

Energy economics modeling with hybrid units applied to supply and use tables

Topic: Physical and hybrid input-output tables 1

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Every year the Brazilian Energy Ministry publishes a National Energy Balance, which is a fairly detailed account in physical units of how energy sources are produced, transformed and consumed in the Country. On the other hand, every year the Brazilian statistics authority IBGE publishes a national supply and use table within a two years delay of the publication date, the last issue at the present time being for 2009. This paper explores the possibilities of utilizing this information to work out input-output models combining the energy and economic data provided by means of hybrid units. It is advocated that considerable methodological gains can be achieved if the procedure is supported by a supply and use table (SUT) framework. The solutions obtained are compatible with a Leontief model that runs in parallel, leading to the mapping of how the multiplier effects spread over the whole SUT data set. The SUT construction features utilizing hybrid units allow the straightforward checking of energy conservation balances between primary and secondary energy flows, and make the procedure accessible for forecasting teams which do not have to be necessarily familiar with input-output mathematics and terminology. Running with common electronic spreadsheets, the model may be applied in conjunction with other software add-ins, thus giving room for merging with a wide variety of forecasting techniques. This also makes it easier to build-up friendly software interfaces, paving the way for customization and direct utilization by decision makers. Examples of application are given in the text.