Section 1

THE IMPORTANCE OF SYNTHETIC FUELS TO OIL-DEPENDENT UTILITIES

by

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When Sy Alpert first asked me to speak at this conference, I accepted without hesitation. Ten years ago, after Qaddafi had taken his ominous first step to expropriate foreign oil assets in Libya and had spoken publicly of oil as a political weapon, I concluded that a domestic synthetic fuels industry had to be developed. I thought the signs were clear.

At that time, then ten years after the formation of OPEC, it was clear from drilling data that oil and gas production in the United States were reaching their peaks, and oil imports by 1980 were projected to exceed 10 million barrels per day.

Industry, financial, academic, and defense-oriented observers alike warned against our country's growing dependence on oil imports, but the price was right. Gasoline retailed in the United States at 77% of its 1930 price, in real terms.

Many of us felt, at the time of the Arab oil embarbo a few years later, that the United States would awaken to the hemorrhaging of its fortune and the demise of its sovereignty. Instead, we avoided the difficult issues, bickered among ourselves, and sought scapegoats. And now, twenty years after the birth of OPEC, we finally seem ready to come to our own defense.

Some still claim that a synfuels industry is unnecessary--that conservation will bridge the gap to solar power; that unlimited amounts of gas will be found or recovered from previously undeveloped formations; that shortages have been contrived to drive up prices; and that, anyway, a more modest lifestyle would improve our national character.

Assuming only the best of intentions on the part of those who speak out against synfuels development, a simple risk/benefit analysis can focus the questions and point us to the path we must take.

What would be the cost of a synfuels industry that proved unnecessary? A few tens of billions over the next ten years. Perhaps as much as ten billion dollars per year for ten years--one-third of one percent of our gross national product over that period.

What would be the price of not building a synfuels industry and emerging from the 1980s with continued heavy dependence on foreign oil and no defense against OPEC? The price could be the demise of our society in its present form.

Your presence here, today, suggests that I may be preaching to the choir. So I'll get on with my assigned topic--the importance of synfuels to oil-dependent utilities--and offer a few thoughts on the role of synfuels in long-term energy planning.

In 1979, 36 million barrels of oil were needed to generate electricity and steam for use in the Con Edison service area--New York City and Westchester County. Because of the stringent environmental regulations under which we operate, we must burn very-low-sulfur fuel oil, 0.3 percent. Last year this oil cost electric and steam customers in the Company's service area $700 million, including taxes. While this cost was staggering, at current prices this same amount of oil would cost our customers $1.2 billion.

Actually, 1979 was a good year from the point of view of our oil consumption because the federal government allowed us to take advantage of the temporary surplus of natural gas to replace some 10 million barrels of oil. Also, we were able to purchase 7 billion kilowatthours of non-oil-fueled electricity, thereby reducing our oil use by an additional 13 million barrels.

But good year or bad, the economic burden of Con Edison's dependence on oil at the current, preposterous price of $30 per barrel is severe, and the threat of both supply interruptions and further price increases pervades all of our planning.

Clearly, our current dependence on oil cannot continue. Over the next two decades, the transition to other fuels is critical.

The first steps have already been taken. Most immediate in its benefits is energy conservation, which we have promoted vigorously in our service area for the past decade. In 1971, when we inaugurated our pioneering Save-a-Watt program, we were looked upon as pariahs in our industry. Bucking the conventional wisdom of

utility economics, we were right then, and we have not let up in our promotion of conservation and load management.

We estimate that conservation of electricity and steam in our service area has resulted in a savings of 30 million barrels of oil since 1971 and that the saving through conservation will be another 100 million barrels in the 1980s.

An important second step in our efforts to reduce our dependence on oil is our aggressive power purchase program. We intend to continue and expand purchases of hydroelectric power from Canada and hydroelectric, coal, and nuclear power from other utilities in New York State and neighboring power pools. Day-to-day purchases come easy when the alternative is to burn more $30 oil. But, through the vision and persistence of our Chairman, we also accomplished the first East Coast, long-term, large-scale purchase of hydroelectric power from Canada. Last year we imported 4.2 billion kilowatthours via a new extra-high-voltage transmission line to the Canadian border, which we are almost entirely underwriting, and an additional three-quarters of a billion kilowatthours via other ties. This year we expect imports from Canada from both hydro and coal sources of 5.3 billion kilowatthours. These purchases will save 9 million barrels of oil in 1980 and reduce our dependence on oil and gas for electric generation from 71 percent to 57 percent.

Without some fundamental changes, however, we cannot do much more. Absent the short-term gas purchases, our current oil burn would be 45 million barrels per year. Indeed, in view of the fact that we now have excess generating capacity, load growth on our system will cause increased oil consumption because, as our load grows, we will be obliged to utilize our oil capacity more fully. So, unless we can effect some fundamental changes, we face the 1990s with a potential oil burn of 50 million barrels per year.

