RATE AND ECONOMIC IMPACTS
OF CLOSING MAINE YANKEE
ON MAJOR MAINE INDUSTRIAL ELECTRIC CONSUMERS

A Study for

Industrial Energy Consumer Group

and the

Aroostook Industrial Coalition

WEIL, FIRTH & HOWE

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INTRODUCTION

This study was undertaken on behalf of the Industrial Energy Consumer Group (IECG) and the Aroostook Industrial Coalition (AIC), both of which are organizations of larger industrial customers of Maine electric utilities. It contains an analysis of the rate and economic impacts on the sectors which are represented by these groups that would result from the proposed closing of the Maine Yankee generating station in July 1988. These impacts are studied over a five year period.

In this study, we examine:

- the possible replacements for Maine Yankee capacity and energy;
- the implications for electric rates from the use of these replacements;
- the economic impact resulting from these higher rates; and
- the relationship between these impacts and other economic pressures on these Maine industries.

The study was prepared within certain limits and based on certain assumptions established by the study group. (See Appendix A).

This study was accomplished by a study team of seven persons. Weil, Firth & Howe of Augusta, Maine was the contractor for the two sponsoring organizations. It subcontracted with R.J. Rudden Associates, Inc. of Wellesley, Massachusetts and Henry Lee of Cambridge, Massachusetts.

The Project Director was Gordon L. Weil, President of Weil, Firth & Howe. He holds an A.B. from Bowdoin College and a Ph.D. from Columbia University. He was Director of the Maine Office of Energy Resources, Public Advocate and Commissioner of Business Regulation. He was Vice Chairman of the New England Power Planning Committee, Chairman of the New England Energy Directors, staff chairman of the National Governors' Association Subcommittee on Conservation, Renewable Resources and Power, Assessor for the U.S. Department of Energy and member of the Northeast International Committee on Energy. He is currently Maine representative on the Northeast Public Power Association Power Planning Committee and General Manager of the Dirigo Electric Cooperative.

Henry Lee received a B.A. and a M.P.A. from Harvard University. He is now Executive Director of the Energy and Environmental Policy Center at Harvard and Lecturer at the J.F. Kennedy School of Government there. He was previously Director of the Massachusetts Energy Office and Special Assistant to the Governor of Massachusetts. His other posts and present affiliations include serving as Senior Associate at the Brookings Institution, Research Fellow at the East-West Center, and member of several advisory committees to the National Petroleum Council and the Massachusetts Natural Gas Task Force.

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Wayne J. Oliver received his undergraduate degree from Assumption College and an M.A. from Northeastern University. He is a consultant with R.J. Rudden Associates, Inc. He was formerly on the staff of the Massachusetts Executive Office of Energy Resources, the Algonquin Gas Transmission Company and the New England Regional Commission. He was Chairman of the Massachusetts Natural Gas Task Force and Lecturer at Northeastern University.

Robert C. Yardley, Jr., received his undergraduate degree from Georgetown University and graduate degree from Boston College. He is a consultant with R.J. Rudden Associates, Inc., and was formerly on the staff of Stone & Webster Management Consultants, Inc.

John C. Dalton received an A.B. from Brown University and an M.B.A. from Boston University. He is a consultant with R.J. Rudden Associates, Inc. He was formerly on the staffs of the Massachusetts Energy Facilities Siting Council and the Massachusetts Department of Environmental Quality Engineering.

Robert S. Howe, Vice President of Weil, Firth & Howe, received an M.P.A. from the Kennedy School of Government at Harvard, and served as Project Coordinator.

The members of the study team are grateful to the staffs of Weil, Firth & Howe and R.J. Rudden Associates, Inc., for their invaluable assistance. They also appreciate the assistance of members of the IECG and AIC in providing data through the efforts

of their counsel Anthony W. Buxton and thanks to the considerable efforts of Maureen Desjardin. The team also appreciates the cooperation of the three utilities in responding to data requests.

We stress that this is an independent study and does not necessarily represent the views of any persons other than the study team. Although some in the group have had particular responsibility for drafting parts of the study, we have all discussed and reviewed the entire study.

EXECUTIVE SUMMARY

The Industrial Energy Consumer Group and the Aroostook Industrial Coalition asked a study group to examine the rate and economic impacts on industrial customers in Maine that would result from a premature closing of Maine Yankee in 1988.

Gordon L. Weil of Weil, Firth & Howe of Augusta was the principal investigator. The group was also composed of Henry Lee, Executive Director of the Energy and Environmental Policy Center at Harvard University and R.J. Rudden Associates, Inc. of Wellesley, Massachusetts.

RATE INCREASES

Maine electric customers face large rate increases in the next five years, coming on top of sharply higher rates in this decade.

Closing Maine Yankee would add to these higher rates significantly. For all customers the additional increase will range from 13 per cent to 35 per cent over the 1988-1992 period, assuming that the generating plant is closed in July 1988. Most of those increases will come soon after a shutdown of the plant.

Rates increases for the industrial customers will be even higher than for all customers as a group. The increases caused by the closing of Maine Yankee would range from 18 per cent to 47 per cent. There would also be major increases for commercial customers.

Maine Yankee power would be replaced by a variety of sources:

Conservation

Small power production

Imports from Canada

Increased purchases from the New England Power Pool.

In the period immediately after closing Maine Yankee, these would be the most economical sources of energy supply. None of them would be "cheap".

Inevitably, Maine would become more dependent on oil for generating electricity, just at at time when there is high risk of sudden and sharp oil price increases.

BORROWING FROM THE FUTURE

In the immediate period following the closing of Maine Yankee, the energy resources to be used would be the least expensive. In effect, Maine would use less expensive alternative sources of generation earlier than expected.

This accelerated use of the most desirable alternatives would have two effects:

1. Electric rate increases will be lower than otherwise might have been expected in the first years after the plant closing because of the "subsidy" provided by the premature use of desirable energy resources that might have been used later; and

2. The Maine Yankee effect will have a second wave, coming after the first five years or so, when more expensive replacement power is used in place of the less costly resources that need not have been used, except for the loss of Maine Yankee power.

Ratepayers in the years immediately following a shutdown would pay sharply higher rates, but would still be cushioned from the actual and delayed rate increase. They might actually have a false impression of the real cost of closing the plant.

In the event that the plant closing were delayed for some period of time after July 1988, possibly because of legal action, the rate increases in the study would be even greater, simply because some of the lower cost alternatives would have already been used.

ECONOMIC IMPACT

The effect of increased electric rates on the four target industry groups--food, lumber, paper and chemicals--indicates that the impact on them will be substantial and will spread throughout the Maine economy.

By 1992, the reduced output of the paper, lumber and food sectors in Maine would be over $51 million annually.

By that year, some 700 jobs will be lost in Maine, simply because of the production cutbacks, caused by the higher post-Maine Yankee rates charged to the paper, lumber and food sectors. These sectors represent only 10 per cent of the Maine labor force.

The production cutbacks in the target industries would affect other sectors which supply these industries: wood, trucking, fuel, electricity, capital equipment suppliers, maintenance materials and equipment, pulp, farm products, business services and warehousing. Thus, the loss in jobs resulting from the Maine Yankee impact on the target industries would also be felt in these sectors. There would also be direct effects on those sectors.

The impact of a Maine Yankee closing on the target industries would not be evenly distributed in Maine. The most seriously affected county would be Aroostook, followed by Franklin, Hancock, Kennebec, Oxford, Penobscot, Piscataquis, Somerset and Washington counties.

THE COSTS OF CLOSING MAINE YANKEE AND OTHER IMPACTS ON MAINE INDUSTRY

The focus in the study is the effect that closing Maine Yankee would have on electric rates and the resulting economic impacts for certain key sectors. Yet this impact should not be viewed in isolation; other factors will add to the deteriorating outlook for the Maine economy.

These are other factors accentuating the cost of closing Maine Yankee:

Compensation -- Increased costs resulting from closing Maine Yankee will not be limited to those resulting from higher rates. Maine taxpayers, including companies in the target industries will be expected to pay increased taxes to cover the costs of the compensation that will have to be paid to the owners of the Maine Yankee facility for the loss of their asset. Such compensation could greatly exceed the rate increases.

Rate shock -- Another factor directly related to a Maine Yankee closing is "rate shock". It is expected that it will be impossible to phase in gradually any rate increases, so that there may be a sharp and sudden jump to reflect the costs of replacement power.

Lost opportunities -- Higher electric rates will discourage plant expansions in Maine and new entries into the Maine industrial market. National companies, like those in the paper sector, will decide to expand elsewhere.

Other electric rate increases -- Maine electric rates are in a period of sustained increases, reflecting the costs of canceled or sold nuclear power plants and the front-end cost of contracts with small power producers. Maine Yankee-related increases would be added. These increases would not be experienced in other states where Maine's industrial competitors operate.

Income levels in Maine -- Maine is the poorest state in New England and has one of the lowest per capita incomes in the country. Thus, higher electric rates, especially when compared with the country as a whole, are particularly harmful in this economy.

Insurance costs -- Much attention is focused on the costs of insurance, especially for workers' compensation. These costs already are considered by industry to be a severe handicap. Frequently, they rate workers' compensation and power costs as the two factors which, taken together, hamper their ability to compete.

Labor costs -- Maine has recently seen conflicts between industry and labor, as employers insist that labor costs must be reduced in order for firms to remain viable in national and world markets. These costs are perceived to contribute to a negative outlook.

Energy costs -- Maine industry depends heavily on oil, because there is little natural gas and coal available. As a result, it remains vulnerable to changes in world oil prices.

Conservation and biomass may help, but much of the potential has already been used.

Raw material availability -- Much of Maine industry is based on the forest resource. As competition for supplies increases, costs could increase placing added pressure on already limited margins.

These factors, combined with Maine Yankee costs, would deliver a heavy and lasting blow to Maine's ability to compete and prosper.

THE ROLE OF CONSERVATION

Conservation is now a part of the Maine energy picture and considerable savings in needed generation are already forecast. In addition, conservation would play an important role in meeting a shortfall of energy and capacity resulting from closing Maine Yankee.

However, because of institutional obstacles and the inability to specify when and where conservation will take place, conservation cannot be the only answer. If a new electric load must be served at a specific location, conservation may not be available on the system in question to reduce load elsewhere. Alternative electric generation, from a variety of sources, would have to be found.

Conservation, beyond that already forecast by the utilities, would help replace Maine Yankee, although it would not be inexpensive. Most of the Maine Yankee replacement that can be reasonably forecast would be from generation using imported oil and nuclear power. Some power expected to come from small power producers (QFs) might come from other sources including oil.

CHAPTER 1. ALTERNATIVE SOURCES OF POWER SUPPLY

I. THE REPLACEMENT MIX

Because the focus of this analysis is the five-year period immediately after the proposed shutdown of Maine Yankee, only those sources of replacement power which can be brought into the generation mix for Maine on relatively short notice represent viable options. By definition, given the long lead times required for planning, engineering, environmental and regulatory approvals, this precludes the inclusion of any major new generating units. By the same token, the cost of replacement power is reduced, probably artificially, because the capacity costs of new generation can be avoided (see Chapter 4).

The menu of choices for capacity that exists for the immediate future includes:

increased conservation
self-generation by industrial customers
plant life extensions
qualifying facilities
imports from Canada
purchases from NEPOOL (New England Power Pool).

Maine Yankee capacity must be replaced, presumably from one or more of these sources. The energy output of the plant may be able to be replaced by increasing the output of existing plants, such as Wyman 4.

For each of these resources, we must determine, above all, their cost or, more precisely, the price level at which they become viable alternatives. In addition, we must be assured of the quantity of the resource that is available at prices that can be paid before other resources become more desirable.

II. CONSERVATION

A. The role of conservation

1. Promotion and adoption of conservation measures

Conservation has been the single most important "energy source" in Maine for dealing with the energy crisis which began in 1973. State government and, more recently, the utilities have been active in promoting and assisting conservation, but the degree to which the policy has succeeded has been primarily the result of individual and corporate responses to market signals. In other words, most conservation has been price-driven.

In recent years, the primary focus on conservation has come as a result of the interaction among the Public Utilities Commission, the Public Advocate, the Office of Energy Resources, the electric and gas utilities and some customer groups. These efforts have focused on using market forces to stimulate conservation by providing incentives to customers to adopt conservation measures.

More recently, the PUC has decided to make significant new efforts to introduce marginal pricing concepts as a way of using rates as the incentive signals to control consumption and the demand for costly new generation.

This effort has encountered some practical problems. First, precise information about the cost of production on an hour-by-hour basis or on the exact shape of consumption is not available.

Second, the economic impacts of introducing marginal cost pricing are not fully understood. During the course of discussions on new rate designs for CMP and BHE, it became evident that some major employers could be adversely impacted by an attempt to move them from pricing based on average embedded cost to marginal cost pricing. Such a change, however theoretically desirable, can cause severe dislocations.

In their load forecasts, utilities have now become accustomed to projecting conservation which is treated as "negative load" (reducing the amount of capacity required and not itself capacity). Such projections are imperfect, because of substantial ignorance about the actual conservation potential of each customer. However, on the basis of past performance since 1973, useful projections can be made. Larger utilities are better able to make such projections and to undertake incentive programs because they have the resources for planning, and consequently CMP is well ahead of virtually all utilities in Maine.

The contribution that conservation can make to the replacement of Maine Yankee capacity is "new" conservation and does not include the conservation that is already expected to occur as a result of market forces and improved customer awareness.

2. Industrial conservation

The initial forecasts of possible conservation that may be reasonably achieved in the industrial sector is relatively low compared with the residential (and, to some degree, commercial) sector. There are a number of reasons why the potential for industry is less than in other sectors.

The largest share of electricity consumed in the industrial sector is used by the pulp and paper industry. As discussed below, this is a highly competitive industry. Its principal energy resources in Maine are oil and electricity. Thus, after the oil price shocks of the 1970s, the industry was forced to undertake prompt and effective action to conserve (and to self-generate). More than in the industry nationally, which has access to domestic oil and natural gas as well as low-cost federally produced electricity in some regions, the Maine pulp and paper industry found the energy crisis a clear signal to take action.

The potential for conservation in the industrial sector, principally pulp and paper, relates to improved motor and drive efficiencies and, to a much lesser degree, to lighting. The industry has studied conservation opportunities and has found that many, but not all, of the proposed actions to install more efficient motors will make sense. However, more efficient production will be introduced as machinery and equipment is replaced and not by removing well-functioning equipment, particularly when it is fully or substantially amortized. While the overall cost of electricity might be lower with a new motor, the full life cycle cost to the company must include the carrying costs for the motor as well. Corporations look at their returns on a quarterly basis, and firms in the paper sector have narrow margins. The market thus dictates the replacement of motors, but generally when they have outlived their usefulness.

In the case of CMP, load projections now take into account the normal introduction of greater efficiency in industry. In addition, the utility itself is beginning to make efforts to promote commercial and industrial conservation. It is not clear that BHE and MPS have yet included conservation that is likely to occur in the projections and they also lag somewhat in conservation programs. As a result, their own projections may underestimate conservation. This analysis assumes conservation, commensurate with CMP in our projections. These estimates may be optimistic because CMP now leads New England in the use of interruptible rates for industrial customers as a way of reducing system (and NEPOOL) peak demand as well as in some other aspects of conservation.

3. Conservation by residential and commercial customers

Conservation at the levels forecast by CMP with appropriate adjustments for BHE and MPS have been assured. As much as 70-90 mW of the 430 mW of Maine Yankee capacity could be replaced by new conservation. This assumption is based on the price that would be required to pay for alternative sources and our belief that some additional conservation can be stimulated in lieu of generation at the same or higher price.

4. Alternate conservation hypotheses

Two recent studies have suggested the possibility of completely meeting the need for electric capacity through conservation. Because of the lack of sufficient incentives, this degree of conservation would not be possible. However, these studies merit consideration, and an analysis is included in Appendix B.

III. SELF-GENERATION

Although companies in the target group have undertaken a considerable amount of self-generation since the onset of the energy crisis of the 1970s, some potential may remain. In a survey of companies (see below, Chapter 3), they were asked about remaining potential and electricity prices that would make further self-generation an attractive alternative. Based on company responses, it is clear that self-generation potential exists at a number of Maine facilities. This is especially true where there is potential for cogeneration, i.e., where both electricity and heat for production is possible. In one case, at least, diesel generation would be used and made economical as a result of cogeneration.

These measures have not yet been undertaken, because they are not yet economical. The cost per kWh of this new generation would be higher than current and expected electric rates. Management may also be reluctant to make additional investment while it considers possible limits on the scope of future operations in Maine in the light of a number of factors, including the cost of energy.

However, it is likely that a substantial amount of high-cost self-generation potential exists in Maine. Virtually all competitively priced self-generation in the target sectors has taken place. It would not be economic to undertake new self-generation unless electric rates increased to 7 to 10 cents per kWh. Based on projections in Chapter 2, these levels will only begin to be reached in the latter half of the study period. As a result, given the time required to execute a contract and implement construction plans and obtain environmental approvals, it is unlikely that any appreciable amount of this new generation would be available during the study period. Consequently, this source ("negative load") is not included in the projections.

IV. PLANT LIFE EXTENSIONS

In recognition of the need for future capacity in New England and taking into account the high cost of major new generating units, policy makers and utilities have turned increasingly to the concept of plant life extension. It may appear more economical to refurbish and maintain in operation a plant slated for retirement, where the risks are known, than to place into operation newly constructed units, where the capacity costs may have risen considerably from the time they were originally planned.

In Maine, essentially only one facility is available for such usage: the CMP Mason units at Wiscasset. These oil-fired units are not efficient, and their conversion to coal has long been considered.

An examination was made of the possible use of Mason either simply by bringing the units back on line as inefficient oil-fired units, in order to provide needed capacity, or after some modernization. In either case, the cost of Mason capacity would not be competitive during the period under review with capacity available from other sources. Mason was not needed for energy production, because additional energy can either be purchased or derived from CMP's Wyman 4 or BHE's Graham stations.

Although plant life extension in Maine does not appear to offer a solution to the loss of Maine Yankee in the five-year period ahead, it may become viable as electricity costs increase and should not be ruled out permanently. However, such action is likely to increase Maine's reliance on imported oil or coal.

V. PURCHASES FROM QUALIFYING FACILITIES

Maine is one of the leaders nationally in promoting the use of generation from small power producers under the provisions of the Public Utility Regulatory Policies Act (PURPA) and Maine's Small Power Production Facilities Act. A sizable percentage of the total generation of all three larger utilities is already provided by so-called qualifying facilities (QF) with the share of capacity provided to CMP scheduled to exceed 30 per cent by 1990.

The driving force in the acquisition of new generation from qualifying facilities is the avoided cost, the cost to the utility for capacity and energy that would be replaced by power supplied by the QF. The Maine utilities have already avoided the most expensive generation in their mix and, consequently, avoided cost has fallen well below previous levels. In addition, many currently planned or operating QFs were deemed to be economical on the basis of high oil price projections made in the past. Actual oil-fired generating costs are well below forecasts and in the short run, at least, power from QFs has not actually proven to be competitive with alternatives. Over a longer span of time, QFs are expected to prove their value, because they are largely based on indigenous and renewable resources and not imported fuels.

If Maine Yankee were to be removed from the generation mix of the Maine utilities, the avoided cost would be that of the least costly replacement power that could be obtained to make up the shortfall. If QF power could be obtained at or below that replacement cost, Maine law and policy make it clear that it, along with conservation, would be the source of choice.

