



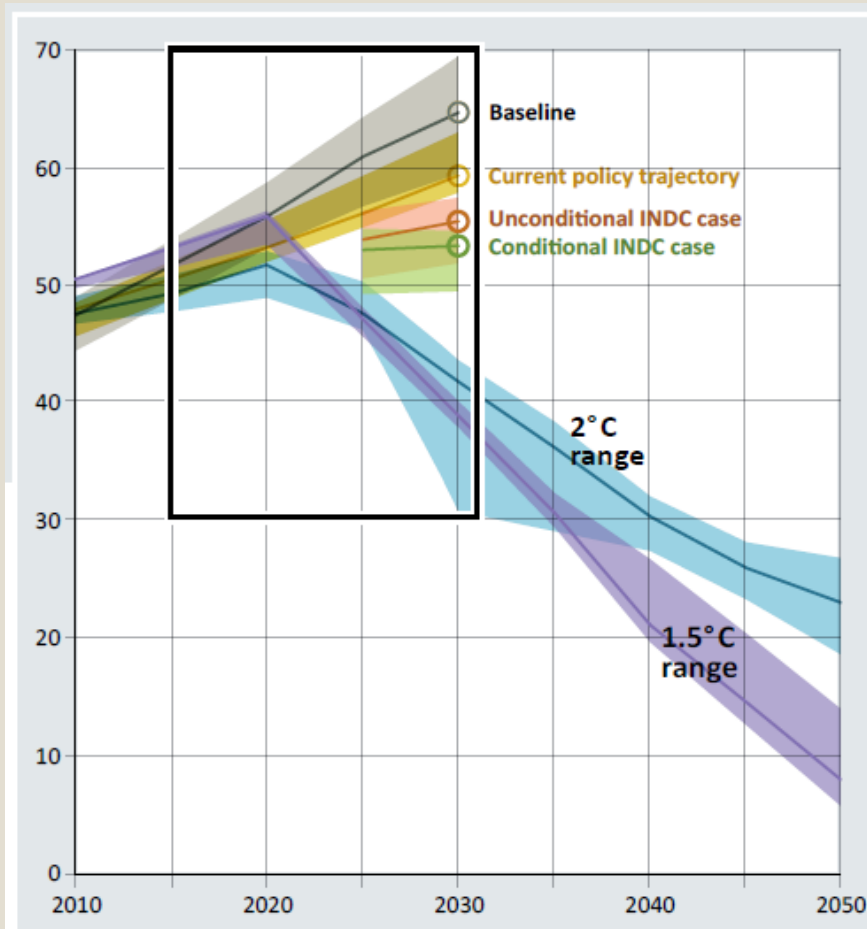
RECENT TRENDS IN RENEWABLE ENERGY AND CARBON MARKETS

Aryanie Amellina
Institute for Global Environmental Strategies (IGES)

