

This PDF is a selection from an out-of-print volume from the National Bureau of Economic Research

Volume Title: Measuring the Nation's Wealth

Volume Author/Editor: Wealth Inventory Planning Study

Volume Publisher: U.S. Government Printing Office

Volume ISBN: 0-870-14185-6

Volume URL: <http://www.nber.org/books/unkn64-3>

Publication Date: 1964

Chapter Title: Appendix II-M: Communications and Public Utilities

Chapter Author: David J. Hyams

Chapter URL: <http://www.nber.org/chapters/c5220>

Chapter pages in book: (p. 731 - 765)

---

---

APPENDIX II: PART M

REPORT OF THE WORKING GROUP ON COMMUNICA-  
TIONS AND PUBLIC UTILITIES WEALTH

Prepared by DAVID J. HYAMS

---

---

MEMBERSHIP OF THE COMMUNICATIONS AND PUBLIC UTILITIES  
WORKING GROUP

Joseph R. Rose (chairman), Wharton School of Finance & Commerce,  
University of Pennsylvania.

Eli W. Clemens, College of Business & Public Administration, Uni-  
versity of Maryland.

James B. Corey, consultant.

Theodore I. Gradin, Bureau of Statistics, American Gas Association.  
(Mr. Gradin was represented at one meeting by Miss Zoe Baylies.)

Lyford N. Greene, American Telephone & Telegraph Co.

David J. Hyams (secretary), Wealth Inventory Planning Study, The  
George Washington University.

Robert E. Johnson, Finance Division, Western Electric Company.

David A. Kosh, David A. Kosh Associates, Inc. (Mr. Kosh was rep-  
resented at two meetings by Mr. Gerald Glassman.)

Charles H. Kressler, Valuation Division, Gannett Fleming Corddry  
& Carpenter, Inc. (Mr. Kressler was represented at one meeting by  
Mr. W. C. Fitch.)

Arthur L. Lanigan, Chesapeake & Potomac Telephone Cos. (Mr.  
Lanigan was represented at two meetings by Mr. O. O. Ashworth.)

E. W. Morehouse, consultant in public utility economics.

Israel Putnam, Office of Economics, Federal Power Commission.

Herbert F. Reem, Office of Economics, Federal Power Commission.

Arthur Schatzow, Broadcast Bureau, Federal Communications Com-  
mission.

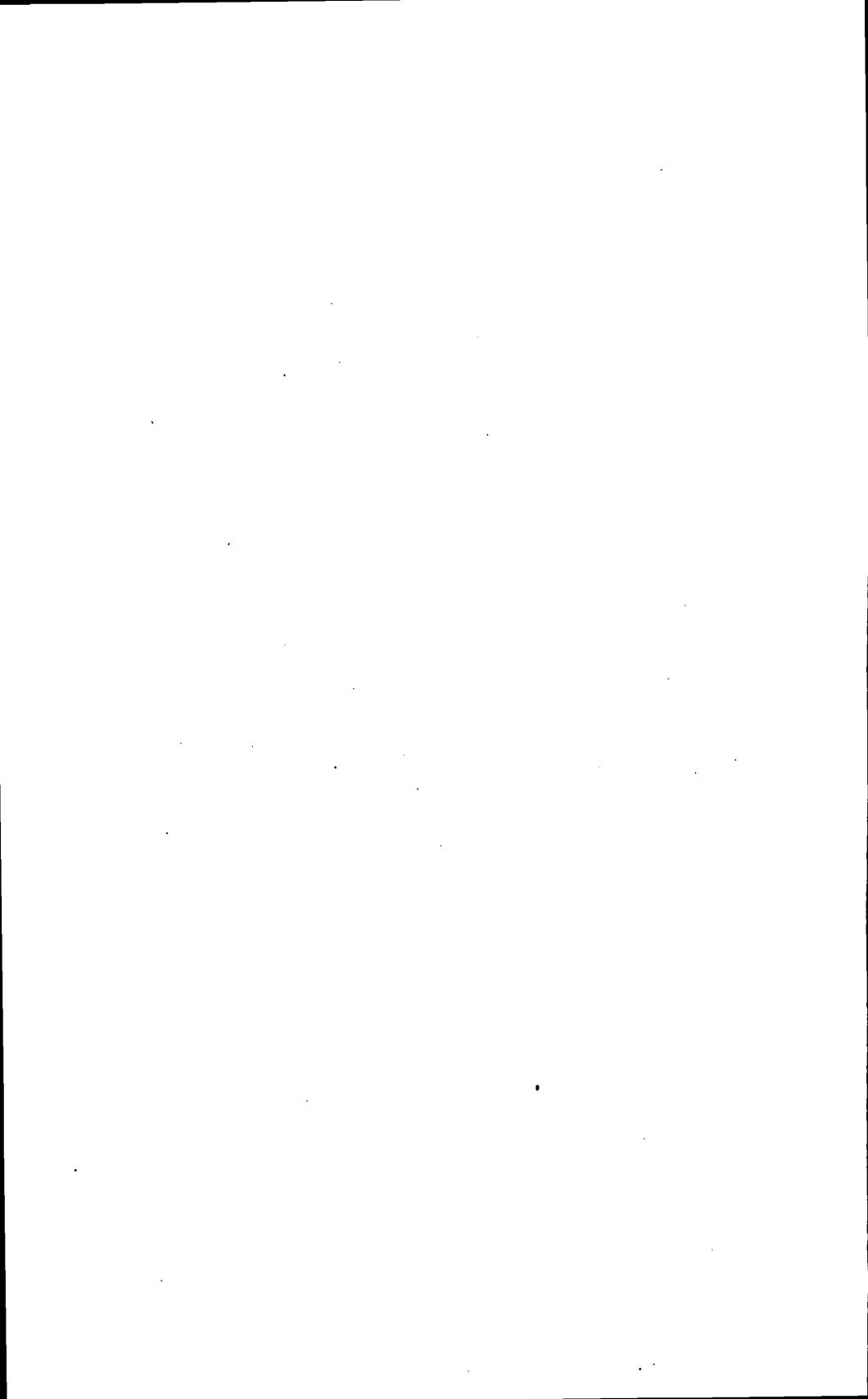
Robert E. Stromberg, Common Carrier Bureau, Federal Communica-  
tions Commission.

## PREFACE

The Working Group on Communications and Public Utilities Wealth held three daylong meetings to discuss the topics covered in this report. The writer of this report, who served as group secretary, takes this opportunity to thank members for their participation and to acknowledge their very large contribution to the final shape of the report.

The wording of the report is the responsibility of the secretary. Whereas he has attempted to reflect the consensus of the group, no member should be held responsible for all the views expressed. Individual members have been free to write supplementary statements clarifying their individual views if they so desired.

DAVID J. HYAMS.



## COMMUNICATIONS AND PUBLIC UTILITIES

### I. DATA OBJECTIVES

The first chapter of this report is devoted to working group recommendations concerning the kinds of information that should be presented on the wealth of the public utility industries. In the remaining two chapters, we review current sources of data in the light of data requirements and identify needs for additional data.

#### THE UTILITY SECTOR AND FUNCTION

In keeping with the group's area of primary responsibility, the data review covers the communications, electric, gas, and sanitary services industries described in the "Standard Industrial Classification Manual," (SIC).<sup>1</sup>

By definition, only investor- and cooperatively owned business units are included in these industries. However, since much utility wealth is governmentally owned, we recommend that utility-enterprise assets be distinguished from other wealth in the Federal, and State and local sectors, and that they be classified in a manner consistent with our recommendations for privately owned properties.

In addition to the assets devoted to the performance of utility services for the general public by these private and Government enterprises, similar assets are owned by some nonutility companies. These assets provide utility-type services to their owners. We recommend that the gross and net reproduction costs of communications, electric generating, water impounding and processing, and sewage treatment facilities owned by nonutilities be distinguished from their other assets in presentations of wealth data. The usefulness of the data would not be impaired significantly if reporting cutoffs were established in the interests of collecting better data and minimizing collection costs.

The communications assets of nonutilities include those facilities used for the transmission of oral or written information between two or more identifiable points. Generally included within this definition are microwave, cable, and wire channel equipment, and radio and television broadcast equipment other than that owned by business units within the broadcast industries described in the SIC. In those transportation and utility industries subject to regulation by a Federal or State agency, separate accounts are usually required for communications equipment.

Our interest in electric generating facilities centers on industrial installations which are operated on a full-time basis. Standby facilities or those used in small operations, such as rural household or

<sup>1</sup> Bureau of the Budget, "Standard Industrial Classification Manual," 1957.

irrigation generation, can be ignored. Efforts at collecting data on water processing and sewage treatment facilities should focus on significant industrial installations.

