

# Town of Sudbury Special Addendum to 1966 Town Report







## **The Issue**

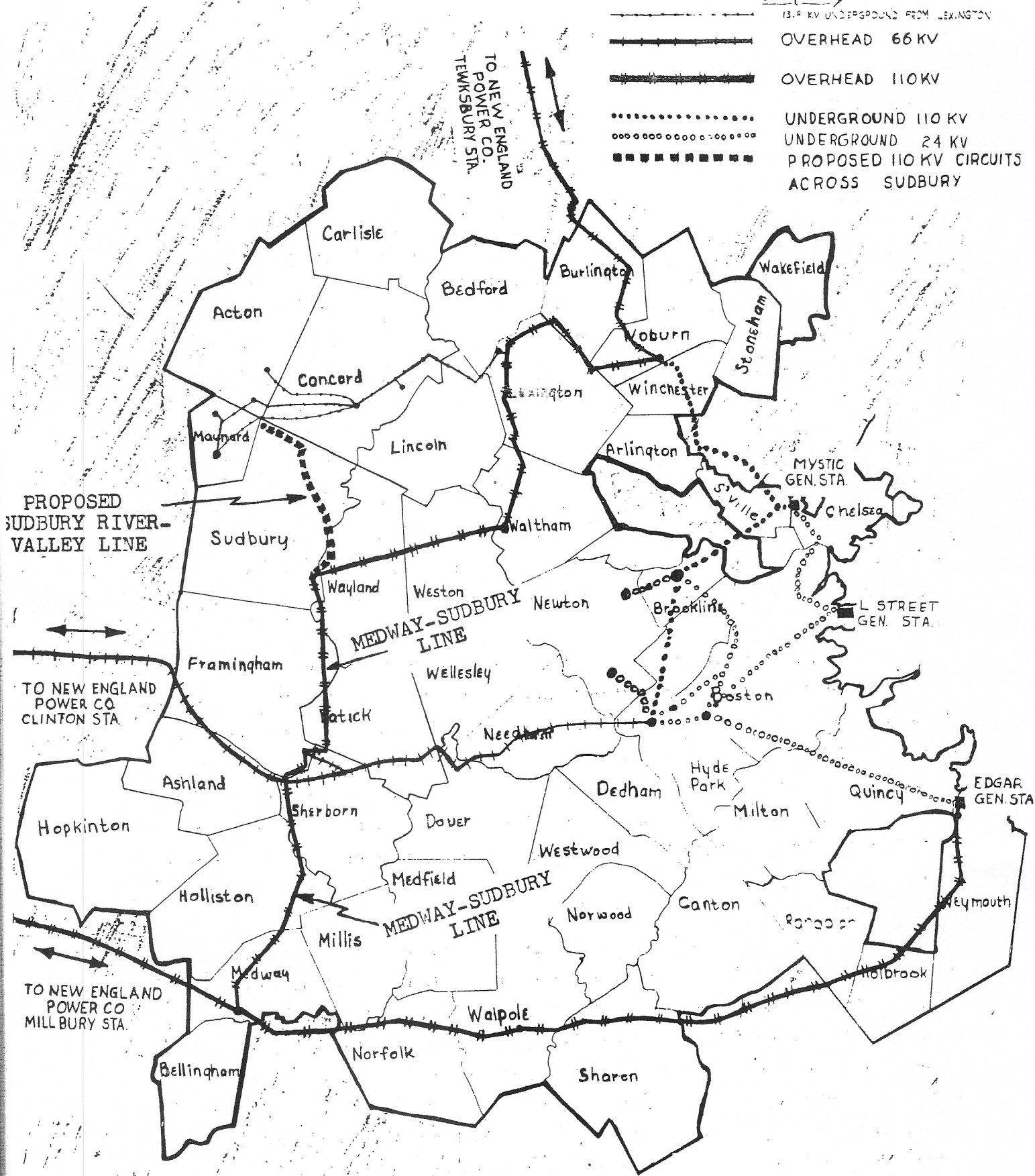
There is only one important question in regard to the construction of overhead electric power transmission lines. When will this type of construction be stopped and the lines be placed underground? According to the ELECTRICAL WORLD, (issue of January 24, 1966) in 1964, 7,214 circuit miles of these lines, 70 kv and up, were energized; in 1965, 9,647 more and in 1966 12,927 additional miles will be put in service. With consumption of electric power doubling every ten years, it will be four times today's figure in 20 years and eight times in 30 years. The spider webs of transmission lines covering the country will have become intolerable and underground lines will have become a necessity. It would seem logical, therefore, to start now to put all future transmission lines underground in states as densely populated as Massachusetts.

