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# From Factor-Four Mitigation to Zero-Net Emissions: Is a fair energy transition possible? Evidence from the French Low-Carbon Strategy

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## Résumé

As highlighted by the recent Yellow Vests demonstrations, the distributive consequences of environmental policies are a major issue for the public acceptability of energy transitions. Our research objective is to assess the short and mid-term distributive impacts of environmental measures and to investigate which socioeconomic features drive inequalities. We compare two successive versions of the official French low-carbon strategy, to assess whether its rise in ambition—from a fourfold reduction of emissions to carbon neutrality by 2050—can fairly affect French households.

To that end, we develop an iterative numerical method that combines micro-simulation and computable general equilibrium. We produce economic outlooks to 2025, 2030 and 2035, both consistent at the economy-wide level and disaggregated across several thousand household types. One important originality of our methodology is the explicit distribution across household types of the gradual penetration of energy-efficient technologies and their consequences on expenditure trends.

Our results demonstrate that subsidies of energy-efficient technologies are complementary to carbon taxation as they reduce vulnerability to energy transition in the medium-long term. They also confirm that the retrocession of carbon tax payments is a powerful means to offset the direct regressive consequences of the carbon tax in the short term.

**Mots-Clés:** Redistributive Effects, Environmental Taxes and Subsidies, Consumer Economics: Empirical Analysis, Measurement and Analysis of Poverty

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