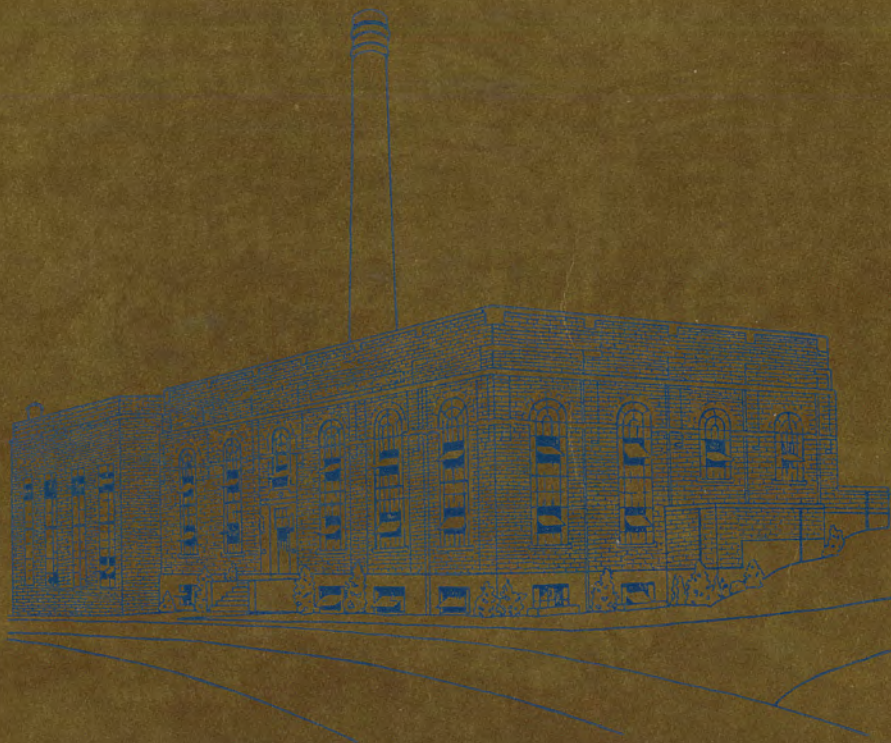


1946

Annual Report Board of Public Works

Grand Haven - Michigan



Fiftieth Anniversary

1896 - 1946

SEVENTEENTH ANNUAL REPORT
of the
BOARD OF PUBLIC WORKS
GRAND HAVEN, MICHIGAN

For the fiscal year ended
September thirtieth
Nineteen Hundred Forty-six

**MUNICIPAL
POWER AND LIGHTING
SYSTEM**

1896 - 1946



ABRAM J. WESSEL
President

NELSON H. FISHER

CLIFFORD J. WALSH

ADRIAN H. RINGELBERG

ARTHUR G. WALTER

J. BRYAN SIMS
Superintendent

PERSONNEL OF THE BOARD OF PUBLIC WORKS AND LENGTH OF TIME SERVED

Members

JOHN J. MULDER*.....
 EDWARD L. BEHM.....
 JAMES H. JOHNSTON†.....
 O. T. SCHUBERT‡.....
 HARRY J. SWANSON°.....
 HARTGER JONKER.....
 HUGH P. MULLIGAN§.....
 ARTHUR G. WALTER.....
 ADRIAN H. RINGELBERG.....
 ABRAM J. WESSEL.....
 NELSON H. FISHER.....
 CLIFFORD J. WALSH.....

	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946
JOHN J. MULDER*		RE-ELECTED															
EDWARD L. BEHM			RE-ELECTED				PRESIDENT										
JAMES H. JOHNSTON†		PRESIDENT	PRESIDENT	RE-ELECTED													
O. T. SCHUBERT‡			PRESIDENT	PRESIDENT	RE-ELECTED						RE-ELECTED						
HARRY J. SWANSON°						RE-ELECTED	PRESIDENT				RE-ELECTED	PRESIDENT					
HARTGER JONKER			APPOINTED	ELECTED													
HUGH P. MULLIGAN§					APPOINTED	ELECTED											
ARTHUR G. WALTER									ELECTED					RE-ELECTED			
ADRIAN H. RINGELBERG											APPOINTED	ELECTED	PRESIDENT	PRESIDENT	PRESIDENT	RE-ELECTED	
ABRAM J. WESSEL											APPOINTED	ELECTED					
NELSON H. FISHER														RE-ELECTED	PRESIDENT	PRESIDENT	PRESIDENT
CLIFFORD J. WALSH												ELECTED					RE-ELECTED

Superintendents

HARRY J. BADCON.....
 EDWARD L. BEHM.....
 J. BRYAN SIMS.....

Original members of Board elected are the first five listed and their terms in years as originally appointed are in the same sequence.

* John J. Mulder resigned June, 1932, and Hartger Jonker was appointed.

† James H. Johnson resigned July, 1934, and Hugh P. Mulligan was appointed.

‡ O. T. Shubert resigned January, 1940, and Adrian H. Ringelberg was appointed.

° Hugh P. Mulligan resigned January, 1940, and Abraham J. Wessel was appointed.

§ Harry J. Swanson resigned August, 1941, and Clifford J. Walsh was appointed.

THE ANNUAL REPORT

The Board of Public Works of the City of Grand Haven, Michigan submits herewith its seventeenth Annual Report of the operations of the Municipal Electric System (established in 1896) for the fiscal year ending September 30, 1946, with comparative figures taken from the audit of the city finances recently completed by the firm of Maihofer, Moore & DeLong, certified public accountants.

