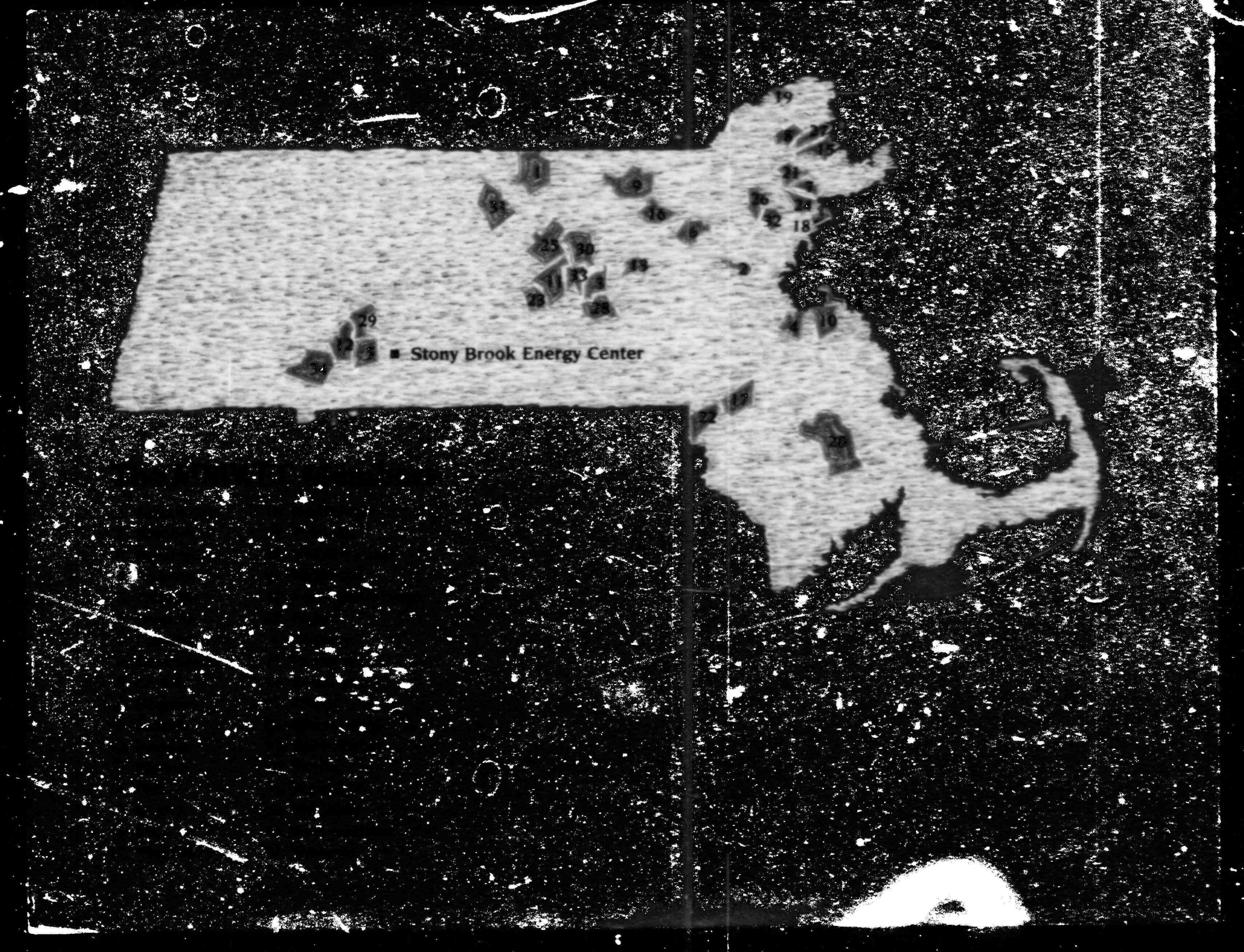
1983
was a year
the electric utility
industry
will
not soon
forget.

MMWEC 1983 ANNUAL REPORT


Stony Brook Energy Center

1983.

It was the year that oil prices, in a seemingly unending upward spiral for nearly ten years, declined.

It was the year that many in the industry realized that many parts of the nation, including New England, could face shortfalls in electric capacity in less than a decade.

And, it was the year the Washington Public Power Supply System suffered the largest municipal bond default in history.

For MMWEC, the events of 1983 triggered an avalanche of questions. There were questions posed by the financial community, the press and the public. Those questions led us to perform an in-depth appraisal of our strengths and accomplishments and to take a hard look at the challenges we face in the future and our strategy for addressing them.

From questions and reflection came reports, plans and presentations. But, from that process we also obtained something less tangible. We secured a better understanding of both the commitment and the mandate which marked our first decade—a decade which saw a power supply program and two major power plants take shape. And, we found in that commitment and that mandate the raw material from which to devise a course of action for the next two decades.

Thus, the 1983 Annual Report is a progress report, but it is also an appraisal of MMWEC's ability to face the challenges of the times and to bring to the years ahead the same skill and dedication that have marked our first ten years.

In its first ten years MMWEC has built a joint-action agency from the ground up.

MMWEC is the product of a long, difficult struggle for municipal power independence. That quest began in 1889 when the first of Massachusetts' municipal electric departments came into being. The municipals were created because the citizens of 40 Massachusetts cities and towns wanted the freedom to establish, own and manage their electric utilities. They wanted the assurance that their utilities would work for their interests by providing them with reliable electric power at the lowest cost possible.

Over the years, these consumer-owned utilities have worked hard to achieve that goal, though at times significant obstacles blocked their path. Until recently most of these systems had to buy the bulk of their power from private electric companies at less than favorable rates. Prevailing laws made it difficult to break free of these arrangements. In the end, however, the municipals waged successful battles before courts and regulatory agencies and earned the right to stand alone as independent electric utilities.

To make the most of their independence many of the municipal electric departments decided to work together. They knew that as a group they could take advantage of economies of scale—previously enjoyed only by large electric companies, while still maintaining their autonomy. To this end they founded their own joint action agency, the Massachusetts Municipal Wholesale Electric Company in 1969. When MMWEC began working for its members, its directive was to plan and coordinate power supplies which would ultimately replace the energy they purchased from other utilities. In 1976, MMWEC, acting under state legislation, became a public corporation and its mission was greatly expanded. As a public corporation MMWEC performs a variety of utility services for its 34 members.

For example, MMWEC forecasts the future load and energy requirements for each of its members. The forecasts are compiled using state-of-the-art computer models and data gathered from a variety of sources, including the managers of member electric systems. The forecasts provide the basis for creating individual power supply plans for each member.

The plans are designed to minimize members' power costs and to assure that each member has a diverse mix of reliable resources. With a balanced resource mix members have the flexibility to deal with fluctuations in load growth, with unit outages or with the delay or cancellation of a power plant. The resources can be units jointly owned by a group of utilities, units constructed and operated by MMWEC or power obtained through short- and long-term contracts with other utilities. MMWEC finances the acquisition of these resources with tax-exempt securities.

In 1976, when MMWEC began its program, the electric utility industry was entering a period of crisis. The U.S. and most of the world had sustained the first of the two major oil supply disruptions which were experienced in that decade. The shocks and aftershocks from this event continued throughout the decade. Fuel prices, as well as interest and inflation rates, shot skyward. The growth in electric demand declined. Power plants were cancelled and electric rates increased.

The energy crises of the 1970s have changed the nature of the electric power industry and have changed the focus of MMWEC's efforts as well. With the foundation of its power supply program in place, MMWEC is now seeking to optimize its available resources and to contract for supplemental supplies of power and energy to meet its members' needs in the most cost effective and efficient manner.

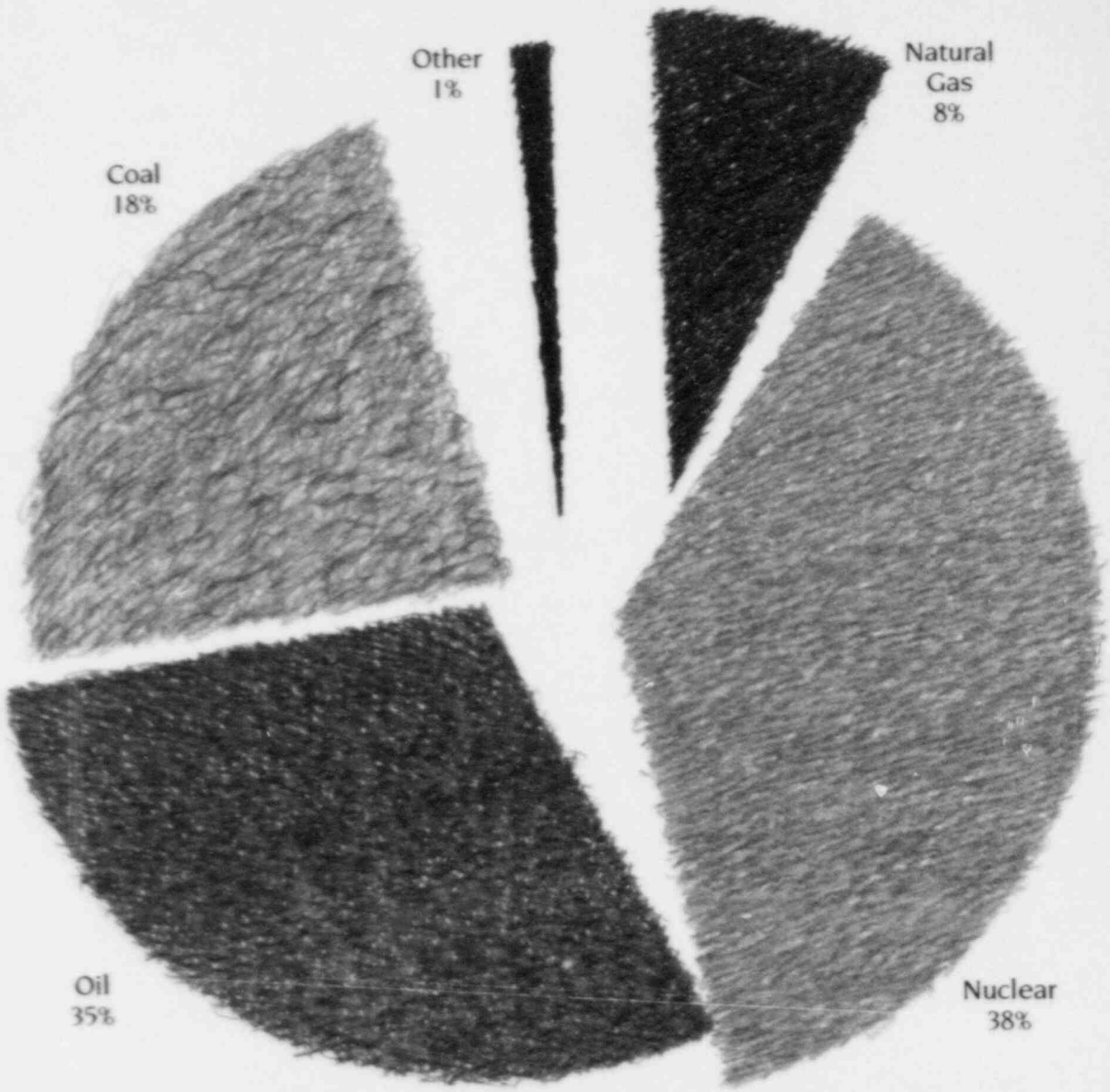
As the energy picture has changed, the MMWEC public corporation has also evolved. From a small planning staff, MMWEC has grown into a corporation employing over 150 people. We have added new services, built and staffed a power plant and become an effective participant in regional power planning and operations.

In recent years, MMWEC has undergone an important transition. After a decade of building, the corporation has undertaken an ambitious effort to review its priorities and responsibilities. MMWEC's board of directors installed a new general manager in 1983 and underwent a major reorganization. Out of this assessment will come a corporate strategic plan which will guide MMWEC into the future, a future which will strengthen MMWEC's initial resolution to bring its members the best possible utility services at the lowest cost possible.

