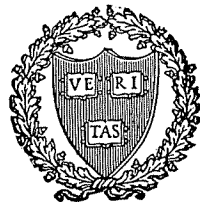


THE NORTHFIELD MOUNTAIN
PUMPED STORAGE PROJECT
COUNTERPOINT TO CON ED

by
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FORWARD

In September of 1965, Dr. Calvin W. Stillman (now of Rutgers University) published a penetrating study of the issues in the Storm King controversy.¹ A life-long conservationist and area resident, Stillman brought still another dimension to his critique of the issues-- that of the family which had originally donated to Harvard the Black Rock Forest, a portion of which would be required for the upper reservoir.

In recounting the series of events at Storm King, Stillman observed that Consolidated Edison had made one important mistake in its initial preparations, the failure to confer with the Palisades Interstate Park Commission on whose property the pumping station and tunnel were originally to be located.

By singular coincidence, a similar circumstance arose at Northfield Mountain, the site of still another massive pumped storage project. The upper reservoir again required public conservation property. Yet, in this case, the utility involved (a different company) chose to be entirely candid with state officials, an approach which may have spelled the difference between accomplishment and controversy. It was the undersigned's unique distinction to have served as the Massachusetts Commissioner of Natural Resources during the entire period of time.

Although almost a sequel to the Storm King case study, the Northfield Mountain analysis concentrates less on the application of the conservation ethic than on the process used to obtain an acceptable balancing of economic and environmental interests, for it is the author's firm conviction that the latter remains the fundamental issue of the next decade.

1 Black Rock Forest Paper No. 27, Harvard Black Rock Forest, Cornwall, New York, 1966.

Despite the generally encouraging conclusion of the Northfield Mountain case, a disquieting postscript must be added. Although the project's construction phases, including provisions for water supply and recreation, are in advanced stages at this writing, the Commonwealth of Massachusetts has yet to accomplish its part of the water resources program. The connecting aqueduct between Northfield and Quabbin Reservoir stands authorized, but stalled in bureaucratic and political limbo.

In the light of these events, one is tempted to add still another corollary-- that the process of candor is as essential to a public agency as it is to a private utility!

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April 1, 1970

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THE NORTHFIELD MOUNTAIN PUMPED STORAGE PROJECT:

COUNTERPOINT TO CON ED

Introduction

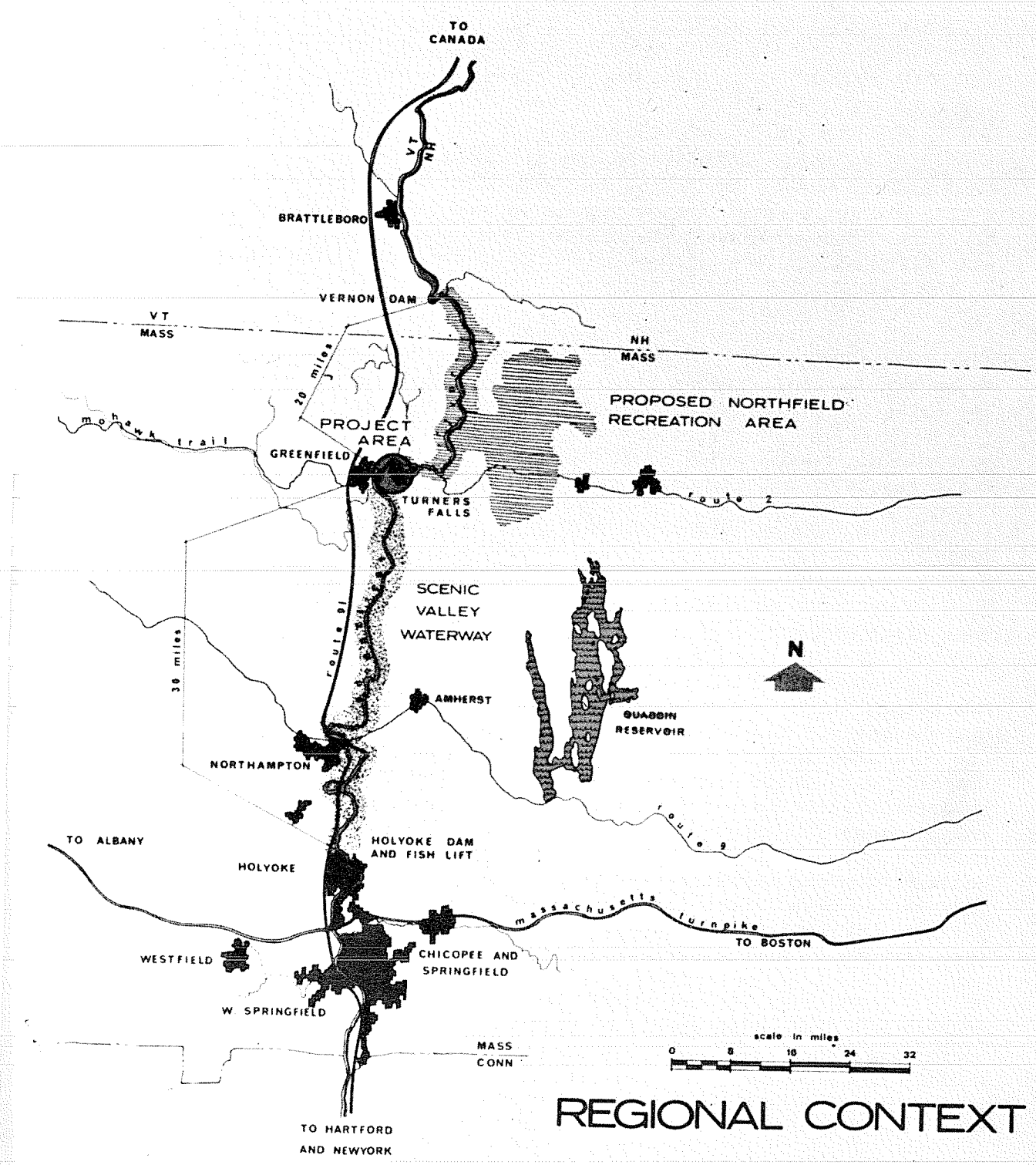
In March of 1965, the Federal Power Commission (FPC) granted Consolidated Edison Company of New York a fifty year license to construct a \$183 million pumped storage project on the Hudson River near Cornwall, New York. The 2,000 megawatt hydroelectric installation would be located some fifty miles north of New York City in the Storm King Mountain area of the Hudson.

By December of 1965, the mountain site had stirred a veritable storm of controversy. A group of intervenors led by the Scenic Hudson Preservation Conference, a consortium of historic and nature preservation enthusiasts, had persuaded the U.S. Court of Appeals for the Second Circuit to set aside the licensing order. The FPC was instructed to reconsider possible alternates which would more adequately protect the scenic, historic, esthetic and fisheries values of this area.

By November of 1968, the Storm King issue still remained unresolved. Despite a second approval by the FPC in August of 1968, the City of New York had decided to join the already large list of intervenors in order to protest the location of certain project works which it felt might endanger a portion of its Catskill Aqueduct system.

By way of contrast, three Connecticut Valley utilities, the Connecticut Light and Power Company, the Hartford Electric Light Company, and the Western Massachusetts Electric Company (known hereafter as WMECO), had concluded late in 1964 that a similar pumped storage project at Northfield Mountain near the Greenfield-Turners Falls section of Massachusetts was the answer to the projected demands for peaking power in their region. By September of 1964, an application for a preliminary permit had been filed with the FPC; by January of 1966, a license for construction and operation had been requested; and by May of 1968, a license had been issued for the project. On August 15, 1968, the final petitions for rehearing had been denied and the Northfield project was free to move to the construction stage.