COMMENTS OF AUDITORS

The following excerpts are taken from comments of the auditors:

"We examined the minute book of the Board, and as far as we could determine, all transactions made during the year under review were in accordance therewith.

"The Department obtained the principal portion of its funds from operating income. The funds thus obtained were used for the purchase of fixed properties, for contributions to the Municipal Hospital Department, to increase construction work in progress, to increase the reserve for insurance and purchase investments.

"We determined that the reserve for insurance was funded by investments purchased and segregated in the insurance fund.

"Additions to fixed properties during the year under review, with the exception of relatively small items, were verified by inspection of purchase invoices and other data on file. We computed the depreciation on the fixed properties at established rates.

"The fixed properties are set forth in the Balance Sheet at appraisal values, certified by the Rau Appraisal Company as at March 30, 1929, plus subsequent additions at cost, less accumulated depreciation at established rates to September 30, 1946.

"The increase in operating revenues was due to general increases in all income accounts, the substantial increases being in residential and commercial light and commercial power. There were considerable increases in production expenses, offset by decreases in depreciation and taxes.

ON A KILOWATT HOUR GENERATED BASIS

"The following comparison shows the amount of income and expense per kilowatt hour sold in each of the two years:

	Year Ended		Increases Decreases*
	1946	1945	
Operating Revenues	\$0.02300	\$0.02270	\$0.00030
Operating Expenses	0.01716	0.01765	0.00049*
Net Operating Revenue	\$0.00584	\$0.00505	\$0.00079
Non-Operating Income	0.00018	0.00011	0.00007
Net Income to Surplus	\$0.00602	\$0.00516	\$0.00086

"On a kilowatt hour sold basis, the operating revenues increased 1.32% while the operating expenses decreased 2.78%.

"Summarizing the above comparisons, the following facts are to be noted:

1. The total operating revenues increased 9.51%, and the revenues per kilowatt hour increased 1.32%.

2. The total operating expenses increased 5.07%, while the expenses per kilowatt hour decreased 2.78%.

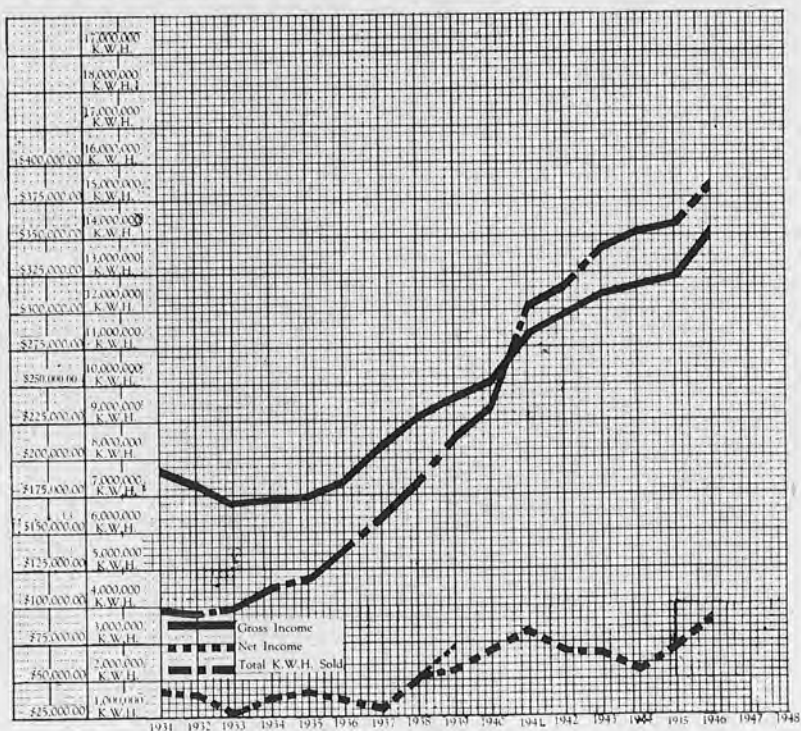
3. The total kilowatt hours generated increased 10.09% and the total kilowatt hours sold increased 8.07%."

The comparative statement of operations is included as the center sheet of this report.

Operating revenues of the system increased \$30,842.27 or approximately 9.5 per cent compared with the previous year, due principally to increased use of electricity in the community. 126 more residential meters, 32 more commercial lighting meters and 9 more industrial power meters were served in 1946 than in the previous year. Electrical consumption by residential users increased 10.6 per cent, commercial lighting usage increased 10.9 per cent and industrial power usage increased seven tenths of one per cent.

