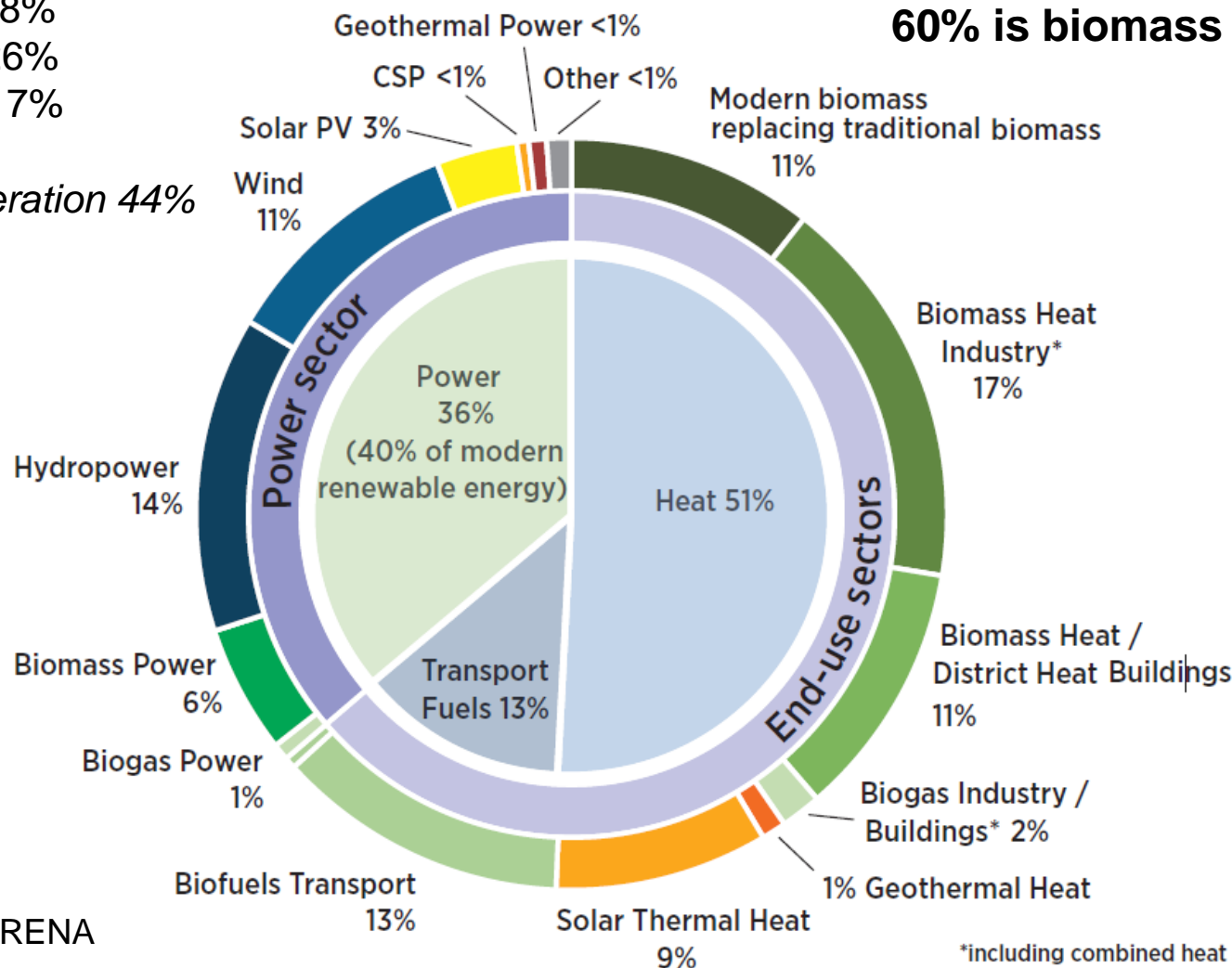
Industry 26%

Transport 17%

Power generation 44%

REmap 2030 - 132 EJ (final energy)