Why this project should proceed with comparative ease, and the counterpart Storm King should be so fraught with controversy, are well worth examining. The questions are particularly intriguing, because New England has long been known for its extensive and highly organized citizen conservation activity, and its private utility outlook has not always been of the most enlightened character.



REGIONAL CONTEXT

Source: Multipurpose Use, Land and Water Resources: Plans for Future Use and Development of the Turners Falls Project, FPC #1889, Exhibit B, Western Massachusetts Electric Company.

The Northfield Mountain Project -- in brief

To the traveler headed west on Massachusetts' scenic Mohawk Trail, Northfield Mountain appears only as one of a series of high ridges bordering the eastern rim of the five hundred million year old Connecticut River Valley. Just past the small village of Erving, centered around a small complex of paper mills, the highway turns suddenly and sinuously north and west. At this point, Northfield Mountain lies hidden behind the shoulder of the road, subservient as it were to the scenic panorama of the Millers River valley to the south. As the second largest pumped storage facility in the world, and a major new source of hydroelectric power for southern New England, Northfield Mountain will not be unknown much longer.

Owned and operated by Northeast Utilities, a holding company for five utilities in the Connecticut River Valley, the Northfield Mountain project will function as a giant storage battery holding more than 17,000 acre-feet of water in a mountain-top reservoir some eight hundred feet above the river. Its four reversible turbines will act first as pumps, utilizing the system's periods of surplus electrical energy to fill the upper reservoir, then generate as much as 1,000 megawatts of rated capacity during successive return flows through a one-quarter mile, thirty-one foot diameter, vertical tunnel hewed through solid rock. The project will supply the extra power needed for the thirty to sixty hours of peak demand during each business week.

The powerhouse will be located in an underground cavern excavated out of mountain bedrock. Two 345 kilovolt cables will convey generated power from the transformers to a nearby switching station, from which three 345 kilovolt overhead lines will transmit the power thirty miles south to Ludlow, Massachusetts; sixteen miles north to the outlet of the Vermont Yankee nuclear plant; and eighty-five miles west to Albany, New York.

An existing facility at Turners Falls, some five and a half miles distant, will be modified to serve as a lower pool for the project. These alterations, estimated to cost approximately \$3 million, plus the capital construction costs of the Northfield Mountain unit, an estimated \$69 million, will provide a new power source at about \$72 per kilowatt hour of generation. In comparison with alternate means of obtaining peaking power (fossil-fueled steam or jet gas turbine generators), the savings to the company (and ultimately the consumer), will range from \$4 million to nearly \$9 million annually, according to FPC estimates.

Historic background

The development of the Turners Falls section of the Connecticut River began officially on February 25, 1792, when the Massachusetts legislature approved a special act incorporating the Proprietors of the Locks and Canals on the Connecticut River. An intricate system of navigation improvements was built to deliver commercial tonnage above the so-called "Great Falls", which flourished for thirty years until the growing railroad competition of the early 1830's forced the Proprietors to turn to

water power as their principal means of industrial development. By 1866 the Proprietors had reorganized as the Turners Falls Company, and twenty years later the first electric power was available under commercial contract.

Various improvements were made to the power canal and power station such that by 1906 the company was servicing the entire Turners Falls area. A year later, an eighteen mile 23,000 volt transmission line was built enabling an extension of service southward to Amherst. An interconnection was also established with the steam generating station of the Greenfield Electric Light and Power Company across the river -- one of the earliest examples of an economy power interchange in the valley. By 1915, the reorganized Turners Falls Power and Electric Company had expanded its generating capacity and its market area still further southward into the Springfield area.

In 1925, formation of a Connecticut Valley Power Exchange, in conjunction with the Hartford Electric Light Company and the United Electric Light Company, enabled power from Turners Falls to reach south into Connecticut and as far west as Pittsfield, Massachusetts.

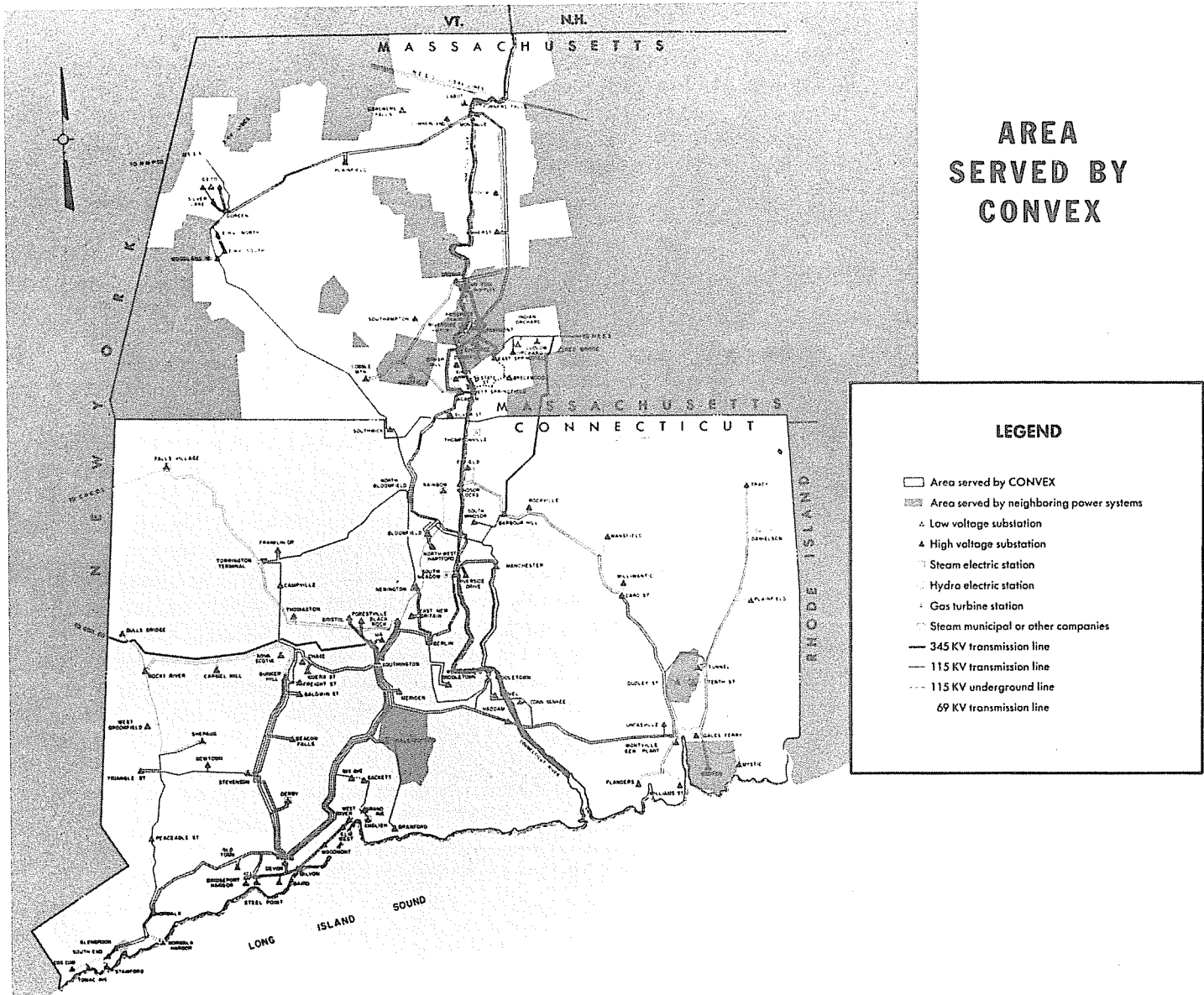
In 1942, the Massachusetts utilities, now consolidated as Western Massachusetts Electric Company (WMECO), filed for a license at Turners Falls under the provisions of the Federal Power Act in order to protect their now-sizable investment. A license was subsequently issued by the FPC with an expiration date of June 30, 1970.