On the basis of calculations of what would be economically available from NEPOOL and New Brunswick (NB Power), in addition to conservation, there would be an economic incentive for additional QF power.

The recent experience of CMP has demonstrated the validity of this conclusion. In order to evaluate the proposed power purchase from Hydro Quebec, CMP was asked to determine if it could obtain the power supply from QFs at a long-term levelized avoided cost of under 7 cents per kWh. It issued a request for proposals and received offers of more than 1400 mW of capacity, most of which apparently met the avoided cost target. To be sure, many of these units will not turn out to be viable, but it is reasonable to expect that CMP will be able to obtain an appreciable amount of new capacity from this round of proposals.

Maine utilities will be able to purchase additional power from cogenerators, although at a premium above the avoided cost of the "Hydro Quebec" RFP. Such purchases would be competitive with conservation options. In effect, there would be little difference and the utilities could purchase either based on availability. The largest share of additional QF power would go to CMP which has a well-developed procedure for making such purchases and which has, of course, the greatest need. Some would be purchased by BHE and MPS.

Although QF power would not be instantly available upon closing of Maine Yankee, it usually requires much shorter lead times than other sources of generation and could be expected to come on line during the period under review. Thus, QF power is an important and economic replacement for Maine Yankee.

VI. IMPORTS

Power supply from NB Power has, in recent years, formed an important part of Maine's generation mix. It has been joined by Hydro Quebec, through NEPOOL arrangements, as a supplier to the Maine market. Hydro Quebec proposes to make a direct sale to CMP beginning in 1992 via a new transmission interconnection between the two utilities.

It is accurate to say that Maine utilities have been moving closer to Canadian suppliers in recent years (with the exceptions of MPS and the Eastern Maine Electric Cooperative (EMEC) which are already closely tied to NB Power). Both NB Power and Hydro Quebec appear anxious to increase their sales to Maine utilities. There is relatively little tension arising from the international character of transactions, based on a long tradition of mutually beneficial energy transactions.

There is considerable additional potential for imports. During the study period, it is likely that, with the exception of already planned increases in NEPOOL purchases from Hydro Quebec, new power supply will come from NB Power. NB Power has indicated that it can continue to make sales from currently available sources during much of the period and that it is actively considering the construction of a new generating station which could provide power to the Maine utilities at competitive prices and with safeguards on price escalation.

As a result, the projections include continued power supply from NB Power to meet planned capacity needs as well as to provide capacity to replace Maine Yankee that cannot be obtained more economically from other sources. This supply is likely to be based on oil fired or nuclear generation.

The proposed purchase by CMP from Hydro Quebec is now planned for late in the study period. Consequently, it has not been included in the projections, but this decision does not imply that such a purchase will not take place or that the Hydro Quebec price will not be competitive. There are now too many uncertainties surrounding purchase to make such determinations and, at any rate, the power supply would come too late in the study period to have an appreciable influence on our projections.

VII. OTHER NEPOOL POWER

The premature closing of Maine Yankee would cause a capacity problem both in Maine and elsewhere in New England. Half of the capacity of the plant is owned and used by utilities south of Maine. They, too, would conduct efforts to find replacement capacity and would, to some degree at least, be in competition with Maine utilities, notably CMP and BHE.

As a result, it might appear that any available capacity would be absorbed elsewhere in NEPOOL. However, under pool rules, once a utility offers capacity from one of its units, it cannot discriminate among pool members, i.e., a southern New England utility could not favor other utilities in its area as compared with Maine utilities.

At the present time, Northeast Utilities sells 200 mW of capacity to Long Island Lighting Company (LILCO) under conditions which permit its recall for use in New England. This power was recalled on peak days during the summer of 1987. This power is projected to be available within New England in the case of the premature closing of Maine Yankee and that CMP and BHE would be able to obtain their share of it on economically acceptable terms. This would be derived from oil-fired generation with the fuel being imported.

VIII. OIL AS FUEL FOR GENERATION

While conservation and small power production would play an important role in replacing power from Maine Yankee, there would clearly be increased reliance on oil for energy produced in existing plants and possibly from imports. This new dependence on oil would be inevitable, despite its clear risks.

Almost all oil used in the region is imported and is vulnerable to supply disruptions or price swings reflecting political as much as market factors. In particular, price volatility is likely and, in view of the current Middle East situation, would almost certainly result in increases, perhaps sudden. As a result, increased dependence on oil could occur at the worst time since the 1978-79 price run-up.

CHAPTER 2. RATE IMPACT ANALYSIS

This analysis focuses on just one aspect of a premature closing of Maine Yankee: the impact on electricity rates in Maine created by the need to acquire replacement power on relatively short notice. As noted elsewhere, this analysis is confined to a relatively short-term five-year horizon.

This study concentrates on the three major electric utilities in Maine: CMP, BHE and MPS. The objective is to determine on a total dollar basis and on a cents per kilowatthour (kWh) basis, the increased costs likely to be incurred by each of these utilities, which would then be charged to their customers through higher electric rates. In order to estimate this impact, a separate model is used for each utility to compute the cost of meeting peak load and energy requirements under two cases. The first is the "Base Case" which includes Maine Yankee. In the second, costs of providing electricity under a "Contingency Case" scenario which substitutes other potential sources of supply for Maine Yankee beginning July 1, 1988 are examined. The increase in costs from the Base Case to the Contingency Case represents the rate impact of the shutdown of Maine Yankee. It is assumed that the fixed costs associated with Maine Yankee will continue to be recovered through rates at least during the study period.

The analysis is complicated by the fact that the Maine utilities must contract for enough capacity to meet the projected annual peak demand which typically occurs in January. At the same time, the utilities contract for power from a wide spectrum of sources to satisfy energy requirements which vary throughout the year on an hourly basis. In order to meet these dual objectives in a least-cost manner, the utilities engaged in a sophisticated analysis. Our analysis is a simplified but reasonable assessment of the impact based on the planning principles and constraints as used by the utilities.

I. METHODOLOGY

The major assumptions are those provided by the three Maine utilities in response to specific requests for data and are primarily from documents entered into the public record during Maine Public Utility Commission (MPUC) proceedings. In addition, we have provided our own assumptions. These key assumptions include:

1. Peak and energy load forecasts
2. Inflation, Operating and Maintenance costs, and fuel price escalations
3. Resource profiles summarizing the capacity, fuel, other O&M costs, and operating assumptions for the existing and potential supply sources. The sources are ranked by variable costs and largely "dispatched" by our assumptions on minimum capacity factors. Certain resources are identified as becoming available if Maine Yankee is closed.

Company forecasts of peak and energy load were used as a starting point for the analysis because these forecasts are based on models with an internally consistent set of assumptions regarding fuel prices and economic activity. Furthermore, these forecasts are subject to regulatory scrutiny and standards of credibility and defensibility. Adjustments have been made to the resource profile available and to associated costs. For example, certain supply options were assumed, which were not considered by the utilities, based on their assumption that Maine Yankee would be available. These would be viable options under our Contingency Case scenario.

The determination of the incremental electricity costs for each utility begins with a five-year forecast of both the energy requirements by customer class and a peak demand forecast. These requirements are met from a pool of available generation resources. These resources include those contained in the respective utility supply forecasts, and therefore include a forecast of cogeneration for each year. For each resource the winter capacity (mW), the minimum and maximum operating capacity factors (expressed as a percentage of the 8,760 hours in a year that the unit may operate), and a forecast of fuel and non-fuel variable operating costs per kWh is included.

Certain resources are identified as Contingency Case resources and often have an incremental annual capacity cost per kilowatt (kW) which must be reflected to determine the total incremental impact on electricity costs. One such contingency resource is the level of conservation above and beyond that already incorporated the company forecasts. Similarly, Contingency Case resources include cogeneration and small power production ("QF Power") beyond that included in the supply forecast as well as increased purchases from other New England Power Pool (NEPOOL) utilities and from the New Brunswick Electric Power Commission (NB Power).

An approximate "dispatch" of the supply sources to meet demand is developed based on the minimum and maximum capacity factors and variable operating costs. The increase in total costs on an annual basis from the Base to the Contingency Case is converted to a rate impact expressed in cents per kWh. This increase is then divided by rates in the utility supply forecast, as reflected in the Base Case, to determine the percentage rate increase for each class of customers.

The demand forecast is then modified to incorporate the elasticity response of demand to these rate increases, and a second iteration of the energy dispatch is performed.

The following sections describe the demand and supply forecasts of each of the three major utilities and discuss in more specific terms some of the key assumptions made.

II. CENTRAL MAINE POWER COMPANY

CMP is the largest electric utility in Maine. With a peak load in 1986 of 1,453 mW and total energy requirements of 9,067 gigawatthours (gWh), CMP provided over 70 per cent of the State's total electricity requirements. CMP owns 37.5 per cent of Maine Yankee or 320 mW. In 1986, the Maine Yankee nuclear power plant was CMP's single largest source of generation, supplying 25.7 per cent of the Company's total energy requirements at a total cost of approximately 2 cents/kWh. In addition to providing a significant share of the Company's electric requirements, Maine Yankee accounted for approximately 19.2 per cent of the Company's total net capability in 1986. The higher percentage of energy requirements reflects Maine Yankee's operation as a base load unit operating most of the year because of its low operating variable costs. In 1986, Maine Yankee had a high 83.1 per cent capacity factor; for the purposes of our analysis, we assumed a 72 per cent capacity factor for the unit.

The Company is projecting a 3.1 per cent average annual increase in energy requirements and a 1.4 per cent annual increase in peak load over the five year study period. The significantly lower growth rate for the peak load reflects the increased penetration and success of the Company's demand management programs.

Industrial customers account for 39.5 per cent of CMP's total requirements, residential customers 33.0 per cent, commercial customers 21.7 per cent, sales for resale 5.3 per cent and 0.5 per cent other.

CMP has a well balanced energy mix: in 1986 hydro-electric power provided 17 per cent of the Company's total requirements, nuclear generation 31 per cent, oil-fired generation 20 per cent, generation from Canadian utilities 20 per cent, and generation from small power producers and cogenerators, 12 per cent.

Other than short-term purchases of combustion turbines, the major planned addition to CMP's resources over the study period is power from cogenerators and small power producers (qualifying facilities). CMP estimates that generation from QFs will provide 32.3 per cent of the Company's total requirements by 1992, compared to the 12 per cent provided in 1986.

CMP's most recent electricity rate forecast, which assumes that Maine Yankee is available, projects system average rates to increase by an average of 7.1 per cent per year from 1987 through 1992. This increase is mainly attributable to the higher cost of power from small power producers and cogenerators and to increasing oil prices for existing generation. In fact, the fuel adjustment clause component of the rate is projected to increase at a 12.3 per cent annual rate while base rates are projected to increase at 1.3 per cent.

With the loss of Maine Yankee, CMP would be required to replace, in a period of less than eight months, 320 mW of capacity and 2,000 gWh of annual generation. Additional resources will definitely be needed to replace the unit's capacity to meet the annual peak demand. However, Maine Yankee's energy output could be replaced with a combination of generation from these new resources and increased operation of existing units. With the limited planning horizon provided, CMP's options for responding to the loss of Maine Yankee are severely limited.

One source of replacement generation is increased operation of CMP's existing oil-fired units, primarily the W.F. Wyman oil-fired steam units. However, the incremental generation available from these units is not sufficient to replace all of the generation normally provided by Maine Yankee. Furthermore, as noted above, CMP needs additional capacity to replace the 320 mW from Maine Yankee. Therefore, the Company would need to acquire both replacement capacity and power from other sources in addition to operating its existing units at a higher capacity factor. These potential sources include purchases from other NEPOOL utilities, purchases from New Brunswick Electric Power Commission, and more rapid development of cogeneration and conservation.

It must be remembered, however, that the loss of the entire 860 mW of Maine Yankee (only 50 per cent of which is dedicated to Maine utilities) to NEPOOL, will significantly reduce the surplus capacity available for short-term purchases from other NEPOOL members. Based on an analysis of the NEPOOL capacity market, we have assumed that there will be only 200 mW of capacity available from NEPOOL members in the event Maine Yankee is closed in 1988. Under the NEPOOL Agreement, CMP would be able to secure its pro-rata share of this surplus capacity (approximately 16 mW) if it were offered to all NEPOOL participants. If some NEPOOL participants fail to exercise their option to purchase this capacity as is expected, the amount of capacity available to CMP would increase. This analysis, therefore, assumes that CMP would be able to purchase 20 mW from other NEPOOL participants. It is also assumed that this capacity would be from oil-fired units and would have a capacity charge of $50/kW/year in addition to the variable operating costs of a typical marginal NEPOOL oil-fired unit.

NB Power is the most likely incremental source of capacity and energy over the study period. CMP currently has a contract with NB Power for 150 mW. It is projected that this existing system contract with NB Power is extended through 1991, the end of the initial contract term (October, 1991). If Maine Yankee is not available, the contract with NB Power for 150 mW is assumed to be extended in 1992. Nonetheless, NB Power has a limited amount of surplus power available for resale to Maine utilities and the size of this surplus is projected to decrease as load in NB Power increases. Based on an analysis of CMP's resources and requirements for each year of the study period and assumptions regarding the potential of additional availability of demand-side management programs and small power production and cogeneration (discussed below), it is estimated that CMP would need to purchase an additional 200 mW from NB Power in 1988 and 1989, and 150 mW in 1990 and 1992. The purchase in 1992 is in effect an extension of CMP's existing contract with NB Power. In 1991, CMP is able to replace its contract with NB Power with 50 mW from small power production and cogeneration and a system capacity credit of 105 mW from the Hydro-Quebec Phase 2 contract.. It is assumed that the energy component of the NB Power contract would be priced to be competitive with generation from existing intermediate oil-fired capacity in New England and that capacity charges would be $68/kW/year.

These resources represent CMP's most likely short-term response to the loss of Maine Yankee. Over the long-term, CMP could influence its customers' electricity demands by implementing demand-side management programs or by increasing the amount of local generation by soliciting additional bids from small power producers and cogenerators. These programs and policies typically generate a supply response with some delay. However, it is estimated that if Maine Yankee were closed in July, 1988, CMP would be able to reduce its capacity requirements by 15 mW per year and its customer's total energy requirements by 131.4 gWh for each of the years in the study period for a total peak load reduction of 75 mW and reduced energy consumption of 657 gWh in 1992. The cost of the energy savings from these demand-side management programs are assumed to be 7.3 cents/kWh. This is a levelized rate which reflects the cost of achieving incremental conservation over and above that already assumed in CMP's forecast. CMP's demand forecast already includes over 215 mW of demand reductions from demand-side management programs. Consequently, most of the low cost demand-side management programs are already accounted for in the forecast.

Finally, it is assumed that CMP could secure contracts for an additional 150 mW of small power production and cogeneration, to be available in 50 mW increments for each year from 1990 through 1992. In the event that this supply was not available from these sources, we assume that it would be available from comparably priced sources. These contracts with small power producers and cogenerators would be used to back down the NB Power purchase. In addition, to these resources CMP would need an additional 50mW in 1989. An analysis of the capacity available from NEPOOL and NB Power indicated that it is unlikely that there would be additional capacity available from these sources in 1989, beyond that already assumed in the analysis. Furthermore, it is unlikely that 50 mW of QF Power could be available by this date. Therefore, the source of the 50 mW of additional capacity needed by CMP in 1989 has not been identified as from any specific source and as such it is labeled as QF or Available Capacity. It is assumed that this capacity whether purchased from Canadian utilities, e.g. Hydro Quebec, or local sources of power, would be priced at CMP's marginal cost. This power is incremental and therefore priced at a 5 per cent premium above the cogeneration included in CMP's forecast in 1987 and then escalated at the projected inflation rate. Based on our analysis, as discussed above, this group of resources are projected to have a lower cost than reactivating the Mason Station. Consequently, it was assumed that Mason would not be reactivated during the study period but that it will remain a candidate for the longer-term life extension project as currently contemplated by CMP. The resource profile and resulting generation under the Base and Contingency Cases are summarized in the following two tables.

