generating plants is used during off-peak periods to pump water from one pool to another at a much higher elevation. The water is stored in the higher reservoir until the time of peak loads when it is released back to the lower pool, to generate electricity at a time when its value to the system is at a maximum.

Internal combustion and gas-turbine generators are generally small units that frequently provide power for small systems and are adaptable for emergency and peaking power. Interest in their use for standby purposes has increased significantly during recent months, particularly since the Northeast blackout of November 9, 1965, but their combined capacity presently is only slightly more than 2 percent the total installation in the United States.

The basic energy sources used for electric power generation in the United States over the past 35 years are summarized in table 2.

TABLE 2.—*Sources of electric utility generation—Percentages of total kilowatt-hours, 1930–65*

	1930	1940	1950	1960	1965
Coal	56	54	47	54	54
Natural gas	7	8	14	21	21
Oil	3	4	10	6	6
Water power	34	34	29	19	18
Nuclear	0	0	0	0	(1)
Total	100	100	100	100	100

[1] 0.3 percent.

The geographic distribution of *generating* capacity in the United States is shown in figure 1, which also shows the distribution between hydro and thermal capacity. Figure 2 shows how the efficiency of steam generating units has increased over the past 30 years because of improved technology and the use of larger units with higher temperatures and pressures.

Transmission systems serve the basic function of carrying electricity from the generation area to the load area. The strategic importance of transmission, however, is much greater than is indicated by its 10 percent average share in the overall cost of electricity. Low-cost transmission permits the use of the most economical generation sources at mine-mouth plants or other remote-from-load areas. Adequate interconnections between systems provide the key to large-scale, low-cost generating units; to major savings in capacity due to load diversity; to the sharing of reserve generating capacity; and to the most efficient utilization of existing generating capacity. In short, a good transmission system has a significant influence on the cost of all phases of electric power service.

Transmission voltages in the United States presently in use range from 22 kilovolts to 500 kilovolts, and even higher voltage lines have been built for experimental purposes and are being actively studied. These high voltages permit the movement of large amounts of power over relatively long distances without the high transmission losses associated with lower voltage lines. The capital cost of high-capacity lines is also being reduced as a result of recent technological improvements. Almost all transmission in the United States at present is by alternating current (a.c.), but one 750-kilovolt direct-current (d.c.)