Horst Huehmer, *Chairman*

Francis H. King, *President*

Member Participants' 1983 Fuel Mix



Since it began performing power supply planning studies in 1973, MMWEC has stressed the need for each of its member systems to have a diverse and balanced mix of generating resources available to meet its needs. Such a mix reduces a utility's dependence on any one resource, thus lowering the likelihood of capacity shortages and the need for high-cost replacement power during plant outages. It also reduces a system's dependence on any one fuel type, thereby lessening the impact of fuel price increases. This chart shows the current average fuel mix for the MMWEC membership. In the years ahead, MMWEC planners will continue to seek ways to further diversify this mix.

In 1983 MMWEC brought its story to a receptive financial community.

In July of 1983 the Washington Public Power Supply System (WPPSS) defaulted on $2.5 billion in bonds issued for its Nuclear Projects 4 and 5. It was the single largest municipal bond default in history. The event set off alarms throughout the financial world and the utility industry. How could it have happened? How would it affect the municipal bond market? And, perhaps most ominous, who would be next?

In response to questions about public power and joint action agencies, MMWEC produced a newsletter which highlighted the differences between it and the Washington Public Power Supply System, including these:

—MMWEC and its members have full and explicit authority through Chapter 775 of the Acts of 1975 to enter into Power Sales Agreements, the contracts through which member systems become participants in MMWEC's power supply projects. Specifically, Chapter 775 allows MMWEC to include in its Power Sales Agreements, a so-called take-or-pay provision. This stipulation provides for the payment by participating members "of unconditional obligations imposed without regard to whether the facility (in a power supply project) is undertaken, completed, operable or operating." A provision in these contracts that calls for participants to assume the shares of the debt and capacity of a defaulting participant is also specifically authorized by law. It was the lack of such clear-cut statutory authorization which made the WPPSS default possible.

—At the time of the default, WPPSS was in the midst of a massive construction program. In contrast, more than half of the capacity in MMWEC's power supply program is completed and in operation. In fact, member participants have been paying debt service on bonds issued to finance this capacity for about four years.

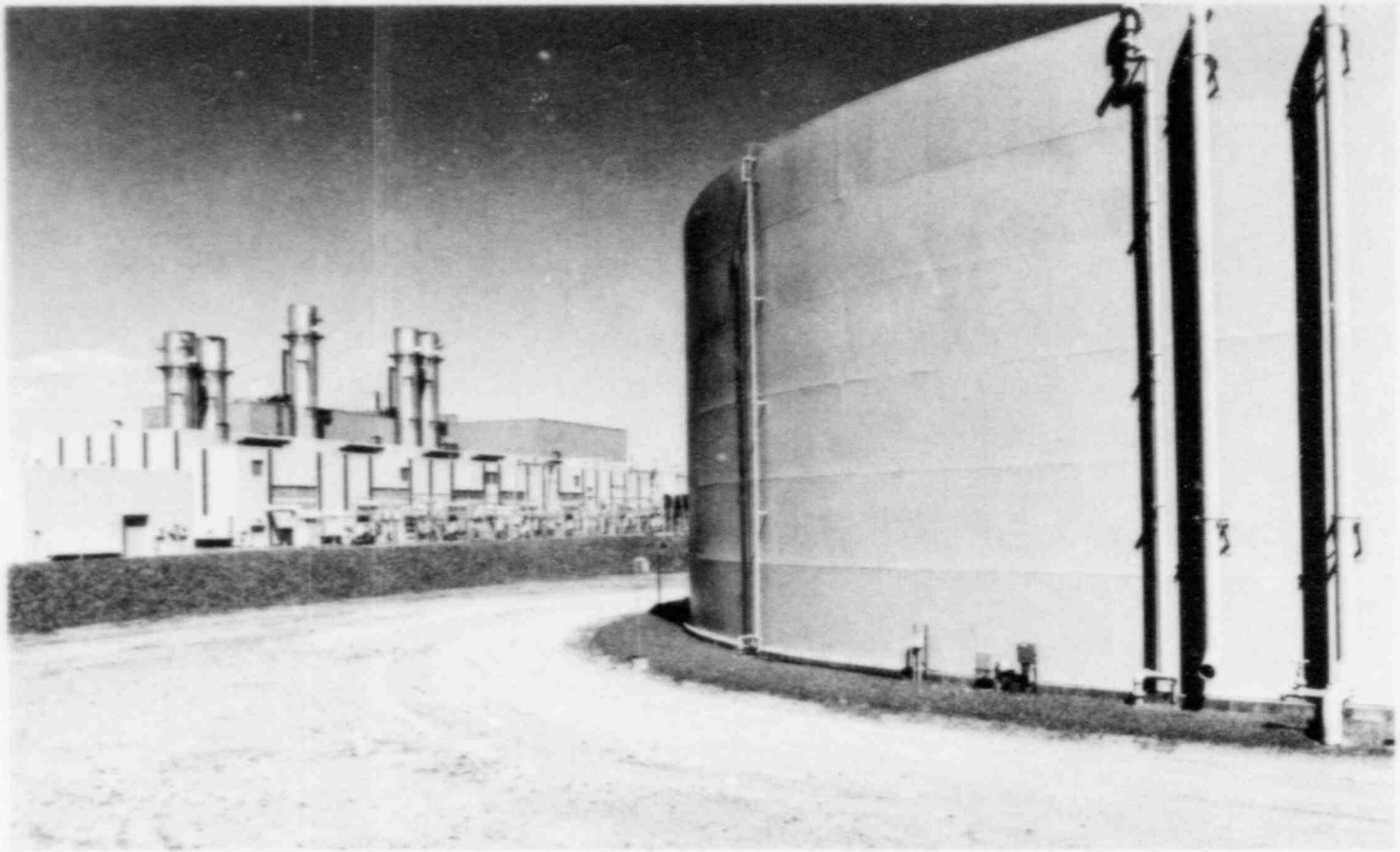
—MMWEC finances its power supply program under a single bond resolution and the bonds issued are secured in common by certain payments under Power Sales Agreements entered into with the participants in each project.

—MMWEC's financing and power supply programs have been approved by two state agencies. With the exception of a recent filing which is currently pending, all of MMWEC's requests for approval to finance its power supply program have been approved by the Massachusetts Department of Public Utilities and all of MMWEC's long-range forecasts have been accepted by the Massachusetts Energy Facilities Siting Council.

—The MMWEC organization allows maximum participation in the company's decision-making process by its members. Seven of the nine members of its board of directors are elected by the membership (two are appointed by the Governor of Massachusetts) and members participate through the five board of directors' advisory committees and periodic membership meetings.

In addition, MMWEC offers its members a wide range of utility services, including load forecasting, power supply planning and tax-exempt financing, and has successfully constructed and operated two modern power plants of its own; investigated and executed many cost-saving long- and short-term contracts for power; played an effective role in the regional power pool; and managed a prudent financial program for its members, a program that includes over $1 billion in tax-exempt revenue bonds.

As persuasive as these points are individually, together they add up to a compelling story. MMWEC brought that story to the financial community during the latter half of 1983. The program was well received by the many financial analysts and bond salesmen who viewed it. In the pages that follow, we will tell that story once again.



MMWEC built the Stony Brook Power Plant (above) on-time and within budget. The plant's intermediate unit, fired with oil and natural gas, is among the most efficient generating units of its type in the world.

In 1983, General Manager Richard K. Byrne (at podium right) explained MMWEC's programs to several audiences of financial analysts and bond salesmen in various locations around the country. In the presentations, Byrne reviewed the history of MMWEC, talked about its strengths and accomplishments and noted the diversity and integrity of the consumer-owned utilities which comprise MMWEC.

MMWEC *is an alliance of publicly-owned utilities with unique strengths and needs.*

MMWEC is the union of a diverse group of electric utilities. Just as metals can be joined to form an alloy stronger than its components, the fusion of the strengths and talents of these utilities is synergistic, yielding a quality service organization.

The utilities associated with MMWEC take part at one or more of three possible levels of involvement. The most exclusive form of participation is membership because it is open only to municipal electric departments in Massachusetts. Membership accords utilities certain rights and obligations. For example, MMWEC's members elect seven of the nine members of the board of directors (the remaining two are appointed by the Governor of Massachusetts). Members have input into MMWEC's decision-making process through their participation on the board and the board's five committees. Members also have preference rights to any and all capacity or energy initially acquired by MMWEC.

The second level is service participation. This type of involvement is open only to consumer-owned electric systems. Service participants, like members, are entitled to benefit from MMWEC's utility services. To become a service participant, a consumer-owned system must sign a Service Agreement which outlines the services MMWEC will provide and the obligations of the participating system.

The third level is project participation. To date, municipal, cooperatively-owned and privately-owned utilities have participated in MMWEC projects with the consent of the MMWEC board of directors, though MMWEC's bond resolution requires that at least 80 percent of the capacity in any one project be under contract to municipal utilities in Massachusetts. Project participants sign Power Sales Agreements and receive the full benefits of the joint ownership, economies of scale and tax-exempt financing associated with the MMWEC power supply program.

There are 34 MMWEC members. One other utility, the Pascoag, R.I. Fire District, is a service participant. A total of 41 utilities—28 MMWEC members, Pascoag, seven municipal utilities in Vermont, three electric cooperatives (two in Vermont and one in Maine) and a Vermont-based private electric company—are project participants. The 12 non-member project participants are involved in only two MMWEC projects and have entitlements to less than 6 percent of the capacity in the power supply program.

The 34 MMWEC members are the primary focus of MMWEC's forecasting, planning and financing activities. They constitute a varied group, ranging from cities with populations as large as 55,000 to small towns. Some systems serve more than one community. Some members have growing industrial or residential loads, while others are relatively stable. A few have generating capacity of their own, while most acquire their power from MMWEC and other sources. Together they serve over 10 percent of Massachusetts' electric load and meet the needs of more than 9 percent of the state's population.

A *recent* **Policy and Personnel Committee** *work session. Members are: Richard Bailey, manager, Marblehead—chairman; Nathan Paven, Quincy—vice chairman; David Sweetland, manager, North Attleborough; Ann Cardillo, office manager, Littleton; Mark Kelly, manager, Middleton; James Baker, manager, Shrewsbury; Daniel Golubek, manager, Westfield; Kenneth Conroy, manager, Belmont; William Rugg, manager, Sterling.*

The **Project Construction and Plant Operations Committee** *at work. Members are: Curtis Lanciani, manager, Littleton—chairman; Frank King, MMWEC President—vice chairman; Roger Beeltje, manager, Groton; Gerald Skelton, manager, Templeton; Robert Gould, manager, Ashburnham; Edward Kimball, manager, Boylston; John Larch, manager, Mansfield; Richard Wheeler, manager, Princeton; Harold Smith, manager, Paxton; James Blomley, office manager, Reading.*

Level of Participation

Participant	Member	Service Participant	Project Participant
Ashburnham	■	■	■
Belmont	■	■	
Boylston	■	■	■
Braintree	■	■	
Chicopee	■	■	
Concord	■	■	
Danvers	■	■	■
Georgetown	■	■	
Groton	■	■	
Hingham	■	■	
Holden	■	■	
Holyoke	■	■	
Hudson	■	■	
Hull	■	■	
Ipswich	■	■	
Littleton	■	■	■

Participant	Member	Service Participant	Project Participant
Mansfield	■	■	■
Marblehead	■	■	
Merrimac	■	■	
Middleborough	■	■	
Middleton	■	■	
North Attleborough	■	■	
Paxton	■	■	
Peabody	■	■	
Princeton	■	■	
Reading	■	■	
Rowley	■	■	
Shrewsbury	■	■	
South Hadley	■	■	
Sterling	■	■	
Templeton	■	■	

Participant	Member	Service Participant	Project Participant
Wakefield	■	■	■
West Boylston	■	■	
Westfield	■	■	
Eastern Me. Elec. Coop.	■	■	
Green Mt. Power Corp.	■	■	
Hardwick, Vt.	■	■	
Ludlow, Vt.	■	■	
Lyndonville, Vt.	■	■	
Morrisville, Vt.	■	■	
Northfield, Vt.	■	■	
Pascoag Fire District	■	■	■
Stowe, Vt.	■	■	
Swanton, Vt.	■	■	
Vermont Elec. Coop.	■	■	
Washington Elec. Coop.	■	■	

MMWEC's mission and its authority to perform it have been clearly established.