*Seminar on Renewable Energy Development in Mongolia,
October 2018*

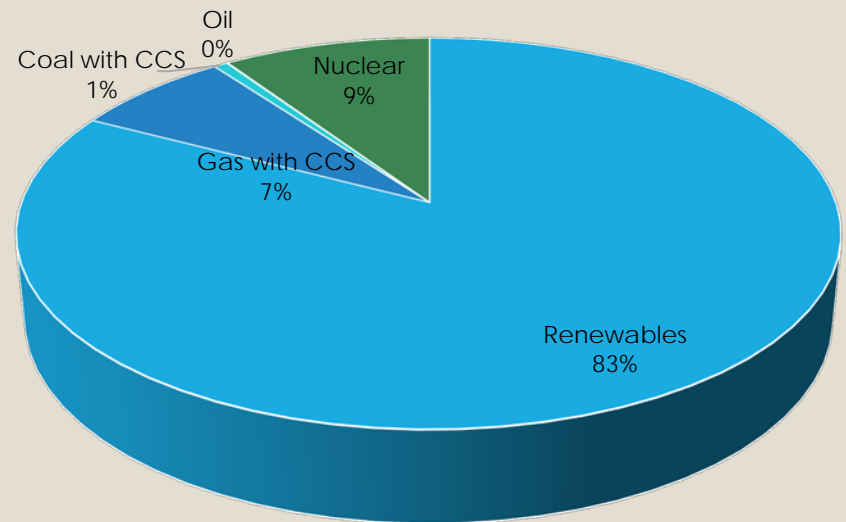


The future is powered by renewable energies



Source: UNEP Emissions Gap Report 2017

Electricity generation in 1.5°C pathways

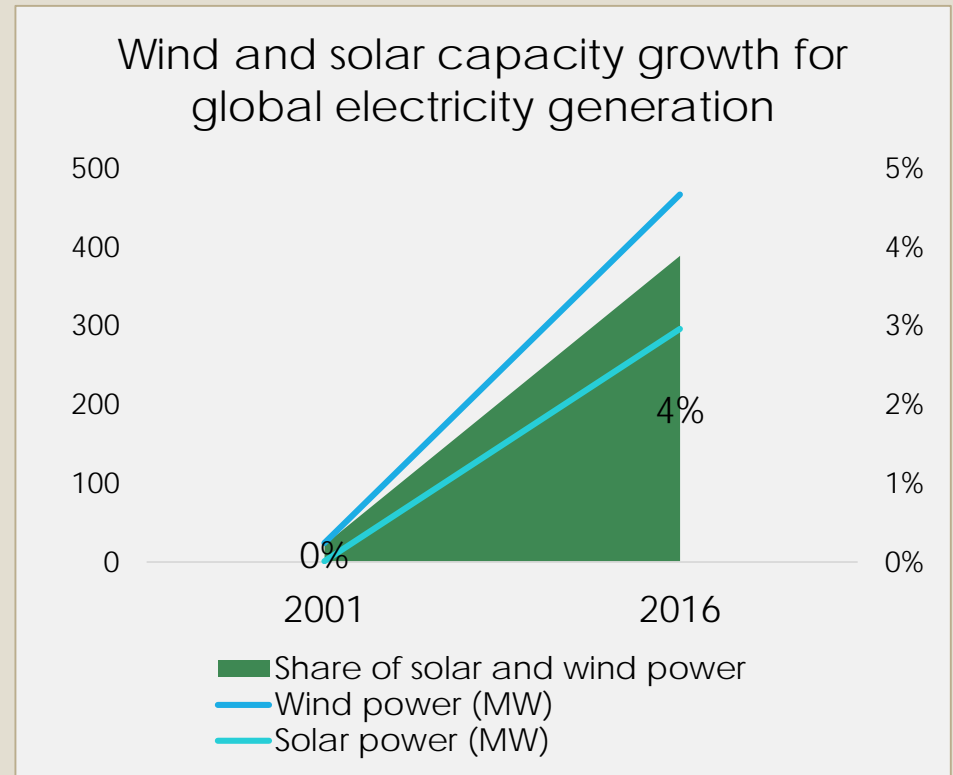


Source: data from IPCC Special Report 1.5 (2018)

The good news...

Energy transformation is underway

- Wind energy has grown approx. 20x within 15 years.
- Solar energy has grown approx. 300x within 15 years.
- Contribution from wind and solar energies to global electricity generation has increased 17x.

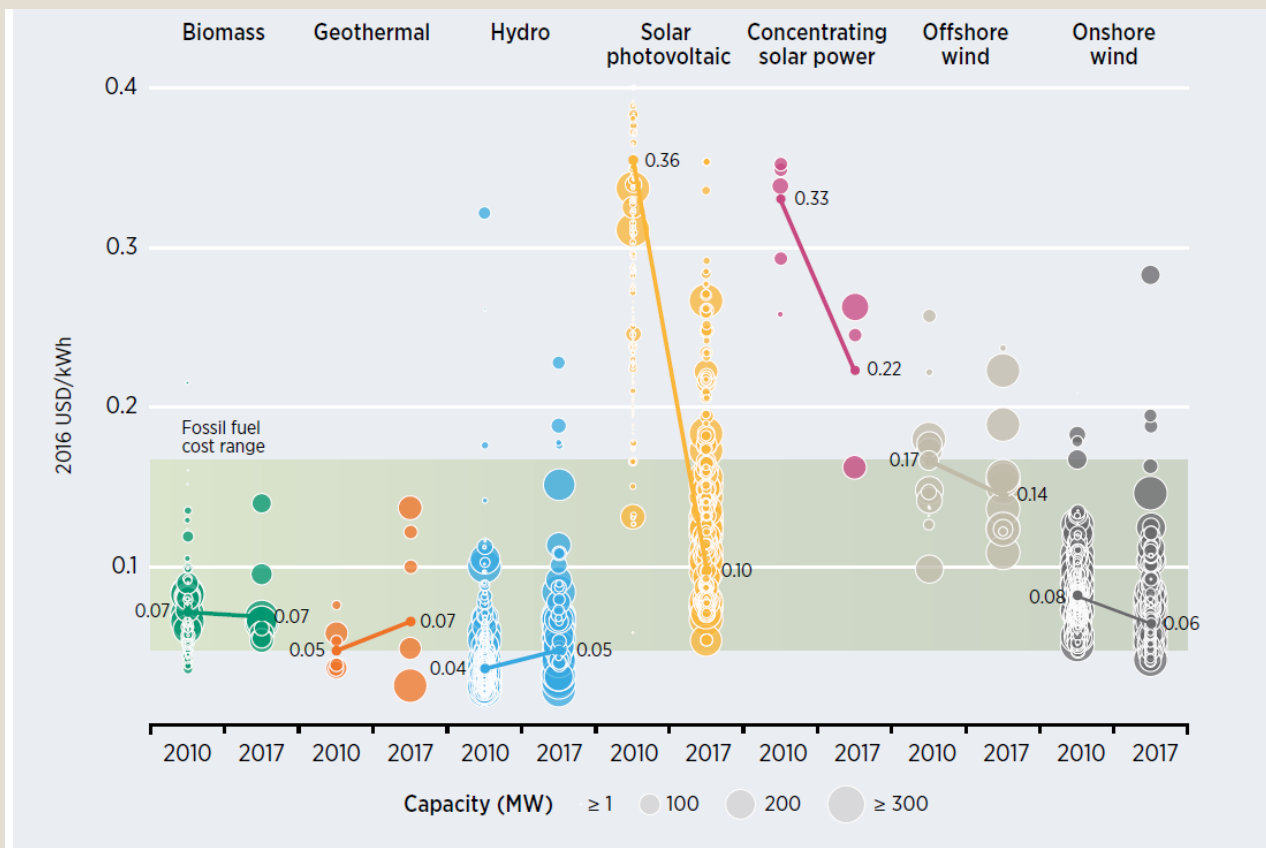


...but it needs to be faster and diversified

Because economic barriers are disappearing...

