

The Commonwealth of Massachusetts

REPORT

OF THE

SPECIAL COMMISSION TO INVESTIGATE THE ADVISABILITY OF PROVIDING FOR THE PIPING OF NATURAL GAS INTO THE COMMONWEALTH; THE ADVISABILITY OF THE COMMONWEALTH ENTERING INTO AN INTER-STATE COMPACT PROVIDING FOR THE DEVELOPMENT OF HYDRO-ELECTRIC POWER; PETITIONS FOR THE CITY OF HOLYOKE TO APPLY FOR AND RECEIVE A LICENSE FOR A HYDRO-ELECTRIC PROJECT

(CREATED BY PROVISIONS OF AN ORDER, HOUSE, No. 2466 OF 1949,
ADAPTED AUGUST 22, 1949.)

DECEMBER 7, 1949

THE COMMISSIONERS OF THE GENERAL LAND OFFICE

REPORT

IN ANSWER TO A RESOLUTION OF THE HOUSE OF COMMONS PASSED ON THE 11TH MARCH 1913 CONCERNING THE PROVISION OF THE ACT OF 1911 AND THE COMMISSIONERS' REPORT THEREON.

AND IN ANSWER TO A RESOLUTION OF THE HOUSE OF COMMONS PASSED ON THE 11TH MARCH 1913 CONCERNING THE PROVISION OF THE ACT OF 1911 AND THE COMMISSIONERS' REPORT THEREON.

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REPORT OF THE SPECIAL COMMISSION TO INVESTIGATE THE ADVISABILITY OF PROVIDING FOR THE PIPING OF NATURAL GAS INTO THE COMMONWEALTH, THE ADVISABILITY OF THE COMMONWEALTH ENTERING INTO AN INTERSTATE COMPACT PROVIDING FOR THE DEVELOPMENT OF HYDRO-ELECTRIC POWER, AND THE PETITIONS FOR THE CITY OF HOLYOKE TO APPLY FOR AND RECEIVE A LICENSE FOR A HYDRO-ELECTRIC PROJECT.

INTRODUCTION.

This Special Commission was created by Order, House, No. 2466 of 1949, as follows:

Ordered, That the committee on Power and Light is hereby authorized to sit during the recess of the general court for the purpose of making an investigation and study relative to the advisability of providing for the piping of natural gas into the commonwealth for sale and distribution to the inhabitants thereof, and relative to ways and means of providing therefor, and for the purpose of making an investigation and study of the subject matter of the investigation and study proposed by current senate document numbered 392, and the subject matter of current house documents numbered 1928 and 1929. Said committee may travel within and without the commonwealth and may expend for expenses and for clerical and other assistance such sums as may be appropriated therefor. Said committee shall report to the general court the results of its investigation and study, and its recommendations, if any, together with drafts of legislation necessary to carry such recommendations into effect, by filing the same with the clerk of the house of representatives on or before the first Wednesday of December in the current year.

This order was adopted on August 22, 1949. The Legislature subsequently appropriated the sum of \$5,000

for the work of this Commission. The Commission met and organized on September 27, 1949. Senator Michael A. Flanagan of Lawrence was elected chairman, and Representative Philip Markley of Springfield, vice chairman. The Committee had hoped to engage the services of a graduate student majoring in the study of hydroelectricity and natural gas as clerk, and in the interim elected Representative Gabriel F. Piemonte of Boston to carry on said duties. The report is divided into four sections, each one being devoted to that phase of the subject matter of the study in the order in which it appeared in the Order establishing the study, the fourth section being devoted to proposed legislation.

Chapter I.

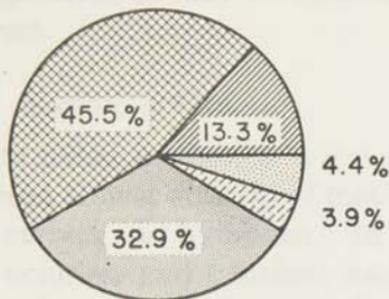
SUMMARY OF NATURAL GAS INVESTIGATION.

This Commission held public hearings, made inspection tours, and studied evidence and data available to it in connection with its investigation of the prospects of introduction of natural gas into the Commonwealth. The money-savings and other advantages that natural gas will bring to the home users and to industry in the Commonwealth were clearly established.

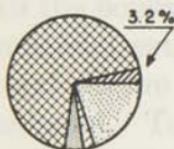
It was shown that each year in which the introduction of natural gas is delayed, the people of the Commonwealth will lose in excess of \$15,000,000 that it otherwise could save in its fuel bills. It was shown that natural gas will be a material factor in holding and attracting industry in the Commonwealth.

It was shown that private interests are prepared to undertake the piping of natural gas from the gas fields in Texas and Louisiana into New England and the Commonwealth; that the bringing of natural gas can be initiated by the winter of 1950-1951 with the full cooperation of the New England States and the gas utilities. It was further developed that certain legislation is necessary to enable the bringing of natural gas and to protect the public interest.

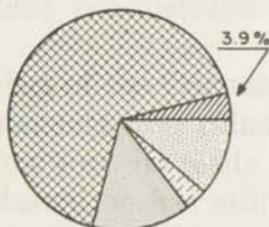
PRINCIPAL SOURCES OF ENERGY SUPPLY
Mineral Fuels and Water Power - United States
1900-1947



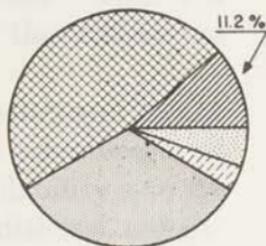
1947
Total- 35,635 Trillion B.t.u.



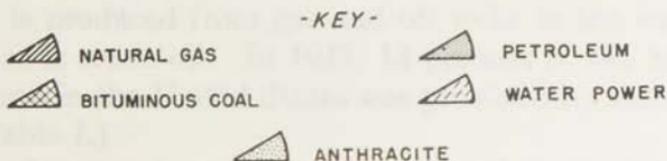
1900
Total- 8,009 Trillion B.t.u.



1920
Total- 22,227 Trillion B.t.u.



1940
Total- 25,587 Trillion B.t.u.



Source: Gas Facts, 1948
 By American Gas Association
 P9 25

MINIMUM WATER USE IN THE CITY OF CHICAGO
 (BASED ON THE RECORDS OF THE CHICAGO WATER WORKS)
 1900-1911

The following table shows the minimum water use in the City of Chicago for each hour of the day for each year from 1900 to 1911. The minimum water use is defined as the least amount of water used in any one hour of the day.



