Rabia Ferroukhi, Director, KPFC, IRENA

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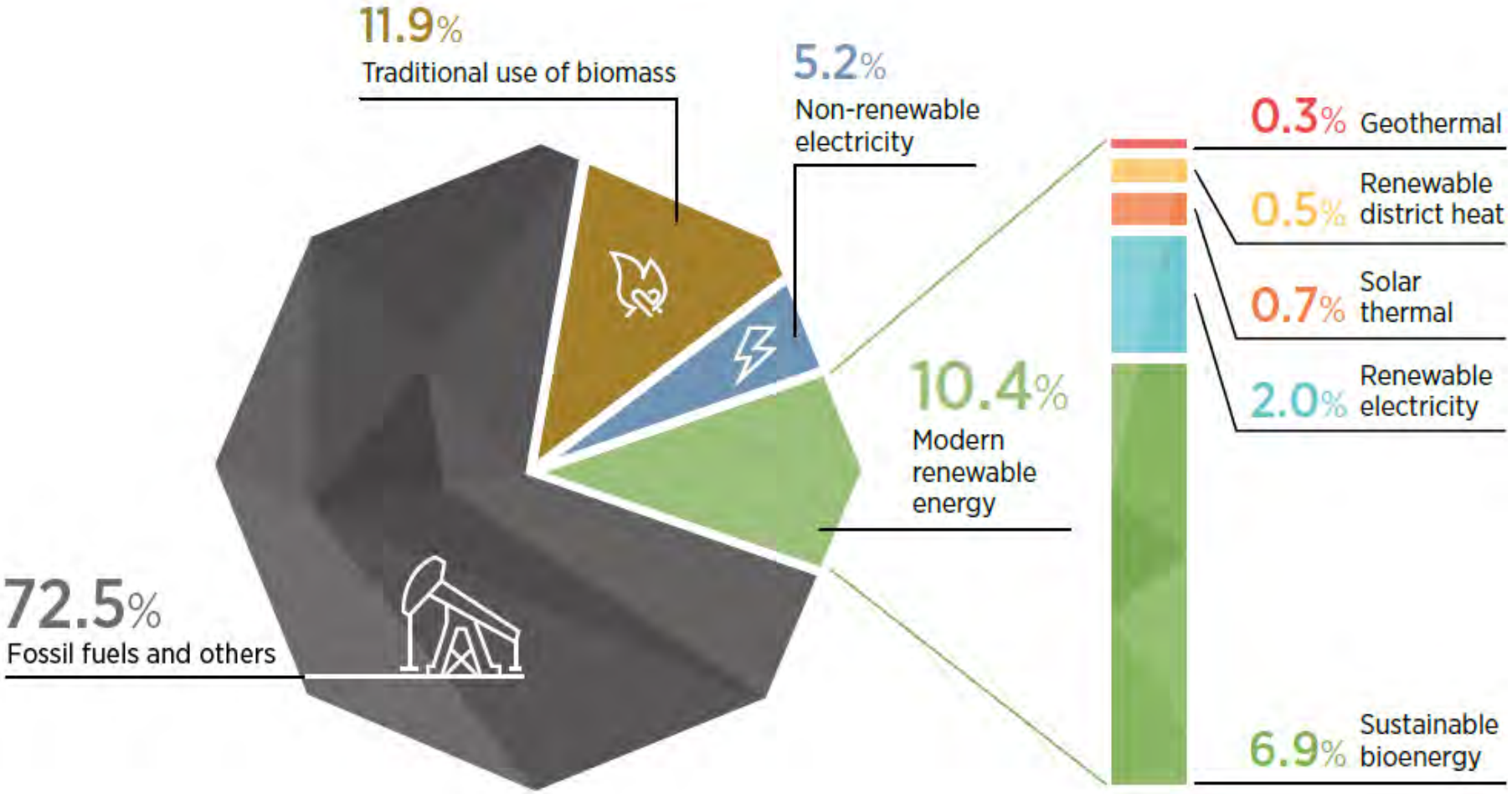
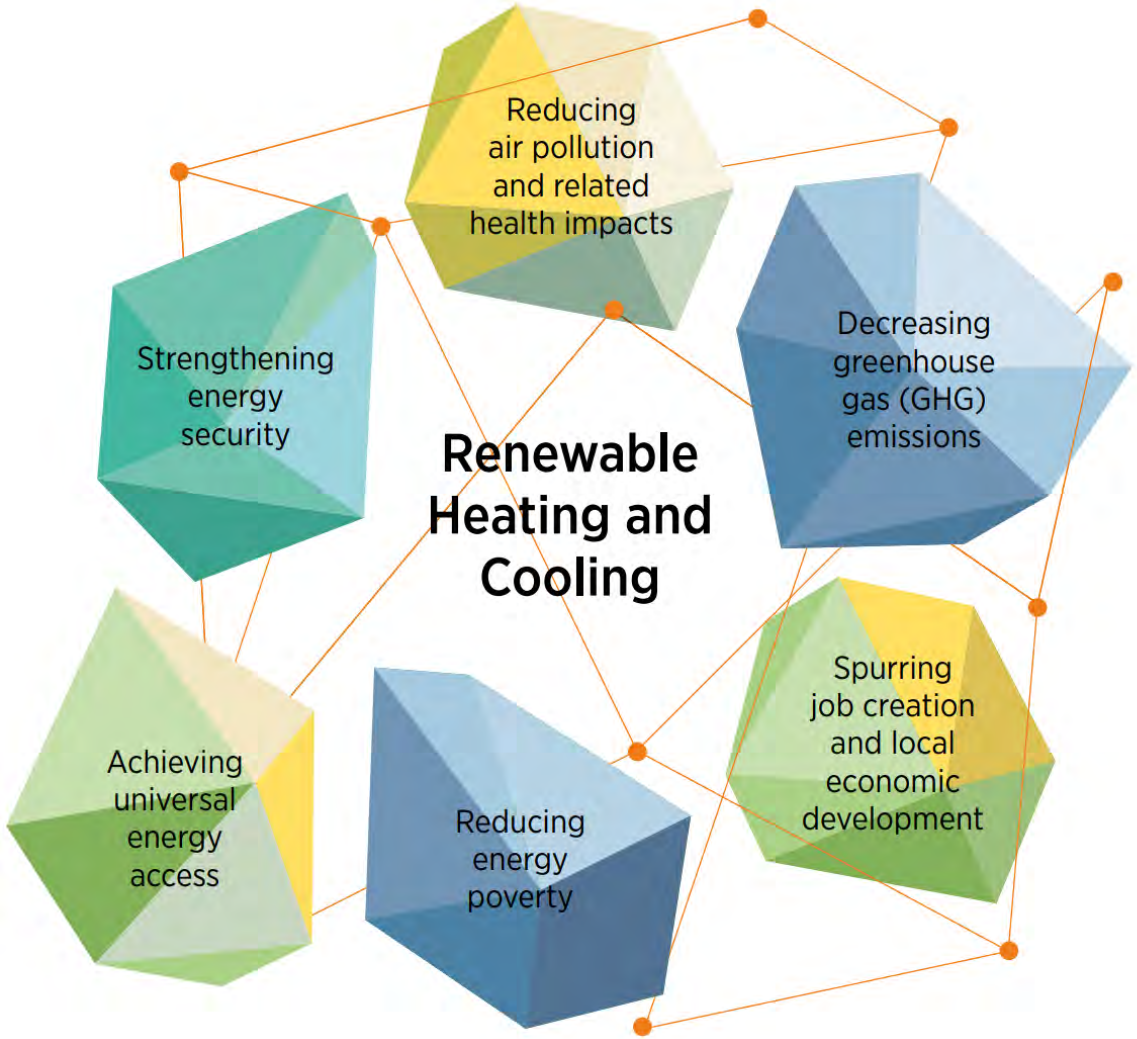
Fossil fuels still dominate

