

1949 MODERN PLANT SURV

PLAINTIFF'S EXHIBIT

GE-104



Tables list engineering features of over 450 new utility and industrial steam plants, more than 175 hydroelectric units. Summaries spot design trends of recent recordbreaking years

THE GREATEST PERIOD of construction activity the power field has ever experienced continues unabated. The year 1948 saw almost 6 million kw added to our national power plant; 1949 and 1950 look to be about 10% higher. Figures now available show about 4.7 kw on order for 1951.

Such a period of activity presents an unparalleled opportunity to see where we are headed in power-plant practice. In this vast program virtually all types of construction are involved: new plants, extensions, and "tops"; indoor, semi-outdoor and outdoor designs; large plants and small; a wide variety of heat-balance arrangements, plant layouts and equipment selections.

From such a large body of data, relatively reliable conclusions can be drawn. We can see the wide adoption of practices that have proved successful, the gradual abandoning of those not so well received.

The only drawback lies in the fact that the very volume of activity means that most of us are too busy to take the "long look" needed

to spot trends and arrive at answers to guide our planning.

It is to meet this need that POWER makes its survey of new-plant construction. Here we do two things to serve the interests of power engineers: (1) We gather, and compile in convenient tabular form, technical details on units currently on order, under construction, or beginning operation. (2) We analyze the survey returns, and other data available to us, to show at a glance what design and equipment-selection patterns are emerging.

To broaden the basis for these trend-spotting summaries, this year we have included data on the past two years, each a record-breaker in its own right. This means that the comparisons and conclusions grow out of the largest volume of plant data ever available for analysis.

Here are facts and figures you can sink your teeth into, facts and figures on which to base the decisions you will have to make when you build a new plant, extend or modernize an older one.

