

INTERNATIONAL RENEWABLE ENERGY AGENCY



Accelerating the Growth of Renewable Energy

APERC ANNUAL CONFERENCE 2015
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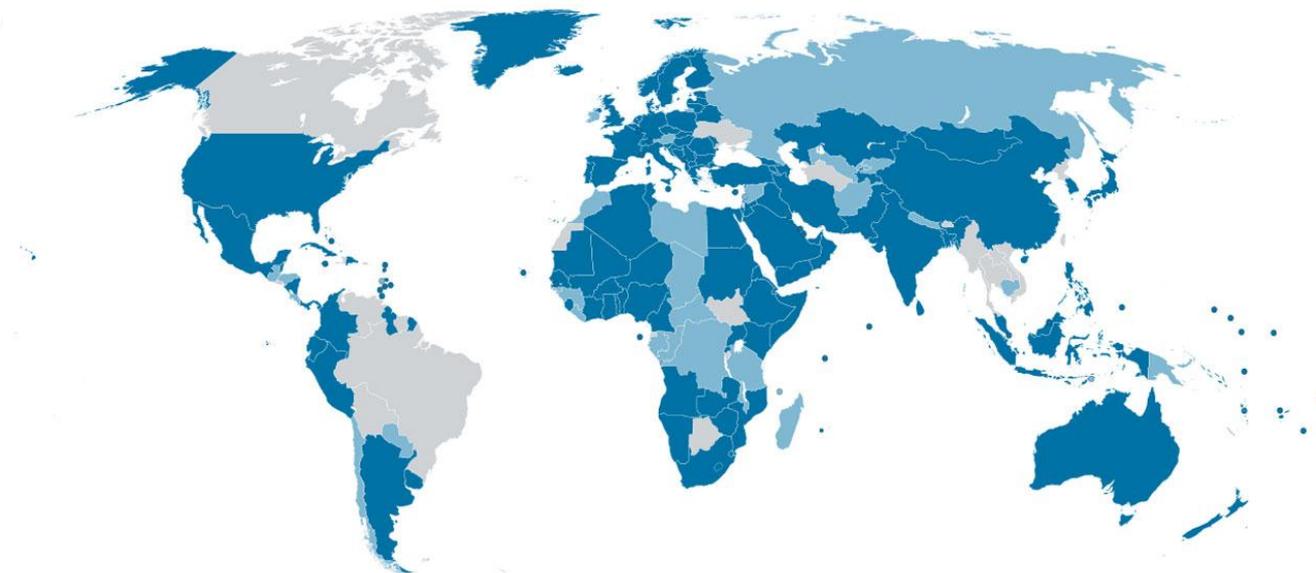
1. Introduction of IRENA
2. Current Situation of Renewable Energy
3. A Roadmap for Doubling the RE Share
4. Policy Action



1

Introduction of IRENA

The Voice, Advisory Resource and Knowledge Hub for 171 Governments



Renewable energy can:

- Meet our goals for **secure, reliable** and **sustainable** energy
- Provide **electricity access** to 1.3 billion people
- Promote **economic development**
- At an **affordable cost**

Organisational Structure

Headquarters:
**Abu Dhabi,
United Arab Emirates**

Three Programmes:

- **Innovation and Technology Centre (IITC) in Bonn, Germany**
- **Knowledge, Finance and Policy Centre in Abu Dhabi**
- **Country Support Partnerships in Abu Dhabi**

Foundation

**26 January 2009 in Bonn
International Agency since April 2011
The only international RE agency
worldwide**

Scope

**Hub, voice and source of objective
information for renewable energy**

Mandate

**Sustainable deployment of the six
forms of renewable energy
resources
(Biomass, Geothermal, Hydro,
Ocean, Solar, Wind)**