In the parlance of public power MMWEC is known as a joint action agency. MMWEC works for each of its members individually, preparing forecasts of capacity and energy requirements and developing plans for meeting those requirements. But, MMWEC also works for its members collectively, acquiring bulk supplies of electric energy and capacity on behalf of many members and financing those acquisitions in bulk as well. In this way, the MMWEC members can maintain their independence while still benefiting from the economies of scale, the financial security and the influence of a large, diverse electric system.

MMWEC was authorized to perform these tasks under the provisions of Chapter 775. This piece of state legislation also empowered MMWEC and its members to enter into the types of contracts and agreements necessary to carry out MMWEC's mission.

MMWEC has obtained financing approval from the Massachusetts Department of Public Utilities on 16 occasions. One approval is pending. MMWEC also submits to the Massachusetts Energy Facilities Siting Council regular forecasts of the future energy requirements and the projected resources to meet such requirements for each member system. MMWEC's current forecast is under review.

While MMWEC must seek approval from state regulators for forecasts and financings, the ultimate control over its programs and plans lies with its members. The members, through the MMWEC board of directors, set MMWEC's policies and direction. The board works with its five committees which provide recommendations. Each of these committees is, essentially, a cross-section of MMWEC, consisting of members of the board of directors, managers, commissioners and staff of member systems and MMWEC. By blending the experience and expertise of the membership and the MMWEC staff, the committees foster the type of communication and cooperation that make a joint action agency effective.

None of the five committees exemplifies this commitment to cooperation and communication better than the Membership Committee. This body, created in 1983, serves as a spokesman for the membership. It works to keep the board aware of the goals and objectives each member system would like MMWEC to pursue. In this way, the actions of the board and the actions of the MMWEC staff will be in tune with the requirements and desires of the MMWEC members.

MMWEC's power planning mission is overseen by the Power Planning and Operations Committee. This committee reviews staff forecasting methods and results, staff studies related to the development of power supply projects and contracts and staff analyses of the effects of the policies and procedures of the regional power pool on member systems. The committee is also responsible for advising staff in these areas as well as in the areas of power operations, power contracting, wheeling and transmission.

The construction of MMWEC's own power plant, the Stony Brook intermediate and peaking units, was supervised by the Project Construction and Plant Operations Committee, which continues to watch over its operation. This committee also evaluates potential generating and transmission facilities owned or planned by other utilities, analyzes cost and schedule estimates for current MMWEC joint-ownership projects and reviews operating budgets and staffing requirements for MMWEC's operating projects.

Review of MMWEC's financial matters is the province of the Finance and Business Administration Committee which recommends action to the board concerning MMWEC's administrative and project operating budgets; policies relating to accounting, billing and collection procedures; annual corporate financial statements; issuance of short- and long-term debt; financing alternatives; the appointment of independent auditors, financial advisors and bond counsel; the corporate insurance program; and other financial services and programs.

MMWEC's goals, its policies, its procedures and the welfare of its staff are the concerns of the Policy and Personnel Committee. This committee oversees all business relating to MMWEC personnel and administrative procedures and also makes recommendations on administrative policy to the board of directors. The members of this committee supervise wage and salary practices, guide the course of union contract negotiations, provide general direction with respect to personnel and organizational development and monitor the employee benefits program.

The ***Finance and Business Administration Committee*** *(top) in session in Hudson. Members are: Neil Murray, manager, Holden—chairman; Bruce Patten, manager, Peabody—vice chairman; George Leary, manager, Holyoke; Michael Madore, plant superintendent, Danvers; Raymond Bastarache, manager, Merrimac; Barry Port, controller, North Attleborough; Wayne Doerpholz, manager, South Hadley; James Hazen, manager, Georgetown; John O'Neil, plant superintendent, Concord; John Crooker, commissioner, Reading.*

The ***Power Planning and Operations Committee*** *(above) meeting in Peabody. Members are: Norbert Rhinerson, manager, Reading—chairman; William Wallace, manager, Wakefield—vice chairman; Donald Newton, manager, Braintree; John Dunfey, manager, Middleborough; Joseph Spadea, manager, Hingham; Roger Allen, assistant manager, Holyoke; John Miller, senior staff engineer, North Attleborough; Anthony Monteiro, electrical engineer, Hudson; Francis Paika, engineering services supervisor, Shrewsbury; Richard Sproul, assistant superintendent, Concord; Robert Merry, manager, Rowley; Jerry Tomasko, electrical energy director, Westfield; Ronald Tabroff, principal engineer, Peabody.*

MMWEC *has built a working power supply program and is now managing it wisely.*

A building must have a strong foundation if it is to endure the tests of time. Similarly, a power supply program must be built on a solid base of reliable and economical electric power resources. Power planners face the challenge of designing a power supply program to match projected load growth, a constantly changing target influenced by a myriad of factors.

When the MMWEC power supply program was begun in the early 1970s, its chief aim was to allow MMWEC members to end their long-standing reliance on wholesale power contracts with private utilities and to meet their needs instead with a mix of generating resources they selected themselves—resources priced at their actual cost.

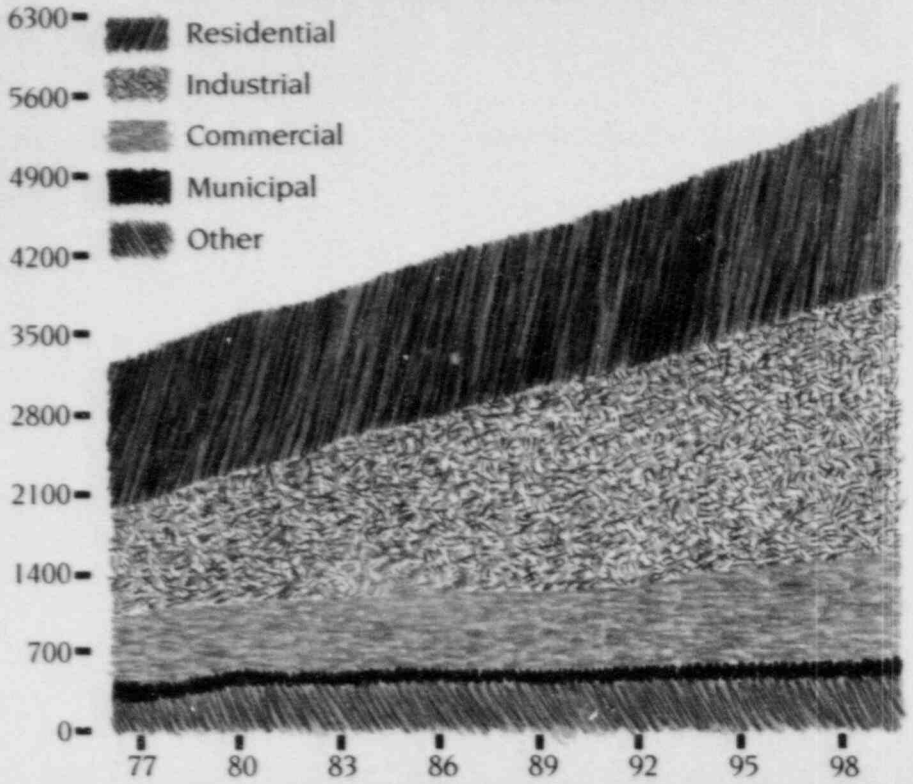
Prior to 1973 forecasts called for the demand for electricity to grow at a rate of nearly 8 percent a year throughout New England and the rest of the United States. New England electric utilities were planning to build thousands of megawatts of new generating capacity, including several sizable nuclear power plants, to meet the rapidly growing demand.

On behalf of many of its members, MMWEC became a joint owner of all of the power plants then planned or under construction in New England. The program objective was diversity, such that there would be no over-reliance on any one unit. This capacity was expected to meet MMWEC members' requirements for baseload power, power which must be available around the clock, for the remainder of this century. MMWEC also made plans to build the Stony Brook units to meet much of the members' initial requirements for intermediate and peaking capacity.

In 1973, the oil embargo drastically changed the face of the electric utility industry. As energy costs rose, load growth slowed from nearly 8 percent a year to about 2 percent annually. The reduced load growth made much of the generating capacity then on the drawing board surplus, at least for the next decade. Of the 12 generating resources then in the MMWEC power supply program, 6 were cancelled. These cancellations, which occurred during the early planning stages, had a minimal economic impact on the MMWEC systems.

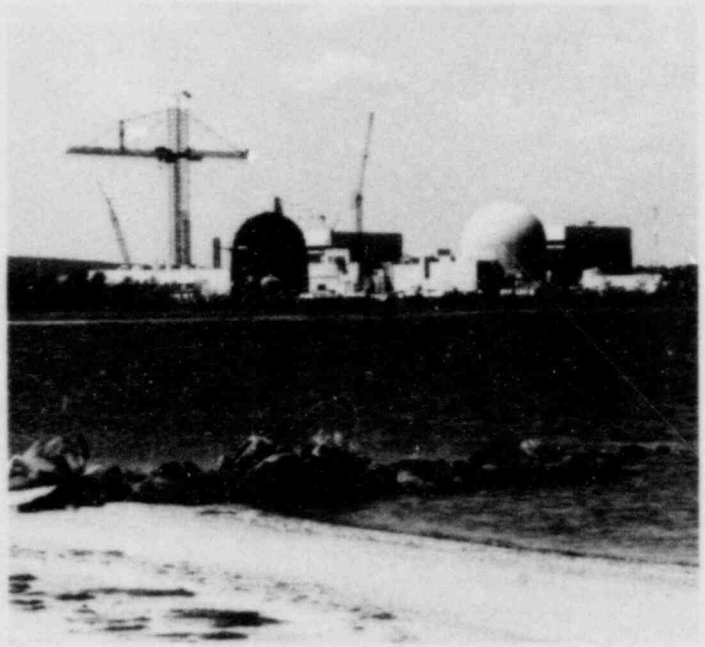
Three of the six remaining units, the Stony Brook intermediate and peaking units and the W.F. Wyman Unit No. 4, an oil-fired facility in Maine, are already in operation and serving MMWEC members. These represent over 60 percent of the capacity in the current power supply program. By 1987, 84 percent of the program should be up and running as Seabrook Unit No. 1 in New Hampshire and Millstone Unit No. 3, a nuclear unit in Connecticut, are scheduled for commercial operation. The remaining unit, Seabrook Unit No. 2, is under re-evaluation.

MMWEC Members' Historical and Projected Load



Accurate load forecasts are the foundation of MMWEC's power supply planning efforts. MMWEC's most recent forecast (left) shows that the MMWEC aggregate load should increase at a rate of about 2.4 percent per year during the next decade. Increased industrial growth, spurred partly by the expansion of high-technology industries into member communities, will contribute to that rate.

The power plants pictured below represent the remainder of MMWEC's current construction program. The Seabrook Units Nos. 1 and 2 (right) are located in Seabrook, New Hampshire. MMWEC owns 11.6 percent of these units. The Millstone Unit No. 3 (left) is under construction in Waterford, Connecticut. MMWEC has a 4.8 percent interest in this unit.



The capacity from Seabrook Unit 1, due on line in December of 1986 by MMWEC's estimate, will meet a sizable portion of some members' power needs in the latter half of this decade. Because of the importance of this resource, MMWEC has been taking an active role in finding ways to improve its management and oversight of Unit 1, which has experienced significant cost increases and schedule delays in recent years.