Share of energy sources in total final energy consumption of heating and cooling, 2019



- Heating and cooling: **almost half** of global energy demand
- **Demand** for renewable heating and cooling barely growing
- **Urgent need** to transition

Widespread potential benefits



Existing barriers limit uptake

Political and institutional barriers

- Lack of political commitment, including to universal access to energy
- Weak institutional structures (heat markets are complex, fragmented and not well understood)
- Inadequate data and statistics on types and amounts of energy required to meet heating and cooling needs
- Little awareness among decision makers of impact about the effects on the climate and the environment of using fossil fuels for heating and cooling
- Policy frameworks built around a fossil-fuel-based energy system

Economic and financial barriers

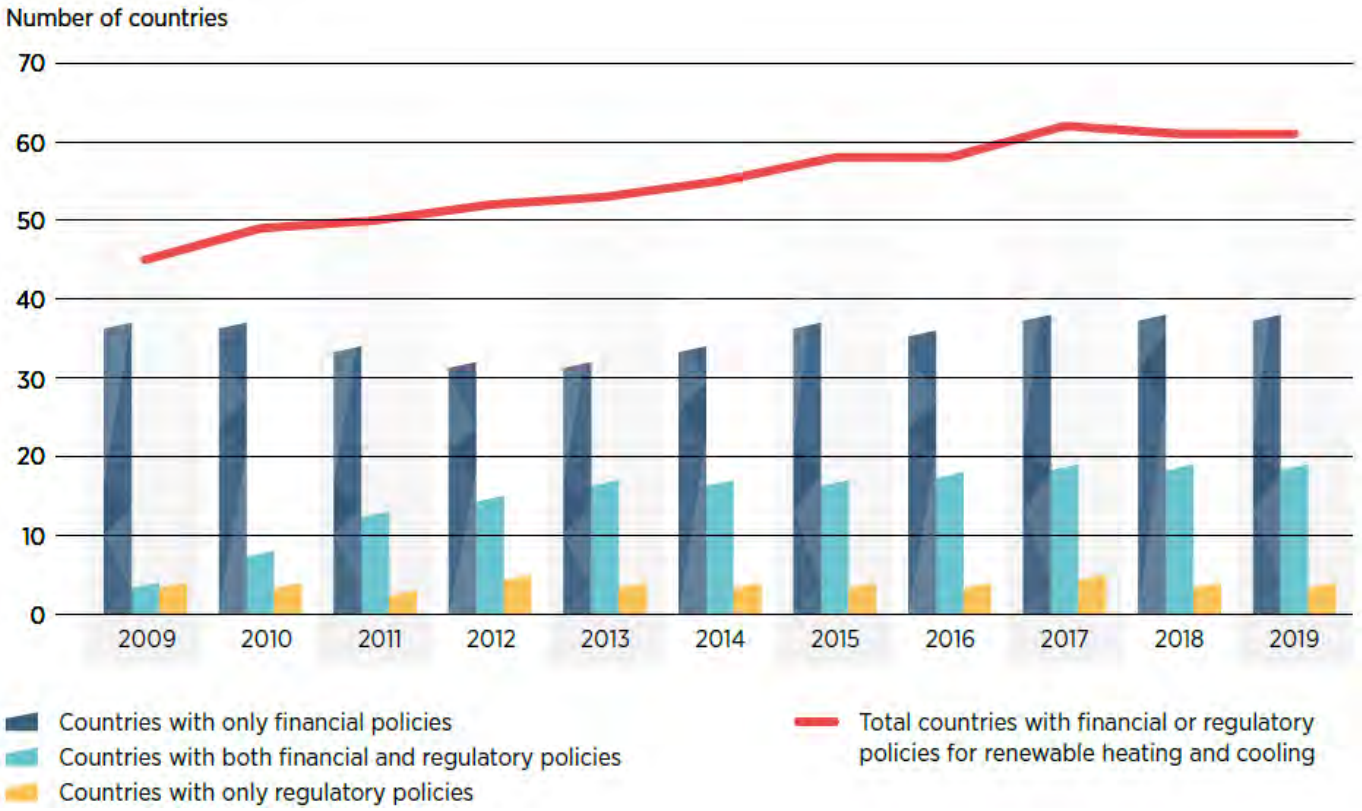
Playing field with fossil fuels is still not level, owing to:	High upfront costs, including:
• Externalities not accounted for	• Capital costs
• Persistent fossil fuel subsidies in many parts of the world	• Cost of and access to finance
	• Unbalanced tax burden

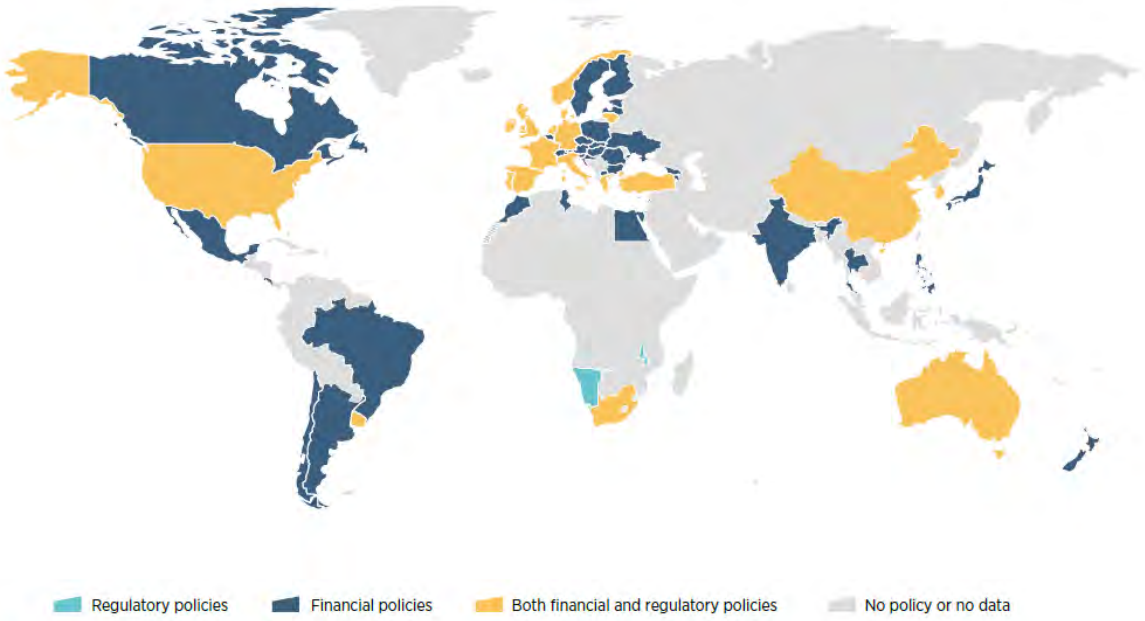
Other

Weak supply chains, including:	Consumer inertia and behaviour, resulting from:	Technical barriers, including:
• Infrastructure and renewable fuels	• Lack of awareness about potential and benefits	• Building suitability
• Shortages of trained personnel	• Distressed purchase and consumer inertia	• Industrial heat requirements
• Lack of economies of scale	• Disruption and "hassle costs"	• Reliability of technology
	• Split incentives	