1949 Listing of Typical Central-Station

For notes on uses and limitations
of this tabulation • See page 96

Compiled by B. G. A. Skrotzki, Associate Editor

For notes on uses and limitations of this tabulation • See page 96				BOILERS												Heat Release, 1000 Btu per cu ft per hr		Water Surface per 1000 cu ft	
Company	Location	Plant Name	Consulting Engineers	First Operation, New Units	Nominal Pressure, psi	Nominal Steam Temperature, F	Number	Capacity, each 1000 lb per hr	Manufacturer	Boiler, Waterwall Surface, 1000 sq ft	Superheater Surface, 1000 sq ft	Furnace Volume, 1000 cu ft	Heat Release, 1000 Btu per cu ft per hr	Water Surface per 1000 cu ft	Heat Release, 1000 Btu per cu ft per hr	Water Surface per 1000 cu ft			
1500 PSIG AND ABOVE																			
Indiana & Michigan Elec Co.	Lawrenceburg, Ind.	Tanners Creek	Amer Gas & Elec Serv	12-30 2000	1050 ¹	1	1	930	BW	29.6	60.5	79.8	164						
Appalachian Electric Power Co.	Granite Sta., W. Va.	Pauls Spring	Amer Gas & Elec Serv	7-31 2000	1050 ¹	1	1	930	BW	29.6	60.5	79.8	164						
Commonwealth Edison Co.	Stickney, Ill.	Ridgeland	Sargent & Lundy	9-30 1800	1050	2	2	730	BW	19.3	44.9	35.4	24.1						
Central Hudson Gas & El Corp.	Dincklafter Pt., N. Y.		Burns & Roe, Inc.	1-32 1650	1000 ¹	1	1	500											
Consolidated Edison Co. of N. Y.	Brooklyn, N. Y.	Hudson Ave.		9-31 1500	1050	1	1	1300	BW	21.6	50.2	76.7	20.6						
1000 TO 1499 PSIG																			
Pennsylvania Power Co.	West Pittsburgh, Pa.	New Castle	Commonw & Southern	10-31 1450	1000 ¹	1	1	690	BW	14.8	12.0	32.3	18.0						
Boston Edison Co.	Weymouth, Mass.	Edgar	Jackson & Moreland	8-49 1450	1000 ¹	1	1	585	CE	14.8	33.0	42.0	17.3						
Rochester Gas & Electric Corp.	Rochester, N. Y.	Russell	Gilbert Associates, Inc.	10-31 1450	1000 ¹	1	1	430	CE	20.7			19.4						
Chesapeake & Potomac Elec. Co.	Turner, Md.	Riverside		10-31 1450	1050	1	1	625	BW	11.7	24.1	43.0	18.1						
Dayton Power & Light Co.	near Miamisburg, Ohio	O'Hutchings	Ebasco Services, Inc.	1950	1450	1000 ¹	1	430	CE	20.7		30.4	19.5						
Central New York Power Corp.	Oswego, N. Y.	Oswego		1951	1450	1000 ¹	1	656	BW	12.4	34.0	40.3	22.2						
N.Y. State Elec. & Gas Corp.	Johnson City, N. Y.	Goulden	Gilbert Associates	1951	1450	1000 ¹	1	560	CE	29.1	34.7	44.6	17.0						
Potomac Electric Power Co.	Washington, D. C.	Benning		1951	1450	1000	1	975	CE	30.7		55.4	14.4						
Wisconsin Electric Power Co.	Port Washington, Wis.	Port Washington		1951	1450	950 ¹⁸	1	640	CE		16.0	61.0	12.8						
	Bakersfield, Calif.	Kern	Stone & Webster		1350	925	2	450	BW	9.2	15.2	8.4	30.3 ²						
Pacific Gas & Electric Co.	Moss Landing, Calif.	Moss Landing	Stone & Webster		1200	950	6	475	BW	9.9	20.4	32.0	19.3 ²						
	Antioch, Calif.	Contra Costa	Bechtel Corp.	1951	1300	950	6	475	CE	25.8	26.2	34.7	16.9						
Florida Power Corp.	Booth Point, Fla.	Higgins	The Kuflian Corp.	2-31 1315	950	1	1	450	BW	5.8	16.1	26.0							
The Detroit Edison Co.	St. Petersburg, Fla.	Bayboro	The Kuflian Corp.	12-49	860	910	1	340	BW										
Cambridge Electric Light Co.	Detroit, Mich.	Connors Creek		4-31 1300	950	4	4	600	BW	12.0	26.7	40.0	18.3						
Kansas City Power & Light Co.	Cambridge, Mass.	Kendall St.	Gilbert Associates, Inc.	12-30 1300	900														
	Kansas City, Mo.	Northeast		11-49 1275	825 ¹⁷	1	1	375	FW	16.0	13.8	26.4	18.1						
		Hawthorn	Ebasco Services, Inc.	1950	1250	950	2	625	CE	28.4	21.5	45.5	16.9						
New Jersey Power & Light Co.	Holland, N. J.	Gilbert	Gilbert Associates, Inc.	10-49 1250	950	1	1	650	CE	27.8	25.5	49.5	16.0						
Chicago River Co.	near Antion, Ill.	Wood River	Sargent & Lundy	12-49 1250	1000	2	2	450	CE	22.1	28.4	30.6	17.8						
				12-50 1250	1000	1	1	450	CE	22.1	28.4	30.6	17.8						
Union Electric Co. of Missouri	St. Louis County, Mo.	Meramec		1932	1250	950 ¹⁸	1												
Duke Power Co.	Palmer, S. C.	Lee		12-50 ¹⁸	1250	950 ¹⁸	2	750	CE	38.5	32.5 ¹	43.0	15.6						
Pennsylvania Power & Light Co.	near Sunbury, Pa.	Sunbury	Ebasco Services, Inc.	5-31 1250	950	1	1	800	FW	26.1	50.4	82.4	12.1						
Carolina Power & Light Co.	Lumberton, N. C.	Lumberton	Ebasco Services, Inc.	9-49 ¹⁹	1250	950	2	425	BW	9.2	15.7	30.0	19.0						
Louisiana Power & Light Co.	near Westwego, La.	Ninemile Point	Ebasco Services, Inc.	4-31 1250	950	1	1	650	CE	22.1	16.8	34.3	27.1						