MINIMUM WATER USE IN CHICAGO - 1900



MINIMUM WATER USE IN CHICAGO - 1901

MINIMUM WATER USE IN CHICAGO - 1902

MINIMUM WATER USE IN CHICAGO - 1903

Domestic
 Commercial
 Industrial
 Municipal
 Other

It is the unanimous opinion of this Commission that natural gas should be brought to the Commonwealth as quickly as possible. Therefore, it is recommended that the General Court adopt such legislation as will enable private interests to install the gas transmission pipe lines and to operate them within the Commonwealth, and adopt such other legislation as may be necessary to protect the public interest.

NATURAL GAS.

Natural gas, as its name implies, is a gas formed by nature. It is composed almost entirely of methane which is a combination of carbon and hydrogen. In its natural form, it is odorless, colorless and tasteless, and except in extremely concentrated quantities, is non-poisonous. Before it is piped into city gas mains, an odorant is added by the gas companies to the natural gas to make it readily detectable. Manufactured gas, on the other hand, is toxic if inhaled by humans for even a few minutes because of the appreciable carbon monoxide content. This is a particularly important consideration to the residential user.

To the house holders of the Commonwealth and to the commercial establishments, the principal advantages of natural gas are its low cost, its ready availability and its cleanliness. To industry, it has still additional advantages, since its chemical composition makes it desirable for the most precise heating uses.

Natural gas is an important natural resource that comes from deep underground petroleum reservoirs formed by geological processes many millions of years ago. It is produced from gas and oil wells in the same manner as is crude oil. In 1947, 13 percent of the heat energy used in the United States was provided by natural gas. (Table I.)

Although natural gas has been produced in the Appalachian area since the early 1800's, the large natural gas deposits that have been discovered more recently in the Southwestern States now supply the major part of the

nation's natural gas needs. As shown in Table II, 74 per cent of the nation's natural gas reserves are located in the Southwestern States. In fact, only since 1944 were the Gulf Coast fields of Texas and Louisiana afforded ample markets to encourage the prospecting for and development of these immense gas deposits. The natural gas to be supplied to the Commonwealth, as proposed by private interests, will come from these gas fields that lie along the Gulf Coast region of Texas and Louisiana.

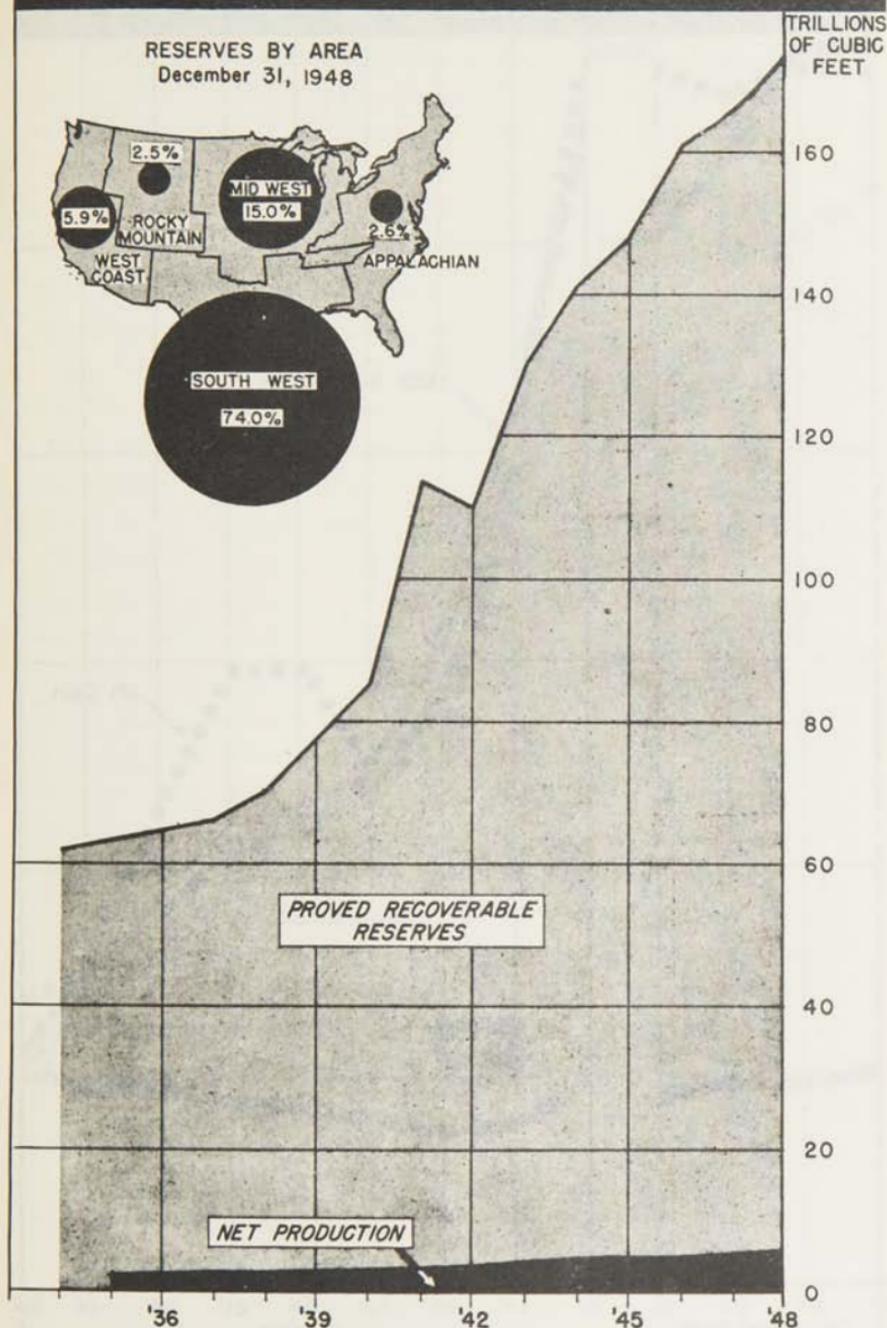
THE NEED FOR NATURAL GAS IN THE COMMONWEALTH.