Policy deficit and stagnation

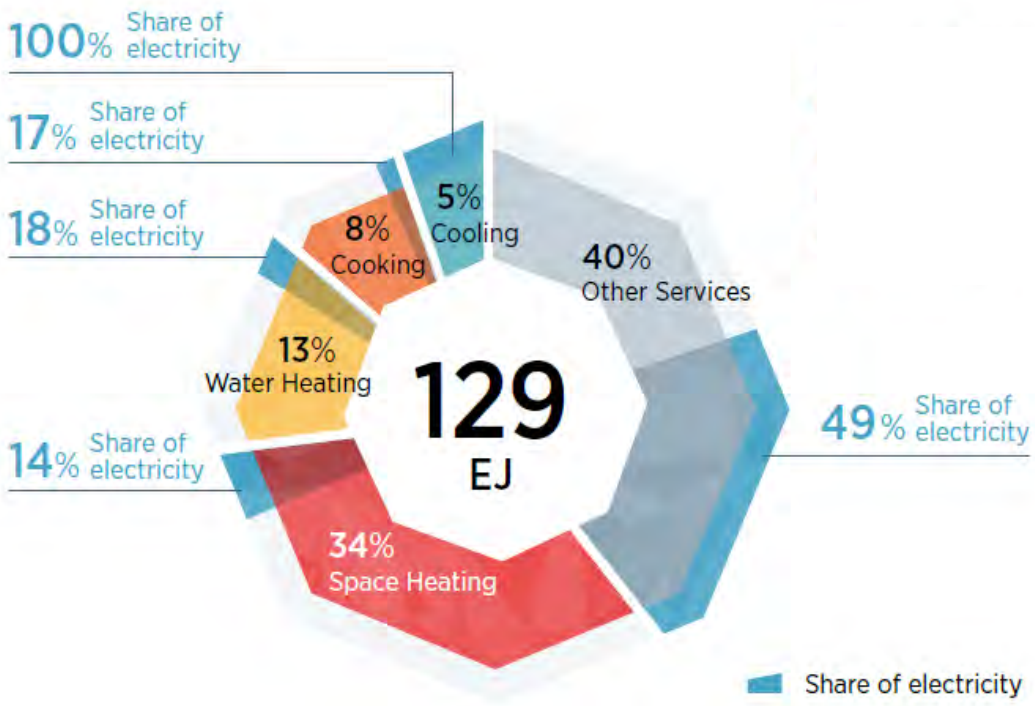
Countries with policies for renewable heating and cooling, 2009-19





Renewable-based electrification

Global share of electricity in the buildings sector by service, 2019



Overcoming high upfront cost of appliances (HP)

- Capital grants, subsidies, loans, rebates

Addressing high operational costs

- Electric heating tariffs, energy efficiency in building codes

Addressing network constraints

- Tariffication schemes (ToU tariffs), digital monitoring & control for DR, conducive market design

Increasing consumer confidence

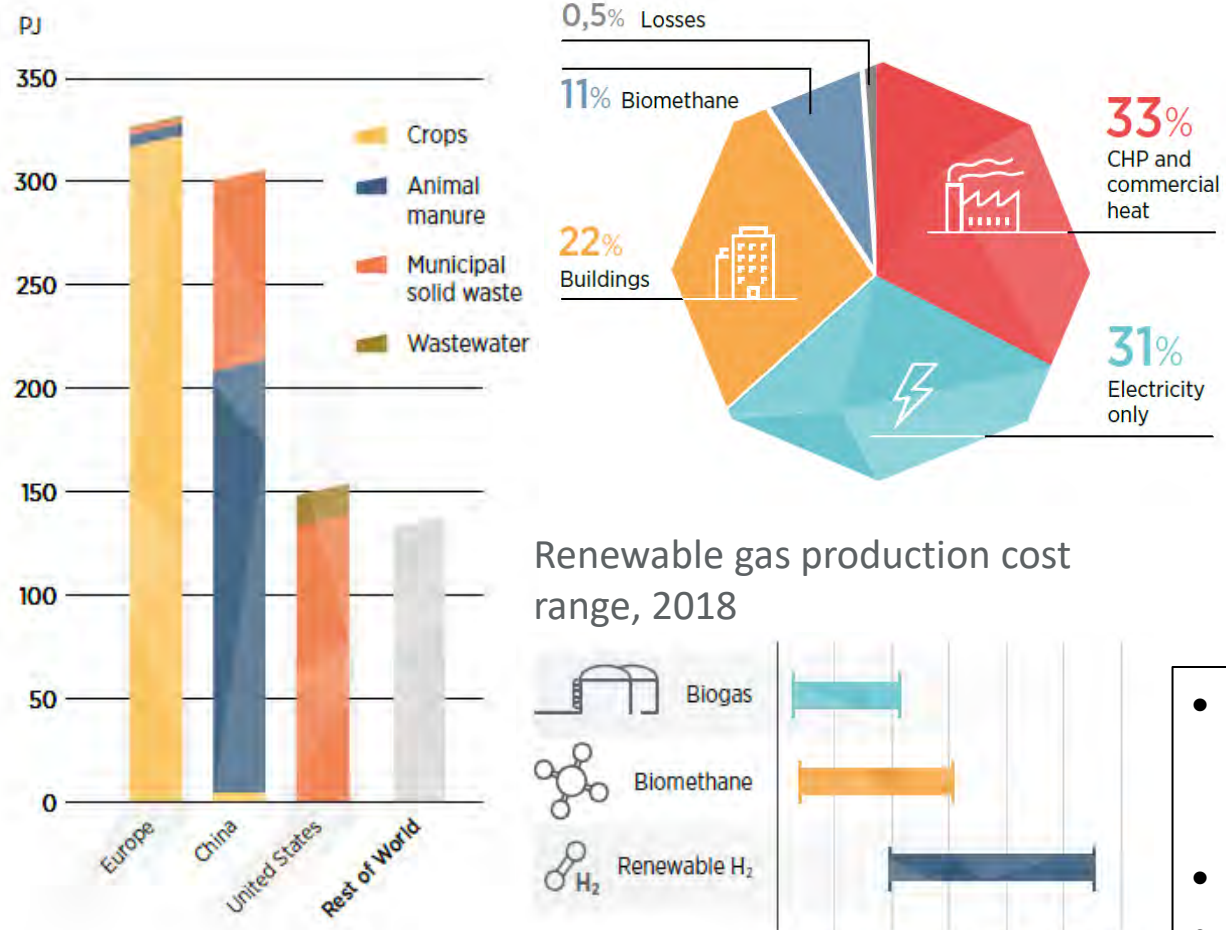
- Quality standards, labels, MEPS

Ex:

