ployees who failed to follow instructions; of managers accused by the AEC of ineptness and failing to provide safety supervision or training to employees; of numerous violations of federal regulations and license requirements; of plutonium spills tracked through corridors, and, in half a dozen cases, beyond plant boundaries to automobiles, homes, at least one restaurant, and in one instance to a county sheriff's office in New York.

The following compilation of exposure incidents is based on interviews and on inspection and investigative reports made public by the AEC:

Nuclear Fuels Services. At least 15 separate incidents between late 1966 and early 1973 exposed at least 38 persons to "excessive concentrations of radioactive materials" and all inhaled or ingested these materials. Amounts generally were below maximum permissible lung or body burdens, although measurements often proved faulty or imprecise.

An incident at the NFS plant on 5 January 1973 seems typical, although it occurred after the plant had closed for decontamination and enlargement. As two workers were pumping contaminated water into a tank, the hose slipped free, spraying one with radioactive sludge from a decontamination pit.

"I ducked but it caught me right in the face," the worker told *Science* in a recent interview. (He and others were located in spite of the fact that the AEC deletes workers' names from reports it releases to the public.) "The water had filter medium in it that catches fission products from the pit," the man explained. "I remember that it tasted gritty."

A Geiger counter held near his face registered 15,000 counts per minute. This contamination was removed by repeated scrubbings, but later analysis showed that he had inhaled or swallowed small amounts of radioactive ruthenium, cobalt, cesium, and 12 percent of the maximum allowable lung burden of plutonium.

Kerr-McGee. Since April 1970 the company's plutonium plant, employing 100 workers, has reported 17 overexposure incidents involving a total of 73 persons. An AEC spokesman noted that fewer than 73 *individuals* were overexposed, but that some persons were involved in more than one incident.

The most serious of these was a fire on 5 March 1973 which broke out

A "Giant Step" in Power Pricing

A recent decision by the Wisconsin Public Service Commission may prove to be the opening wedge toward changing the traditional declining block rate structure employed by utilities throughout the country.

The commission, in considering an application for a rate increase by the Madison Gas and Electric Company, said the system of reducing unit charges for electricity for bulk users should be modified in favor of "flat" rates, except in cases where the declining rate can be proved to encourage the most efficient allocation of energy. It also ordered the company to inaugurate a system of peak load pricing, with higher rates set for summer months when air conditioning puts the greatest stress on the system.

What started out as a routine application for rate increases was turned into a precedent-breaking proceeding when two consumer groups, the Environmental Defense Fund (EDF) and a local group called Capitol Community Citizens (CCC), intervened in the case. The commission agreed in all essential respects with the EDF-CCC brief, which argued that a system of "marginal cost pricing" based on estimates of "long-run incremental cost" to the company would lead to efficient energy used at the most equitable cost to consumers. Simply put, this means prices should be set to reflect the actual cost of production and transmission of a customer's gas and electricity and should not be designed, as the declining block rate structure is, to stimulate consumption by reducing unit (kilowatt-hour) prices as consumption increases. Higher unit costs during peak load times reflect the fact that auxiliary generating facilities are inefficient and, therefore, more costly to operate. The immediate effect of marginal cost pricing is to make users aware of the actual costs of their electricity, with the result that sensible decisions by the individual customer are reflected in more efficient energy allocation by the producer. The long-run effect of this policy should be to curb expansion by utilities because price structures will discourage profligate power use and reduce peak demands.

In addition to calling for a winter-summer price differential, the commission directed that different day and nighttime rates be implemented for large industrial users. The cost of metering appears to prohibit time-of-day pricing for small users, but the commission has ordered the company to study and experiment with this policy as well.

Utilities have so far shown little interest in dropping their time-honored rate structure in favor of marginal cost pricing. Yet they may find it to their advantage as fuel becomes more expensive and it becomes clear to them that the days of uninterrupted growth—a phenomenon on which the industry is based—are past.

As the commission chairman pointed out, the Wisconsin case, which took 2 years to wrap up, has become a "national test case on electric rate design." It has received considerable notice among economists as well as environmentalists, and a number of other state public service commissions have asked the EDF, which has already been intervening in selected rate cases around the country, to present its reasoning at similar proceedings.

David Freeman, who heads the Ford Foundation's Energy Policy Project, calls the Wisconsin case "a gaint step out of the promotional age and into the conservation age." It is also tangible evidence of the dramatic shifts in the economy in recent years. Ernest R. Habicht of the EDF points out that the Wisconsin decision embraces well-known economic theories "that have lain on the shelf for the past 75 years." Now, says Habicht, resistance to change has been eroded by the fact that utilities are being "eaten alive" by inflation. Utilities have run out of economies of scale and there is no new technology imminent to reverse the dismal trends. This being so, the declining block rate structure has changed from a lift to a drag.—C.H.