Electricity from renewables will soon be consistently cheaper than from fossil fuels

Global levelised cost of electricity from utility-scale renewable power generation technologies



Source: IRENA Renewable Cost Database.

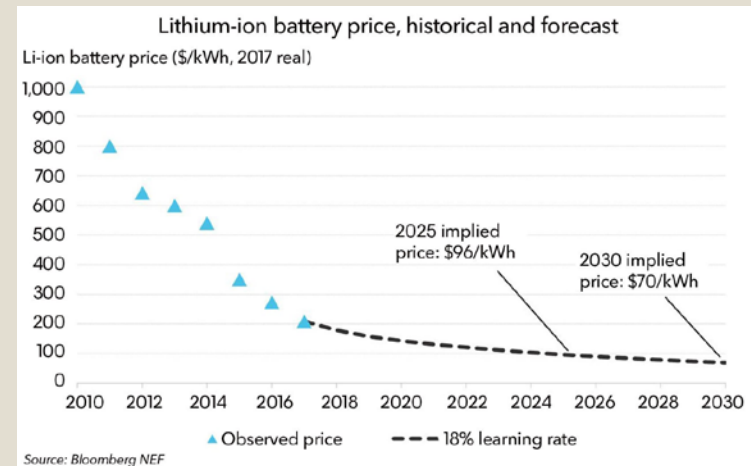
Technology R&D continue... (1/2)

Solar power with storage

Colored solar PV glass on walls



Battery costs are declining – solar and wind power will benefit



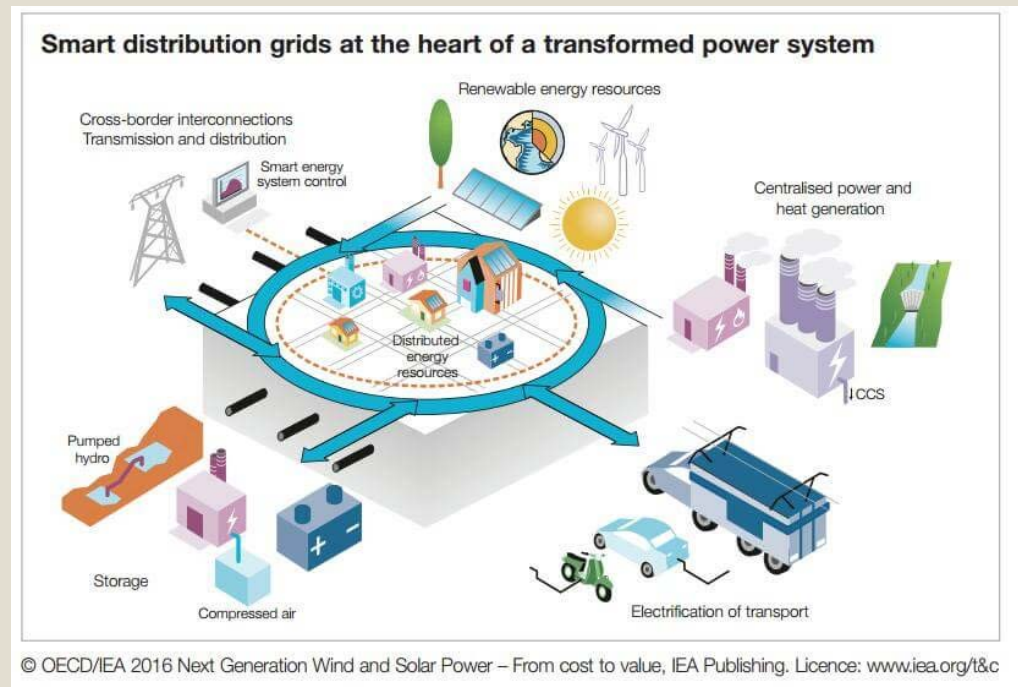
As well as energy systems innovation...

Technology R&D continue... (2/2)