- **China**'s Clean Winter Heating in Northern Regions pilot program
- **UK**'s Renewable Heat Incentive
- **Illinois**' ToU tariffs (US)

Renewable gases

Biogas production by region and by feedstock and end use, 2017



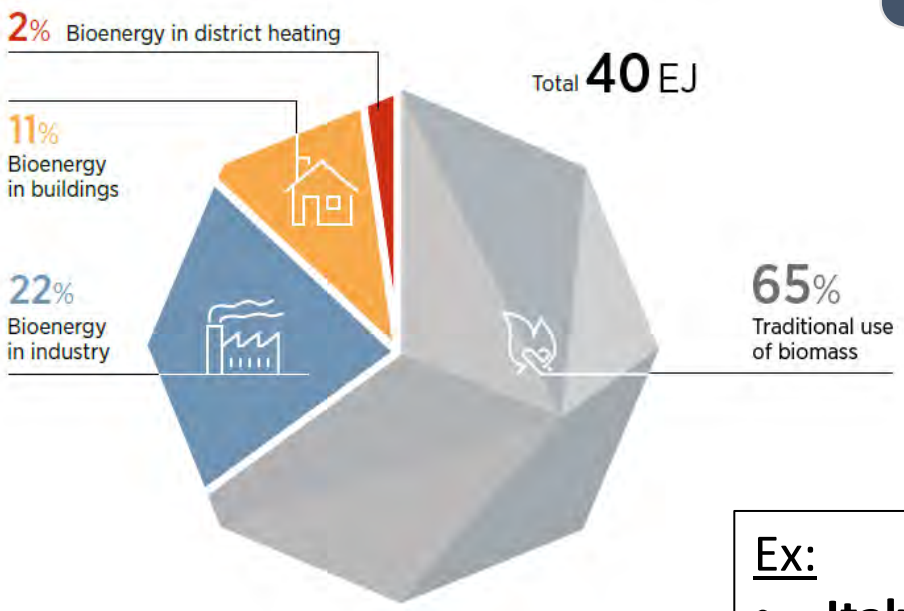
Renewable gas production cost range, 2018

- Closing the gap with fossil fuels
  - Recognition of avoided CH_4 emissions from biogas/ biomethane
  - RE gas injection subsidies
- Stimulating investment by lowering the risk
  - Clear long-term framework for the gas industry
  - Targets
  - Capital grants, loan guarantees, soft loans
- Harnessing the potential of existing gas infra-structure
  - "Guarantee of origin" registries
  - Blending demonstration projects
- Deploying renewable gases in industry
  - Industrial clusters for hydrogen projects

- **Denmark**'s **target** : 100% of gas injected into its grid renewable by 2035; **France**'s **target** : 10% of renewable gas consumption by 2030
- **California**'s low carbon **fuel standard**
- Port of **Rotterdam**'s hydrogen hub project

Sustainable use of biomass

Bioenergy used for heating, 2018



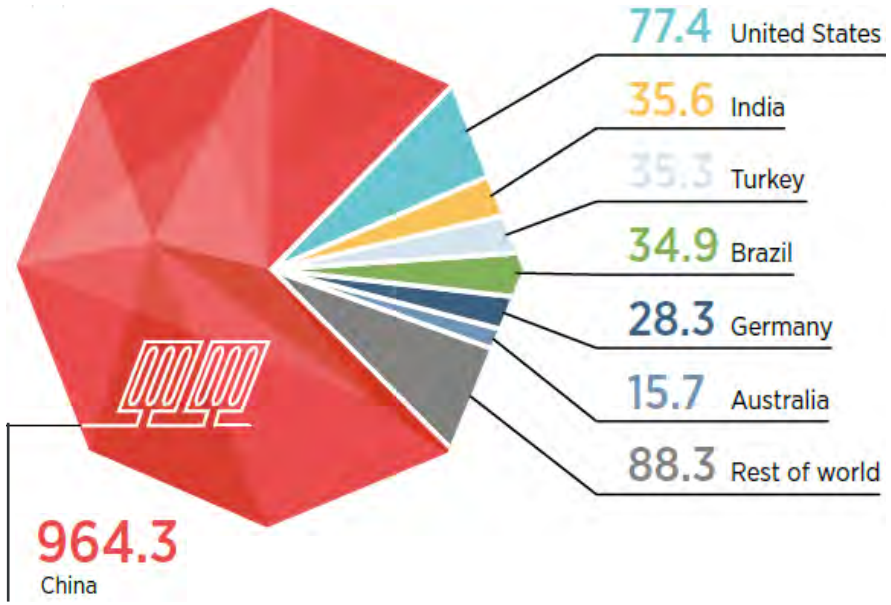
Developing reliable supply chains	Addressing cost and market barriers	Ensuring sustainability of biomass supply	Ensuring quality of installations and fuels
Consistent & long-term policy approach in coordination with all stakeholders ; clear planning & regulatory framework	Capital grants, tax incentives, loans, FiT, inclusion in RPS, investment funds	Clear sustainability guidelines & biomass certification schemes	Strict standards, certification of systems & installers

Ex:

- **Italy**'s « Conto termico » (grants) & **France**'s « Fonds Chaleur » (subsidies)
- Loan support for biomass CHP from **Brazil**'s development bank
- **India**'s grant scheme for industrial-scale biomass co-generation
- Sustainability criteria in the **EU** RED II Directive

Direct use of solar thermal heat

Solar thermal heat use by country, 2017 (PJ)



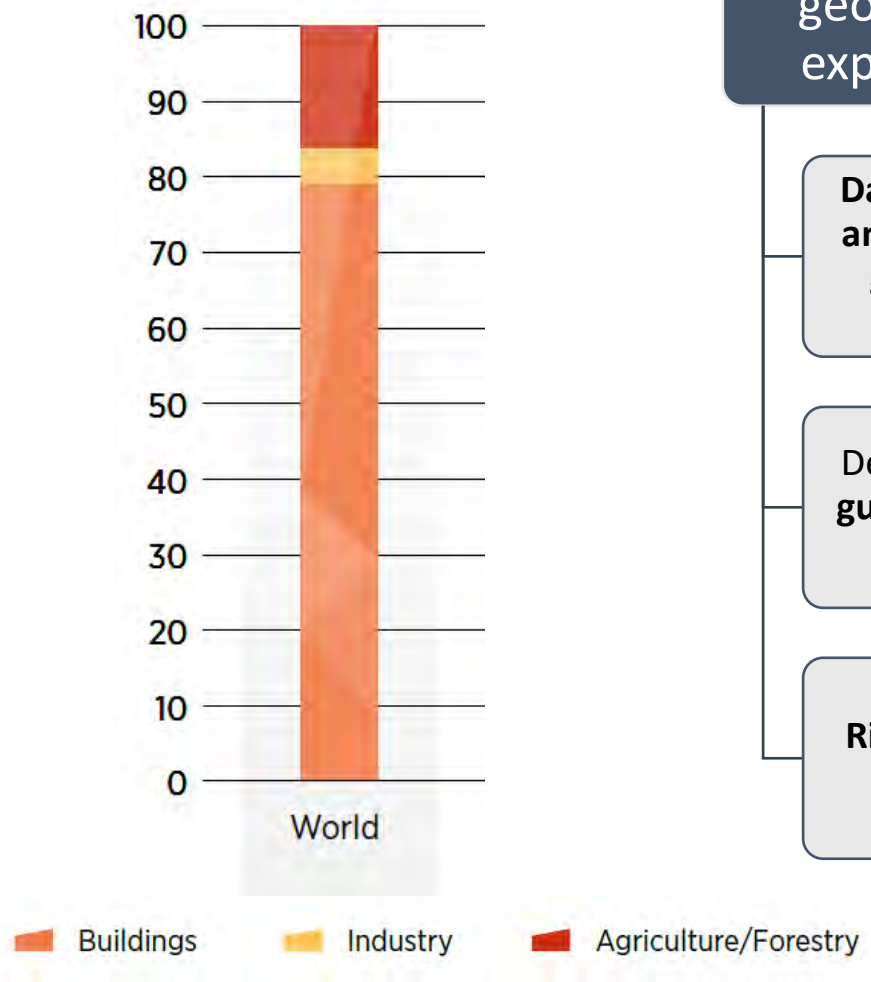
Source: IEA-SHC, 2020.