Facilities at hand

Thus, by the time of the Northfield Mountain project, WMECO was a partner in a successor power pool known as CONVEX (Connecticut Valley Electric Exchange) embracing four major utilities and encompassing an area of more than 6,000 square miles. By 1965, CONVEX had generating capabilities of nearly three million kilowatts and was servicing some three million people throughout southern New England.

WMECO's facilities at Turners Falls included a two section concrete dam and a reservoir in the Connecticut River extending some twenty miles upstream; and two hydroelectric plants operating at heads of forty and sixty feet respectively with a combined rated capacity of 57,000 kilowatts.

The Turners Falls facilities, of course, represented merely one development in a series of projects along the entire four hundred mile course of the Connecticut River. Some twenty-four major hydroelectric stations, collectively generating more than 700,000 kilowatts of electrical energy, were helping build the Connecticut's reputation as the hardest working river in the nation.



Source: Plans for Future Use and Development of the Turners Falls Project, FPC #1889. A Report to the Federal Power Commission. Western Massachusetts Electric Company.

A number of considerations were facing the utilities at the time. Despite its substantial generating capabilities, CONVEX faced a projected deficit of 314,000 kilowatts by 1971, and 666,000 kilowatts by 1973, if future estimates of power demand were at all accurate.

Furthermore, the recapture provisions of the Federal Power Act made the Turners Falls project a likely victim when the FPC license expired unless the utilities could demonstrate conclusively that the project's full capabilities would be utilized under private auspices.

Finally, the power blackout of November 1965 throughout the Northeast was to contribute a dramatic sense of urgency to the efforts of the private utilities to deliver adequate and dependable service, particularly during peak periods of the day.

Studies...and solutions

By 1961, the search for additional uses of the Turners Falls site was well under way. Successive engineering studies revealed that conventional hydroelectric redevelopment could add approximately 75,000 kilowatts of generating capacity at costs ranging from \$203 to \$264 per kilowatt, figures that were not economically feasible in comparison with alternative steam generation.

By 1964, however, technological developments had brought about renewed interest in pumped storage. Company engineers estimated that by coupling the Turners Falls reservoir in the Connecticut River with a pumped storage facility on nearby Northfield Mountain, generating capacity of at least 500 megawatts could be obtained at costs approximating \$80 per kilowatt. Most important of all, however, was the peaking nature of the power to be produced, thereby providing CONVEX the flexible counterpart it needed for the base-load nuclear and fossil-fuel facilities projected for the remainder of the system.

The utilities, however, were not unmindful of the long shadow cast by Con Ed and Storm King. Controversy could just as well erupt on the Connecticut as on the Hudson.

Problems at hand

WMECO, acting as leader of the utility combine, faced a series of seemingly insurmountable problems in advancing a project of this nature. In the first place, the Northfield Mountain site was in public not private hands and could not be acquired through conventional means.

To make matters worse, the custodian was a conservation agency, the Massachusetts Department of Natural Resources, which was in the process of acquiring and developing such areas, not disposing of them for commercial purposes.

The resources department was also an unconventional type of state

agency whose administrative head was a Commissioner, chosen by and responsible to a five-man citizen Board of Natural Resources, not the Governor, hence as independent as any state agency could possibly be. Furthermore, the agency was currently enjoying extensive public and legislative support for its program, particularly its long term land acquisition and parks expansion effort.

Finally, there were local considerations that needed to be reviewed carefully. The additional generating capacity would require some five feet of additional elevation at the existing Turners Falls dam. This, in turn, would enlarge the lower pool by some 2,500 acres, necessitating additional land takings along the twenty mile stretch of river affected.

On the positive side, however, WMECO entertained a reputation as a utility more public spirited than most, enjoying reasonably good relations both locally and with state officials. Its chief executive officer, Howard J. Cadwell, was particularly well regarded throughout the valley, for it was his unwritten company policy to encourage employees to play an active role in local public service affairs.

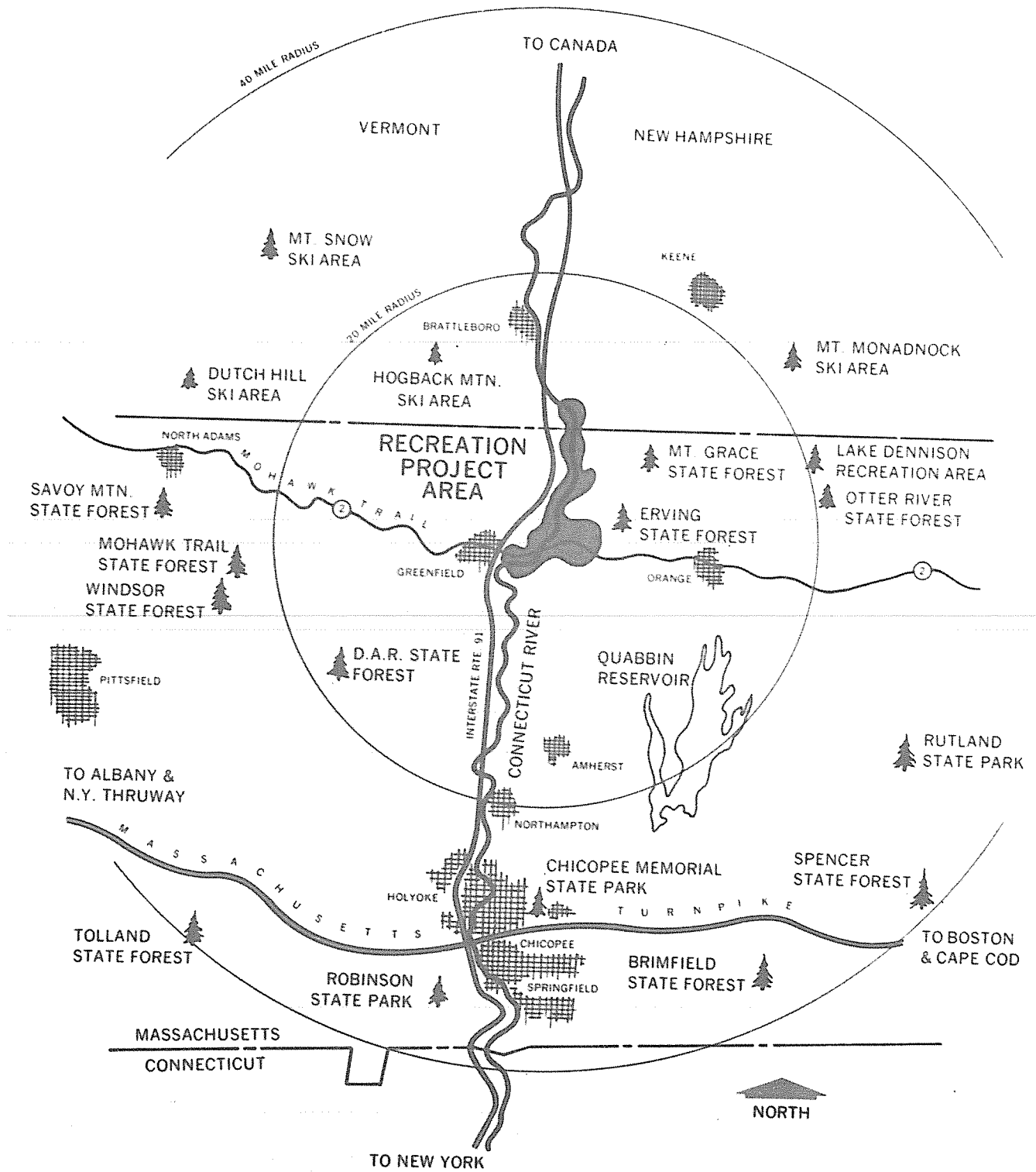
Water supply possibilities

It was Cadwell, in fact, who was to suggest an electrifying added use of the proposed Northfield Mountain project -- that of a diversion works for water supply augmentation. Largely at his suggestion, company engineers were set to work to see whether the pumping capacity planned for Northfield Mountain could not also convey excess Connecticut River water to the upper reservoir during times of slack power demand, to be distributed from there by gravity flow to a suitable water supply storage facility. The preliminary engineering reports were most encouraging. With the prolonged northeast drought now entering its fourth year, both the city of Springfield and the Boston Metropolitan District Commission were actively seeking additional sources of supply and could be considered potential beneficiaries.

