Energy-socio-economic-environmental modelling for the EU energy and post-COVID-19 transitions

I. Cazcarro; D. García Gusano; D. Iribarren; P. Linares Llamas; J.C. Romero Mora; P. Arocena Garro; I. Arto Olaizola; S. Banacloche Sánchez; Y. Lechón Pérez; L.J. Miguel González; J.E. Zafrilla Rodríguez; L.A. López Santiago; R. Langarita Tejero; M.A. Cadarso Vecina

Abstract-

Relevant energy questions have arisen because of the COVID-19 pandemic. The pandemic shock leads to emissions’ reductions consistent with the rates of decrease required to achieve the Paris Agreement goals. Those unforeseen drastic reductions in emissions are temporary as long as they do not involve structural changes. However, the COVID-19 consequences and the subsequent policy response will affect the economy for decades. Focusing on the EU, this discussion article argues how recovery plans are an opportunity to deepen the way towards a low-carbon economy, improving at the same time employment, health, and equity and the role of modelling tools. Long-term alignment with the low-carbon path and the development of a resilient transition towards renewable sources should guide instruments and policies, conditioning aid to energy-intensive sectors such as transport, tourism, and the automotive industry. However, the potential dangers of short-termism and carbon leakage persist. The current energy-socio-economic-environmental modelling tools are precious to widen the scope and deal with these complex problems. The scientific community has to assess disparate, non-equilibrium, and non-ordinary scenarios, such as sectors and countries lockdowns, drastic changes in consumption patterns, significant investments in renewable energies, and disruptive technologies and incorporate uncertainty analysis. All these instruments will evaluate the cost-effectiveness of decarbonization options and potential consequences on employment, income distribution, and vulnerability.

Index Terms- Climate change; Energy transition; Socio-economic modelling; Energy-environmental modelling

Due to copyright restriction we cannot distribute this content on the web. However, clicking on the next link, authors will be able to distribute to you the full version of the paper:
Request full paper to the authors

If you institution has a electronic subscription to Science of The Total Environment, you can download the paper from the journal website:
Access to the Journal website