Expert opinion is that property within sight of a newly constructed overhead line may well decline in value as much as 30% or more. This is a very real hardship on home owners and could be a serious loss of tax revenues to municipalities. Rights of way taken by eminent domain by utilities make a mockery of the efforts of Planning Boards for intelligent land use and zoning. Such rights of way withdraw from use enormous amounts of land, said to be seven million acres at present. They complicate and interrupt conservation efforts and the lines and towers obviously ruin the beauty of the countryside.

Utilities strenuously oppose putting transmission lines underground, arguing that such construction would be too costly. However, Commissioner Charles R. Ross, of the Federal Power Commission, has stated - "Too often, when a utility doesn't wish to do something, it becomes prohibitively expensive. Underground EHV transmission, a phase of the electrical industry too long forgotten, is on its way to becoming practicable. The public is demanding it and the public who actually pay the bills are willing to accept the costs of it when there are offsetting advantages."

# LEGEND

-  13.8 KV UNDERGROUND FROM LEXINGTON
-  OVERHEAD 66 KV
-  OVERHEAD 110KV
-  UNDERGROUND 110KV
-  UNDERGROUND 24 KV
-  PROPOSED 110 KV CIRCUITS ACROSS SUDBURY



Transmission System of the Boston Edison Company

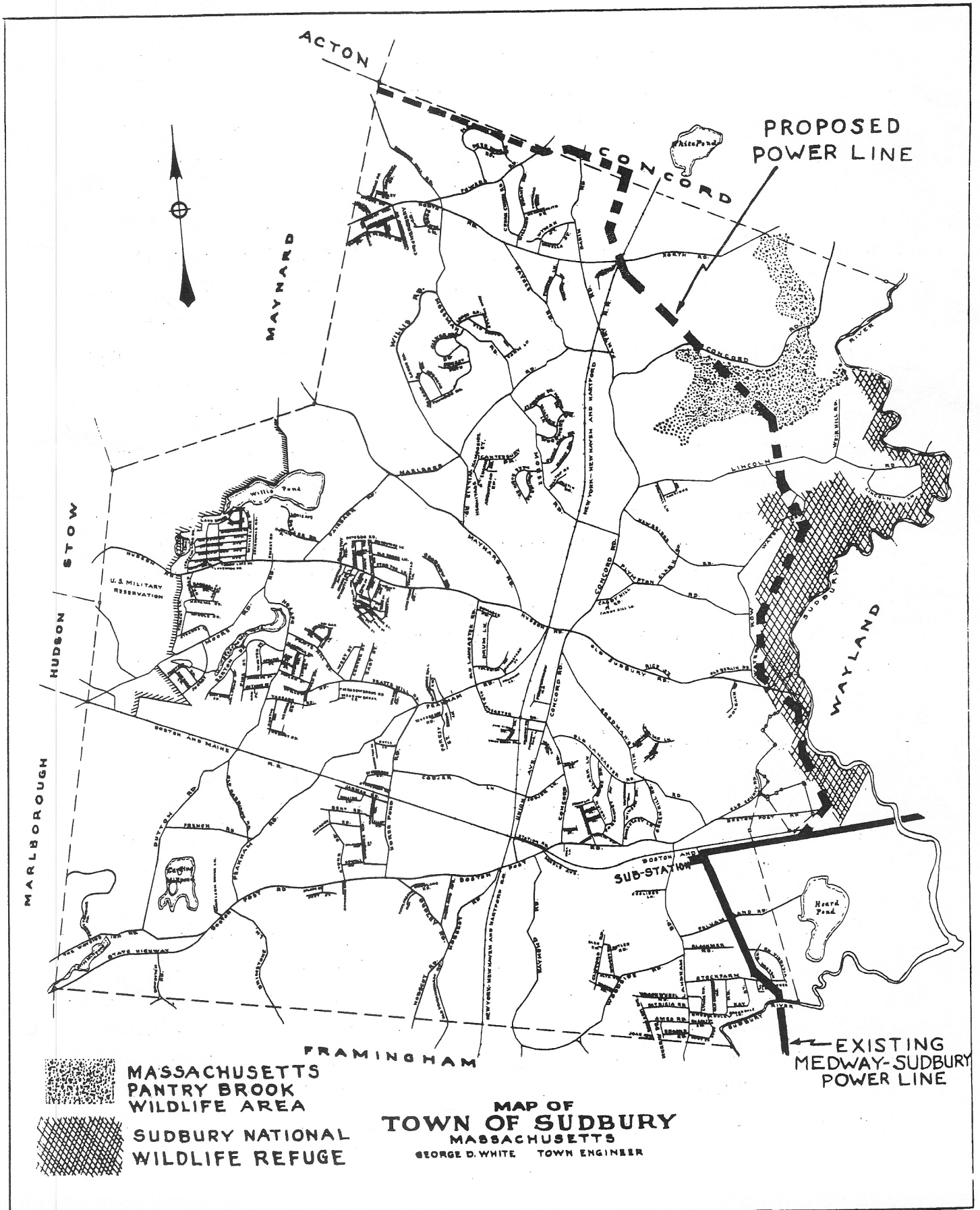
## The Setting

Back in 1950, Boston Edison Company planned to complete "The Ring," so-called, of high tension lines through the Company's territory from the Edgar Generating Station in Weymouth through various towns to Medway, Sudbury, Lexington and Woburn to the Mystic Generating Station in Everett, the L Street Station in Boston and back to the Edgar Station. For this purpose it petitioned for the right to construct high tension lines coming from Framingham through Sudbury, Wayland and Weston to Waltham. Sudbury citizens voted in Town Meeting to oppose construction of overhead lines and were joined in opposition by Wayland and Weston. Nevertheless, after two years of hearings and consideration by the D. P. U., the company obtained the necessary permission to cross the Sudbury public way and the line was constructed across East Sudbury to the present substation and thence by the Boston and Maine Railroad right of way through Wayland and Weston to Waltham.

Testimony at the time indicated that there were no plans to extend a North-South line through Sudbury. However, as early as 1958 the Legislature granted the Director of the Division of Fisheries and Game the right to sell and convey to Boston Edison perpetual rights and easements across the Pantry Brook Reservation in North Sudbury. This was a full two years prior to any indication to the Town that such a line was being planned.