#### USES OF WEALTH DATA

The group's discussion of uses of wealth data did not go beyond the staff paper on this subject. Since an expanded version of the paper appears in the staff report, uses will not be discussed here. It is clear, however, that because of the high capital intensity of utilities, good wealth estimates in this area are particularly important. Likewise, changes in output-capital ratios have significance in analyzing changes in productive efficiency.

We now turn to a discussion of the ways in which utility wealth should be measured and classified. In shaping these recommendations, we have been mindful of the need for data comparability among economic sectors as well as the special requirements of users of data on public utilities.

#### INDUSTRIAL DETAIL OF WEALTH ESTIMATES

The "Standard Industrial Classification Manual" recognizes 19 minor (4-digit) industries engaged in the provision of communications, electric, gas, water, and sanitary and related services to the public. The SIC treats the company as the primary economic unit of most of these industries. This contrasts with the "establishment" concept obtaining in manufacturing and some other sectors.<sup>2</sup> Data from industries of companies are not usually comparable with data from industries of establishments since the former often reflect greater diversification of economic activity than do the latter. The exclusive use of company data is unsatisfactory since such data inevitably introduce distortions in measures based on activity.

In order to overcome the problem, it is necessary that those company assets that are related to secondary utility and nonutility activities be separated from primary activity assets and be counted with the wealth of the appropriate "other" industry or industries.

This recommendation immediately raises a problem with respect to three of the utility industries since they are defined as industries performing both primary and secondary activities. These industries are composed of these combination companies:

Electric and other services combined.....	(4931)
Gas and other services combined.....	(4932)
Combination companies and systems, not elsewhere classified.....	(4939)

We recommend that the utility assets of combination companies be distributed among the other utility industries. The nonutility assets of combination companies, of course, would be distributed among the appropriate industries. Under utility accounting procedure, such assets are separated in the books of account.

<sup>2</sup> An establishment is defined as an economic unit usually at one location and engaged in one, or predominately one, activity.

Abolition of the combination industries leaves 16 minor industries for us to consider. Data about them should be consolidated to form the following 11 industrial groupings:

(1) Telephone communication (wire or radio)-----	(4811)
(2) Telegraph communication (wire or radio)-----	(4821)
(3) Radio broadcasting-----	(4832)
Television broadcasting-----	(4833)
Communication services, not elsewhere classified-----	(4899)
(4) Electric systems-----	(4911)
(5) Natural gas transmission-----	(4922)
(6) Natural gas transmission and distribution-----	(4923)
(7) Natural gas distribution-----	(4924)
Mixed, manufactured, or L.P. gas production and/or distribution--	(4925)
(8) Water supply-----	(4941)
(9) Sewage systems-----	(4952)
(10) Steam supply-----	(4961)
(11) Refuse systems-----	(4953)
Sanitary services, not elsewhere classified-----	(4959)
Irrigation system operation-----	(4971)

All tangible assets of the straight gas companies as well as the gas-related assets of combination companies should be assigned to one of the above three gas industries on the basis of a classification of the gas operation as an entity. We do not intend, for example, that the incidental transmission facilities of a distribution company be assigned to the transmission industry or the existence of incidental transmission facilities be used as the basis for converting a distribution company (or department) into a transmission and distribution company (or department).

The existing common plant of combination companies is relatively minor. Yet it raises the familiar allocation problem. We suggest that these assets be aggregated at the level of the SIC major group, i.e., "Electric, Gas, and Sanitary Services." This recommendation is consistent with the proposed treatment of the central office assets of multi-industry manufacturing companies.

We note that some plant allocated to one or another of the departments by the combination company is jointly used. For example, the steam department assets of a combination company also producing electricity would be represented by the steam distribution facilities while the steam production facilities would be carried as part of the electric department. We doubt that the distortions introduced under these circumstances are significant.

#### VALUATION OF TANGIBLE ASSETS

Historical costs are inadequate measures of tangible wealth since they reflect purchases made at various price levels over time.<sup>3</sup> We recommend that tangible wealth be measured in the dollars of a single year rather than in the dollars of the years in which purchased.

Gross book values in the various asset accounts will have to be adjusted for price changes through the use of price indexes appropriate

<sup>3</sup> In connection with the recording of costs, we call attention to an important characteristic of utility accounting. Plant is recorded at original cost, which is the cost to the person first devoting a property to public service. When an operating property is sold at a price higher than original cost, the buyer throws the difference into an acquisition adjustment account. The original cost is spread among the primary plant accounts. The maintenance of plant accounts at original cost eliminates one problem that turns up when applying price indexes to "aged" book values.

to the account. The price indexes should not reflect changes in the quality of the asset (i.e., model or specification changes). However, indexes should reflect those price movements resulting from changes in input (labor and material) prices and in the efficiency with which inputs are combined to produce the asset (productivity). The proposed indexes differ conceptually from indexes sometimes used in arriving at a "trended original cost" since the latter indexes assume no changes in construction methods. Thus, changes in productivity reflected in an estimate of trended original cost are limited to those embedded in the prices of purchased materials.

Beside a gross measure of tangible wealth, we recommend a net measure that will reflect the loss of economic life through physical wear and obsolescence. Past experience is the only practical basis for computing depreciated values, since market values, representing the alternative basis, exist for only a relatively few classes of assets. Aside from feasibility, depreciated values have the virtue of reflecting production costs, rather than the state of expectations. This assures that a physically immobile asset at one location is given the same value as an identical asset in another location.

On the other hand, depreciated values calculated on the basis of past experience can, under less than competitive conditions, depart from real (or theoretical) market value. Past experience will not reflect a change in prospective earnings, or a current acceleration in the rate of technological improvement, or even past rates of technological obsolescence in situations where management has been reluctant to replace items before they are fully depreciated for book purposes.

We visualize the following steps in the preparation of the gross and net estimates of wealth. (1) Global gross book values are collected at the level of the primary account and by State of location from business units in each industry. As will be noted later, much of this information already is being filed by companies in the communications and utility industries. (2) On a sample basis, information is collected about the age-composition of these book values. (3) With these two sets of data and appropriate price indexes, it is possible to make current-dollar estimates of gross wealth. (4) Finally, the gross measures are adjusted for depreciation based on information about service lives.<sup>4</sup>

We recommend that along with the above gross and net wealth estimates, there also be presented comparable aggregates of original cost data. We make this recommendation because of the utility analyst's special interest in these data, an interest stemming from their use in the ratemaking process.

#### *Ratemaking value*

It is well known that as part of the procedure for pricing utility output regulatory agencies "find" a value for utility properties. Taken together with an allowed rate of return, this ratemaking value or rate-base produces (or is expected to produce) a particular level of

<sup>4</sup> In this regard the use of average service lives in estimating depreciation, without appropriate recognition of dispersion of retirements, will bias the values downward.

earnings. The sum of these rate bases will differ from wealth estimates reflecting production costs adjusted for price changes since most States establish ratemaking values which approximate depreciated original cost. (In a fair value jurisdiction, the rate base will approximate undepreciated original cost.)

Our recommendations for the valuation of utility wealth are patterned after the current value criteria used by other working groups for the valuation of wealth in their economic sectors. We have not attempted to follow regulatory agency valuation practices. We wish to stress that our recommendations have not been made with a view to the use of wealth estimates in ratemaking proceedings.

(Messrs. Kosh and Glassman have prepared a supplemental statement on valuation which appears as annex A of this report.)

#### DESCRIPTION OF THE HANDY-WHITMAN AND BELL SYSTEM INDEXES

In connection with the adjustment of book values for price change, we call attention to the Handy-Whitman and Bell System cost indexes. They are briefly described in the following paragraphs. We have not attempted to evaluate them for wealth estimation purposes. We recommend a review of their adequacy for this purpose.

Construction cost indexes are prepared semiannually for electric, gas and water utilities by Whitman, Requardt, and Associates of Baltimore, Md.<sup>5</sup>

Indexes are prepared for each of six geographic divisions within the United States: North Atlantic, South Atlantic, north central, south central, plateau, and Pacific coast.

Annual cost index numbers for water utilities are available from 1912 to 1936; thereafter semiannual figures were prepared. The electric and gas utility series begin in 1911, and annual index numbers are available from 1911 until 1919 and for the year 1923. Semiannual figures were prepared in 1920 and 1921 and from 1924 to the present. A series of indexes also are prepared for reinforced concrete and brick construction. The series begins with 1915; consecutive semiannual figures are available from 1924 to the present.