Montana Electric Co.	Somerset, Mass.	Somerset	Stone & Webster	9-31 1250	950	1	1	625	CE	28.2	22.3	45.2	16.0						
Virginia Electric & Power Co.	Bremo Bluff, Va.	Bremo	Stone & Webster	1950	1250	950	1	625	BW	12.0	26.8	40.0	19.4						
Delaware Power & Light Co.	Wilmington, Del.	Edge Moor	United Eng. & Const.	1951	1250	950	2	600	CE	37.9	21.7		16.8						
Georgia Power Co.	Yates, Ga.	Yates	Commonw & Southern	1950	1250	950	2	975	CE	40.9	36.2	74.0	15.4						
Alabama Power Co.	Gorgas, Ala.	Gorgas	Commonw & Southern	1951	1250	950	1	975	BW	17.0	22.7	58.9	19.4						
Utah Power & Light Co.	near Lake City, Utah	Salt Lake City	Bechtel Corp.	1951	1250	950	1	620	RS	38.5	35.5	40.0	15.1						
Philadelphia Electric Co.	Philadelphia, Pa.	Richmond		1950	1250	950	2	800	CE	36.5	22.4	60.0	15.5						
Dallas Power & Light Co.	Dallas, Texas	Parkdale	Ebasco Services, Inc.	5-52 1250	950	1	1	625											
Omaha Public Power District	Omaha, Neb.	Jones Street		7-49 1250	950	1	1	380	BW	11.2	14.0	24.0	17.3						
Northern Indiana Public Serv. Co.	Michigan City, Ind.	Michigan City	Sargent & Lundy	10-30 ²⁰	1250	950	3	375	FW	9.8	17.0	16.7	28.0						
Cincinnati Gas & Electric Co.	Cincinnati, Ohio	Miami Fort	Sargent & Lundy	11-49 1250	950	2	2	400	BW										
Mississippi Power & Light Co.	Jackson, Miss.	Rex Brown	Ebasco Services, Inc.	12-49 850	900	1	1	450	CE	23.7	7.3	21.0	29.6						
	Natchez, Miss.	Natchez	Ebasco Services, Inc.	12-49 1250	950	1	1	650	BW	16.3		36.3	25.0						
				2-51 1250	950	1	1	625	BW	16.3		36.3	24.1						
800 PSIG TO 999 PSIG																			
Illinois Power Co.	near Havana, Ill.	Havana	Sargent & Lundy	12-48 850	900	1	1	285	CE	19.2	11.6	20.2	18.0						
				4-50 850	900	2	2	285	CE	19.2	11.6	20.2	18.0						
				9-50 850	900	2	2	285	CE	19.2	11.6	20.2	18.0						
El Paso Electric Co.	El Paso, Texas	Rio Grande	Stone & Webster	3-51 850	900	1	1	335	BW	23.5		14.4	32.3						
The Cleveland Electric Light Co.	Cleveland, Ohio	Lake Shore		11-50 850	950	2	2	950	BW	17.5	19.9	34.7	23.5						
Wisconsin Public Service Corp.	Avon, Wis.	Avon		8-49 850	950	2	2	850	CE	27.3	27.6	64.0	16.2						
	Green Bay, Wis.	Pulliam	Pioneer Serv. & Engng.	10-49 850	900	1	1	460	BW	32.2	18.2	26.6	23.5						
				1951	850	950	1	585	BW	13.6	29.4	29.5	19.0						
San Antonio Electric Light Co.	San Antonio, Tex.	San Antonio	Ebasco Services, Inc.	2-50 850	900	1	1	235	CE	23.0		4.8	25.1						
Fort Worth Electric Light Co.	Pensacola, Fla.	Pensacola	Commonw & Southern	8-49 850	900	1	1	230	RS	14.6	6.9	13.4	22.3						
Chicago Electric Light & Power Co.	Chicago, Ill.	Mitchell	Commonw & Southern	11-48 850	900	1	1	230	BW	21.7	6.6	16.3	17.3						
				1-49 850	900	1	1	230	BW	21.7	6.6	16.3	17.3						
Atkinson Electric Co.	Atkinson, Wis.	Atkinson	Commonw & Southern	11-48 850	900	1	1	900	CE	28.4	13.7	35.0	22.5						
Texas Electric Southern Co.	Fort Worth, Texas	Handley	Ebasco Services, Inc.	11-48 850	900	1	1	900	BW	1.8	6.1	22.9	36.0						
	Grand Prairie, Texas	Morgan Creek	Ebasco Services, Inc.	10-49 850	900	1	1	825	CE	17.2	7.6	31.1	35.7						
	Mountain Creek	Mountain Creek	Ebasco Services, Inc.	11-49 850	900	2	2	220	FW	21.0	7.5	8.9	31.1						
				12-49 850	900	1	1	450	BW	26.9	8.5	19.9	29.0						
				1-50 850	900	1	1	250	BW	17.8	7.2	11.7	26.0						
				1-51 850	900	1	1	975	CE	31.0	22.1	77.3	33.1						
Houston Electric & Power Co.	Houston, Texas	West Junction	Ebasco Services, Inc.	1-50 850	900	1	1	350	RS	18.8	17.0	11.6	31.0						
				9-50 850	900	1	1	825	RS	18.8	17.0	11.6	31.0						
				11-48 850	900	1	1	825	RS	18.8	17.0	11.6	31.0						
				1-49 850	900	1	1	825	BW	21.9	7.1	19.1	32.3						
				1-50 850	900	1	1	750	CE	12.0	7.1	17.3	25.1						
				1950	850	900	1	750	CE	17.5	7.1	17.3	25.1						
Texas Power & Light Co.	El Paso, Texas	El Paso	Ebasco Services, Inc.	12-49 850	900	2	2	550	BW	25.8	17.1	22.2	21.8						
Avon Electric Co.	Avon, Ohio	Avon	Sargent & Lundy	7-49 850	900	1	1	25	BW	28.4		24.4	18.8						
Metropolitan Edison Co.	Madison, Wis.	Madison	Sargent & Lundy	11-49 850	900	1	1	250	BW	8.9	6.1	13.2	31.2						
Easton Electric Co.	Easton, Texas	Easton	Sargent & Lundy	12-50 850	900	1	1	60	BW	21.1	7.8	13.2	31.2						
				1-51 850	900	1	1	60	BW	21.1	7.8	13.2	31.2						