## The Proposed Sudbury River Valley Line

In June 1960, hearings were held in Sudbury on Boston Edison Company's petition to the Department of Public Utilities for a Certificate of Necessity for the construction of a 110,000 volt overhead transmission line to be carried on one, two and eventually three lines of wooden H-frames up to ninety feet high. The line as planned would run from the South Sudbury substation through the Sudbury River Valley marshlands in Wayland and Sudbury, through the National Wildlife Refuge of the Department of the Interior, through the Pantry Brook Reservation of the Massachusetts Division of Fisheries and Game, across the Sudbury countryside and for a brief distance across the border into Concord, then back into Sudbury to a substation to be built in the northwest corner of the town, a



PROPOSED  
POWER LINE

EXISTING  
MEDWAY-SUDBURY  
POWER LINE

MASSACHUSETTS  
PANTRY BROOK  
WILDLIFE AREA

SUDBURY NATIONAL  
WILDLIFE REFUGE

MAP OF  
TOWN OF SUDBURY  
MASSACHUSETTS

GEORGE D. WHITE TOWN ENGINEER

distance of 7-1/2 miles. On August 3, 1960, the D. P. U. granted Boston Edison Company the Certificate of Necessity.

The tragedy of such a plan was obvious. The Sudbury River Valley between Sudbury and Wayland, one of the beauty spots of Massachusetts, would be ruined forever. The decline in the value of the present Sudbury homes and those that would be built within sight of the lines when the adjacent residential section of Sudbury is fully developed, has been conservatively estimated at over \$4,500,000. The potentially dangerous wires would cross Sudbury streets at six places. Sudbury appropriated \$15,000 to fight this case and appealed the D. P. U. decision.

### **The Supreme Judicial Court Ruling**

On January 4, 1962, the Supreme Judicial Court upheld the D. P. U. in granting the Certificate of Necessity, but held that before the line could be constructed it would be necessary for the company to petition the D. P. U. separately for authority to take property for its right of way by eminent domain. Further, it was held that permission must be obtained from each town involved to cross public ways. In addition the right to cross the National Wildlife Refuge and the Pantry Brook Reservation must be granted by the Federal and State authorities.

D. P. U. hearings on the Company's eminent domain petition were commenced in Sudbury on September 20, 1962 and concluded on October 23, 1962. At these hearings Sudbury was represented by Special Counsel Philip B. Buzzell. Mr. Earl H. Barber, Consulting Engineer, was retained by the town to testify as to the costs of placing the transmission lines underground. Statements in opposition to overhead lines were made by many citizens, civic organizations, the League of Women Voters, Selectmen and town committees of Sudbury, Wayland, Concord, Acton and Maynard.

