

# The role of italian power storage vehicle

Are batteries and Hy-Drogen promoting a progressive decarbonization of the Italian power sector?

Both batteries and hydrogen are introduced as electrical energy storage systems. The role of VRES and storage facilities (batteries and hy-drogen) in promoting a progressive decarbonization of the Italian power sector is then explored from an economic and environmental perspective.

What is a simplified model of the Italian power sector?

A simplified model of the Italian power sector is implemented with only batteries as a new energy storage option. Moreover, the model period is set from 2021 to 2040. These two simplifications have been made to limit the model's complexity and avoid excessive computational effort.

What role does Vres play in decarbonizing the Italian power sector?

Role of VRES and storage facilities in decarbonizing the Italian power sector. High VRES penetration determines 87 % of CO<sub>2</sub> emission reduction. Long-term hydrogen storage plays a key role to achieve high VRES penetration up to 74.5 % in the electricity production.

Does the Italian power sector need a decarbonization?

The analysis of the decarbonization of the Italian power sector shows that an important shift is needed from the current energy mix, which relies heavily on fossil fuel-based technologies, to an opposite configuration strongly based on renewable energy sources.

What resources does Italy use to produce electricity?

The Italian context At present, the Italian electricity supply strongly relies on fossil power plants, which exploit resources such as coal, oil, natural gas and non renewable industrial and municipal waste [41].

Can a model be applied to the Italian automotive sector?

Such features can be applied to any EU country; therefore, the model has a European Union-wide applicability. To show the model effectiveness, an application to the Italian automotive sector focused on the estimation of energy consumption and polluting emissions is proposed in the period 2018-2030.





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