1 - Data based on design
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1	Turbine drive	Reheat to 1000 F	2 units being installed	2-speed motor
2	Increasing-rate stoker	11.0 shaft 3600, 1-p 1800 rpm	3 house units being installed	Also pitch
3	Tubular	Reheater 30,290 sq ft	4 units being installed	Second unit in 10-31
4	Underfeed stoker	Condenser is turbine foundation	Reheat to 750 F	F-4 fan only, furnace designed for pressure operation
5	Union Iron Works	400 to 275 psia	2nd unit starts 6-51	Drives controllability-pitch tower for pressurized furnace
6	Auto control	Rankine 11 to 13,500 Btu per lb	Reheater 10,500 sq ft	Revised, originally listed in 1945 survey
7	Henry Wiggin Associates	75,000-kw capability	2 fans per unit	Second-hand unit
8	Wool	AIIE-ASNEI preferred standard	70% bituminous, 30% anthracite	17,000 on coal, 27,000 on wood
9	Win, Ross, Hooper & Mitchell	Reheater 9000 sq ft	Anthracite 12,500 Btu per lb	Automatic-extraction unit
10	Westinghouse Electric Corp.	Reheat to 850 F	2nd unit starts 6-50	
11	Westinghouse Electric Corp.	100,500 or 121,300 on gas	2nd motor on fans	
12	Westinghouse Electric Corp.	100,500 Btu per lb	100 Btu per lb	
13	Westinghouse Electric Corp.	121,300 or 134,400 on gas		