Because of the higher heat content of natural gas and the comparatively low cost of production and transportation, natural gas will have advantages over manufactured gas that are important to the Commonwealth. Natural gas has approximately 1,000 Btu's (units of heat) per cubic foot, whereas most manufactured gas has approximately 530 Btu's per cubic foot. Consequently, the existing mains of the Commonwealth's gas distributing companies can, by using straight natural gas, deliver approximately twice the amount of heat to the consumer. This is an important economic factor because most of the gas-distributing mains in the Commonwealth are located in congested areas and for many years have been loaded to capacity.

In the Commonwealth, as well as in New England, there are no natural gas deposits, and the gas that is presently used here is dependent upon coal, coke and oil as a base material of manufacture. Most of the gas manufactured in the Commonwealth is carbureted water gas. This gas is made by passing steam over hot coke and by adding fuel oil vapor to increase the heating value to the desired standard. Approximately 25 per cent of the gas used in the Commonwealth is produced principally as a by-product incident to the making of coke, while some gas is made entirely from petroleum. The gas that is produced in these processes is collected and stored in the large cylindrical gas holders or trunks that are a familiar sight in most communities in the Commonwealth.

TABLE II.

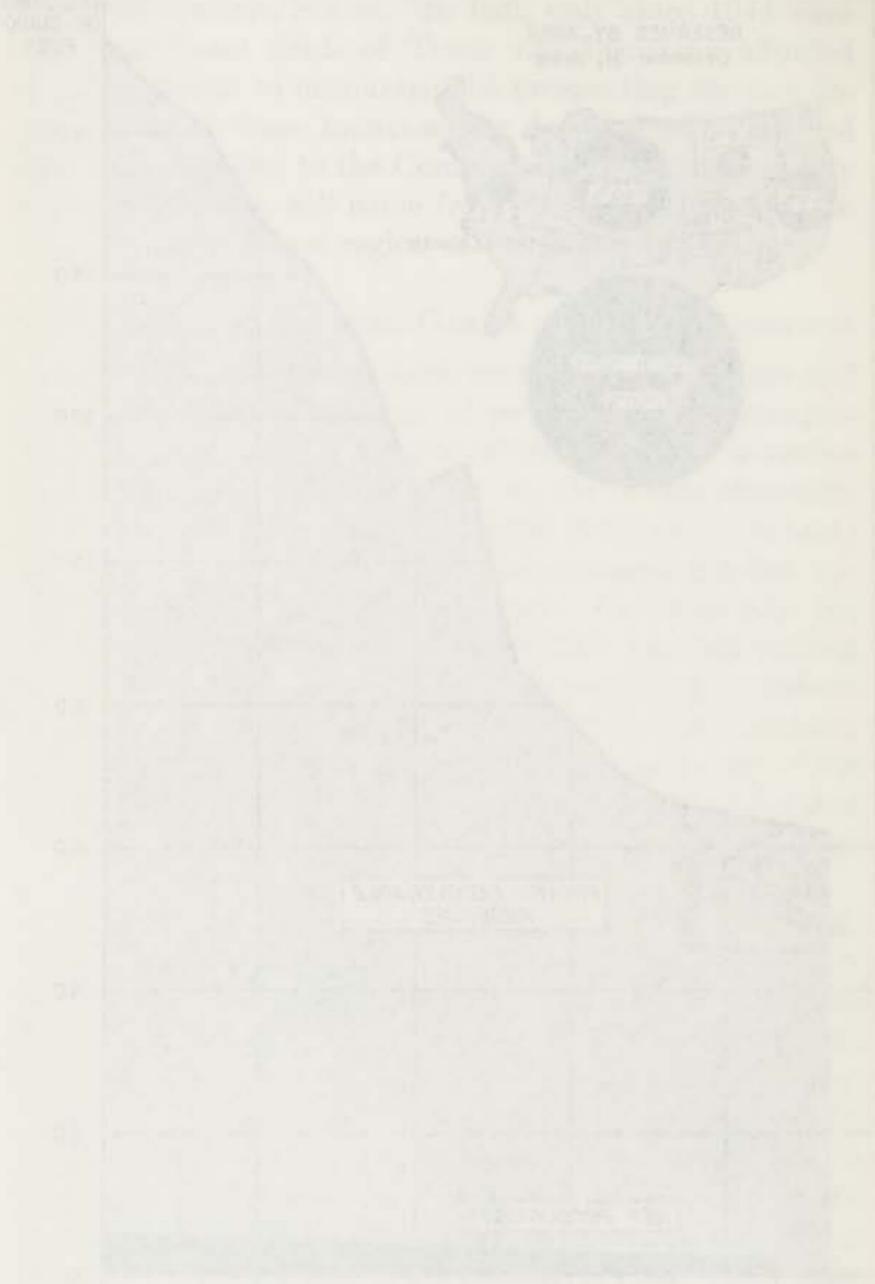
PROVED RECOVERABLE RESERVES AND NET PRODUCTION OF NATURAL GAS in the United States



