



Discussion on « Renewables, congestion and zonal price differences in Italy »

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Summary

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- Analysis of inter-zonal transits resulting from the day-ahead auction as well as of the series of paired-price differences between 6 neighboring administrative zones in Italy.
- 2 econometric models performed on five zonal pairings:
 1. a multinomial logit model, whose dependent variable has three discrete values capturing both the occurrence of congestion and its direction;
 2. a 2S-OLS model which quantifies the effects of renewable production on:
 - the size of paired-price differences (implicit congestion cost)
 - on the difference between zonal price and national price or PUN (explicit congestion cost).

Main Results: congestion

- Sicily:
 - If renewables produced inside: increase probability of congestion from and decreases to.
 - If coming from Sud and Centro-Sud: decrease congestion from increase congestion to.
 - Analogous results for Hydro and opposite for Forecasted Demand.
 - Analogous for difference between demand and supply of renewables and Hydro (restricted model).
- CenterNorth-North pair: opposite to what happens in Sicily

Main Results: cost (both)

- Sicily:
 - If renewables and Hydro produced inside:
decrease zonal price and also implicit congestion cost.
 - Opposite if production is coming from outside.
 - If demand increases in Sicily, the zonal price increases getting closer to the PUN but also increasing implicit congestion costs.



Appreciation

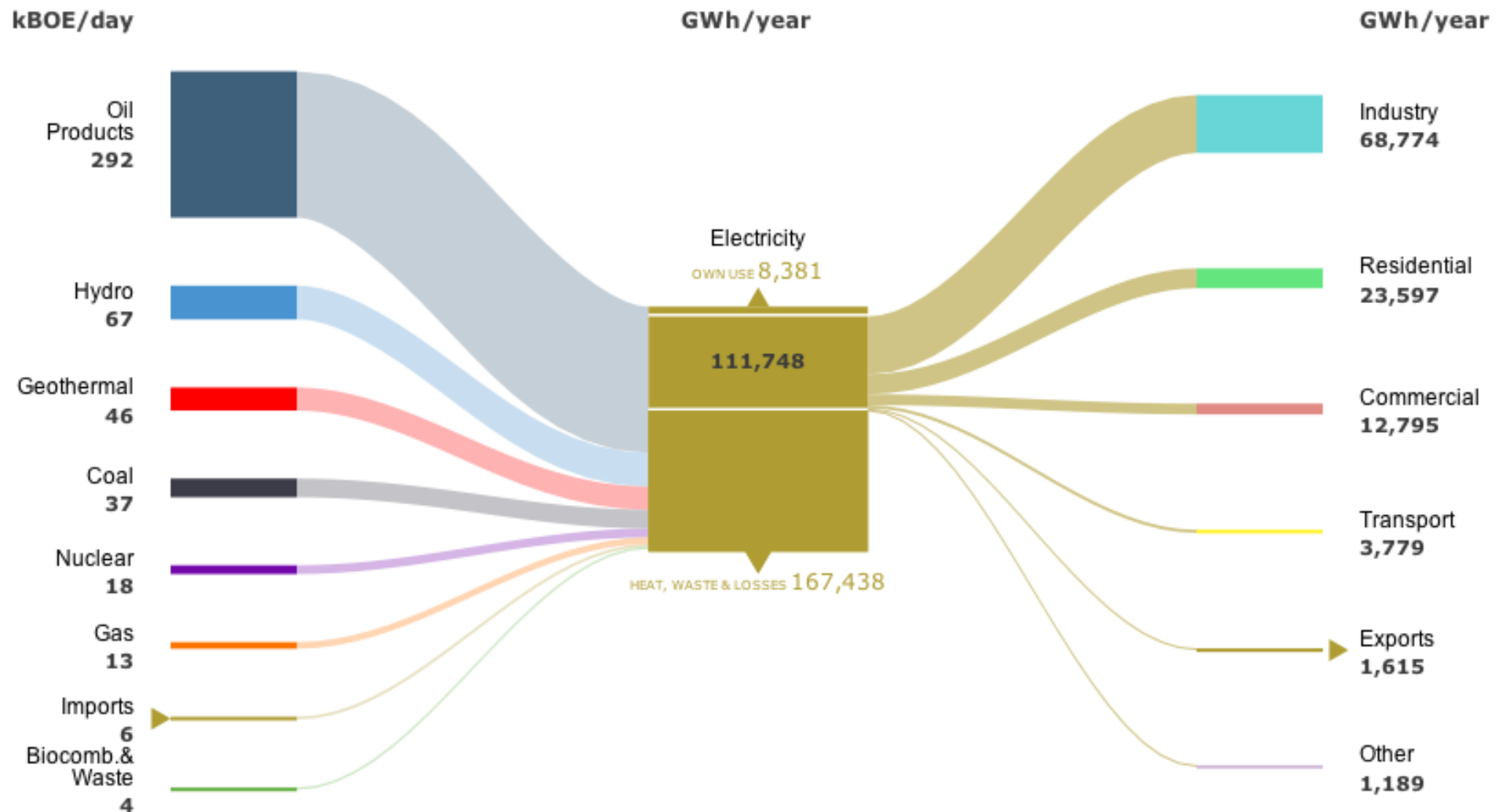
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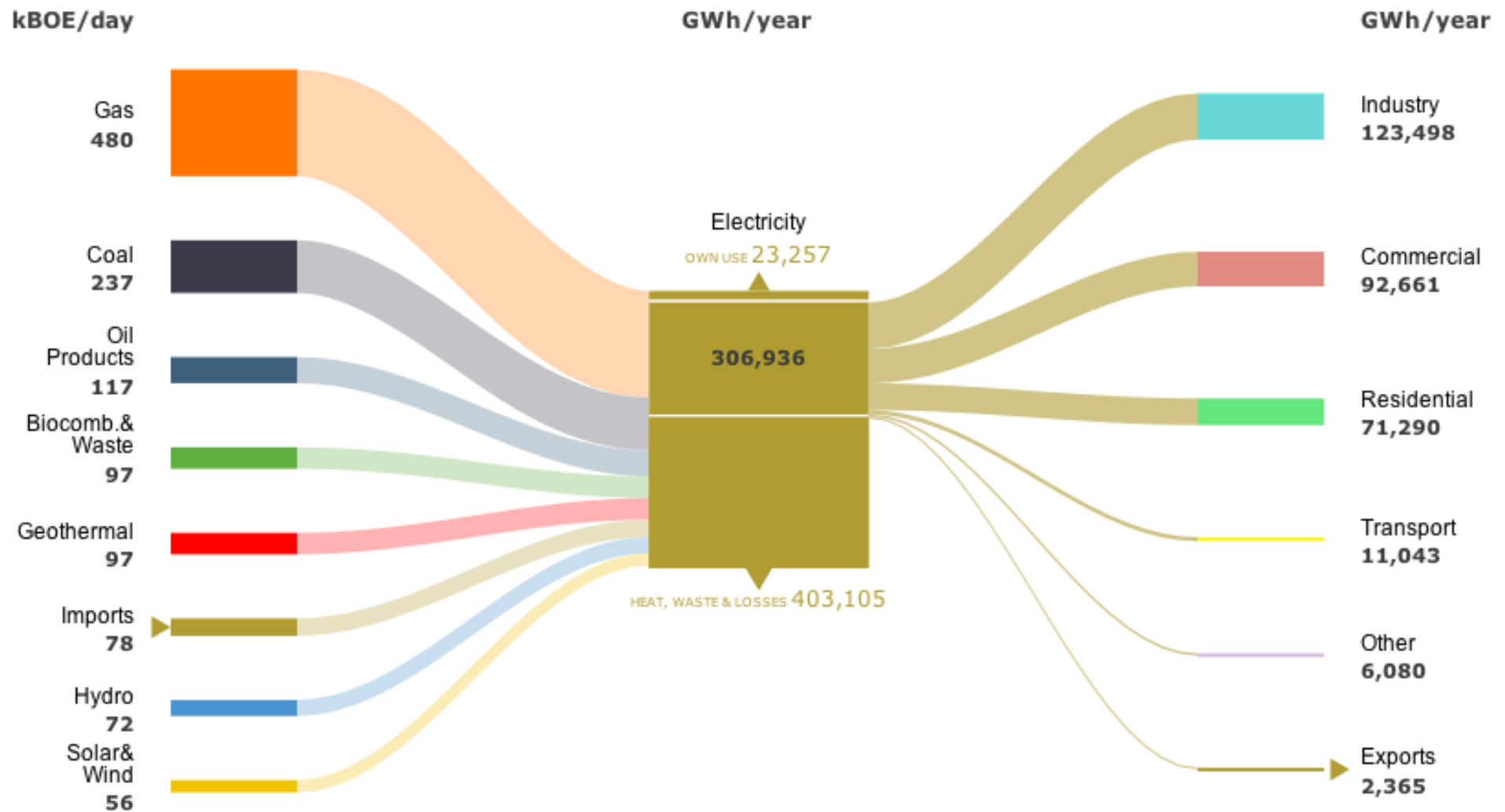
Great Relevance