Initial state approach

Regardless of the possibilities, however, nothing could be done unless the site for the upper reservoir was available. This, in turn, required the consent of the Massachusetts Department of Natural Resources. Following considerable debate over the best method of approach, the final decision was to face the issue candidly. An appointment was made to meet with the Commissioner in Boston on August 24, 1964.

Engineering Vice President S. Hale Lull, chief hydraulic engineer Anthony Ferreira, and WMECO local representative Winslow C. Wentworth, outlined the pumped storage proposal to a polite but rather incredulous group of state officials. WMECO, they were told, had undertaken preliminary studies which revealed the Northfield Mountain pumped storage project as definitely promising. The company was considering an application to the Federal Power Commission for a preliminary permit. In the meantime, WMECO was moving to option all privately owned parcels for a period of at least



Source: Recreation Plan and Report, Exhibit R. Plans for Future Use and Development of the Turners Falls Project, FPC #1889, Exhibit A. Western Massachusetts Electric Company.

one year. If the project were to advance beyond this stage, the Commonwealth must be prepared to sell the upper reservoir site at Spruce Swamp or, at least, make it available under long-term lease.

WMECO officials were advised that the Commonwealth was engaged in a parks expansion program and its properties simply were not for sale. Furthermore, the proposal for a long-term easement, though permitted under state statute, came at a most inopportune time. The Department's policy board had just been through a trying experience with another utility, which had advanced a commercially-profitable undertaking in the guise of a public service project.

WMECO officials did not hesitate in admitting the commercial nature of the proposed pumped storage project, but stressed that this would be within the context of the general public service functions of a utility. They also advised the state officials of WMECO's long term interest in recreation and its traditional policy of making its own lands and waters available for such purposes. New policies of the FPC, they added, now required an extensive Exhibit R (for recreation) to be filed with any permit application, and the company was prepared to entertain any reasonable possibilities in this direction.

With their own recreation master plan in the process of up-dating, the natural resources officials suggested the broadening of any company recreation studies to encompass the entire upper Connecticut Valley region, which appeared to have major possibilities for the development of public use facilities.

WMECO was also advised that upon rare occasion the Department entered into land exchanges with private parties. Such exchanges, however, must be advantageous to the Commonwealth. This course of action could avoid the onus of a direct sale of public land for commercial purposes.

At the conclusion of the conference, WMECO was advised to convey its request officially in writing and was given assurances that it would, at least, receive informal permission to conduct reconnaissance studies on the state lands involved.

Preliminary FPC permit

By September of 1964, the Department was advised that WMECO would definitely file with the FPC for a preliminary permit. Some urgency was attached to the situation because of the Corps of Engineers' recently-authorized Connecticut River Comprehensive Study. The filing of an application with the FPC, would serve to preempt the power site until the company studies could be completed.

By April of 1965, WMECO's Lull could report that a preliminary permit had been received for the Northfield Mountain project and that he would serve as the company's official liaison officer.

The recreation study

Acting in part on the state's suggestion, WMECO entered into a contract with the firm of Charles T. Main, Inc. of Boston for the preparation of a comprehensive outdoor recreation plan and report. This \$20,000 study would encompass not only the project area itself, but also a coordinated development program for the entire upper section of the Connecticut Valley.

Before this study was announced officially on July 8, 1965, WMECO was careful to deliver a progress report to the officials of the towns of Northfield and Erving in which the utility project would be located. Mindful of the greater tax returns once the project was built, the response locally was understandably cordial.

By mid-September, the recreation study was sufficiently advanced to permit the drafting of a preliminary report. State officials were told that the investigations had confirmed a major need for improved swimming, camping and picnic facilities in the region. Opportunities, fortunately, were at hand.

WMECO consulting engineers outlined a complex of nine recreation developments that could be undertaken over a period of years. A cooperative program was suggested in which WMECO would make available the required lands to the Commonwealth, either by gift or long term lease. The company would also invest \$1,350,000 of its own funds in facility construction.

The entire complex of facilities, when completed, would include scenic overlooks, riverside boat camping areas, municipal recreation facilities, fish and waterfowl impoundments, boat launching areas, wilderness, hiking, bridle and skimobile trails, day-use facilities, and one major new state park overlooking the Connecticut River. The state's reaction was understandably enthusiastic!

