

# ***WHAT ARE THE COSTS AND BENEFITS ASSOCIATED TO RES DEPLOYMENT IN SPAIN? - EVIDENCE FOR THE PERIOD 2005-2010***

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## **Overview**

Compared to fossil fuel technologies, most renewable energies are less cost-competitive but also contribute to social wellbeing in various ways. Among other positive externalities, renewable energies reduce local and global emissions, improve energy security, stimulate the national economy and create new jobs. Until they become cost-competitive, such externalities justify the government intervention to progressively facilitate their penetration in the energy system.

Until recently, and particularly over time period from 2005 to 2010, Spain has been at the forefront of Renewable Energies deployment. Among other factors, this has been the result of the combination of great renewable potential but most important due to the favorable renewable support policies. It is thus of great interest to assess, for the period 2005-2010 what has been the real costs and benefits associated to such deployment taking into consideration not only the private costs but also its external costs and benefits.

## **Method**

Using a partial cost benefit framework for the studied period, this work compares the private and social costs and benefits associated to the Spanish Energy mix under three possible scenarios from 2005 to 2010: (i) actual energy mix, (ii) energy mix according to the Plan de Energías Renovables and (iii) energy mix with no additional RES installed capacity since 2005. To quantify and monetize the environmental and socio-economic externalities, various methodologies were employed such as the Life Cycle Analysis and the ExternE methodology as well as the Input-Output analysis respectively. Finally, a sensitivity analysis was conducted on some key variables to check the robustness of the results.

## **Results**

The proposed approach was applied to obtain various results. First, for the period 2005 to 2010, the total costs and benefits associated to three energy transition paths were assessed. Second, those sectors in the economy that were greatly stimulated (in terms of economic activity and job creation) as a result of the renewable energies deployment were identified. Finally,

the cost of the renewable support policies was compared to the net benefits associated to the renewable energies deployment.

## **Conclusions**

This paper has presented a methodological framework to assess the total costs and benefits associated to three possible renewable deployment paths in Spain for the period 2005-2010. The results show that when designing energy policies, decision makers should take into consideration not only the private costs but also the environmental and socio-economic effects of energy technologies.

## **References**

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