

Toward a less natural gas dependent energy mix in Spain: Crowding-out effects of shifting to biomass power generation

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This paper estimates the impact of a hypothetical change in Spain's energy mix on a number of productive sectors. The change would be brought about by substituting power generation from natural gas with generation from biomass. The total amount of electricity supplied has been calculated to remain constant so that a crowding-out effect would be derived from the displacement of one technology with another. An input-output (IO) framework has been used to estimate the overall economic impact on 26 productive sectors included on Spain's 2007 IO Table. Based on the available literature, the consideration of net impact improves the analysis. The results show that the overall net impact across all productive sectors of this change in the energy mix would be positive and equal to about 0.5% for the period. Higher impacts were measured for the 'Electricity power and Electricity Supply' sector (15.4%) followed by the 'Agriculture, Hunting, Forestry' sector (7.1%). Only the 'Gas generation and Gas supply' sector showed a negative impact (-2.5%), which is consistent with the reduced use of natural gas. The overall calculated total impact for Spain's productive sector was equal to ? 8074.95 million at the 2007-equivalent value. © 2014 Published by Elsevier Ltd.

Biomass for electricity generation

Combined cycle technology

Fuel substitution

Input-output framework

Natural gas generation

Renewable energy

alternative energy

biomass power

combined heat and power

economic impact

electricity generation

electricity supply

fuel

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natural gas

renewable resource

Spain