Two types of indexes are available for each of the three utilities. The first type is specific to particular primary plant accounts recognized by the National Association of Railroad and Utility Commissioners (NARUC) in the case of water utilities, and by the Federal Power Commission, for gas and electric utilities. The second type of index shows price trends for various classes of equipment and labor. These two types of indexes are illustrated by the following listing of

<sup>5</sup>The paragraphs which follow have been prepared from material found in these publications:

Ernest C. North, "Trended Costs by General Indexes," Proceedings of the Second Annual Iowa State Conference on Public Utility Valuation and the Ratemaking Process. Ames, Iowa, 1963.

Ezra B. Whitman and Ernest C. North, "Trending Public Utility Construction Cost Indexes," Public Utilities Fortnightly, III, No. 5 (Aug. 27, 1963).

Whitman, Requardt and Associates, "The Handy-Whitman Index of Public Utility Construction Costs." Bull. No. 75, Baltimore, 1962.

\_\_\_\_\_, "The Handy-Whitman Index of Water Utility Construction Costs." Bull. No. 11, Baltimore, 1962.

indexes relating to gas plant construction (indexes specific to a particular primary account are identifiable by the account number) :

Total construction and equipment (manufactured gas).

Mechanical equipment, exclusive of gas holders.

Gas holders, excluding foundation (362).

Total transmission plant.

Structures and improvements (366).

Mains (367).

Compressor station equipment (368).

Mains, cast iron (376).

Mains, steel (376).

Services (380).

Meters (381).

Meter installations (382).

House regulators (383).

House regulator installations (384).

Cast iron pipe, 6 inches and over.

Cast iron fittings, sizes 4 to 24 inches.

Steel pipe, size 16 inches.

Steel pipe, size 2 inches.

Compressors.

Pig lead.

Lumber, rough yellow pine, size 3 by 12 inches.

Common labor.

Gas labor.

Indexes are not available for each of the primary plant accounts. Ten primary account indexes are available for water and for gas utilities. Twenty-three primary account indexes are published for electric utilities. It appears, however, that most depreciable assets (based on dollar amounts recorded in the primary accounts) are covered by indexes.

According to the compiler, the indexes are widely used for trending original cost data to estimate reproduction cost at price levels of a particular year. With regard to the construction of the indexes, the compiler states :

Prices of basic materials such as cement, sand, stone, cast iron pipe, wire, etc., are obtained from standard publications such as "Engineering News-Record" and "Iron Age" and checked against prices actually being paid for such materials wherever possible. Labor cost trends are computed from labor rates obtained from sources such as the U.S. Department of Labor, labor unions, and the Builders Association of Chicago. Mechanical and electrical equipment prices and trends are obtained from nationally known manufacturers \* \* \*.

The proportions and the weight of the basic materials, labor, and equipment used in any composite index of various classes of utility property have been based on the analyses of many millions of dollars worth of plant and construction. During recent years it has been possible to make, through valuation proceedings and other sources, various studies and analyses of utility property accounts giving labor and material components so that comparisons could be made with the "Handy-Whitman Index." As part of the studies made for the purpose of improving Bulletin No. 53 certain utility companies furnished analyses of property accounts which permitted additional comparisons. The review of the weighing of the labor and the various material components disclosed that the original work was carefully done and that there was little reason to change published cost trends. Although minor changes to the weightings might be indicated in certain cases it was realized that any change in weight would have little effect on the index numbers and that it would be extremely desirable to retain the existing trend intact if at all possible.

We recommend review of the adequacy for wealth purposes of the Handy-Whitman indexes. Such a review would determine the significance for wealth purposes of retention of "the existing trend." Further, it would determine to what extent allowance has been made in the indexes for changes in the efficiency (productivity) with which utility installations are made.

The compiler has stated that the present cost of new equipment may be less than the trended cost of old equipment of equal capacity. This suggests that adequate allowances may not have been made for model changes since when these are associated with cost increases, the index should produce a trended value lower than that of the unadjusted prices of new equipment. (See ch. 6 of the staff report for a discussion of price adjustments.)

The American Telephone & Telegraph Co. constructs annual cost indexes of telephone plant. The indexes are based on Bell System experience. Their applicability to non-Bell investment is doubtful, since the major Bell supplier does not serve the rest of the industry, and the supplier's prices may not move with equipment prices in the rest of the industry. While reliance on Bell indexes might not affect national estimates (Bell investment accounts for 85 per cent of the industry), use of the indexes may not be appropriate in those few States where Bell is not the major carrier.<sup>6</sup>

Bell indexes go back to 1945 and are available for 20 categories of equipment and structures. These categories are consistent with the primary plant accounts prescribed by FPC.

The categories are:

Buildings.

Central office equipment: <sup>7</sup>

Manual.

Panel.

Step by step.

Crossbar.

Circuit.

Radio.

Station apparatus: <sup>7</sup>

Teletypewriter.

Telephone and miscellaneous.

Station connections.

Large private branch exchanges.

Pole lines.

Aerial cable.

Underground cable.

Buried cable.

Submarine cable.

Aerial wire.

Underground conduit.

Furniture and office equipment.

Vehicles and other work equipment.

<sup>6</sup> Information on these indexes is contained in the following papers:

Henry E. Crampton, "A Practical Approach to the Development of the Current Cost of Utility Plant," proceedings of the Second Annual Iowa State Conference on Public Utility Valuation and the Rate Making Process, Ames, Iowa, 1963.

Arthur R. Tebbutt, "Price Trending Processes," proceedings of the Iowa State Conference on Public Utility Valuation and the Rate Making Process, Ames, Iowa, 1962.

<sup>7</sup> Indexes are prepared for subdivisions of this primary account.

Changes in the specification of equipment and materials are handled through the linking process followed by the Bureau of Labor Statistics. The Bell indexes refer to equipment and materials in place. They are designed to reflect price movements resulting from changes in input prices and the efficiency with which inputs are combined to produce the assets.

#### ASSET-TYPE DETAIL OF WEALTH ESTIMATES

We recommend that the properties of firms belonging to the utilities industries first be classified by the following broad physical types:

- Land.
- Structures.
- Equipment.
- Transportation.
- Materials, supplies, inventories.
- Stored, pumped water.<sup>8</sup>

In line with an earlier recommendation, it will probably be necessary to spread balances in the foregoing items among additional categories. Gas transmission companies own communications equipment, and we have asked for a separation of that class of property when owned by noncommunications firms. Similarly, assets used in generating electricity and in connection with water and sewage treatment are to be distinguished from other properties.

In addition to the classification of assets by physical type, we recommend that electric, gas, and waterplant in service be distributed alternatively by function. These functional groupings are consistent generally with present regulatory reporting practices:

Electric plant categories include:

- Production plant:
  - Steam.
  - Nuclear.
  - Hydraulic.
  - Pump storage.<sup>9</sup>
  - Other:
    - Gas turbine.<sup>9</sup>
- Transmission plant.
- Distribution plant.
- General plant.

Gas plant categories include:

- Manufactured gas production plant.
- Storage plant.
- Transmission plant.
- Distribution plant.
- General plant.

While regulatory reporting procedure includes natural gas production properties and related structures and equipment within plant in service, they should not be included as wealth of the gas industry. Rather, they are to be treated as nonutility assets and recorded as part of the mining sector, a classification consistent with the SIC.

<sup>8</sup> The Federal Power Commission soon may prescribe an account which will reflect the pumping cost of stored water.

<sup>9</sup> These items presently are not separated within the indicated two types of production plant.

Recommended functional categories for the tangibles of water utilities include:

- Source of supply plant.
- Pumping plant.
- Water treatment plant.
- Transmission and distribution plant.
- General plant.

#### GEOGRAPHICAL DETAIL OF WEALTH ESTIMATES

We recommend the presentation of wealth estimates on a State-by-State basis. Accordingly, multistate utilities will have to distribute book values by State. This should not impose a major burden, since the pattern of State utility regulation (and State taxation practices) makes it necessary for utilities to separate assets by State of location.

A few assets properly are not allocable to any State. If significant, they can be shown as a separate national aggregate. These would include the high seas and outer space facilities of some communications firms. American-owned assets located in other countries, of course, are reflected in domestic wealth statements as foreign investments.

#### OWNERSHIP AND USE OF WEALTH

We recommend the presentation of wealth estimates on both ownership and use bases.

The basic data for the former set of estimates come from the balance sheets of business units classified within the communications and public utility sector. The second set of estimates is developed by adjusting ownership data for the value of assets rented to and from out-of-sector industries. This requires that all lessors furnish the book costs of leased assets, classified by asset type. Rental receipts classified by asset type also must be reported. Lessees must report rental payments by asset type. These three figures provide a basis for allocating wealth from industry of ownership to industry of use.