Much of the testimony at the hearing was concerned with detailed estimates of the cost of underground construction and the final figures arrived at by Mr. Barber and the Company were far apart. For two-circuit underground line Mr. Barber estimated a cost of \$1,969,400 while Boston Edison's figure was \$3,541,938 as compared with estimated overhead line costs of \$1,000,000. No decision by the D. P. U. was rendered on this petition for two years.

In the meantime the company petitioned the towns of Sudbury, Wayland and Concord for permission to cross their public ways. Under the present law the refusal of a town to grant such permission could be overruled by the D. P. U. if a majority of the towns through which the line would pass gave their consent. After hearings in Wayland and Concord, both of these towns refused to grant the petitions. Whereupon the company withdrew the Sudbury petition.

In December 1964, the D. P. U. granted the Boston Edison Company the eminent domain authority. Sudbury's plea for underground lines was turned down as too costly. The D. P. U. found that the cost of such lines through Sudbury would be \$3,248,897 or \$2,248,897 in excess of the cost of overhead lines. The D. P. U. ruled that the preservation of aesthetic values was more than offset by "the cold hard facts of economics." This was in spite of the fact that if the annual carrying charges for the additional cost of underground lines (\$337,334 D. P. U. figure) had to be charged to all of the company's customers, it would amount to an estimated 1-1/2 cents per month for the average residential customer.

Sudbury appealed this decision and on June 24, 1966, the Supreme Judicial Court affirmed the order of the D. P. U.

The Boston Edison Company has obtained its Certificate of Necessity and its authority to take property by eminent domain. There remains for it to get permission to cross public ways and to cross the National Wildlife Refuge and the Pantry Brook Reservation. Sudbury Selectmen have indicated that they will not grant permission to cross the town's public ways and Wayland and Concord have already refused such permission. Sudbury Selectmen and the Power and Light Committee have been in contact with Secretary Udall of the Department of the Interior, Mr. Richard Griffith, Regional Director of the Bureau of Sport Fisheries and Wildlife, Senator Edward M. Kennedy, Governor John Volpe, Lieut. Gov. Elliot Richardson, former Commissioner Charles Foster of the Massachusetts Department of Natural Resources and Director James Shepard of the Massachusetts Division of Fisheries and Game, urging them to prevent these overhead lines from crossing the Federal and State wildlife reservations. That is where Sudbury stands today in its fight to preserve the beauty of the Sudbury River Valley and its countryside.

