

Chapter 68

Decision Making in Local Energy Planning: A Review

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ABSTRACT

The current financial and economic crisis, as well as the wider socioeconomic and environmental pressures, including climate change among others, put seriously into question the traditional development patterns. This is particularly true for the local and regional authorities, who face a number of challenges as regards growth, jobs and sustainability. These pressures create high expectations for coordinated actions and holistic interventions to address comprehensively the problems toward a competitive economy. In this context, this Chapter describes the main issues of the decision making in local energy planning. The policy context and relevant initiatives are outlined. A detailed review of existing methodologies for local energy planning, as well as standard techniques and methods (participatory approach, aspiration level, multi-criteria decision support, robustness analysis, indicator-based assessment frameworks) are presented. The need to support the local and regional authorities in the decision-making process for the development, implementation and monitoring of their Sustainable Energy and Climate Action Plans, especially within the framework of the Covenant of Mayors for Climate and Energy (a first-of-its-kind global initiative of cities and towns) is highlighted.

INTRODUCTION

The current financial and economic crisis, as well as the wider socioeconomic and environmental pressures, which include climate change, scarcity of natural resources, demographic change, social division, accelerated technological change, and many more, put seriously into question the traditional patterns of living, consuming, and sharing resources (Koepper et al., 2009). These pressures create high expectations for coordinated actions and holistic interventions to address comprehensively the problems of modern society and competitive economy. In particular, with regard to energy and environment issues, integrated

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approaches and methodological frameworks are the key challenge for policy and decision-makers in order to embark them on strategies toward sustainable development and scientifically optimize energy concepts for the future (Doukas et al., 2012a; Deilmann and Bathe 2009; Stigson et al., 2009).

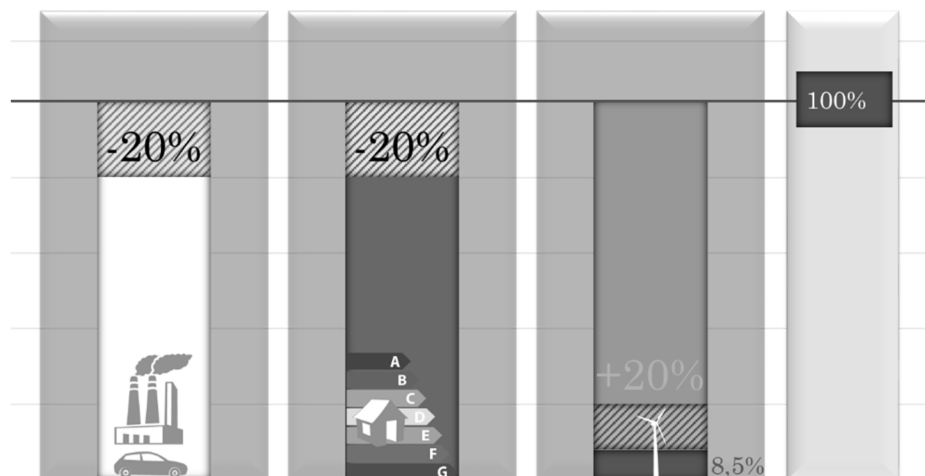
The importance of taking immediately action to prevent and address climate change and its environmental impacts is explicitly recognized both on political and on social level (Omer, 2008). A number of studies, such as the Stern Review on the economics of climate change (Stern 2007) reaffirms the enormous costs of inaction, as well as other relevant researches (Oxfam International 2007; UNDP 2007; UNFCCC 2007; World Bank 2009; Lund, 2007) note that developing countries will need more than 50 billion US dollars per year to tackle climate change, and far more if global emissions are not cut rapidly. In addition, the communication of the European Union (EU) in 2005, “Winning the battle against global climate change,” indicated that the benefits of limiting climate change outweigh the costs of taking action (EC, 2005). Thus, mitigation of climate change and its environmental impacts is technically feasible and affordable, provided that not only an integrated and comprehensive approach in community and national policy level be followed, but also the emissions producers act immediately.

The EU had always put high in its agenda activities related to the attainment of economic growth and prosperity. The EU 2020 sustainable development vision provides an opportunity to support the global fight against climate change (EC, 2011a). The EU Climate and Energy Package (EC, 2008) has set very ambitious targets for sustainable development, known as the “20-20-20” targets for 2020 (Figure 1).

In the context of Europe 2020 strategy, a comprehensive strategic approach has been put forward for the next decade to foster inclusive and sustainable growth in Europe and to provide a framework for the EU to emerge strengthened from the current financial and economic crisis (EC, 2010c). Moreover, EU countries have agreed on a new 2030 Framework for climate and energy, including EU-wide targets and policy objectives for the period between 2020 and 2030 (EC, 2014):

- A 40% cut in greenhouse gas emissions compared to 1990 levels.
- At least a 27% share of renewable energy consumption.
- At least 27% energy savings compared with the business-as-usual scenario.

Figure 1. “20-20-20” targets for 2020



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