

What 'Atoms For Peace' Planned For Puerto Rico

Imagine visiting the island of Puerto Rico and encountering not poverty and rampant unemployment, but a flourishing economy with the following assets: a series of nuclear plants providing 26.2 percent of the island's total energy consumption; a Nuclear Energy Center acting as a "transmitter of nuclear know-how to Central and South American sister countries" (1); 10,000 to 15,000 highly skilled cadre force for Puerto Rico's nuclear-related industrial complexes; and a technologically advanced agricultural export market amounting to more than \$20 million dollars per year.

PUERTO RICO

The latest science fiction best-seller? No, this was the major development project of the United States' Atomic Energy Commission, and of the Puerto Rican government of the industrialist and Republican Governor Luis A. Ferre during the beginning of the 1970s.

The proposed Nuclear Energy Center, or Nuplex, and other nuclear-related projects were an integral part of the international development campaign of Dwight Eisenhower's "Atoms for Peace" program in the mid-1950s. Ferre, Eisenhower, and the Atomic Energy Commission conceived of Puerto Rico as the key nuclear link between the U.S. and Latin America.

But before the end of Governor Ferre's term of office in 1972, the Nuplex project had been killed, by a political combination including proterrorist and environmentalist forces within the Episcopal Church, Fabians inside the two major U.S.-linked traditional political parties of Puerto Rico (the Democratic PPD and the Republican PNP), and the Puerto Rican Independence and Socialist Parties.

This report will describe in detail the Nuplex project and its implications for Puerto Rico. A future report will identify the crimes and methods of the terrorist-environmentalist forces who stopped development of nuclear energy on the island.

The Urgency of Development

The crucial importance of the Nuplex project was that it represented a genuine *critical start* made by U.S. and Puerto Rican Whig forces to put an end to the Wall Street and City of London policies which transformed the island into a Rand Corporation-scripted "Northern Ireland" nightmare of terror and dead-end poverty. The economic and political conceptions behind Nuplex and related projects embodied the core of policies that the U.S. government should implement not only in Puerto Rico, but in the neighboring Republics of Central and South America and the Caribbean.

In light of the increasing lumpenization of the Puerto Rican population, and the *official* re-evaluation by the island's government and scientific circles concerning the necessity of building nuclear plants in Puerto Rico *now*, the Nuplex-type of project takes on added importance.

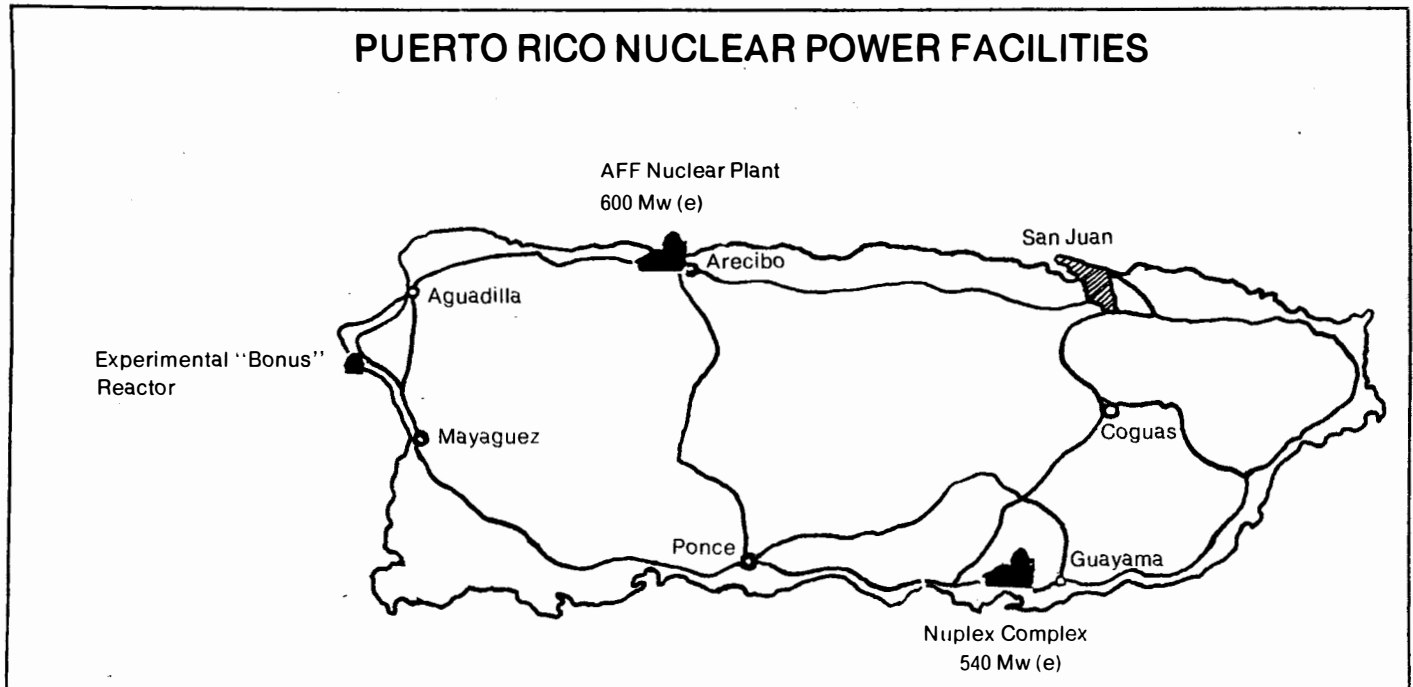
Puerto Rico's annual debt service of \$1.2 billion is almost as large as New York City — but the island itself has only one third the population New York has. Close to 50 percent of the island's labor force is unemployed. Seventy percent of all families depend on food stamps to get minimum nutrition. There are 60,000 drug addicts and 100,000 alcoholics in a population of less than 3 million. The Puerto Rican "economy" is such a mess that over 2 million of 5 million Puerto Ricans have emigrated to the U.S., mainly New York City. In other words, 40 percent of Puerto Rico's workers live in the continental U.S. because they have not been able to find gainful employment on the island. If they were to return to Puerto Rico, employment would surpass 70 percent.