Source: Gas Facts, 1948

By American Gas Association

RECOVERED RECOVERY REVENUES FROM THE REVENUE RECOVERY ACT OF 1961

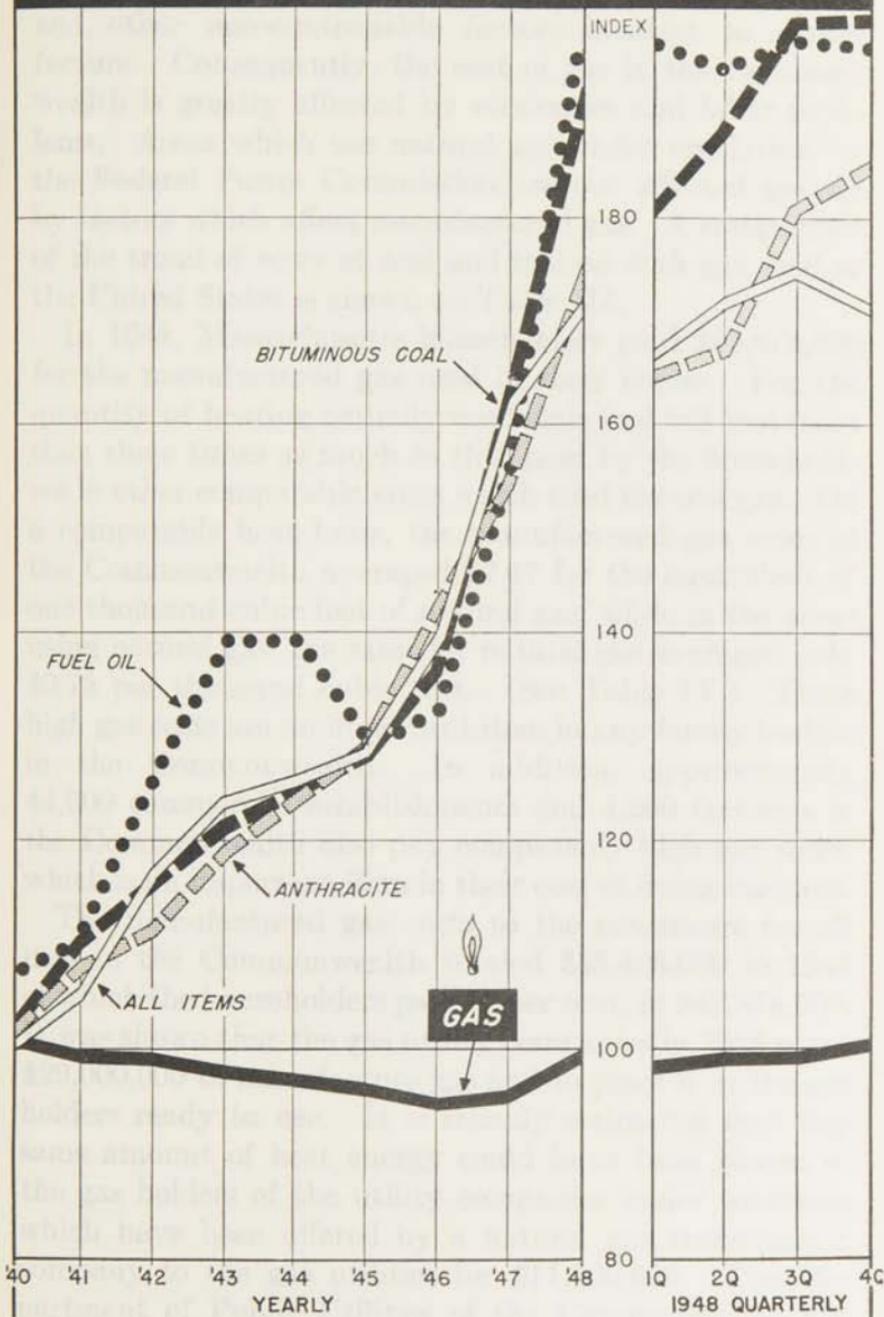


Source: The Joint Committee on Taxation, Report No. 1000, 86th Congress, 2d Session, 1959, p. 10.

TABLE III.

CONSUMERS' PRICE INDEX IN THE UNITED STATES
GAS COMPARED WITH ALL ITEMS & OTHER PRINCIPAL FUELS

(Yearly and Quarterly Averages)



Source: Gas Facts, 1948

By American Gas Association

TABLE III.

CONSUMPTION OF GAS IN THE UNITED STATES COMPARED WITH ALL OTHER COUNTRIES



Source: Gas Facts 1925
 by American Gas Association
 1925

The costs of manufactured gas are largely dependent on the prices of non-regulated base materials of coal, coke and oil which are further affected through labor strikes and other non-controllable factors incident to manufacture. Consequently, the cost of gas in the Commonwealth is greatly affected by economics and labor problems. Areas which use natural gas under regulation by the Federal Power Commission are not affected greatly by factors which affect manufactured gas. A comparison of the trend of costs of coal and fuel oil with gas used in the United States is shown on Table III.

In 1948, Massachusetts householders paid \$42,874,000 for the manufactured gas used in their homes. For the quantity of heating actually used, this fuel bill was more than three times as much as that paid by the householders in other comparable areas which used natural gas. On a comparable heat basis, the manufactured gas rates in the Commonwealth averaged \$2.47 for the equivalent of one thousand cubic feet of natural gas, while in the areas using natural gas, the rates for natural gas averaged only \$0.73 per thousand cubic feet. (See Table IV.) These high gas costs are an important item in any family budget in the Commonwealth. In addition, approximately 44,600 commercial establishments and 4,200 factories in the Commonwealth also pay comparably high gas rates, which is an important item in their cost of doing business.

The manufactured gas costs to the consumers for all uses in the Commonwealth totaled \$55,408,000 in 1948 of which the householders paid 77 per cent, or \$42,874,000. It was shown that the gas utility companies in 1948 spent \$29,000,000 to manufacture gas and to place it in the gas holders ready to use. It is reliably estimated that this same amount of heat energy could have been placed in the gas holders of the utility companies under contracts which have been offered by a natural gas transmission company to the gas utilities for \$11,000,000. The Department of Public Utilities of the Commonwealth has estimated that gas rate increases granted during 1948 and 1949 because of increased costs of manufacturing gas

have added approximately \$4,186,961 to the fuel bills of the Commonwealth. (See Table V.) Additionally, many gas utility companies are still not receiving sufficient revenues to enable them to continue to maintain adequate service to their consumers and to keep financially sound.

WHAT NATURAL GAS HAS ACCOMPLISHED IN OTHER AREAS OF THE UNITED STATES.

A good example of what happens when a utility first changes from manufactured to natural gas is the recent experience of the New York and Richmond Gas Company that serves Staten Island. The prices that the Company charged its customers were comparable with those of gas companies in Massachusetts. In 1946, it sold gas at an average price that would have been equivalent to \$2.28 per thousand cubic feet of natural gas. Like most manufactured gas utilities, it has been allowed several increases in its gas rates and in 1948, the average price of gas was equivalent to \$2.80 per thousand cubic feet of natural gas, an increase of 23 per cent in two years. Even so, the utility was unprofitable. During one period, its revenues did not even cover its operating costs. Within the four months since the change to natural gas, however, the Company has been able to reduce rates 11 per cent while providing for the amortization of conversion costs, and it is now earning net profits at a rate of \$200,000 per year. If the pattern of the gas rates of this Company follows that of other utilities which have been converted to natural gas, rate reductions and increased sales will go hand in hand until the customers it serves will be buying gas for less than two thirds of the price they paid for manufactured gas.

New England is the only remaining densely populated area in the United States not now using natural gas or for which natural gas facilities have not been authorized. Table IV shows the quantities of natural gas equivalent to the manufactured gas used in New England and the quantities of natural gas used in certain comparable states in the middle Atlantic and midwest area. Table IV also

shows the comparative costs to the consumers of manufactured and natural gas. As will be seen, Massachusetts uses the equivalent of only about one fifth as much gas as the other areas and the price it pays is more than three times that paid by consumers in the areas compared.

