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## LETTERS

### Guayule Development

I share the concerns expressed by some of those interviewed for William J. Broad's article on guayule commercialization (News and Comment, 27 Oct., p. 410). Had I been asked to respond to these concerns, I would have mentioned plans for a vigorous oversight and a quick transfer to the private sector as soon as needed basic feasibility and process improvement research has been done. I would also have pointed out that the funding of this program at \$30 million over 4 years is \$20 million less than the congressional budget office estimate of funding necessary to carry out the original commercialization research program.

On another point mentioned in the article, the only activity taking place in my district that may be eligible for funding is plant research, and this is subject to a competitive grant process that is, thankfully, removed from political manipulation.

GEORGE E. BROWN, JR.  
*U.S. House of Representatives,  
Washington, D.C. 20515*

### Nuclear Power Economics

A. D. Rossin and T. A. Rieck, in their article "Economics of nuclear power" (18 Aug., p. 582), have shown that nuclear power plants installed by the Commonwealth Edison Company in the early 1970's are producing electricity at lower cost than contemporaneous fossil-fuel plants. This conclusion may be of interest to the customers of Commonwealth Edison, but it should be accorded little weight in the national debate over the merits of building *additional* power reactors.

The relative costs of Commonwealth Edison's existing nuclear and coal-fired plants are grossly unrepresentative of the costs of future U.S. plants for the following reasons.

1) Commonwealth Edison's six major nuclear units were completed in the years 1970 through 1974, and thus predate the cost escalation that has befallen nuclear plants starting in the middle 1970's. Indeed, four units (Dresden units 2 and 3 and Quad Cities units 1 and 2) were "turnkey" units subsidized by General Electric to stimulate the reactor market. Rossin and Rieck state in their table 1 that the average cost of the six units was only \$200 per kilowatt of ca-

capacity. Yet nuclear plants completed in the United States during 1975 through 1977 had an average cost of roughly \$500 per kilowatt (1, table 1), indicating a 150 percent cost increase in only a 4-year period (87 percent in constant dollars). This exceeds the escalation in coal capital costs, the addition of scrubbers notwithstanding.

2) Commonwealth Edison frequently operates its coal units at reduced levels when electric demand is low, in deference to nuclear units with lower running costs. This inflates the per-kilowatt-hour fixed charges for coal units presented by Rossin and Rieck. Future coal units of other utilities are less likely to "load follow" to such an extent because of lower reserve margins, lesser percentages of nuclear capacity, and efforts to better manage loads presently under way or planned. Moreover, Commonwealth Edison's coal units are out of service more frequently than comparable units of other utilities (2), further inflating their fixed charges per kilowatt-hour.

3) Because of the several-year lead time in nuclear fuel procurement, Rossin and Rieck's fuel cost data capture little of the recent increases in the costs of uranium ore and enrichment, while reflecting nearly all of the increase in coal prices which followed the 1973-74 oil embargo.

In short, Rossin and Rieck's article is but one of many attempts to premise future energy policy on historical data that bear little relation to economic reality at the margin of selection of energy technology. A more realistic appraisal of the economics of nuclear power would have emphasized that the low capital costs once enjoyed by the nuclear industry are unavailable to new plants, largely because of the proliferation of expensive safety measures necessary to correct deficiencies revealed by operating units. Such an analysis would have acknowledged that the average cost of nuclear plants completed in 1974-77 was 73 percent greater than that of coal plants in the same period (1, p. 1) (Rossin and Rieck project future nuclear capital costs to be only 8 percent higher than those of coal, even though scrubbers add only 15 to 20 percent to coal costs while cost-increasing regulatory requirements are continuing to be added for nuclear plants).

Projection of either a 40 percent capital cost differential or a 10 percentage point capacity factor differential, both of which appear conservative based on recent data (3), eliminates the cost advantage projected for future nuclear plants