RESOURCE PROFILE

CENTRAL MAINE POWER COMPANY

	CONTINGENCY OR BASE RESOURCE	UNIT TYPE	WINTER CAPACITY (MW)	FIRST YEAR RESOURCE AVAILABLE	LAST YEAR RESOURCE AVAILABLE	CAPACITY FACTOR MIN (%)	CAPACITY FACTOR MAX (%)	1987 NON-FUEL VARIABLE O & M EXPENSES (CENTS/kWh)	1987 FUEL EXPENSES (CENTS/kWh)	1987 TOTAL VARIABLE O & M (CENTS/kWh)	1987 MARGINAL FIXED COSTS ($/kW)
GENERATING RESOURCES											
RUN OF THE RIVER HYDRO	BASE	HYDRO	100.0	1987	1992	90.0%	90.0%	0.31	N.A.	0.31	$0
PEAK HYDRO	BASE	HYDRO	219.0	1987	1992	35.0%	35.0%	0.31	N.A.	0.31	$0
LEWISTON HYDRO	BASE	HYDRO	25.0	1991	1992	41.0%	41.0%	0.31	N.A.	0.31	$0
MAINE YANKEE	BASE	NUCLEAR	320.0	1987	1992		72.0%	N.A.	N.A.	0.74	$0
MILLSTONE 3	BASE	NUCLEAR	29.0	1987	1992		55.0%	N.A.	N.A.	0.87	$0
VERMONT YANKEE	BASE	NUCLEAR	19.0	1987	1992		70.0%	N.A.	N.A.	0.72	$0
CONN YANKEE	BASE	NUCLEAR	35.0	1987	1992		75.0%	N.A.	N.A.	1.02	$0
MASS YANKEE	BASE	NUCLEAR	17.0	1987	1992		75.0%	N.A.	N.A.	0.91	$0
NEW BRUNSWICK POWER	BASE	SYSTEM	150.0	1987	1991		85.0%	N.A.	N.A.	2.44	$0
NEW BRUNSWICK POWER EXTENSION	CONTINGENCY	SYSTEM	150.0	1992	1992		85.0%	N.A.	N.A.	2.44	$68
NUCSOS	BASE	SYSTEM	59.0	1987	1992		90.0%	N.A.	N.A.	2.47	$0
WYMAN 3	BASE	OIL-ST	116.0	1987	1992	20.0%	65.0%	0.15	2.65	2.80	$0
WYMAN 4	BASE	OIL-ST	366.0	1987	1992	20.0%	60.0%	0.11	2.84	2.95	$0
WYMAN 2	BASE	OIL-ST	52.0	1987	1992	7.0%	25.0%	0.15	3.04	3.20	$0
WYMAN 1	BASE	OIL-ST	53.0	1987	1992	5.0%	20.0%	0.15	3.07	3.22	$0
NEW BRUNSWICK PURCHASE 88-89	CONTINGENCY	SYSTEM	200.0	1988	1989	30.0%	65.0%	0.15	2.92	3.07	$68
NEW BRUNSWICK PURCHASE 1990	CONTINGENCY	SYSTEM	150.0	1990	1990	30.0%	65.0%	0.15	2.92	3.07	$68
NEPOOL PURCHASE	CONTINGENCY	OIL-ST	20.0	1988	1991	30.0%	65.0%	0.11	3.18	3.29	$50
MASON 4	CONTINGENCY	OIL-ST	36.0	1993	1993	0.0%	60.0%	0.20	3.75	3.95	$20
MASON 3	CONTINGENCY	OIL-ST	36.2	1993	1993	0.0%	60.0%	0.20	3.77	3.97	$20
MASON 5	CONTINGENCY	OIL-ST	36.7	1993	1993	0.0%	60.0%	0.20	3.81	4.01	$20
MASON 2	CONTINGENCY	OIL-ST	22.8	1993	1993	0.0%	60.0%	0.20	3.88	4.08	$20
MASON 1	CONTINGENCY	OIL-ST	21.9	1993	1993	0.0%	60.0%	0.20	3.88	4.08	$20
COMBUSTION TURBINE 87	BASE	OIL-GT	50.0	1987	1987	5.0%	20.0%	0.19	5.55	5.74	$0
COMBUSTION TURBINE 88	BASE	OIL-GT	75.0	1988	1988	5.0%	20.0%	0.19	5.55	5.74	$0
COMBUSTION TURBINE 89	BASE	OIL-GT	25.0	1989	1989	5.0%	20.0%	0.19	5.55	5.74	$0
COMBUSTION TURBINE 90	BASE	OIL-GT	25.0	1990	1990	5.0%	20.0%	0.19	5.55	5.74	$0
COMBUSTION TURBINE 92	BASE	OIL-GT	100.0	1992	1992	5.0%	20.0%	0.19	5.55	5.74	$0
CAPE GAS TURBINE 5	BASE	OIL-GT	19.0	1987	1992	4.0%	20.0%	0.53	6.58	7.10	$0
CAPE GAS TURBINE 4	BASE	OIL-GT	19.0	1987	1992	4.0%	20.0%	0.53	6.97	7.50	$0
QF POWER 87	BASE	QF	168.0	1987	1987	100.0%	100.0%	N.A.	N.A.	6.99	$0
QF POWER 88	BASE	QF	239.0	1988	1988	100.0%	100.0%	N.A.	N.A.	6.99	$0
QF POWER 89	BASE	QF	286.0	1989	1989	100.0%	100.0%	N.A.	N.A.	6.99	$0
QF POWER 90	BASE	QF	317.0	1990	1990	100.0%	100.0%	N.A.	N.A.	6.99	$0
QF POWER 91	BASE	QF	390.0	1991	1991	100.0%	100.0%	N.A.	N.A.	6.99	$0
QF POWER 92	BASE	QF	390.0	1992	1992	100.0%	100.0%	N.A.	N.A.	6.99	$0
QF OR AVAILABLE CAPACITY 1989	CONTINGENCY	VARIOUS	50.0	1989	1992	70.0%	70.0%	N.A.	N.A.	7.34	$0
QF CONTRACT 1990	CONTINGENCY	QF	50.0	1990	1992	70.0%	70.0%	N.A.	N.A.	7.34	$0
QF CONTRACT 1991	CONTINGENCY	QF	50.0	1991	1992	70.0%	70.0%	N.A.	N.A.	7.34	$0
CONSERVATION 88	CONTINGENCY		15.0	1988	1992	100.00%	100.00%	N.A.	N.A.	7.30	$0
CONSERVATION 89	CONTINGENCY		15.0	1989	1992	100.00%	100.00%	N.A.	N.A.	7.30	$0
CONSERVATION 90	CONTINGENCY		15.0	1990	1992	100.00%	100.00%	N.A.	N.A.	7.30	$0
CONSERVATION 91	CONTINGENCY		15.0	1991	1992	100.00%	100.00%	N.A.	N.A.	7.30	$0
CONSERVATION 92	CONTINGENCY		15.0	1992	1992	100.00%	100.00%	N.A.	N.A.	7.30	$0

TABLE 2-2

CENTRAL MAINE POWER COMPANY

GENERATING RESOURCES	BASE CASE SUPPLY FORECAST - GWH					CONTINGENCY CASE SUPPLY FORECAST - GWH				
	1988	1989	1990	1991	1992	1988	1989	1990	1991	1992
RUN OF THE RIVER HYDRO	788.4	788.4	788.4	788.4	788.4	788.4	788.4	788.4	788.4	788.4
PEAK HYDRO	671.5	671.5	671.5	671.5	671.5	671.5	671.5	671.5	671.5	671.5
LEWISTON HYDRO	0.0	0.0	0.0	89.8	89.8	0.0	0.0	0.0	89.8	89.8
MAINE YANKEE	2018.3	2018.3	2018.3	2018.3	2018.3	1009.2	0.0	0.0	0.0	0.0
MILLSTONE 3	139.7	139.7	139.7	139.7	139.7	139.7	139.7	139.7	139.7	139.7
VERMONT YANKEE	116.5	116.5	116.5	116.5	116.5	116.5	116.5	116.5	116.5	116.5
CONN YANKEE	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0	230.0
MASS YANKEE	111.7	111.7	111.7	111.7	111.7	111.7	111.7	111.7	111.7	111.7
NEW BRUNSWICK POWER	1116.9	1116.9	1116.9	1116.9	0.0	1116.9	1116.9	1116.9	1116.9	0.0
NEW BRUNSWICK POWER EXTENSION	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1116.9
NUCSOS	465.2	465.2	465.2	465.2	465.2	465.2	465.2	465.2	465.2	465.2
WYMAN 3	660.5	660.3	660.5	474.9	660.5	660.5	660.5	660.5	660.5	660.5
WYMAN 4	812.1	641.2	666.1	641.2	1770.9	1466.5	1463.6	1082.3	806.5	1042.0
WYMAN 2	31.9	31.9	31.9	31.9	31.9	31.9	31.9	31.9	31.9	31.9
WYMAN 1	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2
NEW BRUNSWICK PURCHASE 88-89	0.0	0.0	0.0	0.0	0.0	262.8	525.6	0.0	0.0	0.0
NEW BRUNSWICK PURCHASE 1990	0.0	0.0	0.0	0.0	0.0	0.0	0.0	394.2	0.0	0.0
NEPOOL PURCHASE	0.0	0.0	0.0	0.0	0.0	26.3	52.6	52.6	52.6	0.0
MASON 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MASON 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MASON 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MASON 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MASON 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COMBUSTION TURBINE 87	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COMBUSTION TURBINE 88	32.9	0.0	0.0	0.0	0.0	32.9	0.0	0.0	0.0	0.0

III. BANGOR HYDRO ELECTRIC COMPANY

Bangor Hydro (BHE) is the second largest electric utility in Maine with approximately 80,000 customers, a peak load of 254.5 mW in 1986 and sales of 1,406 gWh. The largest single source of power for BHE is its 59 mW share of Maine Yankee, the only nuclear unit in BHE's generation plan. In 1986, Maine Yankee provided BHE with 28.0 per cent of its total energy requirements. Maine Yankee also accounted for 19.2 per cent of the Company's net capability in 1986.

BHE's energy requirements are projected to increase at a 2.4 per cent average annual rate over the study period; peak load is projected to grow at 2.0 per cent. Industrial customers account for 39.5 per cent of the Company's total retail requirements, residential customers 32.2 per cent, commercial customers 25.2 per cent, and municipal customers 3.0 per cent.

Purchased power from other utilities represented 45.0 per cent of the Company's total generation in 1986. BHE has a system power contract with NB Power for 30 mW and has a second contract with NB Power for additional power on an as-available basis. BHE also contracts with five small power producers who will provide the Company with an additional 62.4 mW of capacity throughout the forecast period.

Hydro generation and fossil fuel generation accounted for the remaining 13.6 per cent and 13.5 per cent of generation, respectively. The Company's hydro-electric resources have a net capability of approximately 34.5 mW, most of which operates at a high load factor. BHE has a 51.6 mW entitlement in Wyman 4, a 620 mW oil-fired unit and owns three oil-fired steam units with a combined capacity of 59.8 mW and thirteen diesels with total capacity of 23.2 mW.

BHE's system average electricity rates are projected to increase at a 6.92 per cent average annual rate over the study period. Increases in the fuel adjustment charge are projected to account for 83.6 per cent of the increase as higher fuel prices and contracts with small power producers inflate the fuel adjustment charge component of the rate. These projections do not reflect new fuel adjustment proposals by BHE made at the end of August 1987. If approved, rate increases forecast in this section would be higher.

The Contingency Case resources have been reflected in much the same manner as in the CMP analysis. If Maine Yankee were closed in July, 1988, it is assumed that BHE would purchase 25 mW from NB Power under the same terms secured by CMP, with energy priced at the level of an intermediate oil unit, and a capacity charge of $68/kW/year. In addition to securing additional power from NB Power, it is assumed that BHE would need to secure additional contracts for an additional 10 mW from other sources in 1989. The analysis also assumes that BHE would accelerate the implementation of its demand-side management programs and reduce its capacity requirements by 3 mW per year from 1988 through 1992; these programs are also assumed to reduce the Company's energy requirements by 26.3 gWh per year. The energy savings from these demand-side management programs are priced at 7.3 cents/kWh, reflecting the levelized cost of achieving additional conservation over and above that already accounted for by BHE in its forecast. Because BHE would have excess capacity if Maine Yankee were not closed, it is projected that 19 mW of capacity would be available from that surplus.

BHE's resource profile and generation under the Base and Contingency Cases is presented in Tables 2-3 and 2-4 on the following pages.

TABLE 2-3

RESOURCE PROFILE

BANGOR HYDRO-ELECTRIC COMPANY

	CONTINGENCY OR BASE RESOURCE	UNIT TYPE	WINTER CAPACITY (MW)	FIRST YEAR RESOURCE AVAILABLE	LAST YEAR RESOURCE AVAILABLE	CAPACITY MIN (%)	FACTOR MAX (%)	1987 NON-FUEL VARIABLE O & M EXPENSES (CENTS/kWh)	1987 FUEL EXPENSES (CENTS/kWh)	1987 TOTAL VARIABLE O & M (CENTS/kWh)	1987 MARGINAL FIXED COSTS ($/kW)
GENERATING RESOURCES											
RUN OF THE RIVER HYDRO	BASE	HYDRO	34.5	1987	1992	65.0%	65.0%	0.69	N.A.	0.69	$0
WEST ENFIELD HYDRO	BASE	HYDRO	7.4	1988	1992	85.0%	85.0%	0.69	N.A.	0.69	$0
MILFORD HYDRO	BASE	HYDRO	1.7	1992	1992	47.0%	47.0%	0.69	N.A.	0.69	$0
MAINE YANKEE	BASE	NUCLEAR	59.0	1987	1992		72.0%	N.A.	N.A.	0.74	$0
NEW BRUNSWICK POWER 1987	BASE	SYSTEM	29.0	1987	1987	85.0%	90.0%	N.A.	N.A.	2.46	$0
NEW BRUNSWICK POWER 1988-91	BASE	SYSTEM	24.0	1988	1991	85.0%	90.0%	N.A.	N.A.	2.46	$0
NEW BRUNSWICK POWER EXTENSION 92	CONTINGENCY	SYSTEM	24.0	1992	1992	85.0%	90.0%	N.A.	N.A.	2.46	$68
NEW BRUNSWICK CLASS III	BASE	SYSTEM	10.0	1987	1991	90.0%	90.0%	N.A.	N.A.	2.66	$0
NEW BRUNSWICK PURCHASE	CONTINGENCY	SYSTEM	25.0	1988	1990	30.0%	65.0%	0.15	3.41	3.57	$68
WYMAN 4 1987-88	BASE	OIL-ST	34.6	1987	1988	20.0%	65.0%	0.11	3.06	3.17	$0
WYMAN 4 1989-91	BASE	OIL-ST	41.6	1989	1991	20.0%	65.0%	0.11	3.06	3.17	$0
WYMAN 4 1992	BASE	OIL-ST	51.6	1992	1992	20.0%	65.0%	0.11	3.06	3.17	$0
MIDDLETON 4	BASE	OIL-ST	12.0	1987	1987	10.0%	65.0%	0.11	3.45	3.56	$0
GRAHAM 5	BASE	OIL-ST	29.0	1987	1992	10.0%	65.0%	0.15	4.11	4.26	$0
GRAHAM 4	BASE	OIL-ST	18.2	1987	1992	10.0%	65.0%	0.15	4.27	4.42	$0
GRAHAM 3	BASE	OIL-ST	12.6	1987	1992	10.0%	65.0%	0.15	4.30	4.45	$0
DIESELS	BASE	OIL-IC	23.2	1987	1992	5.0%	40.0%	0.35	4.91	5.26	$0
GAS TURBINE 1987	BASE	OIL-IC	20.0	1987	1987	5.0%	20.0%	0.53	6.51	7.04	$0
GREAT NORTHERN PAPER	BASE	COGEN	12.0	1987	1992	30.4%	30.4%	N.A.	N.A.	4.62	$0
PURPA HYDRO	BASE	HYDRO	3.4	1987	1992	40.0%	40.0%	N.A.	N.A.	7.70	$0
ULTRAPOWER 5	BASE	BIOMASS	16.0	1988	1992	85.0%	85.0%	N.A.	N.A.	7.38	$0
ULTRAPOWER 6	BASE	BIOMASS	16.0	1988	1992	85.0%	85.0%	N.A.	N.A.	7.38	$0
AED	BASE	BIOMASS	11.0	1987	1992	85.0%	85.0%	N.A.	N.A.	6.65	$0
PERC	BASE	WASTE	16.0	1988	1992	85.0%	85.0%	N.A.	N.A.	8.59	$0
QF OR AVAILABLE POWER	CONTINGENCY	VARIOUS	10.0	1989	1992	70.0%	70.0%	N.A.	N.A.	8.00	$0
CONSERVATION 88	CONTINGENCY		3.0	1988	1992	100.00%	100.00%	N.A.	N.A.	7.30	$0
CONSERVATION 89	CONTINGENCY		3.0	1989	1992	100.00%	100.00%	N.A.	N.A.	7.30	$0
CONSERVATION 90	CONTINGENCY		3.0	1990	1992	100.00%	100.00%	N.A.	N.A.	7.30	$0
CONSERVATION 91	CONTINGENCY		3.0	1991	1992	100.00%	100.00%	N.A.	N.A.	7.30	$0
CONSERVATION 92	CONTINGENCY		3.0	1992	1992	100.00%	100.00%	N.A.	N.A.	7.30	$0

TABLE 2-4

BANGOR HYDRO-ELECTRIC

GENERATING RESOURCES	BASE CASE SUPPLY FORECAST - GWH					CONTINGENCY CASE SUPPLY FORECAST - GWH				
	1988	1989	1990	1991	1992	1988	1989	1990	1991	1992
RUN OF THE RIVER HYDRO	196.4	196.4	196.4	196.4	196.4	196.4	196.4	196.4	196.4	196.4
WEST ENFIELD HYDRO	36.8	55.1	55.1	55.1	55.1	36.8	55.1	55.1	55.1	55.1
MILFORD HYDRO	0.0	0.0	0.0	0.0	7.0	0.0	0.0	0.0	0.0	7.0
MAINE YANKEE	372.1	372.1	372.1	372.1	372.1	186.1	0.0	0.0	0.0	0.0
NEW BRUNSWICK POWER 1987	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NEW BRUNSWICK POWER 1988-91	189.2	189.2	189.2	189.2	0.0	189.2	189.2	189.2	189.2	0.0
NEW BRUNSWICK POWER EXTENSION 92	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	189.2
NEW BRUNSWICK CLASS III	78.8	78.8	78.8	78.8	0.0	78.8	78.8	78.8	78.8	0.0
NEW BRUNSWICK PURCHASE	0.0	0.0	0.0	0.0	0.0	109.5	142.4	142.4	0.0	0.0
WYMAN 4 1987-88	197.0	0.0	0.0	0.0	0.0	197.0	0.0	0.0	0.0	0.0
WYMAN 4 1989-91	0.0	224.4	236.9	236.9	0.0	0.0	236.9	236.9	236.9	0.0
WYMAN 4 1992	0.0	0.0	0.0	0.0	293.8	0.0	0.0	0.0	0.0	293.8
MIDDLETON 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GRAHAM 5	37.3	25.4	46.7	82.6	165.1	100.8	119.9	114.8	165.1	165.1
GRAHAM 4	15.9	15.9	15.9	15.9	103.6	15.9	15.9	15.9	103.6	103.6
GRAHAM 3	11.0	11.0	11.0	11.0	71.7	11.0	11.0	11.0	23.5	43.7
DIESELS	10.2	10.2	10.2	10.2	18.2	10.2	10.2	10.2	10.2	10.2
GAS TURBINE 1987	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GREAT NORTHERN PAPER	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
PURPA HYDRO	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9
ULTRAPOWER 5	119.1	119.1	119.1	119.1	119.1	119.1	119.1	119.1	119.1	119.1
ULTRAPOWER 6	119.1	119.1	119.1	119.1	119.1	119.1	119.1	119.1	119.1	119.1
AED	81.9	81.9	81.9	81.9	81.9	81.9	81.9	81.9	81.9	81.9
PERC	119.1	119.1	119.1	119.1	119.1	119.1	119.1	119.1	119.1	119.1
QF OR AVAILABLE POWER	0.0	0.0	0.0	0.0	0.0	0.0	61.3	61.3	61.3	61.3
CONSERVATION 88	0.0	0.0	0.0	0.0	0.0	13.1	26.3	26.3	26.3	26.3
CONSERVATION 89	0.0	0.0	0.0	0.0	0.0	0.0	26.3	26.3	26.3	26.3
CONSERVATION 90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.3	26.3	26.3
CONSERVATION 91	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.3	26.3
CONSERVATION 92	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.3
TOTAL GENERATION	1628.1	1661.8	1695.6	1731.5	1766.4	1628.1	1652.9	1674.1	1708.5	1740.1

IV. MAINE PUBLIC SERVICE COMPANY

MPS provides electrical service to Aroostook County and a small portion of Penobscot County, an area with a total population of 90,000. In 1986 MPS had total sales of 609 gWh and a peak load of 121.1 mW. Maine Yankee is the dominant resource in its supply profile, accounting for 45.6 mW of capacity and providing 46.3 per cent of total energy requirements in 1986. MPS energy demand is projected to grow at a 1.3 per cent annual average rate and peak demand at a 1.1 per cent rate throughout the study period.

In 1986, residential customers accounted for 28.5 per cent of MPS sales, large commercial and industrial customers 24.8 per cent, small commercial and industrial customers 20.6 per cent, public authorities and lighting 9.5 per cent, and sales for resale 16.6 per cent.

MPS also receives power from the Company's entitlement in Wyman 4, the Caribou steam units (8.6 per cent of total generation), hydro generation (20.8 per cent), and other fossil fuel generation (24.5 per cent). In July 1986, the Signal-Sherman facility, a 17.6 mW cogenerator, began producing power for sale to MPS. There are no other scheduled additions to MPS's supply plan throughout the study period. Furthermore, MPS is not a member of NEPOOL and historically has not purchased capacity from NEPOOL members.

MPS projects that its electric rates will increase at a 6.1 per cent average annual rate from 1987 through 1992. The fuel adjustment clause component of this rate is projected to increase at a 4.4 per cent annual rate over this period.

