

# Climate actions and interactions with SDGs - focus on energy access -

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# Ten actions are considered for climate stabilization

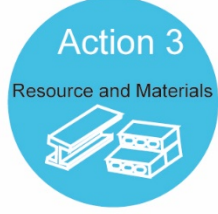
These actions are interrelated with SDGs



**Action 1** Urban Transport  
Hierarchically Connected  
Compact Cities



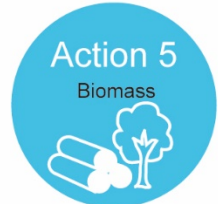
**Action 2** Interregional Transport  
Mainstreaming Rail and Water in  
Interregional Transport



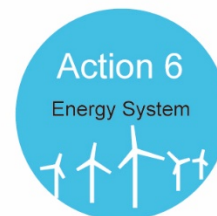
**Action 3** Resource & Materials  
Smart Ways to Use Materials that  
Realise the Full Potential of Resources



**Action 4** Buildings  
Energy-Saving Spaces Utilising  
Sunlight and Wind



**Action 5** Biomass  
Local Production and  
Local Consumption of Biomass



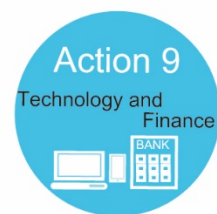
**Action 6** Energy System  
Low Carbon Energy System  
Using Local Resources