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Compiled by B. G. A. Sæviðsson, Accounts Editor

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Compiled by B. G. A. Sargent, Associate Editor				First Operation, New Units	Nominal Pressure, psi	Nominal Steam Temperature, F	Number	Capacity, each 1000 lb per hr	Manufacturer	Boiler, Waterwall Surface, 1000 sq ft	Superheater Surface, 1000 sq ft	Furnace Volume, 1000 cu ft	Heat release, 1000 Btu per cu ft per hr	Pressure Rating
Public Service Co of Indiana	Edwardsport, Ind.	Edwardsport	Sargent & Lundy	1-49	850	900	2	400	RS	34.4	14.1	29.0	17.6	DB
Savannah Electric & Power Co	Savannah, Ga.	Riverside	Stone & Webster	1-50	550	900	1	200	CE	7.1	7.4	9.3	23.2	DB
Tampa Electric Co	Tampa, Fla.	Hookers Point	Stone & Webster	7-48	850	900	2	200	BW	14.5	5.0	8.7	32.0	DB
Central Illinois Electric & Gas Co	Rockford, Ill.	Sabrooke	Stone & Webster	11-49	850	900	1	205	FW	22.3	4.4	10.5	26.2	DB
Western Massachusetts Electric Co	West Springfield, Mass.	West Springfield	Stone & Webster	9-49	550	900	1	400	CE	15.6	1.9	29.2	17.3	DB
Virginia Electric Power Co	Warrenton, Va.	Passum Point	Stone & Webster	1951	570	900	1	650	CE	43.0		45.5	16.9	DB
West Penn Electric Co	Allegheny, Pa.	Allegheny	Sanderson & Porter	7-50	850	900	2	210	RS	22.6		15.5	17.9	DB
The United Illuminating Co	New Haven, Conn.	English	Wentworth & Mapes	11-49	850	900	1	320	BW	15.2		22.7	16.9	DB
Indianapolis Power & Light Co	Martinsville, Ind.	White River	Gibbs & Hill	12-51	850	900	1	400	CE	25.5	13.8	23.2	22.5	ST
South Carolina Power Co	Charleston, S. C.	Harbor	Gilbert Associates	5-50	850	900	1	230	RS	19.6	7.4	13.4	21.6	DB
				9-51	850	900	1	710	RS	24.9	10.0		21.6	DB
Philadelphia Electric Co	W. Norriton Town, Pa.	Barbadoes		2-49	850	900	2	600	FW	30.5	29.8	47.1	15.4	DB
Duquesne Light Co	South Heights, Pa.	Frank R. Phillips		1949	850	900	1	600	FW	23.9	17.1	35.0	20.9	DB
				1950	850	900	2	600	FW	23.9	17.1	35.0	20.9	DB
West Texas Utilities Co	Trinity, Texas	Trinity Pipeline Plant, No. 1	Sargent & Lundy	3-51	850	900	1	250	BW	15.5	5.3	10.6	30.8	DB
	Van Hook, Texas	Plant, No. 2		2-52	850	900	1	500	CE	34.5		22.2	29.0	DB
Southwestern Public Service Co	Amarillo, Texas	East		3-51	650	825	1	400	BW	32.2	9.8	17.8	29.7	DB
	Big Bend, Texas	Big Bend	Stearns-Roger Mfg Co	7-50	650	825	1	210	BW	15.8	3.6	9.0	29.7	DB
	Abilene, Texas	Thruway	Stearns-Roger Mfg Co	9-49	600	825	1	275	BW	18.3	5.3	11.2	32.0	DB
	Springfield, Ohio	Mat River	Commonwealth & Southern	1-49	850	900	1	250	RS	18.0	6.2	15.0	23.0	DB
Ohio Edison Co	Toronto, Ohio	Toronto	Commonwealth & Southern	9-49	800	875	1	600	BW	11.4	16.5	44.1	18.4	DB
	Ukron, Ohio	Gorge	Commonwealth & Southern	1-50	800	875	1	900	BW	11.4	10.5	44.1	18.4	DB
				12-48	800	875	1	450	BW	11.4	17.9	30.9	19.1	DB
Oklahoma Gas & Electric Co	W. of Okla. City, Okla.	Mustang	Pioneer Serv & Engrg.	3-50	850	900	1	475	BW	11.2	18.3	30.1	20.6	DB
				7-51	850	900	1	475	BW	11.2	18.3	30.1	20.6	DB
	Minneapolis, Minn.	Riverside	Pioneer Serv & Engrg.	7-49	850	900	1	370	BW	13.5	22.9	37.5	22.0	DB
Northern States Power Co	Sioux Falls, S. D.	J. L. Lawrence	Pioneer Serv & Engrg.	9-48	650	825	1	125	BW	15.5	5.3	7.9	29.0	DB
	Mankato, Minn.	G. H. Wilmarth	Pioneer Serv & Engrg.	10-48	650	825	1	125	BW	15.5	5.3	7.9	29.0	DB
	St. Cloud, Minn.	Whitney	Pioneer Serv & Engrg.	9-48	450	750	1	125	VO	10.8	2.4	5.5	33.0	DB
