

Multiregional economic impacts of renewable energy adoption in the United States using Industrial Ecology Virtual Laboratory

Topic: Multi Regional Input-Output (MRIO) Models Using Industrial Ecology Virtual Laboratory: Development of Regional IE Lab models and Applications

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The share of wind energy in the US energy supply has been steadily increasing in the last two decades. With new wind energy farms being installed in various states of the country, local and multi-regional economic disruptions are bound to take place. The multi-regional economic impacts of installing new wind farms was determined using the Industrial Ecology Virtual Laboratory (IELab). Recently, a US-MRIO (Multi-Regional Input-Output) model has been developed in IE lab. The economic impacts were calculated by feeding IELab the value added and change in final demand obtained from the Jobs and Economic Development Impacts (JEDI) Wind model published by National Renewable Energy Laboratory (NREL) in the US. The JEDI wind model provides the change in local economic data such as the number of new jobs created, increase in the final demand of a product in each region, etc. The JEDI wind model only gives the local data and does not account for the multi-regional economic disruptions that take place due to changes in final demand in a particular region under study. The economic impacts were studied for the top 10 wind energy producing states in the US and the year of wind farm installing was set to 2018. The overall national economic disruptions due to installing new wind turbines in these 10 states were analyzed.