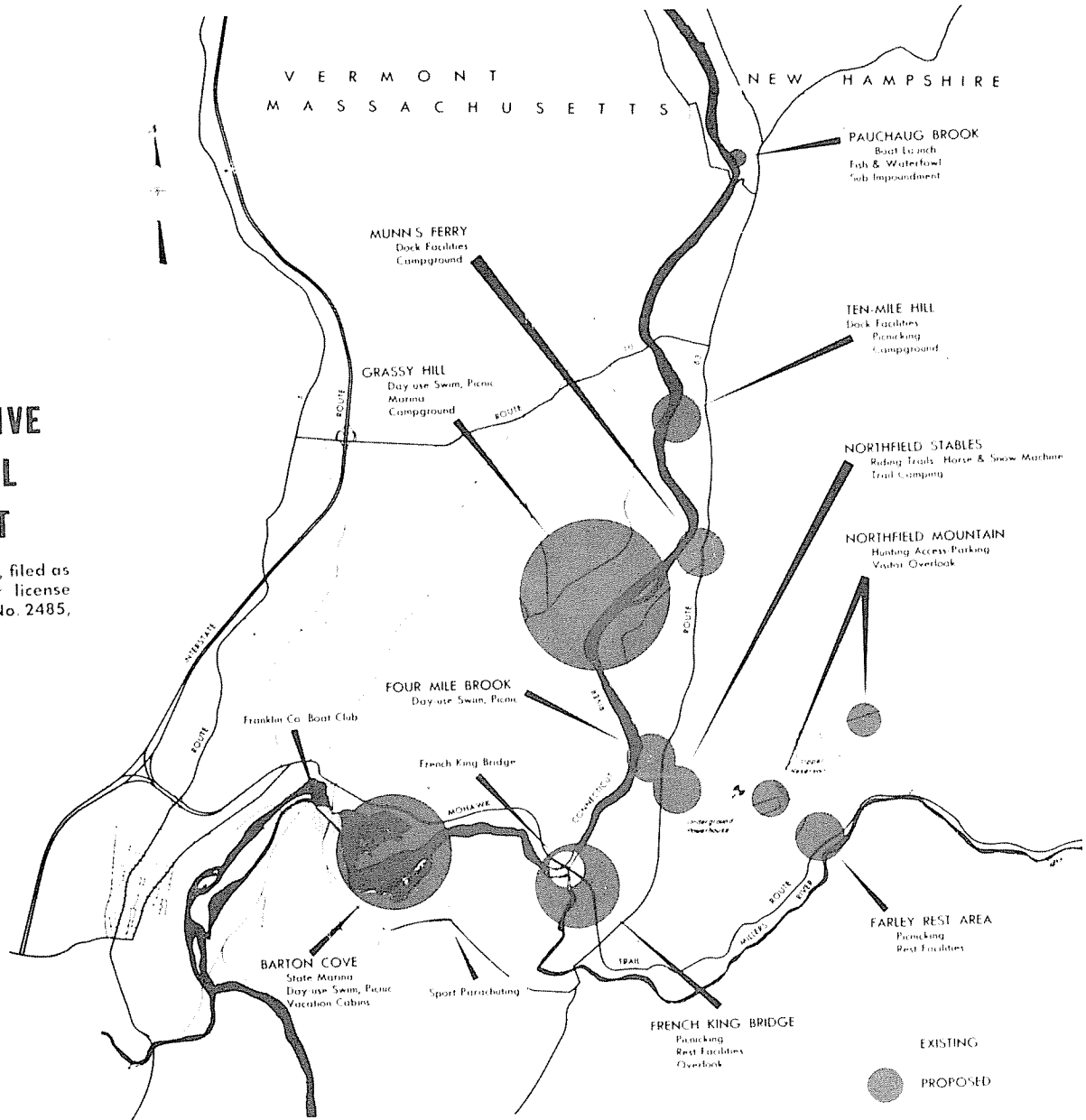
Water supply provisions

It was now high time to try out the enlarged concept of water supply augmentation. By great good fortune, WMECO Vice President Lull was a personal friend and college classmate of Peter C. Karalekas, chief engineer of the Springfield Water Department.

At a meeting held on July 16, 1965, Karalekas was asked to comment on the credibility of the water supply proposal and, in particular, its possible applicability to the city of Springfield. The project appeared sound to Karalekas, but the relative elevations of Northfield Mountain and Springfield's main storage reservoir, Cobble Mountain, offered few advantages to the city. Besides, Springfield was already negotiating with the Corps of Engineers for storage in its proposed Littleville Flood Control Reservoir, a location that would appreciably diminish the distance required for any water transmission.

COMPREHENSIVE RECREATIONAL DEVELOPMENT

as proposed in Exhibit R, filed as part of application for license now pending — Project No. 2485, Northfield Mountain.



Source: Plans for Future Use and Development of the Turners Falls Project, FPC #1889. A Report to the Federal Power Commission. Western Massachusetts Electric Company.

Karalekas, however, was also serving as a public member of the Massachusetts Water Resources Commission and suggested an approach to the Commission's Director and Chief Engineer Malcolm E. Graf. The Commission had recently completed a series of public hearings throughout the Commonwealth and was in the best position to know the details of individual water shortages.

On August 9, 1965, Karalekas and members of the WMECO staff met with Graf in Boston. The most immediate possibility appeared to be Quabbin Reservoir, some ten miles southeast of Northfield Mountain. Although heralded in the late 1930's as adequate until the turn of the century, Quabbin's 1.2 million acre-feet of storage was already below the 50% mark due to the prolonged drought. Without augmentation from some source, it was said that Boston's huge central reservoir would never fill again.

After hearing WMECO's intriguing story, Graf made immediate arrangements to meet with the MDC's Water Division Director and Chief Engineer Harold J. Toole. The proposal was most timely for, under authority of Chapter 606 of the Acts of 1964, the MDC was already studying a possible diversion of water from the Millers River in the vicinity of Northfield Mountain. Although the WMECO proposal would provide only limited augmentation, possibly only 72 mgd, the Connecticut River source was far superior in quality to that of the Millers River, which was grossly contaminated by municipal sewage and paper mill wastes. And even 72 mgd was the equivalent of some 20% of the MDC's present safe yield, a new source certainly not to be dismissed lightly.

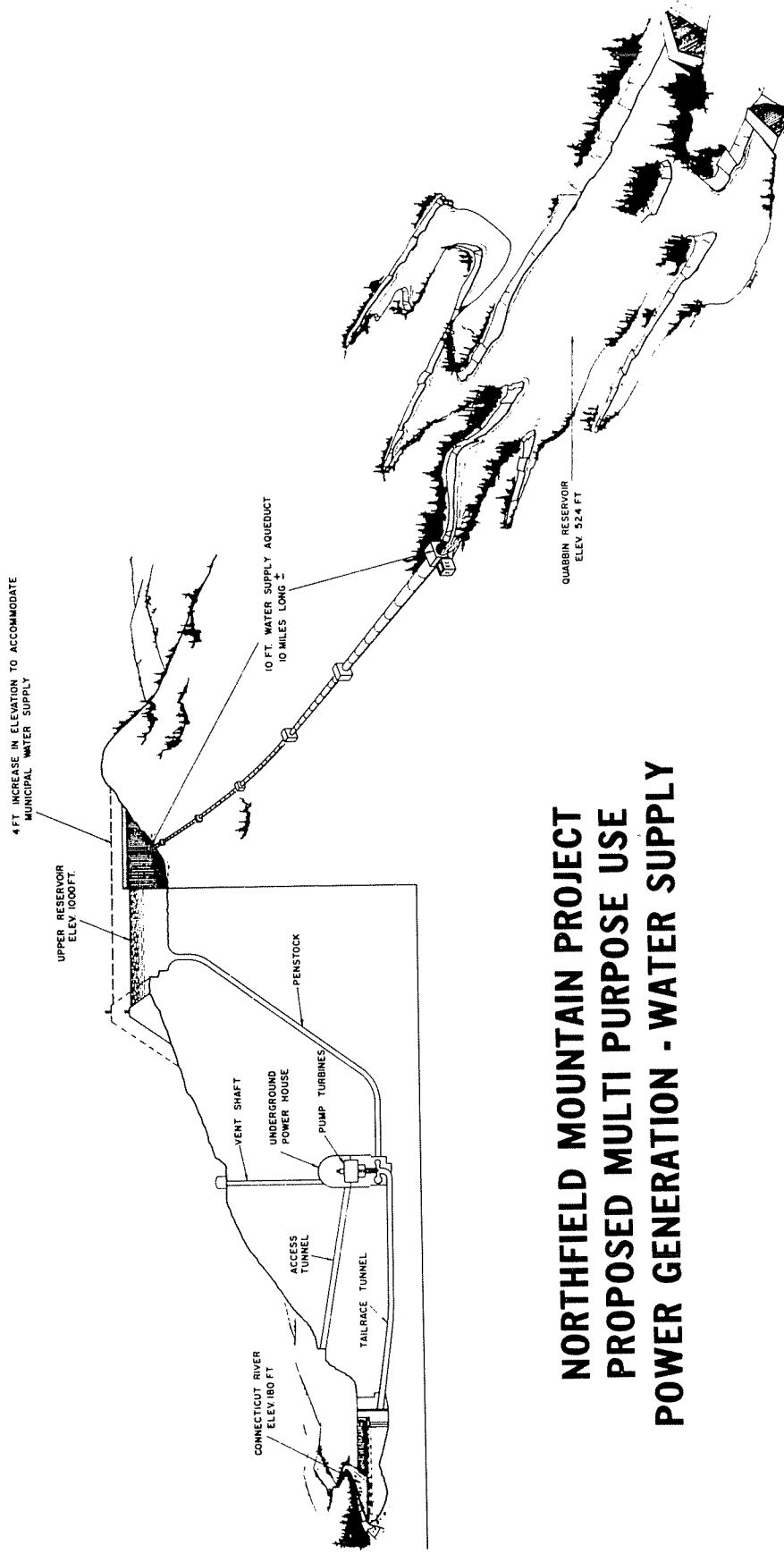
By late September, the Commissioner of Natural Resources had also been apprised of the water supply possibilities. Under Massachusetts statute, the Commissioner served as chairman of the Water Resources Commission.

At a meeting with natural resources officials held on September 27, 1965, WMECO reported that an official letter had gone to the MDC conveying the conditions under which the company would make storage available in its upper reservoir. These included the pumping of an additional 50 million cubic feet of water from the Connecticut River during the seventy to eighty day period in which river flows exceeded 15,000 cfs, and the raising of the height of the dikes approximately four feet to provide for the extra storage. The MDC would be required to furnish a suitable aqueduct and reimburse the company for all pumping and out-of-pocket construction costs.

