

This paper considers the case of São Miguel in the Azores archipelago as a typical example of an isolated island with high renewable energy potential, but largely dependent on fossil fuels incurring high import costs, in order to assess and analyse the potential impact of the plug-in hybrid electric vehicle (PHEV) technology on the local power supply system. To this end, the present work employs The Integrated MARKAL-EFOM System (TIMES) to examine a number of scenarios with different levels of PHEVs penetration under the grid-to-vehicle (G2V) approach, taking into account the established Government policies, regarding the increase in renewable energy production quotas, for the evolution of demand and supply over time. The results obtained indicate that the PHEVs integration into the local grid system under the G2V energy transferring paradigm can be realized without immediate technical barriers and bears the potential to yield significant benefits to the energy mix, reducing thus the environmental impact.