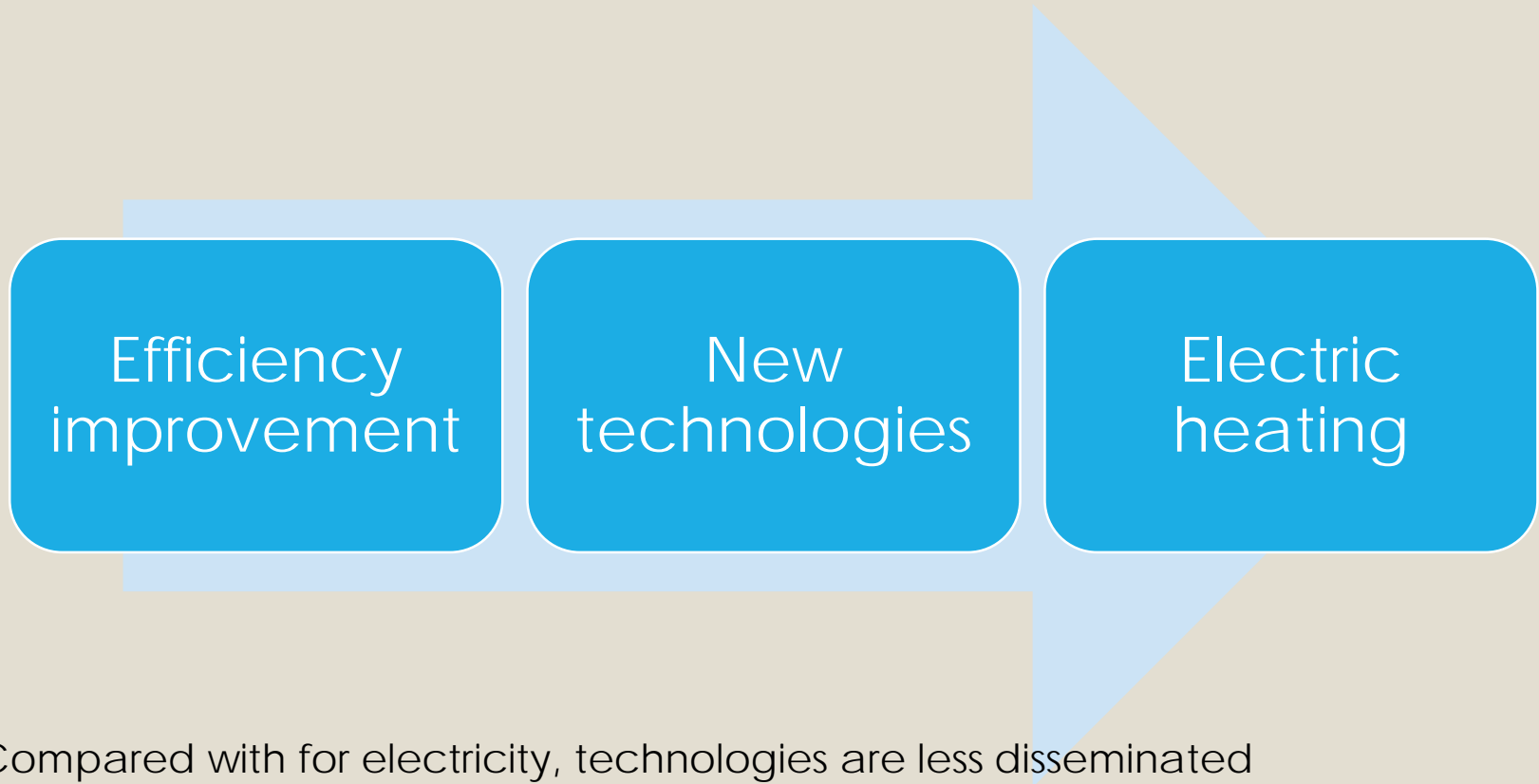
Distributed power generation

- Smart micro grids with innovative technology, on- and off- national grid
- Reduces burden of central grid and helps scheduling of entire grid
- Solar power “prosumers” and energy storage will play a key part: generation from residential buildings, commercial buildings, etc.

Brooklyn Microgrid project



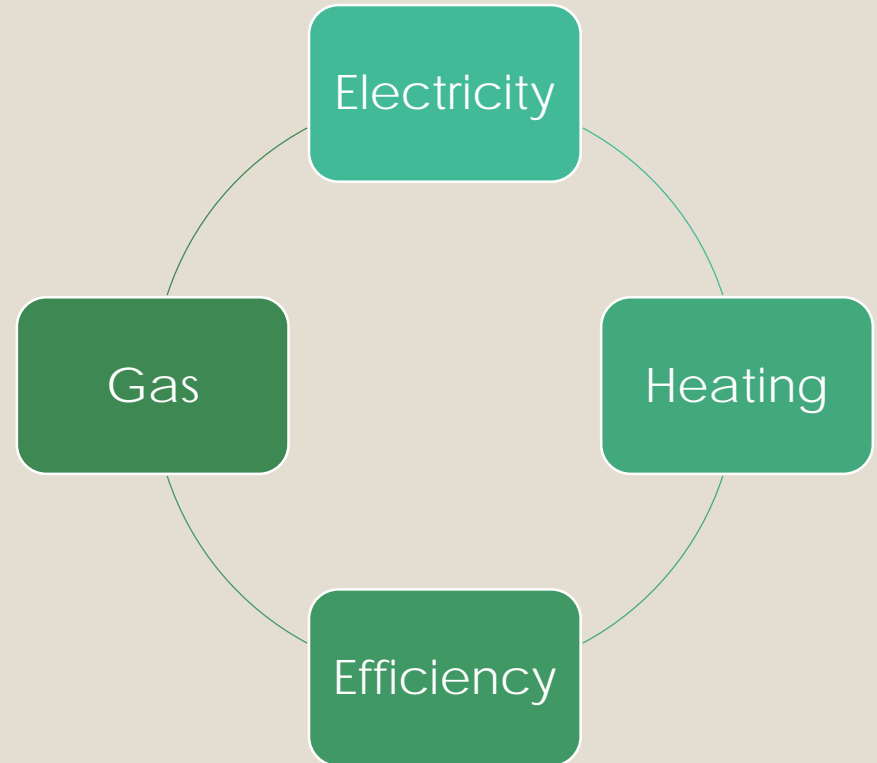
Decarbonising heating system



- Compared with for electricity, technologies are less disseminated
- Clean electricity will only be efficient if combined with optimal energy conservation
- R&D and finance need incentives for new technology and pilot application. Policy incentives and international cooperation can help.