CONVERSION TO NATURAL GAS.

Since most of the appliances and gas service facilities of the distributing companies are now adapted to the use of gas with a different chemical composition from natural gas and one half of its heat content, it will be necessary upon the introduction of natural gas to make certain mechanical changes in these appliances and service facilities.

This conversion is usually undertaken by crews of men skilled in gas conversion problems. The conversion costs to the utility companies will amount to approximately \$13 on the average for each gas user. Since there are 960,000 users of gas in the Commonwealth, this conversion will cost the utility companies approximately \$12,500,000. It has been the practice of the public utility commissions in other states to allow the gas companies to charge this conversion cost to operations over periods ranging generally from five to ten years. Under similar circumstances, the utility companies will be allowed to charge against their operating costs from \$1,250,000 to \$2,500,000 per year for this cost of conversion. This is only a small part of the \$18,000,000 that it was shown could be saved each year if Natural Gas had been used in 1948. (See Section — "The Need for Natural Gas in the Commonwealth," page 6.)

REGULATION OF NATURAL GAS.

Natural gas transmission pipe lines which transport natural gas outside the state in which it is produced and which sell it for resale in interstate commerce, are subject to the jurisdiction of the Federal Power Commission. The Federal Power Commission has complete control over

these pipe lines with respect to the rates, conditions of service, and the construction and operation of the pipe lines. The rates for the gas sold and the conditions of service must be justified to the Federal Power Commission in the form of a uniform gas tariff prior to the commencement of service. This tariff is subject to suspension by the Commission if it appears to be discriminatory or will result in revenues to the transmission companies which are unjust or give an unreasonable return on the investment. The gas utilities in the Commonwealth are, therefore, assured that the price they pay for natural gas will be fair and reasonable.

Both natural gas transmission pipe lines crossing state lines and local transmission pipe lines transporting gas that has crossed state lines and sell it for resale are subject to federal control. A gas utility, however, which buys natural gas for distribution and sale to the ultimate consumer in Massachusetts is regulated by the Department of Public Utilities. Because of this, it is important that the functions of interstate commerce be kept separate in all respects from the function which is subject to state regulations.

Before any natural gas pipe line which proposes to serve New England will be given a certificate of public convenience and necessity to construct and operate a pipe line, it must show gas reserves either owned or contracted adequate to supply the needs of its customers for a reasonable period of time (usually twenty years). It must show that a market exists for the gas, that it is financially able to undertake the building and operation of the pipe line and service proposed, and that the project is in all respects in the public interest.

PRIVATE INTERESTS PROPOSE TO BUILD NATURAL GAS PIPE LINES TO SUPPLY THE COMMONWEALTH.

For more than two years, pipe line companies have been preparing to serve New England and the Commonwealth with natural gas. At the date of this report, two plans have been filed with the Federal Power Commission to make this service possible.

Northeastern Gas Transmission Company, at this time a wholly owned subsidiary of Tennessee Gas Transmission Company, proposes to build a pipe line distribution system which will make natural gas available to all the major populated areas in New England on a uniform basis. This company represents that it will not discriminate between these major populated areas because of location and that lateral pipe lines to deliver the gas to the gas utilities at or near city gates will be provided.

Northeastern Gas Transmission Company has contracted to receive its supply of gas from Tennessee Gas Transmission Company at the New York-Massachusetts border near Pittsfield and from Transcontinental Gas Pipe Line Corporation at the New York-Connecticut border near Greenwich. Tennessee Gas Transmission Company and Transcontinental Gas Pipe Line Corporation each have applications pending before the Federal Power Commission to serve Northeastern Gas Transmission Company. Plans of these companies are (dependent upon favorable action of the Federal Power Commission) that Transcontinental Gas Pipe Line Corporation will make gas available to Northeastern at the Connecticut border in the winter of 1950-1951, and that Tennessee Gas Transmission Company will make gas available at the New York-Massachusetts border in the winter of 1951-1952.

Tennessee Gas Transmission Company proposes that the major ownership of its subsidiary, Northeastern Gas Transmission Company, be vested in the New England public but does not believe that the gas utilities which purchase the gas should own any interest therein.

Texas Eastern Transmission Company has an application pending before the Federal Power Commission to provide natural gas and to construct a distribution system that will serve the major populated areas of New England. Details of the nature and terms of service of this company have not been disclosed. Tennessee Gas Transmission Company, Transcontinental Gas Pipe Line Corporation, and Texas Eastern Transmission Company all obtain

their supply of natural gas from gas fields in Texas and Louisiana.

Algonquin Gas Transmission Company has been formed by Eastern Gas and Fuel Associates, New England Gas and Electric Association and Providence Gas Company for the purpose of conducting an engineering study to determine by what means New England gas distributing companies can best be supplied with natural gas. Algonquin Gas Transmission Company may, based upon the results of the engineering study, file an application with the Federal Power Commission to build distribution pipe lines within New England and the Commonwealth. Under such circumstances, Algonquin Gas Transmission Company proposes to be owned by the gas utilities which purchase such gas in proportion to their respective 1948 send-outs.

Most of the independent gas utilities in the Commonwealth have entered into contracts with Northeastern Gas Transmission Company for a supply of natural gas. Two of the interests operating within the Commonwealth that have not yet contracted for a supply of gas have stated that they desire to have natural gas as speedily as possible. Eastern Gas and Fuel Associates, which operates coal mines, coke ovens and related properties, and which sells its coke oven by-product, gas, to its wholly owned subsidiary, Boston Consolidated Gas Company, in 1948 opposed the bringing of natural gas to New England in a petition before the Federal Power Commission, but now states that it desires natural gas for its subsidiary company.

Proposed legislation has been brought to the attention of the Commission and for the sole purpose of having it for the consideration of the incoming session of the Legislature is appended hereto. (Appendix A.)

It is evident that only with the support and full cooperation of the gas utilities and the New England States in prosecuting applications for certificates of public convenience and necessity will it be possible for private

interests to bring gas expeditiously and at the lowest possible cost.

To repeat again, it is the unanimous opinion of this Commission that natural gas should be brought to the Commonwealth as quickly as possible.

TABLE IV. — Comparison of Consumption and Cost of Manufactured Gas in New England with Natural Gas in Certain States in 1948.

[Compiled from "Gas Facts, 1948" of American Gas Association.]

