



The role of science, technology and innovation in substantially increasing the share of renewable energy by 2030

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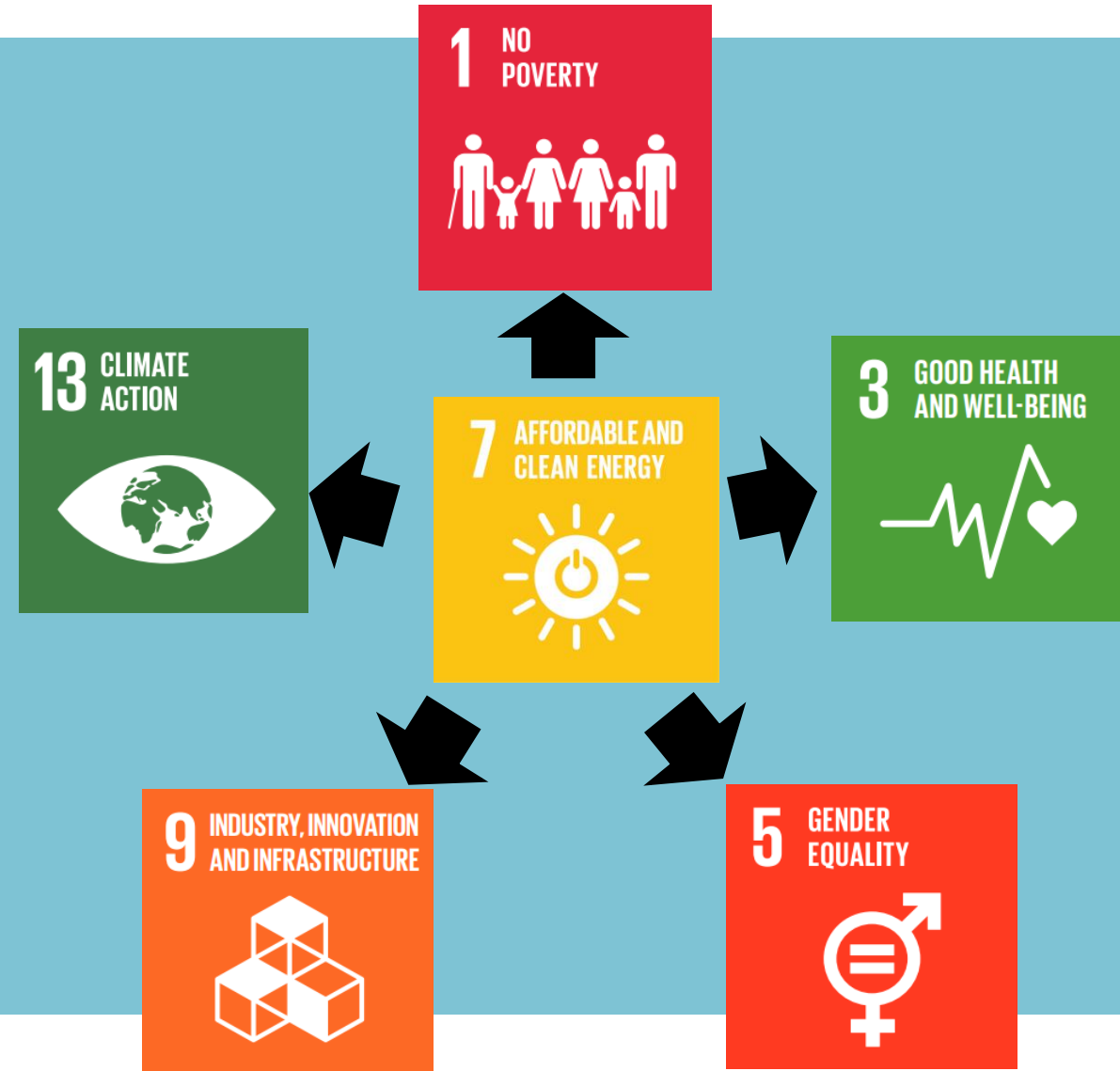
CSTD Twenty-first session
14-18 May 2018 Geneva

