
APPENDICES

APPENDIX A.—SCHEDULE

APPENDIX B.—INSTRUCTIONS TO SPECIAL AGENTS

APPENDIX A.

SCHEDULE.

Name of company or plant.....
 Location of plant: (State..... County.....
 (City or town..... Street and No.....
 General Office (give state, city, street, and number).....

WASHINGTON, D. C., December 31, 1907.

The act of Congress of June 7, 1906, directs the Director of the Census to take a census of electric light and power stations every five years, and this schedule has been formulated for that purpose.

The information returned on this schedule should cover the business year of the company most nearly conforming to the year ending December 31, 1907. All questions that require a fixed time, such as cash on hand, number of lamps, etc., should be of the date of the last day of the year covered by the report.

The answers to inquiries in regard to financial matters will be held absolutely confidential; the separate reports will be combined so as to show totals for all companies in the different states. No publication will be made in the census reports disclosing the operations of individual companies. The information will be used only for the statistical purposes for which it is given.

The canvass is to be made under the supervision of Mr. W. M. Stewart, Chief Statistician for Manufactures.

S. N. D. NORTH,
Director of the Census.

Extract from act of Congress, March 3, 1890:

Section 22. * * * "And every president, treasurer, secretary, director, agent, or other officer of every corporation, and every establishment of productive industry, whether conducted as a corporate body, limited liability company, or by private individuals, from which answers to any of the schedules, inquiries, or statistical interrogatories provided for by this act are herein required, who shall, if thereto requested by the Director, supervisor, enumerator, or special agent, willfully neglect or refuse to give true and complete answers to any inquiries authorized by this act, or shall willfully give false information, shall be guilty of a misdemeanor, and upon conviction thereof shall be fined not exceeding ten thousand dollars, to which may be added imprisonment for a period not exceeding one year."

CERTIFICATE.

This is to certify that the information contained in this schedule is complete and correct to the best of my knowledge and belief, and it covers the period from, 190 , to, 190 .

(Signature and official designation of the person furnishing the information.)

(Signature of special agent.)

(Address of person furnishing the information.)

1. Character of ownership: State the form of ownership as it existed on the last day of the year covered by the report, whether individual, firm or partnership, incorporated company, municipal, or other form.....
2. If a consolidated company, give names and location of constituent companies included in this report, or write same on last page.....
3. If a reorganized company, give name of original company.....
4. If a subsidiary or leased company, give name and address of operating company or lessee.....
5. If the corporation or firm is engaged in any business or industry other than that of central-station work for electric light and power, state the character of such business or industry, and whether conducted in the same or separate plants..

6. Number of lamps: Account for all lamps wired for service on last day of year covered by report, irrespective of ownership. If actual number is not known give careful estimate.

Class.	Type of lamp.	Publc. (Number.)	Commer- cial or other private. (Number.)	Total. (Number.)
Arc lamps:				
Direct current.....	Open.....			
	Inclosed.....			
Alternating current.....	Open.....			
	Inclosed.....			
Total.....	Open.....			
	Inclosed.....			
Incandescent lamps:				
Sixteen candlepower.....				
Thirty-two candlepower.....				
All other.....				
Total.....				
Other varieties (Nernst, vacuum, vapor, etc. [state kind]).....				
Lamps used by company to light its own properties, and not reported above: (For municipal plants include only lamps in power houses.)				
Arc.....				
Incandescent.....				
Other varieties (state kind).....				

7. Miscellaneous statistics.	Number.
Stationary motors served (do not include small fan motors).....	
Total capacity in horsepower.....	
Give estimate of number of small fan motors served.....	
Railway motor cars served.....	
Meters on consumption circuits (include all kinds, mechanical, chemical, etc.).....	
Transformers in circuits for customers.....	
Total capacity in kilowatts.....	
Total number of customers furnished electric current.....	
Number of customers furnished electric current for heating or cooking apparatus.....	
Miles of street occupied by underground conduits for mains and feeders ¹	
(If underground conduits are rented from a municipality or commercial company, give particulars of agreement and annual rental paid, on last page of schedule.)	

CENTRAL ELECTRIC LIGHT AND POWER STATIONS.