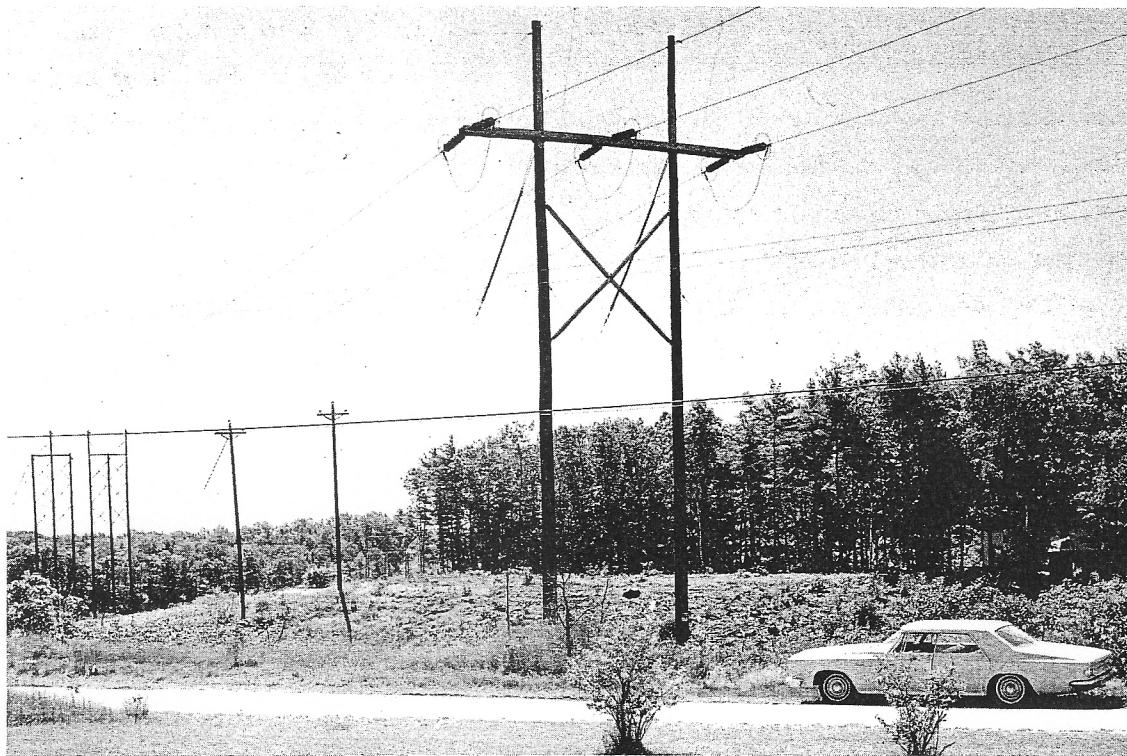


The Beautiful Sudbury River Valley in Eastern Massachusetts

## The Proposed 230,000 Volt Medway - Sudbury Line

Now comes a bigger, more ugly threat. The Boston Edison Company has petitioned the D. P. U. for exemption from the zoning by-laws of the towns through which its present 17-mile right of way now extends from Medway to South Sudbury. Along this right of way run wires for 115 kv lines strung on wooden frames 65 to 80 feet high. Now the company proposes to construct along side of this line a 230 kv line carried on steel towers varying from 110 to 160 feet in height and up to 60 feet square at the base. Hearings on this petition are now being held, and Sudbury is again leading the fight against this further desecration of the town and the devaluation of the property of its citizens.

At the invitation of the Sudbury Selectmen, representatives from six towns along this route and from Concord and Weston met on July 6, 1966 at the Sudbury Town Hall. At this meeting they were urged to appear at the D. P. U. hearing and to present their opposition to the petition, to get in touch with their State Senator and Representative, to refuse permission to cross public ways with this extra high voltage transmission line and to circulate petitions among their citizens opposing the requested exemptions from their town bylaws.



A portion of the present 115,000 volt Medway-Sudbury power line in Sudbury



## The Case for Underground Transmission Lines

High voltage underground transmission is not a new development. The installation of 132,000 volt oil-filled cables in New York in 1926 marked the beginning of cable development in the high voltage area. Only in very recent years, however, have steps been taken to effect the use of underground cables at voltages above 138,000 and we in the United States are only today affirming the feasibility of installations at 345 kilovolts. European progress in this field has been in advance of ours, since 220 kilovolt cables have been extensively used during the last thirty years, and higher voltage levels are reported as being in use in Sweden and the USSR at this time.

The principal advantages and disadvantages of underground lines as compared with overhead may be summarized as follows: Underground lines do not disfigure the landscape and ruin the beauty of the countryside. Rights of way, usually along the public ways, do not take large amounts of land out of productive use. They are not a potential danger; they do not interfere with radio and television reception and they do not devalue nearby property. On the other hand, the problems of power loss and heat transfer become much more difficult in underground lines and the absolute limits in length of such lines are far shorter than for overhead lines of identical voltage, conductor material and size. The cost of underground may be from two to many times the cost of overhead lines depending upon the voltage of the line, the physical characteristics of the terrain and the cost of the right of way.

In recent years the cable manufacturers have been working on the development of a cable for high tension lines which could be buried directly in the ground. Already this development has progressed to a point where it is now practical to bury 110,000 volt lines in a trench with no welded pipe, no oil under pressure and no man holes.

At present the cost of such underground construction approximates the cost of overhead, but it is not unreasonable to expect that within a few years this cost can be brought down to a point where it will be less expensive and the saving in the cost of rights of way will be substantial.

The overall cost of operation and maintenance is not materially different for overhead and underground transmission and the number of outages for underground lines is far less, as they are not exposed to stormy weather. However, the repairs of any such outage might well be more time consuming and costly.

It has been traditional in the industry to install underground transmission or distribution circuits only when the cost of right of way for overhead lines was prohibitive, or when local legislation specified its use. Hence, very rarely have high voltage circuits been placed underground in suburban or rural areas while they are generally so placed in congested urban centers.

## Today's Challenge

Now it is up to the citizens of towns such as Sudbury to keep on fighting until the D. P. U. is convinced that the preservation of natural beauty and the maintenance of property values is of more importance to those citizens than a modest increase in electric rates due to the higher cost of undergrounding transmission lines.