Including our long-term, hydroelectric purchase from Canada, about 12,000 megawatts of capacity is available to serve electric loads in the Con Edison service area. Some 76 percent, or 9200 megawatts, is oil-fueled. In the early 1970s, when we were adding badly needed capacity, we were allowed to build only oil- and gas-fueled plants in or near our service area because of environmental restrictions against coal. Today we have come full circle. We are no longer able to build oil and gas plants, and for the most part we must look again to coal if we want to locate plants near our loads.

In the near term, we are seeking to convert three units (1800 MW) to coal burning. This will enable us to reduce our oil dependence to 40 percent by 1985.

In the intermediate term, two new, nonoil power plants planned by the Power Authority of the State of New York (PASNY), if built, will help reduce our oil dependence even further--to 31 percent by 1988. Purchases of steam and electricity from garbage-burning plants are planned to bring our oil dependence to 29 percent by 1990.

But these efforts, if entirely successful, would still leave us in OPEC's grip with a 1990 oil burn of 28 million barrels. In the long-term, we have no alternative but to count on synfuels for that.

The 1990 goal will leave us with more than 7000 megawatts of oil-burning capacity on our system. Of this capacity, 5900 megawatts are located within New York City.

I mention city siting because the in-City plants are particularly important to the reliability of our system. Let me digress a moment to tell you why.

For years, it has been fundamental to New York City's energy policy that Con Edison build all new major generating stations outside the City. Now it is evident that a contributing factor to the blackout we suffered in 1977 was our heavy reliance on power generated outside of the City. At the time of the blackout, our in-City generation was 3000 megawatts. The remaining power needed to meet the system load of 5900 megawatts was being brought in by the transmission system. As you may remember, lightning short-circuited four of Con Edison's high-voltage interties with the North. A damaged relay opened a fifth circuit, leaving only one transmission line from the North in service.

Had we been able to burn less costly fuels in New York City, we wouldn't have been importing as much power and could have stabilized the system after the initial transmission losses and prevented or deferred (until additional local generation could have been brought on-line) the tripping of the sixth and last circuit to the North and, with it, the interties to the East and West.

Accordingly, electric system reliability mandates the continued operation or replacement, in-situ, of our in-City generating plants.

Another imperative for city siting is our steam system, the largest cogeneration facility in the free world. Steam, of course, can be transported only a few miles from where it is generated. We deliver 30 billion pounds of steam per year to more than 2000 customers in Manhattan, and 60 percent of this steam is first used to generate electricity. While some of the fuel for this system presently derives from the short-term natural gas surplus, we must rely in the long-term on oil or synfuels for steam production.

Thus, in-City plants must continue to produce a large fraction of the electricity and all of the steam we deliver. Faced with the need to continue to operate our in-City plants and the need to avoid oil and gas, our long-term response is to obtain synthetic fuels.

Conceivably, to reduce oil imports, we could retire the plants outside the City early and replace them with plants burning coal. It is also conceivable, but not likely nor practical, that we could retire and replace with in-City coal plants the remainder of our oil-burning capacity. Assuming our unlikely ability to find enough sites, an in-City new plant alternative would cost $15 billion.

The costs and impracticalities of replacement capacity clarify the choices. The break-even cost of synfuels for use in existing capacity compared to direct coal burning in replacement plants, if they could be sited and financed, is five times the cost of mine-mouth coal. That is our challenge to the synfuels industry--and from every synfuels cost estimate I have seen during the past few years, a challenge that the industry is confident it can meet.

If we have a choice, the decision on what fuel we feed to our oil burners in the 1990s will be based primarily on the price and availability of synthetic fuel--primarily but not entirely. A domestic product is preferable to an imported one, and we are willing to make limited concessions on the initial price to obtain the inherent long-term savings and supply stability that synfuels offer.

Even if the price of imported oil is lower in 1990 than that of synthetic fuel, the world oil price will catch up very quickly to that of a synthetic product made in a facility constructed for service, for example, by 1990. More than half of the high initial cost of synthetic fuel is due to carrying charges on the plant. This is a fixed amount, impervious to escalation and the whims of foreign oil ministers. Any escalation in the price of synthetic fuel should be due, for the most part, to increases in the cost of such variables as coal and other materials and labor. Even much of the coal costs can be fixed.

Our analyses show that if synfuels cost 25 percent more than imported oil at the time of plant startup in 1990 and if one-half of the price is fixed, synfuels would be less costly over the initial ten years of plant operation if the price of oil escalated only 3 percentage points faster than that of coal, certainly a conservative prognosis for the oil-short 1990s.

Let me try that again. Assume a cost of synfuels 25 percent greater than the cost of imported oil in 1990. If the synfuel plant began operation in that year and 50 percent of the synfuel price was fixed, less than a 3 percent real escalation in imported oil prices would cause synfuels to be the better buy.

Accordingly, if we can be assured, by contract, that a substantial portion of the price of synthetic fuel would be frozen, we would be willing to contract now to pay a higher initial price in anticipation of long-term savings and relative price stability. I suggest that DOE, the Congress, and the Synthetic Fuels Corporation consider business arrangements such as this in connection with the various incentive programs that are being formulated to encourage the development of a synfuels industry.