If Maine Yankee were to be closed in July, 1988, MPS could purchase 25 mW from NB Power with the size of the purchase dropping to 15 mW in 1991, the final year of the contract. For purposes of this analysis, it is assumed that the NB Power contract would be priced to be competitive with existing oil-fired capacity in New England. In addition to the NB Power capacity, it is assumed that BHE could contract for an additional 7.5 mW from cogenerators and small power producers in 1991. In addition, to these resources MPS would need an additional 15 mW in 1989, identified in this analysis as QF as Available Capacity. It is also assumed that these two contracts would provide pricing terms the same as those secured by the Signal Sherman Facility. In addition to these resources, we have assumed that MPS would be able to reduce its capacity requirements by an additional 2 mW per year over that included in the forecast, and reduce total generation requirements by 17.5 gWh as a result of the implementation of demand-side management programs. The cost of the energy savings from these demand-side management programs are assumed to be 7.3 cents/kWh. This is a levelized rate which reflects the cost of achieving incremental conservation.

Maine Public Service Company's resource profile and generation under the two cases analyzed are presented in Tables 2-5 and 2-6 on the following pages.

TABLE 2-5

RESOURCE PROFILE

MAINE PUBLIC SERVICE COMPANY

	CONTINGENCY OR BASE RESOURCE	UNIT TYPE	WINTER CAPACITY (MW)	FIRST YEAR RESOURCE AVAILABLE	LAST YEAR RESOURCE AVAILABLE	HEAT RATE (Btu/kWh)	CAPACITY FACTOR MIN (%)	CAPACITY FACTOR MAX (%)	1987 NON-FUEL VARIABLE O & M EXPENSES (CENTS/kWh)	1987 FUEL EXPENSES (CENTS/kWh)	1987 TOTAL VARIABLE O & M (CENTS/kWh)	1987 MARGINAL FIXED COSTS ($/kW)
GENERATING RESOURCES												
BASE HYDRO	BASE	HYDRO	3.0	1987	1992		100.0%	100.0%	0.69	N.A.	0.69	$0
INTERMEDIATE HYDRO	BASE	HYDRO	10.0	1987	1992		65.7%	65.7%	0.69	N.A.	0.69	$0
PEAK HYDRO	BASE	HYDRO	23.0	1987	1992		24.8%	24.8%	0.69	N.A.	0.69	$0
MAINE YANKEE	BASE	NUCLEAR	45.6	1987	1992	10470		72.0%	N.A.	N.A.	0.74	$0
WYMAN 4	BASE	OIL-ST	20.2	1987	1992	9670	20.0%	65.0%	0.11	2.57	2.68	$0
NEW BRUNSWICK ENERGY PURCHASES	BASE	SYSTEM	22.0	1987	1991	10800	30.0%	65.0%	0.15	2.65	2.80	$0
NEW BRUNSWICK PURCHASE 88-90	CONTINGENCY	SYSTEM	25.0	1988	1990	10800	30.0%	65.0%	0.15	2.65	2.80	$68
NEW BRUNSWICK PURCHASE 1991	CONTINGENCY	SYSTEM	15.0	1991	1991	10800	30.0%	65.0%	0.15	2.65	2.80	$68
CARIBOU 2	BASE	OIL-ST	14.0	1987	1992	11260	20.0%	65.0%	0.15	2.76	2.91	$0
CARIBOU 1	BASE	OIL-ST	9.0	1987	1992	12000	20.0%	65.0%	0.15	2.94	3.09	$0
DIESELS	BASE	OIL-IC	13.0	1987	1992	10933	5.0%	20.0%	0.35	4.48	4.83	$0
SIGNAL/SHERMAN	BASE	BIOMASS	17.6	1987	1992	N.A.	82.0%	82.0%	N.A.	N.A.	8.20	$0
LORING AFB	BASE	COGEN	5.0	1987	1992	N.A.	40.0%	40.0%	N.A.	N.A.	8.00	$0
QF OR AVAILABLE POWER 1989	CONTINGENCY	VARIOUS	15.0	1989	1992	N.A.	85.0%	85.0%	N.A.	N.A.	8.20	$0
QF POWER 1991	CONTINGENCY	QF	7.5	1991	1992	N.A.	85.0%	85.0%	N.A.	N.A.	8.20	$0
CONSERVATION 88	CONTINGENCY		2.0	1988	1992	N.A.	100.00%	100.00%	N.A.	N.A.	7.30	$0
CONSERVATION 89	CONTINGENCY		2.0	1989	1992	N.A.	100.00%	100.00%	N.A.	N.A.	7.30	$0
CONSERVATION 90	CONTINGENCY		2.0	1990	1992	N.A.	100.00%	100.00%	N.A.	N.A.	7.30	$0
CONSERVATION 91	CONTINGENCY		2.0	1991	1992	N.A.	100.00%	100.00%	N.A.	N.A.	7.30	$0
CONSERVATION 92	CONTINGENCY		2.0	1992	1992	N.A.	100.00%	100.00%	N.A.	N.A.	7.30	$0

TABLE 2-6

MAINE PUBLIC SERVICE COMPANY

GENERATING RESOURCES	BASE CASE SUPPLY FORECAST - GWH 1988	1989	1990	1991	1992	CONTINGENCY CASE SUPPLY FORECAST - GWH 1988	1989	1990	1991	1992
BASE HYDRO	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3
INTERMEDIATE HYDRO	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5
PEAK HYDRO	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
MAINE YANKEE	274.9	280.6	287.6	287.6	287.6	143.8	0.0	0.0	0.0	0.0
WYMAN 4	35.3	35.3	38.3	49.7	114.8	114.8	97.0	76.8	39.9	69.9
NEW BRUNSWICK ENERGY PURCHASES	57.8	57.8	57.8	57.8	0.0	67.8	57.8	57.8	57.8	0.0
NEW BRUNSWICK PURCHASE 88-90	0.0	0.0	0.0	0.0	0.0	32.9	65.7	65.7	0.0	0.0
NEW BRUNSWICK PURCHASE 1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39.4	0.0
CARIBOU 2	24.5	24.5	24.5	24.5	25.9	24.5	24.5	24.5	24.5	24.5
CARIBOU 1	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8
DIESELS	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
SIGNAL/SHERMAN	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4
LORING AFB	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
QF OR AVAILABLE POWER 1989	0.0	0.0	0.0	0.0	0.0	0.0	111.7	111.7	111.7	111.7
QF POWER 1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	55.8	55.8
CONSERVATION 88	0.0	0.0	0.0	0.0	0.0	8.8	17.5	17.5	17.5	17.5
CONSERVATION 89	0.0	0.0	0.0	0.0	0.0	0.0	17.5	17.5	17.5	17.5
CONSERVATION 90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.5	17.5	17.5
CONSERVATION 91	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.5	17.5
CONSERVATION 92	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.5
TOTAL GENERATION	691.9	697.5	707.4	718.9	727.6	691.9	691.0	688.3	698.5	648.8

V. PROJECTED ELECTRICITY RATE IMPACT

The projected impact of the shutdown of Maine Yankee on retail electricity rates varies by utility based on their relative reliance on Maine Yankee to meet energy and capacity needs. The available options in the 1988-1992 period essentially amount to replacing the variable operating costs of Maine Yankee (less than one cent per kWh) with increased generation from existing and less efficient oil units and by purchasing more capability from neighboring utilities and qualifying facilities. These power substitutes range in cost from four to eight cents per kWh.

The four charts which follow indicate the Base and Contingency Cases for capacity and energy for the three utilities. The source marked "QF/Other" in the Contingency Cases may actually be QF power (probably to the extent shown in the Base Cases) or another unspecified source at the same cost. As noted above, the incremental amount in the Contingency Case in 1989 will not be QF power.

These charts show that replacement for Maine Yankee will come from oil-fired units, purchases which will use oil or nuclear generation, QFs and unspecified sources (probably additional purchases) and conservation.

Chart 2-1

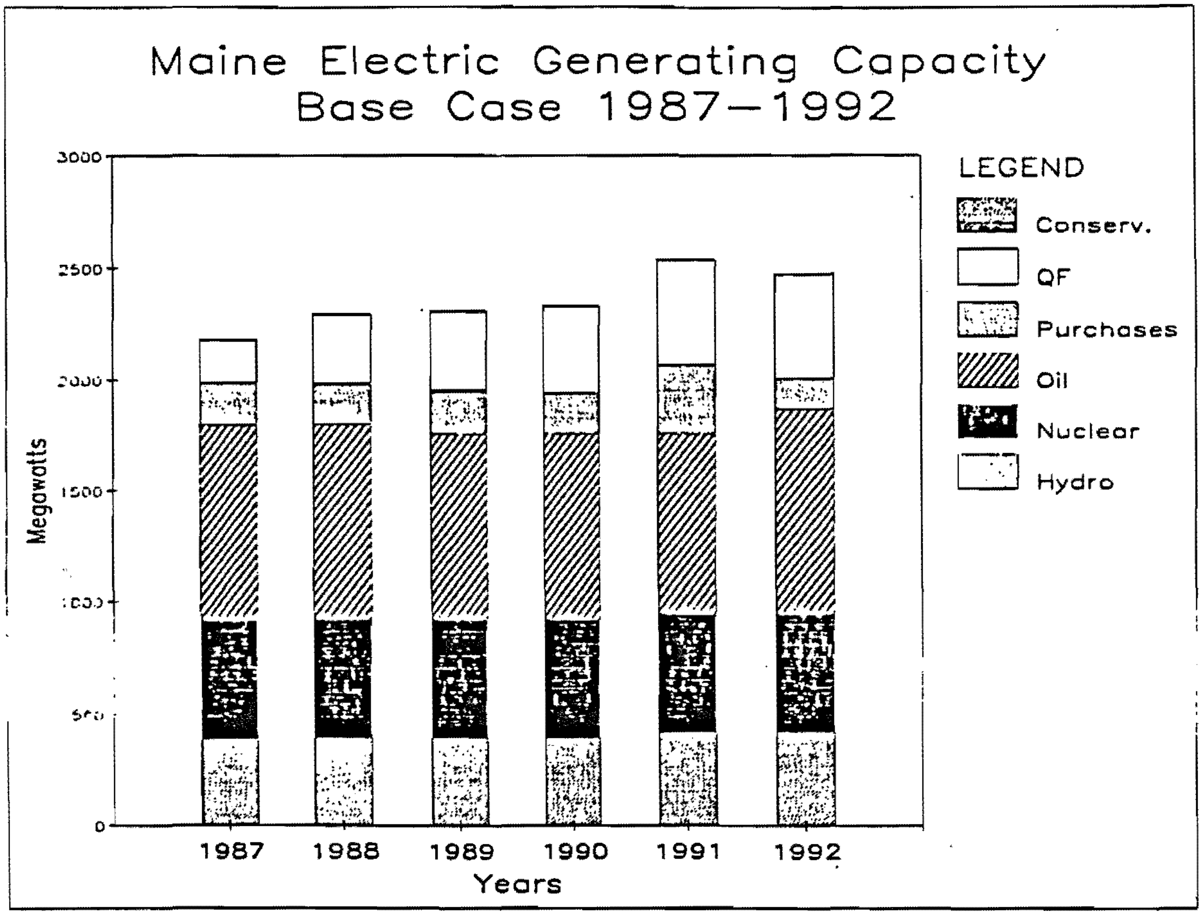


Chart 2-2

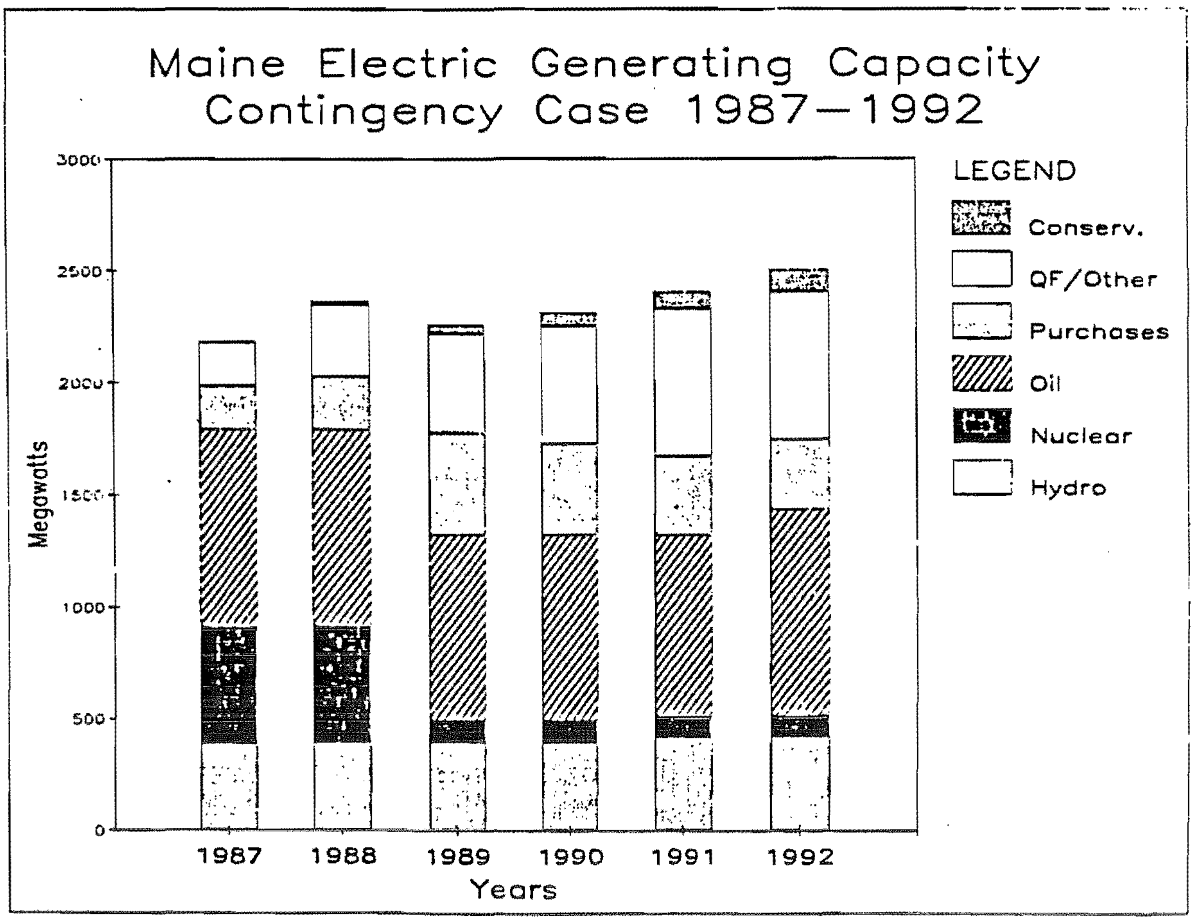


Chart 2-3

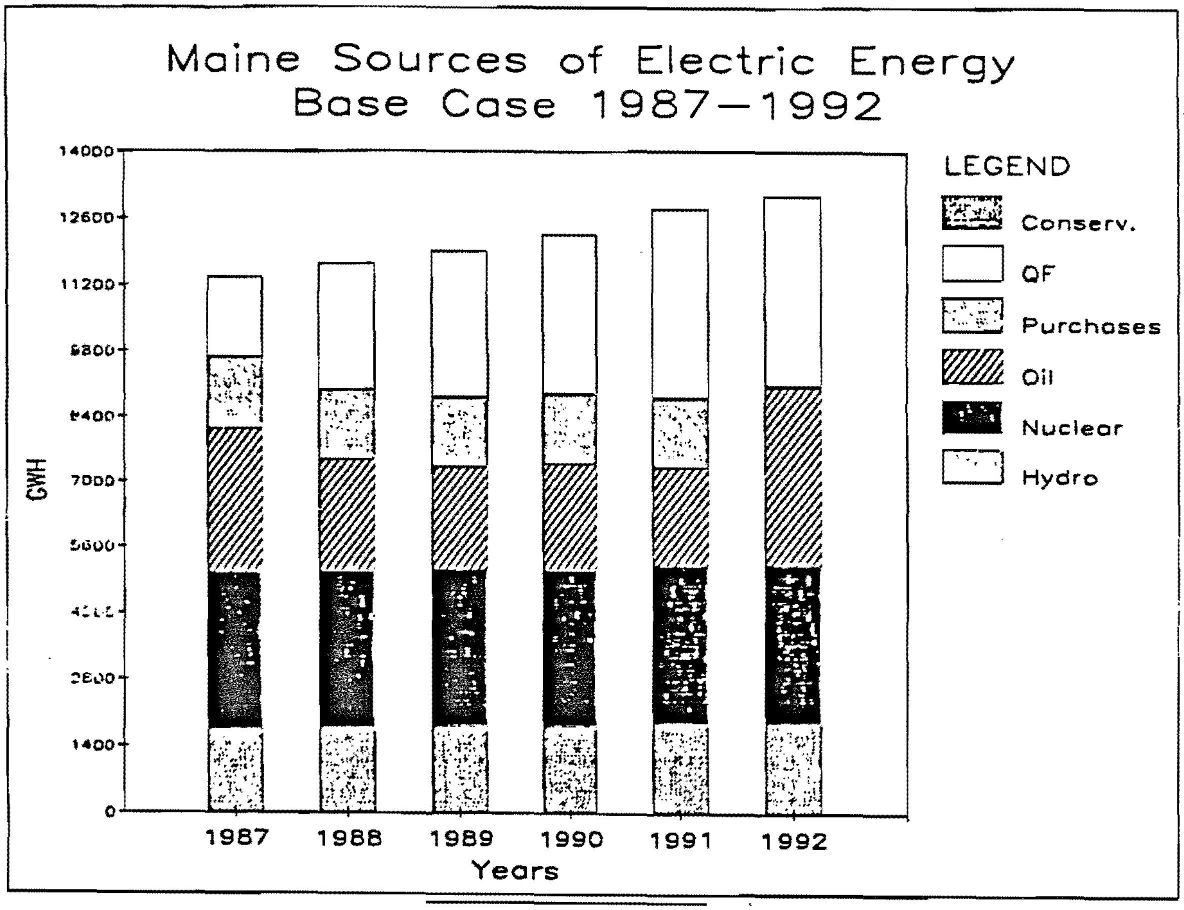
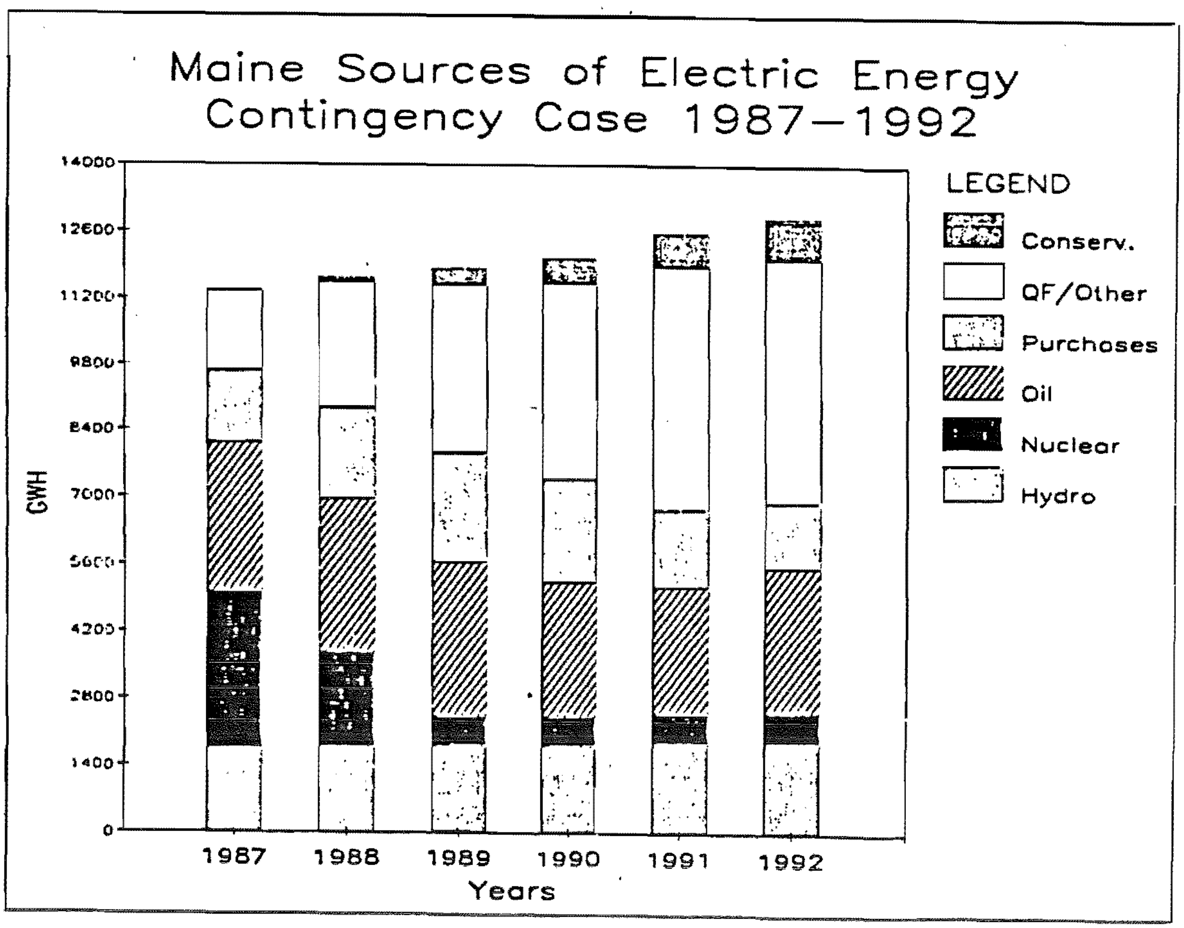


Chart 2-4



The rate impact results are summarized in Table 2-7 below.