Context

Synergies between Goal 7 and other SDGs

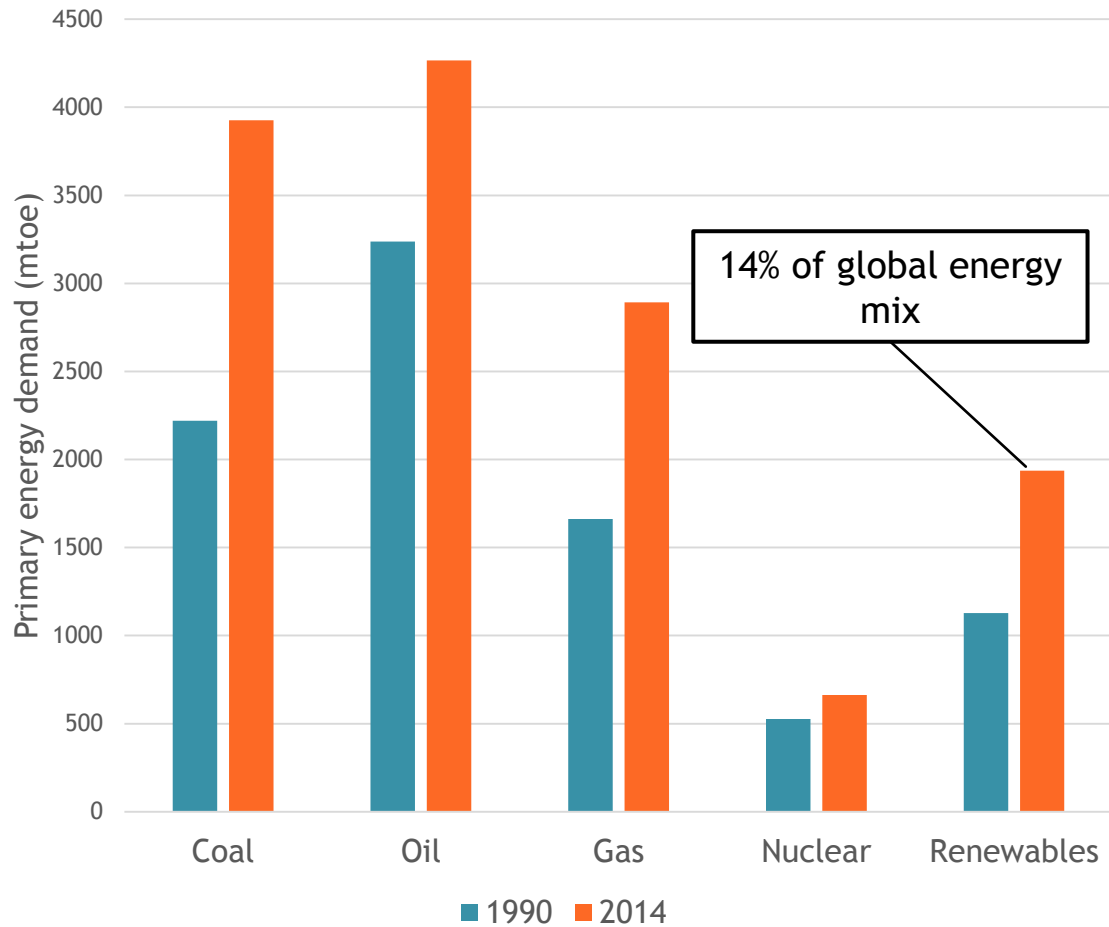
1.1 BILLION people
without access to
electricity