- Overcoming upfront costs
  - Loans, grants, subsidies, tax incentives
- Driving demand through regulation
  - SWH mandates, RE mandates in building codes
- Improving investors confidence
  - Technology-specific targets
- Rising consumers awareness and confidence in available options and benefits
  - Public campaigns, information-sharing activities
  - Certification schemes
- Improving the range of possible applications
  - RD&D

- **China**'s SWH deployment was supported by a mix of **targets**, **subsidies** and **mandates**
- Combinaison of **grants**, **tax exemptions** and preferential **loans** in **Tunisia** (*PROSOL*), **Rwanda** (*SolaRwanda*) & **Lebanon**
- Solar thermal District Heating in **Denmark** developed thanks to **high fossil fuel taxes**

Direct use of geothermal heat

Geothermal heat use by sector, 2020 (%)



De-risking geothermal exploration

- **Data collection and sharing** on geothermal resources
- Dedicated **loan guarantees** and **grants**
- **Risk insurance funds**

Improving investors confidence

- **Road maps** and **action plans**

Overcoming high upfront costs

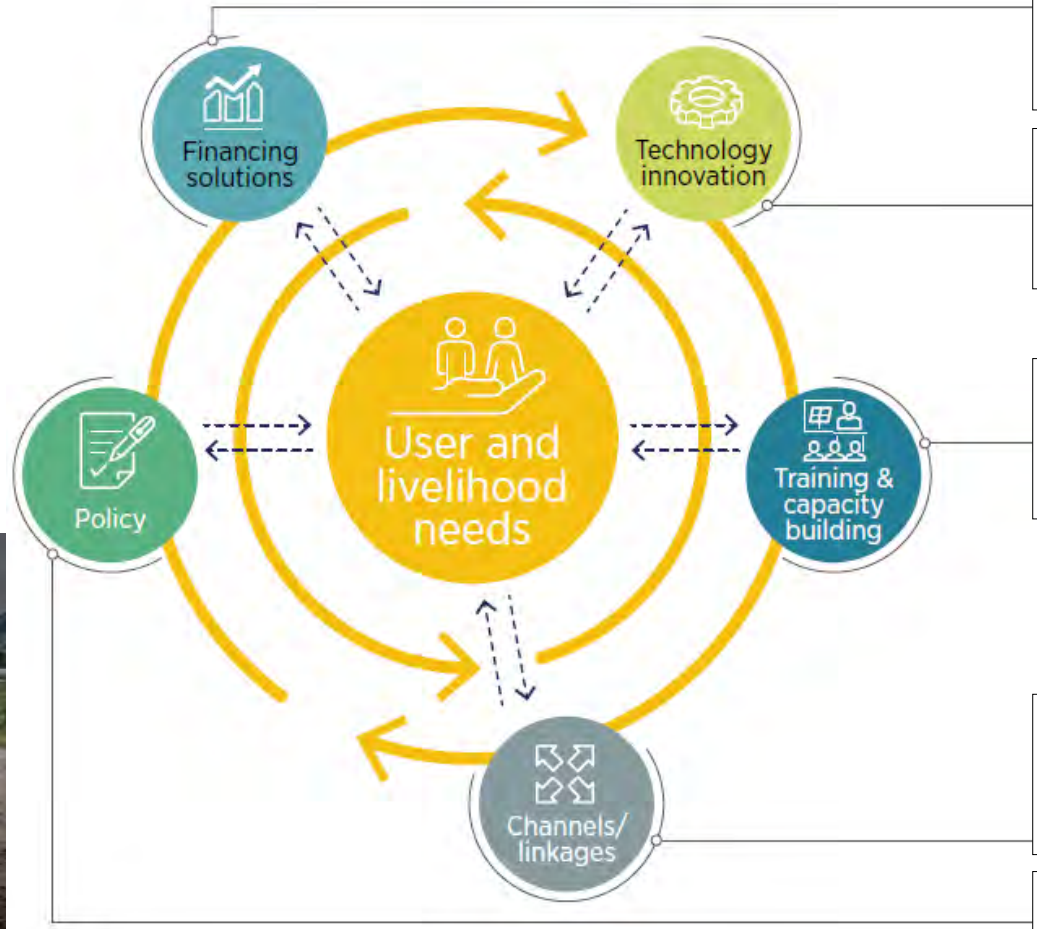
- **Tax incentives, loans**

Ex: The Netherlands

- *Geothermal Action Plan* (2011) & *Acceleration Plan for Geothermal Energy in Horticulture* (2014)
- SDE+ feed-in-premium for renewable heat
- Public geological database
- Post-damage guarantee scheme (financed by an insurance fee for participants)
- Collaborative venture programme between government and industry for information sharing