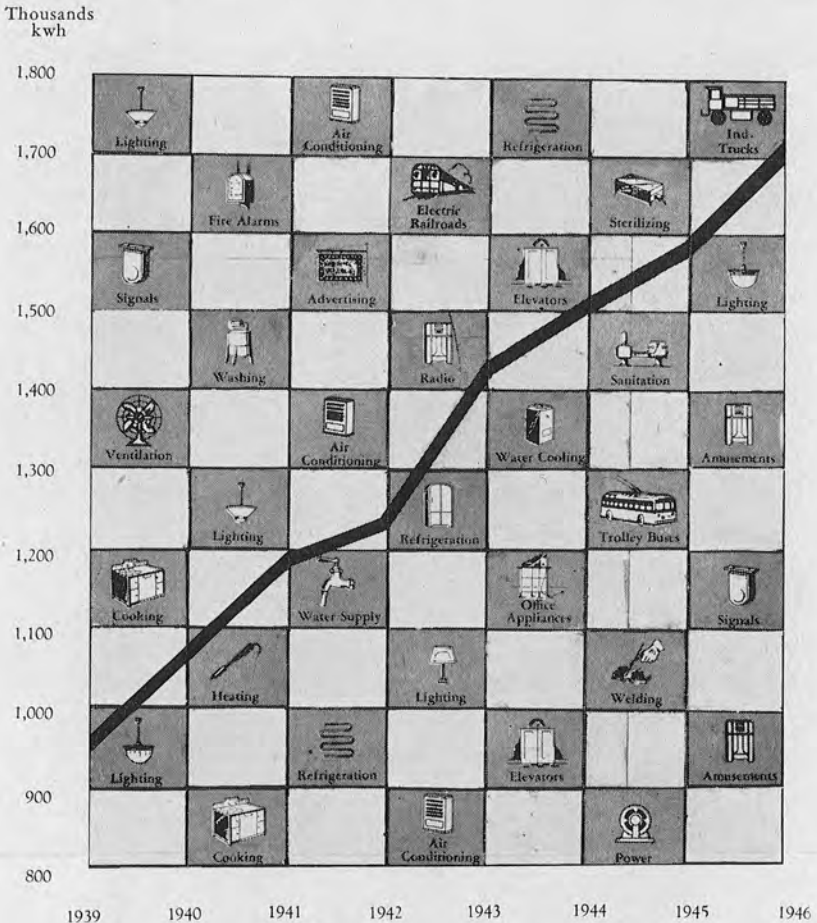
The average yearly use of electricity by each residential user continued to increase. In 1937 the yearly use per residential customer was 700 kilowatt hours. In 1943 it was 1421 kilowatt hours, and in 1945 it had risen to 1595 kilowatt hours. In 1946 it was 1722 kilowatt hours.

Curves showing comparison of kilowatt hours sold with gross and net revenues, illustrating greater amount of current sold with correspondingly less gross and net income. (Small dotted line on net for 1938 shows amount of retroactive rate reduction returned to users "paid" bills.)



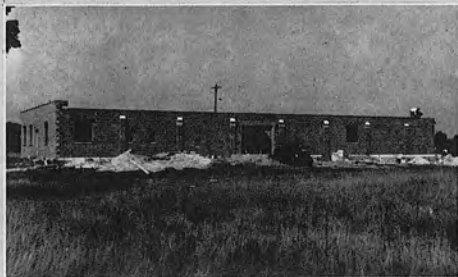
Operating revenues from residential customers increased 6.51 per cent, and from commercial lighting customers 14.8 per cent. Revenues from industrial power users increased 7.58 per cent. Greater use of electricity caused the total revenues of the system to increase.

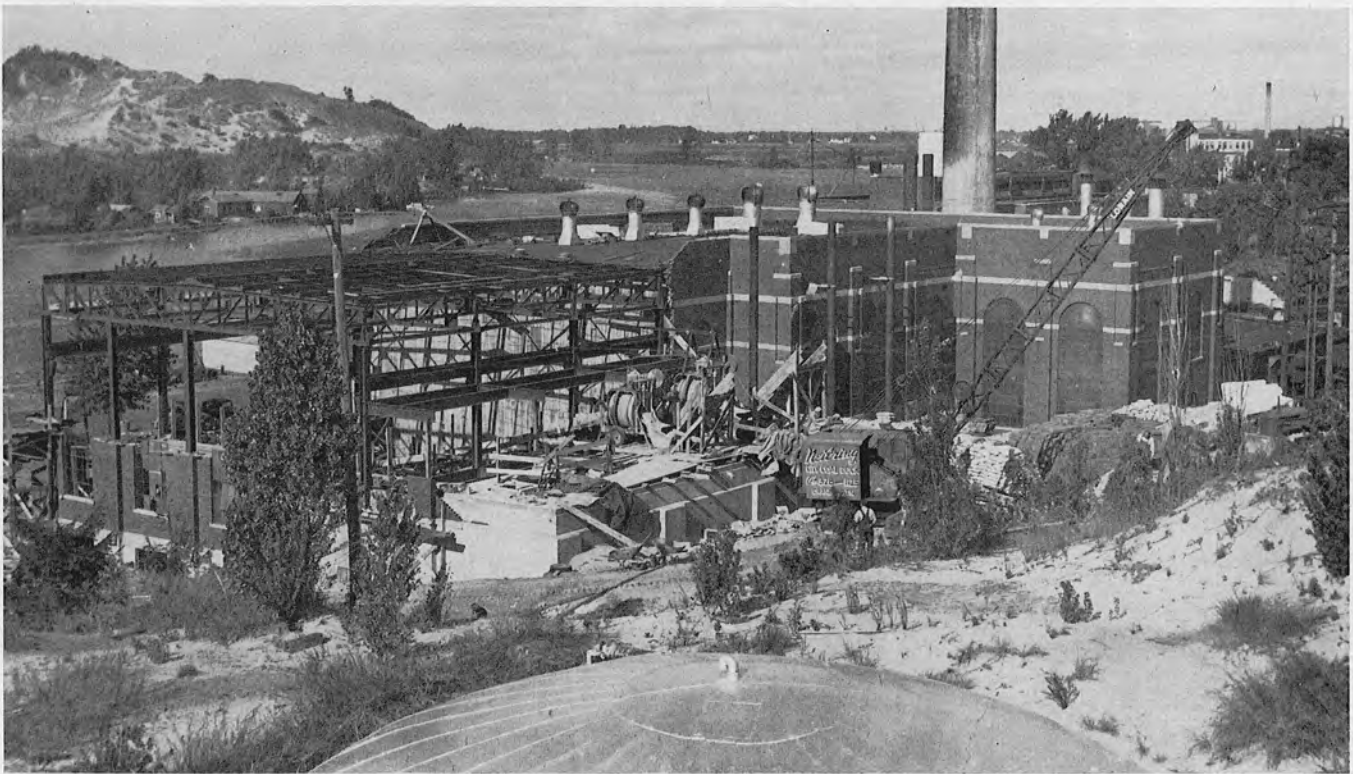
Operating expenses continued to increase, including higher fuel costs, general increase in wages etc., but were partially offset by increased volume and a reduction in depreciation made by the auditors. \$6,111.72 was paid into the employees pension fund (established by Charter amendment in May 1943). The system paid \$4,714.63 in voluntary city and school taxes. \$9,540.00 was applied to the amortization of Municipal Hospital bonds issued in 1938-39. \$3,600.00 was paid to the city general fund, representing rent for use of offices in the City Hall. Investments of depreciation and breakdown insurance funds were made in government bonds.