60% is biomass



Source: IRENA

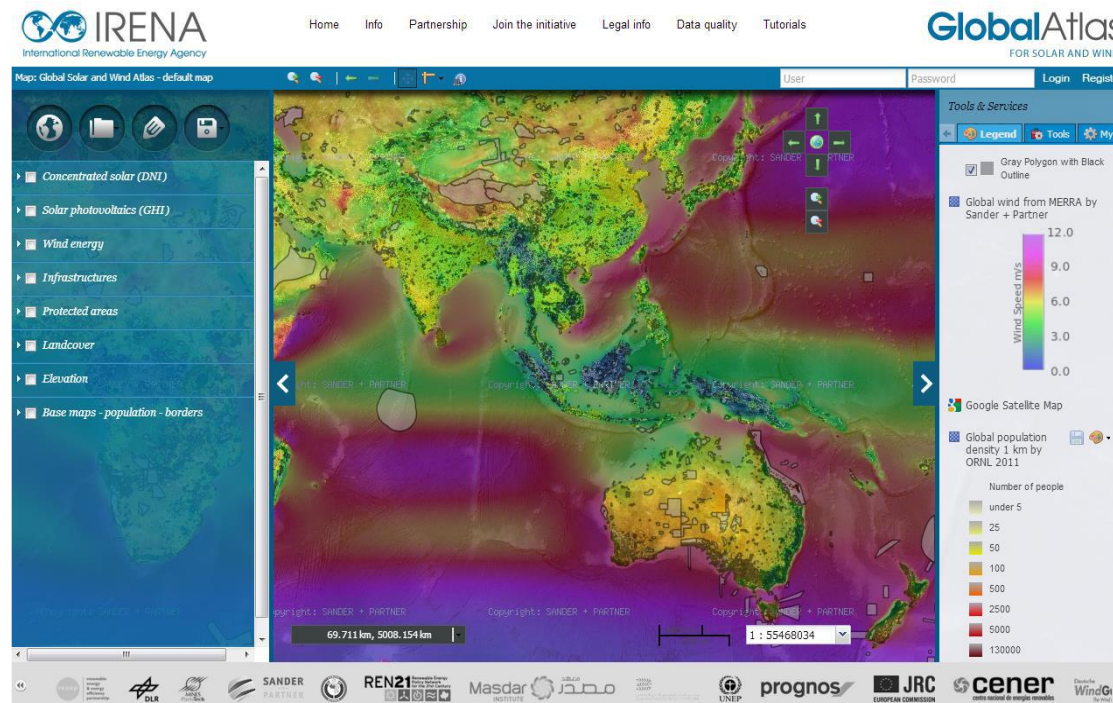
*including combined heat and power (CHP) and district heat

4

What are IRENA's Actions?

Global Atlas

- One platform for data access
- Partnership with Clean Energy Ministerial
- More than 39 member countries
- More than 50 institutes and partners



RRAs – Renewables Readiness Assessments

Figure 3

The four RRA phases

1 INITIATION AND DEMONSTRATION OF INTENT (WEEK 1- 10)

- Formal request by Government made to IRENA is accepted, in-country RRA Focal Point designated
- Identify development partners interested in joining hands in the RRA and follow up actions
- Contract National Consultant. Draft the Background Paper
- Identify regional and global experts and form a National Expert Group (public and private sector, civil society, research institutes, development partners).
- Members of the National Expert Group determine up to 5 priority service-resource pairs for the country

Note: Possibility for RRA to end at this stage if there is low level of engagement or weak responsiveness from country

2 DETAILED COUNTRY ASSESSMENT AND ACTION PLAN (WEEK 11-14)

- Conduct RRA Expert Workshop to discuss and fill in the RRA template in detail and develop a prioritised Action Plan
- Conduct meeting with high level decision makers that are not part of the Expert meeting
- Prepare a draft RRA report
- Plan the RRA Validation Workshop

3 RRA VALIDATION AND FINALISATION (WEEK 15-18/ AND ONWARDS FOR FINAL REPORT)

- Distribute the draft RRA report to all stakeholders who will attend the RRA Validation Workshop
- Convene all stakeholders to the RRA Validation Workshop
- Validate the RRA actions
- Peer review and finalise RRA report

