



National
Foreign
Assessment
Center

~~Secret~~

(b)(3)

CIAER ~~TOBA~~ IEBR 79-009

~~SECRET~~

[Redacted]

(b)(3)

INTERNATIONAL ENERGY BIWEEKLY REVIEW

2 May 1979

[Redacted]

(b)(1)
(b)(3)

Brazil Reassessing the Nuclear Power Program [Redacted] **15**
*Brazil is scaling down its nuclear power plans. Only four of the eight West
German nuclear reactors originally planned will apparently be installed.* [Redacted]

(b)(3)

(b)(3)

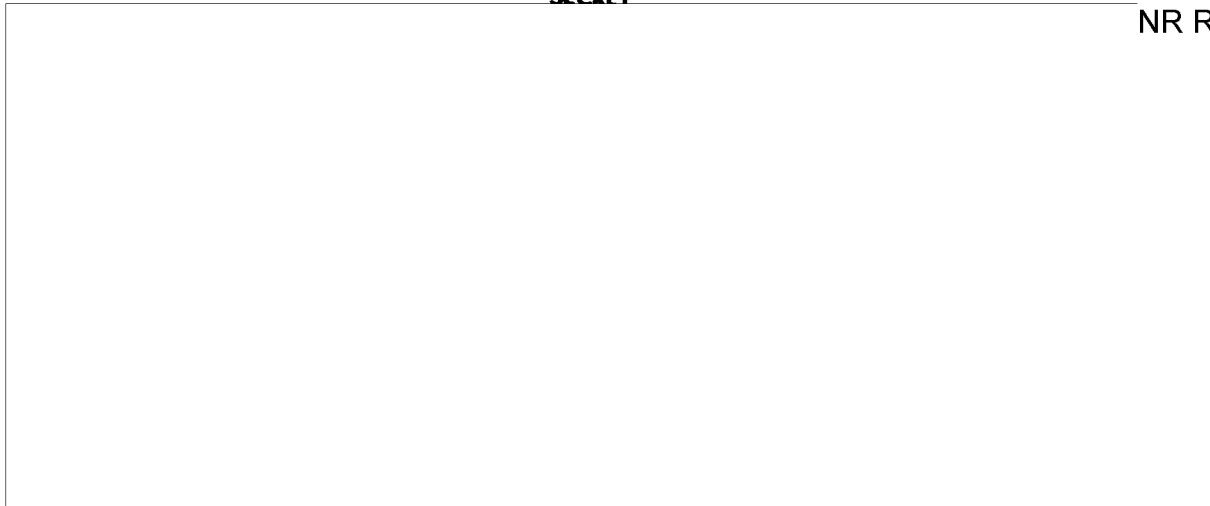
[Redacted]

(b)(1)
(b)(3)

~~SECRET~~

~~SECRET~~

NR Record



* * * * *

BRAZIL: REASSESSING THE NUCLEAR POWER PROGRAM

(b)(3)

During his recent visit to Brazil, West German Chancellor Schmidt and his host apparently agreed that their troubled nuclear agreement will go forward, but on a more modest scale than originally planned. Brazilian President Figueiredo reaffirmed Brazil's intention to implement current contracts, but refrained from promising to place contracts for the last four of the planned eight reactors. Higher costs, lower projected electricity demand, construction delays, and increased domestic criticism of the program make it extremely likely that Brazil will scale down its plans, and despite public disclaimers, Brazil will probably complete no more than four West German reactors by 1990.

(b)(3)

Current Nuclear Program

Brazil launched an ambitious long-term nuclear energy program when it signed an accord with West Germany in 1975 for installation of eight power reactors and facilities for a complete nuclear fuel cycle by 1990. The government projected that nuclear power would meet 10 percent of Brazil's electricity needs by 1990 and 40 percent by the turn of the century.