	La Crosse, Wis.	French Island	Pioneer Serv & Engrg.	4-48	450	750	1	125	EM	14.9	5.1	7.5	29.7	DB
	Grand Forks, N. D.	Grand Forks	Pioneer Serv & Engrg.	9-48	400	750	1	65	BM	9.3	2.9	4.2	33.0	DB
Madison Gas & Electric Co	Madison, Wis.	Blount	Mead & Hunt	11-48	825	825	1	200	BW	19.3			15.2	DB
600 PSIG TO 700 PSIG														
Pennsylvania Electric Co	Indiana County, Pa.	Seward	Gilbert Associates	1950	650	825	2	300	BW	28.5		19.3	19.3	DB
Holyoke Water Power Co	Holyoke, Mass.	No. 1	Jackson & Moreland	10-48	650	750	1	120	RS	14.3	0.9	9.9	17.5	DB
		No. 2	Sargent & Lundy	3-50	600	900	2	120	RS	14.3	0.9	9.9	17.5	DB
Central Louisiana Electric Co	St. Landry, La.	Conquin	Sargent & Lundy	9-49	600	825	1	120	CE				29.2	DB
Longview Gas & Elec Light Co	Fitchburg, Mass.	Sawyer Passway	Chas T Main, Inc.	12-49	600	825	1	150	CE	18.7		8.7	20.5	DB
Texas Electric Service Co	Wichita Falls, Texas	Wichita Falls	Ebasco Services, Inc.	5-49	600	825	1	150	CE	12.0	3.2	6.1	33.1	DB
Dallas Power & Light Co	Dallas, Texas	Mountain Creek	Ebasco Services, Inc.	1-50	600	825	2	150	CE				33.1	DB
Imperial Irrigation District	El Centro, Calif.	El Centro	Gibbs & Hill, Inc.	4-49	600	825	1	260	CE	17.0	4.0	9.3	32.8	DB
Minnesota Power Cooperative, Inc.	Grand Forks, N. D.	Grand Forks	Ellerbe & Co	11-49	600	825	2	72	RS	9.5	2.5	4.0	28.0	DB
Public Service Co of New Mexico	Albuquerque, N. M.	Prager	Stearns-Roger Mfg Co	12-48	615	825	1	125	BW	11.6	1.4	5.0	34.1	DB
The Tucson Gas, Elec & Power Co	Tucson, Arizona	No. 3	Sanderson & Porter	1949	615	825	1	150	BW	13.3	3.2	5.6		DB
					615	825	1	150	BW	13.3	3.3	5.6		DB
Grand River Dam Authority	Pryor, Oklahoma	Chouteau	W R Holway & Assoc	11-49	600	750	1	100	CE	12.1		6.0	23.7	DB
New Hampshire Gas & Electric Co	Portsmouth, N. H.	Portsmouth	Gilbert Associates, Inc.	6-50	600	825	1	100	CE	12.1		6.0	23.7	DB
UNDER 600 PSIG														
Omaha Public Power District	Omaha, Neb.	South Omaha		6-48	450	750	1	200	CE	14.5		7.9		DB
Central Ohio Gas & Electric Co	Wilmington, Ohio	Wilmington	Sargent & Lundy	12-47	425	825	1	120	RS	14.0	3.1	8.0	20.0	DB
				6-50	425	825	1	120	RS	14.0	3.1	8.0	20.0	DB
Iowa-Illinois Gas & Electric Co	Coralville, Iowa	Coralville	United Lt. & Rwy Serv	8-49	425	750	1	60	RS	8.9	0.7	3.2	26.8	DB
Public Service Co of New Mexico	Santa Fe, N. M.	Santa Fe	Stearns-Roger Mfg Co	11-49	415	750	2	50	CE	2.4	0.3	0.3		DB
Weyerhaeuser Power & Light Co	Weyerhaeuser, Ga.	Weyerhaeuser	Gibbs & Hill	11-48	410	725	1	44.5	CE	2.4	0.3	0.3		DB
Albion Public Service Corp	Spartan, Mo.	Spartan	Burns & McDonnell	11-49	400	750	1	90	BW	12.0		5.0	29.0	DB
Home Service Co of Colorado	Grand Junction, Colo.	Grand Junction		4-48	400	750	1	60	BW	9.8	1.5	6.2	13.6	ST
Washington Electric Co	Wellshorn, Pa.	Wellshorn	Stone & Webster	1-50	400	750	1	85	RS	10.3	0.8	4.6	25.0	DB
	Wellshorn, N. D.	Wellshorn	Zook C. Hinds	7-47	400	750	2	36	BW	4.0		1.3	39.6	DB
Montana-Dakota Electric Co	Bozeman, N. D.	Bozeman	Stearns-Roger Mfg Co	11-49	400	750	2	36	BW	4.0		1.3	39.6	DB
	Bozeman, N. D.	Bozeman	C. M. Garland & Co	6-48	375	450	1	60	RS	8.1	1.3	2.6	37.0	DB
	Winnipeg, N. D.	Winnipeg	Stearns-Roger Mfg Co	12-48	390	720	1	60	BW	8.2		3.3	37.0	DB
	Winnipeg, N. D.	Winnipeg		7-48	390	600	1	200	BW	18.4		9.0	30.5	DB
	New York, N. Y.	South Street	Baker & Spencer Inc.	1-48	300	800	1	30	BW	35.7	0	17.1	21.9	DB