This gloomy economic picture and the pressure of Puerto Rican politicians and scientists, such as former Governor Ferre, have forced the present government to re-evaluate the use of nuclear energy in the island. Ferre and a group of scientists connected to the Puerto Rican power industries have stated repeatedly that the island's consumers would have paid \$150 million in energy bills — half of what they presently pay — if Puerto Rico had had functioning nuclear plants during 1976-77. This pro-nuclear sentiment was synthesized in an editorial of the Scripps-Howard island's daily, *The San Juan Star*, entitled "Toward Nuclear Power," which called on the Puerto Rican government to take "the difficult step of re-implementing a policy of going to a *uranium-based nuclear process* (emphasis added — ed.).

Puerto Rico's Nuclear History

In the aftermath of President Eisenhower's "Atoms for Peace" speech at the United Nations in 1953, the AEC together with the University of Puerto Rico created in 1957 the Puerto Rican Nuclear Center (PRNC), part of the Atomic Energy Commission national laboratories network for research and training in the nuclear field. By 1959 the annual budget of the PRNC amounted to approximately \$1.8 million. Later in 1958 the Puerto Rican Water Resources Authority and the AEC signed a contract to develop a Bonus experimental reactor in the city of Rincon (see Map), Puerto Rico, to demonstrate the advantages of producing superheated steam for power generation by water reactors. This project was finished in 1964 and constituted the first nuclear power reactor built in Latin America, but was decommissioned in 1968 because of allegations of "unsatisfactory performance," and environmentalist claims that so-called leaks in the

PUERTO RICO NUCLEAR POWER FACILITIES



Bonus reactor were causing increased incidence of cancer on the island.

The ferment that the PRNC developed among the island's scientific community was exemplified by the proposal which a group of courageous scientists, such as Doctors Garcia Morin and Bonnet, made to Gov. Roberto Sanchez Vilella during his 1964-68 term. They called for the creation of a "Scientific Community," modelled on the scientific and application research laboratories triangles in North Carolina (2). This was to form a technically-trained local labor force capable of applying their ongoing research to the island's growing industrial complexes in a permanent fashion. Fabian Governor Sanchez Vilella and his coterie of environmentalist aides, such as Juan M. Garcia Passalacqua, the legal advisor of the island chapter of the Fabian-oriented Americans for Democratic Actions, shelved the "Scientific Community" project for good by the end of the 1960s.

In spite of the environmentalist campaign, by August of 1970 the island's Water Resources Authority (AFF) directed by engineer Jorge Cordoba Diaz committed itself to install a 600Mw (e) nuclear power for operations in 1975. This project was killed because it allegedly would have destroyed the fishing community surrounding the plant. The Puerto Rican government took a \$100 million loan to build this power plant and invested \$50 million for the "shelf" of the plant, which is idle today. The environmentalists are forcing the government of Puerto Rico to pay \$600,000 for the interest of the \$100 million loan, but without getting any benefit from the idle nuclear plant.