TABLE 2-7
RATE INCREASES RESULTING FROM CLOSING MAINE YANKEE

	1988	1989	1990	1991	1992
CENTRAL MAINE POWER					
Increase in Production Costs ($ Millions)	30.0	97.0	112.6	121.5	138.0
Rate Impact					
Increase - (¢/kWh)	0.34	1.09	1.24	1.27	1.40
Increase % - Total System	4.8%	14.3%	15.6%	15.5%	15.8%
Increase %--Industrial Rates	6.3%	18.3%	19.6%	19.3%	19.8%
BANGOR HYDRO ELECTRIC					
Increase in Production Costs ($ Millions)	8.1	18.6	20.0	20.8	19.1
Rate Impact					
Increase - (¢/kWh)	0.55	1.23	1.30	1.33	1.19
Increase % - Total System	6.3%	13.1%	13.9%	13.9%	12.5%
Increase %-Industrial Rates	8.4%	17.2%	18.2%	18.2%	16.4%
MAINE PUBLIC SERVICE					
Increase in Production Costs ($ Millions)	5.0	16.0	17.3	21.3	19.1
Rate Impact					
Increase - (¢/kWh)	0.77	2.45	2.67	3.23	3.13
Increase % - Total System	8.9	26.5%	28.9%	33.1%	35.4%
Increase %-Industrial Rates	11.6%	34.5%	37.6%	43.6%	47.0%

Maine Public Service, which relies on Maine Yankee for over 45 per cent of its energy requirements, will experience a rate increase of 26.5 per cent in 1989, the first full year without Maine Yankee. Industrial consumers will be subject to the most drastic rate increase at 34.5 per cent in 1989. As noted earlier, this rate increase is over and above the projected rate increase of 6.1 per cent per year included in the Base Case.

The impact on customers in the CMP and BHE service areas follow a similar pattern, although the size of the rate increase reflects the relatively smaller ownership share in Maine Yankee relative to other existing supplies. CMP industrial rates will increase by an additional 18.3 per cent over Base Case projections and BHE industrial rates would increase by an additional 17.2 per cent. These industrial rate impacts are summarized for each company on the following graphs.

Chart 2-4

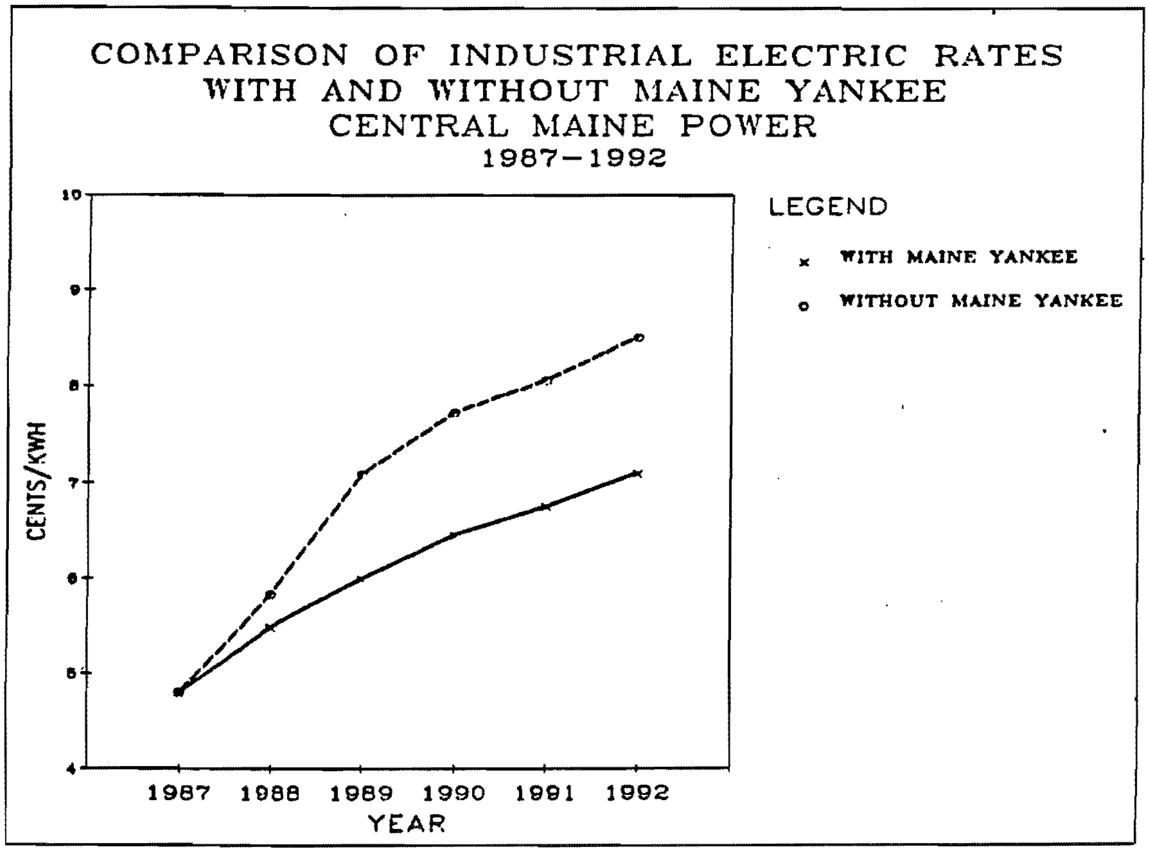


Chart 2-5

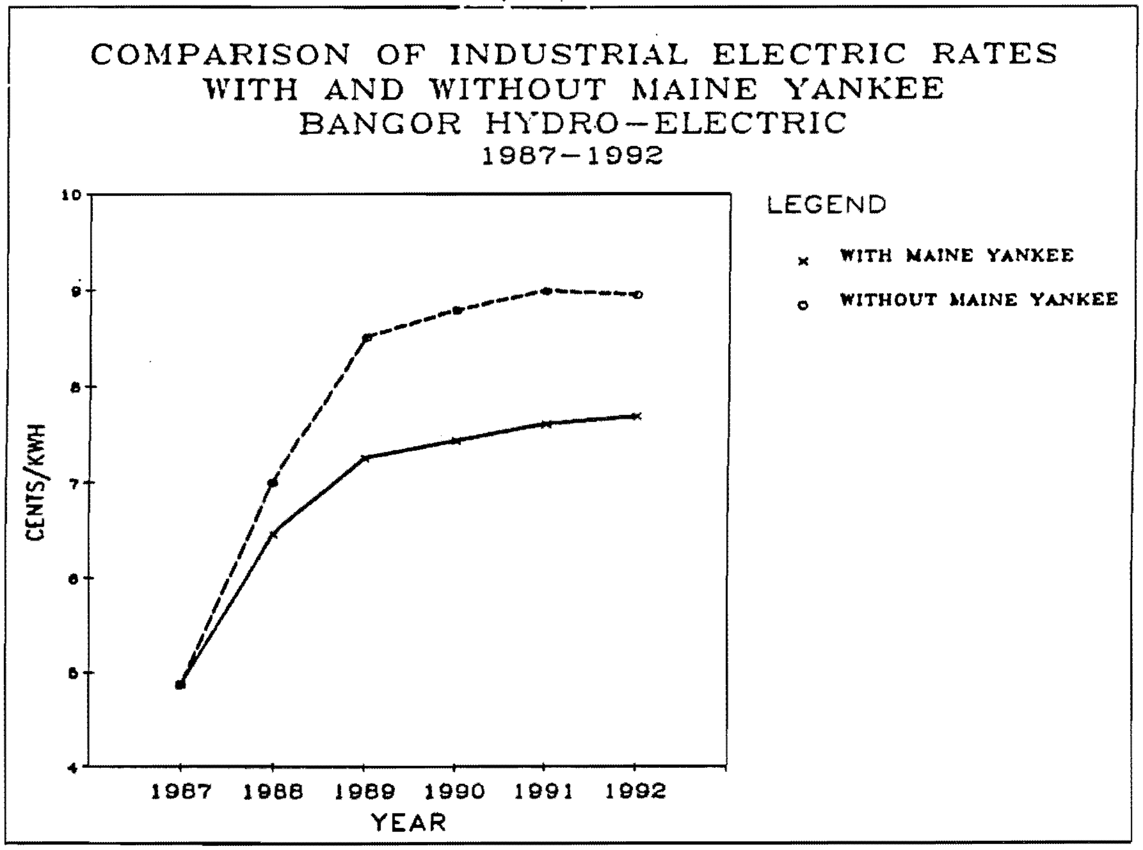
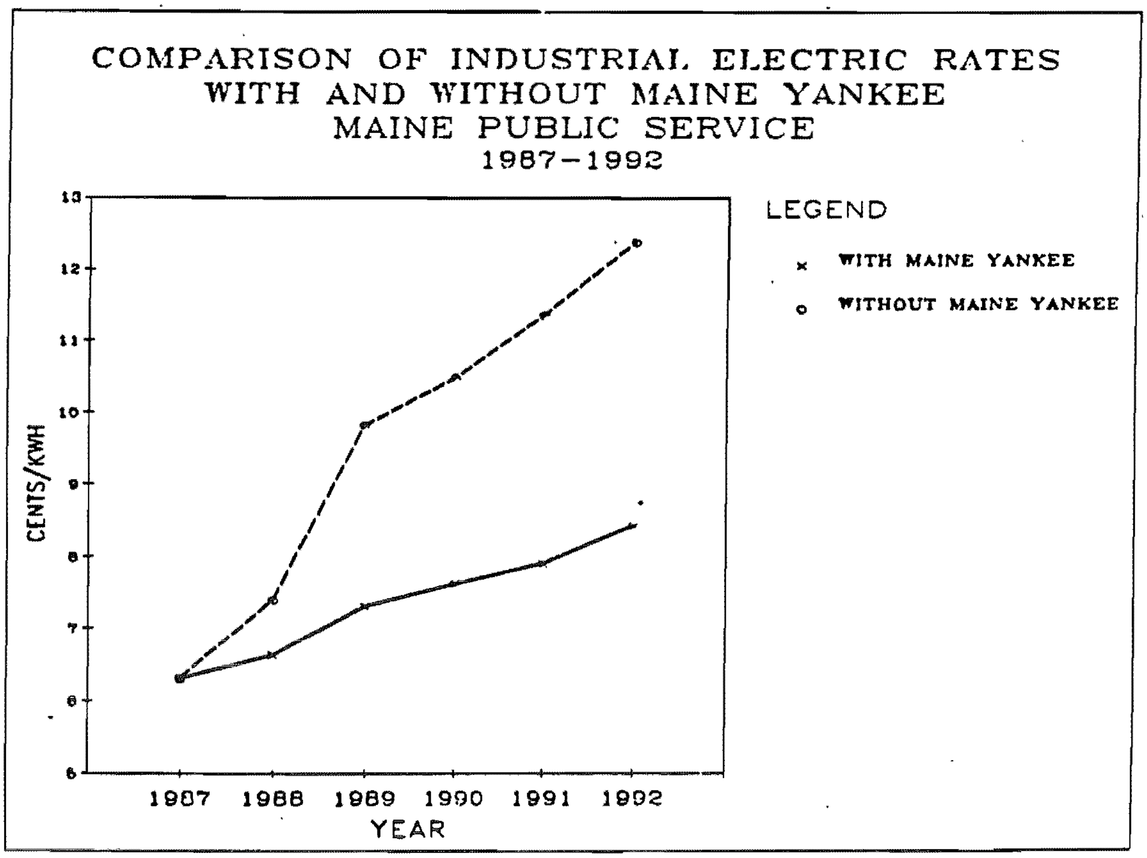


Chart 2-6



The impact on average industrial and commercial customers in 1989 is summarized below. These estimates are based on average monthly use of 3,000 kWh for the commercial customer, a 5 mW industrial customer operating at a 70 per cent capacity factor and a 30 mW industrial customer operating at a 90 per cent capacity factor.

TABLE 2-8

TYPICAL BILL IMPACT

$/YEAR

	COMMERCIAL (3000 kWh)	INDUSTRIAL (5 mW)	INDUSTRIAL (30 mW)
Central Maine Power	392	333,826	2,575,230
Bangor Hydro	398	377,118	2,909,196
Maine Public Service	895	751,170	

Thus, we may see the cost per customer of a decision to close Maine Yankee prematurely in July 1988. These are annual costs; they would be approximately five times as much over the study period.

CHAPTER 3. ASSESSMENT OF ECONOMIC IMPACTS

I. MACRO ANALYSIS

A. Introduction

The response of the Maine industrial sector to increased electricity prices resulting from the closing of Maine Yankee in July, 1988 will have significant ramifications for the Maine economy. This chapter assesses the magnitude of the increased cost of production due to the closing of Maine Yankee and analyzes the resulting response of four industrial sectors and related subsectors (the "target" industries) in the Maine economy (Food [SIC 20], Paper [SIC 26], Lumber [SIC 24], and Chemicals [SIC 28]).

B. Industry Response Options

Industrial customers can respond to rising production factor (labor, capital, materials, energy) prices in a number of ways depending on the magnitude of the increase, the importance of that factor in the production process, the ability to substitute with other factors of production, the elasticity of demand for the product(s) being produced (which affects the firm's ability to pass along the production cost increases), capacity utilization rates in the industry overall and within the corporation (which determine a firm's ability to shift production to lower cost facilities), and industry competitiveness.

In essence, industries have three options in responding to rising factor costs:

1. Close the Plant

A decision to close a facility in Maine or in any other region will depend on whether the cost increase is so prohibitive as to render operations uneconomic. A firm is likely to make this decision if it cannot at least cover its variable costs of operation, one of which is energy. This is certainly a worst case scenario for the local economy.

2. Reduce Output/Shift Production

A second option is to reduce output in Maine facilities through direct output cutbacks or a shift of production to out of state facilities. The capability of a firm to pursue this option will be dependent on the type of industry (primary goods versus secondary goods), the relative costs and shares of factors of production, and the capacity utilization rate of other facilities.

Economic theory indicates that firms will generally respond to rising factor prices by either producing less or by requiring a higher price for maintaining the same level of output. If demand for the product is unresponsive to price changes ("inelastic"), output may be maintained but at higher prices. If demand is very responsive to price changes ("elastic"), producers will be forced to reduce output since consumers will resist price increases by withholding purchases. They are essentially unable to pass along the increased costs to consumers.

3. Maintain Output but Substitute Inputs

In this last case, industry may have a number of options to produce the same level of output by substituting other energy for electricity, labor for energy, or capital for energy through conservation or cogeneration. A firm will combine resources based on the relative costs of the resources, given technology constraints, in a manner which minimizes overall production cost. This option is not mutually exclusive from the second option. In fact, a firm may decide to pursue this option in conjunction with reducing output. The decision to substitute capital for energy is generally a longer term option since a firm has competing uses for available capital and the capital stock is fixed in the short run.

In any case, the adverse response of industry to increasing electricity prices will impact the following economic participants:

1. The Maine economy overall in terms of direct loss of jobs and output in those sectors and geographic areas most affected by rate increases.

2. Other industries which supply the major industries. For example, if output declines in various target industries, the demand for goods and services produced by other industries used in the production process of the target industries will decline as well. These secondary effects can have substantial ramifications throughout the economy.

3. Other electric customers, include residential customers, who will be allocated a greater share of the fixed costs if firms leave the state or produce their own power.

The type of response by industry to rising electricity prices will determine the ultimate impact on the Maine economy.

C. Target Industries and the Maine Economy

The four target manufacturing industries together employed over 39,000 workers in Maine (9.5 percent of total state employment) and contributed nearly $1.37 billion to the state economy, or 12.8 percent of total Maine Gross State Product in 1982. In fact, the Paper and Lumber industries are the two largest manufacturing sector industries in Maine. Table 3-1 illustrates the contribution to employment and Gross State Product by industry segment for Maine.

Note: Data for 1982 serves as the basis for analysis since 1982 is the last year in which a complete set of data is available for manufacturing sector.

TABLE 3-1

EMPLOYMENT AND OUTPUT BY INDUSTRY

1982

	EMPLOYMENT (1000)	%	GROSS STATE PRODUCT (Million $)	%
Construction	16.5	4.0	480	4.5
Manufacturing				
Food Products (20)	9.0	2.2	244	2.3
Lumber & Wood (24)	11.7	2.8	314	2.9
Paper & Allied Products (26)	17.6	4.3	778	7.3
Chemicals (28)	.7	.2	30	.3
Sub-Total	**39.0**	**9.5**	**1366**	**12.8**
Total Manufacturing	107.4	26.2	2904	27.1
Transportation & Utilities	18.4	4.5	864	8.1
Wholesale & Retail Trade	87.8	21.4	1858	17.3
Finance, Insurance & Real Estate	17.6	4.3	1342	12.5
Services & Mining	81.0	19.8	1594	14.9
Government	81.9	19.9	1669	15.6
TOTAL - STATE	**410.6**		**10,771**	

Sources: Federal Reserve Bank of Boston. Gross State Product New England, June 1984 and Dec. 1985.
U.S. Dept of Labor, Bur. of Labor Statistics, Employment, Hours and Earnings, States and Areas, 1939-1982. Jan. 1984.