8. Power-plant equipment.

Generating power plant.	500 H. P. or under.	Over 500 H. P. and under 1,000 H. P.	1,000 H. P. and under 2,000 H. P.	2,000 H. P. and under 5,000 H. P.	5,000 H. P. and over.
Steam engines, number.....					
Total capacity in horsepower.....					
Steam turbines, number.....					
Total capacity in horsepower.....					
Gas engines, number.....					
Total capacity in horsepower.....					
Water wheels, number.....					
Total capacity in horsepower.....					

Auxiliary engines for use within plant as accessories, etc.:

Number....., total capacity in horsepower.....

¹ Length to be stated in miles and decimals of a mile carried to two places.

9. Electrical generators: The kilowatt capacity, voltage, and amperage reported should represent a single machine. If more than one machine of the same class, give separate information for each.

	Number.	Total capacity in kilowatts of each machine.	Indicated voltage of each machine.	Indicated amperage of each machine.
Dynamos:				
Direct-current, constant-voltage.....				
Direct-current, constant-amperage.....				
Alternating and polyphase current.....				
Boosters.....				
Rotaries.....				
Storage-battery cells in main power plants.....				
Miscellaneous apparatus (state kind).....				

10. Output of station: The output should be calculated from the voltage and amperage of the generators, or obtained from the actual watt or kilowatt readings of dynamo meters.

Kilowatt hours, average per day.....

Kilowatt hours, total for year.....

State the number of hours of operation, per day, if day circuits are not operated.....

11. Substation equipment: The kilowatt capacity, voltage, and amperage reported should represent a single machine. If more than one machine of the same class, give separate information for each.

Class.	Number.	Total capacity in kilowatts of each machine.	Indicated voltage of each machine.	Indicated amperage of each machine.
Storage battery, cells.....				
Transformers.....				
Rotary converters.....				
Miscellaneous apparatus (state kind).....				

12. Cost of plant: The answer must show the total cost of land—buildings—machinery, tools, and implements within stations and shops—overhead and underground electric-service construction—lamps, motors, meters, and transformers wired for use—supplies of every description on hand not enumerated elsewhere. If land was donated, so state and give estimated value at time of donation, but do not include the amount in the total. For municipal plants include the preliminary cost of experts' reports, engineering plans, holding special elections, etc.

Cost during the year..... \$.....

Cost to date..... \$.....

Is value of franchise included? (Answer Yes or No).....

13. Supplies and materials used during the year for ordinary repairs and replacements: This inquiry is not intended to cover mercantile transactions, but if the company incidentally sells electric supplies and fixtures to its customers the quantity and cost of such supplies disposed of during the year should be included. If the company pays freight on any of the supplies and materials used, and the amount is not included in their cost, report the amount of this freight under "Amount of freight, if any, paid on the above." (Do not include expenditures for additions or extensions.)

Kind.	Number.	Cost.
Supplies:		
Meters.....		\$.....
Motors.....		
Transformers.....		
Incandescent lamps.....		
Nernst lamps, vacuum and vapor lamps, etc.....		
Incandescent and other lamp fittings, sockets, etc. (Do not include arc-lamp supplies).....		
Carbons, globes, hoods, and other supplies for arc lamps, including arc-lamp repairs.....		
Poles or other supports.....		
Wire and cable.....		
Fuel:		
Coal.....		
All other fuel (state kind).....		
Electric current purchased for distribution ¹		
Power purchased (state kind).....		
Rent of water privileges for water wheels or turbines.....		
All other supplies and materials, including water for boilers, mill supplies, etc.....		
Total cost.....		\$.....
Amount of freight, if any, paid on the above (not included in the "Cost").....		\$.....

¹ Give name and address of company from whom purchased.

14. Miscellaneous expenses.	Amount.
Rent of stations, and line-wire supports, conduits, or underground privileges.....	\$.....
Rent of offices.....	
Taxes (state kind).....	
Injuries and damages.....	
Insurance.....	
Ordinary repairs of buildings, machinery, etc. (Do not include amounts reported in Inquiry 13, "Supplies and materials").....	
Amount paid for interest, advertising, office supplies, law expenses, telegraph and telephone service, and all other expense incident to operation and maintenance not elsewhere reported. (Do not include interest on bonds or dividends on stock).....	
Total.....	\$.....

