

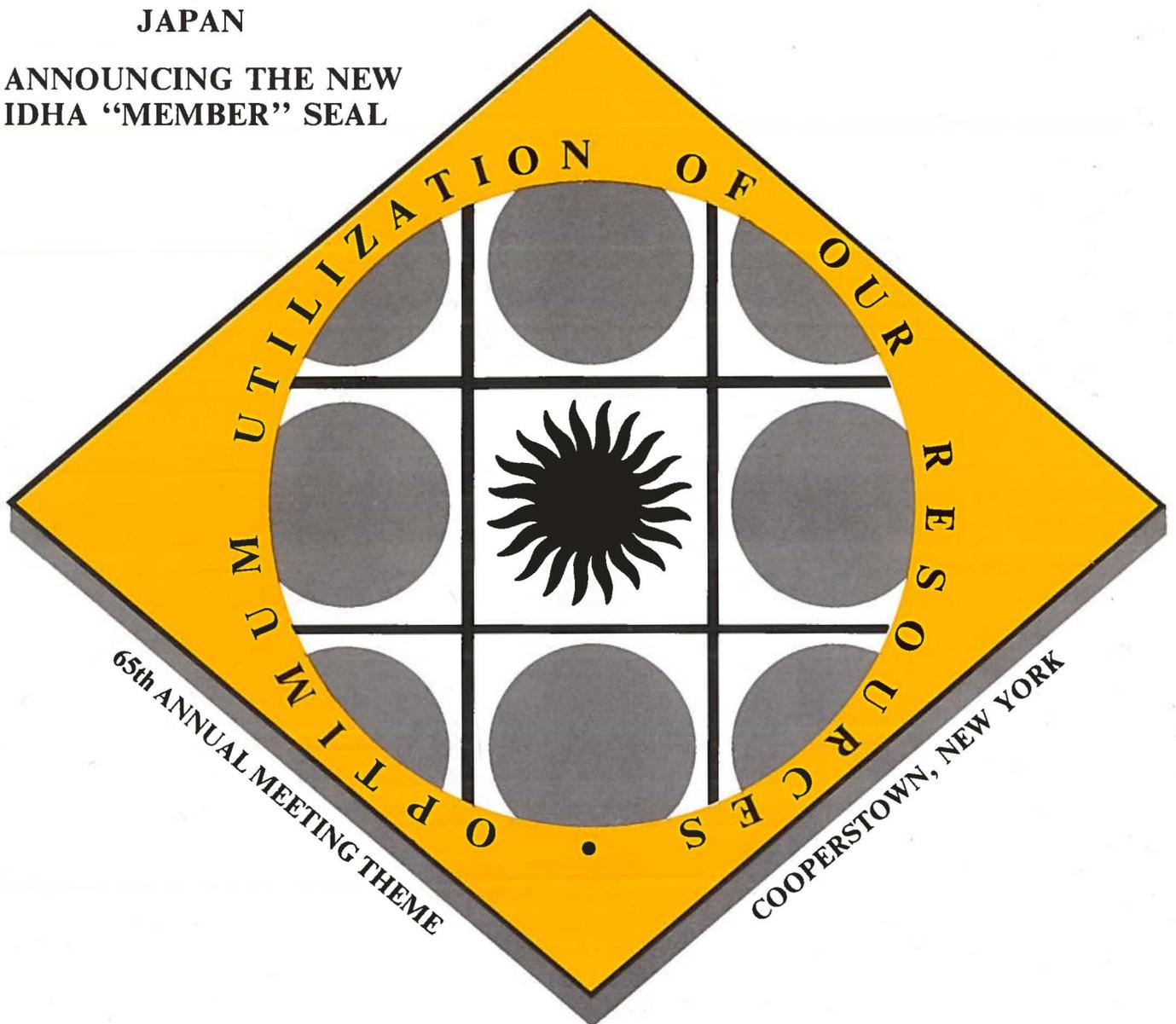


# District Heating

APRIL-MAY-JUNE 1974

**REFUSE INCINERATION—  
HEAT RECOVERY PLANTS:  
ENGLAND  
JAPAN**

**ANNOUNCING THE NEW  
IDHA "MEMBER" SEAL**



# Have You Heard . . .

## SWITZERLAND

When the percentage of refuse per person increased from 310 to 485 lb between 1946 and 1970, the City of Zurich decided to build a steam heat recovery waste incineration plant. After one year's operation, the following results are reported: maximum continuous rate of refuse burned, 5.12 tons per hr; steam generation, 12.3 tons per hr; boiler efficiency, 77 per cent. To date, the plant has operated 24 hr per day, five days a week and burned 29,400 tons of refuse.