The use of telephone and telegraph facilities should be looked upon as the sale of a service rather than the rental of a facility, and thus, no attempt should be made to allocate parts of the plant of the communications sector to sectors "leasing" private lines or networks. Similarly, no allocation should be made of plant from one industry to another within the communications sector, e.g., telephone to telegraph, etc.

It can be argued that this treatment does not reflect fully the assets actually used in the production of the output of a particular industry. For example, facilities leased from the telephone industry represent a significant portion of the assets used by radio and television broadcasters; similarly, more than half of domestic telegraph circuitry is leased from the telephone industry. Yet, in neither case would the assets be reflected in a statement distributing wealth by industry of use.

However, we believe our recommended treatment has the twin merits of conventionality and practicality. Conventionally, we treat as rented properties those which are in the possession of and use of the lessee. Communications facilities, on the other hand, are operated

by the communications firms. The recommendation avoids the practical (and conceptual) problems involved in the separation and allocation of telephone properties which are serving at any moment most or all economic sectors.

#### MEASURES OF PHYSICAL CHARACTERISTICS

We make no recommendation for the collection of new supplementary physical detail about the assets of the communications and public utility industries. However, as needs for specific data become apparent, it is likely that they can be met from currently collected data or furnished with relative ease by firms within the industry. A variety of data relating to the physical characteristics of plant are reported to regulatory agencies and trade associations, including, for example, outside telephone plant mileage, by type and State; numbers of central office exchange circuits, and telephones, by State; miles of gas distribution and transmission line, by diameter of pipe, by State; and, installed and rated capacities, by generating station.

### II. COMMUNICATIONS

These industries are within SIC major group 48:

Telephone communications (wire or radio)-----	(4811)
Telegraph communications (wire or radio)-----	(4821)
Radio broadcasting-----	(4832)
Television broadcasting-----	(4833)
Communication services, not elsewhere classified-----	(4899)

#### TELEPHONE COMMUNICATION

At the end of 1962, there were 2,800 companies providing telephone service in the United States, including Puerto Rico. Their gross investment in plant was estimated at \$33.7 billion. A relatively few companies accounted for the great bulk of this investment. Eighty-five percent was on the books of the 24 companies comprising the Bell group. Another 6 percent was owned by the more than 30 companies making up the General Telephone System.

There are two sources of data on the telephone industry. The most importance of these is the Federal Communications Commission which receives annual reports from interstate common carriers. Companies with annual operating revenues exceeding \$100,000 file form M with the regulatory agency. In 1961, 65 firms completed this report, among them all companies in the Bell group and some of the companies in the General group. In addition to the companies filing required reports, about a dozen large intra-State firms voluntarily submit a form M to the FCC. These voluntary reporters include more of the companies in the General Telephone System. Together, the 75-80 firms reporting to FCC on form M carry on their books almost 94 percent of the industry's assets.

The United States Independent Telephone Association (Washington, D.C.) annually collects data from independent companies. In 1960 over 500 firms filed data with USITA. After adjusting for the overlap in coverage by the two organizations, it is estimated that USITA receives reports from companies owning an additional 4 per-

cent of the industry's assets. In summary, the two data collection organizations provide coverage of companies accounting for 98 percent of the industry's tangible properties.

Consideration will be given to form M as a source of data for purposes of wealth estimation.

*Value data by asset class*

Seven balance sheet accounts relate to tangible properties :

- (100.1) Telephone plant in service.
- (100.2) Telephone plant under construction.
- (100.3) Property held for future telephone use.
- (100.4) Telephone plant acquisition adjustment.
- (100.7) Telephone plant adjustment.
- (103) Miscellaneous physical property.
- (122) Material and supplies.

"Telephone plant in service" is supported by schedule 12A which distributes the balance among the following primary accounts:

- (201) Organization.
- (202) Franchises.
- (203) Patent rights.
- (211) Land.
- (212) Buildings.
- (221) Central office equipment.
- (231) Station apparatus.
- (232) Station connections.
- (234) Large private branch exchanges.
- (241) Pole lines.
- (242.1) Aerial cable.
- (242.2) Underground cable.
- (242.3) Buried cable.
- (242.4) Submarine cable.
- (243) Aerial wire.
- (244) Underground conduit.
- (261) Furniture and office equipment.
- (264) Vehicles and other work equipment.
- (276) Telephone plant acquired.
- (277) Telephone plant sold.

Balances in accounts 201-203 should be ignored since they relate to intangibles. The remaining "plant in service" accounts can be grouped into the recommended asset classes after the collection of some additional data on accounts 264, 276, and 277. Work equipment must be separated from transport vehicles. Bases are needed for the allocation of plant acquired or sold.

Procedures also must be developed for integrating balances in accounts 100.2 and 100.3. The two adjustment accounts should be ignored. The balance-sheet account for "Miscellaneous physical property" is supported by schedule 16. The schedule shows the location and identity of each property with a book cost of \$10,000 or more (in some cases, the lower cutoff is \$2,000). The need for additional data on miscellaneous physical properties will turn on the completeness with which they actually are described in the regulatory report.

*Location of assets*

Form M does not provide a State-by-State distribution of the book costs of tangible assets. However, most companies operate in only one State (even though they legally are interstate carriers). Furthermore, the multistate companies file distributions of tangible assets, by State, as supplements to the form M's filed with State regulatory agencies. Also, in connection with the FCC's responsibility for prescribing depreciation accrual rates, the agency reviews depreciation studies filed by telephone carriers. Data in these studies are organized in a manner which will facilitate the estimation of gross wealth by State of location.

Book cost data in these studies are organized by State, by year of acquisition, and by type of depreciable asset. The depreciation studies spread the balances in the 14 telephone accounts among 40 to 50 asset types.

At present, depreciation studies are filed at 3-year intervals by the companies making up the Bell group. About one-third of the companies file each year. Over the next 5 years, 11 non-Bell firms, each with assets over \$35 million, will begin submitting depreciation studies if present FCC plans materialize.

*Ownership and use of assets*

In order to make estimates of the value of property used in providing telephone service, it is necessary to adjust for the value of assets rented from or to other industrial sectors. This adjustment requires information on the amount of rentals paid and received, the kind of asset rented, and the book cost of assets rented to other sectors.

The operating revenue and expense schedules (34, 35) provide, respectively, accounts for rent revenues and operating rents. No information is provided on the kind of property involved nor the book value of the rented assets for which revenues were received.

Rents received and paid for entire operating properties are recorded in accounts 302 and 303 on the income and earned surplus statement. Schedule 7 identifies the operating properties being leased but does not give the book value of properties leased to others.

Rental payments and receipts associated with miscellaneous physical properties are thrown into account 315 "Income from miscellaneous physical properties." Schedule 16, which identifies these properties individually, shows total revenues and total expenses associated with miscellaneous physical properties owned by the respondent, including those leased to others. The schedule also identifies each miscellaneous property owned by another and leased to the respondent.

*USITA report*

The report submitted to USITA by cooperating companies contains less of the data needed for wealth estimation purposes than does form M.

Tangible asset accounts include the following:

- Material and supplies.
- Telephone plant in service.
- Telephone plant under construction.
- Property held for future telephone use.
- Telephone plant acquisition adjustment.
- Telephone plant adjustment.

No separate account exists for "miscellaneous physical property." The primary accounts among which the balance in "telephone plant in service" is distributed are the same as those used in form M (itemized above).

The USITA report contains almost no information on rental payments and receipts. Only the revenues arising from the rent of telephone properties are shown separately.

We note, parenthetically, a second FCC report not heretofore discussed. Form L is completed by carriers engaged in domestic public land mobile radiotelephone service. Excluded from the reporting requirement are carriers already filing form M because of their land-line telephone operations. Form L requests only the book amount of investment in plant used in DPLMRS and the depreciated investment in other physical property.

By and large, basic data in the telephone industry are relatively adequate to provide a basis for current-value wealth estimates in considerable detail. The several data weaknesses in this area have been indicated in the course of the discussion.

#### TELEGRAPH COMMUNICATIONS

About two-thirds of the investment in plant of this industry is used in the operations of the Western Union Telegraph Co. The remaining investment is used in international radiotelegraph and ocean-cable service. In 1961 there were nine international carriers.

Annual reports are required by the Federal Communications Commission from telegraph carriers. Annual report form R is filed by radiotelegraph carriers; form O by wire-telegraph and ocean-cable carriers. Both annual forms share a high number of common schedules. Accordingly, we will review only form O, letting it serve also to illustrate data availabilities and gaps in form R.