The Nuplex Project

The potential for developing a Nuclear Energy Center in Puerto Rico was first noted by AEC's Commissioner James T. Ramey in a speech October 30, 1967, in San Juan on the 10th anniversary of the Puerto Rican Nuclear Center. Later in 1968, officials of the AEC and the Puerto Rican government signed a memorandum of understanding by which Burns and Roe, Inc., consulting

engineers, and the Dow Chemical Company were granted permission to carry out a feasibility study. According to an AEC press release dated June 16, 1971, the study concluded that a Nuclear Energy Center will be "economically attractive for the island" and could result in "favorable sociological change (3)."

The Nuplex was to be an integrated, centralized complex, including a nuclear power station, desalination plant, with various chemical and industrial plants consuming a large amount of energy. A facility for production of fertilizers was also included in the plan, as well as agricultural areas using advanced technologies.

The Nuplex, based on a straight-forward energy efficiency concept, is planned to make optimum use of not only the electrical output of the nuclear reactor, but also its heat output. In most cases, a nuclear plant produces about twice as much energy in the form of heat than it can convert into electricity. Early design proposals envisioned the optimum use of "off-peak" power from the reactor to carry out processing of various materials such as bauxite, phosphate, clay, and hydrocarbons. The use of the cooling water to provide heat for industrial processes before it is returned to its sources is key. This enhances the thermal efficiency and, thus, the commercial attractiveness of the plant. It also avoids the problem of dumping hot waste water and provides an opportunity to extract minerals from seawater when it is used as the coolant. Manufacturing in Nuplex would be almost fully automated, a technique made feasible by the advent of reliable high-speed computers. While running such a multimillion dollar complex would require only a few thousand workers, hundreds of thousands of jobs would be created in building the complex while the finished plant would increase output in agriculture and industry by increasing available energy.

At the heart of Nuplex, which was to be built at Jobs Bay on the southern coast of the island, would be a nuclear power plant producing 540 megawatts of electricity as well as steam needed for nearby indus-

tries. The complex also included petrochemical plants, chlorine-caustic and hydrocarbons plants and an aluminum plant. An additional advantage of Nuplex was the integration of 12 chemical processes. In some cases all or part of the product, such as ethylene or propylene is used as a feed stock for one or more other processes. Integration of the processes allows economies in production costs arising from the common use of facilities such as shipping and receiving docks, in addition to the common energy source (See Table I).

38,000 New Industrial Jobs

According to the Burns and Roe study, Westinghouse, the contractor for the nuclear plant, was to begin constructing Nuplex in 1972, finish the first plants by 1975, and complete the project by 1978-79. In other words, the Nuplex project would have been almost finished by now!

A doctoral thesis written by James Holmes on "The Impact of a Nuplex Center on the Puerto Rican Center (4)" estimated that 5,335 industrial skilled jobs would have been generated directly by the Nuplex complex, and 26,338 indirect jobs in the services, mining, trade, and commercial sectors. This would have represented a direct increase of 10-15 percent in the Puerto Rican labor force — a *substantial beginning* to start dealing seriously with the close to 50 percent unemployment rate in today's Puerto Rico. This would also have destroyed, once and for all, the myth of the independence forces that capital-intensive projects increase the unemployment rate of the island, and laid the material basis to push aside the pro-terrorist and environmentalist arguments which have been pushed on the lumpenized Puerto Rican population.

Table II
Crop Distribution On The Experimental Farm At The Puerto Rico Nuplex

Crop	Acreage
Mangos	50
Avocados	40
Grapefruit.....	30
Plantain.....	100
Yautia.....	50
Sweet Potatoes	50
Tomatoes	100
Peppers	35
Squash	15
Building and Roads	30
Total	500

The 38,000 jobs represent approximately \$60 million in salary, which could sustain more than 50,000 people. Holmes' thesis outlined that the process of training adequate personnel to run the Nuplex complex would provide a highly skilled labor force (male and female) to operate modern chemical and metallurgical complexes, an essential aspect of putting the island in a *permanent* capital-intensive basis.

A Capital-Intensive Program of Food Imports

Unlike most of the World Bank-sponsored labor-intensive programs to curtail the food imports of the underdeveloped countries, the Nuplex complex intended to lay the groundwork for a high-technology agriculture sector, which could meet both local and foreign market demands. This was to be geared particularly toward the major East Coast cities of the U.S. and the Caribbean region. The plan called for more than 20,000 acres of sugarcane field to be used for increased production of fruits and vegetables and other *high value crops*, which cost island consumers about \$29 million in 1975. In other words, the Nuplex agricultural project was to develop a \$20 million market of vegetables and fruits such as avocados, pumpkin, grapefruit, mangos, oranges, yautia, and sweet potatoes, for internal and external consumption (see Table II). The Burns and Roe study concluded that the above products were more profitable than the cultivation of sugarcane, even with modern machinery!