With these facts in hand, the MDC moved to broaden its previous legislative study authorization. By passage of Chapter 439 of the Acts of 1966, language was added permitting the agency to study an additional diversion at Northfield Mountain.

WMECO reorganization

By October of 1965, WMECO itself was involved in a series of changes. A new holding company, to be known as Northeast Utilities, was



**NORTHFIELD MOUNTAIN PROJECT
 PROPOSED MULTI PURPOSE USE
 POWER GENERATION - WATER SUPPLY**

Source: Northeast Utilities Service Company, Wethersfield, Connecticut.

being established under the Holding Company Act of 1935, which would embrace not only WMECO but also the Connecticut Light and Power Company, the Hartford Electric Light Company, and eventually other smaller utilities as well. These affiliations would make Northeast Utilities one of the twenty largest electric utility groups in the country. The action, however, would not disturb the applications pending before the FPC.

Public announcement -- water supply

By this time the extensive negotiations with a multitude of state and local agencies had raised the inevitable possibility that an incorrect version of the various proposals might leak out to the news media. Following consultation with state officials, WMECO decided to make public its plans in two stages: first the water supply and pumped storage projects, and, finally the recreation development program.

Accordingly, a news conference was scheduled for the Hearing Room of the Hampshire County Commissioners in Greenfield, Massachusetts, on November 1, 1965. At this session, WMECO Board Chairman Howard J. Cadwell announced the possible supplement to Quabbin Reservoir as a proposal his company was making to the state. The Chairman of the Water Resources Commission, in turn, spoke of the Commonwealth's keen interest and its full intention of exploring the matter in detail with its member agencies.

An important third party at the press conference was President John North of the Connecticut River Watershed Council, the leading citizen group in the valley concerned with natural resources. If significant opposition were to develop, it would probably be led by the Council. North spoke of the Northfield Mountain proposal only in favorable terms, and the press conference concluded on a decidedly optimistic note.

Fish and wildlife

By late November, WMECO's special consultant on fish and wildlife, former Director of the Connecticut Board of Fisheries and Game Lyle M. Thorpe, had completed an appraisal of the impact of the project on the Connecticut River fisheries. The findings were generally favorable. The possibility of fish being sucked into the intake works at the lower pool had been largely discounted. Thorpe had also recommended a series of small sub-impoundments to enhance wildlife and waterfowl values.

Still unresolved, however, was the matter of a fish passage device over the raised dam at Turners Falls. With anadromous fish still effectively blocked by downstream structures, and a history of at least one unsuccessful fishway already behind it, WMECO remained to be convinced of the necessity of an investment of this sort at this time.

Land exchange

By November of 1965, it was evident that good faith alone could

not carry the various Northfield Mountain proposals much further. Despite substantial investments in engineering studies, WMECO still had no firm commitment from the state as to the availability of the upper reservoir site.

By this time, the recreation recommendations had been reviewed thoroughly by Department specialists and were found to be generally excellent. The water supply proposals were dramatic and exciting. Furthermore, WMECO's representations of local support for any possible disposition of state land holdings had been checked out as being accurate.

At stake, however, was the uncomfortable possibility that the Department of Natural Resources could be accused of having been "bought" by the utility with its enticing recreation and water supply proposals. If the Northfield Mountain site could be transferred under a separate but related land exchange, then the transaction could stand on its own two feet regardless of the ultimate fate of the pumped storage proposal.

Fortunately, a suitable exchange possibility was at hand in the town of Colrain on the western edge of the Connecticut Valley. A 1,000 acre wilderness tract known as Catamount Hill, including a forty-seven acre undisturbed pond and the site of the first schoolhouse to fly the U.S. flag, had been sought unsuccessfully by the Department since its first recreation master plan in 1957. The owner of the tract had proved unwilling to sell at a mutually agreeable price. Local officials, though not opposed to state ownership, were reluctant to give the official consent required for any state land-taking for park purposes.

WMECO officials were approached on the exchange possibility and agreed to try their hands at negotiation. Although final approval would have to rest with the Board of Natural Resources and the Governor and Executive Council, the Department offered as evidence of good faith an official permit enabling company engineers to make detailed surveys and borings at the Northfield Mountain site.

By early January, Director of Forests and Parks Francis B. Mahoney could report that WMECO field negotiators had purchased the key property in Colrain and were ready to proceed with the projected land exchange. For some 980 acres of land in Erving acquired in 1923 at an average cost of \$5 per acre, the Commonwealth would receive approximately 1,060 acres in Colrain, plus an additional tract of 140 acres in Erving, having a total appraised value of more than \$73,000.

The Department of Natural Resources would also be permitted a liquidation cutting of \$10-\$20,000 worth of timber on its Northfield Mountain property prior to transfer. Some three and a half million feet of merchantable timber, worth an additional \$30-\$40,000, had also been identified on the property to be acquired.

On all counts the proposed exchange would be advantageous to the Commonwealth!

State agency comments

During December of 1965, the Massachusetts Water Resources Commission fulfilled its pledge made at the Greenfield press conference the month before. The Commission conveyed the WMECO proposal officially to its member agencies, requesting formal comments from each. By mid-January, the responses had been received.

On January 10, 1966, Commissioner Howard Whitmore, Jr., had given formal notice of the MDC's interest in the diversion proposal. In the opinion of MDC engineers, the Northfield water would enable the agency to extend the safe yield of its supplies to the year 1986. The cost of bringing in the new source would approximate \$40 per million gallons delivered at Quabbin, of which some \$14 would be for pumping charges. The MDC, however, was careful to take the position that the proposal was a supplement and not a replacement for its other diversion possibilities.

On January 19, 1966, the Department of Natural Resources advised the Water Resources Commission that it had no objections to the proposed pumped storage project. The Commission was informed that formal approval of the required land exchange would be sought at the meeting of the Board of Natural Resources scheduled for February 24, 1966.

An important approval had also been received from the Department of Public Health. At the time of diversion during spring freshets, Connecticut River water would be of a suitable quality for transmission to Quabbin Reservoir, the agency had advised.

Shortly thereafter, Director Malcolm E. Graf of the Massachusetts Water Resources Commission, could inform the Governor that the proposed Northfield Mountain diversion appeared to be a "sound proposal" and, in fact, "the most painless way to obtain additional water supply for Metropolitan Boston."

Public announcement -- recreation

By mid-January, enough hurdles had been overcome that WMECO could proceed with its formal application to the FPC for permission to construct and operate the Northfield Mountain pumped storage project. Arrangements could also be made for the second set of public announcements, this time featuring the recreation proposals.

A public meeting and press conference was held at the Northfield Inn on February 10, 1966. A full slate of state and local officials was invited to be on hand for the unveiling. The official program went without a hitch. Some one hundred invited guests were greeted by President Paul H. Mehrtens and Board Chairman Howard J. Cadwell of WMECO, and heard detailed accounts of the pumped storage proposal from Vice President S. Hale Lull. The star attraction, however, was an

illustrated presentation of the projected recreation developments by the Charles T. Main Inc., consulting engineers.

The audience consisted of public officials, civic and industry leaders, area legislators, and representatives of sportsmen and conservation organizations. Various state and local officials offered words of encouragement. The event was well covered by the press.

Some three weeks later more than one hundred responses had been received -- virtually all favorable to the program. WMECO had begun advisory mailings of a special brochure to its 150,000 customers in the valley. An extended program of public appearances was under way, which even included a special presentation at the three-day New England Family Campers Association Show held at the Eastern States Exposition grounds in West Springfield.

