

OFFICIAL PROCEEDINGS

OF THE

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CONVENTION

OF

The National District Heating Association

HELD AT

STATLER HOTEL, DETROIT, MICH.

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D. L. GASKILL, *Secretary.*

running one or two burners for a few minutes every hour to keep the furnace warm and the boiler pressure up.

Higher pressures have not been seriously considered, as no new plant has yet been contemplated.

Smoke and cinder troubles are nonexistent with the present Lopulco system of pulverized fuel firing.

We have not much variety of load to choose from in our present wholesale and office district. For acceptance, revenue must be 50% of capital cost. This plant was loaded to capacity during 1928.

Fig. 17 is a line diagram of this plant showing the cycle of steam and water.

THE AKRON STEAM HEATING COMPANY, AKRON, OHIO

The Steam Heating Department is entirely separate from the Electrical Department. No energy is produced by the Steam Heating Department.

The location of the Beech Street steam heating plant was determined by the possession of a piece of land close to the downtown district, and railroad siding already existed at this site.

The entire load is supplied from one plant. There are two 716 h. p. boilers installed and both are being used during the coldest months of the year. Under emergency conditions the system load could be carried on the boiler by forcing it to 400% rating. During warm days and during some of the night-load periods one boiler is banked.

Present plant was built during 1927. The boilers are designed for a possible ultimate pressure of 400 lbs. Present operating conditions are about 125-lb. boiler pressure and 75-lb. main steam line pressure. Original plans of the plant made provision for installation of a turbine at some future date, but this plan has now been abandoned.

Stokers instead of powdered fuel were used to avoid possible cinder complaints. Smoke is kept to the lowest possible amount by careful firing.

No general attempt has been made to improve load factor. We are doing all we can to load up the present system with as little additional investment in mains as possible. No general plan has been followed in regard to investment in plant equipment. In other words, our slogan is, "Load Up the Plant and Mains."

For the month of December, 1928, the following results were obtained:

Total coal burned.....	3,480,960 lbs.
Heating value per lbs. as fired.....	12,174 B.T.U.
Total steam generated.....	32,618,000 lbs.
Total steam to mains.....	28,902,400 lbs.
Boiler efficiency.....	70.35%

Figs. 18 and 19 are the line diagram and the flow diagram for this plant.

THE DETROIT EDISON COMPANY

In the Willis Avenue and Congress Street heating plants there are installed a 500-Kw. and a 750-Kw. D. C. turbo-generator which can exhaust either to the feed-water heater or to the heating system. An electrical substation is located adjacent to each of these heating plants, with a D. C. electrical bus connecting the main bus of each through suitable circuit breakers. Thus the substation furnishes electrical energy to the heating plant when the generator is not in service and the heating plant sends its excess energy to the substation when the turbo-generator is in service. This arrangement is quite satisfactory since both of these stations are located in an area served by direct current.

At Beacon Street the relation of the substation and heating plant are similar except that the area served requires both direct and alternating current. Since the direct-current load will not increase but will actually decrease, due to installing alternating current service in all new buildings and due to changing some of the older ones from D. C. to A. C., the heating plant has one 2,400 Kw. D. C. turbo-generator exhausting to the feed-water heater, with an electrical arrangement similar to the other two plants and one 3,000 Kw. A. C. tandem turbo-generator, with one turbine exhausting to the feed-water heater and with the other exhausting to the system.

Monthly readings are obtained indicating the net output or consumption of electrical energy by each heating plant and a credit of .35 cents per Kwh. output is given or a charge is made of .9 cents per Kwh. consumed.

The difference between these two figures represents the approximate cost of transforming, regulating, switching, etc.

The heating plant pays all investment and fixed charges on the generators and receives no credit for standby capacity, since this item is too small to be considered when compared to the capacity of the electrical system. Since the substation furnishes energy to the heating