

A Nuclear-Powered Desalination Plant for Use in the Mideast

For rough and ready calculations on nuclear-powered seawater desalination plants, the specifications made use of in **Table 2** are based on an article by Jürgen Kupitz, head of the Section on Nuclear Power Technology Development, of the International Atomic Energy Agency. The following excerpt is from Kupitz's article, "Nuclear Energy for Seawater Desalination: Updating the Record," which appeared in the *IAEA Bulletin*:

"A desalination plant with a capacity of 1 million cubic meters per day could supply an urban concentration of 3 to 4 million people with sufficient potable water for domestic use. Such a desalination plant, using the RO [reverse osmosis] process, would require a nuclear plant having an installed capacity of about 300 MW-electric (MWe). The same urban concentration of people also would require between 4,000 to 6,000 MWe of installed capacity to provide their corresponding electricity needs. Hence, nuclear power plants in the upper end of the small and medium-size power range, and certainly the large-size nuclear power plants, would only constitute suitable choices when they are intended to supply electricity to consumers in addition to energy for seawater desalination. Thus, there is no reason why nuclear reactors could not supply both requirements simultaneously, and take advantage of the economic benefits accruing to large-size nuclear plants."

As Kupitz notes, "practically any type of nuclear reactor could provide the energy needed for desalination." The IAEA conducted a series of feasibility studies, including one in response to a request for assistance submitted by five North African states—Algeria, Egypt, Libya, Morocco, and Tunisia. This 1996 study identified a series of locations that required seawater desalination in the range of 20,000 to 720,000 cubic meters per day, by the year 2005. At present, there is a regional capacity of 1 million cubic meters per day, and in Saudi Arabia, the currently installed capacity for seawater desalination is about 4 million cubic meters per day.

The IAEA estimates that it would take \$200-300 million for a multi-effect distillation system to be built, including the cost of the reactor.

Nuclear Desalination Today

The only industrial-scale nuclear reactor that supplies electricity as well as heat for desalination was built by the former Soviet Union, a BN-350 liquid-metal-cooled fast reactor, which went into operation in 1973. It is located in Aktau, Kazakstan (formerly Shevchanko, U.S.S.R.). Aktau has been operated since 1989 at a reduced thermal power level of 520 MW(th) with a maximum electric power production capability of 80 MWe, plus heat for the production of about 80,000 cubic meters per day of potable water.

There are several small nuclear-powered desalting plants that serve the in-plant needs of nuclear power stations in Japan, and Russia has about 16 small plants installed on nuclear ice-breakers and other nuclear-powered ships.—*Marcia Merry Baker*

a branch of British intelligence, immediately raised a hue and cry about the Moroccan project, alleging that the nuclear reactor cooling water would be contaminated with radioactive tritium. Instead, it proposed solar energy. The opposition to the Bushehr plant has been more blatantly political, and broadcast loudly from Washington. Immense pressure has been put on Russia, not to collaborate at all with Iran, on nuclear technology, on grounds that Iran is considered a "rogue state," capable of developing nuclear weapons, for use against Europe, and so forth.

The "rogue state" argument is palpably absurd, and is used as a cover for denying advanced technologies to countries in the developing sector. The fraud of the rogue state thesis is easily dismantled, when one considers what happened to the project for nuclear desalination, in the countries of the Middle East, following the 1993 Oslo Accords. The idea of nuclear desalination was introduced into the negotiating process, by LaRouche associates and *EIR*. In late 1993, Palestinian Finance Minister Mohammad Nashashibi, an engineer, went on

record in an interview with *EIR*, enthusiastically supporting the concept. In early 1994, then-Crown Prince Hassan of Jordan, who was responsible for matters concerning technological development, also endorsed the idea in an interview with *EIR*. At the same time, independently, Shimon Peres, then Israeli Foreign Minister, elaborated the idea of "nuclear islands," in an article in an Italian publication, "islands," in the sense that they should, in his view, be put under international control.

Regardless of the significant differences in detail, all three agreed in fact to the appropriateness of the nuclear desalination concept to solving the region's underlying problem. But it was never to progress any further.

By December 1993, the World Bank had already issued its definitive report on what could and what could not be allowed, in the economic agreements attached to the Oslo peace treaty. Nuclear energy was not even mentioned as an option, and desalination was at the bottom of the list, if at all. This became public knowledge, in 1995, during the Middle