2.8 BILLION people
without access to clean
energy



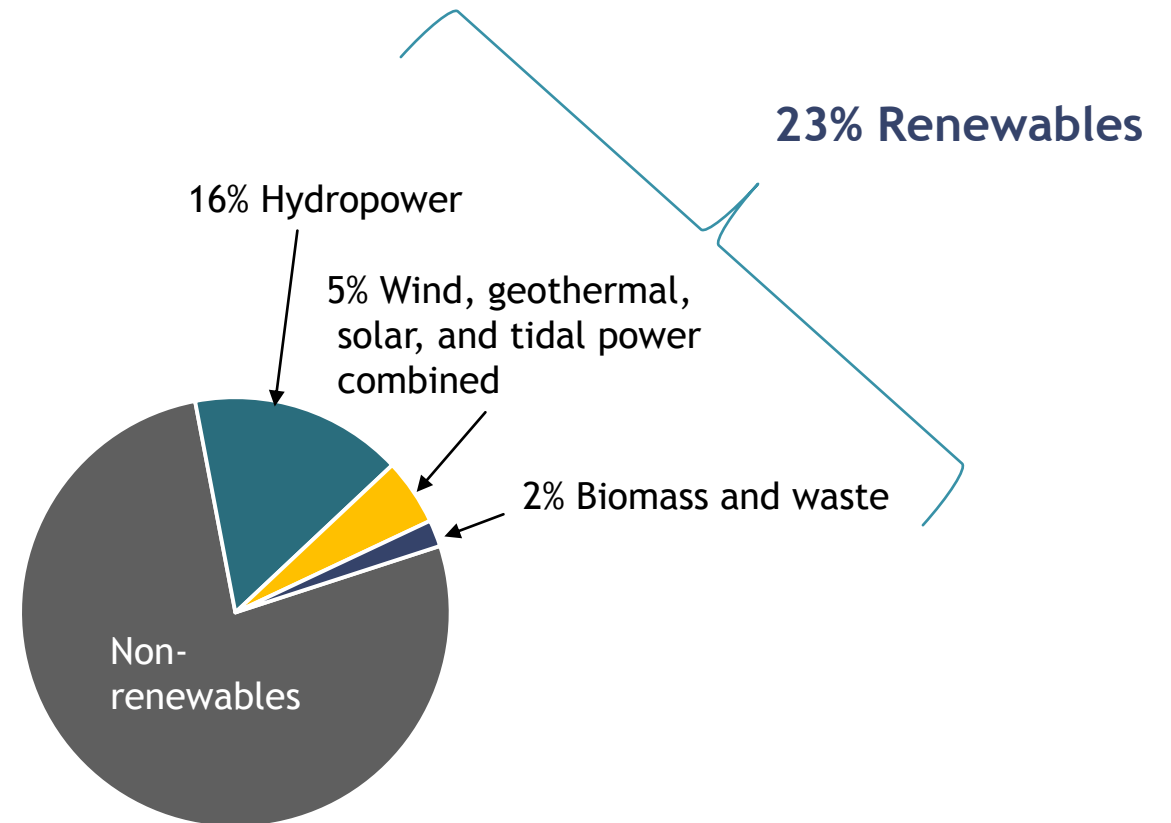
Global trends in renewable energy deployment

