The World Bank Group Archives Exhibit Series contains exhibits originally published on the Archives’ external website beginning in 2002. When the Archives’ website was transferred to a new platform in 2015, it was decided that older exhibits would be converted to pdf format and made available as a series on the World Bank’s external database, Documents & Reports.

These exhibits, authored by World Bank archivists, highlight key events, personalities, and publications in the history of the World Bank. They also bring attention to some of the more fascinating archival records contained in the Archives’ holdings.

To view current exhibits, visit the Exhibits page on the Archives’ website.
Loan for Nuclear Power

It is a little known fact that the World Bank financed a nuclear power plant. On September 16, 1959, the Bank made a loan equivalent to $40 million for the construction of a 150,000 kilowatt atomic power plant in Italy (Loan 0235). This was Italy’s first nuclear power plant, and the Bank’s loan financed almost two-thirds of the cost of construction. The project also included civil works, a substation and about 60 miles of transmission lines.

Early consideration of nuclear power

The Bank had been actively considering the development of nuclear power on a commercial basis since 1955. In June 1956 the Bank issued a report examining the status of nuclear power development at that time. It concluded, based on the information then available, that there were good prospects that power could be produced by a nuclear plant at costs competitive, or close to competitive, with power produced by a conventional plant in the following circumstances:

a) The nuclear plant would have to be integrated with an extensive generation and distribution system, permitting a 100 MW or larger plant to be operated as a base load unit.

b) The nuclear plant would have to be located in a country with relatively high fossil fuel costs, with poor hydroelectric potential, and with sufficient availability of capital so that relatively low-cost money could be obtained.

c) The country would have to execute the necessary intergovernmental agreements assuring a continuing supply of fuel, reprocessing and, if necessary, the import of components, unless these materials and technical abilities were available.

d) Power rates in the system into which the plant would be connected should be flexible enough so that if the nuclear plant should cost more than expected or should not perform as anticipated, the excess cost could be absorbed without a significant adverse effect.

e) Until further operational experience had been obtained, it would not be prudent to establish the nuclear plant in a system where it would represent a considerable proportion of the total system generating capacity.
At the 1956 Annual Meetings the Bank sponsored a panel discussion entitled Atomic Energy in Economic Development. The panel consisted of a group of international experts on atomic energy, and was moderated by the Bank’s Adviser on Atomic Energy, Corbin Allardice.

The Italian Study

The Bank examined several locations where a nuclear power plant might be considered. The conditions in Southern Italy appeared favorable. In July 1957, the Government of Italy and the Bank agreed to sponsor a joint study of the possibilities of a nuclear power station in Southern Italy. This study, known as ENSI (Energia Nucleare Sud-Italia), was to serve three purposes:

a) By obtaining tenders on an international competitive basis, it would provide firm data on the relative costs of competing types of nuclear plants.

b) It would ascertain the relative capital and operating costs of a nuclear power plant of a given output compared with a conventional power plant of the same capacity and output.

c) By providing these facts and the judgment on them of qualified nuclear specialists, the study would assist the Italians in selecting for construction the plant which seemed to have most merit taking all factors into consideration.

The International Panel

An International Panel was set up by the Bank to provide advice and guidance on the nuclear aspects of the Project ENSI study. The Panel consisted of seven experts in the field of nuclear energy selected by the Bank from four countries on the advice of the official nuclear agencies of those countries. In addition to providing general guidance to the study, the Panel had the responsibility for making a review and evaluation of international tenders for the power station and for preparation of a report, particularly regarding cost and performance, which would be made available to the Italian utility company which would build and operate the nuclear station.

The Italian Government designated as the company which would own and operate the nuclear plant, Societa Elettronucleare Nazionale (SENN), organized for that purpose in March 1957. At the
time of SENN’s establishment, nine of its fourteen shareholders were public utility companies and the other five were industrial companies.

A Working Group was established in Rome, under the direction of the President of SENN, which included Italian personnel drawn from SENN, from its shareholding companies, from other Italian utilities and from the Comitato, together with personnel from SENN’s two nuclear engineering consultant firms, Internuclear Company of Clayton, Missouri, USA, and Kennedy & Donkin of London, England.

The Nuclear Power Plant

The site of the nuclear power plant was on the Garigliano River, between Rome and Naples. The plant incorporated a boiling water-cooled and -moderated nuclear reactor fueled by enriched uranium. The site was chosen not only because of good supply of cooling water and favorable conditions for the release of waste gasses and disposal of radioactive waste, but also because the plant could be easily linked with the extensive generation and distribution system of the utility shareholders of SENN.

General Electric Company of New York, through a Swiss subsidiary, was responsible for the design and construction of the nuclear aspects of the plant, supply of equipment and fabrication of fuel. SENN was responsible for the powerhouse and other conventional parts of the plant.

A huge steel sphere housed the nuclear section of the plant, including the steam vessels. With a diameter of 160 feet—greater than that of St. Peter’s in Rome—the sphere served both as a pressure chamber for the reactor and to contain any radioactivity which might result from a nuclear accident. Great care was therefore taken to ensure that the sphere was completely airtight.

The plant began operation in 1964. In August 1978 it was shut down due to damage to one of the two secondary steam generators. In March 1982 the Italian Electricity Generating Board declared the plant to be out of service.
While the Bank has continued to monitor developments in the field of nuclear energy, the loan to Italy for the nuclear plant on the Gargliano river remains its only loan for that form of energy.