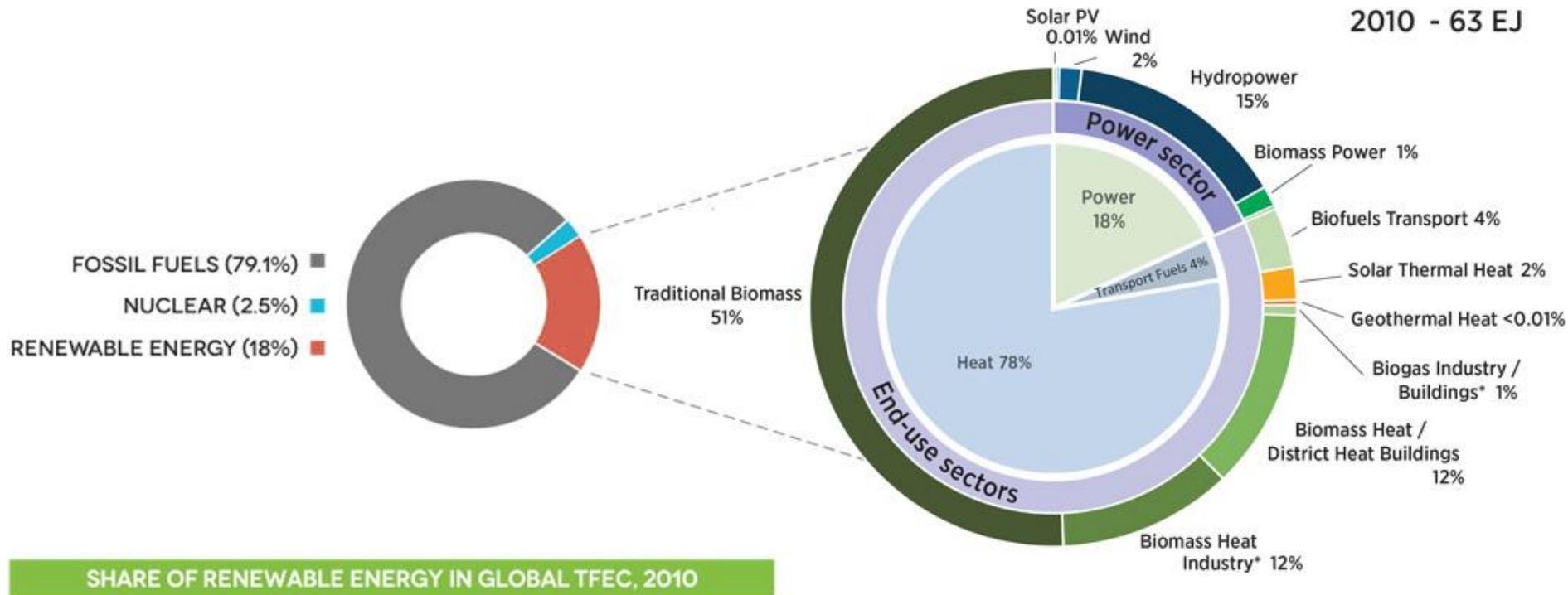


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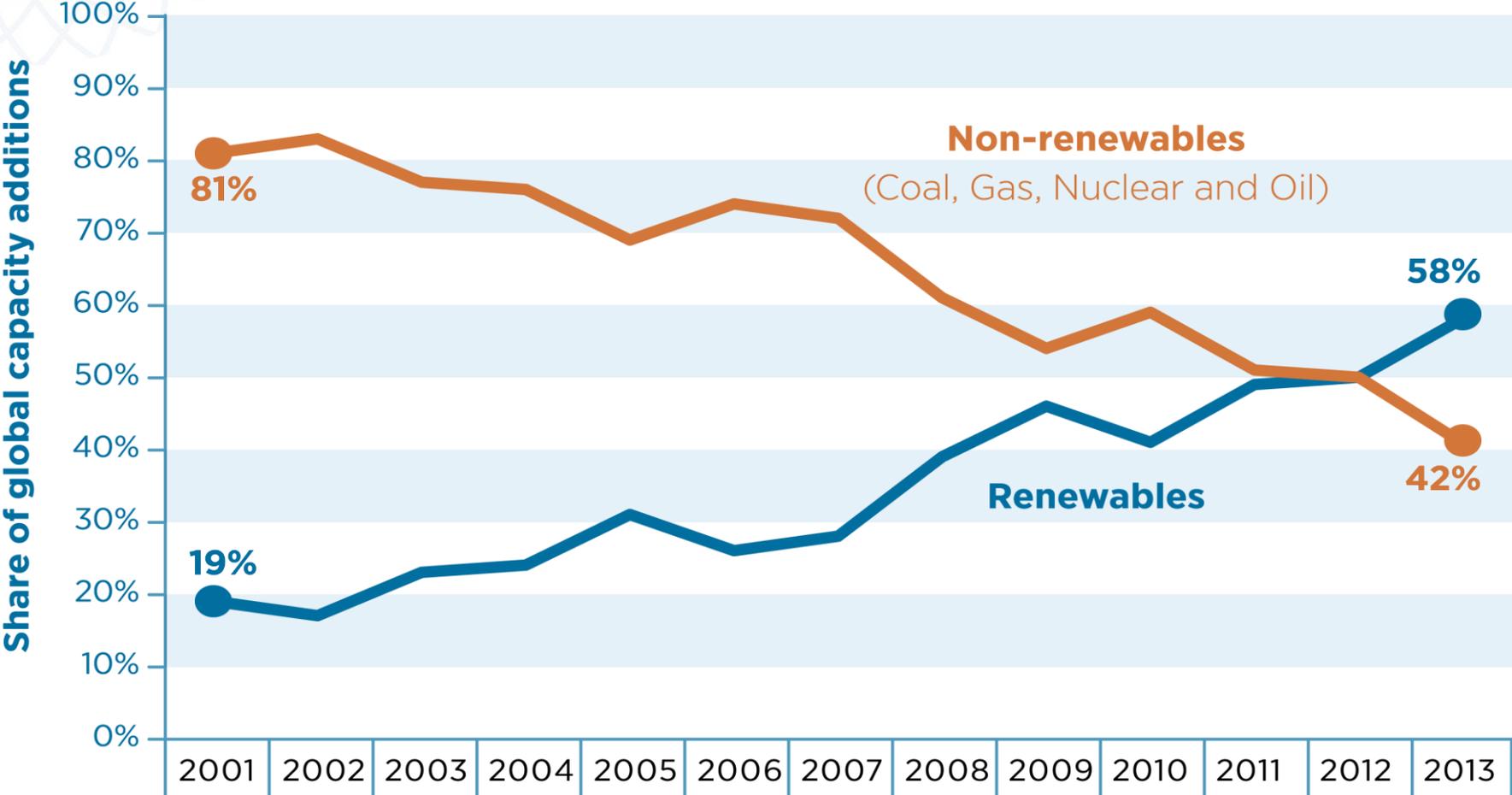
Current Situation of Renewable Energy