## U.S.S.R.

Today more than 800 Soviet towns and cities are served by district heating systems—more than half of all the apartment and office buildings in urban areas get their heat, hot water, and air conditioning from these plants. The wide-spread use of district heating service can be attributed, generally, to the fact that almost all urban housing is owned by local councils or state enterprises. The service is supplied by large industrial and utility boiler plants, and also by waste heat from power stations. Combined heat-power stations are reported to be 70 per cent efficient; and power stations, 40 per cent. Currently, district heating is usually used in towns with populations of 30,000 or more, but a study is now being made to determine how it can be efficiently used in smaller communities. For example, in Lithuania, a system was recently approved for a town of only 2,000 people, the whole town to be served from just one plant.

## GERMANY

In Brunswick, a district heating system serves about one-fifth of all homes, offices, schools, and industrial and commercial buildings, plus a university. The system is composed of one steam system, and four hot water systems.

In Wuppertal, district heating via steam was started during the 1920's to heat homes, and industrial operations like textile mills and chemical companies. The first heat-power station was enlarged several times, and then a peak load station was built to allow the larger plant to reduce its steam output and increase its power load; then in 1964, a second heat-power plant was constructed. The addition of a university to the distribution in 1972 made added capacity necessary, and now another peak load plant is being built. Most of the condensate is returned to the plants, but because about 25 per cent of the steam is used by industry a new feedwater demineralization plant will also be required. In addition, a condensate polishing plant, with gravel filter and mixed-bed ion exchanger will be built. When the new peak load plant is in operation, almost the optimum of efficiency will be attained—the heating plant will supply 40 per cent of the required steam, and the heat-power plant 60 per cent, and a study made recently has shown

that the optimum is attained when each plant produces 50 per cent.

In Frankfurt, the Battelle Institute is conducting a study to determine what the world-wide demand for district heating and cooling might be. It will include coverage of offices, factories, and residences. Companies from 18 nations have agreed to share the cost of the research, which will provide planning data for engineers, contractors, etc.

In Mannheim, the central plant uses combined electricity generation and pass-out steam to heat exchangers supplying the district heating system.

## CANADA

The Mayor of Toronto, David Crombie, announced plans in April for the construction of a \$50 million heat recovery incineration plant which will heat downtown office buildings by burning 75 per cent of the City's refuse—about 1200 tons per day. The plan, after being announced, still had to be approved by the City Council.

Mayor Crombie said that the provincial and federal governments each will be requested to contribute 37-1/2 per cent of the cost, with the City planning to pay the remaining 25 per cent. The proposal is a result of a five-year, \$500,000 study by the city works department. In the plan, five existing steam distribution systems would be combined into one: two plants owned by the Toronto Hydro-Electric System; Toronto Hospitals Plant; University of Toronto; and Queen's Park.

In Montreal, it has been estimated that taxpayers are saved approximately \$200,000 a year because six city-owned buildings are heated by steam which is generated in the City's giant refuse incinerators. Three incinerators, similar to the ones planned for the city of Toronto, provide steam heating service for office and other commercial buildings in downtown Montreal.

Two incinerator-heat recovery plants, each with a total daily capacity of 1000 tons of refuse, began operation in 1956. A third, with a 1500-ton capacity, started operation in 1970 at a cost of \$15 million. Under consideration now, is a fourth plant. The 1970 plant, one of the world's largest, generates 400,000 lb of steam per hour. The City is hopeful that eventually more buildings will convert to central steam service, because the plants are capable of producing more steam than is now sold; the reason given for the reluctance of buildings to convert, is that they have so much money invested in their own equipment.

## HOLLAND

In Holland, five cities have incinerator-heat recovery plants; the one in Amsterdam has an annual capacity of 450,000 tons, and generates 40-bar steam to drive turbo alternators; and Rotterdam's new plant, when it begins operation, will have an annual capacity of 700,000 tons.