STATE.	RESIDENTIAL USE.		COMMERCIAL USE.		TOTAL, ALL USES, INCLUDING INDUSTRIAL AND OTHER.	
	MCF ¹ used per Customer.	Cost per MCF used.	MCF used per Customer.	Cost per MCF used.	MCF used per Customer.	Cost per MCF used.
Manufactured gas used in New England States:						
Massachusetts	17.2	\$2 69	65.1	\$2 34	22.9	\$2 47
Connecticut	18.8	2 57	87.8	2 09	28.1	2 25
Rhode Island	15.6	2 81	115.9	2 04	21.9	2 47
Maine	15.8	2 88	79.8	2 30	22.8	2 59
New Hampshire	14.8	3 00	80.8	2 43	20.5	2 77
Vermont	15.6	2 98	66.0	2 46	15.2	2 82
Total	17.2	\$2 68	74.7	\$2 24	23.9	\$2 42
Natural gas used in certain Middle Atlantic and Middle West States:						
New York	71.8	\$0 89	200.0	\$0 84	100.2	\$0 82
Pennsylvania	91.2	62	261.1	52	227.5	46

Illinois	43.3	\$1 12	153.9	\$0 89	206.3	\$0 44
Indiana	50.1	1 00	178.6	81	169.0	55
Michigan	53.5	87	178.9	73	80.3	76
Ohio	90.2	61	251.5	57	156.7	53
Wisconsin	47.9	1 24	200.0	75	72.1	1 03
Minnesota	74.5	77	345.1	48	175.7	46
Total	73.2	\$0 73	227.2	\$0 62	155.6	\$0 54

¹ MCF (thousand cubic feet) of gas has been converted to 1,000 British thermal units per cubic foot of gas, both in the use of manufactured gas and natural gas, as shown in this schedule.

TABLE V. — *Commonwealth of Massachusetts — Gas Rate Increases, 1948 and 1949.*

[From the records of the Department of Public Utilities.]

CASES DECIDED.

DATE.	COMPANY.	Increased Gross Revenue requested.	Increased Gross Revenue granted.	Cities and Towns affected.
Jan. 29, 1948	Fall River Gas Works Co.	\$145,000	\$135,000	Fall River, Somerset, Swansea.
Feb. 25, 1948	Malden and Melrose Gas Light Co.	569,500	499,000	Malden, Melrose, Medford, Everett, Stoneham, Reading, Wakefield, Somerville.
Feb. 27, 1948	Cambridge Gas Light Co.	362,917	228,000	Cambridge, Somerville.
April 21, 1948	Arlington Gas Light Co.	270,100	230,000	Arlington, Belmont, Lexington, Winchester, Woburn.
April 23, 1948	Ware Gas Co.	4,126	4,126	Ware.
May 28, 1948	Old Colony Gas Co.	59,000	40,000	Braintree, Weymouth, Rockland, Whitman, Abington, Hingham, Cohasset, Hull.
June 7, 1948	Salem Gas Light Co.	136,900	110,000	Salem, Peabody.
Sept. 28, 1948	Boston Consolidated Gas Co.	2,087,068	1,568,000 ¹	Acton, Ayer, Bedford, Boston, Brookline, Chelsea, Concord, Everett, Groton, Lincoln, Littleton, Milton, Newton, Quincy, Somerville, Sudbury, Waltham, Watertown, Wayland, Wellesley, West. n. Acushnet, Dartmouth, Fairhaven, Freetown, Marion, Mattapoisett, New Bedford.
Nov. 23, 1948	New Bedford Gas and Edison Co.	47,949	47,949	Winthrop, Revere.
Nov. 24, 1948	Suburban Gas and Electric Co.	147,600	135,100	Gloucester, Rockport.
Aug. 23, 1948	Gloucester Gas Light Co.	63,500	40,000	Beverly, Danvers.
Jan. 24, 1948	Beverly Gas and Electric Co.	139,600	128,600	Northampton, Easthampton.
Aug. 23, 1948	Northampton Gas Light Co.	58,000	53,000	Lawrence, Methuen, Andover, North Andover.
July 28, 1948	Lawrence Gas and Electric Co.	348,200	253,200	

Aug. 23, 1948	Haverhill Gas Light Co.	\$48,500	\$23,500	Haverhill, Groveland, South Groveland, Merrimac, Amesbury, Salisbury, Essex, Georgetown, Hamilton, Ipswich, Manchester, Rowley, Topsfield, Wenham.
Aug. 23, 1948	Deatham and Hyde Park Gas Co.	28,000	28,000	Deatham, Hyde Park, Westwood.
Dec. 29, 1948	Marlborough-Hudson Gas Co.	23,000	23,000	Hudson, Marlborough, Maynard, Southborough, Stow
July 22, 1948	Attleboro Gas Co.	7,900	7,900	Attleboro, Seekonk.
Jan. 27, 1949	Brockton Gas Light Co.	159,000	130,000	Brockton, Bridgewater, West Bridgewater, East Bridgewater, Avon, Randolph, Holbrook, Stoughton, Canton, Sharon, Easton, Hanson, Pembroke, Plymouth, Hanover, Duxbury, Marshfield, Norwell, Scituate, Plymouth, Norwood.
June 29, 1948	Lynn Gas and Electric Co.	307,436	307,436	Lynn, Swampscott, Saugus, Nahant, Marblehead, Lynnfield, Peabody.
Sept. 2, 1949	Gardner Gas, Fuel and Light Co.	10,000	10,000	Gardner.
Apr. 7, 1949	Old Colony Gas Co.	20,000	20,000	Braintree, Weymouth, Rockland, Whitman, Abington, Hingham, Cohasset, Hull.
April 25, 1949	Norwood Gas Co.	29,000	29,000	Norwood.
April 27, 1949	Buzzards Bay Gas Co.	55,000	55,000	Wareham, Bourne, Falmouth, Barnstable, Yarmouth, Dennis, Harwich, Chatham.
May 11, 1949	Leominster Gas Light Co.	53,000	53,000	Leominster, Lunenburg.
Nov. 17, 1949	Taunton Gas Light Co.	18,150	18,150	Mansfield, Foxborough, Walpole, Medfield, Franklin, Wrentham, Medway, Berkeley, Raynham, Lakeville, Dighton, Norton, Taunton.
		\$5,211,546	\$4,186,961	

PENDING CASES NOT YET DECIDED.