Growing with
GRAND HAVEN



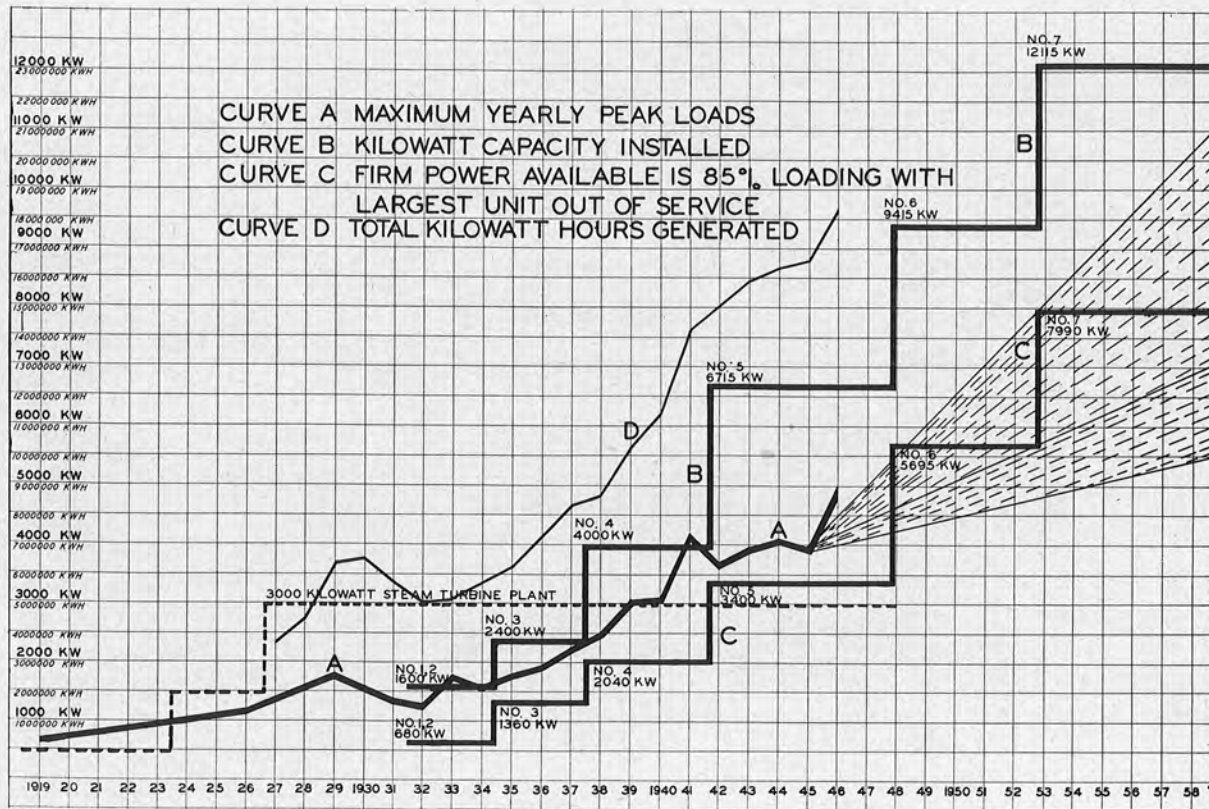


MUNICIPAL POWER AND LIGHT DEPARTMENT

Comparative Statement of Operations
Years Ending September 30, 1945 and 1946

	Year Ending Sept. 30, 1946	Year Ending Sept. 30, 1945	Increase or Decrease*
OPERATING REVENUE	\$353,552.74	\$322,845.81	\$30,706.93
Miscellaneous Revenue	1,653.78	1,518.44	135.34
Total Revenue	\$355,206.52	\$324,364.25	\$30,842.27
OPERATING EXPENSES (Power Plant)			
Superintendence and Labor	\$ 32,759.57	\$ 28,641.66	\$ 4,117.91
Fuel	76,368.65	68,584.32	7,784.33
Maintenance and Repairs	18,355.82	6,051.80	12,304.02
Supplies and Expenses	7,523.91	5,042.09	2,481.82
Total Plant Expenses	\$135,007.95	\$108,319.87	\$26,688.08
DISTRIBUTION EXPENSES (Power Lines, Etc.)			
Salaries and Labor	\$ 14,757.58	\$ 13,445.16	\$ 1,312.42
Transportation (Truck Upkeep, Etc.)	1,007.61	524.02	483.59
Supplies & Expenses	1,068.19	946.33	121.86
Total Distribution Expense	\$ 16,833.38	\$ 14,915.51	\$ 1,917.87
UTILIZATION EXPENSES	\$ 1,651.18	\$ 1,138.91	\$ 512.27
COMMERCIAL EXPENSES	\$ 1,899.29	\$ 1,858.72	\$ 40.57
GENERAL EXPENSES (Office Administration)			
Salaries	\$ 15,349.26	\$ 14,485.30	\$ 863.96
Office Supplies and Expenses	822.85	786.29	36.56
Rent	3,600.00	3,600.00	—
Insurance (Fire and Breakdown)	4,852.25	4,731.81	120.44
Interest on Meter Deposits	487.96	415.67	72.29
Advertising	168.24	456.89	288.65*
Bad Debts (Net)	12.37*	60.13	72.50*
Transportation	412.22	322.33	89.89
Donations	100.00		100.00
Pensions	6,111.72	4,972.07	1,139.65
Miscellaneous	1,251.68	1,367.75	116.07*
Total General Expenses	\$ 33,143.81	\$ 31,198.24	\$ 1,945.57
