

---

**NEWS**


---

**THE FASTEST TRANSISTOR ON EARTH**

... "The first time that Lester F. Eastman [Cornell U.] went public with his notion of a 'ballistic transistor,' all hell broke loose . . . Eastman's theory got that kind of rip-snorting response because it flew in the face of all that was then known about semiconductor behavior. He figured that if a transistor is made small enough, an electron can shoot straight through without any impediment: A point will be reached when the electrons that carry signals won't collide with any atoms in the semiconductor material, something that happens in conventional transistors and slows them down. The ballistic effect will be similar to a jet passing through the sound barrier. If Eastman is correct—and a growing body of research data now supports his

thesis—transistors will one day switch on and off hundreds, maybe even thousands, of times faster than today's fastest devices. These ballistic transistors are likely to yield a whole new generation of superfast computers, satellite systems with greatly increased communications capacity, and vastly improved radars that will be able to spot far smaller objects at much greater distances than they can now."

[(Otis Port in *Business Week* 4 Mar 85, p. 104, 106) (Reproduced with permission from Press Digest, *Current Contents*®, No. 21, May 27, 1985, p. 19. Published by the Institute for Scientific Information®, Philadelphia, PA, USA.)]

---

**NUCLEAR TECHNOLOGY "MATURE"**

Experience in the operation of nuclear power plants worldwide last year again confirmed that nuclear technology is "mature," the Vienna-based International Atomic Energy Agency concludes in its annual report\* for 1984. Total operating experience had already reached 3470 reactor-years by year-end, and both France and Belgium produced more than 50% of their electricity from nuclear power plants. In ten other countries (three more than in the year before) the nuclear share in electricity production was 20% or more.

The Agency reports that 34 nuclear power plants with a total capacity of 31.8 GWe started generating electricity during the year, increasing the world total of nuclear capacity by 17% to 220 GWe. "In both absolute and relative terms, that was the largest annual increase since the beginning of the large-scale introduction of nuclear power in the early 1970s," the Agency records.

However, construction work started last year on only 14 plants with a total of 11.3 GWe — the lowest number since 1968. Ten nuclear power plants orders

were cancelled in the United States, and construction work was suspended indefinitely on nine others (five in Spain and four in the United States). The Agency now expects that nuclear capacity worldwide in 1990 will be about 368 GWe, compared with the capacity figure of 430 GWe projected two years ago.

In general, proven types of nuclear power plant still compare favourable with fossil-fired plants in terms of reliability and generation cost, the Agency reports. There is a steady trend toward higher plant availability in several countries, with exceptionally good performance in some. The importance of performance improvements is now generally recognised as vital for maintaining and increasing the competitiveness of nuclear power and compensating for rising investment costs.

Copies of the Annual Report may be obtained from the IAEA Division of Public Information: International Atomic Energy Agency, Wagramerstrasse 5, P.O. Box 100, A-1400 Vienna, Austria.

---