Provide universal access to clean, affordable, reliable energy

Ecosystem needs for supporting livelihoods



- Access to finance
- Cost of capital
- Ownership models

- Efficient technology
- Caters to specific needs
- Last mile supply chain

- Awareness of solutions
- Training
- Knowledge transfer

- Stable input sources
- Access to new or existing markets to sell products

- Cross-cutting plans
- Awareness in financial inst
- Derisking tools

Source: SELCO Foundation, 2018

Raise ambition

ANNOUNCEMENT / 19 JUN, 201

Japan net zero emis the spotlight

Published on 26/10/2020, 2:35pm

Prime minister Yoshihide Suga has pror to achieve carbon neutrality by 2050

South Korea formally commits to cutting emissions to net zero by 2050

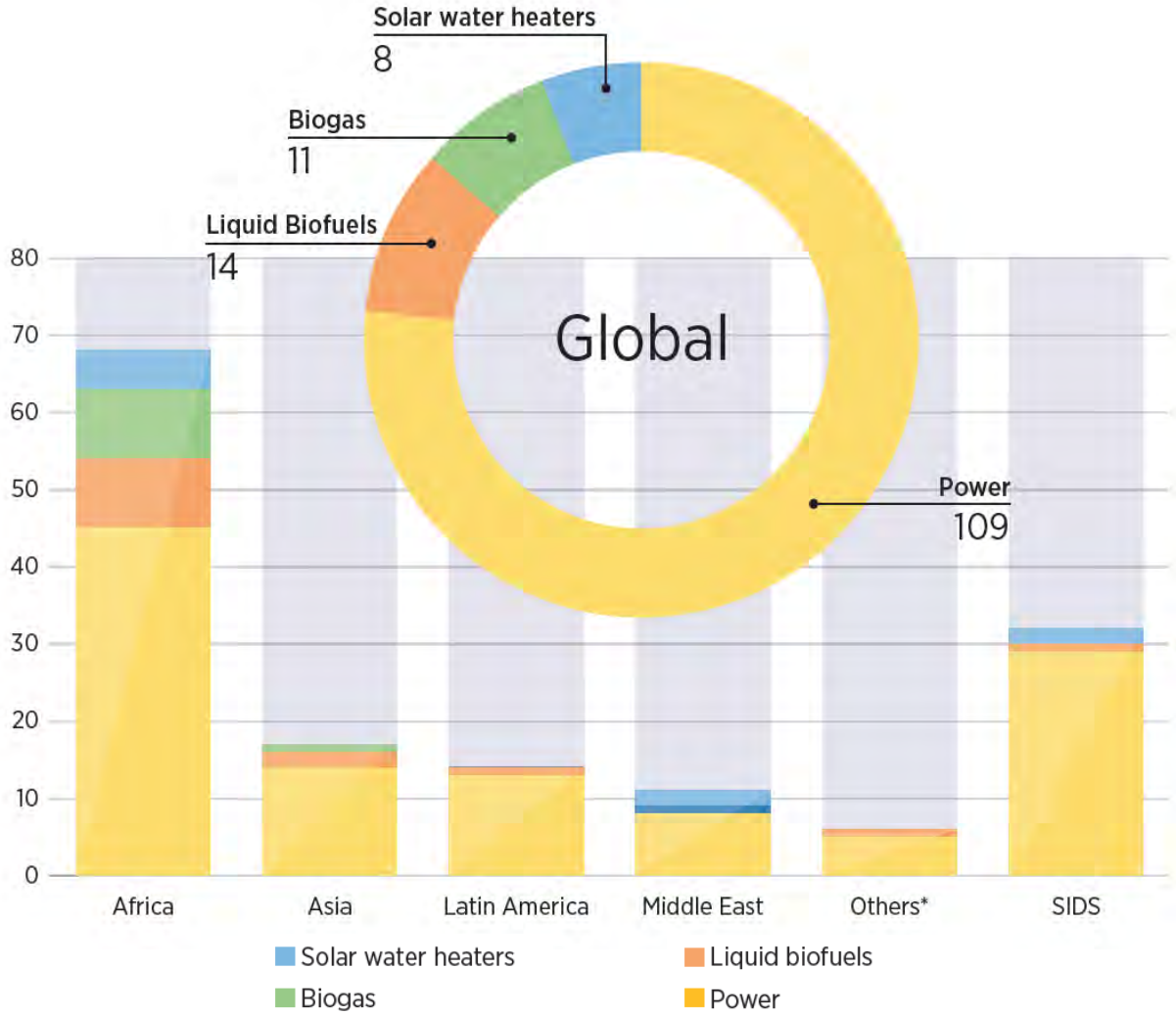
Published on 28/10/2020, 3:01pm

President Moon Jae-in's announcement follows a three-day visit by Cop26 president-designate Alok Sharma to South Korea

Soga coal power station, Japan (Photo: Flickr/Friends of the Earth)