Final state approval

On February 24, 1966, the Massachusetts Board of Natural Resources officially approved the proposed land exchange. A statutory public hearing was held on August 2, 1966, which generated no opposition, and on August 15, 1966, the exchange was given final approval by the Governor and the Executive Council.

The Connecticut Scene

By March of 1966, the last potential problem area could be approached -- that of the downstream state of Connecticut. By this time, however, WMECO could count on substantial assistance from the counterpart public agencies in Massachusetts.

For example, the directors of the Connecticut and Massachusetts Water Resources Commissions had already held informal discussions on the Northfield project. From the facts at hand, neither the volume nor the timing of the proposed diversion appeared likely to affect Connecticut's interests appreciably. For the sake of good public relations, however, Connecticut could not afford to take the proposal lightly. It was therefore agreed that the Connecticut Water Resources Commission would engage consultant engineers to review the hydrologic aspects of the WMECO proposal and that a formal hearing would be held on June 15, 1966, to give the public a chance to be heard.

When the time came for the hearing at the State Capitol in Hartford, Connecticut, however, there were few people in attendance. No opposition was expressed to the project. The Connecticut engineers confirmed the minimal hydrologic impact on downstream areas, and the Commission itself expressed only one concern -- the absence of a disinterested party to monitor the diversions.

By letter dispatched the following day (June 16), the Massachusetts Water Resources Commission pledged itself to fulfill this function -- if necessary, under statutory authority.

Objections raised

By mid-July, however, several potential trouble spots had appeared. President Ira N. Gabrielson of the Wildlife Management Institute in Washington had written Massachusetts natural resources interests raising questions reminiscent of Storm King. He received an emphatic and negative response from officials in Massachusetts, sufficient to convince him that conservation and wildlife interests were not being sacrificed on the altar of crass utility profits!

Mayor Charles Ryan of Springfield was another story, however. Ryan objected not so much to the pumped storage facility as to the diversion of water to what he derisively termed "Boston interests". He urged a veto for the valley communities to prevent far distant "powers-to-be" from damaging western Massachusetts water interests.

The Springfield Union, however, gave little support to the Mayor's position, editorializing in favor of a prompt start to the project. Citing the approval of the Connecticut and Massachusetts Water Resources Commissions as well as the projected recreation benefits, the newspaper termed the project "hardly fair game for broad criticism".

FPC hearings

Late in December of 1966, the official FPC hearings opened in Washington on WMECO's application for a license to construct and operate the Northfield Mountain pumped storage complex. Unlike the Storm King proceedings, however, esthetics, conservation, and recreation issues took a distinct back seat to the more mundane matters of adequate transmission capacity and questions of alleged discrimination against public power interests.

On September 12, 1967, the presiding examiner issued an initial decision in favor of the project, and on May 14, 1968, the Federal Power Commission rendered a formal opinion generally concurring with this decision.

On August 15, 1968, the Commission determined that there were no grounds to warrant a rehearing and the final obstacle to construction had been overcome. A fifty-year license for the Northfield Mountain pumped storage project was now official.

Final state action

On October 13, 1967, Chapter 669 of the Acts of 1967 was signed into law by the Governor, authorizing the MDC to spend up to \$25 million

in special bond issue funds for the necessary connections to Quabbin Reservoir. Despite the earlier rumblings from Western Massachusetts, its legislative course had been relatively serene.

DISCUSSION

In retrospect, the Northfield Mountain experience could hardly be described as uneventful. Yet, in comparison with the ill-fated Storm King proposal, project approval was obtained generally on schedule and with relative equanimity on all sides.

Hard-nosed critics could possibly argue that utility interests had been forced into expensive concessions for a project which was for the public's benefit anyway. Their counterparts might also try to assert that conservation and esthetic principles had been bartered away for a handful of recreation and water supply considerations. The curious fact, however, is that neither of these arguments was advanced to any appreciable extent within the valley in the course of the project's various stages.

Upon closer examination, three significant areas probably spelled the difference between success and failure: the technological facts of life recognized by the company at the outset; its positive responses and initiating actions in relation to natural resources; and its methods of approach to local and state officials.

Technological considerations

Among the factors in project design, the decision to locate the generating facilities entirely underground was probably the most important. Such was not the case initially at Storm King, and this factor ultimately became a major rallying point for the opponents.

Second, the company was able to divorce its transmission line location problems from the FPC licensing proceedings, even in the face of objections from various intervenors. Although this potentially difficult situation will still have to be faced ultimately, it will be a matter for the various state public utility commissions to consider, not the FPC, and the utilities have traditionally operated with greater influence at the state level.

Natural resources considerations

In its direct and positive interest in natural resources, the company clearly did itself no disservice, for it insured a broad base of popular support, plus the all-important availability of the site required for the project.

Exhibit R accompanying the FPC application was an outstanding piece of work. While the recreation study was in part a requirement of the application process and, in part, prompted by suggestions received from state officials, there was no discounting the genuine interest of the company in this phase of the project once it was under way.

In its handling of the fisheries issue, a critical one in the case of Storm King, the company displayed both good judgment and a remarkable sensitivity to local feelings. Lyle M. Thorpe, its fisheries consultant, was both a competent biologist and a seasoned state administrator. Though retired from public service, he still carried much weight with New England fish and game officials and Connecticut Valley sportsmen leaders.

But it was in the water supply aspects that the company really added lustre to its image. Espousal of this cause could only mean complications and possible delays. By tampering with the flow of the Connecticut River, for example, WMECO deliberately chose to run the full gauntlet of public agencies concerned with water management.

Water supply itself was bound to be a sensitive matter within the valley despite the prevailing drought. Ever since the impoundment of Connecticut River water in the late 1930's for Quabbin Reservoir, inter-basin diversions had been viewed with a jaundiced eye by downstream interests. Moreover, the logical beneficiary, the Boston Metropolitan District Commission, was a reluctant bride at best with its heart really set on substantial new sources from the Millers River.

Dramatic though the recreation and hydroelectric developments proved to be, it was the logical and simplistic water diversion possibilities that really caught the public eye. The proposal was substantial and timely, practical and politically attractive -- moreover, utterly understandable to the layman!

Company attitudes

Of all the possible factors, however, the one most responsible for success was the decision to be entirely candid throughout the proceedings. Regardless of the risk, state and local officials were brought into the discussions early in the game, and all facts were laid squarely on the table. This approach produced a growing atmosphere of confidence and a set of personal relationships that could endure misunderstandings and even disagreements.

To public officials long distrustful of the generally self-serving manipulations of the utility interests, so significant a change of spots was difficult to entertain at the outset. Yet by dealing directly with public officials from the lowest effective level upwards, successive layers of credibility were built up such that when the final policy decisions had to be made, they became only matters of formality.

Costs to the public

It would be naive to assume that the various project modifications cost nothing. Ultimately, of course, either the consumer or the taxpayer bears the financial burden. In the case of the recreation improvements, for example, public bond issues supported the state development expenses; in the case of the utility expenditures, these could be counted towards the eventual rate base calculations.

Yet, if these improvements would realistically have been undertaken anyway, it could be argued that the consumer/taxpayer stood to gain by the economies of scale achieved by joint project activity. Nowhere was this advantage more apparent than in the water supply considerations. Eastern Massachusetts clearly had to have additional sources, and the Northfield diversion, both in quantity of water available and the unit cost of this new source, compared favorably with other alternatives.

Finally, there would be costs to the public in terms of values foregone even without project modification. A natural mountaintop would be lost, public outdoor space preempted by a single interest use, and a new economic entity interjected into the region which could well trigger subtle but real public costs in the future. Thus, the enhancement features were more compensatory than cosmetic. Were they enough? In the absence of any realistic cost accounting for such values as esthetics and recreation, one can only answer the question politically. In the eyes of those most directly affected by the project, the balance seemed satisfactory.

