

ABSTRACT

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"THE WORLD OIL MARKET: TWO MODELS WITH SIMILAR POLICY ORIENTED RESULTS"

Two systems dynamics models have been independently developed, one at MIT, the other at Elf Aquitaine. Their structure, assumptions, time frame are different.

The International Petroleum Exchange Model (IPE) developed at MIT is a dynamic simulation model of the world oil market and of interactions between producer, consumer, and international oil companies.

The Elf Aquitaine model is based on the following assumptions:

- through the stock situation, the oil market responds to the evolution of supply and demand
- prices are determined by the spot market situation
- anticipations play a fundamental role, but are much more complex than what has been modeled up till now
- the long term is but an accumulation of short term situations and reactions which, because of strong nonlinearities and high short-term sensitivity, must be accounted for and are essential to a good representation of both long term and short term market behavior.

Although very different in their approach, these two models, when run on a comparable time scale, give some similar policy oriented results concerning:

- the dynamics of oil consumption, production and price
- the consequences on other energy source developments (coal, solar, ...)

The paper will deal very briefly with the model structures, and insist rather on a comparison of some of the policy oriented results.