15. Employees, salaries, and wages: The average number employed during the year is the number that would be required, at continuous employment, for the twelve months. If any of the persons enumerated were employed only a portion of the time, give only the wages paid in connection with the electric service. Account for all regular officers and employees whether engaged on maintenance, canvassing, collecting, operation, or otherwise. (Do not include employees engaged exclusively on additions or extensions.)

	Average number employed during the year.	Total amount paid in salaries and wages during the year.
Salaries employees:		
Salaries officers of corporation.....		\$.....
Other officers (general managers, superintendents, electricians, and experts).....		
Clerks and bookkeepers.....		
Total.....		\$.....
Wage-earners (do not include salaried employees reported above):		
Foremen.....		
Inspectors.....		
Engineers.....		
All other employees (including firemen, dynamo and switchboard men, linemen, mechanics, and lamp trimmers).....		
Total.....		\$.....

16. Income: Give the total amount of income for the year as indicated by the books of the company. If accounts do not show the income from each class of service enumerated, give a carefully estimated segregation.

Commercial companies should include not only income from current actually sold, but also the estimated value of current supplied municipality or other government free of charge, the estimate to be based on the prevailing commercial rates. (Estimated value of current consumed by lamps and motors on the company's own properties should not be included.)

Municipal plants must include in answer to the inquiry the estimated value of current consumed in public buildings and in lighting streets, parks, etc., the estimate to be based on the prevailing commercial rates. (Estimated value of current consumed by lamps and motors in municipal-power houses should not be included.)

Source.	Amount.
Lighting:	
Commercial or other private—	
Arc lamps.....	\$.....
Incandescent lamps.....	
Other lamps.....	
Public, furnished municipality or other government for buildings and streets—	
Arc lamps.....	
Incandescent lamps.....	
Other lamps.....	

Source.	Amount.
Motor service, stationary (not including small fan motors).....	
Electric-railway service.....	
Sale of current to other electric companies.....	
Electric heating, cooking, welding, etc.....	
Charging automobiles.....	
All other electric service (specify items).....	
Gross income from sale of supplies and fixtures.....	
Income from all other sources (specify items).....	
Total.....	\$.....

If a commercial company, give amount of estimated income for free service, which is included above..... \$.....

If a municipal plant, give amount of estimated income represented by current consumed in public buildings and in lighting streets, parks, etc., which is included above..... \$.....

17. Capital stock, bonds, dividends, and interest: If the company operates a gas or water plant or other industry in connection with the electric light and power plant, and it is impossible to segregate the capitalization, report the entire capital and give an estimate of the proportion chargeable to the electric light and power plant department.

	Number of shares or bonds.	Total par value.	Dividends declared and interest paid or due for the year.	
			Rate.	Amount.
Authorized capitalization by charter:				
Common stock.....		\$.....	x x x x	x x x x x x
Preferred stock.....			x x x x	x x x x x x
Bonds.....			x x x x	x x x x x x
Capital stock and bonds outstanding:				
Common stock.....				\$.....
Preferred stock.....				
Bonds.....				

Estimated proportion of above outstanding capitalization chargeable to the electric light and power plant department.....

18. Poles purchased during 1907.

Length, feet.	Cedar.		Chestnut.		Juniper.		Other species. (Specify.)	
	Number.	Average cost per pole at point of purchase.	Number.	Average cost per pole at point of purchase.	Number.	Average cost per pole at point of purchase.	Number.	Average cost per pole at point of purchase.
Under 20.....								
20 and over but under 25.....								
25 and over but under 30.....								
30 and over but under 35.....								
35 and over but under 40.....								
40 and over but under 45.....								
45 and over but under 50.....								
50 and over but under 55.....								
55 and over but under 60.....								
60 and over.....								

How many treated poles were purchased during 1907?.....

What preservative was used?.....

How many poles were treated during 1907?.....

What preservative was used?.....

APPENDIX B.

INSTRUCTIONS TO SPECIAL AGENTS.

Period covered.—The act of Congress, approved June 7, 1906, provides that every five years this office shall collect statistics relating to electric light and power stations. The census of this industry will relate to the year ending December 31, 1907, and all plants that were in existence during any portion of the year must be reported.

