

Chapter 58

Towards Smart Cities in Turkey? Transitioning from Waste to Creative, Clean and Cheap Eco–Energy

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ABSTRACT

The earth faces huge environmental changes and climate problems leading to catastrophic failure of our sources and surroundings. Besides, the world suffers from urban and industrial wastes and that is a double whammy which disrupts the ecological maintenance. Energy is a big issue for achieving ecological welfare and sustainability. Carbon energy sources that destruct the living standards of cities act against global ecology damaging health. However, the renewable energy sources are healthful, clean and cheap. Environment and cities where we live can only be protected with creative eco-energy. Nowadays, the future of global ecology is to create a world with zero-carbon cities. Turkey, as a developing country finally solved the energy problem and implemented policies to improve renewables and energy efficiency. Although Turkey has a huge potential of renewable energy resources, the progress of the energy market is still slow that it's not widespread and transitioned to urban planning, yet.

INTRODUCTION

Nowadays, energy issues raise the concerns of environment and ecology more than ever. After the global inactment of energy efficiency and the rise of the renewables, we have to adopt eco-energy into our lives practically. Now the public perception and level of understanding on the need of eco-energy seem to have a priority to proceed with caution and strategy. International authorities and developed countries encourage innovation and high-technology for increasing future energy solutions. The range of possible future energy solutions become greater and so as the uncertainty. Creative energy alternatives are the natural way to obtain the clean energy. As long as the technology enables, the global energy policy is to bring energy use and carbon emissions in 2050 down to below 1990 levels.

In order to decrease carbon emmissions, smart city planning with eco-energy is the only way as an environmental improvement. Smart city planning provide an intelligent, clean and healthier new world.

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Renewable energy plays a major role on the act of smart city approach since ESCO model is generally accepted all through the World for a better and green environment that lead to the use of natural sources deriving energy efficiency.

ESCO, smart city and green economy are three terms that have (and can) become one in an integrated model (Ponta, 2014). Cities benefit from becoming smart cities through ESCO model as energy consumption decrease to a great extent but creating a safer and more comfortable environment for the people (Andretta, 2014). The ESCO model could be applied to a range of city contexts where deployment of smart and integrated infrastructure creates a cost saving, or other social or environmental benefit, that could be used to generate a revenue stream to raise finance to fund the project (The Future Cities Catapult, 2014).

Furthermore, natural sources of energy in creative ways (solar, wind, hydro, biomass, biofuel and geothermal) is cheap and clean for protecting environment and acquiring sustainable clean cities. In the last decade, energy shortages grew fast as global demand increases enormously. Understanding the benefits of natural energy sources, countries are forced to work on legislature to provide incentives for renewable energy.

The cost of renewable energy derived from nature is decreasing continuously as countries ambitiously adopted national strategic targets like providing energy efficiency enhanced by the implementations of ESCOs all around the World (Okay, 2015).

The future of a green world and preventing ecological disasters is to subsequently creating new global strategies supported by national legislations of countries to build smart cities that respect security and health of the earth and human beings.

This study has three main objectives. The first objective is to present the background of the smart city concept and the importance of urban planning to improve ecology and clean environment. In this context, ways for a smart city planning are stated as ecological solutions for a smart World. Smart city examples are presented as an experience for a new clean energy World. The second objective is to reveal the experience of Turkey's urban planning so far and extend the implementations to protect environment coordinated with sufficient energy policy. The last objective is to emphasize the importance of setting policies and strategies for a sound future of a journey in energy. This issue is important because, like many other developing countries, Turkey has not completed the progress of energy and energy-related reforms. Turkey is still on track of growing and developing solutions on environmental issues of clean energy. The study concludes with the recommendations for a widespread and solid approach on developing smart city planning in Turkey.

BACKGROUND

Smart City for Eco-Energy in the World

Indicators measuring environmental performance can include: levels of pollution and carbon emission, energy and water consumption, water quality, energy mix, waste volume and recycling rates, green-space ratios, primary forests, and agricultural land loss. Other indicators include the share of apartment living, motorisation rate, and modal share of urban transport (United Nations Environment Programme, 2011).

There is no waste in nature. A green economy would mimic nature by seeking to reduce wasteful production and to direct all waste back into the production cycle. Renewable resources would be consumed

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