In addition to their importance to the economy in terms of employment and output, these four industries are major energy and electricity consumers. In 1982, the target industries consumed nearly 90% of all of the fuel purchased by the manufacturing sector in Maine and nearly 77 percent of all electricity purchased by manufacturing establishments. Data supplied by

Maine electric utilities indicates that these industries were responsible for 76 percent of total industrial electricity sold by investor-owned utilities in 1986 and 29 percent of total electricity sales. Table 3-2 illustrates sales data by each investor-owned utility to the target industries over the 1984 to 1986 time frame.

TABLE 3-2

SALES BY SIC

		CENTRAL MAINE	BANGOR HYDRO	MAINE PUBLIC
FOOD INDUSTRY				
	1984	95,074	18,476	67,384
	1985		19,149	85,960
	1986	95,290	19,654	94,793
LUMBER INDUSTRY				
	1984	119,011	35,443	50,679
	1985		36,680	53,784
	1986	108,288	36,163	56,088
PAPER INDUSTRY				
	1984	2,124,983	219,506	N.A.
	1985		260,844	N.A.
	1986	2,100,539	218,862	N.A.
CHEMICAL INDUSTRY				
	1984	24,944	20,511	N.A.
	1985		171,955	N.A.
	1986	140,211	188,807	N.A.
FOUR INDUSTRY TOTAL				
	1984	2,364,012	478,536	118,063
	1985		488,628	139,744
	1986	2,444,328	463,486	150,881
TOTAL INDUSTRIAL				
	1984	3,231,237	553,409	118,063
	1985		522,546	139,744
	1986	3,353,004	500,642	150,881
TOTAL COMPANY				
	1984	7,930,023	1,359,180	573,527
	1985		1,383,636	605,525
	1986	8,492,655	1,406,481	656,115

Source: Uniform Statistical Report, Selected Utilities

D. Industry Response

The economic response to higher electricity prices will vary not only by industry but also by individual firms within each industry. This analysis does not attempt to estimate the response on an individual firm basis but relies on a more aggregated 2 digit SIC level.

To estimate the likely response on the part of industry to increased electricity prices, several important questions must be addressed:

1. Are firms in the industry price takers? Do the firms have to sell at the price established in a broader market or does their output alone have a controlling effect on price? Is the industry comprised of competitive firms?

2. Do firms in these industries have any flexibility to offset higher energy costs by putting downward pressure on the prices of their other product suppliers?

3. Does excess capacity exist to allow production transfers to other facilities and is there an opportunity for further self-generation?

4. How important is electricity as a factor of production?

1. Food and Kindred Products Industry

The Food industry (SIC 20) in Maine accounts for 2.2 percent of total state employment and an equivalent percentage of state output.

The Food industry is an intermediate input intensive industry. That is, material costs comprise the greatest share of total production costs. The industry is not very energy-intensive. Only 2.7 percent of total production costs were energy in 1982 and only 1 percent of production costs represented costs for electricity. On a national level, the Food industry is characterized by a large number of small firms with the average number of employees per firm of 67. However, 36 percent of all firms in the industry employ less than 10 workers. The Food industry in Maine follows a similar pattern with an average of 55 workers per firm. The Frozen Fruits and Vegetables industry (SIC 2037) represents the largest segment of the Food industry with 175 employees per firm in Maine. Data on concentration ratios for manufacturing establishments indicates that the Frozen Fruits and Vegetables industry is quite competitive and is not dominated by a few large firms. (United States Department of Commerce, Census of Manufacturers, 1982. Concentration Ratios in Manufacturing, 1982.)

Within Maine, the two dominant locations of the Food industry are in Aroostook and Cumberland counties. This indicates that the food processing industries (e.g., Frozen Fruits and Vegetables) are generally located close to the source of the raw material.

In sum, it appears that the Food industry and its important local segments such as Frozen Fruits and Vegetables represents a competitive industry which may not be heavily dependent on electrical energy. Location close to the source of raw materials is an important consideration, indicating that plant closing or production transfer is unlikely. Undoubtedly, the industry could seek to put pressure on farmers to absorb the increased electricity costs. It is possible that farmers would initially resist and then, seeing their sales fall, would reduce prices to increase volume. In this case, total farm production decreases in the study period could recover somewhat from an initial decline. However, given the already precarious nature of the farm sector, it is more probable that farm production would remain depressed, because reduced prices would cause revenue losses to farmers on each unit sold. Therefore, since factor input relationships appear fairly stable, it appears the most likely course of action in response to rising electricity prices will be production cutbacks in local facilities.

2. Lumber and Wood Products Industry

The Lumber and Wood Products industry (SIC 24) in Maine is the second largest manufacturing industry, accounting for nearly 3% of total state employment and 3% of state output. This industry is comprised of firms in both the processing of wood (sawmills) and development of wood products. Most industries within the Lumber industry are raw material based, since raw material transportation costs are a significant consideration.

The Lumber industry relies heavily on intermediate inputs from other industries to produce its product with the largest input by far coming from segments within the industry itself. For example, to produce one dollar's worth of output in the Wood Container segment of the industry, 34¢ worth of input from other producers in the Lumber and Wood Products industry is required. On the other hand, the majority of sales of Lumber and Wood Products are to other manufacturers as inputs into their production process. Only a small amount of output is to final demand sectors, with the largest amount of this going to the export market.

The Lumber and Wood Products industry is not an energy-intensive industry in terms of purchased fuels and electricity. A number of firms in the industry use wood and wood waste products to self generate. In 1982, only 2.6 percent of the Maine Lumber industry's total production cost was for energy, and only 1.1 percent represented purchased electricity. Energy use per dollar of output in the Lumber industry is below the statewide manufacturing average. In terms of production input cost shares, 60.7 percent was comprised of materials costs, and over 19 percent of production cost was for labor. The Lumber industry is labor-intensive requiring 38.5 workers per million dollars of output, 41 percent above the state manufacturing sector average.

The Lumber and Wood Products industry is also characterized by a large number of small firms. The Lumber industry represents 35 percent of the manufacturing firms in the state, but only 11 percent of the employment. Sixty-seven percent of all firms in this industry employ less than 10 workers. Data on concentration ratios indicates the Lumber industry is very competitive.

Within Maine, several segments of the industry are very important to the state economy. These include particularly the Wood Products (SIC 2499), Sawmill (SIC 2421), and Hardwood Dimension and Flooring (SIC 2426) industries. In fact, the Sawmill industry employs nearly 3,000 workers in Maine. The Lumber industry is particularly important in Penobscot (2,200 workers), Oxford (1,900 workers), Aroostook (1,500 workers), Franklin (1,400 workers), and Somerset counties (1,400 workers).

In sum, the Lumber industry is an important component of the Maine economy. The industry is characterized as a resource based industry which has a number of small firms that are generally labor-intensive and may not rely heavily on energy to produce their product. The industry appears to be very competitive, based on the large number of firms. Given the nature of the industry in terms of reliance on a local resource and firm size, it is unlikely that relocation of the firm is a viable option. Also, the ability to substitute inputs may be limited in the short-term by capital availability. It is unlikely that pressure on the woods industry would yield any positive results, because of the economic pressures already at work there.

Due to Maine's minor position in the world market and the large requirement for local, immobile raw materials inputs, it is unlikely that increased electricity costs can be passed along to product prices or back to raw material suppliers. The most likely outcome as a result of higher electricity prices will be production cutbacks.

3. Paper and Allied Products

The Paper and Allied Products industry (SIC 26) in Maine is by far the largest manufacturing industry, accounting for 4.3% of total state employment and 7% of state output. The Paper industry encompasses firms which produce paper and paperboard products, including cardboard containers and boxes.

The Paper industry is an energy-intensive industry, accounting for 74 percent of total manufacturing sector energy consumption in Maine. In Maine, purchased energy accounts for

10.1% of the industry's total production costs, and electric energy for 3.0% of total production costs. The use of electricity reflects the growth of mechanical processes as well as increased electrical requirements for environmental equipment. In addition, the Paper industry is energy-intensive in its reliance on the use of energy per dollar of output (value added). In 1982, the Paper industry in Maine utilized over 52,000 Btus of energy per dollar of value added, significantly above the United States industry average of 32,500 and dramatically above the Maine manufacturing average of 18,300. It is also important to note that the Paper industry in Maine is much more electric intensive than the United States industry average due largely to the lack of substitute fuels such as natural gas and coal in Maine.

The Paper industry is not labor-intensive, requiring only 16 workers per $1 million of output, which is significantly below the state-wide manufacturing sector average. Similar to the Lumber industry, the majority of output by the Paper industry is used by other industries as an input to the production process as opposed to sales for final demand.

The Paper industry in Maine is characterized by fewer firms and a larger number of employees per firm than Food or Lumber. In 1982, the average number of employees per firm was 393 in Maine, substantially higher than the United States average of 95 employees per firm. In fact, for the United States as a whole only 21% of all firms in the Paper industry employ less than 10 workers.

A review of concentration ratios for the four digit SIC codes within the Paper industry indicate that for most segments of the industry, the 20 largest companies account for over 70% of the value of shipments while the 50 largest companies account for over 90%. According to Pulp and Paper Fact Book, "the reasons behind the gradual growth in concentration over time include the growing size of mills and machines which limit the ability of smaller companies to compete, and also rising energy, fiber and environmental compliance costs, which particularly hurt smaller, nonintegrated producers. These have resulted in increased merger activity in the industry and in continuing shutdown of older facilities, especially since the past recession." (Miller Freeman Publications, Pulp and Paper Fact Book '84, '85. North America. 1985.) National industry data also indicates that capacity utilization rates are high in the Paper and Board industry (90 percent), and in the Pulp industry (86 percent).

Within the State of Maine, the Paper Mills industry (SIC 2621) is predominant in the Paper industry, employing 12,900 employees or nearly 75 percent of total Paper industry employment. Ten percent of all employment in this four digit SIC code in the United States is located in Maine. Location of firms in this segment of the industry is resource based.

Just as with the food products industry, the paper sector might try to pass its additional production costs back to its suppliers. However, as was previously noted with respect to the food products industry the marginal status of many wood suppliers suggests that they would be unable to accept any such pressure.

In sum, the Paper industry is the most energy-intensive industry in Maine both in terms of energy use and as a cost of production. In Maine, the Papermill segment of the industry is predominant. The industry is currently characterized by a smaller number of large firms which dominate the industry in Maine and sell in a national market, high capacity utilization rates which limit the opportunity for a shift in production to lower cost operations, and an increased trend toward consolidation of operations.

The ability of firms in this industry and in other industries to substitute among energy sources is limited by the unavailability of natural gas and coal. Also, competition for capital is difficult within companies, between plants and functions, especially given the need to further modernize operations to stay competitive. Finally, many firms in the Paper industry have already made cogeneration and conservation investments in response to the oil price shock in the late 1970s which reduces the potential for cost-effective measures now.

4. Chemical Industry

The Chemical industry (SIC 28) in Maine is a relatively small industry in terms of employment and output, accounting for only 0.2 percent of state employment and 0.3 percent of Gross State Product. According to the 1982 Census of Manufactures, there were only 25 firms in this industry in Maine which employed a total of 700 workers.

The Chemical industry in Maine is predominantly located in York County. However, virtually no data is available which provides energy or electric consumption information for the industry in Maine. Data that does exist for the industry within the United States indicates that purchased fuels comprise 3 percent of total production cost while electricity also comprises 3 percent of total production cost. Given the lack of energy data for this industry in Maine, our analysis of the effects of electric price increases will focus on the other three target industries.

D. IMPACT OF ELECTRICITY PRICE INCREASES ON PRODUCTION COST

The importance of energy in the production process varies significantly by industry as Table 3-3 illustrates.

TABLE 3-3

PRODUCTION COST SHARES
BY SIC

MAINE INDUSTRIES

	ALL MANUFACTURING	FOOD	LUMBER	PAPER
Payroll	20.5%	13.0%	19.2%	16.4%
Non-Energy Materials	47.7%	62.5%	61.3%	46.9%
Purchased Fuels	4.0%	1.7%	1.5%	10.1%
Electricity	1.7%	1.0%	1.1%	3.0%
Other Capital)	26.1%	21.8%	16.9%	23.6%
Energy Use per $ of Output (Btus)	18,327	10,879	9,384	52,253

Source: U.S. Department of Commerce, Census of Manufactures, 1982, General Summary and Fuels and Electric Energy Consumed, March 1986.

The Paper industry is the most energy-intensive in Maine with energy accounting for over 13 percent of the total production costs. The combination of energy cost shares relative to other inputs and the consumption of energy required to produce a unit of output will determine the impact on each target industry and the industrial sector as a whole resulting from the electric price hike due to the Maine Yankee closing.

Given the limited amount of timely data, 1982 is used as the base year from which to estimate the impact of the increases in electricity prices due to the closing of Maine Yankee. For this analysis, it is assumed the production cost shares remain constant. The increase in electricity prices therefore translates directly into an increase in production costs.

The following table illustrates the increase in production costs from the base period resulting from the increase in electricity prices on a statewide basis.

TABLE 3-4

INCREASES IN TOTAL PRODUCTION COST

MAINE SIC'S
(Million $)

	1988	1989	1990	1991	1992
Electric Price Increase (¢/kWh)	.3965¢	1.89¢	1.33¢	1.39¢	1.46¢
Paper	$7.7	$23.2	$25.9	$27.1	$28.4
% Increase	.29%	.87%	.97%	1.01%	1.06%
Food	$ .8	$ 2.4	$ 2.7	$ 2.8	$ 2.9
% Increase	.08%	.25%	.28%	.29%	.31%
Lumber	$ .7	$ 2.1	$ 2.3	$ 2.4	$ 2.6
% Increase	.08%	.24%	.27%	.28%	.29%
All Manufacturing	$13.0	$38.9	$43.5	$45.4	$47.7
% Increase	.15%	.45%	.50%	.52%	.55%

The data indicate that the direct increase in electricity prices estimated to result from a closing of Maine Yankee taken alone, results in less than a one percent increase in total production costs for the target industries. However, when combined with the fact that for the state's largest employer, the Paper industry, total profits nationwide have averaged between 2.4 percent and 5.0 percent of revenues in the past ten years, a one percent increase in total cost, in addition to other expected electric rate increases and wage hikes, can severely erode profitability. These are low margins. The situation of the paper industry is precarious, even without the production cost increases resulting from closing Maine Yankee. These effects only add to the economic burden that these industries must bear. (See below, Chapter 4).

In addition, the production decisions of these target industries and other manufacturing establishments could have ramifications throughout the economy in both a direct and indirect manner. These interindustry effects are dealt with in the subsequent section.

E. INTERINDUSTRY IMPACTS

The production decisions of major target industries will influence the requirements for inputs from other industries, and hence the employment requirements of these industries. The technique known as Input-Output Analysis illustrates the amount of input required from each industry to produce $1 of output in the target industry. This analysis can be used to estimate the reductions in demand for each supplying industry resulting from a reduction in the production of the target industry.

Input-Output analysis has several limitations when utilized for state or regional analysis. To gain an accurate perspective of a change in output of a specific industry on other state industries, it is necessary to know if product inputs will be purchased from within the state or out of state. For example, if all inputs required by a given industry to produce one unit of output are purchased from in-state industries, the impacts on the state economy will be much greater than if only a small percentage are purchased within state. However, Input-Output analysis can serve as a useful guide to assess interindustry impacts, particularly in identifying the industry segments which would most likely be affected by an increase or reduction in output by a target industry.

To simplify the analysis and provide a more logical basis of comparison, the 85 industry two digit SIC categories included the 1981 Input-Output table for the U.S. have been consolidated into five categories. The direct input coefficients represent the product inputs percentages provided by each industry group. The direct coefficients for each target industry group are provided in Table 3-5.

The results indicate that the Food industry is heavily reliant on Primary Resource industry inputs. This includes inputs from industries such as Agriculture and Livestock. It is likely that many of these inputs will be provided by in-state suppliers, particularly for such inputs as agricultural products since long distance shipping of these items would prove costly.

The Lumber, Paper, and Chemical industries are heavily dependent on inputs from within the manufacturing industries, much of which is provided by firms within the same industry. For example, 30% of inputs utilized by the Lumber and Wood Products

Table 3-5

Product Inputs For Target Industries

Input Industries	Direct I-O Coefficient Food and Kindred Products	Direct I-O Coefficient Lumber and Wood Prod. Except Containers	Direct I-O Coefficient Wood Containers	Direct I-O Coefficient Paper and Allied Prod Except Containers	Direct I-O Coefficient Paperboard Containers and Boxes	Direct I-O Coefficient Plastics & Synthetic Materials
Primary Industry Inputs (1-13)	0.310	0.109	0.011	0.021	0.010	0.045
Other Manufacturing (14-42)	0.306	0.402	0.459	0.414	0.514	0.581
Machinery & Equipment (43-64)	0.002	0.011	0.009	0.007	0.011	0.004
Services (65-85)	0.169	0.139	0.186	0.217	0.113	0.165
Value Added	0.213	0.339	0.335	0.342	0.352	0.204

Source: United States Department of Commerce. Survey of Current Business. Jan. 1987.

(except Containers) industry are provided by other firms in the industry. It is likely that a large percentage of these raw material inputs are directly or indirectly provided by in-state firms given the resource based and output processing nature of the Lumber and Paper industries. Purchases from machinery and equipment manufacturers are small and these inputs are likely purchased from specialized out-of-state vendors. Purchases from Service Related industries including Wholesale and Retail Trade, Financial and Business Services, Transportation and Warehousing represent 10 to 20 percent of total inputs. It is likely many of these services are purchased from in-state local firms.

Although payment to electric utilities represent one of the single largest cost items, other industry inputs taken as a whole are more important. Within the Service sector, several industries provide important inputs to the target industries and will be affected by production cutbacks in the target industries. For example, nearly 4¢ of total production cost for the Paper industry is for transportation and warehousing services while nearly 7¢ is for Wholesale and Retail Trade. Business Services is another important input industry for the target industries.

F. ECONOMIC IMPACTS

Increased electricity prices will affect the economy as firms decide to reduce output in response to production cost increases. The direct reduction in output by a target industry will not only result in loss of output and employment in that industry but also in other industries which supply that industry.

This section utilizes employment and income multipliers generated for the State of Maine by the United States Department of Commerce to estimate direct and indirect employment and income effects. (U.S. Department of Commerce, Regional Input-Output Modeling System (Rims II), 1986.)

Table 3-6 illustrates the impact on total production costs in the target industries resulting from closing Maine Yankee. The results indicate that the impacts vary by industry and by year. For example, by 1989, total manufacturing sector production costs will rise by $40 million compared to production costs based on "base case" electric prices. After 1989, incremental production costs associated with the Maine Yankee closing increase only gradually.

TABLE 3-6

TOTAL PRODUCTION COST INCREASES
(Million $)

	1988	1989	1990	1991	1992
All Manufacturing	$13.0	$38.9	$43.5	$45.4	$47.7
Paper	$ 7.7	$23.2	$25.9	$27.1	$28.4
Lumber	$ .7	$ 2.1	$ 2.3	$ 2.4	$ 2.6
Food	$ .8	$ 2.4	$ 2.7	$ 2.8	$ 2.9

Sources: U.S. Department of Commerce, Regional Input-Output Modeling System (RIMS II), 1986.

The relationship between the production cost increase and the production decrease depends upon a number of variables, including demand and supply elasticities, industry competitiveness, and existing profit margins. As discussed earlier, this analysis has shown that the Lumber and Food industries are comprised of a considerable number of small firms which are very competitive, while the Paper industry is comprised of fewer firms but domestic and international competition is still significant.

