

# Exxon Invents Energy Device, Eyes Huge Firm

*But some senators wonder if it was actually the reverse order in Exxon's purchase of Reliance Electric*

Observers of the economic scene consider it an extraordinarily brash move. A coterie of United States senators wants to have it stopped. Industry officials admit privately that it was probably bad form. But the world's largest oil company, the Exxon Corporation, unabashedly says it is a sensible act that fulfills the popular energy-saving mandate.

Such is the confusion attendant to Exxon's recently announced purchase of the Reliance Electric Company, a \$1.2 billion cash take-over by the largest U.S. firm of a company that is itself a minor conglomerate. As Exxon has explained it, the purchase is less an act of business acumen than of public-spirited necessity. The company says it has developed a device that—when attached to electric motors—could save the equivalent of 1 million barrels of oil a day within the next decade. With gas lines lengthening and a new OPEC price increase, it would be wrong to deny the public the right to buy this device soon, Exxon says. Therefore, the company must purchase Reliance, which has experience in electric devices and could swiftly bring their invention to market.

Recently, Exxon displayed its device before the Senate subcommittee on antitrust and monopoly. The subcommittee is considering a bill that would bar the Exxon purchase, and also force all of the oil companies to spend their money on searches for more energy, instead of on big conglomerate mergers. Since the sponsors have tapped a new mood in Congress for antitrust action, the bill is getting serious consideration.

Exxon's job at the hearing on 26 June was to convince the assembled senators and staff that their device actually helps save energy, and is unique enough to justify the Reliance marketing plan. Corporate executives flown in from New York brought with them a small display they thought would reduce the scientific complexities of their invention to the senators' level of understanding. Looking a bit like a miniature refinery, the display consisted of a bunch of pipes, a water pump, and a box full of microelectronics. The whole thing was made of red, white, and blue metal, and it was surrounded by beaming Exxon officials as it sat there on the witness table, gurgling and humming.

This, the Exxon people said as they

pointed to the box, is an "alternating current synthesizer." Essentially, it permits electric motors to run at the optimum speed demanded by the work they perform, drawing only as much power as necessary. Exxon says its synthesizer could be attached to almost any existing alternating current (a-c) motor of between 1 and 200 horsepower, and would make appealing the conversion of many direct current (d-c) motors into a-c motor systems. While opening and closing a valve on the water pipe, an Exxon official said that no longer would such crude throttling devices be necessary to cut back the output of a racing, single-speed motor. (Such reductions are desirable or possible in a variety of applications, including commercial and industrial motor drives, and in heating, ventilating, and air conditioning systems.)

The questions facing the committee were posed by Senator Howard Metzenbaum (D-Ohio), who is broadly considered the *bête noire* of big oil and gas on Capitol Hill. "Is this new?" he asked. "Does Exxon need Reliance Electric in order to bring this device on line effectively and expeditiously? Or rather is this simply an attempt to sell the American people on a conglomerate acquisition of immense proportions under the guise of energy conservation?"

Speaking up in behalf of the device and its uniqueness was Richard Baker, its inventor. Baker once worked in an electrical engineering lab at MIT, but joined Exxon in 1976 to devote full time to the synthesizer development. He signed over his patents on the device to Exxon, but obtained a royalty arrangement that he says will net him more than \$1 million. The device is a dramatic breakthrough in the technology of electric motor energy-saving devices, he said. Exxon already has synthesizers in place at its refineries in Baytown, Texas, and Linden, New Jersey, and energy savings have amounted to more than 35 percent.

He acknowledged that the idea is not exactly a new one, but said that his invention is cheaper and more efficient than similar devices already on the market. It is cheaper, he said, because it is all solid-state, eschewing the usual iron components—which are rising dramatically in price—for semiconductors and

digital controls—which are dropping in price. While the efficiency of most such devices ranges from 90 to 95 percent, Baker said, the efficiency of the Exxon device ranges from 95 to 98 percent. More efficient units can be smaller in size, realizing additional savings.

For additional points of view, Metzenbaum turned to a panel of technical experts his staff had assembled around the table where the Exxon display sat. Alexander Kusko, a lecturer at MIT and a consultant in the synthesizer market, said, "From what we have heard about the proposed Exxon drive, it does not appear to present any newer technology than is already found on the market or under development today." His views were echoed by Arthur Johnson, a consulting engineer from Whittier, California, and by Robert Rauch, president of PTI Controls in Fullerton, California. Rauch said his firm already sells competitive devices, although he said that the synthesizer market has barely been scratched by any firm. Contesting Exxon's claim that its device costs less, Rauch asserted, "All things being equal, i.e., capital, manufacturing facilities, etc.," PTI Controls could produce a synthesizer costing \$40 a kilowatt-hour, if Exxon produced one that cost \$50.

Unfortunately, since Exxon and PTI are now competitors, both have reasonable excuse for exaggeration. As a result, a panel discussion at the hearing turned into more of a free-for-all, leaving the senators who stayed through it mostly unswayed by the evidence that had been laid before them. Senator Orrin Hatch (R-Utah), who spent most of the day speaking up for "Exxon and its stockholders," remained just as convinced at the end. "Where can I buy one of these things?" he asked no one in particular. Metzenbaum, on the other hand, remained skeptical.