(b)(3)

Brazil is now constructing a 3,100-megawatt, three pressurized water reactor (PWR) complex at Angra dos Reis, south of Rio de Janeiro. The first reactor is a 626-MW Westinghouse unit that will probably be fully operational in 1980, about three years behind schedule. The other two Angra reactors being built under the agreement with West Germany were originally scheduled to go on line in 1983 and 1984. Site preparation and other problems will probably delay operation until at least 1985 and

2 May 1979

~~SECRET~~

15

~~SECRET~~



6/9/233 6-79

(b)(3)

~~SECRET~~

~~SECRET~~

1986, however. Brazil also originally planned to build six additional reactors by 1990 with German assistance, bringing total nuclear generating capacity to more than 10,000 MW. [redacted]

(b)(3)

Aside from reactors, Brazil is also building a uranium hexafluoride conversion plant, a demonstration enrichment plant, and a fuel fabrication plant at Resende in the state of Rio de Janeiro. Moreover, a reprocessing plant, hot cells, and other facilities associated with plutonium technology will be located on a separate, as yet undetermined, site. A \$350 million plant for manufacture of major reactor components is practically completed at Itaguaí, Rio de Janeiro, in line with Brazil's plan to increase the local content in nuclear construction to 85 percent by 1990. [redacted]

(b)(3)

Reevaluation of Nuclear Program

Several factors have led Brazil to reconsider its nuclear power plans. Cost estimates have more than tripled for the reactors alone, to \$16 billion from the original estimate in 1975 of \$5 billion. Estimated cost for the full program is now more than \$20 billion. Cost overruns are due to construction delays, new safety features, higher financing charges, and inflation. [redacted]

(b)(3)

Electric power demand is growing far more slowly than the Brazilians anticipated in 1975. Those projections—the basis for the current nuclear program—estimated electricity demand at 412 billion kilowatt-hours (kWh) in 1990, corresponding to an average annual growth rate of nearly 13 percent and requiring 95,000 MW of installed capacity. More recent Brazilian demand projections foresee demand of 300-billion-kWh or 70,000-MW installed capacity for 1990. We estimate 1990 demand at only 250 billion kWh—requiring a 55,000-MW installed capacity. [redacted]

(b)(3)

Brazilian scientists and government leaders are increasingly critical of the program's soaring costs and disappointed over West German delays in transferring nuclear technology. [redacted]

(b)(1)

[redacted] Other domestic criticism has been generated by unfavorable press attention to site security, safety procedures, and environmental concerns. [redacted]

(b)(3)

Outlook

While the previous administration in Brasilia had invested too much of its political prestige to back off the nuclear power program, the Figueiredo administration will likely trim the program to more realistic levels. Figueiredo has selected a new energy adviser and a new Minister of Mines and Energy who have called for

2 May 1979

~~SECRET~~

17

~~SECRET~~

development of conventional power generation and a slowdown of reactor construction.

[Redacted]

(b)(1)
(b)(3)

As Brazilian projections of electric power demand become more realistic, hydroelectric programs are assuming a greater role. Brazil's hydroelectric potential is more than adequate to meet power requirements into the 1990s and beyond. Hydroelectric facilities already provide 86 percent of Brazil's present generating capacity of 25,000 MW, and with completion of the massive Itaipu hydro facility in the mid-1980s, this capacity will increase by 25 to 40 percent. Brazil recognizes that, compared with nuclear power, hydro plants have far lower operating costs and a longer useful life.

[Redacted]

(b)(3)

Despite continued commitment to a full nuclear fuel cycle, problems in implementing the nuclear program have already led to delays of the uranium enrichment program that will probably preclude production before 1989. Construction of the planned commercial enrichment plant, with an annual capacity to fuel only two reactors, has been delayed because of cost overruns and technical difficulties. Brazil will complete only a pilot enrichment facility by the early 1980s to test components

[Redacted]

(b)(3)

The delay in the enrichment plant will keep Brazil dependent on imports of foreign enriched fuels beyond 1990, the year it wanted to achieve nuclear fuel independence. The reduced scale of other nuclear support services such as mining, ore concentration, and fuel fabrication as well as nuclear equipment construction, will make nuclear power even more costly. Moreover, the reactor component plant will have only a small market in Brazil should the nuclear program be cut back, and Brasilia will have difficulty finding foreign buyers as worldwide nuclear reactor demand declines. On the other hand, curtailment of the program will permit diversion of Brazilian resources to other more productive programs including hydroelectric capacity expansion

[Redacted]

(b)(3)

• • • • •

[Large Redacted Area]

NR Record