Storm King and Northfield

Although much has been made of the direct parallel between Storm King and Northfield, the relationship appeared more one of accident than design. For example, company officials were well aware of the conflagration on the Hudson, as were the utilities nationally, but there is no evidence that WMECO was guided to any appreciable extent by the experience at Storm King. Scenic and historic values were substantially different at the two sites, and the Connecticut Valley conservation constituency, volatile though it could and had been in the past, was conditioned by years of exposure to utility development projects and reflected the pragmatic mix of development and environmental concern that seems to characterize the native New Englander.

Storm King, however, may have set the stage for resolution of differences in at least an indirect way, for the FPC was required to reflect a higher degree of consideration for environmental concerns by the rulings of the Scenic Hudson case. This, in turn, created a favorable climate within the FPC for the considerations WMECO was prepared to advance.

Procedurally, however, Con Ed and WMECO had similar paths to pursue and, in that sense, a comparison between the two projects does seem warranted.

SUMMARY AND CONCLUSIONS

The Northfield Mountain experience should serve as a valuable lesson to the utility industry which, with some exceptions, has never enjoyed a substantial reputation for disinterested public service. At this writing, it appears certain that resource and environmental values will carry growing influence in all future public policy decisions.

One segment of the industry, taking an enlightened view early in its development considerations, successfully avoided the constraints of what would otherwise have been a singularly controversial proposal. The returns to the company were two-fold: the successful prosecution of an important project, and the winning of an increased measure of respect from the region it served.

It is hoped that other elements of commerce and industry can be persuaded to adopt a similarly enlightened attitude, recognizing conservation and environmental considerations as valuable business opportunities, not obstacles to progress. It would be the wise industry that recognized this fact from the outset and thus geared its program to the broadest possible range of public benefits.

REFERENCES

Commonwealth of Massachusetts

Chapter 606, Acts of 1964 - Study of Millers River.

Chapter 439, Acts of 1966 - Other possible diversion sources added.

Senate #808, January 13, 1966 - Special Report of the Metropolitan District Commission relative to the diversion of excess water from Millers River into Quabbin Reservoir.

Chapter 669, Acts of 1967 - Bond issue of \$25 million authorized.

Massachusetts Department of Natural Resources

Board of Natural Resources - Minutes of Meetings:

September 29, 1965 - Quinnehtuk Company gift of land in Shelburne.
February 24, 1966 - Northfield Mountain land exchange.
April 28, 1966 - Public Access site in Gill - WMECO lease.
May 19, 1966 - Confirmation of previous actions.

Press Releases:

February 10, 1966 - Northfield Inn statement.
June 15, 1966 - Connecticut Water Resources hearings statement.
July 21, 1966 - Announcement of Northfield Mountain land exchange public hearing.
August 3, 1966 - Deed execution, Northfield Mountain land exchange.

Unpublished Correspondence and Memoranda:

1. August 24, 1964 - File memorandum - WMECO Pumped Storage Proposal.
2. September 8, 1964 - File memorandum - WMECO meeting on preliminary permit.
3. April 12, 1965 - Lull to Commissioner - designation as liaison officer.
4. June 23, 1965 - Director to Commissioner - WMECO Recreation Study.
5. September 3, 1965 - Commissioner to Cadwell - Comments on Gardner's Falls Project.
6. September 13, 1965 - File memorandum - WMECO Recreation Proposals.
7. September 27, 1965 - File memorandum - WMECO Water Supply Proposals.
8. September 29, 1965 - Lull to MDC - Tentative conditions for Northfield Mountain storage.
9. October 29, 1965 - Cadwell to Governor Volpe - Northeast Utilities Reorganization.
10. October 29, 1965 - Cadwell to Massachusetts Department of Public Utilities - Northeast Utilities Reorganization.

11. November 19, 1965 - Simpson to Commissioner - Fish and wildlife report.
12. November 24, 1965 - File memorandum - WMECO Recreation progress.
13. November 24, 1965 - Massachusetts Department of Public Health to Cadwell - Testing of Connecticut River Water.
14. November 1965 - Director to Lull - Permit for engineering investigations.
15. January 5, 1966 - File memorandum - WMECO to file for FPC permit.
16. January 5, 1966 - Director memorandum - Terms of proposed land exchange.
17. January 10, 1966 - Commissioner to Charles T. Main, Inc. - Draft letter for recreation brochure.
18. January 10, 1966 - MDC to Graf - Comments on Northfield Mountain project.
19. January 19, 1966 - Commissioner memorandum to Graf - Approve Northfield Mountain project.
20. February 2, 1966 - Simpson to Commissioner - Agenda for Northfield Inn meeting.
21. March 8, 1966 - Simpson to Commissioner - Compilation of brochure comments.
22. March 15, 1966 - Commissioner to Lull - Preliminary reactions from Connecticut.
23. April 8, 1966 - Graf to Governor Volpe - Coordinated State comments on Northfield Mountain project.
24. April 8, 1966 - WMECO attorneys to Department legal counsel - Draft vote for land exchange.
25. May 19, 1966 - Connecticut Water Resources Commission to Commissioner - Public Hearing announcement.
26. June 16, 1966 - Graf to Connecticut Water Resources Commission - Monitoring of diversions.
27. July 12, 1966 - Commissioner to Lull - Status of project.
28. August 3, 1966 - Department land acquisition officer to Commissioner - Results of Public Hearing.
29. August 9, 1966 - Commissioner to Governor Volpe - Request for approval of land exchange.
30. August 15, 1966 - Governor Volpe to Commissioner - Land exchange approved.
31. September 8, 1966 - Commissioner to WMECO - Review of Turners Falls Recreation Program.
32. October 7, 1966 - Whitmore (MDC) Speech before Directors of Connecticut River Watershed Council - Keene, New Hampshire.

Western Massachusetts Electric Company (Northeast Utilities):

- June 1966 - Plans for future use and development of the Turners Falls Project, FPC No. 1889 - A Report to the Federal Power Commission.
- Exhibit A - Recreation Plan and Report (Exhibit R) - Northfield Mountain Pumped Storage and Turners Falls Hydroelectric Projects.

Exhibit B - Multipurpose Use - Land and Water Resources (A study).

April 5, 1966 - New England Forestry Foundation - Timber appraisal, Colrain, Massachusetts.

Press Releases:

July 8, 1965 - Announcement of Charles T. Main, Inc. Recreation Study.
November 1, 1965 - Preliminary format - Press Conference
November 1, 1965 - Announcement of WMECO Water Supply Proposal.

Federal Power Commission

1. May 14, 1968 - Opinion No. 541 Opinion and Order issuing and amending licenses for Northfield Mountain and Turners Falls Projects.
2. August 6, 1968 - Presiding Examiner's initial decision in remanded proceedings on an application for a license under Part I of the Federal Power Act - Project No. 2338 - Cornwall, New York.
3. August 15, 1968 - Opinion No. 541-A - Memorandum, Opinion and Order denying application for rehearing - Northfield Mountain and Turners Falls Projects.
4. November 19, 1968 - Order granting petition for leave to intervene and re-opening the proceedings - Consolidated Edison Company of New York, Inc. - Project No. 2338 - Cornwall, New York.

Press Releases:

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Miscellaneous Materials

Newspaper Articles

July 22, 1966 - Greenfield Recorder-Gazette - Reports favorable local reactions to land exchange suggestion.
June 13, 1967 - Springfield Union - Comments of Mayor Ryan on proposed water diversion.

July 3, 1967 - Springfield Union - Editorial favoring
Northfield Mountain pumped storage proposal.

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concerning Northfield Mountain Project.

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December 12, 1968 - Lull to Foster - Supplemental account of WMECO
actions.

Illustrations

Courtesy of Northeast Utilities Service Company, Wethersfield,
Connecticut.