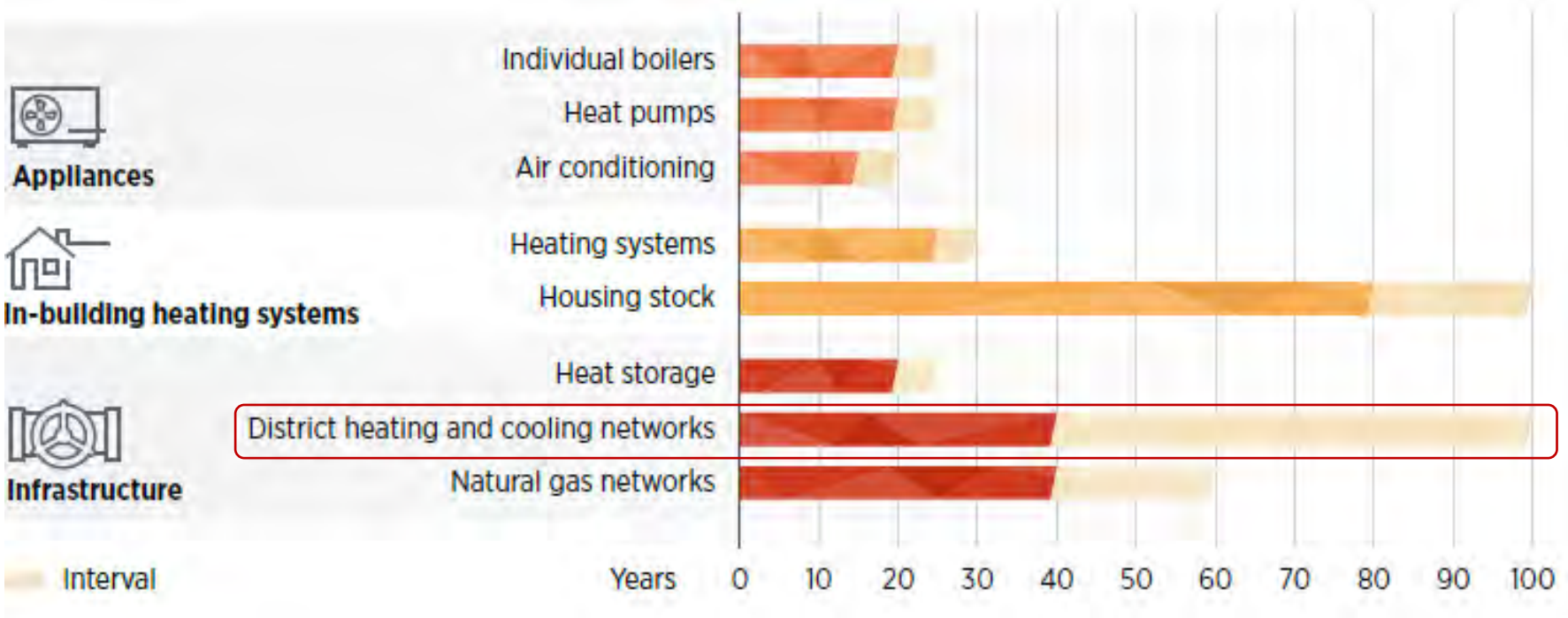
et with

Renewable energy targets in the NDCs, 2020

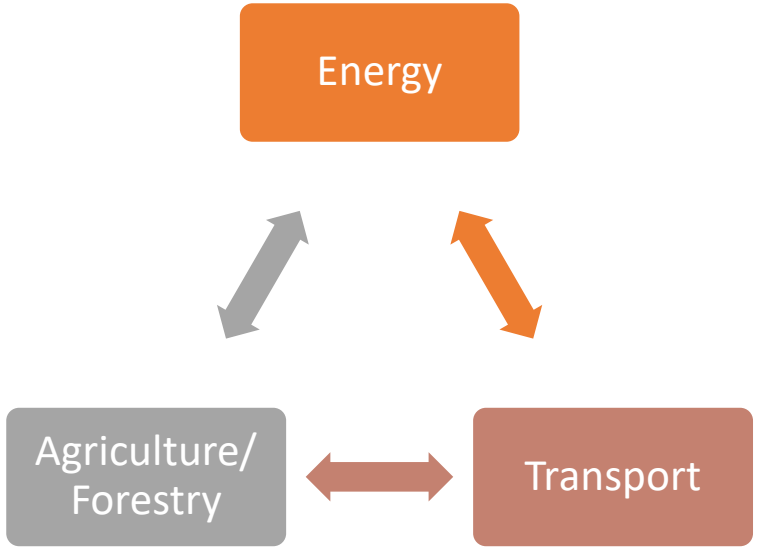


Develop an integrated long term plan and institutional coordination

Operating lifetime of heating and cooling infrastructure, systems and appliances



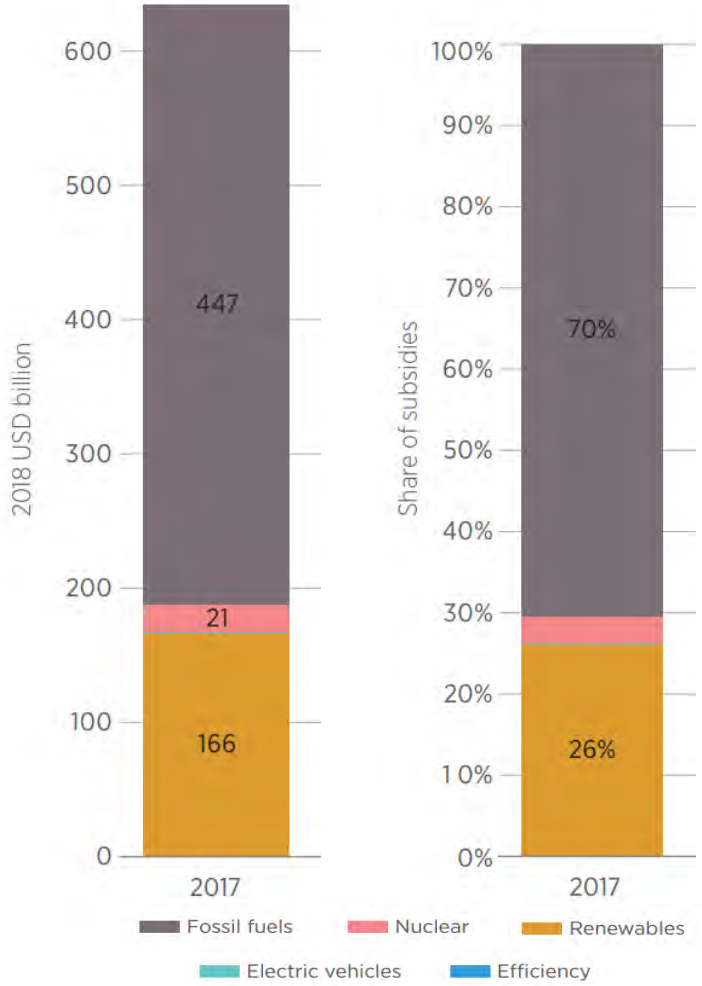
Intersectoral coordination



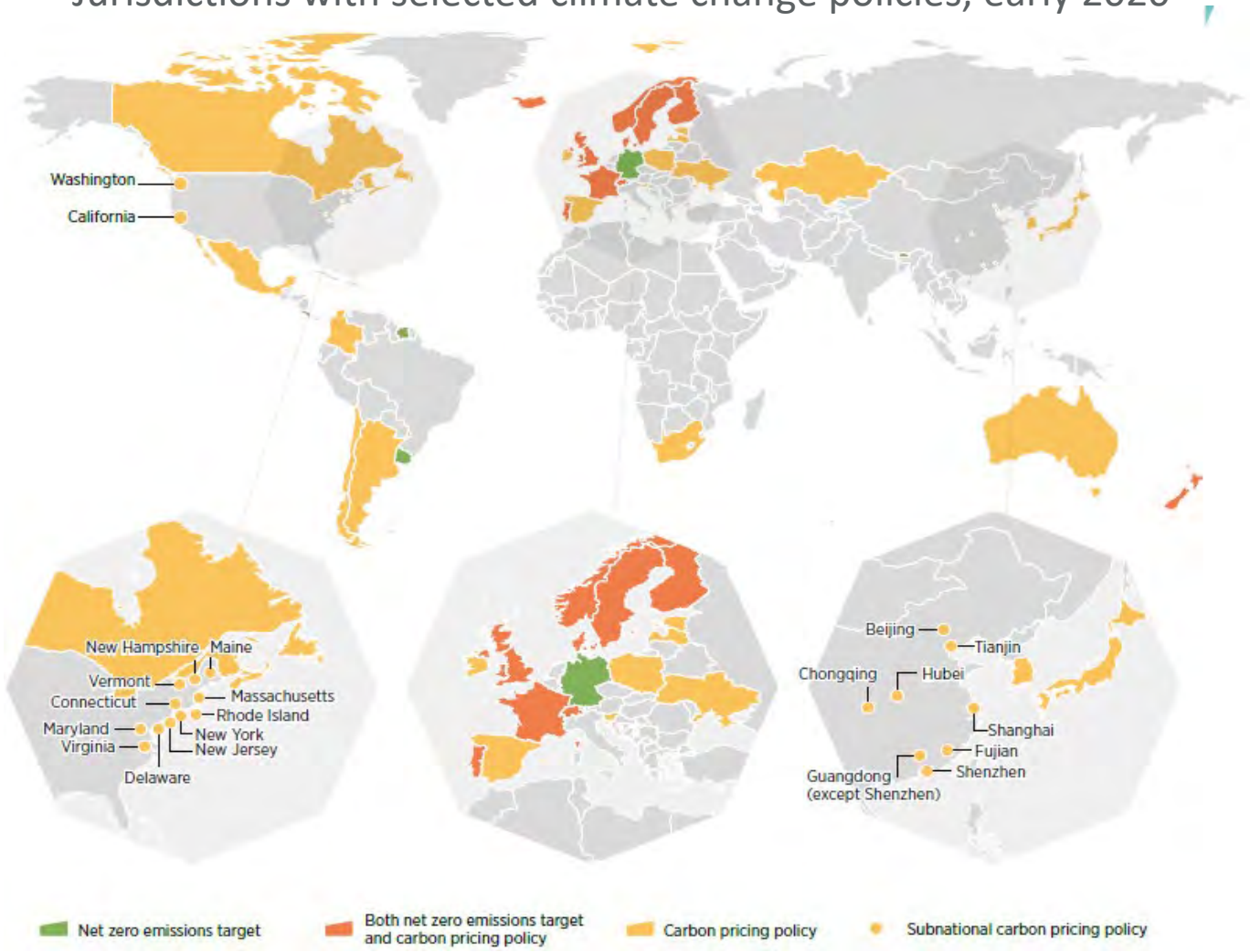
Level the playing field

IRENA International Renewable Energy Agency · IEA International Energy Agency · REN21 RENEWABLES NOW