In a competitive industry where firms are "price-takers", rather than "price setters," a firm does not have the economic ability to pass along production cost increases which affect only a portion of that industry. Therefore, the most likely response to higher production costs is to cut back production.

Apart from competition itself, one must remember that increased costs sustained by Maine industries as a result of a Maine Yankee closing would not be sustained by other firms elsewhere. Thus, it would be natural for production to shift to out of state in recognition of lower production costs.

The magnitude of the production cutback will be dependent on the production cost increase realized as well as the elasticities of demand and supply for each product. Since the demand for the products of these industries generally reflects a competitive market situation, the demand curves approach perfectly elastic demand curves. Thus, an increase in production costs should result in a corresponding decrease in output. For purposes of this analysis, we have assumed conservatively that a 1 percent increase in total production costs results in a .8 percent decrease in output. This assumption therefore accounts for some factor substitution. Based on this relationship, Table 3-7 reflects the production decreases resulting from the higher production costs associated with the Maine Yankee closing.

TABLE 3-7

DIRECT PRODUCTION DECREASE
(Million $)

	1988	1989	1990	1991	1992
All Manufacturing	$10.40	$31.1	$34.8	$36.4	$38.1
Paper	$ 6.2	$18.6	$20.8	$21.7	$22.8
Lumber	$ .6	$ 1.7	$ 1.9	$ 1.9	$ 2.0
Food	$ .61	$ 1.9	$ 2.1	$ 2.2	$ 2.3

To determine the total impact on the economy resulting from estimated decreases in output, multipliers for employment and output for Maine industries as developed by the United States Department of Commerce, Bureau of Economic Analysis have been utilized. These multipliers represent the sum of all changes that occur in the state's economy resulting from a change in output of the target industry. To obtain the total impact on the target industry and all supplying industries, the initial change in output has to be multiplied by the appropriate multiplier. For example, for every $1 million decrease in output in the Paper industry in Maine, total output in all sectors of the Maine economy, including the Paper industry, will decrease by $1.88 million. Likewise, for every $1 million decrease in output in the Paper industry, employment will decline by 24.5 workers in all segments of the economy.

This methodology is applied to the estimated production decreases in the target industries to arrive at a total direct and indirect effect on output and employment throughout the Maine economy. It must be understood that this analysis represents only the direct and indirect economic effects associated with higher production costs in the three target industries. These three industries account for less than 10 percent of the employment in the state. Table 3-8 summarizes the economic impacts resulting from higher costs for the three target industries. It shows reduced output and employment in all Maine sectors (target industries and their suppliers) by the target sector producing the primary impact.

TABLE 3-8

REDUCTIONS IN OUTPUT AND EMPLOYMENT
RESULTING FROM
HIGHER PRODUCTION COSTS IN THE TARGET INDUSTRIES

	1988	1989	1990	1991	1992
PAPER:					
Output (Million $)	11.61	34.82	38.97	40.71	42.71
Employment	152	455	509	531	558
LUMBER:					
Output (Million $)	1.14	3.42	3.72	4.00	4.19
Employment	21	63	70	73	77
FOOD:					
Output (Million $)	1.14	3.42	3.83	4.00	4.20
Employment	18	53	60	62	65
TOTAL (3 INDUSTRIES):					
Output (Million $)	13.89	41.66	46.62	48.71	51.10
Employment	190	570	638	667	700

The results indicate that the higher electric rates resulting from a closing of Maine Yankee will significantly affect the Maine economy. The effects associated with higher electric rates and the resulting higher production costs of only the three target industries indicate that the closing will result in a first-year loss of nearly 600 jobs in the target industries and their suppliers. This loss is significant, when viewed in the perspective that this is the loss suffered only because cutbacks in the sectors studied, which represent less than one-tenth of the state's jobs.

The reduction in output associated with the impacts on the three target industries average over $45 million per year from 1989 to 1992. Once again, this is the loss produced only in the three target industries, which represent approximately one-eighth of the state's economic output.

Chart 3-1

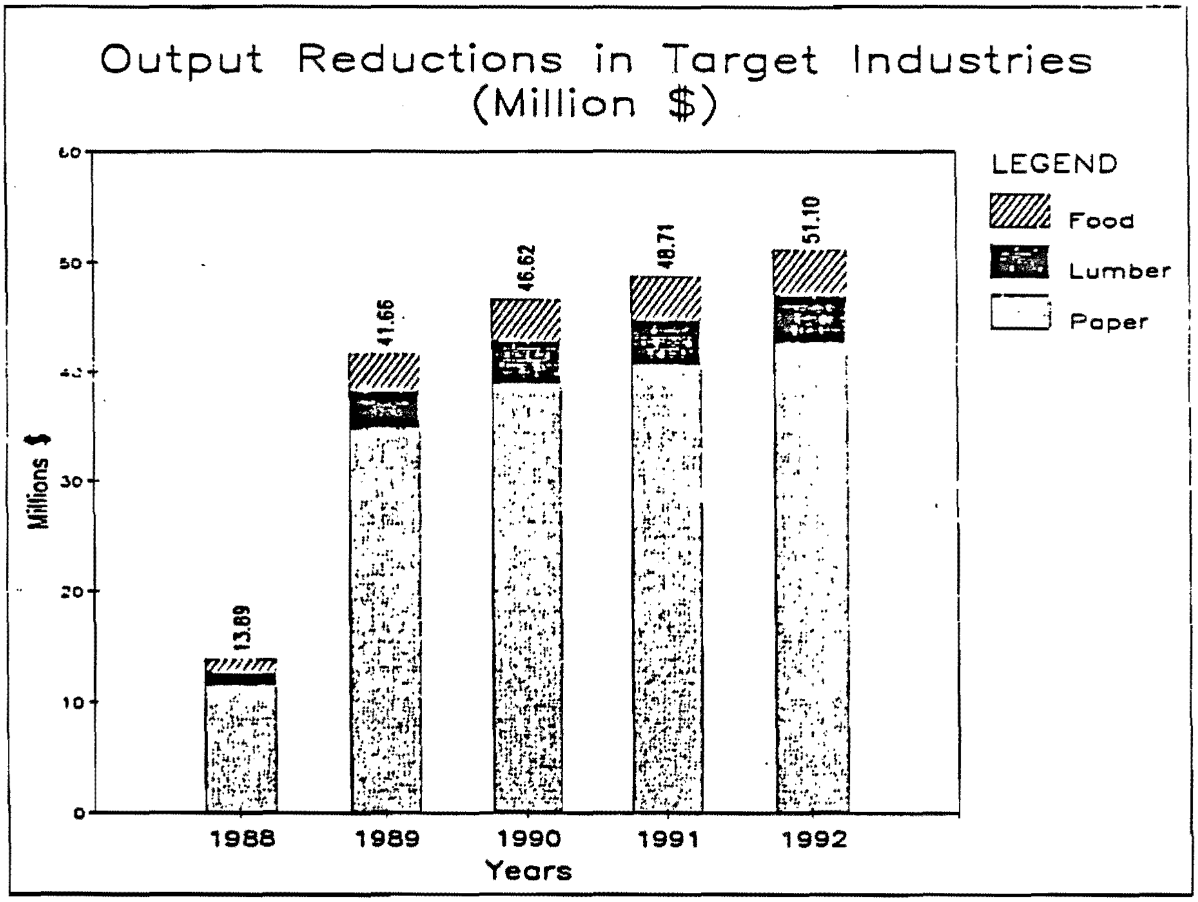
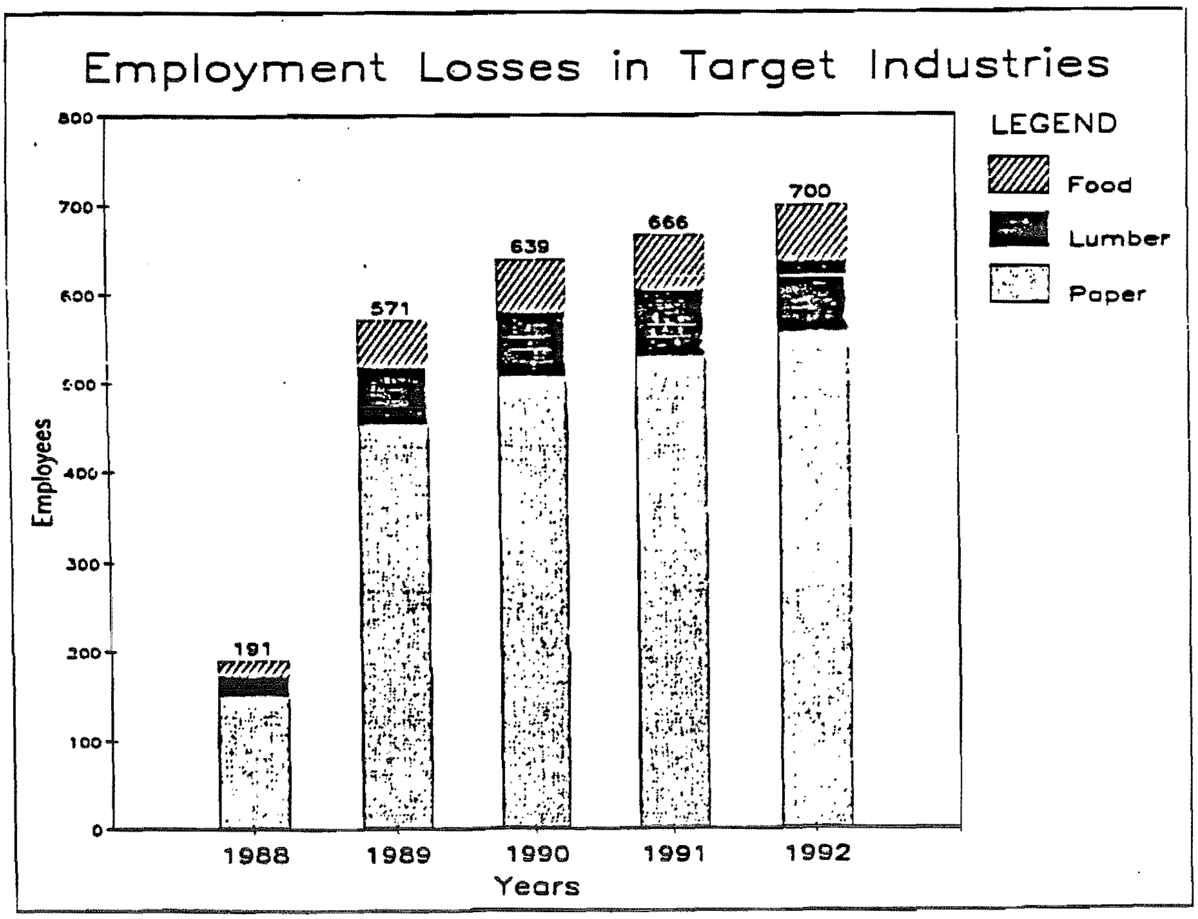


Chart 3-2



This analysis has quantified the impact resulting from higher electric costs to three target industries which are a subset of the manufacturing sector which is itself a subset of the commercial and industrial class of electric consumers. The seven-eighths of the economy that have not been directly considered will obviously also suffer from the effects of higher electric prices. For the sectors considered, the incremental impact alone of the closing of Maine Yankee is significant. Taken together with the electric rate increases that will occur with Maine Yankee operating and with other increases in the costs of doing business in the state (see Chapter 4), the overall economic effects would be severe.

II. MICRO ANALYSIS

A. Introduction

The first part of this section demonstrates the effects that a closing of Maine Yankee would have on the target industries as determined by the use of the Input/Output table for Maine and of national industry data.

We have also attempted to provide a more specific, if somewhat more anecdotal, analysis with respect to the impact on the affected industries and those with which they do business in Maine. To accomplish this analysis, we submitted a series of data requests was submitted to a selected group of companies (members of IECG and AIC). Their responses were designed to enable us to verify and adjust the statistical output. In the event, the data confirmed the statistical analysis, requiring no modification in the conclusions reached above.

The micro analysis allowed us to examine the competitive situation of the sample firms (in all four of the key SIC groups) and their most likely responses to increases in their electricity costs.

B. Indicators of competition

1. Profit Margins

All reporting companies confirm that they find themselves in highly competitive situations in which they cannot pass on increased costs. Thus, no firm indicates that it can increase its prices without losing market share. In fact, in two cases, losing operations were reported and in a third, the facility was breaking even without profit.

The competitive environment is not limited to the United States, as a number of respondents cite foreign competition as an important consideration. In a worldwide market, it is obvious that a Maine facility cannot set the price and therefore must accept the price set in the world market.

2. Electric rate paid by competitors

For the purpose of this analysis we collected electric rate information in other U.S. locations where facilities competing with those in Maine are located. A competitive unit is considered to be any facility capable of producing a competing product, including an out-of-state facility of a firm also operating in Maine.

A similar study was conducted in 1985 by the IECG in order to provide data to the Commission on Industrial Stability which was examining the effects of electric costs on the ability of Maine industry to compete. At that time the Commission concluded that Maine industries were at a competitive disadvantage and recommended that the sales tax on electricity used for manufacturing be removed.

The situation that existed in 1985 continues to be true with Maine facilities facing higher electric costs, even without the loss of Maine Yankee, due to other expected increases in electric rates (see Chapter 4), than most other firms in the United States.

One direct comparison, between two plants of the same size in Maine and Arkansas, indicated a 14.9 per cent higher charge for capacity and energy in Maine. Generally, rates in the West were lower, usually under 3 cents per kWh and, in one case, as low as 1.2 cents.

The charts on the following page illustrate this relationship. They show the charts earlier developed to display the comparison between electric rates with and without Maine Yankee, but the rates forecast for a Wisconsin utility, supplying