Breakdown of Global Renewable Energy Use in 2010

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

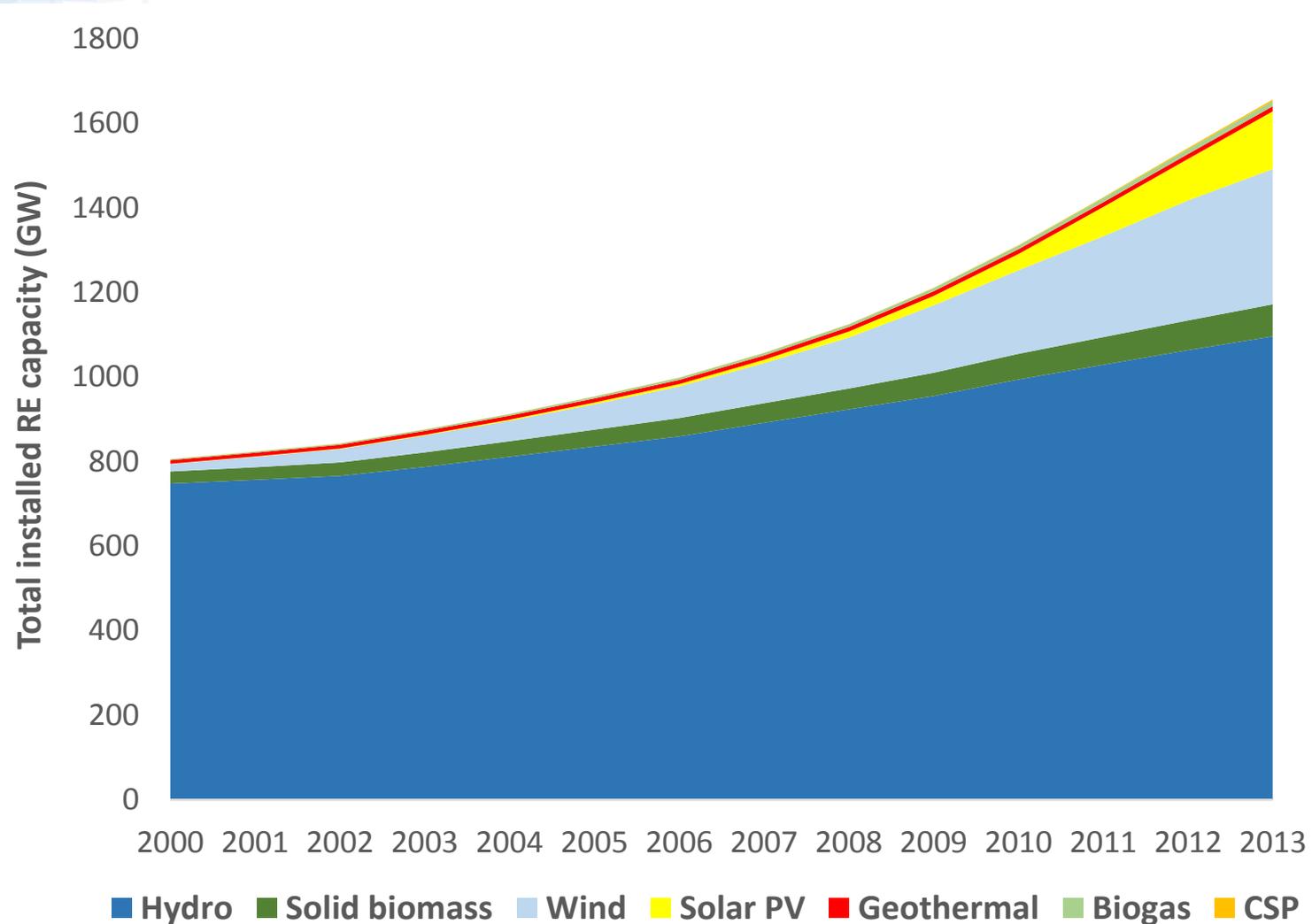


Renewables Dominate New Capacity Additions