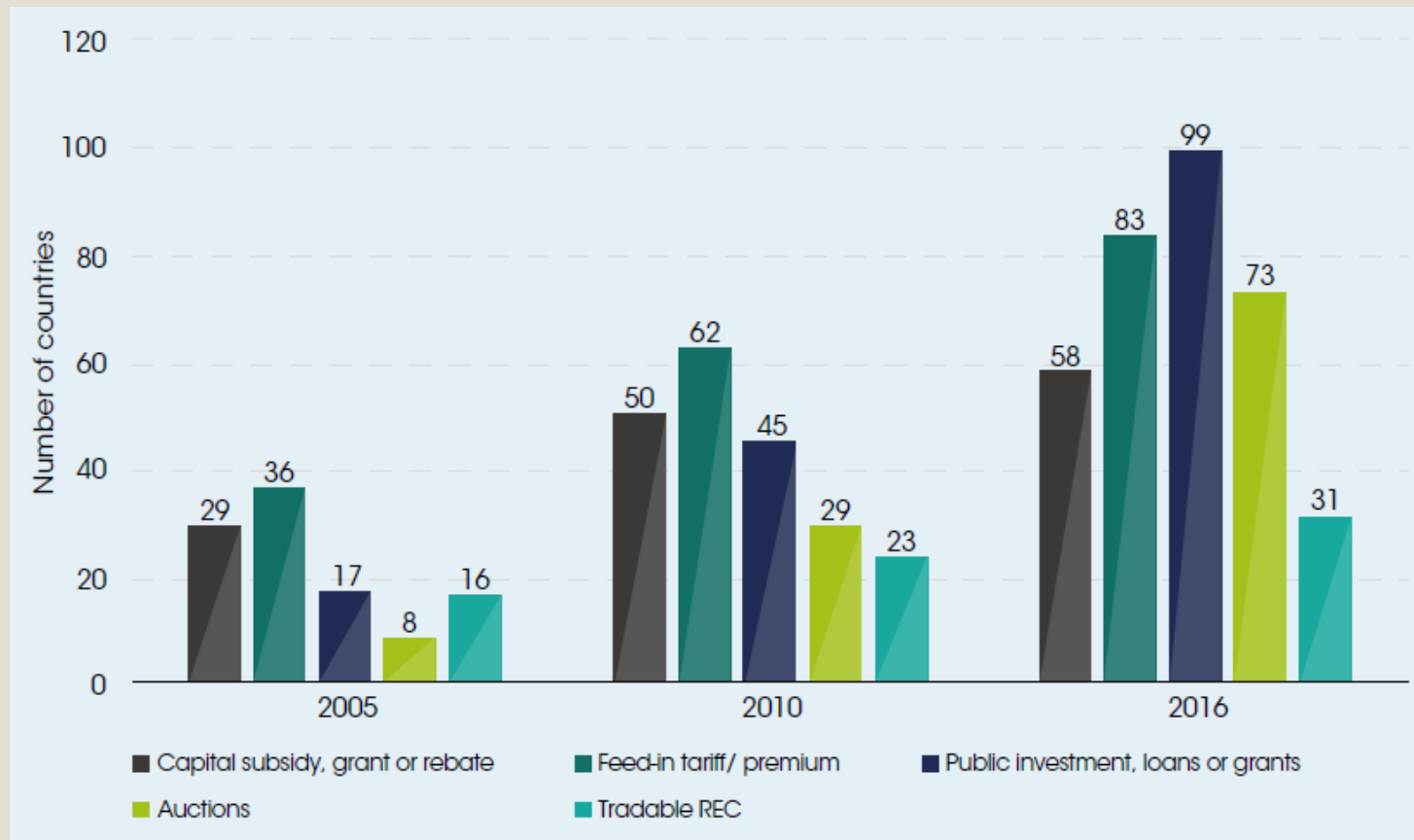
Integrated development of electricity and heating increases cost-efficiency

- Integrated development of electricity, heating, and gas
- Gas power plants equipped with Carbon Capture and Storage
- Clean electricity efficient combined with energy conservation
 - Building insulation, grid efficiency, efficiency standard for equipment
- Diversification of renewable electricity
 - Power with battery storage, distributed grid



Policy incentives: certainty and long-term strategies are important for RE development

Number of countries adopting renewable energy policies, by policy type, 2004, 2010 and 2016



Source: IRENA and CPI, Global Landscape of Renewable Energy Finance, 2018

International support from carbon markets will continue

Positive signals from international policy

1

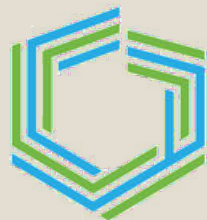
UNFCCC- and country-operated market mechanisms will co-exist in Paris era

2

International negotiations on carbon markets prioritize on how to avoid double counting of issued units/credits