## National Interest

A recent encouraging development has been the introduction in Congress of two bills which would direct the Government to conduct research into the effect of overhead lines and to encourage the use of underground transmission. The Hearings conducted May 5, 6, and 7, 1966 in Washington, D. C. by the Senate Commerce Committee were chairmaned by Senator Maurine E. Neuberger. The utility industry, governmental regulatory agencies, and private citizens gave their views of the problems created by the use of high voltage transmission lines. Mr. Robert C. Wellman, Chairman of the Sudbury Power and Light Committee testified in regard to the Town's six-year fight to get the proposed 7-1/2 mile line placed underground. The two bills under consideration would have monies appropriated for the Department of the Interior to be used as follows: S-2507 would authorize and direct the Secretary of the Interior to conduct a program of research into the effect of overhead transmission lines upon community planning, real estate values, tax revenues and the natural beauty of our country; S-2508

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would authorize and direct the Secretary of the Interior to conduct a program of research and development to encourage the use of underground transmission of electric power.

The overwhelming impression gathered by those present was that the Department of the Interior and the Utilities have a strong tie and that neither believes that overhead high tension lines are a problem except in congested urban areas. However, there was no question that citizens' groups representing many different sections did not agree with their evaluation of the situation.

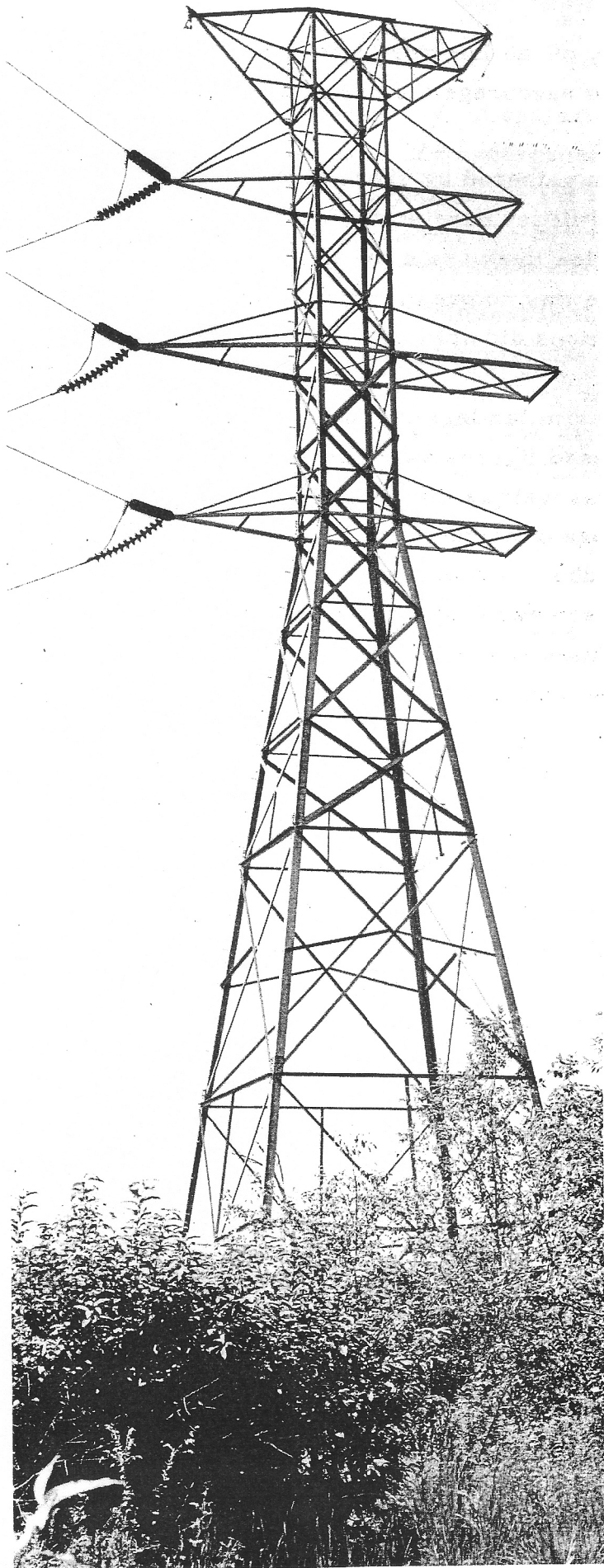
The passage of these bills or similar legislation should once and for all supply the laymen with unbiased figures as to the cost of overhead versus underground transmission as well as the devaluation of real estate and the cost to the citizenry in loss of aesthetics.