**Action 7** Agriculture & Livestock  
Low Emission Agricultural  
Technologies



**Action 8** Land Use & Forestry  
Sustainable Forestry Management



**Action 9** Technology & Finance  
Technology and Finance to  
Facilitate Achievement of LCS

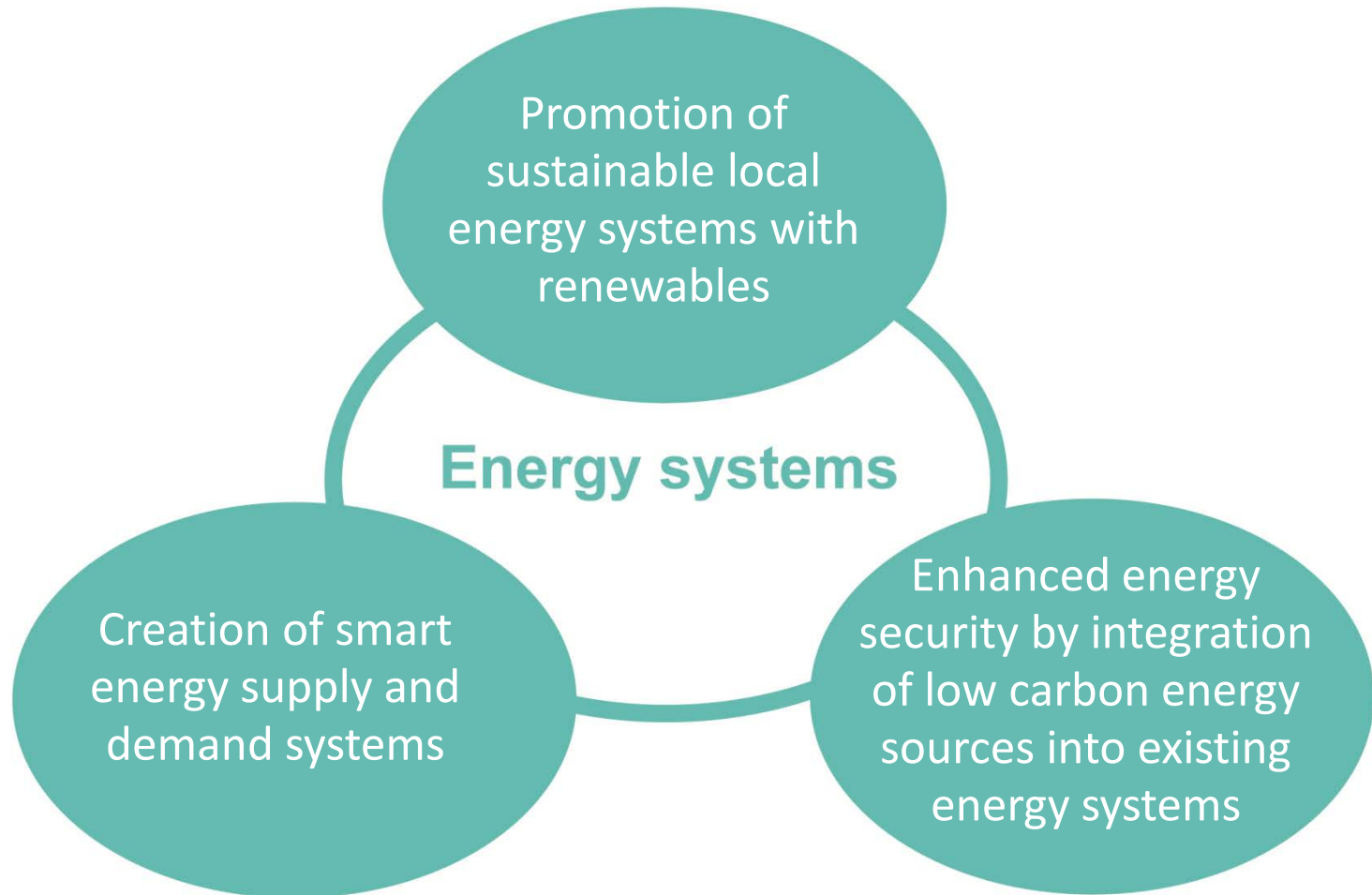


**Action 10** Governance  
Transparent and Fair Governance  
That Supports Low Carbon Asia

# Important points to consider energy access and low carbon societies

- Energy supply system
  - Can efficient energies be produced?
  - Are these energies low carbon?
  - Is wide energy grid system necessary?
  - Can local production and local consumption be achieved?
- Energy costs & access
  - Can local people afford to buy electricity?
  - Besides cost, what other factors determine access to energy?
- What kinds of policies and what kinds of supports are required?

# Proposed actions for energy systems



**Action6**



# Proposed actions for energy systems (Cont'd)

## *Action 6.1: Promotion of sustainable local energy systems with renewables*

- Stabilise intermittent renewable energy
  - Energy storage systems
  - Coordination of renewable energy operations in multiple locations
- Incentivise renewable energy
  - Incentives for suppliers: subsidies, low-interest loans
  - Incentives for users: discounts on electricity charge, reduced property taxes
- Establish financial markets for renewable energy
  - Exchanges for power transactions (to enable higher profits from renewable electricity sales)