TOTAL OPERATING EXPENSES	\$188,535.61	\$157,431.25	\$31,104.36
NET INCOME (Before Taxes & Deprec.)	\$166,670.91	\$168,433.71	\$ 1,762.80*
NON-OPERATING INCOME (NET)	\$ 2,706.14	\$ 1,500.71	\$ 1,205.43
DEDUCT:			
Taxes (City and School)	\$ 4,714.63	\$ 6,003.78	\$ 1,289.15*
Depreciation	71,717.68	88,748.14	17,030.46*
	\$ 76,432.31	\$ 94,751.92	\$18,319.61
NET INCOME	\$ 92,944.74	\$ 73,681.79	\$19,262.95

*Denotes decrease.



PAST AND ESTIMATED LOAD GROWTH CURVES (Curves B and C Represent Diesel Capacity only)

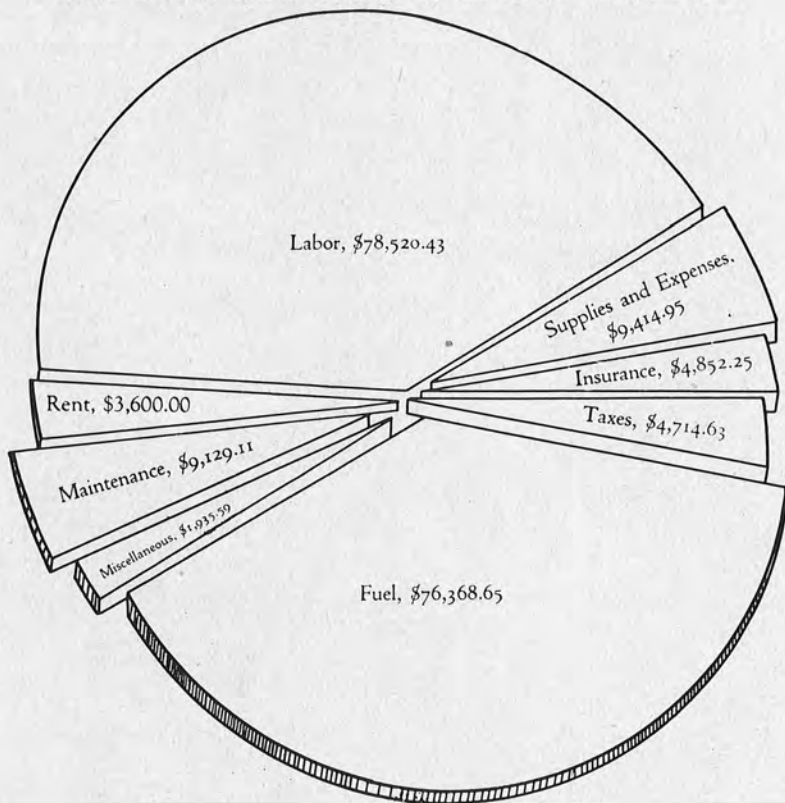
50TH ANNIVERSARY

The Municipal Electric property of the City of Grand Haven has had a long and interesting existence. Fifty years ago, in order to provide adequate electrical street lighting, the city employed H. H. Humphrey, Consulting Engineer, to prepare specifications for a lighting plant.

From the inception of the plant and the letting of the contract for construction in October 1896, the development and growth of the system has not been phenomenal, but certainly of a very substantial and yet conservative nature, entirely in keeping with the load growth of the community.

Probably the most outstanding fact in the history of the plant is that all improvements and expansions, as well as the cost of the original installation, have been paid for from its own net profits. In addition, it has paid a substantial amount into the General Fund of the city.

Graph showing relative operating expenditures for the fiscal year.



Labor on new construction in addition to the above, \$12,922.80.

HISTORY

1896 — Building contract let to Van Dongen & Groenevelt. The complete cost of the project was \$9,985.85.

