

Chapter 10

Creative Energy Alternatives: Cheap and Clean Future Energy for Turkey

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ABSTRACT

Energy has a strong impact on both economy and ecology. Global economy and ecology need to obtain sustainable and clean sources of energy, which is an issue of financial challenges. Developing countries face problems of energy sourcing due to costs and risks. But using the natural sources of energy in creative ways is cheap and clean. Therefore, developing economies must develop energy strategies based on creative energy solutions. Turkey as a developing country implemented policies to improve renewables and energy efficiency in line with EU requirements. Turkey does not have enough conventional energy but very large renewable energy resources. In this chapter, the large potential of creative energy alternatives in Turkey is explored. The indistinct start of energy savings market and the risks of financing huge energy projects show that Turkey needs to depend on investing in the cheapest forms of creative energy solutions.

INTRODUCTION

As energy shortages appear, as questions about the interaction of energy and environment are raised in legislatures and parliaments, and as energy related inflation dominates public concern, many are beginning to see that there is a unity of the single system of energy, ecology, and economics (Odum, 1973). The issue found a concrete stage within the rise of creativity in science that points to a dynamic role on future global economic

growth. Developed countries encourage scientific creativity increasing their technology and innovation dependence.

Creative engineering and their use of high-technology provide a digital, smart, ergonomic and creative new world. For instance, commercial innovation in pre-payment technology has contributed to the change, by making mobile phones widely affordable in the population. Renewable energy technology has similar characteristics, and could lead to a technological revolution (Betti, 2012).

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Renewables are creative, cheap and clean energy efficiency solutions. Creative energy alternatives presently are renewable energy derived from natural sources of solar, wind, hydro, biomass, biofuel and geothermal (Renewable Energy Policy Network for 21st Century, 2013).

In the last few years, the cost of renewables has decreased dramatically. Even the conventional energy sector has been completely transformed by technological innovation such as horizontal drilling, which has lowered significantly the price of gas. Altogether, the relative cost should be favorable to renewables (Betti, 2012).

Energy efficiency is a concept which completes and horizontally cuts the national strategic targets like providing supply security in energy, decreasing the risks due to the import dependence, making the energy costs sustainable, increasing efficacy of climate change combat and protecting environment. Nowadays, in which the importance of sustainable development increasingly understood, the value of the efforts directed to energy efficiency increases at the same rate. In this framework; enhancing energy efficiency, preventing unconscious usage and dissipation, decreasing energy density either in industrial base or in macro level are preferential and important components of our national energy policy in all the stages from energy production and transmission to the final consumption (General Directorate of Renewable Energy, 2010).

This study has three main objectives. The first objective is to emphasize the importance of creative energy alternatives in economy and ecology. In this context, global economies' energy strategy and carbon mitigation are presented in the background of the paper. The second objective is to extend the creative energy alternatives and show the huge potential in Turkey. The last objective is to contribute to a tough debate. This issue is important because the debate regards to policies and strategies on energy in Turkey that consist heavy risks, regulatory and financial problems aside

the high potential of creative energy solutions. The study concludes with the recommendations for cheap and clean energy solutions for Turkey.

BACKGROUND

Global Creative Energy

Today, the World is facing massive environmental challenges. Global warming and climate change, ozone depletion, loss of biodiversity, soil erosion and air and water pollution are global problems with wide-ranging impacts on human population. In addition to environmental problems there are also serious security issues associated with large-scale use of fossil and nuclear fuels (Saygın, Çetin, 2010).

Rarely does a day pass without an energy-related issue making the headlines. Whenever world leaders meet, energy is an important and urgent topic of discussion. Supply disruptions and rising prices loom large in day-to-day decisions about how we fuel our vehicles, heat our homes, and power our businesses. What's more, approximately 2 billion people—nearly one-third of the world's population—lack access to the modern energy services that are essential for bringing schools into the 21st century, driving industry, moving water, and boosting crop production, as well as for lighting, heating, and cooling health facilities. The integrated goals of energy security and poverty alleviation are also inextricably linked with the need to reduce harmful air pollution and address climate change. The World Health Organization estimates that 4,400 people die every day from indoor air pollution, much of which is associated with unhealthy cooking and heating practices (Dobriansky, 2006). Global climate change caused by the relentless build-up of greenhouse gases in the Earth's atmosphere is already disrupting ecosystems. An average global warming of 2°C threatens millions of people with

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