But why was the Nuplex complex criminally halted? Was there a financial problem? No, according to the authoritative study of Burns and Roe, one of the key consultant agencies of the Puerto Rican and U.S. governments. The total cost of the Nuplex complex was estimated to be \$654.4 million: \$476.2 million (industries), \$161.2 million (nuclear plant) and \$17.0 million (desalination plant). The study recommended that the Puerto Rican government provide one third of the total cost, which included the financing of the nuclear power and

Table I
Industrial Production Capacity Of The Puerto Rico Nuplex

Product	Capacity (millions of pounds per year)
Ethylbenzene.....	1,000
Cumene	802
Ethylene Dichloride.....	425
Ethylene Glycol	725
Propylene Glicol	525
High Density Polyethylene	300
Salt Recovery.....	2,070*
Chlorine.....	1,007*
Caustic	802*
Ethylene	1,262*
Propylene.....	692*
Benzene	1,324*
Aluminum.....	280

*Consumed within the complex

desalination plants, land acquisition and port facilities; private industry would finance the remaining two thirds of the cost. Financing by private industry was not considered a major problem, stated the study, because industry at the Nuplex complex would return 14-16 percent on investment. The study also calculated that \$80 million would be generated through trade, and the Nuplex complex would have forced, by 1980, infrastructure investment in the southern region of Puerto Rico amounting to \$300-400 million, including retail, wholesale, services, housing, schools, roads, sanitation, and hospitals. This type of investment into the southern region of the island was one of the conscious objectives of the Nuplex to foster economic centers outside of the San Juan metropolitan area; as well as help redistribute the dense population in the northern part of the island to the south, the second most important region of Puerto Rico.

The financial outlook was so promising that by mid-1972 Ferre's Puerto Rico Iron Works Co. had already sold 2,500 tons of structural steel for the Nuplex project.

Was there any ecological or nuclear waste-related problem, which merited the abrupt end of Nuplex? The environmentalist Puerto Rican Industrial Mission (funded by the Episcopal Church and directed by a Benjamin Ortiz Belaval, a Central Committee leader of the proterrorist Puerto Rican Socialist Party, (PSP) circulated stories that the Nuplex complex was too close to a "potential earthquake zone" and would pollute and destroy the marine life at its site, Jobos Bay.

These are complete lies and mere scare propaganda — the unscientific modus operandi of the environmentalist garbage. The PSP and the PRIM, like the Clamshell Alliance in the U.S., are more concerned for the survival of animal species than for the productive employment and labor power of human beings in Puerto Rico and the U.S.

Nuplex System of Waste Treatment

The Burns and Roe study outlined how waste control facilities would be provided for liquid, solid, and gaseous wastes from the industrial plants. Holmes also stressed

that one of the key sociological implications of the Nuplex project is its "better control of industrial waste products."

The chemical refinery, ethylene, polyethylene, and propylene glycol plants discharge of organic wastes would either be dissolved or suspended in water. A biooxidation process treatment plant is provided to reduce the total oxygen demand of this waste water by 85 percent.

The ethylbenzene, cumene and chlorine plants will produce wastes that will be disposed of in a tar burner and scrubber. In addition, incinerators are provided for the disposal of combustible wastes without pollution. The chlorine and aluminum plants will produce wastes that will be disposed of by land fill.

The aluminum plant will provide fume scrubbing for the anode gas to remove gaseous fluorine compounds and dust particles consisting mainly of fluorides, alumina, and carbon. Hot room air is exhausted through a spray chamber.

Radioactive wastes from reactors are abundant sources of electromagnetic radiation in the x-ray and gamma-ray regions; methods are now under investigation for their use as bacteriacides in water purification and sewage treatment. Radioactive materials would not be put directly into the water or sewage; radiations, at high flux rates, will enter to kill bacteria. In this way, no radioactivity is permanently introduced into the processed material.

— Ivan Gutierrez del Arroyo

Footnotes

- (1) Jaro Mayda, "Interamerican Symposium: Atomic Energy and Law" (Nov 16-19, 1959, held at the Law School of the University of Puerto Rico).
- (2) National Research Council's \$10-15 million Study of the "Scientific Community" Proposal.
- (3) Burns and Roe, Inc., and Dow Chemical Company, "Puerto Rico Energy Center Study" (Executive Summary, TID-25602, and three volume set, TID-25603, June 1971).
- (4) James Holmes, "The Impact of a Nuplex Center on the Puerto Rican Economy" (University of Tennessee, August 1970).