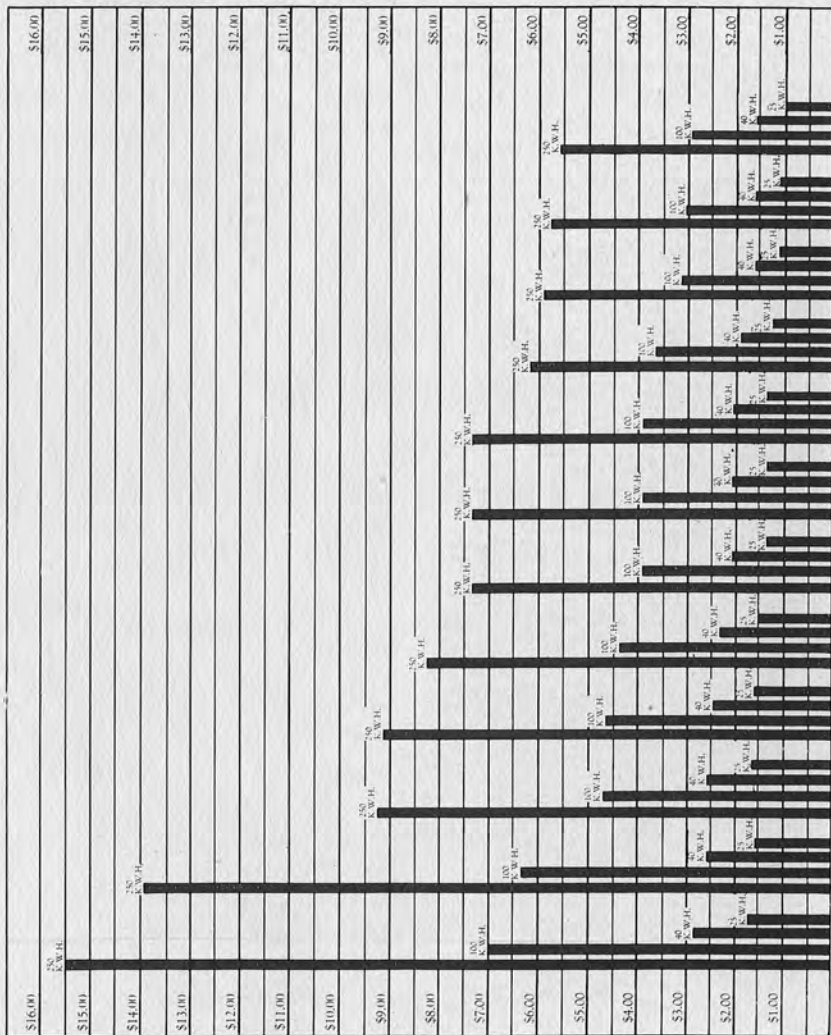
1911 — Appraisal of light plant made with net book value of \$25,244.33.

1915 — Steam engine replaced by a 500 kw turbine, and other additions made.

1917 — An additional 1000 kw turbine and boiler installed.

1924-1925 — A new boiler room built and a new 1500 kw turbine, boiler and other major extensions made totaling \$110,356.00.

1927-1928 — Additional equipment installed consisting of a 500 hp. boiler and stoker, a Zeolite softening water system, a complete coal conveying system and boiler feed pumps at a cost of \$54,589.00.



Cost of 25, 40, 100 or 250 Kilowatt Hours to Residential Customers since 1930.

1929 — Load increased to a point where it was necessary to install additional equipment. A committee was appointed to make a study of the plant's future expansion.

1930 — Offer of \$1,200,000.00 by a private company rejected at election. Board of Public Works created.

New Diesel extension started at a cost of \$217,000.00.

Two 1150 hp. Diesel engine generator units installed.

1934 — Third 1150 hp. Diesel unit installed and alterations to building made at a cost of \$82,000.00.

1937 — Installation of 2250 hp. Diesel engine and addition to the plant completed at total cost of approximately \$200,000.00.

New water intake pump house completed at a cost of approximately \$19,000.00.

1938 — Installation of additional 100,000 gallon and 150,000 gallon underground oil storage tanks, making total storage capacity of 350,000 gallons of fuel oil.

1939 — Installation of additional 420,000 gallons fuel oil storage, making a total of 770,000 gallons fuel oil storage.

1941 — Installation of a 3850 hp, 2715 kw, 6900 volt Diesel electric generating unit.

1946 — Began construction of new addition to Diesel Power Plant to house two Diesel electric generating units complete with waste heat boilers and other auxiliary equipment at an estimated cost of over \$500,000.00. The first of these units, a 3850 hp, 21½" bore x 31" stroke, 2715 kw, 6900 volt, 9 cylinder engine is to be delivered about September 1947.

The present capacity of the Diesel plant, with the new unit to be installed in 1947, will be 13,370 hp. With the installation of an additional unit provided for in the new extension, there will be approximately 17,220 hp., and possible ultimate capacity of approximately 25,000 hp. without further major building extensions, by replacing the smaller capacity 4 cycle engines with larger capacity 2 cycle engines in the same space.

