Conference Aims and Directions

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The 1973-1974 embargo by the Organization of Petroleum Exporting Countries (OPEC) made us acutely aware of our dependency on foreign suppliers for a substantial share of domestically consumed petroleum. While there have been small, but significant, decreases in crude oil and product imports over the past year (due to the near doubling of world oil prices), the United States is still heavily dependent on petroleum imports, especially those from OPEC-member nations. Of particular importance is the portion of this OPEC supply that is accounted for by OPEC's Arab members. In 1973, the petroleum shipments of these countries to the United States amounted to approximately 0.91 million bbl/day—almost 15 percent of total domestic imports. By 1979, these shipments grew to an average of 3 million bbl/day, or about 37 percent of total average daily petroleum imports.

There is clear evidence that OPEC's powerful market control over the supply of crude oil will continue to be used as an instrument of political policymaking. Because of the uncertainties surrounding OPEC-U.S. relations, the possibility must be realistically confronted that we will continue to face either a partial or a total supply embargo by one or more of the OPEC-member countries, as well as a continuation of sharply rising administered prices. At the same time, it must be recognized that product shortfalls may be triggered by natural or catastrophic disasters, severe weather conditions, hostile actions that may result in the temporary loss of a supplier, or other events that may significantly reduce normal supplies or may impede the transportation or production of crude oil or products. Therefore, one of the objectives of a national energy policy should be to improve the country's ability to cope successfully with such situations. An instrument of this policy is contingency planning—an attempt to determine the methods and the extent to which the nation can insulate itself from such events.

OBJECTIVES

The national energy users' conference was designed to focus more detailed attention on the energy used in domestic transportation and, ultimately, on the formulation of public policy regarding contingency planning in the transportation sector of the nation's economy. There is particular concern about the United States' ability to respond to an energy shortfall through a downward adjustment of petroleum demand without causing severe problems for households, for the economy in general, or for particular economic sectors that are unusually sensitive to petroleum-product availability and price.

The conference was specially structured to accomplish several objectives. The first of these objectives was to establish a setting in which discussion of energy contingency issues, as they relate to transportation, could take place among persons who had special modal interests or who represented different public- or private-sector concerns with respect to energy planning, production, or use. To achieve this goal, a common frame of general reference was encouraged by (a) three keynote addresses, included in Part 1, that presented an overview of world and domestic energy supply-and-demand issues and (b) a panel discussion that focused on petroleum supply logistics, alternative supply-and-disruption scenarios, and the nature and consequences of federal allocation mechanisms. The eight workshops that followed these presentations provided an opportunity for participants to devote specific attention to particular energy contingency questions that had unifying themes or subject focus. For example, the workshop on consumer behavioral responses to past energy shortages was set apart from the workshop on the capacity of transportation systems to meet energy contingencies.

The conference had a second objective—that of organizing the growing body of research work related to contingency questions. The publication of the conference proceedings, including the resource papers prepared for this meeting, is viewed as a useful tool by which to access the literature on contingency planning and energy use.

ORGANIZATION

The conference opened with keynote addresses on international and domestic issues that confront contingency planners. These remarks are included in Part 1 of this report. Session 1, the first of six major working sessions, featured a panel discussion dealing with supply logistics, disruption scenarios, and allocation mechanisms.

Sessions 2 through 4 evolved around eight workshop groups that focused on the following issues:

1. The ability of urban transit and paratransit systems to meet changing travel demands due to energy shortages;
2. An examination of specific issues related to intercity passenger transportation capacity and contingency planning in the event of a product shortfall;
3. An examination of issues related to intercity and urban freight transportation, with an emphasis on data needed for determining response strategies and the capacity of the freight system to respond to fuel shortages;
4. A documentation of consumer responses to recent product shortages, patterns in these responses, the relation between contingency concerns and more permanent actions directed toward energy conservation, and suggested policies and actions based on these insights to consumer behavior;
5. An examination of the problem of and opportunities for effective energy contingency planning at federal, state, and local government levels, as well as the institutional, political, regulatory, and fiscal factors associated with the implementation of contingency plans;
6. A detailed description of the proposed gasoline-rationing plan, state responsibilities and options under the plan, coupon-distribution options, white markets, equity aspects of alternative coupon-distribution criteria, and alternatives to gasoline rationing;
7. A review of the relation between contingency and conservation planning, the various initiatives to provide mobility in contingency situations and the competitive-complementary relation between them, the identification of the relevant actors whose participation is critical to the implementation of contingency plans, the mechanisms for motivating their participation, and the examination of promising areas of new initiatives in the movement of people in urban areas; and
8. The identification and review of how energy contingencies are likely to affect urban passenger travel, strategies (by the government, the private sector, and individuals) for energy conservation in an emergency, criteria for strategy analysis, an evaluation of these strategies, and recommendations for appropriate responsibilities for various public- and private-sector organizations, including consumers.

Session 5—a technical plenary meeting of the conference—dealt with the role of governments, consumers, and the private sector in conservation planning and contingency planning. Summary reports of the workshops were given during session 6, the conference's closing session; these reports appear in Part 3.