# Proposed actions for energy systems (Cont'd)

## *Action 6.2: Creation of smart energy supply and demand systems*

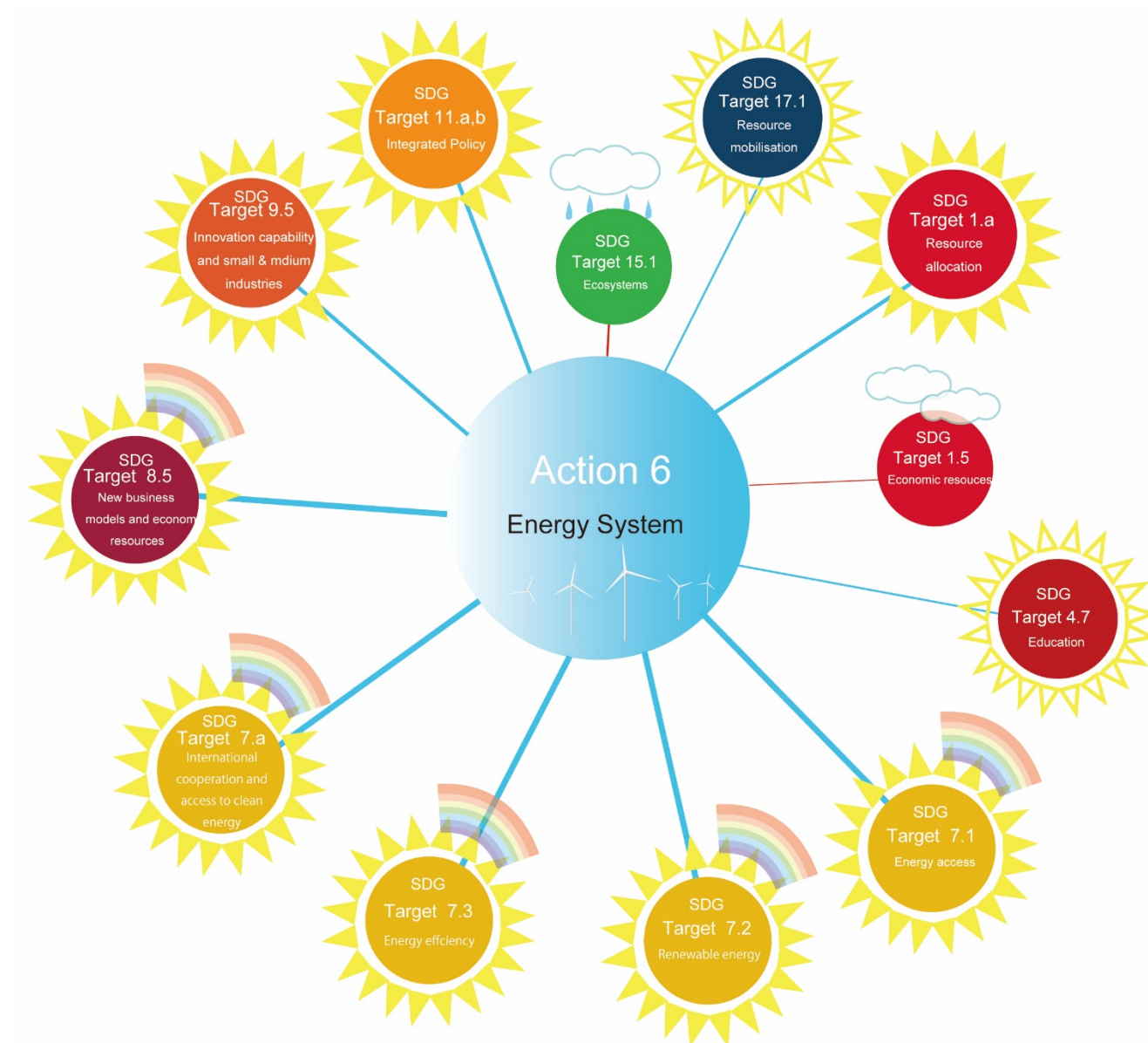
- Technologies for balancing demands & supplies
  - Smart meters
  - Storage systems
- Information technologies
  - Real-time energy supply-demand monitoring systems
  - Coordination of supply with industrial activity and people's lifestyle
  - Security from unauthorised access
  - Self-diagnostic systems (to respond to breakdowns or security breaches)

## Proposed actions for energy systems (Cont'd)

*Action 6.3: Enhanced energy security by integrating low carbon energy sources into existing energy systems*

- Integrated system networks
  - Coordination between renewables and non-renewable sources of energy supply
  - Real-time trading (export/import) of power between regions and countries
- CCS technology
  - Integration of CCS within existing systems
  - CCS with Biomass

# Synergies and conflicts between actions for energy system and SDGs





# **Synergies** between actions for energy systems and SDGs

## **New business models and economic resource:**

The poor families in rural areas of developing countries can be involved in **new business models** centered around co-production of biomass energy and food. As part of this they can be provided **tenure rights to land and access to microfinance and other basic services**. The poor families can be engaged as part of cooperatives, micro-enterprises or as regular entrepreneurs, depending on whatever is effective to implement in a particular country.