May 16, 1949	Boston Consolidated Gas Co.	\$394,073	-	See prior list for Boston Consolidated Gas Co.
Nov. 9, 1949	Northern Berkshire Gas Co.	85,850	-	North Adams, Adams, Williamstown, Clarksburg.
		\$479,923	-	

¹ Increased gross revenue granted in court.

Chapter II.

INTERSTATE COMPACT PROVIDING FOR DEVELOPMENT OF HYDRO-ELECTRIC POWER.

Senate, No. 392, which provides the basis of this phase of the study, provides for "an unpaid special commission to consist of two members of the Senate, three members of the House of Representatives and two persons to be appointed by the Governor for the purpose of making an investigation and study of the feasibility and desirability of the Commonwealth entering into a compact with the United States and the New England States providing for the development of hydro-electric power in the waterways of the New England States".

In connection with this, the Commission procured all of the past available studies made including the reports of prior Massachusetts commissions known as House, No. 1765 of 1947, and Senate, No. 298 of 1919, the 1948 report of the Power Survey Committee of the New England Council, the report of the Federal Power Commission Staff and also the recent private survey of the Providence Journal. Hearings were also held at which army engineers and members of the public testified.

With respect to undeveloped water power resources of New England the widespread variances of the conclusions of the reports are as follows:—

The New England Council, survey by Charles T. Main, Inc., completed last year concludes that "the total potential capacity of undeveloped water power in New England that it would be practical to develop is about 420,000 kilowatts." Recognition is also given to a possible 80,000 additional kilowatts from "dual purpose" projects planned by the corps of army engineers.

The Federal Power Commission staff estimated the undeveloped water power resources of New England at more than 3,000,000 kilowatts.

A private survey by the Providence Journal, currently being published, concludes that "there is 1,084,775 kilowatts of Hydro-Electric power in New

England capable of development from purely an engineering standpoint," and that "500,000 to 600,000 kilowatts would be economically feasible if and as it could be fitted into the load, or the demand for power." This study, however, is based on conditions as they exist at sites surveyed. *It makes no provision for increased potential through creation of new upriver storage facilities.*

Hence, it is obvious, if we are to explore the full potentialities of hydro-electric power, that an unbiased engineering study be made.

The Commission is mindful that there are pending in Congress bills which provide for an immediate and exhaustive study by the army engineers of the feasibility of developing the waterways of New England and for that reason recommends the legislation marked Appendix B.

During an inspection of the Enfield Dam and in Springfield the commission found evidence of mixed feelings over the proposed development at Enfield. In Springfield, it is reported that the board of surveyors are on record as being opposed to it unless the entire cost is financed by the federal government. The question is being raised by Springfield authorities as to whether the proposed Enfield Dam would destroy their \$2,000,000 sewerage system. In Holyoke there is evidence of concern as to whether the Enfield development would affect the production of power by reducing the fall of water available on the canal system. The Commission finds that in none of our New England States has any legislative machinery been set up or initiated providing for any interstate compact. The committee has before it a recent letter from Nelson Lee Smith, Chairman of the Federal Power Commission, in which he states:

It seems evident from the above discussion that there is nothing the federal government can do toward further development of the potential water power of New England until the people in the region are willing to permit development of the power potentialities of federal multiple-purpose reservoir projects. As stated above, opposition within the region has thus far prevented development of the blocks of hydro-electric power potentially available at the Williamsville and Enfield Rapids sites.

In the examination of various reports your commission finds that even in areas already favored with hydro-electric projects, its full benefits are denied the people of those areas due to the lack of unity among the neighboring states. Changes in governorships and in wants of varied states play a great part in hampering unity. For that reason and in order that New England may receive its full benefits of its hydro-electric power the Commission suggests an interstate compact under which a permanent organization would be established to promote the full benefits of hydro-electricity. (Appendix C.)

Chapter III.

HOLYOKE — HYDRO-ELECTRIC.

House Documents Nos. 1928 and 1929 of the year 1949, which are the subject matter of this chapter, are analogous. They are two separate petitions each seeking for the city of Holyoke authorization to apply for and receive a license from the Federal Power Commission for a hydro-electric project to develop the waters of the Connecticut River at Holyoke for electric power.

Since the filing of these petitions the Federal Power Commission granted permission for this development to the Holyoke Water Power Company, a private corporation, which maintains a steam-generating and hydro-electric plant in Holyoke.

The Commission visited the proposed site and saw the development actually under construction. The Holyoke Water Power Company at present develops 11,000 kilowatts from the hydro-electric operations at the canal. The license granted by the Federal Power Commission permits them to develop in addition four 15,000 kilowatts, but the present plan is to install but one of these units as that is all the demand economically justifies.

The peak load during the last year was 27,400 kilowatts. This 15,000 unit added on to the present capacity of 11,000 will allow the demand supply to be met almost entirely with hydro-electric power during those seasons of the year when there is sufficient flow of water in the Connecticut River. The cost of this development is four

and one-half million dollars and should be ready by the fall of 1951.

An interesting observation was the revelation that the license granted this company runs for fifty years from the date, whereas all prior licenses granted by the Federal Power Commission for the development of hydro-electricity on the Connecticut River were dated back to fifty years from 1920.

Chapter IV.

CONCLUSION.

The Commission feels the successful prosecution of the recommendations contained herein are vital to the citizens of the Commonwealth. Also, that the citizens of the Commonwealth are entitled to the full benefits of the experience gained by the Commission and recommend the continuance of the study of hydro-electricity and natural gas in order to cope with any unforeseen problems that may arise. (Appendix D.)

The undersigned hereby subscribe to the report of the Commission authorized to sit under House No. 2466 of 1949.

MICHAEL A. FLANAGAN.

Chairman.

PHILIP M. MARKLEY.

Vice Chairman.

GABRIEL FRANCIS PIEMONTE,

Secretary.

MICHAEL H. CONDRON.

HARRY P. McALLISTER.

EDWARD W. STAVES.

NORMAN E. FOLSOM.

EARLE S. TYLER.

RAYMOND J. LORD.

CORNELIUS F. KIERNAN.

JAMES L. O'DEA, JR.

GEORGE H. O'FARRELL.

JAMES J. TWOHIG, JR.

JOSEPH F. LEAHY.

RICHARD J. ALLEN.

PROPOSED LEGISLATION.

APPENDIX A.

The Commonwealth of Massachusetts

In the Year One Thousand Nine Hundred and Fifty.