Relating these hearings to Sudbury's problem, it was obvious that the six-year fight with Edison was somewhat of a record but that the complete lack of cooperation of utilities and governmental agencies with citizens' groups is universal. However, there is no doubt that these groups are growing stronger and in Sen. Neuberger and Rep. Ottinger, who co-sponsored this legislation, Sudbury has two very vocal champions of its cause.

## One Solution

One of the communities represented in Washington, D. C. was Woodside, California. Mr. Paul McCloskey, Jr., Special Counsel, testified that Pacific Gas and Electric Company and the Town of Woodside had entered into an agreement whereby overhead transmission lines would be put underground on a share-the-cost basis. Woodside and Pacific Gas and Electric had each put up \$9,000 to make an \$18,000 Master Plan for undergrounding all existing and future high tension lines. This plan will bear watching since, if something can be worked out on a share-the-cost basis, it may establish a pattern for other utilities to follow.

In 1962, Rep. (now Senator) James DeNormandie of Lincoln, sponsored a bill in the Massachusetts Legislature which would have permitted affected towns to pay the additional cost of placing electric transmission lines underground. The bill was unacceptable to the Edison Company and abandoned.



Mr. McCloskey in his testimony also pointed out that there have been a number of cases in California where juries have awarded land damages ranging from 25% to 35% of the value of the land that was adjacent to the power lines. When such devaluation is taken into consideration, the real cost of overhead high tension lines becomes more obvious.

### **Life Under a Transmission Line**

Most people do not realize that high tension transmission lines are not the tranquil wires that are used on our streets. Following is a quotation from a letter from a Mr. Alfred Kallio which was incorporated into the records of the Washington hearings:

"I don't think the honorable gentlemen and gentlewoman of the committee would like an overhead powerline near their homes. Let me tell you what life with high tension is really like.

"It's rough. Con Edison invaded my land in Wingdale two years ago. They came, saw, conquered and left behind a monstrous memorial to the battle. A 345 K. V. overhead transmission line runs 90 feet in front of my house and cuts my property in half. The right of way is only 65 feet away from the house.

"Life with a powerline isn't funny. The rural beauty of the area has been destroyed. The formerly peaceful countryside now hosts a threatening collection of towers and cables.

"And a powerline is an active, continuing nuisance. The cables near my house sizzle and dance when it is misty, rainy or snowy. On a damp but warm summer night when you would want to keep the windows open you can't. The racket from the cables murders sleep.

"You might as well sell your television and radio sets to a second hand shop when a powerline moves into the neighborhood. The sights and sounds that come over my receivers now are a noisy nightmare. I can't even see Con Ed's TV weatherman telling me it's going to rain tomorrow, so I should get cotton for my family's ears.

"A powerline in the yard is more than an eyesore, more than a potential danger to life and limb. It's a day-by-day troublemaker that constantly reemphasizes its presence - the sizzling cables loudly proclaim their right of way and the huge towers just won't be overlooked.

"Let me tell you a little more about our friendly electric company under the heading 'Adding Insult to Injury.' They took my land, they put up their overhead menace and then they left me the mess to clean up. I was told that the land would be restored to its original state but boulders that were dug up were left laying around, likening the scene to a battleground. After numerous complaints some of these were pushed aside.

"It's probably too late to do anything about the rape of Wingdale. But let me urge the committee to do something to prevent this tragedy from being repeated over and over again. I'll add my lone voice to what I hope is a swelling chorus calling for speedy approval of the two bills you are now considering (S-2507 and S-2508). Rep. Richard L. Ottinger and Sen. Maurine Neuberger, to whom copies of this letter have been sent, should be cheered for proposing this legislation.

"For firsthand evidence of this horror I would more than appreciate a visit by a representative of the committee.

"Please accept this testimony from a man who knows: the only good powerline is an underground powerline."

## **State-wide Action**

On June 20, 1966, Brookline Selectmen called a meeting of all interested cities and towns in Massachusetts to discuss the drafting of legislation to start the movement for underground lines. Some 15 municipalities, including Sudbury, were represented. A statewide committee was formed with Mr. James Lawrence acting as chairman. When a preliminary draft of a bill has been prepared, another meeting will be called to discuss the proposed legislation with the expectation that it will be in shape to be filed with the Legislature this year.