Figure 1. Global primary energy demand by energy source 1990 vs 2014

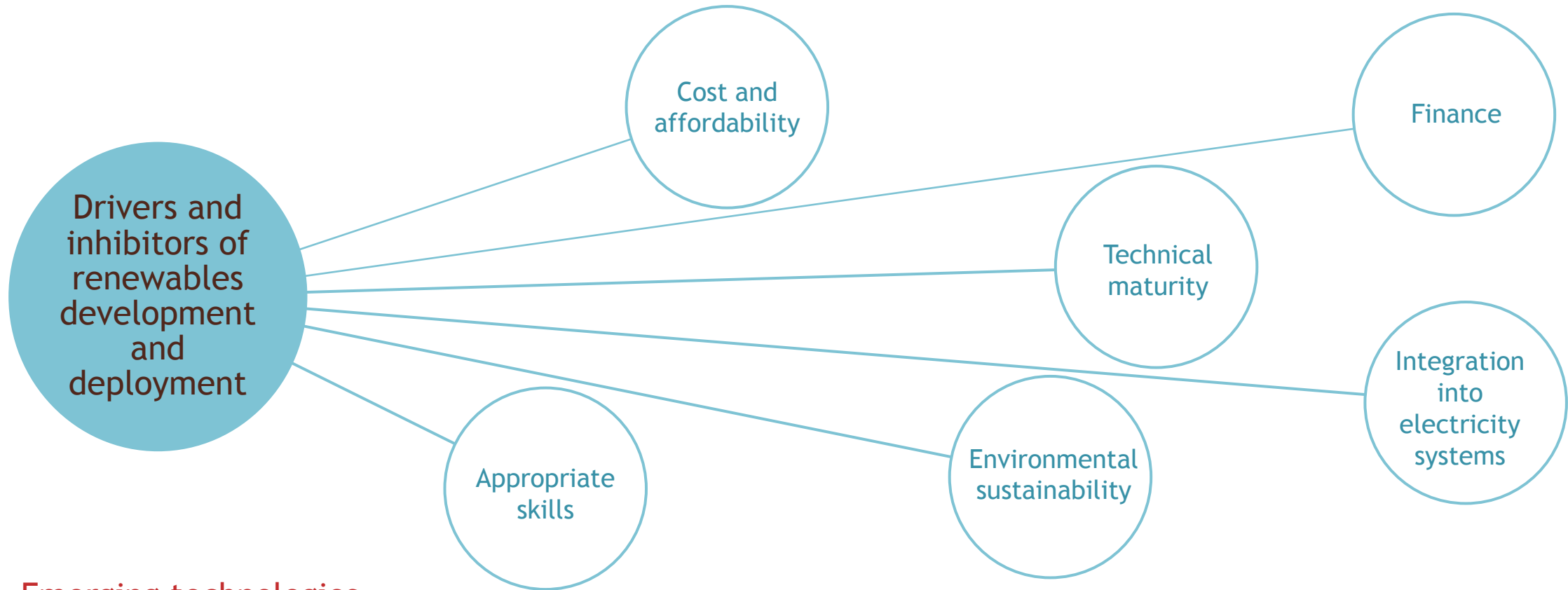


Source of data: IEA

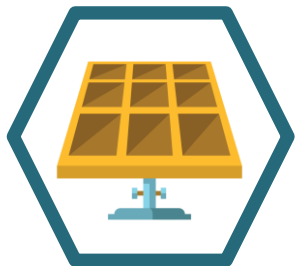
Figure 2. Global electricity generation



Drivers, inhibitors and emerging technologies



► Emerging technologies



Third generation solar photovoltaics



Vehicle-to-grid integration



Digitalization of energy systems

Renewable energy market and policy design

- ▶ Technological innovation can be accelerated both by international competition and cooperation
- ▶ Policy learning: from feed-in tariffs to auctions
- ▶ Governments play crucial role in renewable energy innovation and deployment:
 - ▶ Market demand for renewables
 - ▶ Mix of supporting policies such as: funding research and development, creating demand through deployment incentives, reforming energy markets and setting standards, strengthen investor confidence

Integrating renewables to electricity grids

- ▶ Need for innovation in enabling technologies that can help to integrate variable renewables into electricity systems:
 - ▶ Storage
 - ▶ Smarter electricity systems - integration of digital technologies
 - ▶ Technologies to increase demand-side flexibility
- ▶ Need for infrastructure development

Extending access to electricity

- ▶ Access to electricity can improve livelihoods through different channels
- ▶ Technological progress and cost reductions in renewables represent an opportunity for electrification in rural areas:
 - ▶ Off-grid, mini-grid and grid-based solutions
 - ▶ Affordability is key: micro-finance, pay-as-you-go models
 - ▶ Incentives for private sector

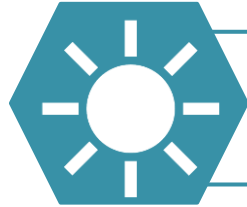
Renewable energy for household purposes

- ▶ Using traditional biomass for cooking has serious health, environmental and social consequences
- ▶ Solutions:
 - ▶ More efficient and sustainable use of biomass
 - ▶ Modern cooking fuel and technologies
- ▶ Challenges: affordability and cultural resistance
- ▶ Engagement of women is crucial

Key policy considerations



1. Countries have different national renewable energy pathways



2. Policy mixes are necessary to support renewable energy deployment



3. International and regional cooperation have a key role to play

Examples of international cooperation in renewable energy

- ▶ **South African Solar Thermal and Demonstration Initiative (SOLTRAIN)**

- ▶ Financial contributions
- ▶ Installed solar heating systems and trained locals



Photo: SOLTRAIN

- ▶ **Solar panel factory in Mozambique**

- ▶ Joint investment of Governments
- ▶ Technology and skills transfer



Photo: Global Alliance for Clean Cookstoves

- ▶ **Mission Innovation**

- ▶ Global initiative of 22 countries and the EU
- ▶ Accelerates global clean energy innovation for universal accessibility

- ▶ **Global Alliance for Clean Cookstoves**

- ▶ Public-private partnership
- ▶ Supports research, design and implementation of programs for improved cookstoves

Key policy suggestions

Member States



- ▶ Increase national support for research and development activities
- ▶ Adopt policy mixes that allow for flexibility and improve policy coordination
- ▶ Recognize and consider the social and cultural contexts of local communities
- ▶ Promote North-South, South-South and triangular partnerships
- ▶ Build domestic innovative capabilities and engage with local communities

International community



- ▶ Facilitate international and regional joint research activities
- ▶ Encourage international science, technology and innovation collaboration
- ▶ Improve the interconnection of grid infrastructures across borders

CSTD



- ▶ Support multi-stakeholder collaboration
- ▶ Improve coordination among stakeholders and enable partnerships
- ▶ Encourage the sharing of lessons between countries and regions
- ▶ Identify mechanisms for improving capabilities in developing countries



Thank you for your attention

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