A guaranteed future market is not the limit, however, Con Edison's support of synthetic fuels. In 1978, Con Edison successfully conducted the nation's first large-scale demonstration burn of Solvent Refined Coal-II--SRC-II. The results from that test indicated that in most respects the performance and emissions characteristics of SRC-II are comparable to those of the imported oil we normally burn, and that SRC-II meets New Source Performance Standards for coal-derived fuels.

Also in 1978, our Chairman, Charles Luce, was asked by DOE to chair an electric utility ad hoc task force with the mission of obtaining utility industry support of DOE's planned SRC-II commercialization initiative. After a slow start, significant progress is now being made. We have obtained commitments from 16 East Coast oil-burning utilities to purchase about one-half of the output of the first commercial-size SRC-II module, to be built in Morgantown, West Virginia, and are currently seeking broader support throughout the nation. We, and the other utilities that have agreed to support the SRC-II program, have agreed to pay a $2 per barrel premium over the price of equivalent-grade fuel oil (0.3 percent sulfur) at the time of delivery. Our goal is to have the entire plant output, or whatever amount is made available to the electric utility industry, spoken for by the end of the year or soon thereafter.

I urge those of you in the audience who have been reticent thus far to make a similar commitment to reexamine the matter in light of the supply uncertainties which have been highlighted by the Iraq-Iran war. A substantial synthetic fuels program could make us indifferent to whether the Abadan refinery is destroyed or whether the Strait of Hormuz is blocked. Otherwise, these and similar threats will continue our society's vulnerability to the bizarre acts of nations which boast of their animosity toward us.

I would like to close on a tangent.

The Fuel Use Act gives the Secretary of Energy authority to grant exemptions from the Act's prohibition against the use of natural gas and petroleum in new electric power plants and other major fuel-burning installations based on the anticipated future use of synthetic fuels. This policy can only backfire and lead to increased oil imports in future years.

Consider the fact that the supply of synthetic fuels will not approach the demand for liquid and gaseous fuels for existing facilities for many, many years, perhaps the year 2000. Electric utilities alone will have a demand in excess of a million barrels per day of oil and gas equivalent to fuel the oil- and gas-burning power plants that will be on-line in 1990. New oil-burning facilities, justified on their physical capability to burn synthetic fuels and permitted to come into being because of their capability to preempt those fuels, would burn imported oil until synfuels are available and then would force the utilities owning a large share of the country's 1990 generating capacity to import more oil. Such new facilities should be banned, as are new utility oil and gas burners. Until the use of synthetic fuels is demand-limited, the Secretary of Energy must make every effort to minimize the creation of new facilities that would require oil, gas, or synthetic fuel, and the Congress should clarify the Fuels Use Act so that it can accomplish its fundamental mission--oil import reduction.

An exception to this policy would be those generating facilities tied directly to synthetic fuel sources that otherwise would not come into existence, for example, combined-cycle facilities coupled with on-site medium-Btu syngas plants. Such facilities would generate the synfuels they need, would not compete for whatever synfuels are available to reduce oil imports, and could be scheduled to operate at the same time as their captive synfuels plant, thereby not creating an interim and unnecessary oil or gas demand.

With great respect and warm feelings to my friends who manufacture and are promoting the sale of synfuel-capable, oil-burning facilities, I offer the direct synfuels tie-in as the only exception. Attempts to justify facilities that burn oil with a view towards burning synthetic liquids in the 1990s are contrary to national objectives, and will inexorably lead to increased oil imports. They offer a false, but beguiling, alternative to those who would stand in the way of new coal and nuclear capacity.

Let's face it, our unswerving goal must be to reduce oil imports. To do so we must recognize the continued existence, through perhaps a decade into the next century, of assets that cannot economically be replaced and that must burn oil or gas. Since the fuel appetites of these facilities will be large relative to the availability of synfuels, at least until the year 2000, we must not willingly create competition for synfuels that will lead to an avoidable oil demand.

I do not want to leave any misunderstanding as to the role we see for synfuels. As a general proposition, in the long-term liquid and gaseous hydrocarbons are too valuable to burn in boilers, whether in utility or industrial application. Ultimately, synfuels must be reserved for higher priority uses, including the production of petrochemicals. The utility industry, with assistance from government authorities at all levels, must replace its oil- and gas-burning capacity. But it must do so with circumspection, while paying full deference to reliability considerations. This is where synfuels will play a critical role: not by creating a new dependence on precious liquid and gaseous fuels but by providing the means over the next two decades for an orderly transition to alternative fuels.

But what's the upside of our present efforts to create a synfuels industry? The United States stands in a unique position. We have the natural resources, the industrial base, and the technological capability to find our way out of the current energy morass and thereby restore prosperity and national confidence. All we require is the determination. I don't want to sell short the role of conservation, nor do I wish to diminish enthusiasm for increased oil and gas exploration and advanced recovery techniques. By 1990, through these efforts and greatly increased direct coal burning, we can significantly reduce oil imports. By then, with the help of coal exports, assuming major improvements in infrastructure, we can reduce our net energy imports to a level our economy can sustain. Then, through furtherance of these same means and with synfuels, by 2000 our country can emerge again as a net exporter of energy and regain its autonomy and historic position of world leadership.