Special agents, daily reports, and correspondence.—The canvass will be made by the regular employees of the Census Office working under the supervision of the chief statistician for manufactures. The employees detailed for field work must make daily reports on Form 8-185b for every day on which they are actually employed. The daily reports, together with all schedules taken daily, must be forwarded by registered mail at the close of each day, in the return penalty envelope addressed to the Director of the Census. *The office number and the running number of the report should be placed on the daily report for all schedules sent in.* Inquiries concerning schedules or further instructions must be made by letter and not on the daily reports. Each inquiry or requisition should be made in a separate letter. Employees must give sufficient notice of the date they will complete the district to which they are assigned, so that, if necessary, they may be assigned to other territory without loss of time.

In all correspondence, make reference to office letters by date, and to schedules and memoranda containing criticism, by referring to the office number on the list and the full name and address of the company in question.

Day's work.—The relative efficiency of each employee engaged in field work will be determined by the number and completeness of the reports secured. Each daily report must account for the work of the day. Schedules *must not* be retained for a number of days and daily reports made out so as to show a fair average for each day.

Districts and lists.—The entire country has been divided into districts and one or more special agents will be assigned to each district. The agents will be held accountable for a thorough canvass of their respective districts. To assist in locating the plants to be enumerated, each agent will be furnished with a list giving the names, locations, and addresses of all electric properties covered by the census in the territory assigned him. These lists are based on information obtained from directories, postmasters, and other sources. *The agents must not accept them as complete, but must be constantly on the alert to discover other plants or systems, especially municipal electric fire-alarm and police-patrol systems in towns of less than 2,500 inhabitants.*

The different cities must be visited in the order named on the list, unless the agent finds that railroad connections and local conditions make a change advisable. In such cases the character and necessity for the change must be given on the agent's daily report.

An agent should not return to a city already canvassed to secure information for a report returned to him for correction unless especially advised to do so. It is believed that the agent will be able in most cases to supply the information from his knowledge of the conditions. If he can not do so, he should return the schedule to the office with such explanation for his error or neglect as he may be able to make. To obviate the necessity of returning schedules for additional information, the agent must be careful to secure *complete* reports for all plants before leaving a city.

Reports secured by mail.—Schedules were mailed to all companies, and if a *complete* report has been thus secured, the name on the agent's list will be marked "schedule received." If the mail report is unsatisfactory, the name will be stamped "incomplete schedule received," and the original schedule furnished the agent to complete. These schedules must be completed or corrected, signed, and returned by the agent. If it is found advisable to prepare a new report in place of the original, such report must be marked "corrected report" on the title page. Otherwise the agent will still be charged with the original schedule. If the agent has not been advised that the office is in receipt of the report, he must secure the same, although the company may claim that the schedule has been furnished.

Proposed plants.—Some of the names on the list are for plants or systems that were contemplated or projected, or supposed to be under construction, but not necessarily building or in operation; when possible, such plants have been designated as "proposed," or as "under construction." These plants should not be visited when it requires a special trip unless the agent can obtain information that they were actually in operation. If for other purposes the agent visits a place where such a plant or system is supposed to be located, he must account for the name on his daily report and give information which will enable the office to dispose of the name on the office list.

Idle plants.—The instructions in the preceding paragraph in regard to "proposed" plants are applicable also to idle plants. While the census is to cover all plants that were in existence during 1907, the agent should not make a special trip to secure the report of a plant that was not in operation during any part of the year.

New plants.—If a report is secured for a listed company under a name other than that given on the agent's list, a memorandum must be made on the schedule giving the name of the company as it appears on the list. If this is not done, the name will remain on the list as charged to the agent. If schedules are secured for plants not on the list, the words "not on list" must be written in the upper left-hand corner of the title page.

Central offices.—A large number of properties are controlled from offices located elsewhere than at the plants. When known, central offices of this character are indicated on the lists with the names of the plants for which reports will be prepared at the central office. Agents canvassing the districts in which central offices are located must in every instance secure reports from these offices before canvassing the other plants. A large number of controlling companies have advised the office that reports for certain properties will be prepared at their office. The names of these controlled companies will appear on the agent's list without a number, but with a notation "see central office," or "report will be secured at ———." Agents must not secure reports for these controlled companies unless especially directed to do so. If in the city, the agent should call at such plants and explain that a census of electrical industries is being taken; also that it is understood the report is being prepared at the central office of the company. He should also leave blank schedules, explaining the requirements of the census, so that the local officials will know just what information is required if the central office requests them to furnish data for the reports.