3

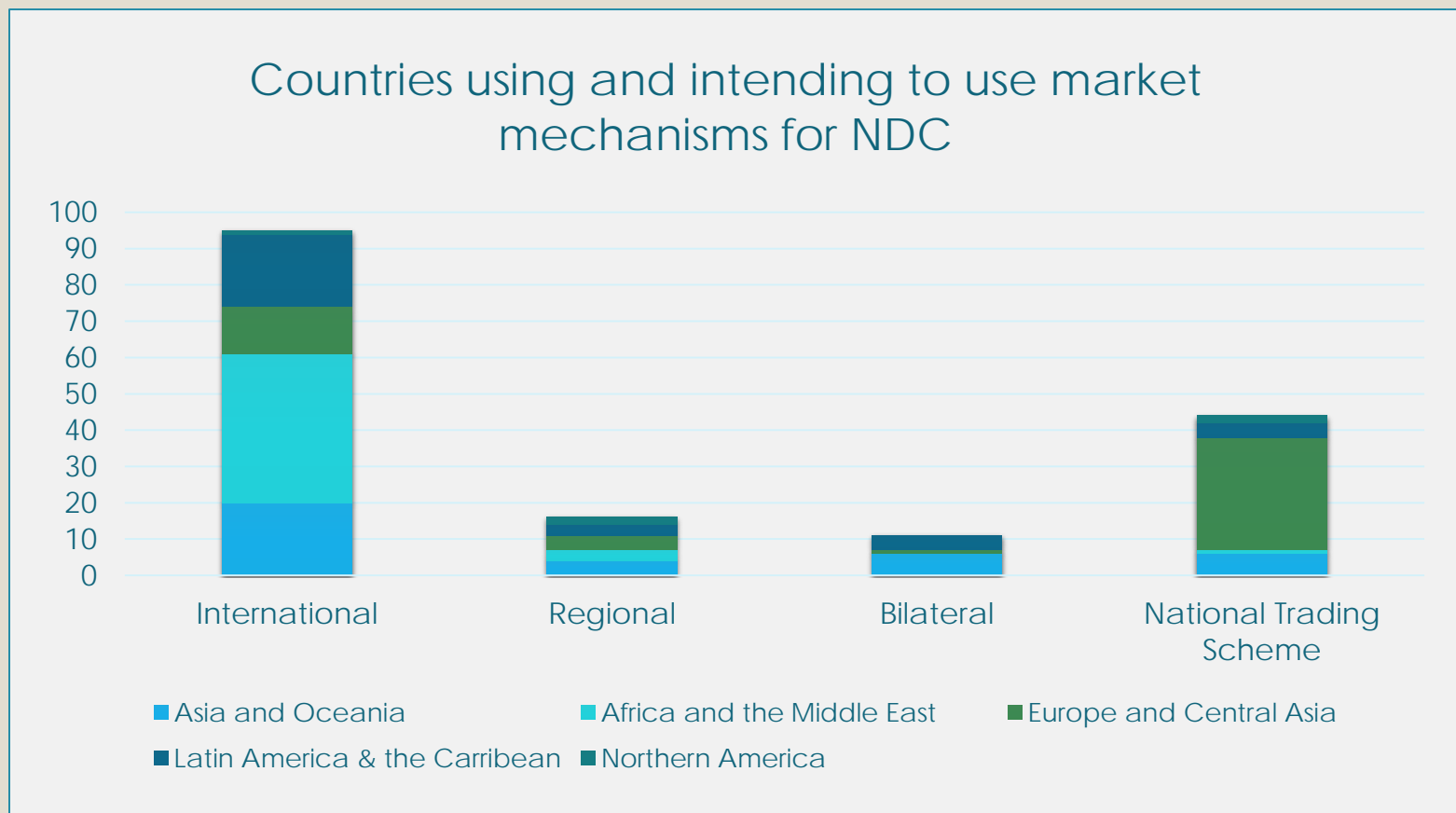
Avoiding double counting will strongly relate with countries' emissions reporting