To this end, MMWEC formed an in-house task force of engineers with nuclear experience to review the cost and schedule estimates issued by the lead-owner, Public Service Company of New Hampshire (PSNH). Based on the findings of the task force, MMWEC made three major proposals to the joint owners of the Seabrook units. The first was that the joint ownership agreement be changed to allow disproportionate ownership of the two units. This was approved, though no owners have yet found buyers for capacity from either unit. The second proposal called for the appointment of a management oversight committee. In lieu of a committee, the owners voted to retain Management Analysis Company, a recognized expert in nuclear project management, to monitor progress at the construction site, review cost and schedule estimates and make monthly reports to the joint owners. In addition, PSNH hired Fuel Supply Services Inc., a subsidiary of Florida Power and Light, a utility which built four operating nuclear units within exceptional completion schedules, to work with the new PSNH management team in directing the Seabrook construction.

MMWEC's final recommendation called for a reduction in the level of work on Unit 2, allowing the maximum amount of effort and financial resources to be devoted to the timely completion of Unit 1. The joint owners unanimously assented to that proposal on September 8, 1983, voting to reduce work on Unit 2 to the minimum level until fuel is loaded in Unit 1. Although a delay in Unit 2 will increase its cost, the owners agreed that time was needed to assess the economics of Unit 2 and to study potential alternatives to this resource. MMWEC began looking at alternatives to Seabrook 2 in 1982. Among the options under study are nuclear or hydroelectric energy from Canada, coal-fired capacity from New York or from potential plants in New England, and increased demand control and energy management for MMWEC members.

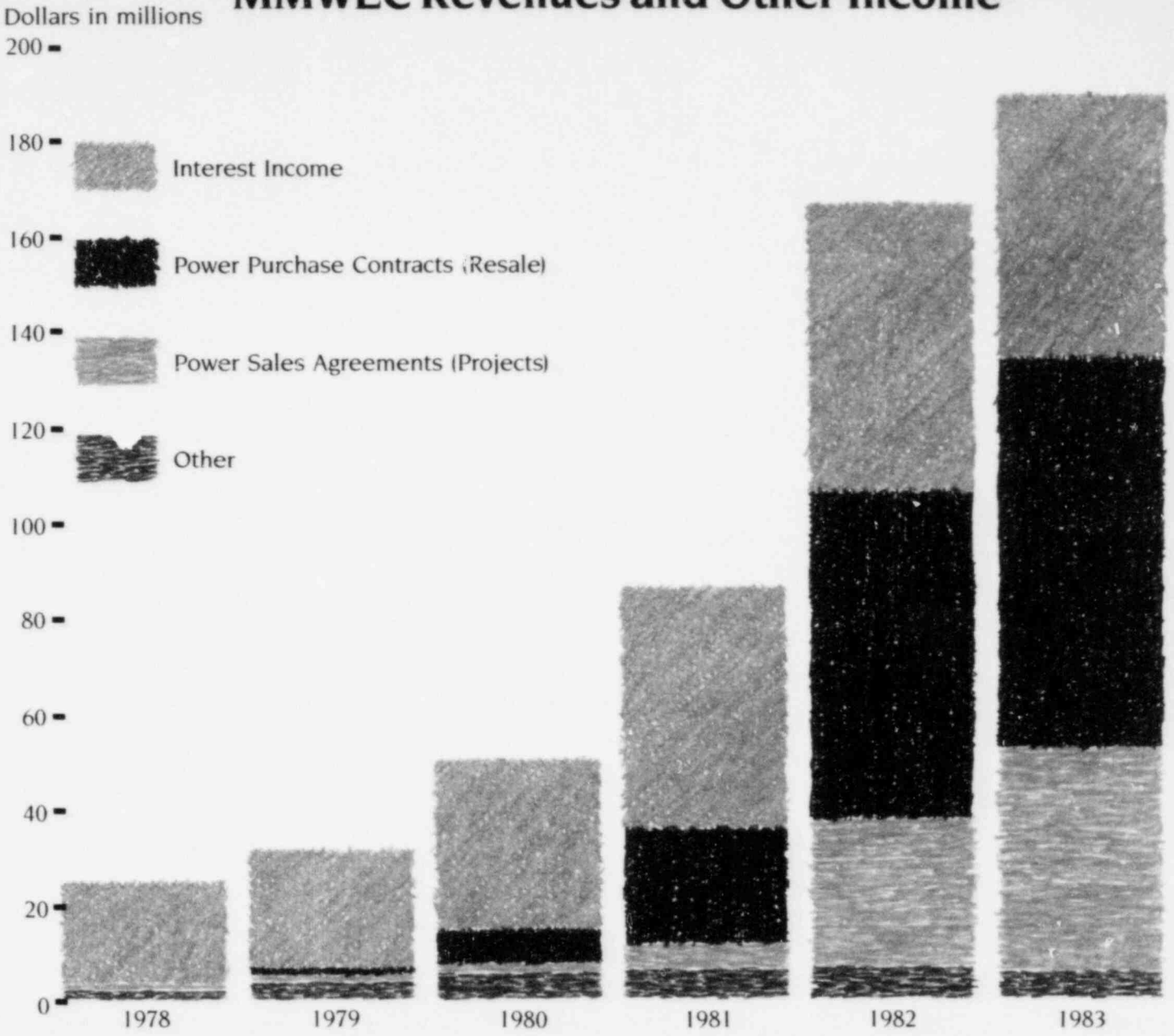
In a report issued in May 1983, MMWEC's task force determined that PSNH's cost and schedule estimates for the Seabrook facility were too optimistic and developed more realistic estimates for MMWEC planning purposes. MMWEC has been using projected commercial operation dates of December 1986 for Unit 1 and November 1992 for Unit 2. The task force also recommended that MMWEC use a total direct construction cost figure of $5.58 billion for both units. (This figure does not include Allowance for Funds Used During Construction.)

The power supply program entered a new phase in the 1980s. With a solid base of resources already assembled, MMWEC set out to find ways to make the most effective use of those resources and to optimize the capacity in the program with timely purchases and sales of energy.

For example, MMWEC negotiated a contract for 100 megawatts of capacity from the Pt. Lepreau nuclear unit in New Brunswick, Canada. The Pt. Lepreau unit went on-line in early 1983 and has logged an exceptional operating record. MMWEC has also negotiated dozens of energy-saving short-term contracts for members through various programs and has served as its members' representative in negotiations which culminated in an agreement between New England and Hydro-Quebec in Canada to build a new transmission line which will bring hydroelectric power to members later this decade from the massive James Bay project.

MMWEC *has financed its program prudently.*

MMWEC Revenues and Other Income



Creating and maintaining a power supply program takes money. Through 1983, MMWEC issued $1.12 billion in revenue bonds, a total of 10 issues, at an average net interest cost of 9.3 percent. It is estimated that just over $400 million in bonds will be issued in the next few years to fund the program through 1986. These bonds are expected to be adequate to complete Seabrook Unit No. 1 and Millstone Unit No. 3, and to keep Seabrook Unit No. 2 at a low level of construction.

When MMWEC began its power supply program in the early 1970s, its emphasis was on acquiring shares in New England baseload power plants then under construction or on the drawing board. Long-term bonds were the best method for financing these shares. In recent years, MMWEC's emphasis has changed to shorter-term purchases and sales of energy throughout the Northeast. These purchases and sales are generally financed with short-term, tax-exempt revolving lines of credit.

Prior to 1980, MMWEC's primary source of revenues was interest earned on investments made with its bond proceeds. In the late 1970s, MMWEC began to negotiate more and more power purchase arrangements for its members and these contracts became an important source of revenues by 1980. Revenues derived from power purchase contracts will continue to increase in the years ahead as such contracts—like the 100 megawatt purchase from the Canadian Pt. Lepreau unit which began operating in 1983—become increasingly important parts of MMWEC's power supply program. MMWEC first began billing members for debt service on bonds issued to fund power supply projects in 1979. Such payments came due on the Wyman Unit No. 4 Project. Debt service payments began on bonds issued for the two Stony Brook units in 1981 and 1982. During the next decade, revenues from debt service from these Power Sales Agreements will increase as the Seabrook and Millstone units begin operating.

MMWEC believes its financing program to be both conservative and prudent. For example, MMWEC attempts to finance cash flow requirements for its power supply projects for at least a year in advance. This gives MMWEC a great deal of flexibility when issuing bonds. After a careful study of the market, bond issues can be timed to realize the lowest interest rate possible.

MMWEC's financing practices are conservative in another respect. To protect the interests of both the membership and MMWEC's bondholders, MMWEC has built several safeguards into its financing program. One is system financing and another is the step-up provision in the Power Sales Agreements. Our most important safeguard, though, is the dependability of our municipal systems. They have long-standing commitments to sound financial practices. Many of these participants have been fulfilling their obligations to MMWEC and to MMWEC's bondholders for four years, paying debt service due on the Stony Brook and W.F. Wyman projects.

MMWEC is constantly working to find ways to reduce member power costs and, therefore, consumers' bills.

After a decade of growth, MMWEC must work to optimize its members' power costs and resources.

For MMWEC, 1983 was not just a year for retrospection, but a time for planning and action. Having created and financed a power supply program for its members, established and successfully demonstrated programs for optimizing member power supplies and constructed and operated two modern power plants, MMWEC set out to build on those accomplishments and refine its strategy.

To develop its strategy, MMWEC began by determining what challenges the future will hold. Those challenges are products of a decade of crises for the electric utility industry. Oil embargoes, declining growth rates, high fuel and construction costs, inflation and increased pressure from government and special interest groups have conspired to create many hurdles for the industry, including MMWEC and its members. Among the most important are these:

—Inflation, high interest rates and regulatory pressure have greatly escalated the cost of building new power plants. Therefore, MMWEC member participants' fixed costs--those costs associated with the construction of the Seabrook and Millstone units—are high and rising.

—High fixed costs, high fuel costs and inflation will add up to electric rate increases.

—Despite the surplus capacity some members will experience during this decade, load growth could leave these same systems with too little capacity by the early to mid-1990s.

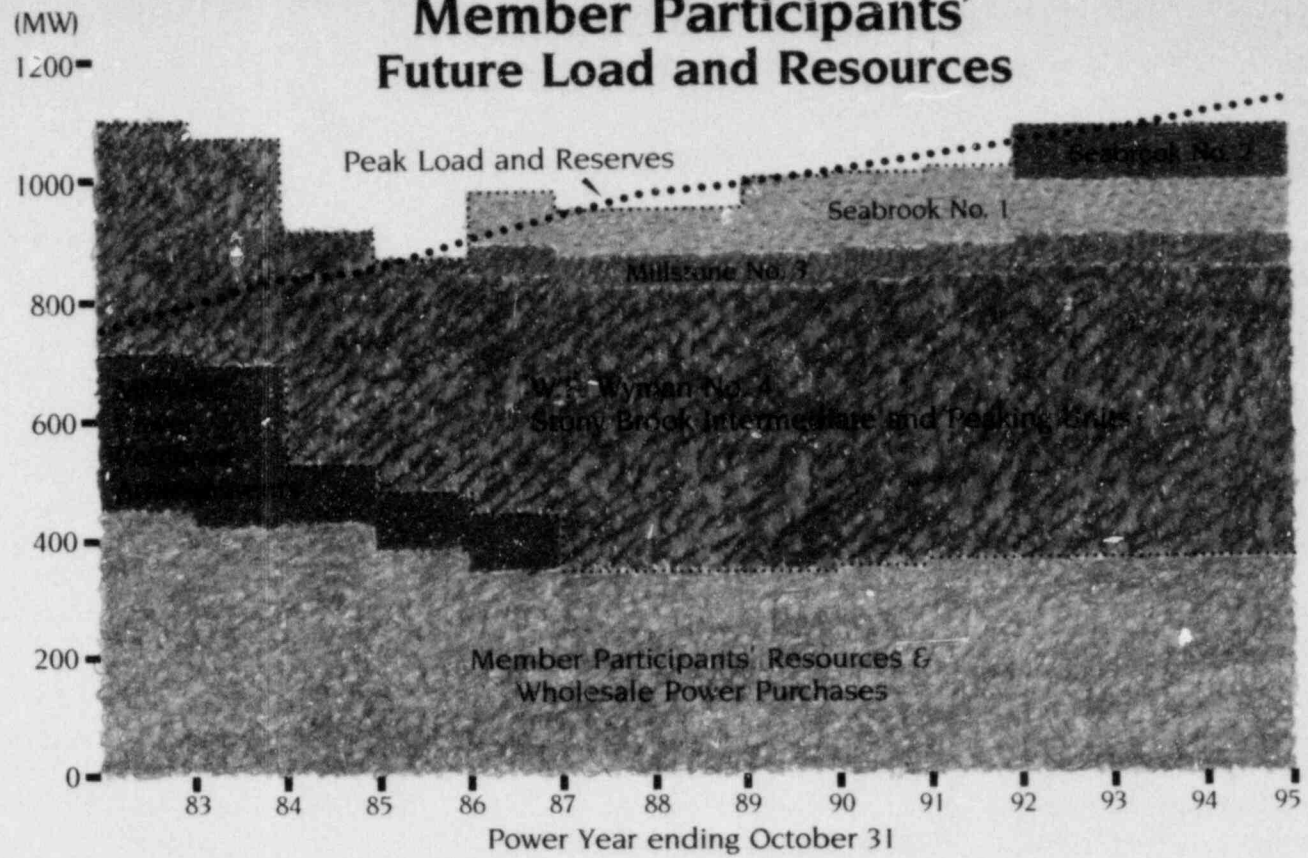
In meeting these challenges, MMWEC must keep in mind its two fundamental goals: minimizing power costs and maximizing reliability. These goals form the framework for MMWEC's long-term strategy.