## The Storm King Mountain Case

Until now little success has accompanied the pleas to regulatory authority, or court, that consideration be given to the aesthetic aspects of the planning for high voltage transmission systems. These pleas have mostly been directed toward the end of saving outstanding examples of conservation lands, scenic areas, and sites of historic value. The most significant struggle of this nature in recent times originated in 1963 when the Consolidated Edison Company decided to build a giant pumped-storage hydroelectric generating station on a hill overlooking the west bank of the Hudson River near Cornwall, New York. Unfortunately, the hill in question is known as Storm King Mountain, and it is a landmark of the Hudson River Palisades which extend for nearly fifty miles along what has been called the most scenic stretch of river in the world. The project involves construction of the power plant in the side of the mountain with the storage reservoir at a much higher elevation and a little farther west of the river. To transmit power generated here into New York City and into the interconnected power network, two 345,000 volt circuits must cross the river and proceed eastward to an existing right-of-way extending on a north-south line between sub-stations at Pleasant Valley, near Poughkeepsie, and Millwood in Westchester County. Not only would extensive new right-of-way be required, but much of the "Pleasant Valley - Millwood corridor" would perforce be widened. The people of the region, aroused by the desecration of the Palisades, banded together to fight this project, contributing nearly a quarter-million dollars to carry the battle through local, state and finally federal authorities and courts. In March 1965 the Federal Power Commission granted the utility a license, noting that the economic and utilitarian factors involved outweighed the aesthetic considerations raised by the private intervenors. This order of the commission was affirmed by the U. S. District Court, but, upon appeal to the Federal Court of Appeals for the Second Circuit, that court unanimously struck down the ruling of the lower court, remanding the case to the Federal Power Commission with a direct order that the aesthetic values must be given the fullest consideration.

In response to this remand the commission scheduled a rehearing upon the license application for October 1966, specifying that Consolidated Edison come forth with a plan which would satisfy the conditions imposed by the court. Although the company had made many concessions before the original license grant, including submarine and underground 345,000 volt cable across the Hudson River and far inland to its switching station at Nelsonville, and a plant design which would be obscure when viewed against the mountain, an additional later hearing was held by the FPC in March 1966 to select an overhead line route satisfactory to all the parties. It is now learned that the company will come to the new hearing with a revised plan which will include placing the generating plant within the mountain.

The opinion and remand of the Federal Court of Appeals in the Storm King Mountain case is the first action by any state or federal court or regulatory body supporting aesthetic considerations in the planning for electric power facilities. It is a precedent-making opinion which may signify a change in the utilitarian and economic philosophy which has heretofore governed. It should give heart to all of us who have taken part in the long struggle for recognition of the validity of our concept of the public welfare.

## What Others Are Saying

All over the country the public is becoming more active and more vocal in its efforts to stop the blight of overhead lines. Editorials have appeared in the Boston Herald, the Christian Science Monitor, and other papers on this subject. The New York Times in an editorial on January 2, 1966, stated that - "The unanimous decision of the United States Court of Appeals setting aside the license granted by the Federal Power Commission to the Consolidated Edison Company to build a \$162-million hydro power plant on Storm King Mountain is a victory for the public and the public-spirited conservationists who carried the case to the courts. \*\*\*\* In ordering the Commission to reconsider its decision, the Court warned that the preservation of natural beauty and historic shrines must be one of the F. P. C.'s basic concerns in the new proceedings. The judges declared that cost was not the only factor to be considered."

On July 3, 1966, the Boston Globe had a lengthy editorial which covered Sudbury's fight and advocated the passage by the Legislature of H-1993 which would provide for an orderly long-term program to have all power lines put underground. "This legislation should pass," said the editorial, "and, in the process, the legislators should remandate the state's regulatory bodies to reflect more assiduously the views of the affected cities and towns, rather than the industries supposedly regulated. Somehow Lady Bird Johnson's dream of preserving our scenic heritage is to be preferred to the industrial nightmare of scenic rape."

President Johnson has said, "We must not only protect the countryside and save it from destruction, we must restore what has been destroyed and salvage the beauty and charm of our cities."

In Sudbury's fight to have the transmission lines placed underground, its plea to save the beauty and charm of the Sudbury River Valley was brushed aside by the Massachusetts D. P. U. with the statement, "That some damage aesthetically to the neighborhood from the construction of a transmission line is lamentable but inevitable."

Do we have to be ugly? Can we afford to put all future high tension lines underground? WE CANNOT AFFORD NOT TO.