	Stamford, Conn.	Stamford	Stone & Webster	1-49	300	700	2	125	BW	11.9	0.5	5.3	18.9	DB
	Fredericks, W. Va.	Fredericks	Dravo Corp	2-48	275	500								DB
MUNICIPAL PLANTS														
Board of Public Utilities	Waco, Texas	Waco	Burns & McDonnell	1951	850	900	1	300	BW	18.1		20.0	21.4	ST
Electric Department	Austin, Texas	Austin	Burns & McDonnell	6-50	850	900	1	200	CE	21.2	6.2	11.4	21.3	DB
				6-51	850	900	1	200	CE	21.2	6.2	11.4	21.3	DB
City of Cincinnati	Cincinnati, Ohio	Cincinnati	Burns & McDonnell	7-49	700	875	1	250	SP	12.1	7.7	11.0	24.2	DB
City of Cleveland	Cleveland, Ohio	Cleveland	Burns & McDonnell	1951	650	825	2	200	FW	24.0		11.5	31.0	ST
City of Detroit	Detroit, Mich.	Detroit	Sargent & Lundy	6-49	600	825	1	90	RS	13.2	1.2			DB
City of Eugene	Eugene, Oregon	Eugene	Burns & McDonnell	10-49	600	825	1	175	RS	28.7	7.6	12.0	17.0	DB
City of Houston	Houston, Texas	Houston	Burns & McDonnell	7-50	600	825	1	65	RS	13.9		7.4	24.3	DB
City of Indianapolis	Indianapolis, Ind.	Indianapolis	Burns & McDonnell	7-51	600	825	2	60	BW	12.7		3.4	21.4	DB
City of Kansas City	Kansas City, Mo.	Kansas City	Albert C. Wood	6-49	600	750	2	70	EC	8.3		2.6	35.0	DB
City of Columbia	Columbia, Ind.	Columbia			550	750	1	60	EM					DB
Aluminum Power & Light Co	Trinidad, Colo.	Trinidad	Rocky Mountain Co	1-50	450	750	2	35	CE				25.0	DB
City of Coleman	Coleman, Texas	Coleman	Bartholomew Eng'g	6-49	450	750	1	28	BW					DB
City of El Paso	El Paso, Texas	El Paso	Brown Eng'g Co	6-48	450	750	1	25	BW	4.3	1.1	1.4	25.4	DB
Municipal Utilities	Greenboro, N. C.	Greenboro	Black & Veatch	1-50	425	750	2	60	BW					DB
	Greenboro, N. C.	Greenboro	Black & Veatch	7-49	425	750	2	60	BW					DB
	Greenboro, N. C.	Greenboro	Black & Veatch	7-49	425	750	2	60	BW					DB
	Greenboro, N. C.	Greenboro	Black & Veatch	7-49	425	750	2	60	BW					DB
	Greenboro, N. C.	Greenboro	Black & Veatch	7-49	425	750	2	60	BW					DB
	Greenboro, N. C.	Greenboro	Black & Veatch	7-49	425	750	2	60	BW					DB
	Greenboro, N. C.	Greenboro	Black & Veatch	7-49	425	750	2	60	BW					DB
	Greenboro, N. C.	Greenboro	Black & Veatch	7-49	425	750	2	60	BW					DB
	Greenboro, N. C.	Greenboro	Black & Veatch	7-49	425	750	2	60	BW					DB
	Greenboro, N. C.	Greenboro	Black & Veatch	7-49	425	750	2	60	BW					DB
	Greenboro, N. C.	Greenboro	Black & Veatch	7-49	425	750	2	60	BW					DB
	Greenboro, N. C.	Greenboro	Black & Veatch	7-49	425	750	2	60	BW					DB
	Greenboro, N. C.	Greenboro	Black & Veatch	7-49	425	750	2	60	BW					DB
	Greenboro, N. C.	Greenboro	Black & Veatch	7-49	425	750	2	60	BW					DB
	Greenboro, N. C.	Greenboro	Black & Veatch	7-49	425	750	2	60	BW					DB
	Greenboro, N. C.	Greenboro	Black & Veatch	7-49	425	750	2	60	BW					DB
	Greenboro, N. C.	Greenboro	Black & Veatch	7-49	425	750	2	60	BW					DB
	Greenboro, N. C.	Greenboro	Black & Veatch	7-49	425	750	2	60	BW					DB
	Greenboro, N. C.	Greenboro	Black & Veatch	7-49	425	750	2	60	BW					DB
	Greenboro, N. C.	Greenboro	Black & Veatch	7-49	425	750	2	60	BW					DB
	Greenboro, N. C.	Greenboro	Black & Veatch	7-49	425	750	2	60	BW					DB
	Greenboro, N. C.	Greenboro	Black & Veatch	7-49	425	750	2	60	BW					DB
	Greenboro, N. C.	Greenboro	Black & Veatch	7-49	425	750	2	60	BW					DB
	Greenboro, N. C.	Greenboro	Black & Veatch	7-49	425	750	2	60	BW					DB
	Greenboro, N. C.	Greenboro	Black & Veatch	7-49	425	750	2	60	BW					DB
	Greenboro, N. C.	Greenboro	Black & Veatch	7-49	425	750	2	60	BW					