COP24 • KATOWICE 2018
UNITED NATIONS CLIMATE CHANGE CONFERENCE

International support from carbon markets will continue

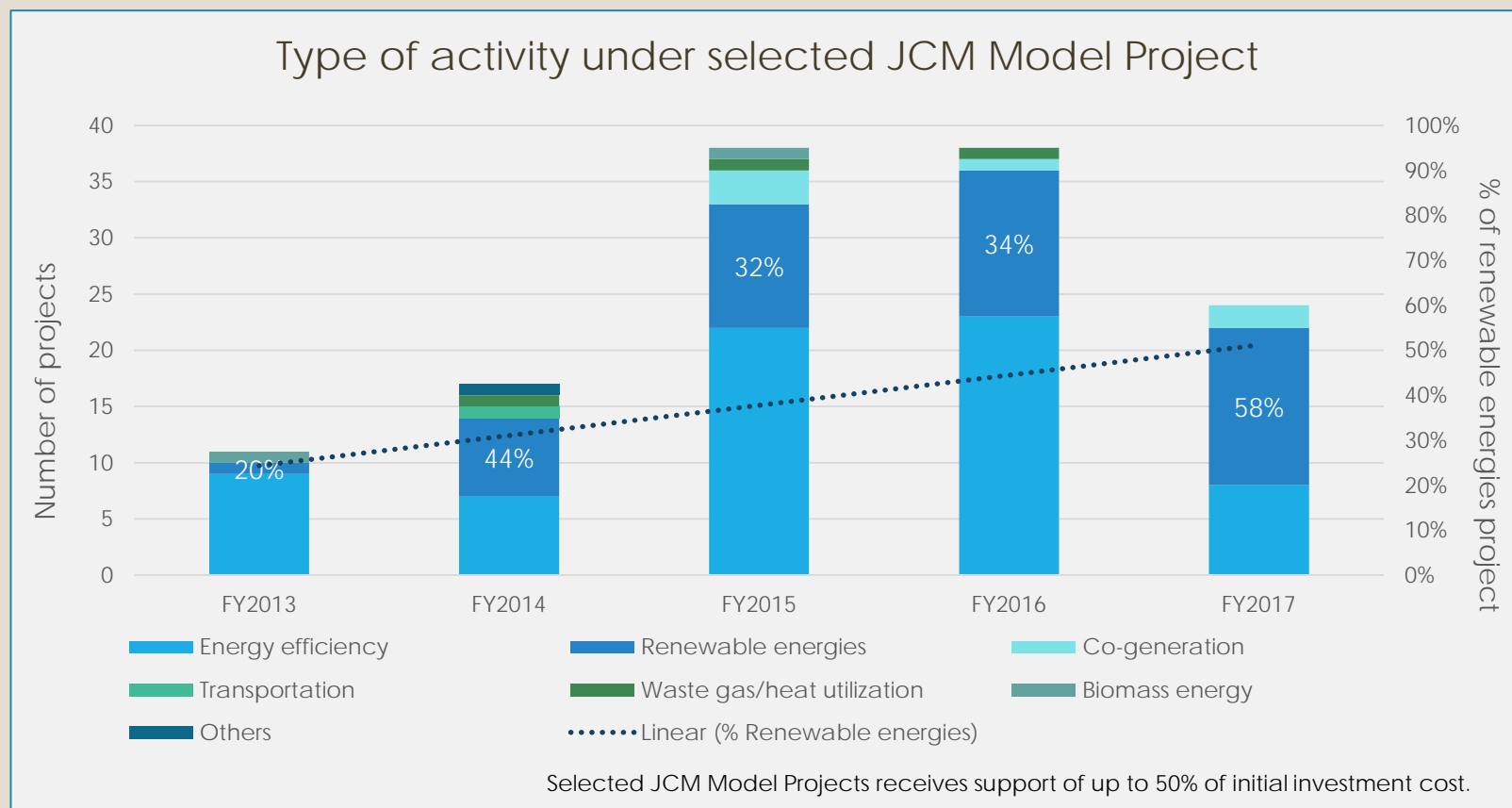
Clarity in domestic policy on carbon markets is important



Source: IGES NDC Database (October 2018)

Countries interested in using markets for NDC will benefit from early formulation of carbon markets policy and priority.

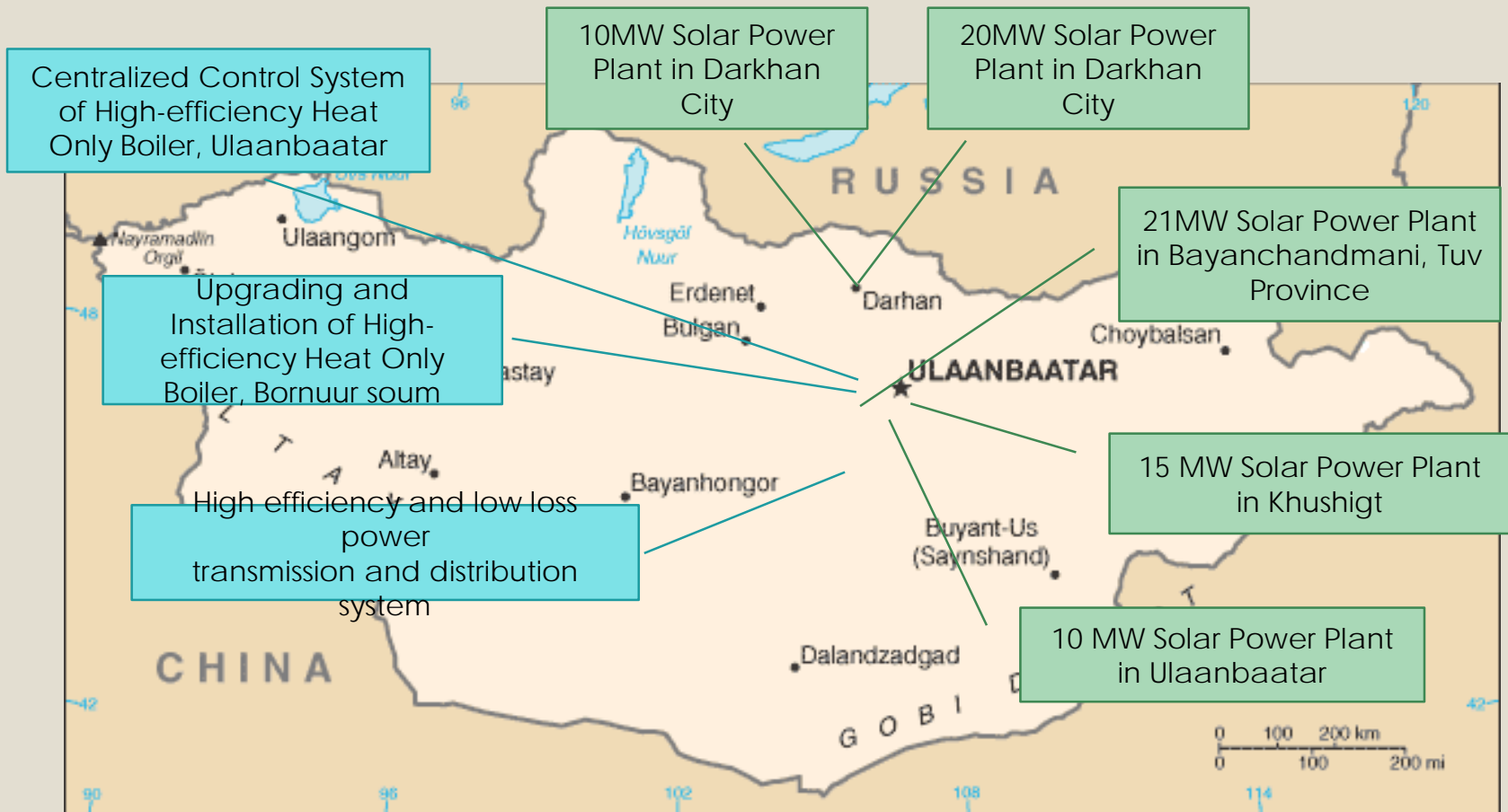
International support from carbon markets will continue: support from the JCM



