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## Toward post carbon cities

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Cities are directly affected by climate change and energy challenges, accounting for about 67-76 % of energy use and 71-76 % of energy-related GHG emissions (IPCC, 2014). Moreover, cities have an important role to play in implementing new energy technologies and in controlling the key levers to a successful transition to a post carbon society, including land and urban planning, public transport, social housing, hazard protection and water systems, green areas, urban heating, local mobility management and taxation (ECEEE 2013).

The concept of “post carbon city” has emerged from a rupture in the carbon-dependent urban system that has led to high levels of anthropogenic greenhouse gases (EU Pocacito project, 2013). It implies a paradigm shift about relationships between energy, climate change and city. Energy and climate are essential issues, at the same time as long term target (reduction of GHG) and as short term requirements (resilience with regards to oil price rising and supply disruption). Cities are here understood not only as local authorities but as complex, adaptive, social-ecological systems, including local ecosystem of inhabitants, companies, public utilities and local governments.

The term “post-carbon” emphasises the process of transformation, a shift in paradigm, which is necessary to respond to the multiple challenges of climate change, ecosystem degradation, social equity and economic pressures. Post carbon cities must reach a massive reduction of greenhouse gas emissions (GHG) by a factor in 2050 of four compared to 1990, a near self-sufficiency in carbon fossil fuels -oil, gas, coal- and develop the capacity to adapt to climate change. This implies the establishment of new types of cities that are low-carbon as well as environmentally, socially and economically sustainable.

This study moves away from analysing the three dimensions of sustainability as silos and towards a more comprehensive approach, which assesses the dynamic relationships among factors and feedback loops of the entire urban.

**Keywords:** cities, post carbon, resilience, sustainable development, transition