F-D FANS		FUEL		FEED PUMPS		TURBINES		GENERATORS														
Unit	Air Heat	Drive	Air Volume Control	Drive	Gas Volume Control	Flaring	Type	Heating Value, 1000 Btu per lb	Vol-Fusion Temperature, F	Drive	Flow Control	Capacity, 1000 kw	Speed, rpm	Manufacturer	Backpressure, psia	No. of Bleed Points	Generator Cooling	Surface, 1000 sq ft	No. Water Pases	Tube Material	Total Boiler Capacity Incl New Units, 10000	Total Generator Capacity Incl New Units, 10000
19.8	Re	M	D, Hy	M	D, Hy	P	C	11.0	2100	3M	R	37.5	3600	GE	0.75	4	H	32.5	12	Ad	1720	117.5
19.8	Re	M	D, A	M	D, A	P	C	18.4		3M	R	20	3600	WE	1.0	4	H	16	1	AsAd	680	58
19.8	Re	M	A	M	A	P	C	18.0		2M, 1T	R	30	3600	WE	0.75	4	H	30	1	AsAd	400	30
19.8	Re	M	A	M	A	P	C	10.6	1950	2M	R	20	3600	AC	0.75	4	H	16.5	1	As	205	20
19.8	Re	M	D, Hy	M	D, Hy	P	C	12.7	2000	2M, 1T	R	40	3600	GE	0.75	4	H	35.0	1	Ad	400	45
19.8	Re	M	A	M	A	P	C	12.0	2000	3M	R	60	3600	GE	0.75	4	H	50	1	Ad	1300	120
19.8	Re	M	A	M	A	P	C	13.0	2300	3M	R	20-18	3600	WE	1.0	4	H	13	1	As	420	40
19.8	Re	M	A	M	A	P	C	13.7	2500	2M, 1T	R	30	3600	GE	0.75	5	H	27.5	1	AlBr	1250	105
19.8	Re	M	A	M	A	P	C	11.0	1950	2M, 1T	R	40	3600	GE	0.75	4	H	30	2	AsAd	1200	120
19.8	Re	M	A	M	A	P	C			2M	R	22.5	3600	WE	1.0	4	H	20.4	1	AlBr	460	45
19.8	Re	M	A	M	A	P	C			2M	R	30	3600	WE	1.0	4	H		1	AlBr	770	75
19.8	Re	M	A	M	A	P	C	11.4	2000	2M	R	60	3600	WE	0.75	4	H	37.5	1	Ad	1700	150
19.8	Re	M	A	M	A	P	C	12.0	2100	1M, 1T	R	65	3600	WE	0.75	5	H	50	1	Ad	1600	125
19.8	Re	M	A	M	A	P	C	12.0	2100	1M	R	65	3600	WE	0.75	5	H	50	1	Ad	2800	190
19.8	Re	M	CP	M	D	P	C	10.9	1080	1M, 1T	R	20	3600	GE	0.75	4	H	18.0	1	AsCu	500	35
19.8	Re	M	A	M	A	P	C	10.9		1M, 1T	R	40	3600	GE	1.75	4	H	42.5	1	AsAd	500	45
19.8	Re	M	A	M	A	P	C	9.57		3M	R	30	3600	GE	1.75	4	H	37.5	1	AsAd	675	65
19.8	Re	M	A	M	A	P	C	10.0	1000	2M	R	15	3600	GE	1.75	4	H	20.0	1	AsAd	500	25
19.8	Re	M	A	M	A	P	C	10.0		2M	R	20	3600	GE	1.75	4	H	22.5	1	AsAd	370	35
19.8	Re	M	A	M	A	P	C	11.0	2200	2M	R	20	3600	GE	0.5	4	H	18.2	1	As	780	60
19.8	Re	M	Hy	M	Hy	P	C	11.0	2200	2M	R	60	3600	WE	0.75	4	H	45.0	1	As	3150	245
19.8	Re	M	Hy	M	Hy	P	C	11.0	2200	2M	R	60	3600	WE	0.75	4	H	45.0	1	As	3750	295
19.8	Re	M	Hy	M	Hy	P	C	11.0	2200	2M	R	35	3600	WE	0.5	4	H	32.5	1	AsAd	1740	137
19.8	Re	M	Hy	M	Hy	P	C	10.0	2000	2M	R	50	3600	WE	1.25	5	H	45	1	As	475	50
19.8	Re	M	Hy	M	Hy	P	C	10.0	2000	2M	R	50	3600	WE	1.25	5	H	45	1	As	650	100
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	50	3600	WE	0.75	4	H	45	1	PAD	3120	192
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	11.0	1	PAD	125	12.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	125	12.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	225	20
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600	1M, 1T	R	12.5	3600	GE	0.5	4	A	9.5	1	PAD	275	22.5
19.8	Re	M	Hy	M	Hy	P	C	10.4	1600</													