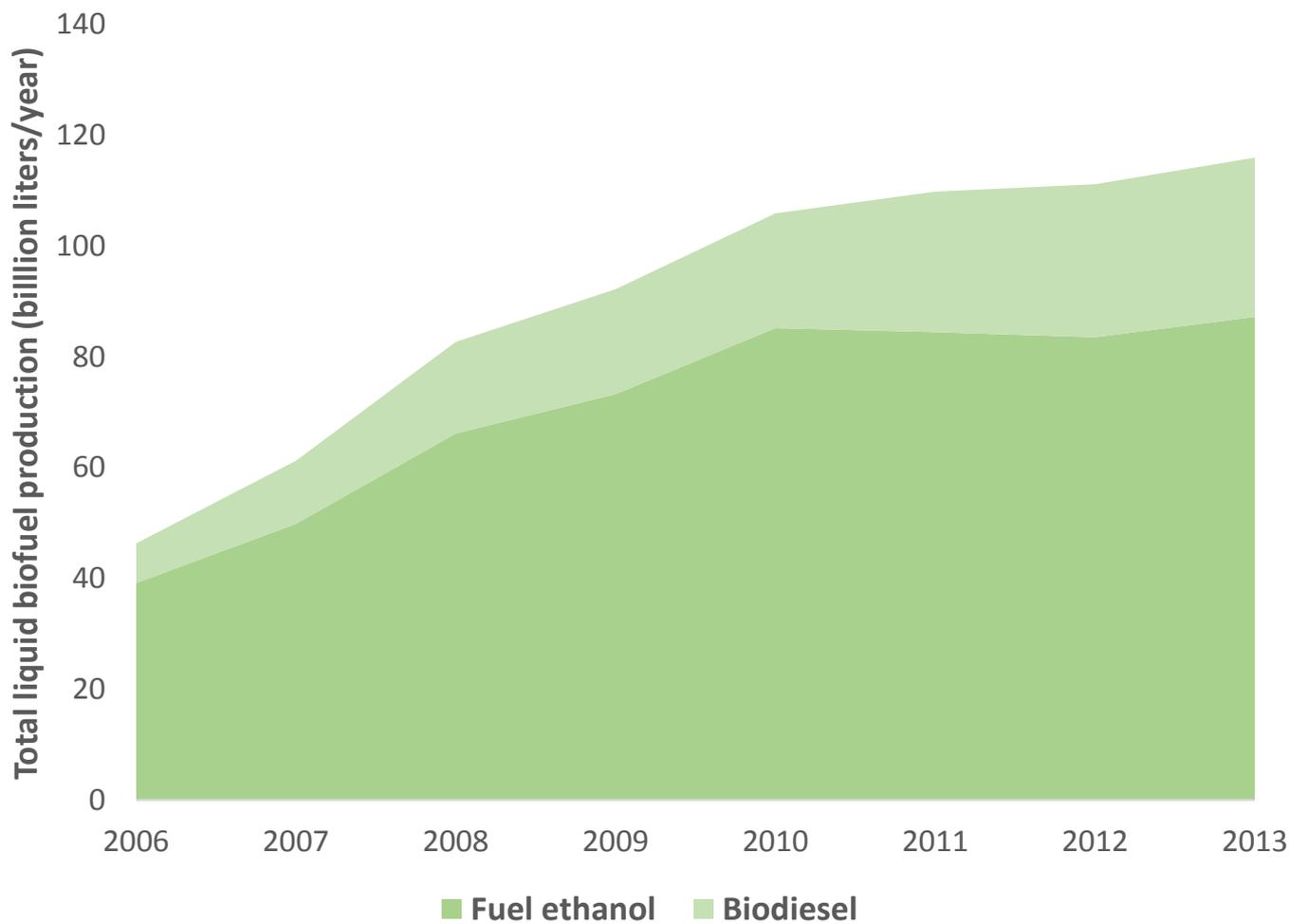


Source: IRENA

Renewable Power Generation Capacity

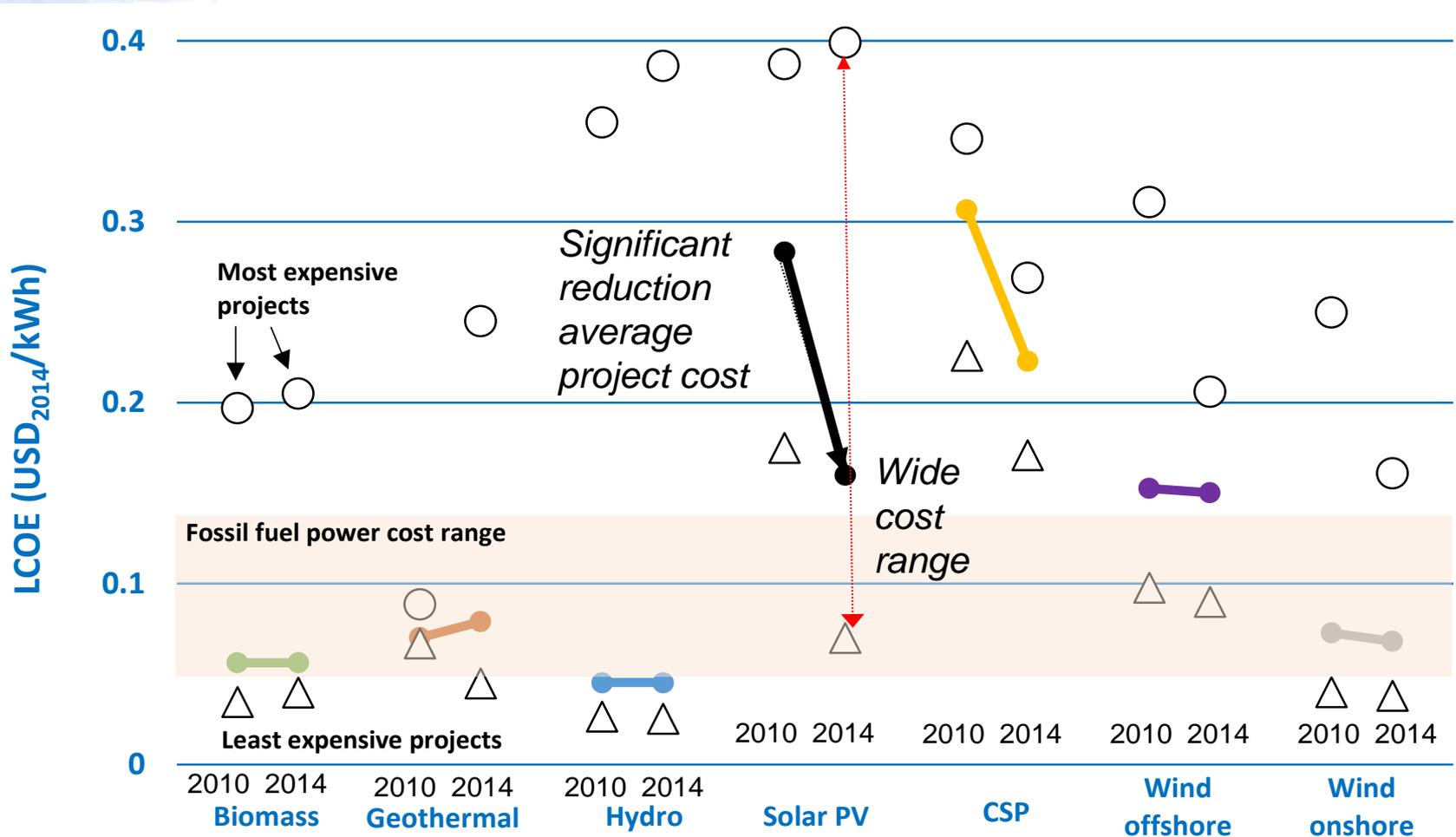


Liquid Biofuels Production



Significant Cost Differences Persist