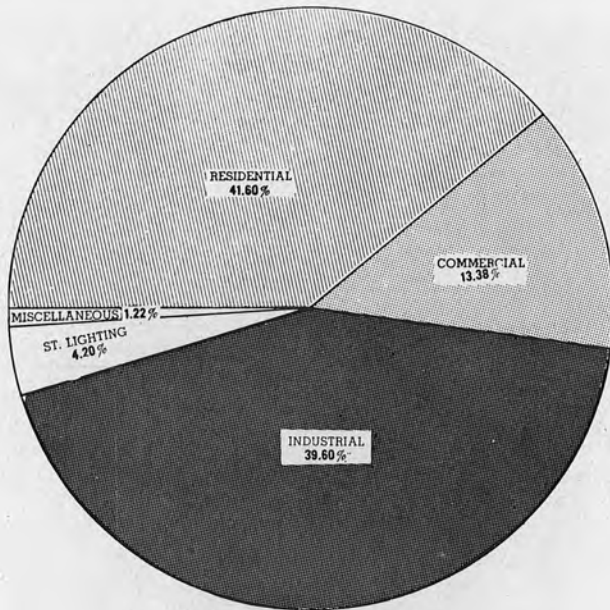
The capacity of the older, less efficient steam plant is 3000 kw.

The plant is ideally located for fuel delivery and cooling water. Fuel can be delivered by barge, rail or truck. Michigan residual fuel oil is being used.

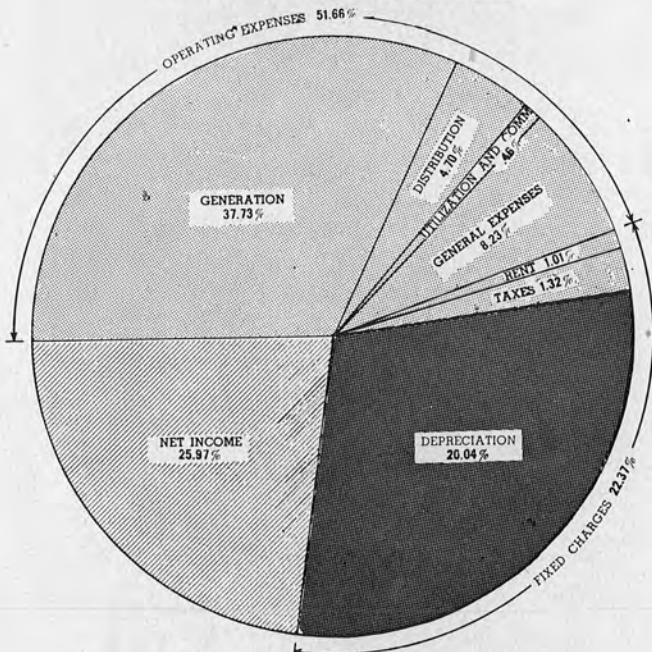
STATE PLANNING COMMISSION APPROVES THREE POST-WAR PROJECTS

During the war the department's organization started preparation of engineering plans and specifications, and made application for approval by the Michigan State Planning Commission of three projects to be constructed as follows: Additions to Power Plant — approximately \$400,000; electric distribution extensions — \$39,000, and electric distribution, garage and service building — approximately \$50,000.

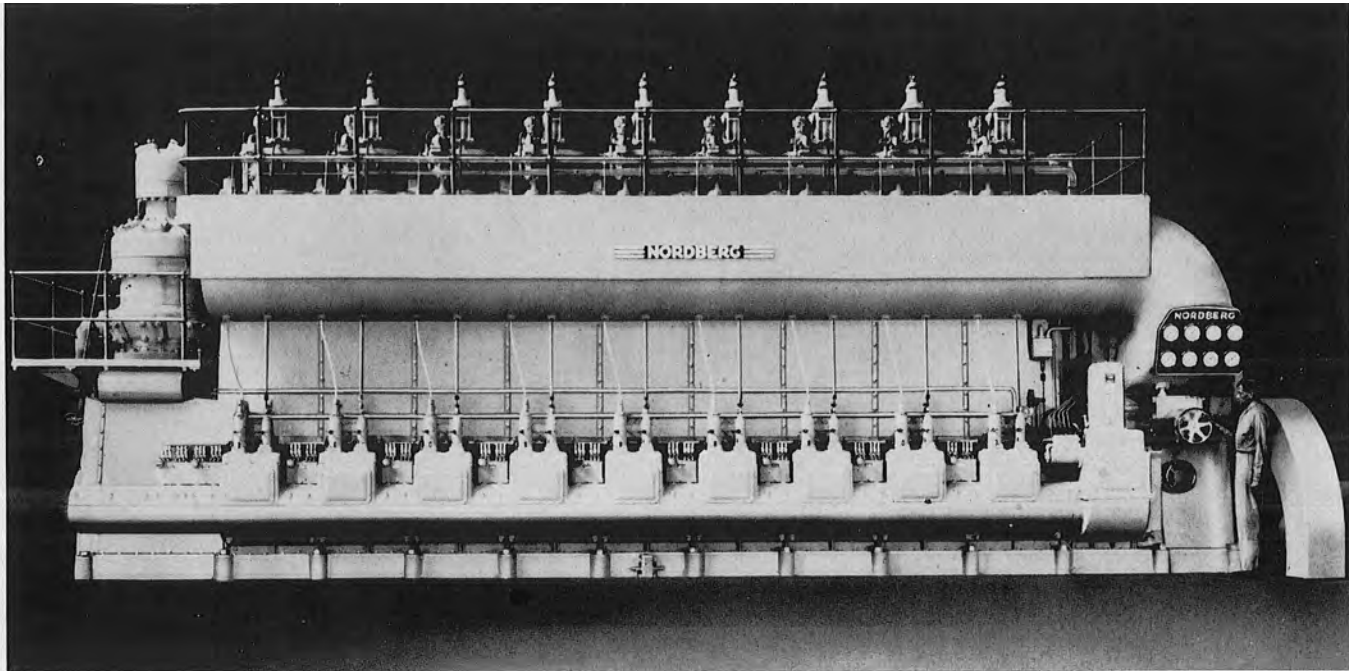
All of these projects were approved by the Commission, and they will reimburse the Board of Public Works for engineering as follows: Additions to power plant — \$6,033.25; distribution extensions — \$588.50, and service building — \$754.00.



