A method for allocating renewable energy source subsidies among final energy consumers

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Abstract— In a new context of growing need for renewable energy sources (RES), tariff design has become a critical component of energy system regulation. A methodology for allocating the cost of RES subsidies that ensures an optimal balance between compliance with the main regulatory principles of tariff design and each state's specific policy is of cardinal importance in the current context. This paper presents and discusses a novel methodology to allocate the RES subsidy costs, which consists of distributing them among final energy consumers, in proportion to their consumption, regardless of the type of final energy consumed (liquid fuels, gas, electricity or coal).

First, the different designs of RES subsidies are categorized and a review of a good number of the RES burden sharing mechanisms implemented in the EU is presented. Then, the proposed methodology is developed on the basis of the basic regulatory principles underlying the tariff design and the current regulatory context in force in the EU.

Finally, to illustrate its actual impact in a real case example, the proposed methodology is applied to the Spanish system, in which the burden of extra costs incurred for RES amounts to a very large proportion of the overall energy system costs.

Index Terms— Renewable energy sources; Tariff design; RES support mechanisms

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