Energy sector subsidies by source excluding climate and health costs, 2017

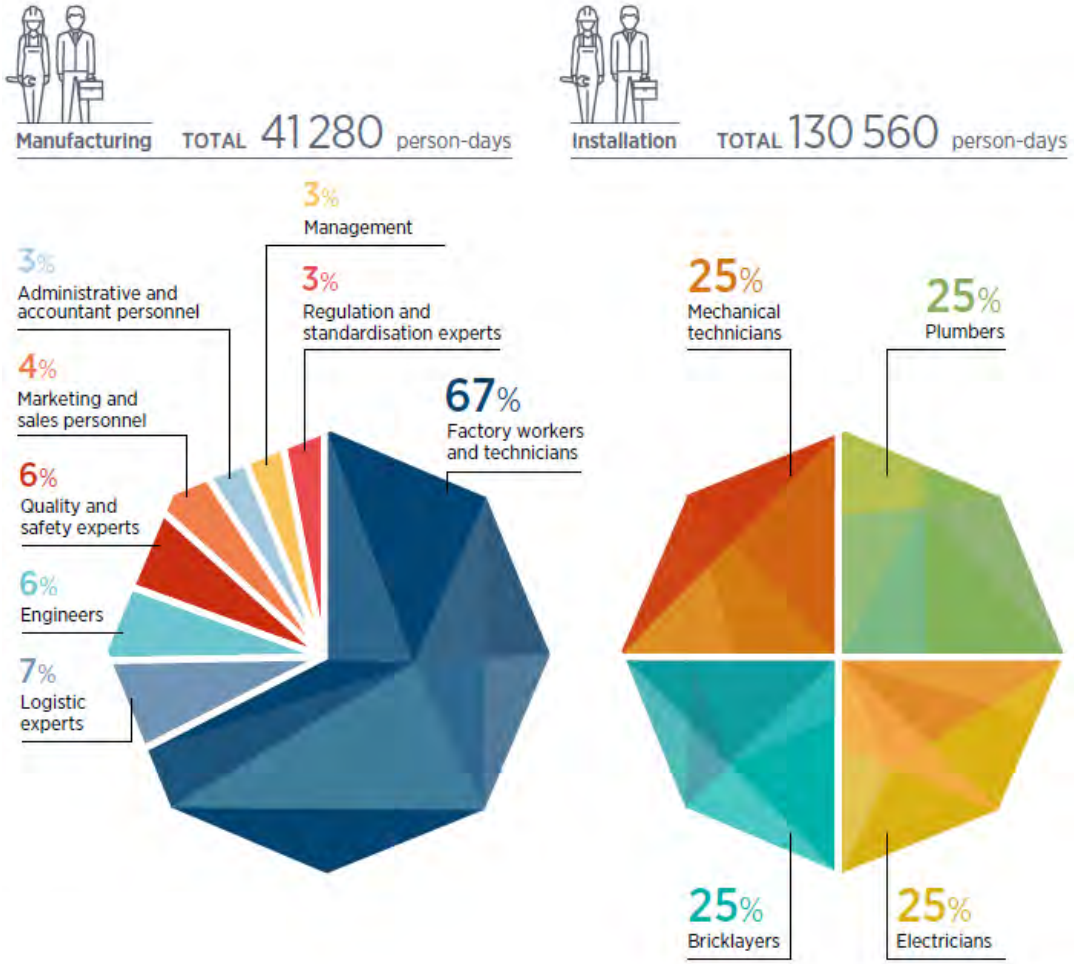


Jurisdictions with selected climate change policies, early 2020

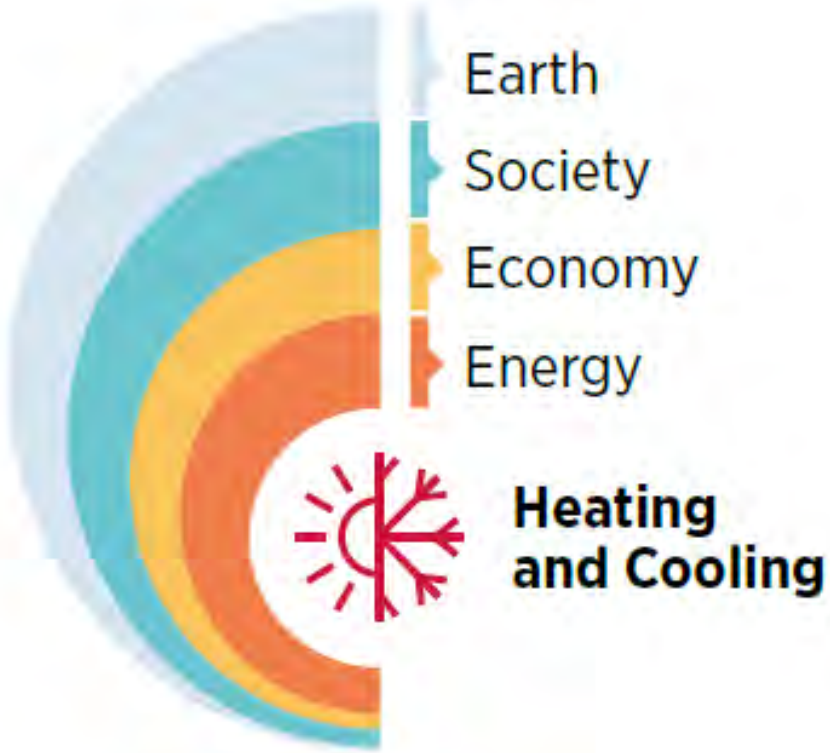


Ensure a just inclusive transition

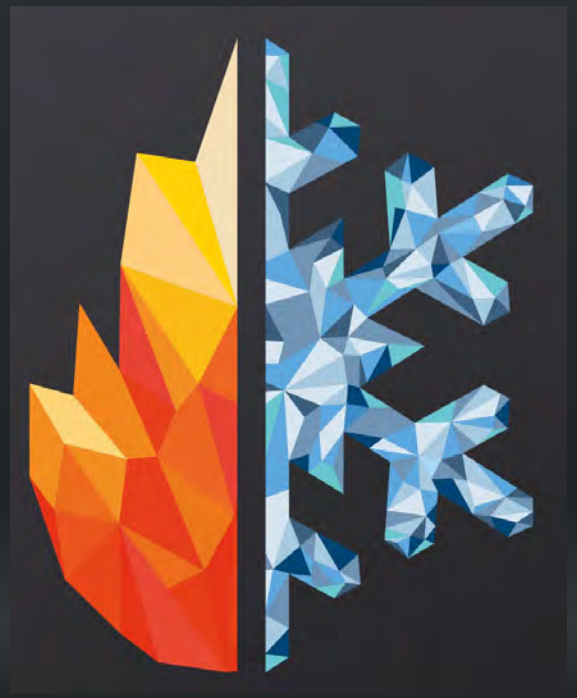
Human resources required for the manufacturing and installation of SWHs for 10 000 single-family households, by occupation



The broad dimension of renewable energy policy making



Thank you



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