**Training of youth** in skills related to modern and sustainable co-production of biomass energy and food can be included as part of skill development, employment, entrepreneurship and income generation programmes.

**Granting rights** over assets such as land and biomass resources will enhance economic status of the poor families, thereby building their resilience against climate-related/extreme events and disasters (Targets having synergies with Action 6: Targets 1.4, 4.4, 8.3, 8.5, 8.6, 10.1).

# **Synergies between actions for biomass energy and SDGs**

## **(Cont'd)**

### **Resources allocation:**

**Biomass based local economic activities** can be included within poverty, hunger and malnutrition reduction programmes and the governments in low income countries can set targets of resource allocation to the same (Targets having synergies with Action 6: Targets 1.a, 1.b, 2.1, 2.2).

### **Reduce air pollution:**

Use of electric cars using electricity by renewable energy can reduce **air pollution on roads**. Also use of efficient and modern energy including cook-stoves/furnaces in rural households will reduce exposure to **indoor air pollution**. (Targets having synergies with Action 6: Target 3.9).

### **Education:**

Integrating sustainable practices of **local renewable energy systems within education programmes** on sustainable development will help to build awareness and skill related to such systems (Target having synergies with Action 6: Target 4.7)

# **Synergies between actions for biomass energy and SDGs (Cont'd)**

## **Energy access:**

Both centralized and decentralized renewable energy systems can contribute to enhancing access to energy for all (Target having synergies with Action 6: Target 7.1)

## **International cooperation and access to clean energy:**

Development, manufacture and diffusion of local, distributed, modern renewable energy systems and related technologies can be a part of **international energy cooperation programmes**. International technological support to developing countries should include sustainable and renewable energy systems (Targets having synergies with Action 6: Targets 9.2, 9.3, 9.4, 9.5, 9.b).

## **Integrated policies:**

**Sustainable, local renewable energy systems** should be an integral part of urban, rural, regional and national development plans and integrated policies that include resource efficiency, GHG mitigation and risk management objectives (Target having synergies with Action 6: Targets 11.a, 11.b)

# Conflicts between actions for energy systems and SDGs

## Economic resource:

If the rural poor (landless and small farmers) are not involved as participants in the new economic activities based on local renewable energy systems then it is likely that existing dominant communities who already own large lands and other resources would control them, and existing economic inequality and poverty might continue (Targets having conflicts with Action 5 & 6: Targets 1.4, 1.5).

## Food supply:

If local biomass energy systems are promoted without consideration of sustainable food supply, it could hamper food security, especially for the poor (Targets having conflicts with Actions 5 & 6: Targets 2.1, 2.2).

## Ecosystems:

Dedicating land area for renewable energy systems can come in conflict with sustainable management and conservation of forests, water conservation and mountain ecosystems (Targets having conflicts with Actions 5 & 6: Targets 15.1, 15.2, 15.4).

# **Barriers and challenges to low carbon policy implementation**

- 1. Role of governments in promoting viable business models, entrepreneurships, and professionalization around low carbon and sustainable activities**
- 2. Conflicts between climate and sustainable development actions and between different sectors**
- 3. Financing and investment policy: quantum of investment, institutions and processes of financial support, and management of investment risks**
- 4. International cooperation, support, trust and common climate commitments around carbon pricing, standards of industrial practices, and other mechanisms**
- 5. Addressing concerns of citizens and stakeholders, their participation in decision making processes, and building capacity at sub-national levels**
- 6. Spreading low carbon innovations in developing countries and aligning them with domestic SDGs and economic development objectives**
- 7. Resistance from incumbent industries and vested interests, and inertia of existing technological stocks**

# **1. Role of governments in promoting viable business models, entrepreneurships, and professionalization around low carbon and sustainable activities**

- Absence of profitable business, entrepreneurial and commercial opportunities based on low carbon systems
- Inadequate policies for financing and de-risking investments in low carbon businesses
- Poor governmental support for low carbon innovation and R&D in private sector