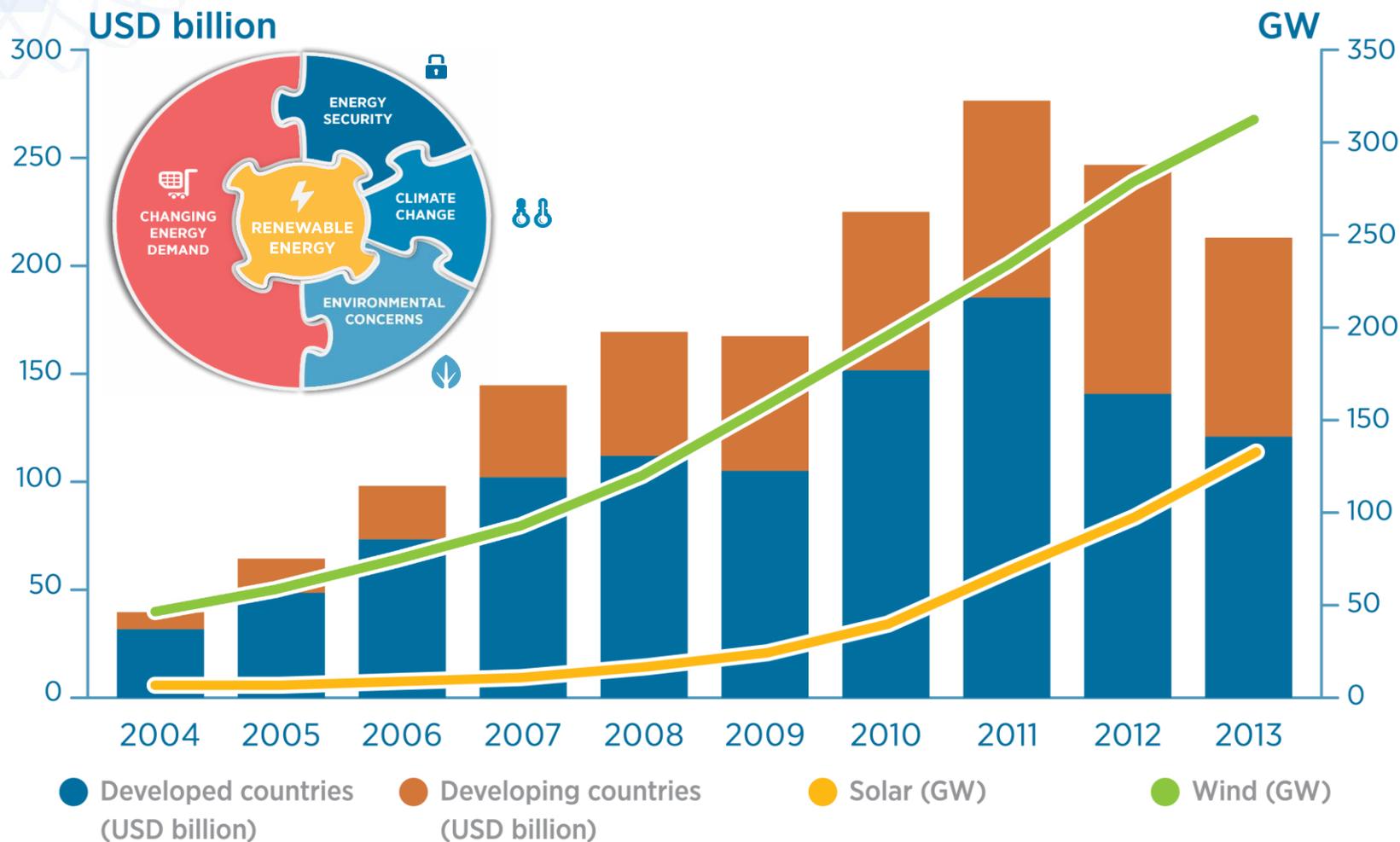
An opportunity to accelerate deployment



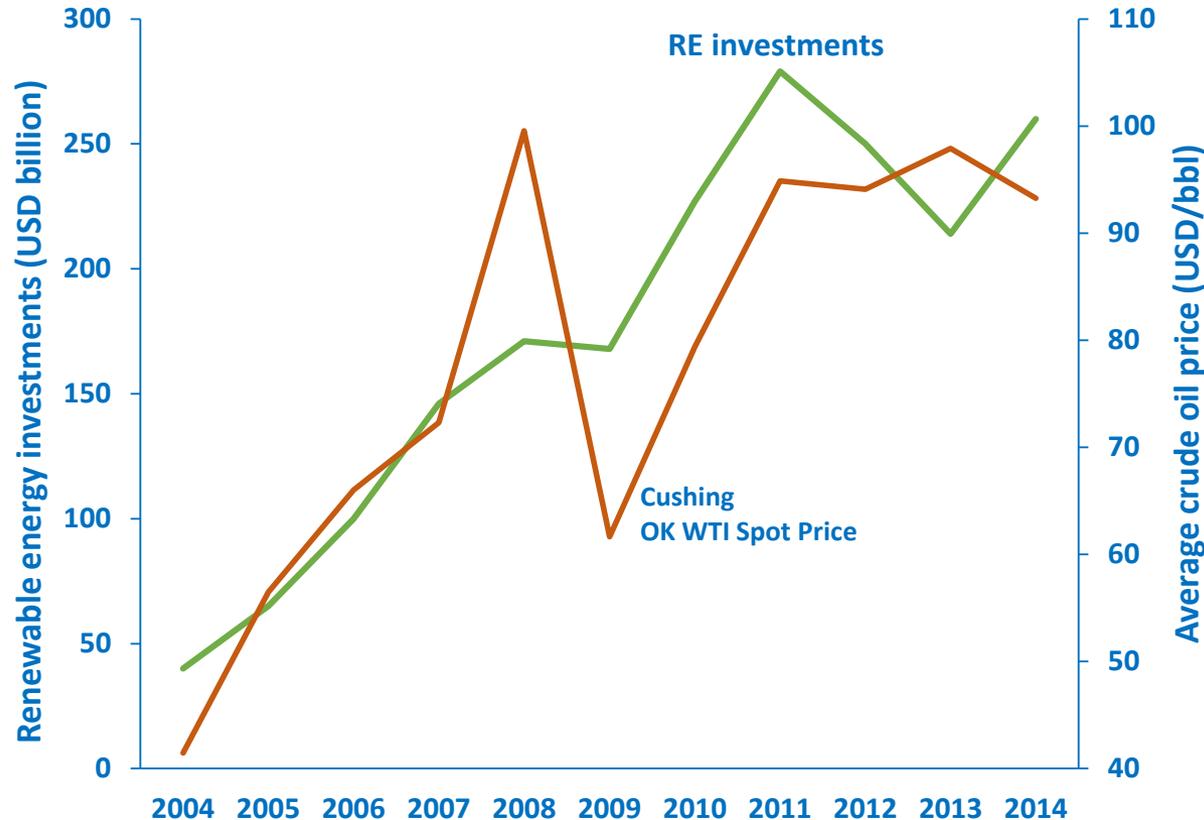
Left side: 2010
Right side: 2014

Source: IRENA (2015)