If a plant is owned by a company whose business office is in

another locality outside the territory assigned the agent and a portion of the information must be obtained from such office, the agent should complete the schedule so far as possible from the data obtainable at the plant and forward it to the Census Office with a full statement of the facts, giving also the names and addresses of the persons from whom further information can be obtained. The agent must, however, exhaust every reasonable means to complete the report before sending it in to the Census Office.

Annual reports.—In all cases where an annual report of the company is printed, a copy of the latest report should be secured and forwarded with the schedule. Copies should also be returned of the latest report of the directors or officers of the company, or other printed matter that would add to the information contained in the schedule.

The schedule.—An exact answer to each question enumerated in the several inquiries is what is required, and is what should be given if it can be secured with a reasonable amount of labor. It is anticipated, however, that in a number of cases the accounts are not kept under just such a series of items as is enumerated in the schedule. If the accounts cover two or more of the items enumerated for any of the inquiries, the total should be equitably apportioned for the reply to each subinquiry. In all cases where the answers are estimated the amounts must be preceded by the word "estimate."

All answers must be made clearly and neatly in ink. Amounts and values must be obtained from book accounts, if such accounts are available. Each question is to be answered. If any question is found not applicable and no amounts are reported, write the word "none."

The following instructions, in addition to those on the schedule, should be followed by the agents in preparing all reports:

The title-page.—Page 1 must contain the name and location of the company, the address of the general office, and the signature, address, and official designation of the person furnishing the information. Place the office number and the running number of the report in the upper right-hand corner. If the address of the general or business office is at a different place from that of the plant, care must be taken to give both.

The reports for plants that were in operation only a portion of the census year will be tabulated separately; therefore it is essential to give on the title-page the exact period covered by each report.

Reports must be secured for all electric plants doing a public-service business; that is, for all plants, whether owned or operated by individuals, companies, corporations, or municipalities, established for the purpose of generating electric current for sale, that were in existence during any portion of the year ending December 31, 1907.

No report is required for isolated electric light or power plants operated primarily for the benefit of the owner in lighting and furnishing power for his factory, hotel, or other enterprise, even though some current may be sold. The instructions on the title-page of the schedule provide that "isolated plants which incidentally sell current must be reported." This was intended for the guidance of persons who would receive the blank schedule through the mail, and to avoid the possibility of omitting any central stations. Such plants can not be considered as central stations, and agents must not secure reports for them.

Electric plants owned by the United States Government and operated primarily for supplying light or power to public buildings, military posts, naval stations, Indian reservations, etc., should be considered isolated plants and no report secured; also electric plants owned by and operated primarily for the benefit of state institutions.

Combined reports.—If the electric plant is operated in connection with an electric railway, separate reports should, if possible, be prepared. If this can not be done, a combined report should be prepared on the railway schedule.

If the electric plant is operated in connection with any business other than a street railway and the system of accounts will not permit of the preparation of a separate return, careful estimates

must be prepared for answer to all the questions contained in the schedule; these estimates must be prepared by, or submitted to and approved by, the person furnishing the information. The items of cost of plant; supplies and materials; miscellaneous expenses; employees; salaries, and wages, and income, must pertain only to the electric light or power station.

Where two or more plants are owned by one individual, company, or corporation, and located in the same city or town, one combined report may be secured. In such cases the number of separate plants included in the report should be stated in answer to inquiry 2. Light and power plants operated by the same corporation, firm, or individual, and located in different states, counties, cities, or towns should be reported separately.

INQUIRIES 1 TO 5, INCLUSIVE.

These are intended to obtain information concerning the character of the organization under which the company is operated, the character of the changes in such organization, and whether or not conducted in connection with some other industry. The answers given to each of these questions must be consistent.

INQUIRY 6.—NUMBER OF LAMPS.

The answers to this inquiry must show the total number of the different varieties of lamps connected or wired ready to render service, and not the number actually performing service at any one time. The total must include all lamps in position to earn an income, irrespective of their ownership. Therefore it may include many lamps that are *not owned* by the company. If there is no record of the actual number of lamps, secure a careful estimate. The distinction between "public" and "commercial or private" lighting must be carefully preserved. This public service is the lighting of streets, parks, public buildings, and all other public places for the illumination of which the municipality or other form of government is responsible.