SOURCE OF REVENUES
 Total area of chart equals \$357,912.66



DISPOSITION OF REVENUES
 Total area of chart equals \$357,912.66

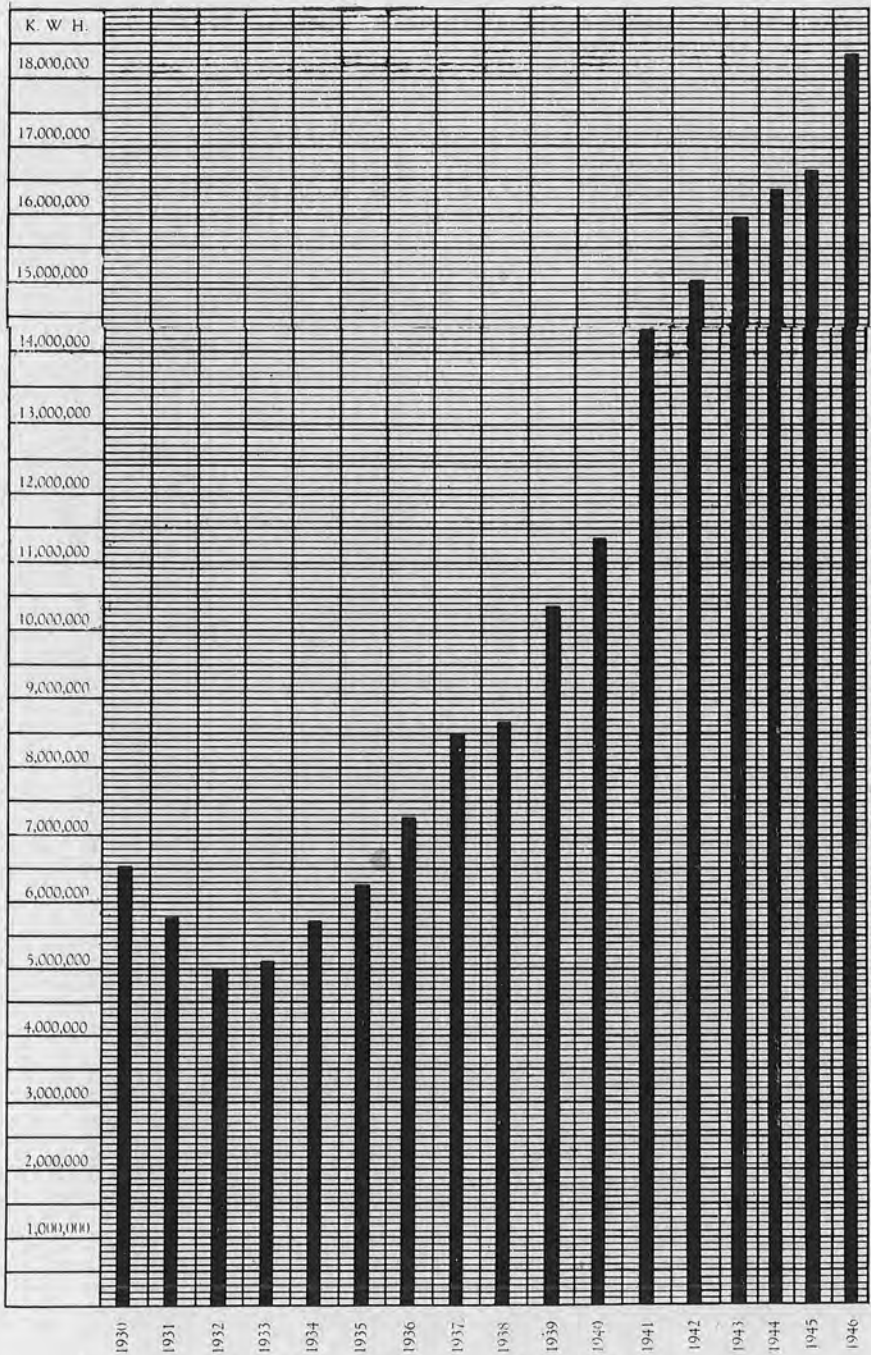


3850 brake horsepower; 225 revolutions per minute; 9 cylinder; 21½" bore x 31" stroke, with air compressor and Roots scavenging blower driving 3390 kva, 6900-7200 volt, A. C. generator. Typical of No. 6 unit to be installed, and similar to No. 4 unit installed in 1941. Some idea of the size of this engine:

Weight of crankshaft	40,500 lbs.
" " " and bedplate	106,000 lbs.
" " generator	57,000 lbs.
" " waste heat boiler	36,000 lbs.

Unit is over 55 ft. long, and requires approximately 600 yards concrete for foundation.

Engine exhausts into a waste heat boiler through a 30" exhaust pipe. This boiler will, when the engine is fully loaded, furnish 2000 to 3000 lbs. of steam per hour from the heat of the exhaust. The steam will be used to heat the buildings, and is purely a by-product of the Diesel's combustion requiring no additional fuel. The boiler is also a duplicate of one installed in 1941.



Graph of Kilowatt Load Growth Since 1930