Global Investment in Renewable Energy Capacity Additions Rise, Unit Cost Fall



Renewable Energy Investments and Crude Oil Prices



- Weak relationship between crude oil prices and renewable energy investments
- Only 5% of oil use in power generation, the main modern RE market
- Coal and gas prices are only weakly related to oil prices



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A Roadmap for Doubling the Renewable Energy Share

REmap 2030 - A Roadmap for Doubling the RE Share

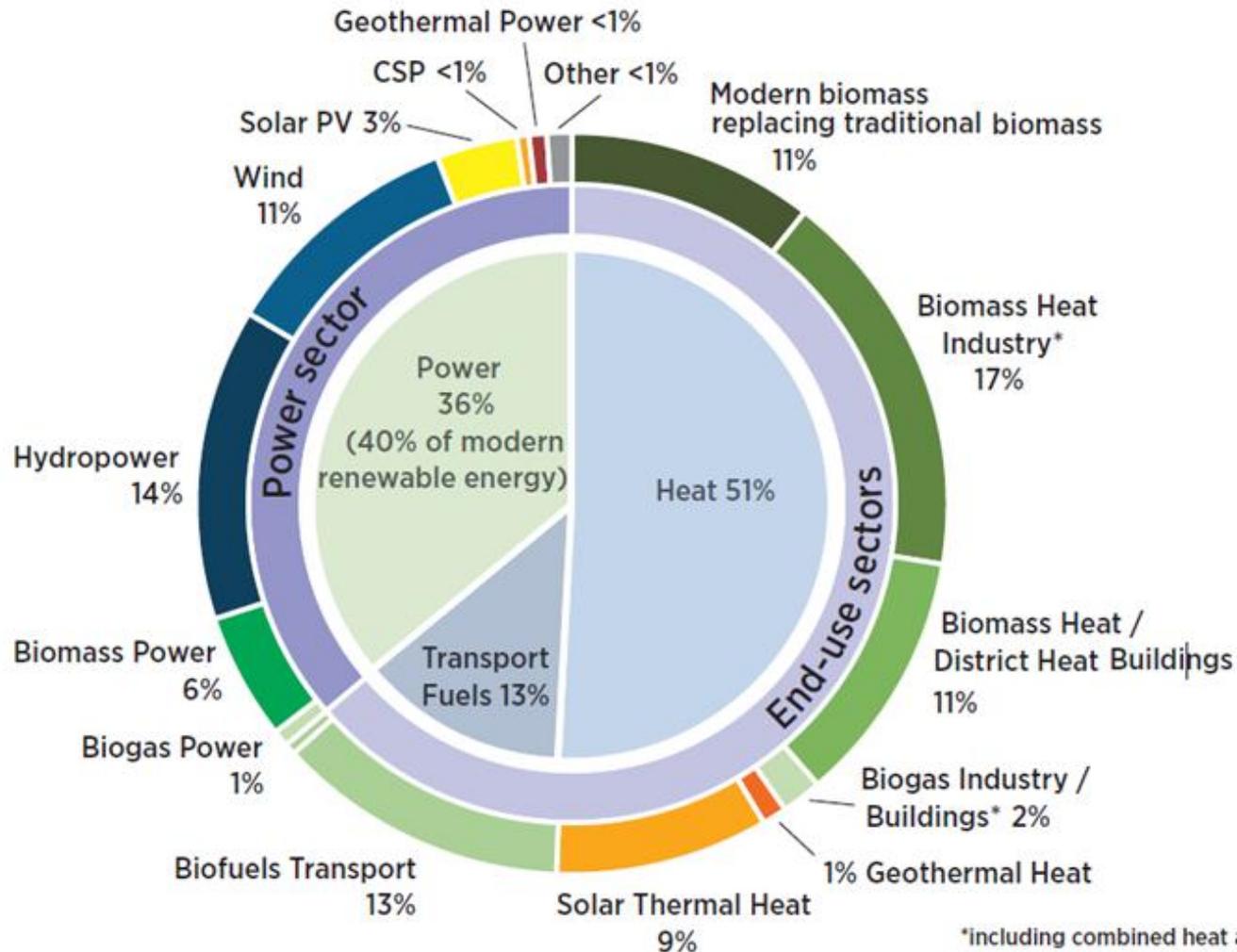
- REmap explores the **potential**, **cost** and **benefits** of doubling the renewables share in the global energy mix
- **Technology options**
 - No target setting; options characterised by their cost and potentials
 - Technology options can be combined into scenarios and translated into policy action
- Focuses on power, district heat and end-use sectors
- Coverage: **40 countries**; 80% of the global energy use
- Developed together with & validated by country experts
- **Base year** – 2010
- **Reference Case** – current policies and under consideration
- **REmap 2030** – addition of **REmap Options** on top of Reference Case for an accelerated RE deployment (in 2020 & 2030)

REmap 2030 key findings

- **Doubling the RE share from 18% in 2010 to 36% in 2030 is technically achievable with existing technologies**
 - Higher shares in power generation
 - More attention needed for heating and transportation fuels
- **Doubling is affordable when externalities are accounted for**
 - However these are not reflected in today's prices and markets are distorted because of energy subsidies
 - Macro-economic benefits include more jobs; economic activity; health benefits; a cleaner environment; a higher level of energy security
- **Biomass is key resource**
- **Potential exists in all countries, and differentiated action**