#### *Value data by asset class*

The following balance sheet accounts relate to tangible assets:

- Operated plant in carrier's service (1000).
- Operated plant leased to others (1100).
- Improvements and repair of operated plant leased from others (1200).
- Plant under construction (1300).
- Plant held for future communication use (1400).
- Plant acquisition adjustments (1510).
- Telephone and radiotelegraph plant (1530).
- Plant in process of reclassification (1540).
- Plant adjustments (1545).
- Foreign investment in communication plant (1599).
- Miscellaneous physical property (1610).
- Material and supplies (1795).

The adjustment accounts can be ignored. Supporting schedules exist for "Operated plant in carrier's service," "Miscellaneous physical property," and "Materials and supplies."

Detail for the first of these accounts can be regrouped into the recommended asset classes for wealth purposes. Available detail for "Operated plant in carrier's service" includes:

- Land used for right-of-way (11).
- Land used for building sites (12).
- Land used for other operations (13).
- Land improvement (14).
- Buildings (15).
- Poles (21).
- Aerial wire (22).
- Aerial cable (23).
- Underground cable (24).
- Buried cable (25).
- Submarine cable (26).
- House cable (27).
- Underground conduit (28).
- Pneumatic tubes (29).
- Ocean cable (31).
- Message transmitting and receiving equipment (41).
- Repeater and terminal equipment (42).
- Switchboards and distribution frames (43).
- Pneumatic tube and conveyor equipment (44).
- Power equipment (45).
- Messenger call-circuit equipment (46).
- Time-service equipment (47).
- Ticker and commercial news service equipment (48).
- Office cable and conduit (49).
- Equipment furnished customers (51).
- Other inside commercial plant (59).
- Furniture and office appliances (61).
- Messenger uniforms (65).
- Other office and messenger equipment (69).
- Vehicles (71).
- Shop equipment (72).
- Store and warehouse equipment (73).
- Tools and implements (74).
- Floating equipment (75).
- Railway equipment (76).
- Emergency facilities (77).
- Laboratory equipment (78).
- Organization (81).
- Franchises (82).
- Patent rights (83).
- Leaseholds (84).
- Research and development (85).
- Other intangibles (89).
- Plant acquired—undistributed charges (91).
- Plant sold—undistributed credits (92).

Schedule 110 which supports "Miscellaneous physical property" supplies this information:

- Description and location.
- Date originally included in account.
- Balance at end of year (gross).

The "Material and supplies" balance is supported by schedule 140 which provides this detail:

- Material held for use in carrier's communications operations.
- Material in process.
- Merchandise known to be held predominately for sale or resale, or for use in jobbing or contracting operations.
- Materials and supplies held for other than communications operations.
- Undistributed supply items.

*Value data by State of location*

The annual report does not distribute tangible asset balances by State of location. We recommend the collection of data needed to make this allocation.

*Ownership and use of assets*

Creation of a wealth statement showing the use of assets by industry requires an adjustment of industrial ownership data for the assets rented to and from other industrial sectors. The rental receipts and payments of telegraph companies are recorded in the following accounts of the income and earned surplus statement (schedule 300) and supporting schedules:

Account No.	Name of account	Supporting schedules
3000	Operating revenues.....	301T-C.
3410	Leased circuit revenue.....	308.
3415	Measured service revenue.....	308.
3420	Other leased-plant revenue.....	308.
3810	Leased circuit revenue.....	308.
3820	Other leased plant revenue.....	308.
4000	Operating expenses.....	330T-C.
4269	Rents for other facilities.....	333T-C.
4261	Rents for operating offices.....	333T-C.
4499	Other administrative expenses (in part).....	333T-C.
5010	Income from operated plant leased to others.....	
5015	Income from telephone and radiotelegraph plant leased to others.....	
5110	Income from miscellaneous physical property.....	
5205	Rent for lease of operated plant.....	362.

Supporting schedule 308 identifies each lessee if affiliated with the telegraph company. Leased properties are described and the rental amount is shown. Transactions with nonaffiliated lessees are grouped.

Balances in accounts 5010, 5015, and 5205 are net of expenses associated with rental properties. However, schedule 362, which supports account 5205, shows the gross annual rent accrual as well as the net income balance carried into account 5205. The schedule also provides a description of each property, including location. Rentals involving amounts less than \$5,000 may be grouped.

Account 5110 is used to record net income from noncarrier operations. Thus, it would reflect both rental payments and receipts associated with such operations. However, neither the properties involved nor the rental amounts are shown.

Schedule 333T-C provides a description of each property and the associated rental payment if the transaction involves an affiliated company and a payment of \$5,000 or more. Otherwise, entries may be grouped.

If balances actually existing in the accounts reviewed above involve significant amounts, it is clear that additional information will have to be collected from telegraph companies since the supporting schedules do not uniformly provide what is required. The value of facilities leased to others, the kind of asset rented to or from other sectors, and the associated rental receipt and payment require determination.

#### BROADCASTING

The provision of broadcast service is regulated by the Federal Communications Commission. In 1962 there were 8,500 television and radio broadcast stations. Of these, about 2,500 engaged in a relay operation involving the rebroadcast of television programs originated elsewhere. Rebroadcast facilities are often owned by local groups of television viewers. The FCC does not require an annual financial report from these relay broadcasters.

The remaining 6,000 radio and television stations (as well as the networks) file financial information in annual report form 324. A separate report is required of each network and station.

Form 324 calls for the following information on the value of tangible broadcast properties:

- Land and land improvements and buildings.
- Tower and antenna systems.
- Transmitter equipment.
- All other property.

In order to distribute these balances among the recommended asset classes for wealth purposes, it is necessary to separate the values associated with land, structures, equipment, and transport vehicles.

There should be little problem in distributing asset values by State of location given the fact that a separate report is completed by each broadcast station. We would expect that broadcast properties ordinarily are physically located in the same State as the station.

Form 324 provides no information on the rental of capital assets, data needed for the estimation of wealth by industry of use.

#### OTHER COMMUNICATION SERVICES

Available data indicate that fewer than 100 business units were classified within this industry. Included within the industry are photo-transmission companies and various communication leasing services, e.g., telephoto and stock ticker. We know of no current reporting vehicle for companies within the industry. We recommend the collection of required data. FCC may have an interest in some of these communications services, even though the agency has no present regulatory responsibilities toward companies providing them. The FCC might want to develop a data collection program. The census of business is a possible alternative data gathering vehicle.

## III. ELECTRIC, GAS, AND SANITARY SERVICES

These industries are within SIC major group 49:

Electric companies and systems.....	(4911)
Natural gas transmission.....	(4922)
Natural gas transmission and distribution.....	(4923)
Natural gas distribution.....	(4924)
Mixed manufactured or L.P. gas production and/or distribution.....	(4925)
Electric and other services combined.....	(4931)
Gas and other services combined.....	(4932)
Combination companies and systems, not elsewhere classified.....	(4939)
Water supply.....	(4941)
Sewerage services.....	(4952)
Refuse systems.....	(4953)
Sanitary services, not elsewhere classified.....	(4959)
Steam supply.....	(4961)
Irrigation system operation.....	(4971)

## ELECTRIC COMPANIES

In 1961 an estimated \$48.1 billion of electric utility plant were on the books of investor-owned electric companies. About 99 percent of this total was accounted for by the 225 electric utilities with operating revenues of \$1 million or more. These firms are required to report to the Federal Power Commission on that agency's form No. 1.<sup>1</sup> Nearly all cooperatively owned electric utilities report to the Rural Electrification Administration. In 1961, there were some 900 REA cooperative borrowers with utility plant valued at \$3.7 billion. Cooperatives that have repaid their REA loans are not required to file periodic reports. At the end of 1961, there were 24 utilities in this category.<sup>2</sup>

The information contained in the FPC and REA reports will now be considered in the light of requirements for wealth measurement.<sup>3</sup>

*Value data by asset class*

The balance sheet (statement A) of FPC form No. 1 contains the following items relating to tangible assets:

- Utility plant (101-107, 114).
- Utility plant adjustment (116).
- Nonutility property (121).
- Materials and supplies (151-159, 163).

The "Utility plant" balance is classified in statement B by kind of utility plant, (i.e., whether electric plant, gas plant, specified "other"

<sup>1</sup> Some of the companies whose assets account for the remaining 1 percent report on form No. 1-F. Given the relative insignificance of these companies, form No. 1-F will not be discussed below.

<sup>2</sup> The utility enterprise assets of Federal, State, and local governments are included in the wealth of the public sectors. The publicly owned electric utilities reporting to FCC in 1960 showed \$4.3 billion of electric utility plant. The FCC estimates that this figure represents 70 percent of the publicly owned plant excluding federally owned projects and New York's Niagara and St. Lawrence projects. Major Federal projects and the reported electric plant in billions of dollars include Bonneville (\$0.5) and TVA (\$2.1); the New York State projects report \$0.9 billion of electric plant.

