

# OFFICIAL PROCEEDINGS



TWENTY-FOURTH ANNUAL  
CONVENTION

OF THE

# National District Heating Association

HELD AT

PALMER HOUSE  
CHICAGO, ILLINOIS

June 27-30, 1933

VOLUME XXIV



Price, \$3.00

PUBLISHED BY THE ASSOCIATION

D. L. GASKILL, *Secretary*,  
GREENVILLE, OHIO

## DISTRICT STEAM HEATING AN ADJUNCT TO INDUSTRY†

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Central station heating first started in Rochester in 1889 and the steam sold was exhausted from the engine of an old Edison D. C. electric plant. This steam was sold to just a few small industrial plants adjoining the station, but no data is available as to the amount sold or the rates charged.

A few years later another plant was built in the heart of a growing factory district, and it was not long before the size of this plant had to be increased to take care of additional steam demands. This plant has been remodeled several times, until it is now the company's largest steam and electric generating plant and is known as Station No. 3. The main factors governing the growth of this station as a central heating plant are its location in the center of a large industrial district and the low rates charged for steam. Most of the factories served with steam are only a short distance from the station, which makes for materially lower distribution costs. The large amount of steam sold per foot of main installed, together with low cost of coal handling, low feed-water costs, and cheaper location of plant and buildings, enables the company to sell steam to these factories at a comparatively low rate. The rate for the factory district averages 20 per cent lower than the downtown business district served by another central station plant.

The Rochester Gas & Electric Corporation now has ninety-four steam customers in its industrial district and sixty-one of these customers are factories. Some of the better-known industries who are good users of the company's steam are:

Eastman Kodak Co.  
Bausch & Lomb Optical Co.  
Ritter Dental Mfg. Co.  
Curtice Brothers Canning Co.  
Cutler Mail Chute Co.  
General Railway Signal Co.

This factory district, because of the nature of the business served, has a much better load factor than most central station steam plants that serve mainly a business district. As an example we will compare the steam load of the Rochester factory district with the downtown business district for the three summer months of June, July, and August.

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†Sales Development Committee Report.

It is during these months that the steam consumption and sales are the lowest of the year, yet the factory district averages over 30,000,000 pounds of steam sold per month during this summer period as against 3,000,000 pounds per month for the downtown business district. This is in spite of the fact that the downtown steam plant serves nearly twice as many customers as the factory district.

From the standpoint of load factor, the best customers on the steam lines are laundries, canneries, dry-cleaning establishments, and city garbage reduction works. This latter customer has its largest steam consumption in the summer months and is a very desirable class of business.

There are a good many different ways in which steam is used for industrial purposes in the factory district. The largest use, of course, is in connection with heating water. It is also used for heating syrups and cooking vegetables in the canning industry; heating plating tanks heating ink and typewriter ribbon machinery; cooking and drying in the manufacture of candy, pressing machines in clothing factories and dry-cleaning works; heating glue pots and various types of kettles; heating mangles for laundries, and just recently in the manufacture of beer. During the past year three breweries have been added to the company's lines, and while they are not into big production at the present time, we already have a very nice steam load from this business. It is a steam load that is fairly constant throughout the twelve months of the year.

The Rochester Gas & Electric Corporation has two large factories on their service that use central station steam for generating their own current. The steam is delivered to their engines from the high-pressure main and is exhausted into their heating system. One of these factories uses this steam for generating only between the hours of 4:00 and 7:00 P. M. in order to avoid a peak demand for electric current. This assists the factories in cutting down their operating costs, and while it is a loss for the Electrical Department, it is a gain for the Steam Department. In most cases, however, where a factory is using central station steam, the entire electrical load is carried by the local utility. In many cases the electrical power load could not be obtained unless the steam could be supplied from a central station, and in this respect the steam department has been instrumental in obtaining a number of good power loads that without the available steam service would have been impossible.

This dual service, both electric and steam, in an industrial section



of the city, enables the factories to do away with their boiler plants entirely. The space occupied by boilers, generating equipment, and coal storage can then be used for other manufacturing operations. In the case of one steam customer, the entire power-house equipment was removed and the space released was used for a plating department. When a new factory is built, the entire electric and steam load can be taken by the central station, thus eliminating the capital investment that would be necessary for boilers and other power-plant equipment. Instead, this money could be used to purchase manufacturing equipment or raw materials. The advantage of central station steam to an industrial plant can best be illustrated by an actual case that occurred in Rochester in 1928. One of Rochester's large manufacturing plants was increasing its output very materially until the building it was occupying was too small. It was necessary to erect a new building adjacent to the old one, which just doubled the size of the original factory. With this additional space added, it was necessary to either greatly enlarge the existing power house or build a new one. The Rochester company made several proposals to them in an attempt to show the advisability of purchasing steam instead of putting more money into a new power plant. The proposition was finally accepted and they came on our service in January, 1929. A year later their business began falling off and at the present time they probably do not even require the new building that was constructed. Their steam and power requirements are much less than they were in 1928 when they were contemplating a new power plant and had this plant been built, it would have been money wasted and a white elephant on their hands. As it is they are still using the company's steam service and have saved thousands of dollars in plant equipment and buildings.

The Rochester Gas & Electric Corporation by being in a position to supply an industrial and factory district, has obtained a very desirable as well as profitable steam load, and three years ago an isolated plant was purchased in an entirely different section of the city, which is to form the nucleus of a central heating plant in another industrial district.