Minimizing Power Costs

During the next 20 years MMWEC's power planning strategy will be guided by one major concept: optimization. Now that the foundation of the power supply program is in place, MMWEC's focus will shift away from major construction projects, at least for the next decade. This new emphasis will include making purchases and sales of energy and adding new generating capacity in small increments. This strategy will help balance supply and demand and lower power costs by displacing more expensive capacity.

The process of optimization begins with making the best use of the resources which are already available to MMWEC members. MMWEC's Stony Brook Fuel Optimization Program, for example, is designed to find the most efficient fuel for MMWEC's own power plants, which are now fired primarily with oil. The emphasis is on the increased use of natural gas, a fuel which has been used in two of Stony Brook's five combustion turbines since April 1982. Burning supplemental supplies of natural gas instead of oil resulted in savings for participants of about $5.7 million through May of 1983, the latest month for which such fuel savings have been calculated. It is estimated that an additional $3-4 million were saved during the remainder of 1983.

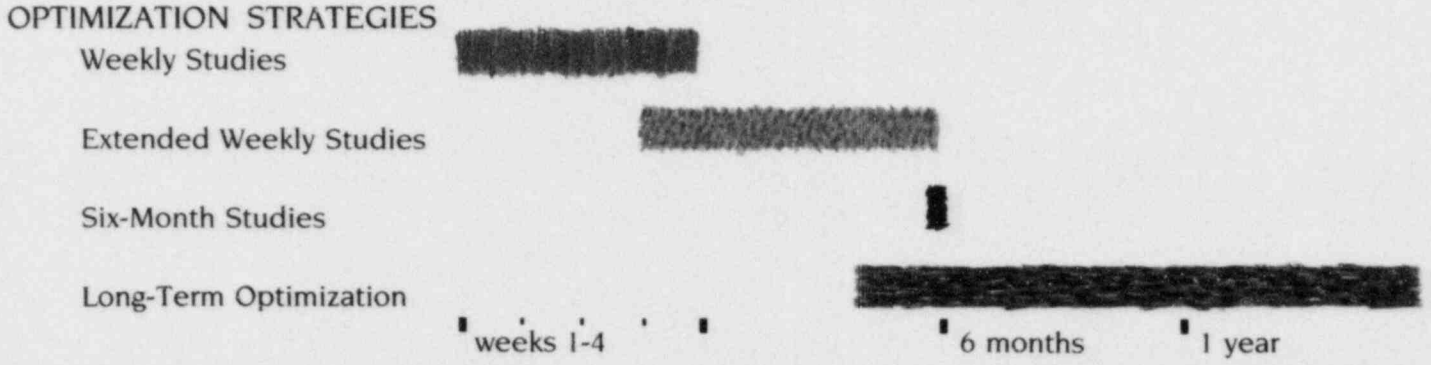
Member Participants' Future Load and Resources



Optimization is the theme of MMWEC's current power supply planning strategy. With its four optimization programs (below) MMWEC can arrange purchases and sales of energy and capacity which closely match each member's forecasted demand to the lowest cost resources available to meet that demand. With these programs, MMWEC has the flexibility to arrange sales and purchases with periods from one week up to many years.

The power supply program matches new sources of electricity to growing electric demand. Because of declining demand in the 1970s, some member participants experienced surplus capacity in recent years. However, demand and capacity will be more closely matched by 1986 when Seabrook 1 and Millstone Unit 3 go on-line. More capacity purchases will be needed later in the 1980s to avoid potential capacity shortfalls.

Time Frame of MMWEC Optimizations



MMWEC has several programs geared to optimizing individual member power supplies with sales of energy or capacity, among members or among members and other utilities. These contracts can be as short as a week or as long as several years. These contracting programs lower power costs by matching each member's projected load to the most economical resources available and by assuring that each member has the resources and reserves it needs. Contracts arranged through one program, the Weekly Studies Program, saved members about $2 million in only a year and a half.

If there is anything that is certain about the utility industry's future it is that it will be uncertain. Dealing with uncertainty requires the flexibility to tailor, on short notice, a power supply to changing requirements, to respond to delays or cancellations of power plants and to finance short-term power supply acquisitions in the most economical manner. Making each member system's power plan as flexible as possible will also help lower power costs.

MMWEC will also help individual members develop and expand energy management programs by offering members technical support and financial services. Such programs can make better use of resources by shifting peak loads to off-peak times, thereby reducing the need for new capacity and increasing sales and revenues by encouraging the use of electricity during less expensive, off-peak periods. With energy management and a small increment strategy (MMWEC intends to purchase small amounts of power from a variety of sources), MMWEC hopes to be able to closely balance supply and demand for each system.

Maximizing Reliability

Low-cost power is only half of the equation for a power supply system. The other half is reliability. MMWEC's planning will also focus, during the next few decades, on helping to assure that capacity deficiencies do not materialize.

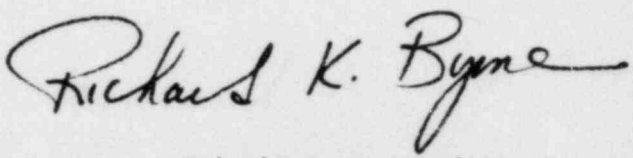
To meet the load of each member reliably, MMWEC must be able to accurately predict that load. Over the years MMWEC has continually improved its load and energy forecasting techniques. MMWEC will concentrate on further improvements in its forecasting methodology and also on keeping a close watch on changes in load by sharpening its short-term forecasts. These will greatly aid planners in their attempts to optimize member power supplies.

MMWEC will also continue its efforts to carefully evaluate all potential purchases of energy and capacity, purchases which should both lower member power costs and improve reliability. More power from Canada, such as that from a proposed expansion of the transmission line to the James Bay project in Quebec, a proposed second Pt. Lepreau unit in New Brunswick, capacity from the New York Power Authority's Niagara River and St. Lawrence projects and potential coal-fired units in New York State will receive particular consideration.

At the moment the major barrier to receiving low-cost power from distant sources like New York and Canada is region-wide transmission bottlenecks. MMWEC is currently negotiating with neighboring utilities to obtain wheeling arrangements which will guarantee sufficient transmission capability to get economical power to its members. In the future, MMWEC might seek to become a joint owner in new transmission lines.

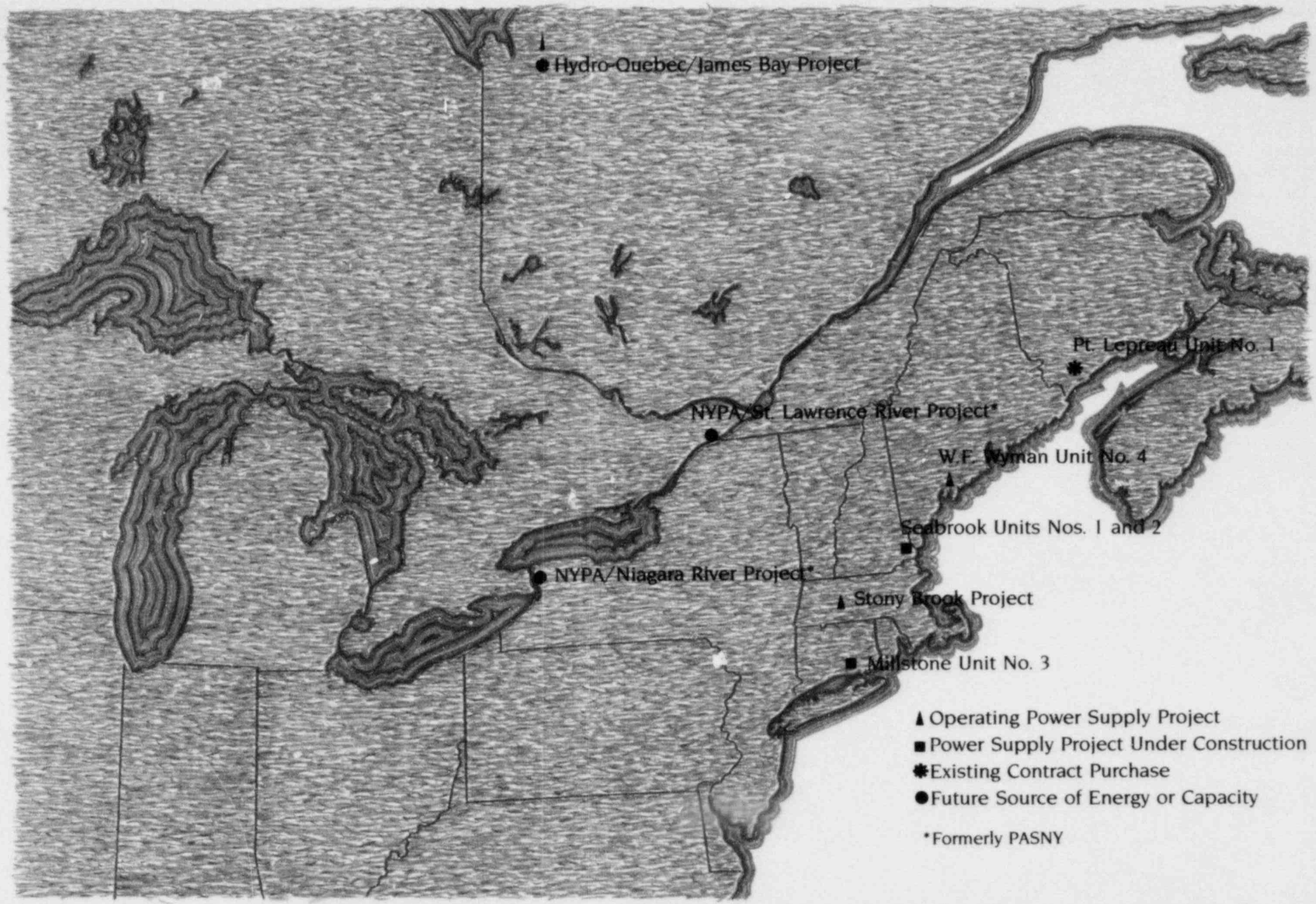
In the years ahead, MMWEC will monitor new technologies and carefully follow plans for new power plants with an eye to further diversifying the MMWEC power supply program. Greater diversity will offer new opportunities to optimize member power supply plans.

During the next 20 years, MMWEC will have to adjust to new challenges and continuing uncertainty. We will review our planning strategies, financing techniques and approaches to forecasting and contracting. We will change with the changing requirements of our times. But, though our challenges and present strategies may evolve, our basic commitment to our membership will remain firm. It was that commitment which sparked the impressive achievements of our first decade and which has shaped the actions of our members for nearly a century. It is a commitment to insuring that the consumers of municipal electric departments in Massachusetts have the most reliable power supply obtainable at the lowest cost possible.