## **2. Conflicts between climate and sustainable development actions and between different sectors**

- Policies often designed and implemented in a particular sector without integrating concerns and objectives of other sectors
- Existing institutions and processes work within compartmentalized, non-integrated goals and boundaries, resulting in conflicting outcomes
- Conflicts between biomass energy and food security
- Conflicts between impact of biomass on poverty reduction and on the environment
- Emerging conflict between growing use of efficient and renewable energy devices and unintended impacts of their byproduct wastes on the environment and health (absence of preparedness to counter such impacts results in large, unaccounted damage, for ex, replacement of kerosene lights with non-rechargeable battery powered LED lamps has led to mass disposals of batteries in rural Africa)

### **3. Financing and investment policy: quantum of investment, institutions and processes of financial support, and management of investment risks**

- Present investments in low carbon actions are utterly inadequate (investing US\$ 120 trillion in low carbon energy projects between 2016 and 2050, at twice the current annual rate of US\$ 1.8 trillion a year, will deliver a 66% chance of achieving the Paris target)
- Investments in SDGs are also insufficient (for ex, cumulative investment to achieve universal electricity access in Sub-Saharan Africa in the period 2010-2030 could be US\$ 2.5 trillion)
- Developing countries need access to green and smart technology, but lack an investment climate that attracts capital (they have few institutions that cultivate domestic enterprises and investors; weak internal processes for support to low carbon actions)
- Poor risk and return characteristics of private investments in low carbon and SGD projects (small scale and rural electrification projects suffer the most from this problem)



#### **4. International cooperation, support, trust and common climate commitments around carbon pricing, standards of industrial practices, and other mechanisms**

- Pledge-and-review based agreements of Kyoto, Copenhagen, Cancun, and even Paris, have failed to produce strong and early actions (partly due to absence of required trust and common commitment)
- Some experts point to the difficulty of negotiating a global cap-and-trade scheme because global 'caps' would be too high and the process of allocation of permits to domestic agents can be riddled with corruption
- The gap of low-carbon technology between OECD and Non-OECD economies has enlarged (partly due to poor institutions and mechanisms of cooperation in technology research, innovation and commercialization)
- Absence of internationally agreed standards for energy efficiency and emission performance in industrial practices

**5. Addressing concerns of citizens and stakeholders, their participation in decision making processes, and building capacity and knowledge at sub-national and local levels**

- Poor alignment of collective developmental well-being of communities, stakeholders at local and other sub-national levels with the objectives of low carbon transition
- Non-acceptance or inadequate acceptance of low-carbon projects by local communities and stakeholders (this, in turn, is due to weaknesses in the processes of communication of costs and benefits, evaluation, community participation, eliciting and resolving stakeholders' concerns, and implementation)
- Absence of adequate capacity, skills and knowledge among citizen groups and other stakeholders at sub-national/local levels

## **6. Spreading low carbon innovations in developing countries and aligning them with domestic SDGs and economic development objectives**

- All developing countries are struggling with generating, adopting and diffusing low carbon technology innovations, due to additional costs, technical barriers to implementation, inadequate financing systems, and skills
- Developing countries have major social and economic challenges to meet in order to achieve a low carbon future, such as reducing poverty, expanding access to energy services, ensuring energy security, increasing employment rate, reducing local environment pollution, and protecting biodiversity

## **7. Resistance from incumbent industries and vested interests, and inertia of existing technological stocks**

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- Existing industries with business interests tied to fossil fuels are an impediment to rapid diffusion of industries based on low carbon and sustainable innovations
- Large existing stocks of technologies that are inefficient and high GHG emitting represent an inertial barrier to quick replacement by low carbon alternatives (this barrier is especially overwhelming in widely dispersed, consumer-owned devices with long life and high capital intensity, such as private vehicles and buildings)

# Discussions

- What types of energy supply system work effectively to provide energy for all?
- How can the awareness of low carbon projects be enhanced far and wide (so that they become attractive to markets and communities everywhere)?
- How can the investments in development and deployment of low carbon technologies be increased drastically?