Source: IGES JCM Database (October 2018)

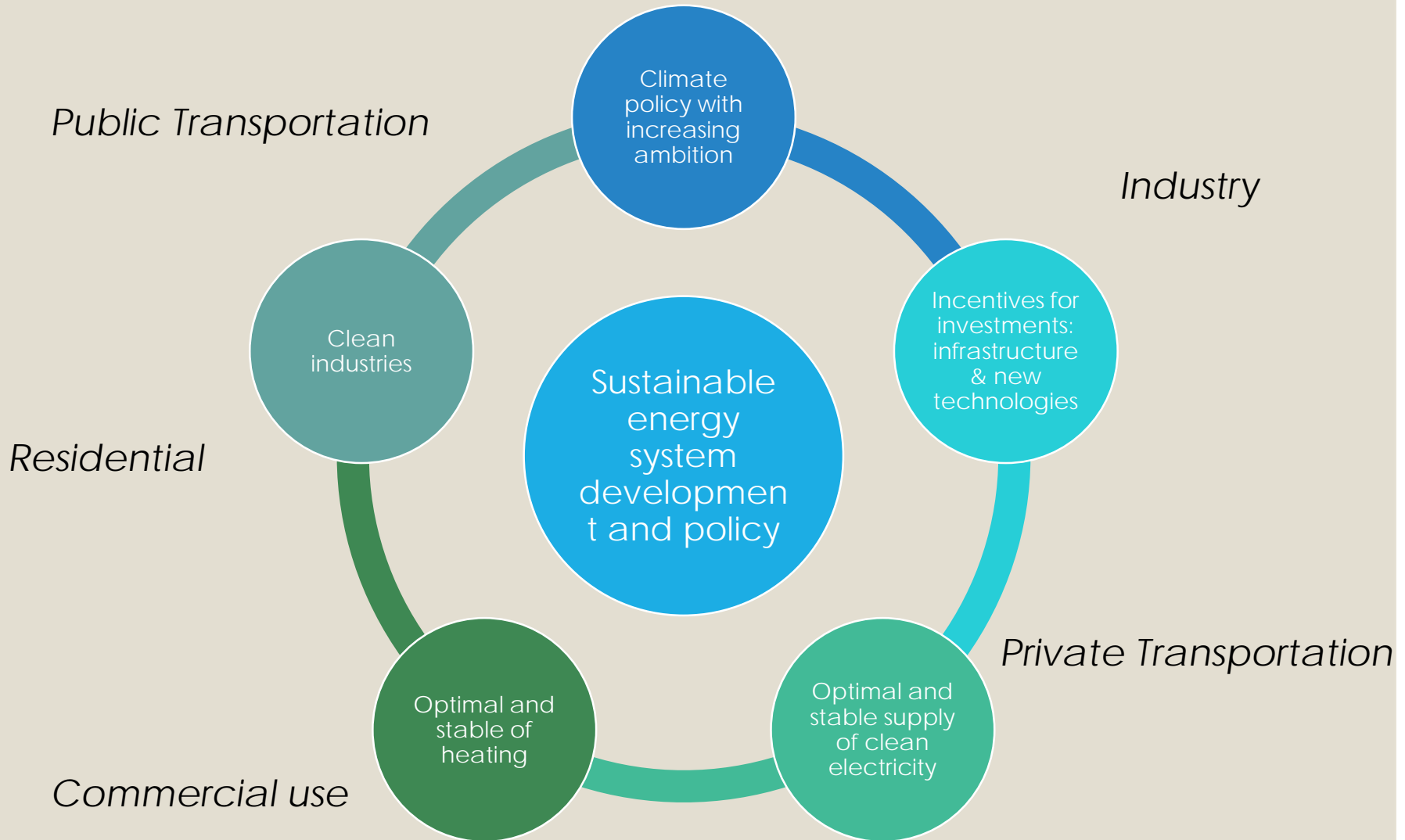
Renewable energies are attractive for carbon markets, and innovation is important for funders.

Projects supported by JCM are being implemented



New project selected under ADB JF JCM scheme: Solar power generation system with advanced storage battery and energy management system (EMS)

Integrated energy system development



Towards a decarbonised future

IGES
Institute for Global
Environmental Strategies



Follow @IGES_EN