AN ACT RELATIVE TO NATURAL GAS PIPE LINE COMPANIES.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

1 Chapter 164 of the General Laws, as amended, is
2 further amended by inserting therein the following
3 sections to follow the present section 75A:—

4 NATURAL GAS PIPE LINE COMPANIES.

5 *Section 75B.* Any corporation organized under the
6 laws of the commonwealth which shall desire to con-
7 struct and operate a natural gas pipe line situated
8 wholly within the commonwealth may qualify to do
9 business within the commonwealth as a natural gas
10 pipe line company after hearing upon a petition filed
11 with the department and after the department has
12 determined that such facilities are necessary for the
13 purpose alleged and will serve the public convenience
14 and is consistent with the public interest. Any cor-
15 poration organized under the laws of the common-

16 wealth or of any other state or of the United States
17 which holds a certificate of public convenience and
18 necessity issued under the provisions of the Federal
19 Natural Gas Act, approved June 21, 1938, as it now
20 reads or may hereafter be amended authorizing it to
21 construct a natural gas transmission line and appurte-
22 nant facilities within the commonwealth, shall be
23 considered as a natural gas pipe line company within
24 the meaning of this chapter upon filing with the de-
25 partment a certified copy of such certificate.

26 *Section 75C.* Any natural gas pipe line company
27 may petition the department for the right to exercise
28 the power of eminent domain under chapter seventy-
29 nine. It shall file with such petition a general descrip-
30 tion of such pipe line and a map or plan thereof show-
31 ing the rights of way, easements and other interests
32 in land or other property which it is proposed to be
33 taken for such use, the towns through which such pipe
34 line will pass, the public ways, railroads, railways,
35 navigable streams and tide waters in the town or
36 towns named in said petition which it will cross and
37 the extent to which it will be located upon private
38 land and upon, under or along public ways, lands and
39 places. Upon the filing of such petition the depart-
40 ment, after such notice as it may direct, shall give a
41 public hearing or hearings in one or more of the towns
42 through which the pipe line is intended to pass and
43 may, by order, authorize the company to take by
44 eminent domain under chapter seventy-nine such
45 lands or such rights of way, easements or other inter-
46 ests in land or other property necessary for the con-
47 struction, operation maintenance, alteration and
48 removal of such pipe line, compressor stations, appli-
49 ances, appurtenances and other equipment along the

50 route described in the order of the department. The
51 department shall transmit a certified copy of its order
52 to the company and the clerk of each such town. The
53 company may, at any time before such hearings,
54 change or modify the whole or a part of the route of
55 said pipe line, either of its own motion or at the in-
56 stance of the department or otherwise and, in such
57 case, shall file with the department maps, plans and
58 estimates as aforesaid showing such changes. If the
59 department dismisses the petition at any stage in said
60 proceedings no further action shall be taken thereon,
61 but the company may file a new petition after the
62 expiration of a year from such dismissal.

63 When a taking under this section is effected the
64 company may forthwith, except as hereinafter pro-
65 vided, proceed to construct, install, maintain and
66 operate thereon said pipe line. If the company shall
67 not enter upon and construct such line upon the land
68 so taken within one year thereafter, its right under
69 such taking shall cease and determine. No lands or
70 rights of way or easements therein shall be taken by
71 eminent domain under the provisions of this section
72 in any public way, public place, park or reservation,
73 or within the location of any railroad, electric rail-
74 road or street railway company except that such pipe
75 line may be constructed under any public way or any
76 way dedicated to the public use; provided, the sur-
77 face of such public way is not disturbed and the
78 method of such construction and the plans and specifi-
79 cations therefor have been approved either generally
80 or in any particular instance by the department or,
81 in the case of state highways, by the department of
82 public works; and further, except that natural gas
83 pipe line companies may construct such lines under,

84 over or across the location on private land of any
85 railroad, electric railroad or street railway corporation
86 subject to the provisions of section seventy-three of
87 this chapter. Rights of way, buildings, structures or
88 lands to be used in the construction of such pipe lines
89 over or upon the lands referred to therein shall be
90 governed by the provisions of section thirty-four A of
91 chapter one hundred and thirty-two and section
92 twenty-six of chapter forty.

93 *Section 75D.* The provisions of section seventy-
94 two A of this chapter shall be applicable to natural gas
95 pipe line companies.

APPENDIX B.

The Commonwealth of Massachusetts

In the Year One Thousand Nine Hundred and Fifty.

RESOLUTION IN FAVOR OF AN IMMEDIATE SURVEY OF THE
HYDRO-ELECTRIC POTENTIALITIES OF NEW ENGLAND
STATES.

1 *Whereas*, Resolutions providing for a study of the
2 development of the rivers and waterways in New
3 England are now pending in the present session of the
4 congress of the United States; and

5 *Whereas*, There are widespread variances in the
6 conclusions of the potentiality of hydro-electric power
7 in the studies now available; and

8 *Whereas*, The exploration and development of new
9 hydro-electric power in New England is of vital im-
10 portance to New England citizens and industry; there-
11 fore be it

12 *Resolved*, That the general court of Massachusetts
13 earnestly urge the congress of the United States to
14 pass and respectfully requests the president of the
15 United States to approve the bill now before it calling
16 for an extensive study of the development of New
17 England water or any similar legislation; and be it
18 further

19 *Resolved*, That copies of these resolutions be sub-
20 mitted forthwith to the state secretary, to the presi-
21 dent of the United States, to the presiding officer of
22 each branch of congress and to each of the members
23 thereof from this commonwealth.

APPENDIX C.

The Commonwealth of Massachusetts

In the Year One Thousand Nine Hundred and Fifty.

RESOLVE IN FAVOR OF AN INTERSTATE COMPACT PROVIDING FOR DEVELOPMENT OF HYDRO-ELECTRO POWER.

- 1 *Resolved*, That the commonwealth of Massachusetts
- 2 enter into an interstate compact with the United
- 3 States and other New England states providing for the
- 4 development of hydro-electric power.

APPENDIX D.

The Commonwealth of Massachusetts

Ordered, That the Committee on power and light is hereby authorized to sit during the recess of the General Court for the purpose of making an investigation and study relative to natural gas and hydro-electricity. Said committee may travel within and without the commonwealth and may expend for expenses and for clerical and other assistance such sums as may be appropriated therefor. Said committee shall report to the General Court the results of its investigation and study, and its recommendations, if any, together with drafts of legislation necessary to carry such recommendations into effect, by filing the same with the Clerk of the House of Representatives on or before the first Wednesday of December in the current year.