



## SPECIAL SESSION

### LOW CARBON AND ENERGY EFFICIENT CITIES

#### Key words

2030 Agenda; District Energy Systems; Energy Efficiency; Energy Efficient Building Codes; Energy Generation In Cities; Green Building; Green Cities; Municipal Energy Strategies; New Urban Agenda; Renewable Energy; Resource Efficiency; Sustainable Development Goals; Sustainable Energy; Waste2energy (Turning Waste Into Climate-Friendly Energy)

#### Objectives of the session

Most cities globally rely almost entirely on non-renewable natural resources; mainly fossil fuels; as their key source of energy. The objective of this session is to discuss strategies and policies that promote low carbon cities development and thus will address the following issues:

- Cities design strategies for low carbon development with particular attention on the greening aspect as well as green building approaches;
- Green policies that include: by-law at the local government level on green infrastructures and services; energy efficient building code;
- Appropriate financial mechanisms including tax incentives/rebates and preferential interest rate;
- Best practices in green cities development; city clean energy generation; green buildings; sustainable neighbourhood; sustainable mobilities; urban planning etc.
- Responsive consumption; behaviour change; awareness creation and capacity building.
- Promotion of clean cooking fuel for the urban poor with limit reliance on firewood and charcoal that are destroying forest covers and contribute to indoor air pollutions.

#### Introduction of the topic

The increasing demand for more energy and resources is associated with today's rapid urbanisation. Most cities are fossil fuel driven and contribute up to 70 % on CO2 emission. Cities also consume the biggest share of energy (75 %) mostly from non-renewable energy sources. As developing countries need to develop modern infrastructures; housing and basic services to address the needs of the urban population; more energy and resources will be needed.



The New Urban Agenda calls for the decarbonisation of cities through environmentally friendly measures; strategies and policies. Member States committed to the generation and use of renewable and affordable energy in urban areas. This includes the following points:

Cities as generator of renewable energy: By producing renewable energy; cities become energy prosumer; as they produce part of the energy that they consume. Urban areas are endowed with renewable energy sources including municipal waste that could be used to generate additional energy.

Buildings: Modern buildings are responsible for 40 per cent of energy consumption and contribute up to 30 % of greenhouse gas emission. In most developing countries; modern buildings are poorly designed and consume more energy than necessary. Countries have been addressing this concern by adopting building performance codes and standards; renewable and energy efficiency targets; energy efficiency labelling etc. Mandatory energy and resource efficiency codes have been identified as suitable policies measures that contribute to lower energy consumption and carbon footprint.

The urban form: Urban sprawl with low density development requires higher energy demand; mainly by creating more traffic and the need for motorized transport (mainly private cars). A compact city needs less energy and resources for its operation. Thus; urban planning must be combined with modern district energy systems.

Energy management: Due to aging and inefficient appliances and poor power transmission infrastructure; between 20 to 30 per cent of electricity gets lost. Modern smart equipment offers innovative technological solutions for energy demand management.

Clean fuel technologies for cooking: In most African cities; most citizens living in informal settlement rely on biomasses (charcoal and firewood) for cooking. Biomass are harvested through deforestation that deprive the land of carbon sequestration from trees and contribute to desertification. Charcoal consumption also contribute to indoor air pollution which cause respiratory diseases among children and women. Access to clean fuel and technologies for cooking by the urban poor will reduce deforestation and increase carbon sequestration; while improving people living conditions.



## Guiding questions

Q1: How can future cities address climate change?

Q2: How can cities anticipate change in technology and energy supply?

Q3: How could we involve the private sector to invest more on low carbon city development? Which technologies; methodologies and policies could be developed to achieve nearly 100% renewable energy?

Q4: Energy efficiency is often cited as the low hanging fruit; but the uptake remains slow in transforming people behaviours. What can be done to invers the trend?

Q5: Are energy efficiency building codes enough in addressing poor energy performance building?