Richard K. Byrne, *General Manager*

MMWEC's Sources of Capacity and Energy



Treasurer's Statement

MMWEC's financial operations continued to expand in 1983, reaching their highest levels to date. Power contracting revenues and the billings of operating expenses and debt service on three of MMWEC's projects (the Stony Brook Intermediate and Peaking Projects and the Wyman Project) were primarily responsible for the increased activity. MMWEC continued its $30 million revolving credit agreement with a group of banks to finance the acquisition of fuel inventory for the Stony Brook units. The revolving credit agreement used to provide temporary working capital to finance power purchases being resold to MMWEC members was reduced from $17 million to $14 million. The new revolving credit agreement level combined with the fuel financing line are adequate to satisfy the financing requirements for operations while maintaining related costs at a reasonable level.

There were no additions to long-term debt during the year and Special Funds were reduced due to construction and interest payments. This spending reduced the amounts available for investment. However, the rate of return on invested funds was maintained at a level approximating prior years even though interest rates decreased during the year.

MMWEC actively monitored the financial market during the year to determine the optimum time to finance. It was determined that market conditions were most favorable in early 1984 and MMWEC sold $95 million in bonds on January 11. The 1984 Series A Bonds, MMWEC's eleventh bond issue, were used to provide additional construction funds for Nuclear Projects Nos. 3, 4 and 5 and Project No. 6. Nuclear Projects Nos. 3, 4 and 5 and Project No. 6 constitute the remainder of MMWEC's construction program. With proceeds of the 1984 Series A Bonds these projects are now funded for construction cash flow requirements and interest at least through 1984 and later for some projects.

The company is conservative in its financial planning practices. MMWEC's policy is to fund estimated cash flow and interest requirements for a year or more ahead of schedule. This practice affords MMWEC the flexibility to schedule its financings to take advantage of favorable interest rates and related market conditions. This planning approach helped MMWEC to maintain a secure financial position during the unprecedented events that were experienced by the tax-exempt markets in 1983.

To be prepared for the future, MMWEC has filed with the Massachusetts Department of Public Utilities for authority to issue additional debt required to finance projects under construction. The request for additional financing for Nuclear Project No. 4 and Project No. 6 will provide funds necessary to complete Seabrook Unit No. 1 by the end of 1986 and maintain Unit No. 2 at a low level of construction. The approval for the additional financing is expected in mid-1984.

MMWEC estimates additional financing requirements of approximately $300 million (after the 1984A bonds) to complete the construction of Millstone Unit No. 3 and Seabrook Unit No. 1 by the end of 1986 and maintain Seabrook Unit No. 2 at a low level of construction through the same date. The maintenance of Seabrook Unit No. 2 at a low level of construction allows all operating and financial efforts to be directed toward Unit No. 1.

The Board of Directors continued the appointment of Arthur Andersen & Co. as independent certified public accountants for the Company. The auditors' opinion and MMWEC's financial statements for the years ended December 31, 1983 and 1982 are included as a separate section of this Annual Report.

George E. Leary

George E. Leary, *Treasurer*

Bonds Issued

Issue	Principal Amount (000)	Sale Date	Net Interest Cost %
1976 Series A	$ 75,000	8/26/76	7.2
1977 Series A	177,370	7/27/77	6.4
1977 Series B	83,500	12/ 7/77	6.1
1978 Series A	75,000	9/13/78	6.8
1979 Series A	150,000	8/16/79	7.0
1980 Series A	112,000	8/ 6/80	10.2
1981 Series A	100,000	5/28/81	12.3
1981 Series B	100,000	8/ 6/81	13.4
1982 Series A	115,000	4/16/82	13.4
1982 Series B	130,000	10/15/82	10.2
1984 Series A	95,000	1/11/84	11.0
	$1,212,870		

Projects Funded to Completion

	Bonds Outstanding (Including 1984 A Bonds) (000)*	Funded Interest Requirements Outstanding Bonds
Nuclear Mix 1	$180,200	1/1/85
Stony Brook Intermediate Project	176,980	—
Stony Brook Peaking Project	84,680	—
Wyman Project	9,015	—

Projects Requiring Additional Funding

	Bonds Outstanding (Including 1984 A Bonds) (000)	Funded Total Cash Flow Requirements**
Nuclear Project No. 3	121,590	8/1/85
Nuclear Project No. 4	220,100	1/1/86
Nuclear Project No. 5	75,000	1/1/87
Project No. 6	325,000	2/1/85
Sears Island Project	9,500	—

*The cancellation of Pilgrim Unit No. 2, included in Nuclear Mix No. 1, has substantially reduced the financing requirements for Nuclear Mix No. 1 to an amount less than the amount previously issued. Proceeds remaining after completion of the project will be used to retire bonds issued for the project. Surplus funds preliminarily estimated at $11 million in the Stony Brook Peaking Project account will be used to retire bonds for that project.

**The funded total cash flow requirements column represents the dates to which bond proceeds and estimated investment earnings will be sufficient to meet both estimated construction cash flow requirements and interest requirements on the outstanding bonds issued for each project. The Sears Island Project is inactive and $8.5 million of unexpended bond proceeds and earnings are available to meet cash flow requirements. If the Project is terminated, these proceeds will be used to retire bonds issued for the project. The data includes the 1984 Series A bond proceeds.

MMWEC 1983 *Financial Statements*

Auditors' Report

To the Board of Directors of

MASSACHUSETTS MUNICIPAL WHOLESALE ELECTRIC COMPANY:

We have examined the balance sheet of MASSACHUSETTS MUNICIPAL WHOLESALE ELECTRIC COMPANY (a Massachusetts public corporation) as of December 31, 1983 and 1982 and the related statements of operations and changes in financial position for the years then ended. Our examinations were made in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the financial statements referred to above present fairly the financial position of Massachusetts Municipal Wholesale Electric Company as of December 31, 1983 and 1982, and the results of its operations and the changes in its financial position for the years then ended, in conformity with generally accepted accounting principles applied on a consistent basis.

Arthur Andersen & Co.

March 2, 1984.
Boston, Massachusetts

Massachusetts Municipal Wholesale Electric Company

Balance Sheet

December 31, 1983 and 1982

ASSETS	(Dollars in Thousands) 1983	1982
Electric Plant		
In Service	$ 201,375	$ 195,449
Accumulated Depreciation (Note 3)	(15,051)	(6,973)
	186,324	188,476
Under Construction (Notes 2 and 6)	453,888	323,504
Total Electric Plant	640,212	511,980
Other Property and Equipment	4,735	4,463
Accumulated Depreciation (Note 3)	(925)	(580)
	3,810	3,883
Total Property, Plant and Equipment	644,022	515,863
Special Funds (Notes 2 and 4)	363,617	500,084
Current Assets		
Cash and Temporary Investments	6,040	4,582
Accounts Receivable	6,072	2,893
Unbilled Revenues (Note 2)	8,384	7,031
Inventories—principally fuel oil on a last-in, first-out basis	6,380	8,954
Prepaid Expenses	509	235
	27,385	23,695
Deferred Charges		
Costs Recoverable in the Future Under Terms of the Power Sales Agreements (Notes 2 and 5)	70,052	67,942
Unamortized Debt Discount and Expenses	32,546	33,654
Other	1,458	323
	104,056	101,919
	$1,139,080	$1,141,561

LIABILITIES	(Dollars in Thousands) 1983	1982
Long-Term Debt (Note 4)		
Bonds	$1,102,980	$1,108,920
Notes	3,865	7,265
	1,106,845	1,116,185
Current Liabilities		
Current Portion of Long-Term Debt	4,085	140
Notes Payable (Note 4)	3,674	3,912
Accounts Payable	13,205	9,538
Accrued Expenses	11,066	11,197
Contractors' Retention	77	461
	32,107	25,248
Commitments and Contingencies (Notes 6 and 8)		
Advances from Members (Note 1)	128	128
	$1,139,080	$1,141,561

The accompanying notes are an integral part of these financial statements.

Massachusetts Municipal Wholesale Electric Company

Statement of Operations

For the years ended December 31, 1983 and 1982

	(Dollars in Thousands) 1983	1982
Revenues:		
Electric Sales For Resale	$135,997	$100,446
Service Revenues	2,196	2,864
Interest Income	50,158	60,526
Total Revenues and Interest Income	$188,351	$163,836
Operating and Service Expenses:		
Fuel Used in Electric Generation	$ 25,307	$ 23,021
Purchased Power	82,964	67,213
Other Operating	7,044	7,196
Maintenance	1,723	1,494
Depreciation (Note 3)	8,302	6,085
Taxes Other Than Income	1,294	775
	126,634	105,784
Interest Expense:		
Interest Charges	101,584	88,265
Interest Charged to Projects During Construction (Note 2)	(37,362)	(18,313)
	64,222	69,952
(Gain) Loss on Cancelled Units (Note 5)	(277)	1,679
(Gain) on Retirement of Debt (Notes 4 and 5)	(118)	(1,304)
	(395)	375
Costs Recoverable in the Future Under Terms of the Power Sales Agreements (Notes 2 and 5)	(2,110)	(12,275)
	$188,351	$163,836

The accompanying notes are an integral part of these financial statements.

Massachusetts Municipal Wholesale Electric Company

Statement of Changes in Financial Position

For the years ended December 31, 1983 and 1982

	(Dollars in Thousands) 1983	1982
Sources of Funds:		
Internal Sources:		
Revenues and Income	$ 188,351	$ 163,836
Expenses	(188,351)	(163,836)
Charges Not Involving Funds:		
Depreciation (Note 3)	8,302	6,085
Amortization (Note 2)	1,104	1,121
	9,406	7,206
External Sources:		
Bond Proceeds	—	245,000
Total Sources of Funds	9,406	252,206
Uses of Funds:		
Additions to Plant and Construction Work in Progress	136,582	122,082
Increase in Costs Recoverable in the Future Under Terms of the Power Sales Agreements (Notes 2 and 5)	2,110	12,275
Note Repayments	3,400	9,635
Bond Redemptions	5,940	2,985
Increase (Decrease) in Debt Discount	(4)	7,447
Increase (Decrease) in Other Deferred Charges	1,135	(709)
Other	(121)	95
	149,042	153,810
Changes in Working Capital, Including Notes Payable and Special Funds	$(139,636)	$ 98,396
Change in Working Capital Consists of:		
Increase (Decrease) in Special Funds	$(136,467)	$ 108,516
Increase (Decrease) in Current Assets —		
Cash and Temporary Investments	1,458	18
Accounts Receivable	3,179	(1,497)
Unbilled Revenues	1,353	(610)
Inventories	(2,574)	(6,457)
Prepaid Expenses	274	(169)
	(132,777)	99,801
(Increase) Decrease in Notes Payable	238	(244)
(Increase) Decrease in Current Liabilities —		
Current Maturities of Long-Term Debt	(3,945)	(5)
Accounts Payable	(3,667)	(379)
Accrued Expenses	131	(3,065)
Contractors' Retention	384	2,288
	(6,859)	(1,405)
	$(139,636)	$ 98,396

The accompanying notes are an integral part of these financial statements.

Massachusetts Municipal Wholesale Electric Company

Notes to Financial Statements

December 31, 1983 and 1982

(1) Massachusetts Municipal Wholesale Electric Company (MMWEC)

MMWEC is a political subdivision of the Commonwealth of Massachusetts, authorized to issue revenue bonds secured by power sales agreements with its members and other electric systems to finance the construction and ownership of electric power facilities.

A Massachusetts municipal electric department authorized by majority vote of the city's or town's governing body may become a member by applying for admission to MMWEC and agreeing to comply with the terms and conditions of membership as outlined within the MMWEC By-Laws. As of December 31, 1983, thirty-four Massachusetts municipalities had received votes of their respective city councils or town meetings authorizing membership by their respective municipal electric systems.