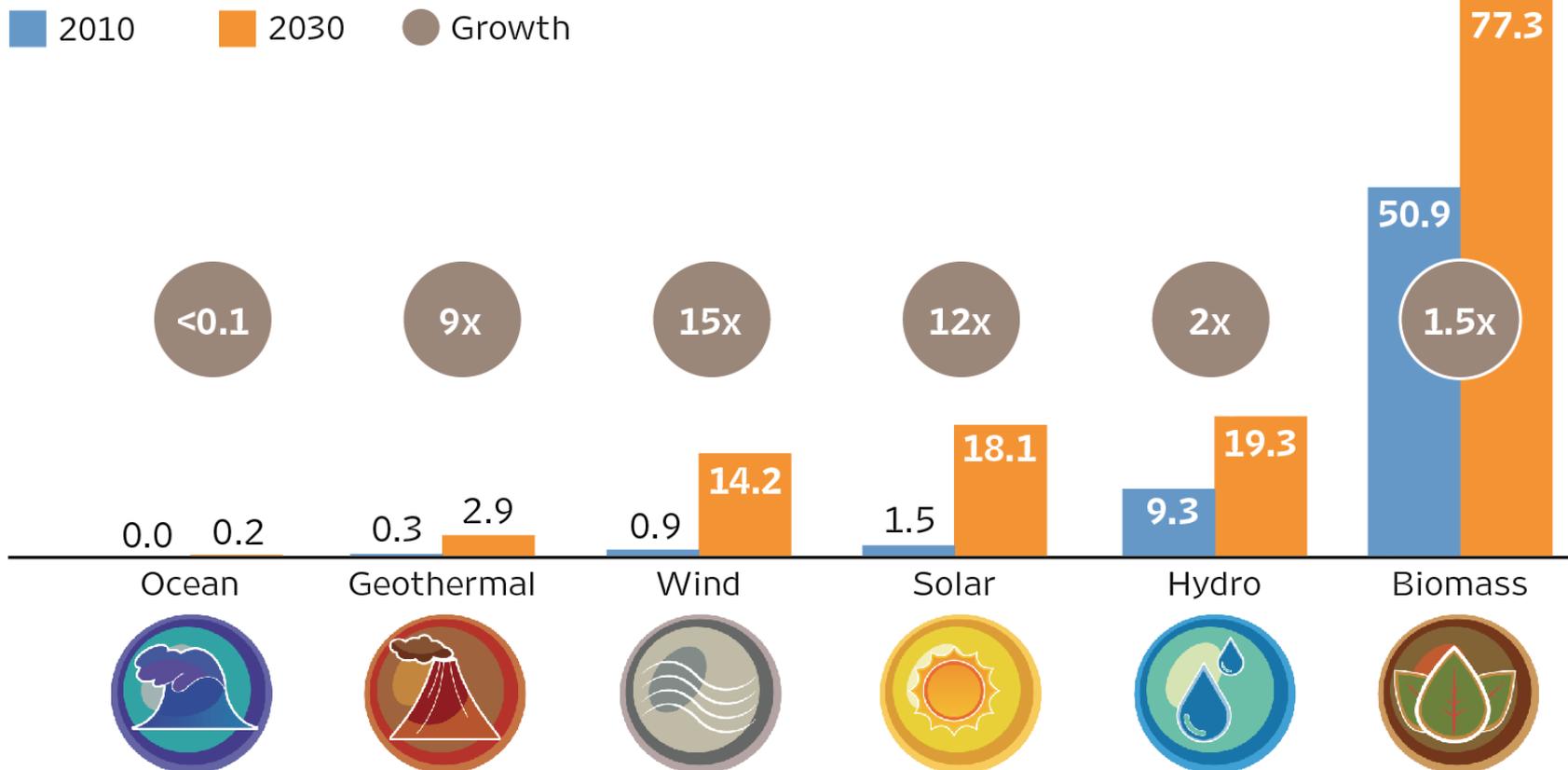
Global Renewable Energy Use in 2030 including REmap Options

Remap 2030 – 132 EJ (final energy) 60% is biomass



Scaling-up All Renewable Energy Sources

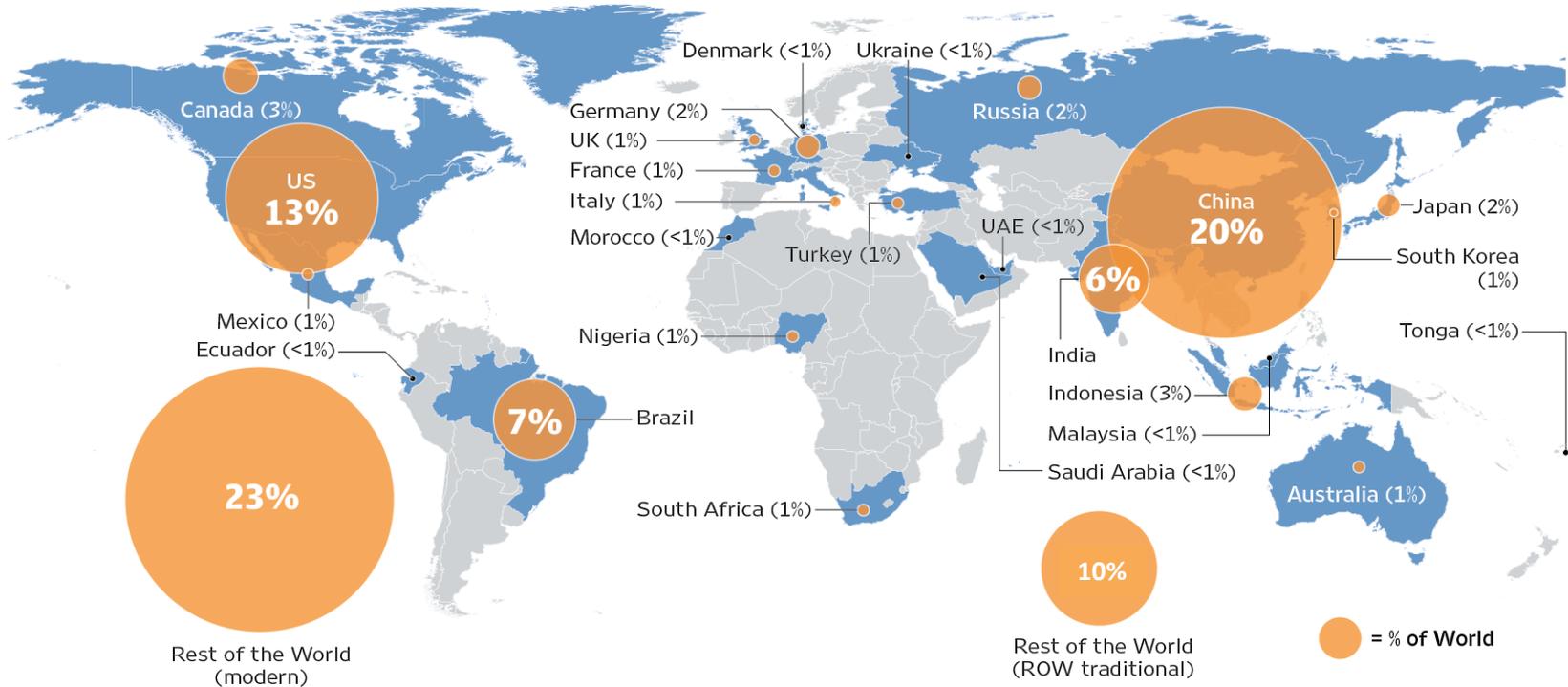
Global renewable energy use by resource (EJ/year)