Open arc electric lamps are usually employed in street lighting, and are those having either one or two pairs of carbons inclosed in a single large globe. They are designed to burn a small number of hours (ten to fifteen) before having the carbon renewed. An inclosed arc lamp has two globes, a large or outer one inclosing a small one in which a single pair of carbons is incased, and is designed to burn a large number of hours (one hundred to one hundred and fifty) before having the carbons renewed. Both kinds may be either of the direct-current or of the alternating-current type.

INQUIRY 7.—MISCELLANEOUS STATISTICS.

Stationary motors.—This term is applied by central station men to electric motors that are permanently located in one place, as distinguished from electric railway motors on cars. Such stationary motors will cover an infinite variety of work, and in many cases the companies will have difficulty in reporting the number of motors on their circuits, or in giving the separate income from motors (inquiry 16), especially where current is furnished through meters. But the inquiry must be pushed, and where exact figures can not be given from records it is desirable that a close estimate be secured. The field covered by these stationary motors will include every class of industrial work and many other methods of application, such as in running large ventilating fans, elevators, etc. It is a custom of many companies to make special rates for what they call "power" business, as distinct from that done in supplying current for lamps; and where this is the case, their records should show the data as to motor service and income.

The actual or the estimated number of small fan motors and railway motor cars served with current should be reported for every plant.

Meters on consumption circuits.—This inquiry applies solely to meters installed on the consumers' premises, just as gas meters are, and does not relate to meters installed at the central station.

Transformers in circuits for customers.—The number and total capacity in kilowatts of all transformers in circuits for customers should be reported here.

A great deal of electrical work in scattered communities is done with the aid of transformers, which are also to be found in some of the larger cities at the customers' end of the line, although as a general thing in large city plants it is the practice to furnish direct current to the consumer, in which case transformers are not needed outside the station or substation. Where the lamps in a customer's house or store are fed with alternating current, the transformers are placed on an adjacent pole or in a cellar or other room where they are not generally accessible, as the primary voltage is dangerous to life. The current is sent out at a high pressure from the central station and is received by the primary coil in the transformer at perhaps 1,000 to 2,000 volts. The secondary coil takes the small-quantity high-pressure current from the primary coil and transforms it into large-quantity low-pressure current for use in the lamps, motors, etc. The coils and the iron core they surround are inclosed in water-tight metal boxes, which present a rough resemblance to mail boxes and fire-alarm boxes.

INQUIRIES 8 AND 9.—POWER-PLANT EQUIPMENT AND ELECTRICAL GENERATORS.

The capacity of the engines and water wheels and of the dynamos is closely related. The engines and water wheels, as a rule, have an excess capacity over that of the dynamos. "Auxiliary engines" will sometimes be found in small stations, but in the larger plants electric motors are in common use to drive pumps, etc., and the superintendent or manager can readily enumerate them.

There will be no difficulty in ascertaining the facts as to the different classes of dynamos. The voltage of machines for lighting purposes varies greatly. In all cases the kilowatt capacity, voltage, and amperage reported must represent a single machine. If there is more than one machine of the same class, give separate information for each.

Storage batteries are used, either in the main power plants or in the substations, to help maintain a steady supply of current at the right pressure, and "boosters" are dynamos assisting to the same end. The substation is particularly a feature of long-distance work, but competent engineers are generally to be found who can give the substation equipment should it not be in possession of the management.

INQUIRY 10.—OUTPUT OF STATION.

The kilowatt hours may be tested by the earnings. The average earnings per kilowatt hour for all plants at the census of 1902 was about $3\frac{1}{2}$ cents. The average varies considerably for individual plants, but if the average is less than 1 cent or more than 15 cents per kilowatt hour, the figures should be questioned and if found correct, explanation made.

A standard arc lamp consumes from 450 to 550 watts per hour; ordinary standard incandescent lamps of 16 candlepower have an average consumption per hour of about 3.1 watts per candlepower. Many incandescent lamps now in use, like the tantalum, take less.

In all calculations of average earnings per kilowatt hour and consumption of current per lamp, etc., the loss of current in transmission must be considered.

INQUIRY 11.—SUBSTATION EQUIPMENT.