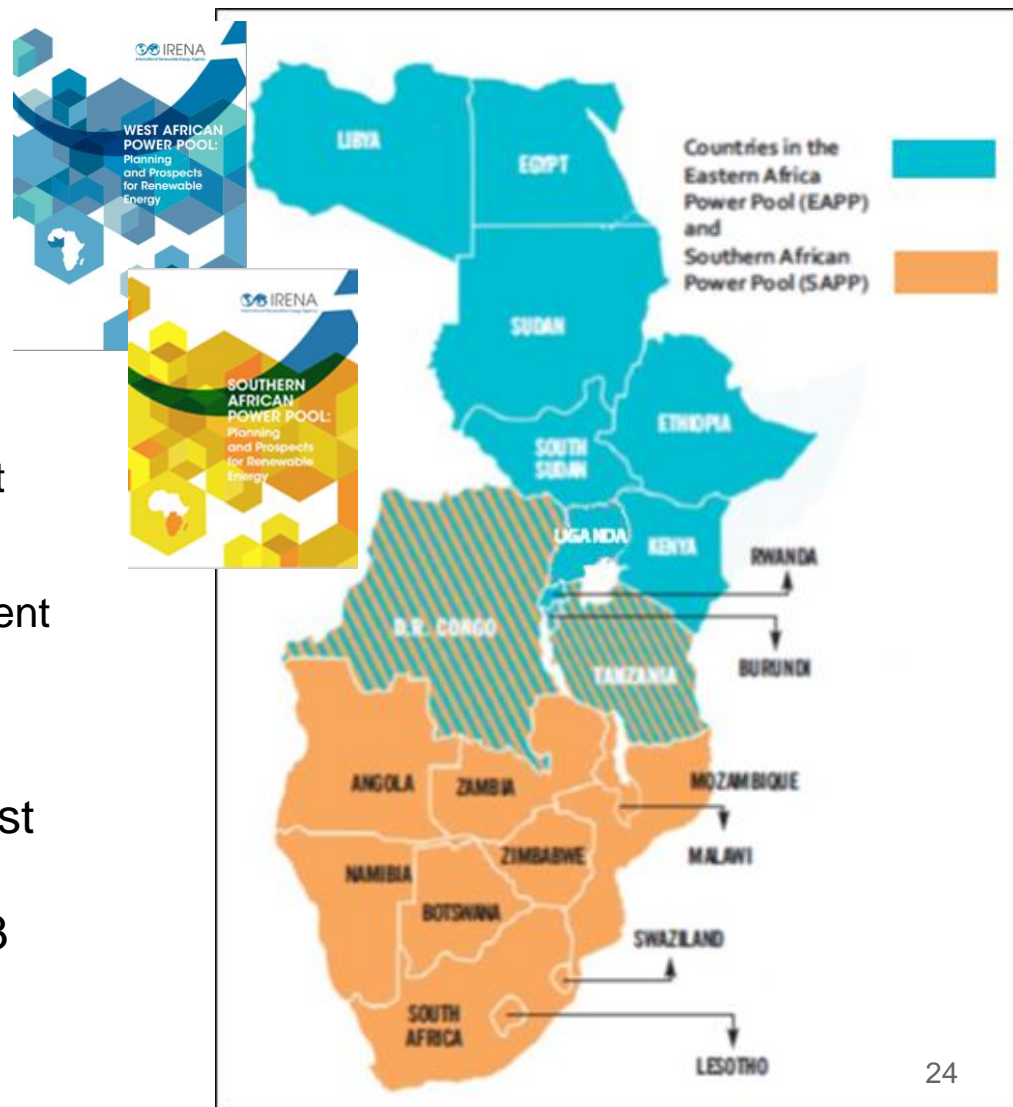
4 FOLLOW UP

- Follow up by governments, development partners and IRENA (policy, capacity needs assessments, supply chain, etc.)
- Track RRA impact, lessons learned and feedback for improvement of the RRA

- ***Fix the policy framework first***
- 18 Countries Engaged
- 7 RRAs Published

Africa Clean Energy Corridor

- Accelerate RE uptake in East and Southern Africa through regional power systems development
- IRENA COMMUNIQUÉ ON THE AFRICA CLEAN ENERGY CORRIDOR (17 January 2014)
<Action Agenda>
 - Zoning and Resource Assessment
 - Country and Regional Planning
 - Enabling Frameworks for Investment
 - Capacity Building
 - Public Information
- Five Africa power pool studies: West Africa and Southern African Power Pool studies released in June 2013 (IITC)



GREIN's Interest Cluster Concept

- Renewable Energy Resource Assessment for Islands
- Renewable Energy Technology Roadmaps for Islands
- Renewable Energy Power Grid Integration on Islands
- Renewable Energy Water Desalination Systems on Islands
- Renewable Energy Waste-to-Energy Systems on Islands
- Renewable Energy Tourist Industry Applications on Islands



Capacity building

- Knowledge, skills and attitudes
- Small initiatives with big impact
- Cross cutting
- Demand led
- Leverage key partnerships
- Create impact

**Capacity needs
assessments**

**Policy and
regulatory
frameworks**

**Financial
institutions and
entrepreneurs**

**Technical
capacity building**

**Empowering
through
partnerships**



Capacity Building (2)

Japan-IRENA Joint Training for Policy Makers (3-7. Feb. 2014, Tokyo): Designing and implementing meaningful renewable energy targets: Policy Mechanisms, Financing Options and Writing Successful Project Fund Proposals



Actions for Accelerated Renewables Deployment

1. Planning realistic but ambitious transition pathways
2. Creating an enabling business environment
3. Managing knowledge of technology options and their deployment
4. Ensuring smooth integration into the existing infrastructure
5. Unleashing innovation

From 'Remap 2030 – a Renewable Energy Roadmap'

THANK YOU !