<sup>3</sup> The Edison Electric Institute also receives a standardized report from electric utilities. The report will not be reviewed here since the industry is covered completely by the FPC and REA statistical systems.

plant, or common plant) and then spread among the following accounts:

- Plant in service (classified) (101).
- Plant purchased or sold (102).
- Completed construction not classified (106).
- In process of reclassification (103).
- Leased to others (104).
- Held for future use (105).
- Construction work in progress (107).
- Acquisition adjustments (114).

Supporting schedules exist for each item on the balance sheet and almost every electric plant account on statement B. (The two adjustment accounts can be ignored.) A schedule also exists for "common plant." The FPC annual report for public utilities does not require further detail on gas or "other" utility plant.

The supporting schedule for account 101 "Electric Plant in Service Classified" distributes the balance among the 65 accounts listed in annex B. Three of the accounts refer to intangible properties and can be ignored. The remaining accounts refer to a particular asset type within a particular functioning grouping. Thus, account 310 refers to land and land rights associated with steam production plant while account 350 refers to land and land rights associated with transmission plant. The accounts can be regrouped into the recommended capital asset classes for wealth estimates.

The schedule for account 104 shows for each leased property the name of the lessee, a description of the property, and its end-of-year book value. The description, location, and book value of electric plant held for future use are shown in the schedule supporting account 105. Each project classified as "Construction Work in Progress" is described in the schedule supporting account 107. Reporting electric companies are required to furnish a schedule describing common utility plant and the book cost of such plant.

Two major balance sheet items (statement A) remain for discussion. A "Materials and Supplies" schedule distributes the balance among 10 primary accounts:

- Fuel stock (151).
- Fuel stock expenses undistributed (152).
- Residuals and extracted products (153).
- Plant materials and operating supplies (154).
- Merchandise (155).
- Other materials and supplies (156).
- Nuclear fuel assemblies and components—in reactor (157).
- Nuclear fuel assemblies and components—Stock account (158).
- Nuclear byproduct material (159).
- Store expense undistributed (163).

Balances in account 154 are spread among various classes of material in a supporting schedule. Likewise, the quantity and cost of each type of fuel are shown in a schedule supporting account 151.

A supporting schedule exists for the end-of-year balance in "non-utility property." Each property is identified and the location is stated along with its cost. Properties under lease to another company are identified.

*Location of assets*

We have recommended elsewhere that wealth estimates be prepared for each State. Since book values represent the starting point for these estimates, we would like to have book values on a State-by-State basis. The FPC does not require this distribution of values in its form No. 1. However, we note that the uniform system of accounts imposes the following requirement on electric utilities:

Separate records shall be maintained by electric plant accounts of the book cost of each plant owned, including additions by the utility to plant leased from others, and of the cost of operating and maintaining each plant owned or operated. The term "plant" as here used means each generating station and each transmission line or appropriate group of transmission lines.

These already existing records should facilitate the localization at the primary account level of slightly more than half the investment in electric utility plant.

Property records on distribution plant and general plant are not required to be kept on a plant-by-plant basis. However, we would expect that the balances in the various distribution and general primary accounts could be distributed by State. This expectation is based on our knowledge of the comparative completeness of utility property records as well as the impetus given State-by-State recordkeeping by State regulatory and taxing agencies.

Hydroelectric plants located on rivers which serve as State boundaries present an allocation problem. One solution would be to distribute the assets to the State making major use of the output.

*Ownership and use of assets*

In constructing a statement of wealth by industry of use, the value of tangible assets owned by electric utilities must be adjusted for the lease of properties to and from other industries.

Rental payments and receipts are thrown into the following income, operating revenue, and operating expense accounts:

- Operating revenues (400):
  - Rent from electric property (454).
  - Interdepartmental rents (455).
- Operating expenses:
  - Operation Expenses (401):
    - Rents (507, 525, 540, 550, 567, 589, 931).
  - Income from utility plant leased to others (412, 413).
  - Income from nonutility operations (417).
  - Nonoperating rental income (418).

The schedule supporting accounts 454 and 455 describes each major leased property, identifies the lessee (or department) and the amount of revenue received (or credited). Revenues recorded in these accounts arise from the rent of properties devoted to electric operations. This raises the dual problems of determining the book cost of jointly used properties and of allocating the cost to the several industries of

use. Inspection of reported revenue data may show that these rental receipts are relatively insignificant.<sup>4</sup>

The several functional rent expense accounts (507, 525, etc.) appear to be used in large part to record the payments for plant leased from other electric utilities. Under these circumstances no allocation of book cost is necessary since industries of ownership and use are identical. The same reasoning applies to account 412 wherein are recorded revenues from the lease of electric plant to others. The rent expense accounts referred to above are supported by a schedule which describes each leased property (if the annual rental exceeds a certain amount), identifies the lessor, and shows the annual rental. A supporting schedule also exists for utility plant leased to others. Revenues and expenses associated with each operating unit are given as well as the name of the lessee and a description of the property, including its location.

Rental payments for equipment are included within expense accounts other than the above rent accounts. For example, the payments for the lease of transportation equipment in connection with distribution operations are not recorded in account 589 (Distribution rent expenses); rather they may be spread among "Distribution station expenses" (582), "Underground line expenses" (584), "Meter expenses" (586), etc. It will be necessary for at least a sample of reporting utilities to show separately rental payments by asset type, perhaps using a one-time supplement to the FPC report.

Accounts 417 and 418, relating to nonutility properties either operated or rented to others, are supported by a schedule. Each nonutility operation is described. Each major item of nonutility property leased to others is described and the associated rental revenue is given. The supporting schedule for "nonutility property" (reviewed with the other asset accounts) associates each property with its book cost.

#### *REA cooperative borrowers*

The periodic reports filed with REA by cooperative borrowers contain considerably less detail than required in the FPC form. However, these cooperatives could furnish additional required data distributed among accounts generally consistent with those used by FPC-regulated firms, since the system of accounts followed by REA borrowers is patterned after that prescribed by FPC.

In our review of the FPC report, we noted the presence of accounts and schedules relevant to wealth estimation as well as the absence of certain data. Hence, it is necessary to touch only briefly on the contents of the report filed by cooperatives, given the similarity in reporting.

The present REA report consists, for our purposes, of a monthly balance sheet and operations statement (form 7 or form 12a) and an

<sup>4</sup>Electric utilities with gas or other specified utility departments report rental receipts and expenses associated with the "other" utility operation in the following accounts:

Operating revenues.

Operating expenses:

Operation expense.

Income from utility plant leased to others.

Reporting electric companies show the same information about nonelectric department utility plant leased to others as they do for leased electric plant. No detail is provided on operating rental revenues and expenses.

annual supplement (form 40 or form 12h) which provides detail on the electric plant. The monthly report contains five balance sheet accounts related to tangible assets:

- Total utility plant in service.
- Construction work in progress.
- Nonutility property—Net.
- Materials and supplies—Electric.
- Materials and supplies—Merchandise.

In the annual supplement, electric plant is distributed among the following functional accounts:

- Intangible.
- Steam production.
- Hydraulic production.
- Other production.
- Transmission.
- Distribution.
- General.
- Purchased or sold.
- Leased to others.
- Held for future use.
- Not classified.
- Construction work in progress.
- Acquisition adjustments.

The report does not distribute tangible assets by type, i.e., by primary account.

The reported information on rents paid and received is poor. Rentals generally are not identified as separate revenue and expense items. Rented assets are not identified by type. This additional information would have to be obtained if rents are at all significant.

#### GAS COMPANIES

The gross book value of investor-owned gas utility plant was estimated at \$23.9 billion in 1962.<sup>5</sup> About \$10.2 billion represented the investment of natural gas transmission companies; \$13.7 billion was on the books of gas distribution companies. All but \$0.5 billion of the latter amount related to natural gas plant.<sup>6</sup>

The Federal Power Commission requires periodic reports from natural gas firms engaged in interstate commerce. Companies with gas operating revenues of \$1 million or more annually file FPC form No. 2. Smaller companies file form No. 2-A, a much-abbreviated version of the senior report. Since the smaller companies account for a very small part of the interstate business, no further attention will be given here to their report.

Most natural gas distribution firms either do not engage in interstate commerce or have had the reporting requirements waived, and accordingly some 45 percent of the industry's tangible assets are not covered

<sup>5</sup> Natural gas production properties accounted for almost \$3 billion of this total. These assets should be counted as part of the "crude petroleum and natural gas" industry, SIC 1311.

