

8/2/77

To: SPRO File: Regional Reserves

In reviewing the computer runs for the PAL model, the FEA's world oil supply/demand model used for assessing the impacts of an embargo, we found many questionable features. According to the FEA, some of the problems are apparently resolved in a revision which we have yet to receive. Our comments are based on the early (6/8/77) run for the 1980 BAU Scenario.

- 1) The figures show no local refinery output of residual fuel for PAD I. Entire supply comes from foreign sources.
- 2) There are no foreign imports of distillate or gasoline into PAD I. Supplies from other than PAD I refineries come from "Gulf Coast" (defined here as PAD's II-IV).
- 3) PAD I residual oil demand is about 30% lower than PIRINC's demand; distillate demand is 34% larger than PIRINC's.
- 4) PAD I refinery output is 1192 Mb/d higher than PIRINC's projected capacity, and 854 Mb/d higher than FEA's projected capacity.
- 5) For "Gulf Coast" (PAD II-IV), 97.5% of residual demand comes from foreign sources.
- 6) No North Slope crude is utilized in PAD's II-IV; all 1.2 MMb/d is refined on the West Coast.
- 7) A total of 81 Mb/d of product imports are assumed for PAD V.
- 8) Total U.S. distillate demand is 4853 Mb/d--this is one of the figures being revised.
- 9) For Puerto Rico and Virgin Islands, residual oil is the only export, and the residual yield is 78.5%.

- 10) For the Caribbean (here defined as Aruba, Curacao, Trinidad and Bahamas) residual is also the only export, and its yield is 92.4%.
- 11) Caribbean figures imply that refineries run at 68% of 1976 capacity.

These are not the only inconsistencies we found, but they serve as an indication that the model must be adjusted.

We have already pointed out to FEA's SPRO staff several other data problems, such as a 1980 residual fuel demand of 15 Mb/d in Puerto Rico and the Virgin Islands (the demand was 89 Mb/d in 1975). The projection is used throughout FEA's printed documents, including the SPR Plan.

COMPARISON OF PAD I PROJECTIONS
PIRINC AND FEA'S "PAL" MODEL (1)

(000 b/d)

	<u>1976</u> <u>BOM</u>	<u>PIRINC</u>	<u>1980</u> <u>PAL</u>
<u>Demand/Supply</u>			
Residual Oil			
Local Output	185	218	-
Foreign Imports	1344	1558	1292
Net Transfers	136	24	-
Domestic Demand (2)	1663	1800	1292
Distillate Oil			
Local Output	396	443	1017
Foreign Imports	134	121	-
Net Transfers	830	986	1059
Domestic Demand (2)	1392	1550	2076
All Products			
Refining Capacity		1925	
Local Supply	1747	1892 (4)	2984
Foreign Imports	1680	1872	1292
Net Transfers	2977	3161	2584
Domestic Demand (2)	6437	6910	6860

1. FEA's Petroleum Allocation Model, 6/8/77 computer run, now under revision.
2. Includes Adjustments for stock changes and, for PIRINC, exports. No exports in PAL figures.
3. FEA estimate in "Trends in Refinery Capacity and Utilization" is 2090 Mb/d.
4. Includes refinery output, all hydrocarbons blended at refinery, and processing gain.