There is, however, additional judgment that Exxon is using the device as little more than a fig leaf. John Dougherty, an expert on a-c motor drives at the Electric Power Research Institute in Palo Alto, for example, says he would guess that Exxon's synthesizer "is not as momentous as their PR has indicated. There is a one in 1000 chance that they have a real breakthrough." A difference in efficiency of a few percent is probably

not that important, he said, because the savings must ultimately depend on the efficiency of the motors themselves, which is low. Arnold Johnson, a colleague, agrees: "Their information sounds too good; some of it doesn't sound physically correct."

If the device is not in fact new, Exxon obviously had other motives for acquiring Reliance. B. Charles Ames, the president of Reliance Electric, said he thought this was the case. "I think there is more to it than simply the need to bring this device to the market," Ames told *Science*. "Exxon never asked us if we were interested in leasing it, and if they had, our engineers probably would have said we already had something about as good."

Even Baker in an interview acknowledged that Exxon was interested in acquiring Reliance "before it became interested in marketing my device through Reliance."

The reason this has outraged some senators is that for the \$1.2 billion Exxon is spending for Reliance, the company could have drilled roughly 11,000 on-shore oil wells, or constructed an oil shale plant producing more than 50,000 barrels of oil a day. Instead, the senators say, Exxon purchased a huge company that devotes only 10 percent of its business to the area cited as the target of acquisition (the marketing of electric motors). According to Metzenbaum, the industry has placed itself in a box by arguing that in order to maintain current oil reserves and develop alternatives, the big companies need all the money they can possibly lay their hands on.

Jerry McAfee, chairman of the Gulf Oil Company and the industry's point man on the need for price decontrol, recently advanced that argument. "Decontrol will help to supply the needed capital for the investments required to develop energy resources," he told the House Ways and Means Committee. "Insofar as this capital is diverted to other uses . . . the nation will either be forced to use less energy, which will cause economic hardship, or will be forced to import ever increasing quantities of oil, which will contribute to more rapid acceleration of foreign oil prices."

By "other uses" McAfee meant the windfall profit tax; supporters of the anti-acquisition legislation have a more general approach in mind. The bill's two sponsors, Metzenbaum and Senator Edward Kennedy (D-Mass.), hope that Exxon's action will be sufficient catalyst to get support from the Carter Administration and throughout the Congress.

—R. JEFFREY SMITH

## The Proxmire Decision a Caution to Congress

The persistence of a Michigan research psychologist in making a federal case of his sense of injury at receiving one of Senator William Proxmire's Golden Fleece Awards has led to a Supreme Court decision in his favor that is causing controversy on a constitutional issue. The court found that congressional immunity against libel actions for what legislators say in Congress does not protect them if they repeat it outside. Congressional leaders say that the decision will curb the right of legislators to communicate with the public, and the press sees in it the threat of an erosion of First Amendment rights.

Scientists, who have been rankled by Proxmire's picking on research projects to receive his personal dubious achievement award, will be interested in another part of the opinion. The court found that merely receiving federal research support does not make a scientist a "public figure" in the legal meaning of libel law that renders it very difficult for them to sue for libel.

There is a long history of legislators treating federally funded research projects as objects of mirth or obloquy—often judging the projects by their formalistic titles—which has made many scientists feel that taking research federal money makes them unfair game. Lower court decisions on the "public figure" point had gone against psychologist Ronald L. Hutchinson and cumulative sentiment within the scientific community was expressed in a friend-of-the-court brief filed for the Supreme Court appeal by the American Psychological Association and AAAS.

The motivation stated for the brief, which focused exclusively on the public-figure issue, is that "APA and AAAS have direct interests in the outcome of this case because the decision of the Court of Appeals, if allowed to stand, could subject every one of their members to public harassment, slander, and libel without any meaningful remedy if they choose to accept public research funds and publish their experimental findings."

The 8-1 decision opens the way for Hutchinson to sue Proxmire and an

aide, Morton Schwartz, for defamation. Hutchinson in 1976 filed a suit asking for damages of \$6 million, later raised to \$8 million. A federal district court in Madison, Wisconsin, however, granted a summary judgment in Proxmire's favor on grounds that the senator enjoyed absolute immunity under the so-called Speech and Debate Clause of the Constitution. The Supreme Court also held Hutchinson was a public figure, which made it necessary that, in order to sue, he establish "actual malice." Primarily, this means proving that Proxmire knew what he said was untrue. The judgment was upheld by the Circuit Court of Appeals.

Proxmire established the Golden Fleece of the Month Awards in March of 1975 to dramatize what he regarded as examples of wasteful government spending. With the second such award, Proxmire cited the National Aeronautics and Space Administration (NASA), the National Science Foundation (NSF), and the Office of Naval Research (ONR) for spending about \$500,000 in support of Hutchinson's research during the preceding 7 years.

In most of his federally funded research Hutchinson was seeking an objective measure of aggression and concentrated on the behavior patterns of animals, particularly monkeys, in stressful situations. NASA and the Navy were interested in the research for its potential for resolving problems of humans confined in close quarters during space flight or on submarines.

In a speech prepared for delivery on the Senate floor on 18 April 1975 Proxmire said, "Dr. Hutchinson's studies should make the taxpayers as well as the monkey's grind their teeth. In fact, the good doctor has made a fortune from his monkeys and in the process made a monkey of the American taxpayer." In his conclusion he alluded to the "transparent worthlessness" of Hutchinson's study. The award was announced by Proxmire in a press release quoting from the speech and later was referred to in a newsletter distributed to some 100,000 persons and on a television interview show. Hutchinson claims that the award was also the subject of follow-up telephone calls made by Schwartz to agencies which sponsored Hutchinson's research.

In his suit, Hutchinson charged that