The feature of substation equipment is that it does not generate current, but receives it, manipulates it, stores it, and lowers the pressure or changes the form for local consumption. All the generating plants will usually be found in the generating stations, but sometimes substation apparatus will be found under the same roof as the main generating plant apparatus.

INQUIRY 12.—COST OF PLANT.

The answer to this inquiry must show the total cost of the plant and equipment up to the end of the year for which the report is made, with a separate statement of the cost of additions and extensions during the year. The cost of plant must include all ex-

penses incident to the organization of the company and the establishment of the plant. If the land was donated, that fact should be stated and the estimated value at the time of the donation given separately, but not included in the total.

INQUIRY 13.—SUPPLIES AND MATERIALS USED DURING THE YEAR FOR ORDINARY REPAIRS AND REPLACEMENTS.

The actual cost of all materials and supplies used during the year must be reported. In answering this inquiry report only the materials and supplies that were used for ordinary repairs or replacement during the year reported. Expenditures for additions to the plant, such as new machinery, or additional lines on which new meters, motors or transformers, or lamps are installed, should be included in answer to inquiry 12, cost of plant.

As a rule all equipment that adds to the capacity of the plant should be regarded as "extension" and whatever merely sustains existing efficiency as "repairs." Incandescent lamps are often paid for by the central-station customers. If this is the case, only those used in renewing street lamps or such others as the company is responsible for should be reported. The quantity (number) and cost should be given for the first five articles listed under supplies. If large quantities of supplies or fuel were purchased with a view of taking advantage of low prices, that fact must be stated in a footnote, but in such cases the answer to the inquiry should show only the quantity and cost of such as were consumed during the year.

The cost of water hired or rented to run water wheels or turbines should be reported in answer to the question "rent of water privileges for water wheels or turbines." The amount paid annually for land used for obtaining a water supply should not be reported in answer to this question, but should be included under the first question of inquiry 14—miscellaneous expenses.

Amount of freight, if any, paid on the above (not included in the "cost").—If the company reporting pays freight on any of the supplies and materials used, and the amount is *not* included in their cost, the amount of the freight should be reported in answer to this question.

INQUIRY 14.—MISCELLANEOUS EXPENSES.

All items of expense incident to the business for the year and not included in answer to inquiries 13 and 15 must be reported here. Do not include any portion of the freight reported under inquiry 13 as paid on supplies and materials. Expenses incident to additions or extensions of the plant or line should not be included in answer to inquiries 13, 14, or 15. The cost of such additions must be reported as cost of plant—inquiry 12.

INQUIRY 15.—EMPLOYEES, SALARIES, AND WAGES.

Account for all regular employees of the company who were required to supervise and keep up the usual work of the plant. Do not include those employed exclusively on extension work. Give the number of officers who receive salaries (not the number of stockholders) and the gross amount of their salaries. Report separately the number and wages of foremen, inspectors, and engineers. In a few cases the company may rent houses to, or possibly board, its employees at a reduced rate; in such cases the salaries and wages reported should include the allowance for board or rent furnished as part compensation. The average number employed during the year is the number that would be required, at continuous employment, for the twelve months. There should be no difficulty in securing this information for the plant of ordinary size, but it may be that the large companies keep an itemized pay roll, the total only being carried forward each week or month. In such cases it will be necessary either to add the pay roll of each week or month, for each class of employees, or to compute the aggregate for each class, using a pay roll for a representative week or month as the base. Results obtained by the latter method will be accepted.

INQUIRY 16.—INCOME.

The total amount of income indicated by the books of the company for the entire year should be reported. Give separate amounts

for the different sources enumerated. Electric companies frequently furnish free service to the municipality in which they are located, such as the illumination of some or all of the public buildings, the supply of a certain number of lamps, or the granting of a special discount on the lamps used, or in other ways make a return for the ordinance or franchise by which the company was granted the use of the streets. The value of this free service must be estimated and included as indicated by the inquiry, and must also be stated separately in answer to the subquestion, "If a commercial company, give amount of estimated income for free service, which is included above."