<sup>6</sup> Not included in any of these totals are \$0.8 of gas plant owned by public bodies. Of course, these assets constitute a part of State and local government wealth.

by FPC reports. Most of these companies—as well as those producing and selling gas other than natural—complete the uniform statistical report of the American Gas Association (New York, N.Y.). (AGA also receives reports from companies regulated by FPC.)

This report does not provide the detail found in the FPC form. However, the AGA report represents a possible vehicle for the collection of additional information from companies not regulated by FPC. We do not believe that respondents would have difficulty in providing additional consistent detail. This follows from the fact that at least 40 of the States prescribe systems of accounts for privately owned gas companies. These systems are consistent in their major aspects with the FPC accounts.

We now consider the contents of the FPC and AGA reports as they relate to our data requirements. We note at the outset that most of the accounts and schedules of the FPC gas report are identical to those found in the FPC electric company report. Accordingly, we will focus mainly on those aspects of the former report which differ from the latter.

The balance sheet (statement A) of FPC form No. 2 contains the following items relating to tangible assets:

- Utility plant (101-107, 114).
- Utility plant adjustments (116).
- Gas stored underground, noncurrent (117).
- Nonutility property (121).
- Materials and supplies (151-159, 163).
- Gas stored underground, current (164).

Except for the two gas accounts, these items and supporting schedules are identical with those in the electric company report. The schedule supporting the gas accounts shows the number of cubic feet of gas represented by the dollar balances in the two accounts. The uniform system of accounts requires the maintenance of separate records for each gas storage project. Presumably, such records would facilitate a State-by-State distribution of assets in the two accounts.

Statement B, which supports the "utility plant" item, is the same statement found in the already reviewed electric form. Except for the "gas plant in service" schedule, the supporting schedules are identical.

"Gas plant in service" is spread among more than 70 accounts. These are itemized in annex C to this chapter. Each account relates to a particular asset type associated with a particular function, e.g., production plant, transmission plant, etc. The present grouping of accounts is consistent with the recommended classification of gas utility wealth by function. The recommended alternative classification, i.e., by asset type, can be accomplished by regrouping the accounts.

In connection with the preparation of wealth estimates by State, we note that gas companies must maintain separate records by plant accounts for each plant. This should facilitate the localization of book costs.

Rental payments and receipts in connection with the operations of gas companies are recorded in a set of accounts paralleling the set described for electric companies. The same problem would arise in using the former set to allocate wealth from sector of ownership to

sector of use as became evident during our review of the electric company accounts.

#### *AGA report*

The AGA's uniform statistical report does not request balance sheet data in as much detail as the FPC report. Tangible assets are reported in the following accounts:

Utility plant:

Electric.

Gas.

Other.

Common.

Other property and investments (net).

Gas stored underground (current).

Materials and supplies.

The balances pertaining to each kind of utility plant are spread in turn among:

#### Electric:

Intangible plant.

Production plant.

Steam production.

Nuclear production.

Hydro production.

Pumped storage production.

Internal combustion production.

Transmission plant.

Distribution plant.

General plant.

Miscellaneous plant.<sup>7</sup>

Construction work in progress.

Plant acquisition adjustments and other adjustments.

#### Gas:

Intangible plant.

Production and local storage.

Underground storage.

Transmission.

Distribution.

General.

Miscellaneous plant.<sup>7</sup>

Construction work in progress.

Plant acquisition adjustments and other adjustments.

#### Other utility plant:

——— (specify).

Common plant (electric, gas, water, etc.).

It will be necessary to collect additional data at the level of the primary account in order to regroup these assets by type.

The AGA form does not show rental payments and receipts as separate items. Information relating to rental properties will have to be collected in order to create wealth statements on both ownership and use bases.

<sup>7</sup> Includes plant purchased or sold; in process of reclassification; leased to others; held for future use; completed construction not classified.

## COMBINATION COMPANIES

Combination companies providing electric and/or gas services file the same report(s) as the straight companies whose reports were reviewed above. Sources of data on water plant, including that owned by combination companies providing water service, will be reviewed in the next section. That leaves for consideration here the kinds of data available on the combination-company assets dedicated to the provision of a utility service other than electric, gas, and water.

If the "other" service is performed by a company reporting to FPC, the "other" service assets are shown in the following detail:

- Plant in service (classified).
- Plant purchased or sold.
- Completed construction not classified.
- In process of reclassification.
- Leased to others.
- Held for future use.
- Construction work in progress.
- Acquisition adjustment.

The AGA form aggregates the nonelectric "other" service assets of gas companies by service. More detail will have to be collected in order to distribute these assets by type. Information on rentals also will have to be obtained in order to construct wealth statements by industries of ownership and use.

We know of no reporting vehicle for combination utility companies offering neither gas nor electric service.

## WATER COMPANIES

No agency of the Federal Government currently collects financial data from water utilities. However, the Public Health Service periodically requests information on physical facilities in line with that agency's interest in safe water supplies. Every 5 years the PHS "Inventory of Municipal Water Facilities" is sent to each utility serving 100 or more persons. Water utilities serving communities with a population of 25,000 and over receive a questionnaire every 2 years.

At 5-year intervals the American Water Works Association, Inc. (New York, N.Y.), circulates a questionnaire to large water utilities. In 1955 about half of the 1,000 questionnaires mailed by AWWA were completed and returned. There are 24,000 water utilities in the United States of which 3,400 are privately owned.

Each of the report forms used in the 1960 survey contained a question on water utility plant. The shorter of the two forms used requested only total investment in utility property. The more comprehensive report (apparently intended for larger utilities) requested book values distributed as follows:

- Supply works and transmission lines.
- Treatment plant.
- Distribution system.
- General property.

Most States regulate privately owned water utilities and require annual reports. These reports are the only current source for detailed financial data. The general comparability of the reports submitted by companies in about 20 of the States is assured, given the fact that these States prescribe the system of accounts developed by the National Association of Railroad & Utilities Commissioners. In terms of what we need to know about tangible assets, we are unable to assess the significance of the diversity in accounting systems followed in the other 20 States that require annual reports.

In connection with the use of State reports as a data source for wealth estimates—this being a possible alternative to a special census or survey—we are informed that a private organization currently is gathering detailed financial data from the reports filed in each State that regulates water utilities.<sup>8</sup>

The NARUC system of accounts required in about 20 States is similar in structure to the electric and gas accounting system already reviewed. The balance sheet for large water utilities contains the following items relating to tangible assets:

- Utility plant (101-106).
- Construction work in progress (107).
- Utility plant adjustments (117-119).
- Nonutility property (12).
- Materials and supplies (151-163).
- “Utility plant,” in turn, is spread among:
  - Utility plant in service classified (101).
  - Utility plant purchased or sold (102).
  - Utility plant in process of reclassification (103).
  - Utility plant leased to others (104).
  - Property held for future use (105).
  - Completed construction not classified (106).
  - Utility plant other than water.

“Water utility plant in service classified” is distributed among about 40 asset classes within 6 functional plant categories. These are detailed in annex D.

Rentals are recorded in the following income, revenue, and expense accounts:

- Operating revenues (400).
  - Rents from water property (472).
  - Interdepartmental rents (473).
- Operation expense (401).
  - Rents (604, 627, 644, 666, 931).
- Income from utility plant leased to others (412-413).
- Nonoperating rental income (418).

Schedules supporting amounts recorded in the last two lines above provide the following information. “Utility plant leased to others” is identified along with the book cost and rental revenues. The supporting schedule for account 418 identifies the property and shows the rental revenue but not the book value of the property.

<sup>8</sup> The organization is headed by James B. Corey, Plainfield, N.J.

## OTHER UTILITY SERVICES

There are about 700 privately owned sewerage systems. Information on these as well as publicly owned facilities is collected by means of periodic PHS-State inventories. No financial-type data are requested from respondents. Sewerage companies are regulated in only a few States, and hence, their reports could not serve as the basis for State-by-State wealth estimates. The same conclusion follows from the pattern of regulation of steam companies. These enterprises are regulated in half the States.<sup>9</sup>

Irrigation companies—both privately and publicly owned—are the subject of a decennial census in connection with every other census of agriculture. The most recent census covered every irrigation enterprise serving three or more farms. The questionnaire did not request balance sheet-type data.

We know of no sources of data on the two remaining sanitary service industries, i.e., "refuse systems" and "sanitary services, not elsewhere classified." The required data about these industries as well as the sewerage and steam supply industries could be collected by the Bureau of the Census.

