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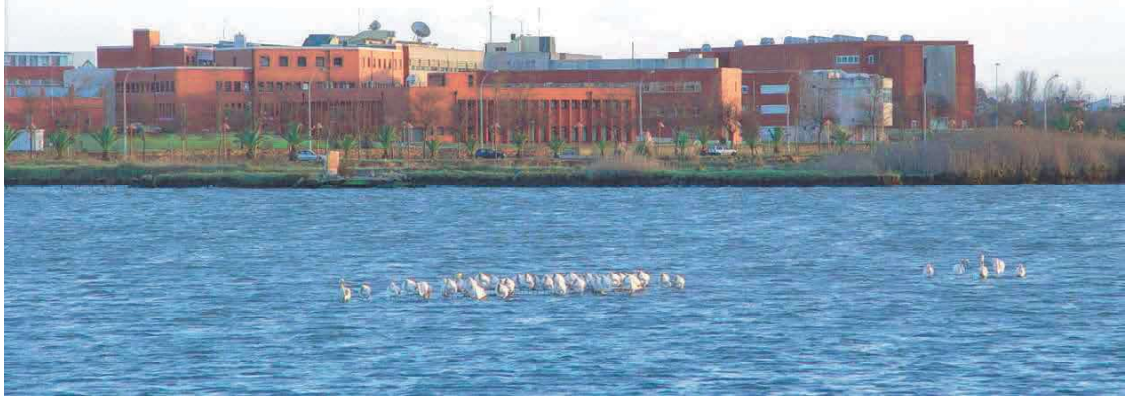

Environmental performance assessment of European Countries

Clara B. Vaz and Ângela P. Ferreira

Abstract The European Union (EU) has been promoting an integrated approach to climate protection and energy policy, through a set of key objectives for 2020, 2030 and 2050, linking Europe's green agenda with its need for energy security and competitiveness. This paper aims to evaluate the environmental efficiency of European Countries from 2010 to 2015 towards 2020 targets, through a Data Envelopment Analysis (DEA) model. The DEA model assesses the ability of each country in minimizing current resources while maximizing the gross domestic product (GDP) and minimizing undesirable outputs, such as GhG emissions. The DEA model is based on Directional Distance Function (DDF), imposing weak disposability for the undesirable output (UO). Results obtained show that globally, in the period under analysis, the EU has increased its environmental efficiency which is consistent with the analysis of the indicators of the 2020 climate and energy package.

Keywords: Data Envelopment Analysis; Environmental efficiency; Directional distance function; Europe 20-20-20 targets.

1 Introduction

The Europe 2020 strategy, adopted by the European Council in 2007, focuses on smart, sustainable and inclusive growth as a way to overcome the structural weaknesses in Europe's economy. Under the 2020 climate and energy strategies, the EU has set three key targets which aim at increasing its energy security, by reducing the

Clara B. Vaz
Centre for Management and Industrial Engineering (CEGI/INESC TEC), Research Centre in Digitalization and Intelligent Robotics (CeDRI), Instituto Politécnico de Bragança, Campus de Santa Apolónia, 5300-253 Bragança, Portugal, e-mail: clvaz@ipb.pt

Ângela P. Ferreira
Research Centre in Digitalization and Intelligent Robotics (CeDRI), Instituto Politécnico de Bragança, Campus de Santa Apolónia, 5300-253 Bragança, Portugal, e-mail: apf@ipb.pt