Conference participants are fully aware that the topic of contingency planning is highly volatile and is subject to intense scrutiny as unexpected energy shortfalls cause us all

to once again wonder why we did not prepare well enough. It is hoped that the work of this conference will point the nation toward better and more improved contingency policies and programs and will help reduce the impact of energy shortfalls that most surely can be expected in the future.

Keynote Addresses

Energy World Viewpoint

Herman T. Franssen

To give some perspective to our current view of the international energy situation, it is helpful to go back a few years and see how our understanding of the world's energy supply and demand has changed.

Apparently, we do not always improve our ability to forecast. Most forecasts made in the early 1960s were more accurate for 1985 than forecasts made later in the 1970s. In part, this is explained by the optimistic future outlook for continuing high gross national product (GNP) growth rates after the long period of high growth rates through the 1960s.

Equally important is the fact that forecasters failed to recognize the changing relation between GNP and energy consumption. Over about a 10-year period, the marginal rate of increase in energy consumption per unit increase in GNP has been cut nearly in half—from about 0.9 to 0.5. A large part of this drop is the result of shifts in growth from energy-intensive industries--that is, extractive industries, such as mining, and heavy-manufacturing industries—to less-energy-intensive industries, particularly service industries. Of course, energy price increases have also been important in providing an incentive for efficiency.

Almost no one in the 1960s recognized the potential impending international petroleum crisis. World reserves were continuing to be discovered through the 1950s and well into the 1960s at a more rapid rate than reserves were being depleted by world consumption. Even when oil supply interruptions occurred, such as in Iran in the 1950s, there was no crisis because alternative sources of supply were readily available. The major western oil companies, the Seven Sisters, had almost complete control of oil supply.

Not until U.S. oil production peaked and began to level off a decade ago did many people recognize that this favorable supply situation could not go on indefinitely. There had been some peaking of production levels in significant foreign oil fields in the past—for example, in some Latin American areas—but these events had little impact on U.S. thinking because they had always been overshadowed by new discoveries somewhere else.

Only one important geologist comes to mind who, during this period, recognized that production levels could not long continue to increase at the rate that consumption was increasing. M.K. Hubbard performed an analysis for the National Academy of Sciences showing that the rate of discovery of new reserves would soon have to peak and that world production levels would begin dampening demand within a relatively few years (see M.K. Hubbard. Energy Resources. Committee on Natural Resources, National Academy of Sciences, Washington, DC, 1962).

However, the generally optimistic view of the future market did not change until the early 1970s when conditions changed very rapidly. U.S. imports grew very rapidly as consumption continued to grow after U.S. production had peaked. And then came 1973—the year when the oil embargo hit and when natural gas production peaked. When natural gas production peaked and began to decline at the same time as we had declining domestic oil production, the declining natural gas production was translated into more demand for oil. Those who could not get the gas, mainly industrial users and utilities, had to switch to oil.

Domestic oil production continued to decline until Prudhoe Bay was brought into production several years later. And the net result was that we began to import a great deal more oil in a very short period of time.

So it was then, when the embargo hit, that we really became aware for the first time that there was a major problem. In 1974, the U.S. government came up with a comprehensive energy plan for the first time. Project Independence, in its original form, would make the country independent of foreign imports by 1980. That was in May 1974. By November 1974, when the analysis work for Project Independence was finished, the study reported it could be done by 1985. The problem is that the study was much too optimistic about supply, and the forecast never materialized.

The Project Independence staff was also too high on forecast demand because they did not anticipate the high price increases that have occurred since. When these increases occurred, demand was reduced from its previous high annual rate of growth. Also, expected high economic growth rates did not materialize.

A large part of the error in Project Independence forecasts of demand was due to a failure to recognize the shifts that have been occurring in industrial growth toward the less-energy-intensive service industries, as mentioned previously.

Because the Saudi Arabians, after 1974, wanted to continue to accommodate us and because the Shah of Iran needed money for his ambitious development program, OPEC continued to produce more oil than the market needed after 1974. The result was that the price of oil in constant dollars declined through the end of 1978. It was not until the summer of 1979 that the price was back to where it was in constant dollars in 1974.

As late as the summer of 1978, most studies projected very stable prices through 1985, with perhaps some small increases after 1985. People in industry still did not get the message about what was happening to the world oil market. Companies like the Ford Motor Company and the Chrysler Corporation went more slowly in the development of energy-efficient cars than General Motors, largely because they had a poor perception of this international situation.

When the Iranian revolution occurred, Europe was having a very cold winter. In addition, oil stocks were very low because companies were expecting no substantial oil price increases in 1978. They had let their stocks go down, expecting that they could replenish them in the winter of 1979 at moderate prices.

So, when all these things happened at the same time, the demand for oil was quite substantial—everybody wanted to get all the oil they could get at almost any price. Spot prices rose to $40/bbl, or even higher in some cases, and that was followed by the official OPEC price increases in the spring and summer of 1979.

In January 1979, projections were generally that the price of oil would go as high as $20/bbl by the end of the year. In fact, the average price turned out to be much higher and was close to $30/bbl by the end of 1979.

The outlook in the next year now is for slight increases in price. Oil demand is down by at least 2 million bbl/day in the industrial countries as a result of the recession in the United States. However, at the same time, OPEC production is down by about 3 million bbl/day from what it was last year. The primary reason is, of course, that Iranian production has been reduced—to about 1 million bbl/day