## ANNEX A

## SUPPLEMENTAL COMMENTS OF DAVID A. KOSH AND GERALD J. GLASSMAN

We disagree that the value of the tangible assets of regulated utilities can be measured by historical costs trended by price indexes. Patterning the valuation of utility wealth after the current value criteria used in the other economic sectors provides only a misleading semantic consistency.

It is correctly stated that most States establish ratemaking values which approximate depreciated original cost. Since this is true, it must be incorrect that historical costs adjusted by price indexes to a current price level provide a meaningful measure of economic value for regulated utilities. It is conceded that in general a theoretically correct value should be determined by a discounting of expected future income flows. Trended original cost, original cost, or cost of reproduction are only practical substitutes for the difficulties involved in the capitalized income approach. Future income flows of regulated utilities are determined principally by the ratemaking value or rate base set by regulation and the rate of return applied to this value by regulation. If the allowed and realized rate of return is equal to the market capitalization rate, then the market value of securities would equal the rate base. Since the rate base is depreciated original cost, then under an assumption of continuous, efficient regulation, market value would tend to equal depreciated original cost in the long run. It is this economic market value which is the proper wealth measure for regulated utilities. Of course, economic value can differ from rate base values if earnings actually realized differ from the earnings which are required in the money market: if the realized rate of return differs from the market capitalization rate.

In actuality, rates of return generally exceed market capitalization rates. This brings value above the depreciated original cost rate base, but still provides no discernible link to a trended original cost. Cost trended for price level changes must, by definition, be an indication of value only rarely and then by coincidence. As long as regulation is founded principally on original cost depreciated, this is a measure of value superior to trended original cost. If a swing back to reproduction cost depreciated regulation were to eventuate, then and only then would trended original cost be a better measure.

If original cost or book cost were used as the measure of gross value, then book depreciation reserves would be the best measure of accrued consumption of original cost to arrive at a net value measure. We need not concern ourselves particularly with full reflection of obsolescence, since, in general, regulation accepts book-recorded depreciation in estimating net book cost.

<sup>9</sup> For a summary of the extent of State utility regulation, see Federal Power Commission, "State Commission Jurisdiction and Regulation of Electric and Gas Utilities, 1960."

The valuation method proposed by the report, trended original cost less an estimate of accrued economic depreciation reflecting expired service life, plus obsolescence, will provide a meaningful value estimate for the utilities in only one State, Ohio. For the regulated industries in total, the proposed method will yield a figure which cannot possibly approximate value in the sense defined for the wealth inventory.

## ANNEX B

## FPC ELECTRIC PLANT IN SERVICE ACCOUNTS

*1. Intangible plant*

- 301 Organization
- 302 Franchises and consents
- 303 Miscellaneous intangible plant

*2. Production plant*

## STEAM PRODUCTION PLANT

- 310 Land and land rights
- 311 Structures and improvements
- 312 Boiler plant equipment
- 313 Engines and engine-driven generators
- 314 Turbogenerator units
- 315 Accessory electric equipment
- 316 Miscellaneous powerplant equipment

## NUCLEAR PRODUCTION PLANT

- 320 Land and land rights
- 321 Structures and improvements
- 322 Reactor plant equipment
- 323 Turbogenerator units
- 324 Accessory electric equipment
- 325 Miscellaneous powerplant equipment

## HYDRAULIC PRODUCTION PLANT

- 330 Land and land rights
- 331 Structures and improvements
- 332 Reservoirs, dams, waterways
- 333 Water wheels, turbines, and generators
- 334 Accessory electric equipment
- 335 Miscellaneous powerplant equipment
- 336 Roads, railroads, bridges

## OTHER PRODUCTION PLANT

- 340 Land and land rights
- 341 Structures and improvements
- 342 Fuel holders, products and accessories
- 343 Prime movers
- 344 Generators
- 345 Accessory electric equipment
- 346 Miscellaneous powerplant equipment

*3. Transmission plant*

- 350 Land and land rights
- 351 Clearing land and rights-of-way
- 352 Structures and improvements
- 353 Station equipment
- 354 Towers and fixtures
- 355 Poles and fixtures
- 356 Overhead conductors and devices
- 357 Underground conduit
- 358 Underground conductors and devices
- 359 Roads and trails

*4. Distribution plant*

360	Land and land rights
361	Structures and improvements
362	Station equipment
363	Storage battery equipment
364	Poles, towers, fixtures
365	Overhead conductors and devices
366	Underground conduit
367	Underground conductors and devices
368	Line transformers
369	Services
370	Meters
371	Installation on customer's premises
372	Leased property on customer's premises
373	Street lighting and signal systems

*5. General plant*

389	Land and land rights
390	Structures and improvements
391	Office furniture and equipment
392	Transportation equipment
393	Stores equipment
394	Tools, shop and garage equipment
395	Laboratory equipment
396	Power-operated equipment
397	Communication equipment
398	Miscellaneous equipment
399	Other tangible property

## ANNEX C

## FPC GAS PLANT IN SERVICE ACCOUNTS

*1. Intangible plant*

301	Organization
302	Franchises and consents
303	Miscellaneous intangible plant

*2. Production plant*

## NATURAL GAS PRODUCTION AND GATHERING PLANT

325.1	Producing lands
325.2	Producing leaseholds
325.3	Gas rights
325.4	Rights-of-way
325.5	Other land and land rights
326	Gas well structures
327	Field compressor station structures
328	Field measuring and regulating station structures
329	Other structures
330	Producing gas wells—well construction
331	Producing gas wells—well equipment
332	Field lines
333	Field compressor station equipment
334	Field measuring and regulating station equipment
335	Drilling and cleaning equipment
336	Purification equipment
337	Other equipment

## PRODUCTS EXTRACTION PLANT

340	Land and land rights
341	Structures and improvements
342	Extraction and refining equipment
343	Pipelines
344	Extracted products storage equipment
345	Compressor equipment
346	Gas measuring and regulating equipment
347	Other equipment

## MANUFACTURED GAS PRODUCTION PLANT

*3. Storage plant*

350.1	Land
350.2	Leaseholds
350.3	Storage rights
350.4	Rights-of-way
350.5	Gas rights
351	Structures and improvements
352	Wells
353	Lines
354	Compressor station equipment
355	Measuring and regulating station equipment
356	Purification equipment
357	Other equipment

## LOCAL STORAGE PLANT

360	Land and land rights
361	Structures and improvements
362	Gas holders
363	Other equipment

*4. Transmission plant*

365.1	Land and land rights
365.2	Rights-of-way
366	Structures and improvements
367	Mains
368	Compressor station equipment
369	Measuring and regulating station equipment
370	Communication equipment
371	Other equipment

*5. Distribution plant*

374	Land and land rights
375	Structures and improvements
376	Mains
377	Compressor station equipment
378	Measuring and regulating station equipment—general
379	Measuring and regulating station equipment—city gate
380	Services
381	Meters
382	Meter installations
383	House regulator
384	House regulator installations
385	Industrial measuring and regulating station equipment
386	Other property on customer's premises
387	Other equipment

*6. General plant*

389	Land and land rights
390	Structures and improvements
391	Office furniture and equipment
392	Transportation equipment
393	Stores equipment
394	Tools, shop and garage equipment
395	Laboratory equipment
396	Power-operated equipment
397	Communication equipment
398	Miscellaneous equipment
399	Other tangible property

## ANNEX D

## NARUC WATER PLANT IN SERVICE ACCOUNTS

*Intangible plant*

301	Organization
302	Franchises and consents
303	Miscellaneous intangible plant

*Source of supply plant*

310	Land and land rights
311	Structures and improvements
312	Collection and impounding reservoirs
313	Lake, river and other intakes
314	Wells and springs
315	Infiltration galleries and tunnels
316	Supply mains
317	Other water source plant

*Pumping plant*

320	Land and land rights
321	Structures and improvements
322	Boiler plant equipment
323	Other power producing equipment
324	Steam pumping equipment
325	Electric pumping equipment
326	Diesel pumping equipment
327	Hydraulic pumping equipment
328	Other pumping equipment

*Water treatment plant*

330	Land and land rights
331	Structures and improvements
332	Water treatment and equipment

*Transmission and distribution plant*

340	Land and land rights
341	Structures and improvements
342	Distribution reservoirs and standpipes
343	Transmission and distribution mains
344	Fire mains
345	Services
346	Meters
347	Meter installations
348	Hydrants
349	Other transmission and distribution plant

*General plant*

389	Land and land rights
390	Structures and improvements
391	Office furniture and equipment
392	Transportation equipment
393	Stores equipment
394	Tool, shop, and garage equipment
395	Laboratory equipment
396	Power operated equipment
397	Communication equipment
399	Other tangible property