It is essential to show separately the income from commercial or private service and public service. If incandescent and arc lamps are connected on the same meter, and it is found impossible to separate the income, the total income for both classes of service should be ascertained and a careful estimate made for the two classes. Public-lighting contracts are usually made for a term of years. The customary contract is based on what is known as a lighting schedule. Two principal schedules which show the extremes are, respectively, designated by business men as the "all-night-and-every-night schedule," estimated at 4,000 hours per year, and the "dark-of-moon, every-night, one-hour-after-sunset-until-12-o'clock-midnight schedule," estimated at 1,200 hours per year. Between these extremes are numberless variations. The income received from public service, therefore, can be very easily ascertained. If this income is not shown separately for arc lighting and incandescent lighting, the separation should be estimated in the same manner as above indicated for arc lighting and incandescent lighting in general.

Electrical signs have become quite an important feature of central station work. These signs are usually lighted by incandescent lamps, and the income from this service should be accounted for under the proper item of inquiry 16, and the number of lamps wired for service included under inquiry 6.

Under normal conditions the net income—i. e., the total income for the year as reported in inquiry 16, less the total expenses of operation and maintenance (the sum of the totals of inquiries 13, 14, and 15)—should be sufficient to pay the dividends on stock and the interest on bonds reported in inquiry 17. If the net income is not sufficient to pay the dividends and interest for the year, or if a net deficit is indicated for the year's operations, attention should be called to this fact, and if found correct, explanation made under "remarks."

INQUIRY 17.—CAPITAL STOCK, BONDS, DIVIDENDS, AND INTEREST.

Account for the entire amount of stock and bonds authorized by charter and the amount outstanding on the last day of the year covered by the report. Give full amount of dividends declared and interest paid or due for the year. The *rate* of interest should always be stated, even though no interest may have been paid or due for the year.

If some other industry is carried on in connection with and by the use of the same capitalization, the estimated proportion chargeable to the electric light and power plant department may be based upon the ratio between the income of the lighting plant and the total income from all departments represented by the entire capital liability.

INQUIRY 18.—POLES PURCHASED DURING 1907.

This inquiry is separate and distinct and bears no direct relation to the other inquiries of the schedule. The instructions on the schedule should be applied, and the questions answered for all companies or plants.

MUNICIPAL PLANTS.

Schedule B2-231 is prepared primarily for plants owned by individuals, companies, or corporations. In applying this schedule to plants owned and operated by municipalities certain changes will be necessary. These changes should be made by the agent, and additional information, when required, must be given under "remarks" on the last page of the schedule.

It will often occur that the administration of a municipal plant is assigned to a public officer or officers performing other duties, or that a part or all of the labor of collecting and accounting is done in the office of some other department—waterworks, for example. If, in these cases, a general account is kept for two or more departments, such as water, streets, etc., the expenses for the electric plant should be apportioned equitably. The following plan is suggested to aid in arriving at an equitable apportionment of the salaries, wages, miscellaneous expenses, etc.: For officers, clerks, and all employees, charge to each service the same proportion of the total amount paid in salaries or wages as the time devoted to that service constitutes of the whole time worked; for rent and all sundry office expenses, charge in proportion to the income of each service; for insurance, taxes, law expenses, interest, and all contingent expenses, in proportion to the amount of investment; for fuel, water, and all other power expenses, in proportion to the horsepower utilized by each service.

Inquiry 12—Cost of plant.—The installation of municipal plants is frequently attended by a preliminary cost for experts' reports, engineering plans, specifications, printing, advertising, holding a special election, traveling inspection by a special committee, etc., which would not, under ordinary circumstances, be included in the cost of the plant. Care must be taken in all cases of this character to include such expenses in answer to this inquiry.

Inquiry 16—Income.—As shown by the instructions on the schedule, the income for municipal plants must include not only the actual cash received for service to private interests, but also the value of the service to the city if paid for at prevailing commercial rates, because the industry must be charged with all expenditures incident to it for the year and therefore should be credited with an income for all service rendered and which was made possible by the expenditure. As called for by the last subquestion of the inquiry, an estimate of the income of the municipality's own free service is required separately.

Inquiry 17—Capital stock, bonds, dividends, and interest.—The portion of the inquiry relative to capital stock and dividends is not applicable to municipal plants. As a rule there is a special bond issue to cover the installation of the electric plant. The amount of such bonds authorized by the special act and the amount outstanding at the end of the year, together with the interest paid or due for the year, should be reported. If, however, there was no special issue of bonds, the cost of the electric plant being met by proceeds of a general bond issue or special tax fund, a full explanation of the arrangement and a description of the general bond issue or special tax should be given under "remarks."