Power Supply System

MMWEC is obtaining power supply capacity by acquiring interests in various generating units from investor-owned utilities and the operation of its own electric generating facilities. See Note 6 for a discussion of MMWEC's construction program and commitments related to these facilities. In addition, MMWEC contracts for power for resale to its members.

Advances

MMWEC is authorized to assess each member to provide working capital. Advances may be returned to the members upon approval by MMWEC's Board of Directors or the dissolution of MMWEC. The Board of Directors has authorized working capital advances of up to $2,000,000 from Project Construction Funds in addition to amounts assessed members. At December 31, 1983 and 1982, advances from Project Construction Funds amounted to $1,500,000 and $2,000,000, respectively. These inter-fund advances have been eliminated for primary financial statement reporting purposes.

(2) Significant Accounting Policies

Interest Charged to Projects During Construction

MMWEC capitalizes interest as an element of the cost of electric plant and other property during the period it is under construction. A corresponding amount is reflected as a reduction of interest expense. The amount of interest capitalized is based on the cost of debt, including amortization of debt discount and expenses, related to each project, net of investment income derived from unexpended project funds.

Special Funds

Proceeds from the sales of Revenue Bonds are deposited with Trustees to be invested until they are required for construction or debt service payments. Note proceeds are placed with depositories and are invested by MMWEC. The investments are carried at cost, adjusted for amortization of premium or discount.

Costs Recoverable in the Future Under Terms of the Power Sales Agreements

Under the terms of the Power Sales Agreements with project participants, revenues include billings to participants for debt principal and interest payments in the period in which they are due. For financial reporting purposes, MMWEC recognizes currently the depreciation and amortization expense of assets financed by bond principal. The differences between current expenses and amounts billed currently under terms of the Power Sales Agreements are deferred to the future periods in which these amounts will be recovered through revenues.

Unbilled Revenues

MMWEC bills its members for costs incurred in providing services and purchased power obtained on their behalf under terms of the Service Agreement and the Power Sales Agreements. Revenues are recorded in the accounts as the expenses are incurred. Amounts which are not yet billed are included in Unbilled Revenues in the accompanying balance sheets.

Notes to Financial Statements

December 31, 1983 and 1982

(3) Depreciation

Property, plant and equipment in service is depreciated using the straight-line method. Depreciation of electric plant in service using an average rate of 4% for 1983 and 1982 amounted to $8,078,000 and $5,870,000, respectively. Depreciation of other property and equipment for 1983 aggregated $357,000, of which $133,000 was allocated to projects under construction and in operation representing an average rate of 8%. The 1982 depreciation of other property and equipment aggregated $396,000 of which $181,000 was allocated to projects under construction and in operation, and represents an average rate of 9%.

(4) Debt

Power Supply System Revenue Bonds

To finance construction or ownership interests in electric generating projects, MMWEC issues Power Supply System Revenue Bonds. The Bonds are secured by a pledge of the revenues derived by MMWEC, under terms of Power Sales Agreements, from the ownership and operation of its power supply system. Pursuant to the Power Sales Agreements with the participants, each participant is obligated to pay its share of the actual costs relating to the generating units planned or under construction. The participants' obligations are not contingent upon the completion or operational status of the units.

The Power Supply System Revenue Bonds consist of Serial and Term Bonds. The Bonds, which are comprised of the following issues, are subject to optional redemption approximately ten years after the issue date, at 103% of the principal amount, descending periodically thereafter to 100%.

Issue	Net Interest Cost	December 31, 1983	December 31, 1982
		(Dollars in Thousands)	
1976 Series A	7.2%	**$ 67,500**	$ 68,775
1977 Series A	6.4%	**174,405**	174,785
1977 Series B	6.1%	**83,500**	83,500
1978 Series A	6.8%	**75,000**	75,000
1979 Series A	7.0%	**150,000**	150,000
1980 Series A	10.2%	**111,660**	112,000
1981 Series A	12.3%	**100,000**	100,000
1981 Series B	13.4%	**100,000**	100,000
1982 Series A	13.4%	**115,000**	115,000
1982 Series B	10.2%	**130,000**	130,000
		1,107,065	1,109,060
Less: Current Portion		**4,085**	140
Total Power Supply System Revenue Bonds		**$1,102,980**	$1,108,920

On January 11, 1984, MMWEC sold an additional $95 million in 1984 Series A Revenue Bonds at a net interest cost of 11.0%. Annual principal payments for this issue are scheduled to begin in 1989.

The aggregate annual principal payments due in the next five years are as follows: 1984 – $4,085,000; 1985 – $5,736,000; 1986 – $6,096,000; 1987 – $8,011,000 and 1988 – $11,190,500.

MMWEC financings other than obligations maturing within one year require Massachusetts Department of Public Utilities (DPU) approval. The estimated financings required for MMWEC's Nuclear Projects Nos. 3, 4 and 5 and Project No. 6 exceed the DPU financing approvals to date and further DPU approval will be required. At December 31, 1983, approximately $234 million of amounts included in Special Funds on the balance sheet were available to fund construction costs. Present cash flow projections indicate that funds are required to satisfy interest and construction expenditures in accordance with its joint ownership agreements and Bond Resolution by mid-1985 for Nuclear Project No. 4 and late 1984 for Project No. 6. MMWEC is currently engaged in a proceeding before the DPU seeking approval for an additional $232 million of financing authority for Nuclear Project No. 4 and Project No. 6. This request for additional financing authority, as has been the case in several prior proceedings, is being contested by several intervenors, including the Attorney General. MMWEC believes that the additional financing authority will be granted. The

Notes to Financial Statements

December 31, 1983 and 1982

(4) Debt *(continued)*

issuance of additional debt, its timing and size, is dependent upon construction cash flow requirements and financial market conditions prevailing at the time.

MMWEC has determined that $11,000,000 of the 1980 Series A bond proceeds allocated for the construction of the Stony Brook Peaking Unit, which is in operation, can be utilized to retire bonds outstanding. The timing of such retirements cannot be determined at this time. During 1983, $340,000 of Peaking Unit bonds were retired at gains amounting to $41,100.

Net Revenue Available For Debt Service

In accordance with the provisions of the MMWEC Bond Resolution, MMWEC covenants to the bondholders that it shall fix, revise and collect rates, tolls, rents and other fees and charges sufficient to produce revenues to pay all operating and maintenance expenses and principal of, premium, if any, and the interest on the Bonds and to pay all other obligations against its revenue. Revenues, which include applicable interest earnings from investments, are required to equal 1.10 times the annual debt service, for each contract year ending June 30, after deduction of operating and maintenance expenses and exclusive of depreciation.

For the contract year ended June 30, 1983, MMWEC met the Bond Resolution debt service coverage requirements for the Wyman and Stony Brook Intermediate and Peaking Projects and, for the contract year ended June 30, 1982, for the Wyman Project. Debt service for the Stony Brook Intermediate and Peaking Projects was funded to July 1, 1982 and January 1, 1983, respectively.

	Contract Year Ended June 30,	
	1983	1982
Debt Service Coverage:		
Revenues	**$37,485,000**	$3,004,000
Other Billings	**556,000**	—
Reserve and Contingency Fund Billings	**1,755,000**	70,000
Total	**39,796,000**	3,074,000
Deduct—Operation and Maintenance Expenses	**20,494,000**	2,304,000
Available Revenues Net of Expenses	**$19,302,000**	$ 770,000
Debt Service Requirement	**$17,547,000**	$ 699,000
Coverage (110% Required)	**110%**	110%

Notes Payable

MMWEC maintained with a group of banks a $30,000,000 revolving line of credit to be used to finance fuel oil for the Stony Brook projects. The borrowings under this line of credit are at a floating interest rate of 70% of the lead bank's prime rate plus a commitment fee of ½ of 1% per annum on the unused portion of the line. The current agreement is scheduled to terminate on July 1, 1984, at which time it may be extended, converted to a term loan, or be refinanced. Borrowings under the line are secured by fuel oil inventory and are payable from revenues derived by MMWEC from fuel charges under the Power Sales Agreements for the Stony Brook projects. Under this line of credit, MMWEC had outstanding balances of $3,865,000 and $7,265,000 as of December 31, 1983 and 1982, respectively.

MMWEC decreased its $17,000,000 revolving line of credit to $14,000,000 in November 1983. This line of credit is used to temporarily finance certain power purchases made by MMWEC for resale to the power purchase contract participants. Borrowings are secured by the corresponding receivables from these participants. The current agreement is scheduled to terminate on November 20, 1984. MMWEC may request that the banks involved renew the credit agreement for an additional period of one year by placing a request for such extension with the lead bank at least 90 days prior to the end of the revolving credit period. The balances outstanding on December 31, 1983 and 1982 were $3,674,000 and $3,912,000, respectively. Borrowings under this line are at a rate of 70% of the bank's prime rate plus a commitment fee. The commitment fee is equal to ½ of 1% per annum on the unused portion of the line based upon the average daily principal amount of the loan outstanding when it does not at least equal 20% of the loan commitment.

(5) Unit Cancellations

MMWEC's Nuclear Mix No. 1 project is comprised of ownership interests in the Millstone No. 3, Seabrook Nos. 1 and 2 and Pilgrim No. 2 units. On October 22, 1981, the Boston Edison Company cancelled the Pilgrim No. 2 Unit. MMWEC's costs associated with the unit, which aggregated $53,274,000 and $53,155,000 as of December 31, 1983 and 1982, respectively, were deferred and will be recovered under the terms of the Power Sales Agreements. Future expenditures for contract settlements, which are projected to be offset by credits, will be recorded by MMWEC as they are incurred.

MMWEC's Nuclear Mix No. 2 project units (comprised of NEP Nos. 1 and 2 and Montague Nos. 1 and 2 sponsored by New England Power Company and Northeast Utilities, respectively) were cancelled prior to 1981. With a portion of the remaining construction funds, MMWEC retired $1,515,000 of Nuclear Mix No. 2 bonds in 1983 and $2,845,000 in 1982 at gains of $77,000 and $1,304,000, respectively. Retirement of

Notes to Financial Statements

December 31, 1983 and 1982

(5) Unit Cancellations *(continued)*

Nuclear Mix No. 2 bonds during 1983 comprised the remaining balance of bonds payable on that power mix. The gain on the retirement of these bonds eliminated the amounts deferred as Costs Recoverable in the Future Under Terms of the Power Sales Agreements for Nuclear Mix No. 2.

(6) Construction and Financing

MMWEC's current construction and financing efforts are concentrated on joint ownership interests in various nuclear power units. A substantial portion of MMWEC's construction and financing program is attributable to its ownership interest in Seabrook Units 1 and 2, which are currently being constructed by Public Service Company of New Hampshire (PSNH). This project has experienced numerous delays due to regulatory, legal and other problems resulting in significant increases in cost estimates.

Late in 1982, PSNH announced a 43% increase from its 1981 estimate of the total cost of the Seabrook project and delayed the operation dates of the units to December 1984 and July 1987. At a March 1, 1984 meeting of the Seabrook Joint Owners, PSNH presented updated cost estimates and completion schedules. These schedules projected in-service dates of July 1986 for Unit 1 and December 1990 for Unit 2, and a total project cost of $9 billion or a 72% increase from its November 1982 estimate. Approximately one-half of the $9 billion estimate is related to each unit and is based on a continuation of reduced construction activity on Unit 2 until fuel is loaded in Unit 1. Different costs have been estimated by the project engineer and others, including independent consultants engaged by the Joint Owners to review and evaluate PSNH's estimated cost and completion dates. No new estimates were accepted by the Joint Owners pending further analysis by the management of PSNH intended to shorten the time schedule and to reduce the related costs. This analysis is expected to be completed within 90 days of the meeting. Each of the Seabrook Joint Owners and regulatory bodies which have considered the matter to date favor prompt completion of Unit 1. However, certain Joint Owners either of their own volition or in response to suggestions or orders from their regulators have been attempting unsuccessfully to sell some or all of their interest in the Seabrook Project or have been seeking cancellation of Unit 2 because of concern by the Joint Owners or their regulators as to increases in its projected costs, delays in scheduled completion and their need for its power.