Total global RE use in REmap 2030: 132 EJ/yr

Mapping Out the Renewable Energy Transition

Breakdown of Total Global Renewable Energy Use in 2030 (%)



Source: IRENA

26 countries – 75% of global energy consumption

China is the largest single market for global renewable energy use

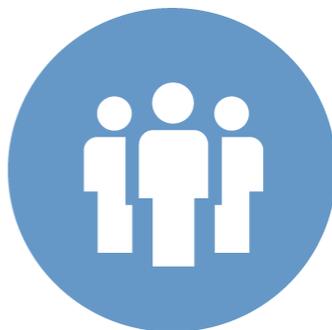
Benefits for Health, Environment and the Economy

↓ **\$200bn**



Global health-related costs can be reduced up to \$200 billion annually

↑ **900,000 jobs**



Doubling the global share of renewable energy would create a net gain of 900,000 jobs in the energy sector in 2030

↓ **15%**



Demand for oil and natural gas can be reduced by around 15%, creating more energy security for fossil-fuel importing countries

↓ **26%**



Demand for coal can decline by 26% resulting in reduced carbon emissions and cleaner air



4 **Policy Action**

Recommendations for a Renewable Future



**SYSTEM LEVEL
APPROACH**



**IMPROVING MARKET
CONDITIONS**



**PLANNING
FOR INTEGRATION**



IRENA

International Renewable Energy Agency

Masaomi Koyama
mkoyama@irena.org



APPENDIX

Policy Action Areas and Proposals to Accelerate Renewable Energy Deployment

Action Area 1: Planning transition pathways

Proposals	Countries/Actors
#1 Assess the base-year situation and Reference Case trends for renewable energy for 2030 on a country basis.	All
#2 Develop a national roadmap to meet renewable energy targets. Monitor progress and re-evaluate targets and framework effectiveness and efficiency regularly.	All
#3 Ensure human and institutional capacity to develop and sustain the transition.	All
#4 Streamline planning processes and ensure their consistency and inclusiveness on different levels, including municipal, national and regional planning.	All

Policy Action Areas and Proposals to Accelerate Renewable Energy Deployment

Action Area 2: Creating an enabling business environment

Proposals	Countries/Actors
#5 Invest in new capacity and develop risk-minimising measures to reduce the cost of capital and levelised cost of renewable energy generation and use.	All, developing countries
#6 Consider increased renewable energy deployment as an alternative to fossil fuel subsidies.	Countries which subsidize fossil fuels
#7 Ensure fair market access and phase out negative price distortions.	Countries with monopolies/oligopolies
#8 Account for external effects in the pricing of fossil fuel energy supply and use.	Countries with high air pollution levels
#9 Ensure quality of products through standards and regulations, and find the country balance for local content requirements in the light of market access for cost reductions and innovation.	All
#10 Through country-dialogue and community engagement, establish a set of credible and predictable policy frameworks that can be maintained over longer periods.	All
#11 Reduce the duration of project implementation by improving the planning and regulatory framework	All

Policy Action Areas and Proposals to Accelerate Renewable Energy Deployment

Action Area 3: Ensuring smooth integration into the existing infrastructure

Proposals	Countries/Actors
#12 Build enabling infrastructure such as transmission grids, interconnectors and electric vehicle charging stations.	For example, countries where resource / demand centres are apart
#13 Facilitate sustainable biomass supply and consider the nexus in the development of renewable energy strategies and policies, notably land, energy, water, agriculture, trade and infrastructure.	All
#14 Develop market for affordable and reliable equipment for modern energy access.	Developing countries

Policy Action Areas and Proposals to Accelerate Renewable Energy Deployment

Action Area 4: Creating and managing knowledge

Proposals	Countries/Actors
#15 Build a strong, publicly accessible knowledge base on renewable energy technology costs, potential and technology options.	All
#16 Expand project development knowledge for bankable project proposals.	All
#17 Collect and report best-practice information on technology and policies.	Countries with best practices
#18 Establish and improve programmes to increase awareness and strengthen the capacity of manufacturers, installers and users.	All
#19 Design renewable energy technologies from the point of view of product and service life-cycle environmental and sustainability impacts.	Countries with R&D and manufacturing base

Policy Action Areas and Proposals to Accelerate Renewable Energy Deployment

Action Area 5: Unleashing innovation

Proposals	Countries/Actors
#20 Develop targeted policies that support the technology life cycle.	All
#21 Review energy applications of high relevance and low renewable energy potential and develop programmes to fill the gap with new technology.	Countries with such applications

Policy functions and tools