- Lots of incentive policies but few empirical papers testing impacts:
 - The “merit order effect”.
 - Renewables may multiply the incidence of transmission **congestions** or instead relieve congestion occurrence by reducing transportation needs.
- Specificities:
 - The Italian Power Exchange is composed of 6 regional sub-markets... the hourly electricity price is unique when all transmission limits between sub-markets are respected; otherwise a system of zonal pricing applies.

Renewable's Importance



Renewable's Importance



Original Data-base

- GME, the market operator, which publishes the hourly offers in the day-ahead market together with equilibrium prices, quantities and inter-zonal transits;
- GSE, the state-owned company promoting and supporting renewable energy sources, which provides information about renewable capacity and generation;
- Terna, the network operator, which is in charge for the estimation of the demand and the available transmission capacities;
- REF-E, a consulting group, which has created a list of power plants classified by technology and geographical location;
- ICE, the American network of exchanges and clearing houses for financial and commodity markets.

Questions/suggestions

- What happens to other regions?
 - May be worthy to try a methodology that allows you to use the results of all pair-zones simultaneously.
- How do you think imports/exports and its change over time impact your results?
 - My guess is that your results could be modified given the regional pattern of imports.
- Are there regional patterns regarding the use of electricity generation?



Thank you for letting me discuss such an interesting paper!

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