In September, 1983, the Seabrook Joint Owners voted that "expenditures for Unit 2 shall be reduced to the lowest feasible level while participants evaluate their power supply options with respect to that Unit...the reduced expenditures level will be continued until fuel loading for Unit 1." PSNH has indicated that "without administrative, judicial or legislative relief, cancellation of Unit 2 would have serious consequences for the continuation of the Company's construction program and business operations." PSNH has also indicated that adequate and timely rate increases and external financing are both essential to enable PSNH to continue its construction program and business operations. At the March 1, 1984 meeting the Joint Owners voted down a proposed resolution to cancel Unit 2. Participants holding 41.8% of the project (including PSNH's 36.6%) voted against cancellation, 39.9% voted for cancellation and holders of 18.3% of the project (including MMWEC's 11.6%) abstained. An affirmative vote of 80% of the ownership interest is required to cancel the unit.

As of December 31, 1983, MMWEC's investment in Unit 2, excluding fuel and interest during construction amounted to approximately $65 million. Completion of the Seabrook units will, in any event, be dependent upon a number of factors, including projected load growth in the region, the cost and availability of alternative sources of power, financial, regulatory, environmental and safety considerations and public attitudes toward nuclear power. Accordingly, it is not possible to predict now whether Unit 2 will be completed or cancelled.

Under provisions of MMWEC's Power Sales Agreements, all costs associated with a project are obligations of project participants whether or not the unit or units comprising the project become operational.

The cost estimates and completion dates for the Seabrook units and other units listed on the following table are based on the latest information available from the lead participant, adjusted by MMWEC and its Consulting Engineer to reflect later completion dates and other considerations for power supply and financial planning purposes. The Seabrook project cost estimates and completion dates are based on the assumption that a decision is made to resume construction activity on Seabrook Unit 2 in 1986 to enable its completion by 1992.

Notes to Financial Statements

December 31, 1983 and 1982

(6) Construction and Financing *(continued)*

Unit (Lead Participant)— Estimated Completion Date	Proposed MMWEC Capability (MW)	(Dollars in Thousands) Costs to December 31, 1983	1982	Total Estimated MMWEC Cost
Nuclear Mix No. 1 (See Note 5)				
Millstone Unit No. 3 (Northeast Utilities) — 1986	18.4	**$ 27,345**	$ 20,334	$ 73,959
Seabrook Units Nos. 1 and 2 (Public Service Co. of N.H.) — 1986 and 1992	3.7	**5,498**	3,334	14,827
	22.1	**$ 32,843**	$ 23,668	$ 88,786
Nuclear Project No. 3				
Millstone Unit No. 3 (Northeast Utilities) — 1986	36.8	**$ 62,928**	$ 50,285	$ 127,768
Nuclear Project No. 4				
Seabrook Units Nos. 1 and 2 (Public Service Co. of N.H.) — 1986 and 1992	99.7	**$125,387**	$ 90,703	$ 417,255
Nuclear Project No. 5				
Seabrook Units Nos. 1 and 2 (Public Service Co. of N.H.) — 1986 and 1992	25.2	**$ 32,940**	$ 24,000	$ 108,405
Project No. 6				
Seabrook Units Nos. 1 and 2 (Public Service Co. of N.H.) — 1986 and 1992	138.0	**$192,076**	$134,017	$ 571,561
Sears Island Project				
Sears Island Coal Unit No. 1 (Central Maine Power) — 1995	78.9	**$ 714**	$ 831	(1)
Total	400.7	**$453,888**	$323,504	$1,313,775

(1) Due to uncertainties associated with the Sears Island Project, the Total Estimated MMWEC Cost cannot be determined.

(7) Retirement Plan

Retirement benefits are provided to MMWEC's eligible employees through its participation in the Retirement and Security Program sponsored by the National Rural Electric Cooperative Association. It is MMWEC's policy to fund all accrued benefits. Pension costs were $368,800 for 1983 and $300,000 for 1982. Information from the Plan Administrator is not available to permit MMWEC to determine its share of accumulated benefits nor assets available for plan benefits. There are no unfunded vested benefits associated with this Plan.

(8) Commitments and Contingencies

Power Purchases

MMWEC has entered into a contract with the New Brunswick Electric Power Commission (NBEPC) for the purchase of 100 MW of capacity from the Point Lepreau nuclear unit. The contract became effective in February, 1983, the unit's in-service date, and is effective through October 1987, with options for extensions.

MMWEC has also contracted with New England Power Company for 150 MW of capacity, of which 75 MW is oil-fired and the other 75 MW coal-fired. This contract period is from November 1981 through October 1984.

The contract payment provisions require MMWEC to pay in all events certain fixed, operation, maintenance and other charges relating to the units. The fixed minimum payments for the next five years as estimated by MMWEC for its planning purposes are as follows: 1984 — $46,917,000; 1985 — $36,000,000; 1986 — $36,000,000; 1987 — $30,000,000 and 1988 is none at this time.

MMWEC has entered into corresponding agreements, with its members and one other utility, to resell the power.

Litigation

As a consequence of an accident on the Stony Brook construction site, suits for damages have been initiated by employees of one of the contractors and members of the employees' families naming the contractor, the construction management firm, MMWEC and others as defendants. The amount of damages claimed aggregate $54 million. MMWEC has denied any liability and, in the opinion of MMWEC's counsel, the likelihood of any such suits being successful against MMWEC is remote.

Notes to Financial Statements

December 31, 1983 and 1982

(9) Supplementary Information to Disclose the Effects of Changing Prices (Unaudited)

The following supplementary information has been prepared in accordance with the Statement of Financial Accounting Standards No. 33 for the purpose of providing certain information about the effect of changing prices. It should be viewed as an estimate of the approximate effect of inflation, rather than as a precise measure.

Constant dollar amounts represent historical costs stated in terms of dollars of equal purchasing power, as measured by the Consumer Price Index for All Urban Consumers (CPI-U). Current cost amounts reflect the changes in specific prices of plant from the date the plant was acquired to the present, and differ from constant dollar amounts to the extent that specific prices have increased more or less rapidly than the general rate of inflation. The current cost of electric generating and transmission plant and construction work in progress is determined primarily by indexing plant by the Handy-Whitman Index of Public Utility Construction Costs. Since the utility plant is not expected to be replaced precisely in kind, current cost does not represent the replacement cost of MMWEC's productive capacity.

Fuel inventories and the cost of fossil fuel used in generation have not been restated from their historical cost in nominal dollars. Under provisions of the power sales agreements, revenues are limited to the recovery of fuel at actual cost. For this reason fuel inventories are effectively monetary assets.

Depreciation is determined by multiplying MMWEC's historical cost depreciation by the appropriate index conversion factors.

Under the MMWEC power sales agreements which govern its billing procedures, only the principal maturities of debt relating to the historical cost of the utility property are recoverable. Therefore, the amount of plant stated in terms of constant dollars or current cost that exceeds the historical cost of plant has been adjusted down to its net recoverable costs.

During a period of inflation, holders of monetary assets suffer a loss of general purchasing power while holders of monetary liabilities, such as MMWEC, experience a gain. The gain from the decline in purchasing power of net amounts owed is primarily attributable to the substantial amount of debt which has been used to finance property, plant, and equipment. Since the recovery of utility plant is limited to amounts based on historical costs, the holding gains on debt are in effect realized by MMWEC's members.

Statement of Operations Adjusted for Changing Prices
For the Year Ended December 31, 1983
(Dollars in Thousands)

	Conventional Historical Cost	Constant Dollar Average 1983 Dollars	Current Cost Average 1983 Dollars
Revenues and Interest Income	$188,351	$188,351	$188,351
Fuel Used in Electric Generation	$ 25,307	$ 25,307	$ 25,307
Purchased Power	82,964	82,964	82,964
Other Operations and Maintenance	8,767	8,767	8,767
Depreciation	8,302	10,337	9,511
Taxes Other Than Income	1,294	1,294	1,294
Interest Expense	64,222	64,222	64,222
Gain on Cancelled Units	(277)	(277)	(277)
Gain on Extinguishment of Debt	(118)	(118)	(118)
Less–Costs Recoverable in Future	(2,110)	(4,145)	(3,319)
	$188,351	$188,351	$188,351
Gain from Decline in Purchasing Power of Net Amounts Owed		$ 21,384	$ 21,384
Reduction to Net Recoverable Amount		$ 19,329	$ 18,816
Specific Prices of Property Plant and Construction Work in Progress Held During the Year Increased by $23,381 which was Less than the Increase Caused by Inflation by			$ 1,351

Notes to Financial Statements

December 31, 1983 and 1982

(9) Supplementary Information to Disclose the Effects of Changing Prices (Unaudited) *(continued)*

Five Year Comparison of Selected Supplementary Financial Data Adjusted to Average 1983 Dollars (Except Historical Amounts) for the Effects of Changing Prices

(Dollars in Thousands)

	Year Ended December 31,				
	1983	**1982**	**1981**	**1980**	**1979**
Revenues and Interest Income					
Historical	**$188,351**	$163,836	$ 82,083	$47,156	$29,571
Adjusted for Inflation	**$188,351**	$169,112	$ 89,920	$57,016	$40,589
Net Property, Plant and Equipment, Including Construction Work in Progress Before Write-down to Net Recoverable Amount:					
Historical	**$644,022**	$515,863	$399,766		
Adjusted for Inflation	**$746,738**	$622,017	$502,862		
Adjusted for Specific Price Changes	**$732,001**	$608,417	$493,695		
General Information					
Gain from Decline in Purchasing Power of Net Amounts Owed	**$ 21,384**	$ 17,150	$ 33,152		
Average Rate of Inflation (based on CPI-U)	**3.2%**	6.1%	10.4%	13.5%	11.2%

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PRESIDENT

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TREASURER

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DEPUTY GENERAL MANAGER AND ASSISTANT SECRETARY

Walter Gaebler II
ASSISTANT TREASURER

Maurice J. Ferriter
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Richard L. Bailey
MANAGER, MARBLEHEAD

Francis H. King
HOLYOKE—GUBERNATORIAL APPOINTEE

Curtis Lanciani
MANAGER, LITTLETON

Neil Murray
MANAGER, HOLDEN

Bruce Patten
MANAGER, PEABODY

Nathan S. Paven
ATTORNEY, BOSTON—GUBERNATORIAL APPOINTEE

Norbert Rhinerson
MANAGER, READING

William Wallace
MANAGER, WAKEFIELD

Trustee and Paying Agents

Bond Fund Trustee
Continental Illinois Bank and Trust Company of Chicago, Illinois

Paying Agents
Continental Illinois Bank and Trust Company of Chicago, Illinois
1976 Series A Bonds
1977 Series A Bonds
1977 Series B Bonds
1978 Series A Bonds
1979 Series A Bonds
1980 Series A Bonds
1981 Series A Bonds
1981 Series B Bonds
1982 Series A Bonds
1982 Series B Bonds

Citibank*, N.A., *New York*, *New York
1976 Series A Bonds
1977 Series A Bonds
1977 Series B Bonds
1978 Series A Bonds
1979 Series A Bonds
1980 Series A Bonds
1981 Series A Bonds
1981 Series B Bonds
1982 Series A Bonds
1982 Series B Bonds

Bank of New England*, N.A., *Boston*, *Massachusetts
1976 Series A Bonds
1977 Series A Bonds
1977 Series B Bonds

Shawmut Bank of Boston*, N.A., *Boston*, *Massachusetts
1978 Series A Bonds
1979 Series A Bonds
1980 Series A Bonds
1981 Series A Bonds
1981 Series B Bonds
1982 Series A Bonds
1982 Series B Bonds

The 1983 MMWEC Annual Report was produced by the Public Affairs Office of the Massachusetts Municipal Wholesale Electric Company.

Copies of this report and supplemental financial information can be obtained, free of charge, by writing to the Public Affairs Office, Massachusetts Municipal Wholesale Electric Company, P.O. Box 426, Ludlow, MA 01056. All requests for information about MMWEC should be directed to this office.

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