Chart 3-3

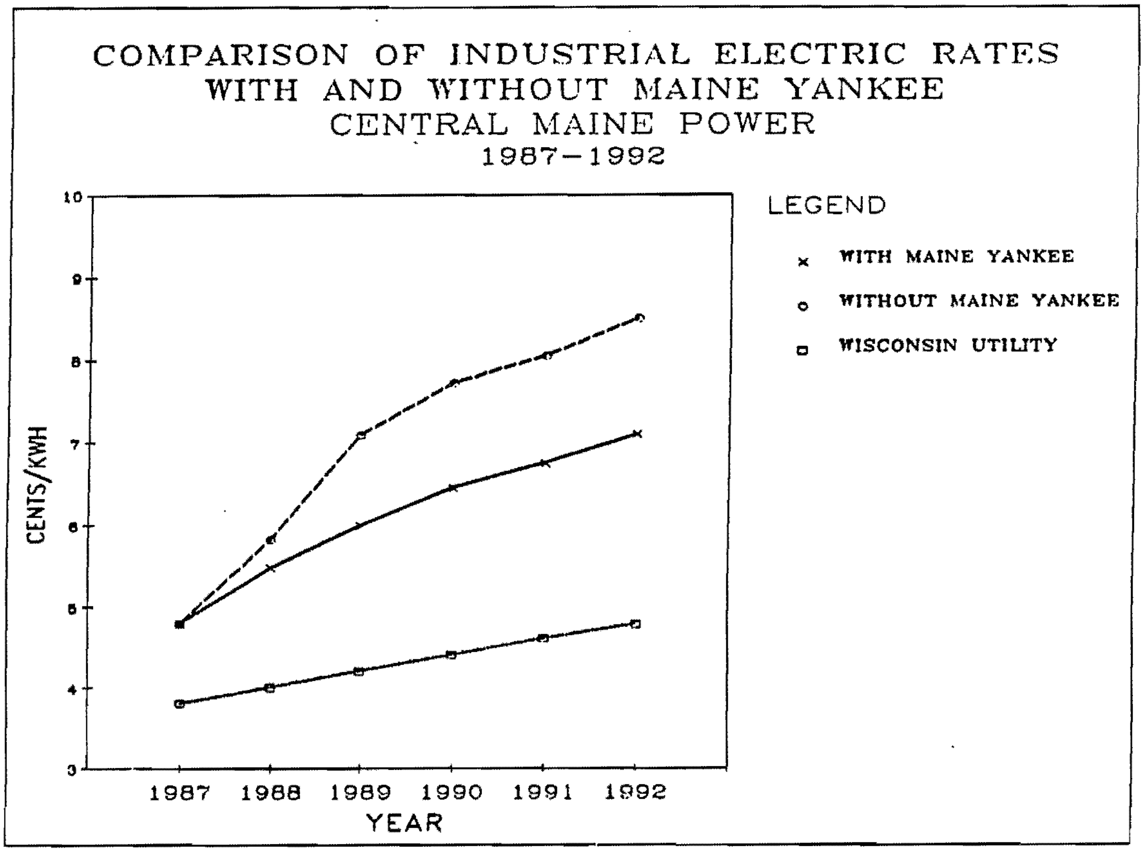


Chart 3-4

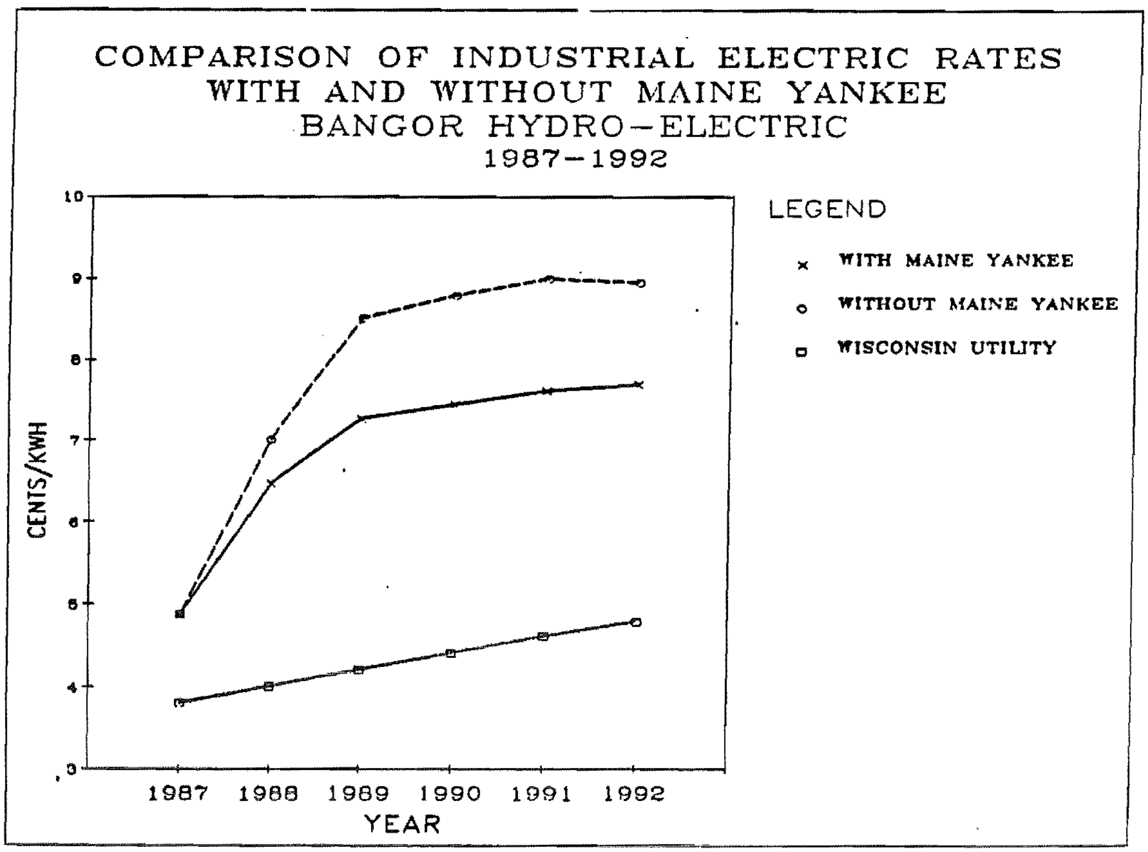
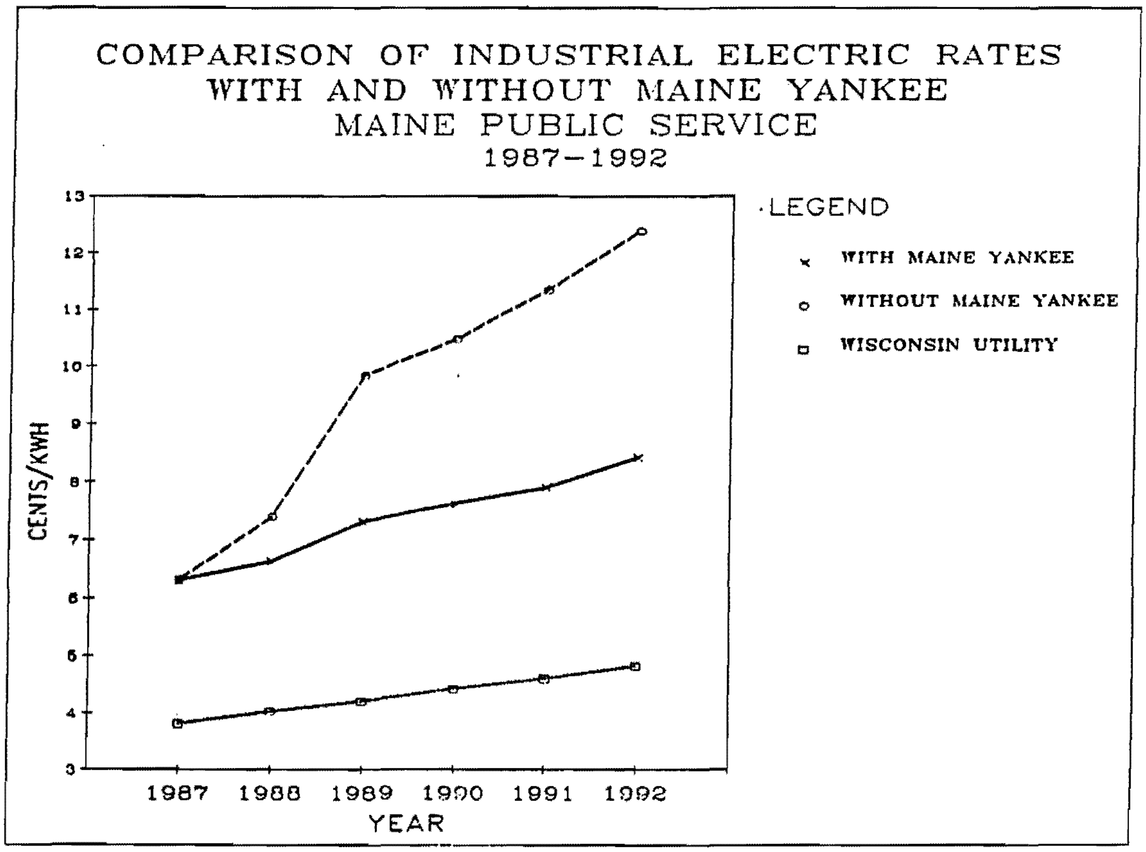


Chart 3-5



paper companies competing with those in Maine, are also indicated. They demonstrate the worsening competitive disadvantage that would result from closing Maine Yankee.

Foreign competition is also a factor. Some competitors are located in Canada, where rates are generally somewhat lower. In addition, one firm cited a decision by one of its competitors to move production to Mexico where electric rates are lower.

In general, rates are lower where the government has subsidized capital costs, usually by means of Federal power marketing administrations. By contrast, they are equal to or greater than current Maine rates where companies are recovering for canceled or unduly costly power plants, usually nuclear.

Maine rates already reflect the costs of the sale of Seabrook, effectively the same as cancellation, and the premature closing of Maine Yankee would cause much the same kind of effect. At the same time, there is no countervailing influence because Maine is located in the a region of the country where there is no Federal power marketing administration.

3. Energy efficiency and Capacity utilization

Can Maine firms make better use of their facilities and options in order to become more efficient energy consumers? This question can probably be answered affirmatively anywhere. A closer look at the Maine situation indicates that opportunities are somewhat limited. As indicated elsewhere, the target industries have already made considerable effort to develop cogeneration and self-generation and, because of their continuing dependence on oil, they have pursued aggressive conservation programs.

If the target industries were able to increase their load factors, i.e., consume more energy without consuming more capacity, they could lower the unit cost of electricity. However, as in the United States as a whole, capacity utilization in these sectors in Maine is already quite high. Indeed, it must be kept high, if Maine facilities are to be competitive.

Many respondents reported capacity utilization in excess of 90 per cent. One said that it was "operating at 90% of its full capacity, i.e., operating 17 shifts per week, allowing one day for clean-up and maintenance."

Thus, the survey findings confirm relatively little possibility of increased capacity utilization.

4. Relationship of electricity to cost of production

Electricity appears to be a greater share of the cost of production than national statistics would indicate, according to the survey.

Major paper companies indicate that electricity costs are about 7 per cent of the costs of production, although two reported shares of about 3 - 4 per cent. This contrasts with the Maine industry average of 3 per cent for 1982. Other industry groups indicate this percentage ranges from 12 per cent to 20 per cent, far higher than the statistical study shows.

Perhaps one reason for these differences is the exclusion of self-generation from the survey. The national data includes only purchased electricity.

Although no statistical adjustment is made to reflect survey findings, they suggest that the impact of increased electricity costs could be substantially greater than we have forecast.

C. Industry reaction

1. Alternatives considered by industry

The survey group was asked what options they would consider if they faced increased costs of electricity which could not be absorbed in reduced margins. No respondent indicated that the facility would be closed, although some suggested that, if its operation became uneconomical, it would be offered for sale.

Other than further efforts at cogeneration, discussed earlier, the companies all said that they would reduce production in Maine and replace the output elsewhere, including outside of the United States. Some facilities have less economic production lines which can be closed without completely closing the unit.

In making a decision to shift production elsewhere, a company must calculate the breakeven point at which the savings from a transfer of operations outweighs the costs (losses) from reducing usage of productive equipment. When that breakeven point is relatively close, a company will be encouraged to make the move. Obviously, increased electricity prices in Maine contribute to a decision to move.

Thus, the alternative of choice, expressed by most respondents, however, is to reduce Maine operations.

2. Planned facility expansion

Some of the surveyed companies currently plan expansions of their Maine facilities. Others do not and two are planning to reduce operations. One cites the cost of electricity and workers' compensation as well as distance from the market as the factors leading to the decision to contract.

Given the scale of the companies now planning expansions, including new plants and production lines and the introduction of manufacturing of new products, the expansions could be of substantial economic value to Maine. They are not likely to take place if electricity and other energy costs increase.

Most Maine operations are parts of larger national or international firms. Decisions about reducing production and plant expansion are made by corporate planners outside of Maine, usually well in advance of execution. For that reason, the comments of one company are especially noteworthy:

> The outlook for Maine operations will be destabilized by renewed <u>forecasts</u> (emphasis in the original) of major power increases, as occurred during 1984 and 1985. The immediate effect will be to jeopardize forward planning and capital expenditures to modernize the plant and processes in Maine.

While we cannot quantify the value of expansions that would not take place, their potential appears to be considerable and undeniable.

3. <u>Reducing orders in the Maine market: sectoral</u>

The Input/Output model indicates that reduced activity in the SIC groups under consideration in this report will have an impact on other companies in Maine which are suppliers to firms in these groups.

Discussions with members of the survey group indicate that they believe that little additional pressure can be brought to bear on existing suppliers to lower their prices. If there is any softness, they say, it is among in-state vendors of services and goods other than those natural resources, such as wood and potatoes, which are the raw materials of production. In general, about 20 per cent of purchases from suppliers fall in the category which may be subject to some compression.

More serious, of course, will be reduced purchases in the Maine market resulting from reduced operations. The Input/Output study shows where those impacts will be felt. The most significant Maine inputs which would be affected in these SIC groups appear to be:

Wood
Electricity
Fuel (excluding electricity)
Trucking
Capital equipment

Maintenance materials and equipment
Pulp
Agricultural products
Business services
Warehousing.

A great many Maine firms can be affected. One paper company submitted a computer printout of Maine vendors which covered 59 pages and represented almost $50 million of outlays in 1986. The largest single vendor is the electric utility at almost $8 million. Other major recipients of funds from the company were governments (tax receipts), wood suppliers, contractors, truckers, equipment suppliers and engineers.

We have not quantified these secondary impacts by sector, but they would be inevitable.

4. County impacts

The economic impact resulting from higher electricity prices due to the closing of Maine Yankee will vary by county in Maine depending on the supplying utility and the industry mix of that county. In particular, since the higher electricity prices will exert their greatest impact on the Paper industry, counties in which this industry is predominant will be disproportionately affected.

MPS, which serves Aroostook County, is expected to experience the greatest rate increase. All three target industries are highly represented in Aroostook County. Taking into account rates, employment levels and per capita income, Aroostook is likely to be the hardest hit county because of the impact on the target industries.

As Table 3-9 indicates, Franklin, Hancock, Kennebec, Oxford, Penobscot, Piscataquis, Somerset and Washington could also feel major impacts because of the impact of a Maine Yankee closing on the target industries. (Note: The impact in Waldo County appears to be unusually high, but this may not be a valid reference, based on available data.) Because the paper industry will be hard hit because of its relatively high reliance on electricity as a factor of production, the impact on areas where it is located will be more severe. In these counties, the target industries play a major role in terms of employment and most fall in the lower half of counties according to personal income. For the most part, these are counties which can ill afford additional economic pressure.

This analysis relates only to the impact on the target industries themselves. In addition, there would be impacts in counties where suppliers of the target industries are located.

This analysis looked only at the industry groups affected, so that, for example, the coastal counties might be severely harmed by impacts on other industries.

This analysis is best understood in human terms. Thus, we may say that if there are production cutbacks in the food industry in Aroostook County, not only will potato growers there be affected, but so will truckers. If there is reduced activity in the sawmills of Penobscot County, business services companies there may be affected. A person need only inquire if his or her own firm does business with firms in one of these SIC groups, a likely situation, to come to the conclusion that in an indirect way, the closing of Maine Yankee could affect him or her.

Table 3-9 COUNTY DATA
Employment in target SIC industries (1985)

County (utility)	per capita income (1984)	Food products: Number of facilities	Food products: Number of workers	Lumber products: Number of facilities	Lumber products: Number of workers	Paper products: Number of facilities	Paper products: Number of workers	Total employment	Target SICs as % of total workers
Androscoggin (CMP)	10747	16	915	27	358	5	693	34828	0.06
Aroostook (MPS)	9049	14	1738	124	2238	5	***	21526	0.27
Cumberland (CMP)	13171	30	1741	41	603	6	***	99842	0.04
Franklin (CMP)	8983	0	0	49	1275	2	***	9853	0.31
Hancock (BHE)	10900	16	318	23	169	1	***	11166	0.20
Kennebec (CMP)	11118	16	520	25	567	7	2132	33138	0.10
Knox (CMP)	10826	11	694	11	67	0	0	9517	0.08
Lincoln (CMP)	11325	1	*	0	0	0	0	5148	0.03
Oxford (CMP)	9740	0	0	93	1861	1	***	11145	0.32
Penobscot (BHE)	10486	11	558	92	2177	5	4860	45162	0.17
Piscataquis (CMP/BHE)	9215	0	0	47	767	0	0	4001	0.19
Sagadahoc (CMP)	11763	2	**	0	0	0	0	11524	0.07
Somerset (CMP)	9372	0	0	53	1660	5	***	12024	0.28
Waldo (CMP)	8275	5	***	13	287	0	0	4518	0.45
Washington (BHE)	8735	17	224	27	572	1	**	5671	0.27
York (CMP)	10751	0	0	0	0	3	235	36205	0.01
State									0.13

Where data would disclose operations of individual establishment, a range is given. For purposes of this table, mid-point of range is used.

* = 100-249
** = 500-999
*** = 1000-2499

CHAPTER 4. THE COSTS OF CLOSING MAINE YANKEE AND ADDITIONAL IMPACTS ON INDUSTRY

This study has focused on the effect that closing Maine Yankee would have on electric rates over a five year period, notably those charged to industrial customers, and the resulting impacts on the Maine economy. This analysis may yield a false impression, because the impact should be seen in the light of factors, some directly related to the closing, which add to the effect of the higher Maine Yankee-related rates.

In making this expanded analysis, we have identified the following additional factors:

A. Directly related factors

1. Maine Yankee compensation
2. Rate shock
3. Future shock
4. Lost opportunities

B. Other factors

1. Prevailing levels of electric rates
2. Personal income levels in Maine
3. Insurance costs
4. Labor costs
5. Energy costs
6. Raw material availability.

I. Directly related factors

A. Maine Yankee compensation

As we noted at the outset, this study is concerned with rate and consequential impacts from the premature closing of Maine Yankee and does not deal with the compensation that would be paid to the owners of the facility for its inability to operate for its expected life. Our focus has been on the ratepayer impacts of closing Maine Yankee, not on costs that would be paid by taxpayers.

However, it is appropriate to note that such costs would exist and that Maine industries, as taxpayers, would be called upon to contribute to the costs of compensation. This compensation should not be confused with the cost of replacement power; it relates to an obligation to the owners of the property for rendering their asset useless.

The exact level of compensation will be the object of considerable controversy, and there is a wide range of views about the possible cost. The range extends from compensation only for the net book value of the facility to compensation recognizing the value of the future revenue stream. Payments to owners would also probably recognize their need to pay decommissioning costs on a much accelerated schedule, without having been able to collect the required amount in rates, as is now projected. Decommissioning costs are due to be paid from revenues received from ratepayers over time and would be added to direct compensation payments.

The book value calculation might yield a responsibility of the taxpayers to shoulder a burden that is at least as great as the rate impacts resulting from premature closing. Thus, at a minimum, the compensation cost would increase the rate impact by a factor of two. Many estimates are a good deal higher than the net book value approach, reading as high as $2 billion. Compensation at such a level would be many times more costly than the rate impacts.

B. Rate shock

Under the terms of the initiated bill, Maine Yankee would cease operating in July 1988. However, the proposed legislation does not provide any instructions to the Public Utilities Commission concerning the ratemaking consequences of such a closing.

It is obvious that the closing of the facility would have immediate impacts on the fuel and purchased power clause of rate tariffs which permit a passthrough of certain power supply costs directly to the customer. The so-called fuel clause is the subject of a PUC proceeding, usually once annually. (In the case of CMP, the PUC has recently authorized a five-year phase-in of significant costs in the clause.) The costs of much of the replacement power for Maine Yankee would be passed through the clause.

In addition, there would be consequences for base rates both relative to Maine Yankee itself and other generating units.

As the study has shown, the net effect of these changes would be a significant increase over and above already high rates. The increase, were it to take place within a single year, would be cumulated with major increases which are already planned. When the magnitude of the increase in a single year or single step is so great as to cause serious hardship for customers, a situation known as "rate shock" exists.

A study of the regulatory literature in order to determine cases where rate shock had occurred and the resulting economic impact has not revealed any extensive discussion of the subject, because it is generally accepted that the consequences would be unacceptable and that regulatory bodies must take early action to avoid rate shock.

The most obvious course of action for regulators is to mandate the gradual phase-in of major upward rate adjustments. As previously noted, that is what the PUC did with the CMP fuel clause when it was faced with significant rate increases caused by the entry into service of small power producers. It is reasonable to presume that it would do so in the case of the loss of Maine Yankee.

There is likely to be relatively little comfort from a phase-in which would be overlaid on currently planned rate increases which, even without Maine Yankee, will be significant. In other words, phasing is unlikely to serve the purpose of avoiding rate shock. There may be recognizable rate shock effects in one or more of the years following the closing of Maine Yankee.

As noted above, there is relatively little experience with rate shock which has not been ameliorated. However, the oil price spikes of the 1970s, which occurred before the introduction of the fuel clause, provide reasonable indications of impacts. They were of greater magnitude than the Maine Yankee impact would be. Sudden and sharp price increases stimulated conservation, although with some inevitable lag. The economy suffered from severe inflation and recession.

It is unlikely that the loss of Maine Yankee would have a similarly strong effect, particularly because its impact would be more predictable, but it would clearly have a negative impact on industry.

Industrial customers could find themselves required to reduce their operations and purchases as they adjusted to sudden rate changes. Of course, rate shock could stimulate added conservation, but it would also hasten facility cutbacks, resulting in lost jobs and lost income.

This is a real possibility, which has been largely ignored, perhaps because the impacts are unknown. It may only be avoidable at the cost of increased utility debt which would extend the phase-in period over a great many years at substantial additional cost to ratepayers.

C. Future shock

As indicated earlier, this study was specifically designed to cover the first five-year period after the closing of Maine Yankee in accordance with the initiated bill. In this way, a more precise determination of the likely and realistic rate and economic impacts of the loss of that generating facility is possible.

The short-term future was selected because realistic projections about possible reactions in that period are more readily determined. However, the forecasts mask one of the most obvious reactions: borrowing from Peter to pay Paul. In this case, Maine would borrow from the future in order to reduce the present cost of replacement power.

The loss of Maine Yankee is the equivalent of a major increase in load. Resources that would have been brought on line later, as load grew over time, would be needed earlier. Clearly, the most desirable of our future options would be selected initially. That means, among other things, that a choice at first of our least costly and most environmentally acceptable resources.

Consequently, we would accelerate the use of:

1. Small power production based on renewable resources;

2. Realistically available conservation;

3. Excess capacity and energy potential in currently operating units; and

4. Plant-life extensions.

We may recognize that these are economically advantageous to utilize instead of building more expensive new generating facilities. But they are also finite. Once exploited and in the generating mix, they are obviously not available for future development. This will have an impact on the new generating sources of the years immediately following the period under review here. The resources that must then be used, including new generating plants, would be markedly more expensive.

There is yet another major factor that will have an impact on future generation after this period. Should Maine Yankee be closed as the result of a vote in Maine, there could be an impact on other operating nuclear units in New England. Such a situation could further accelerate the use of the most desirable replacement; it would also advance the day when more expensive alternatives would have to be used.

With the more rapid exhaustion of such sources of generation than is now foreseen, and with normal load growth, we must expect that other resources, now considered for the distant future would have to be used in the 1990s, in the period just after that studied here.

The most likely new sources of generation are coal and natural gas. While gas is a desirable fuel from the environmental perspective, we have already seen that coal can cause debate and that clean use can impose significant costs. The costs of coal-fired generation (coupled with the costs of continued reliance on oil-fired generation in plants with extended lives) indicate clearly that some of the Maine Yankee-related rate increases may, in effect, be deferred until the late 1990s, thus giving us a somewhat overly optimistic view of the rate impact of the loss of Maine Yankee in the years immediately following its closure.

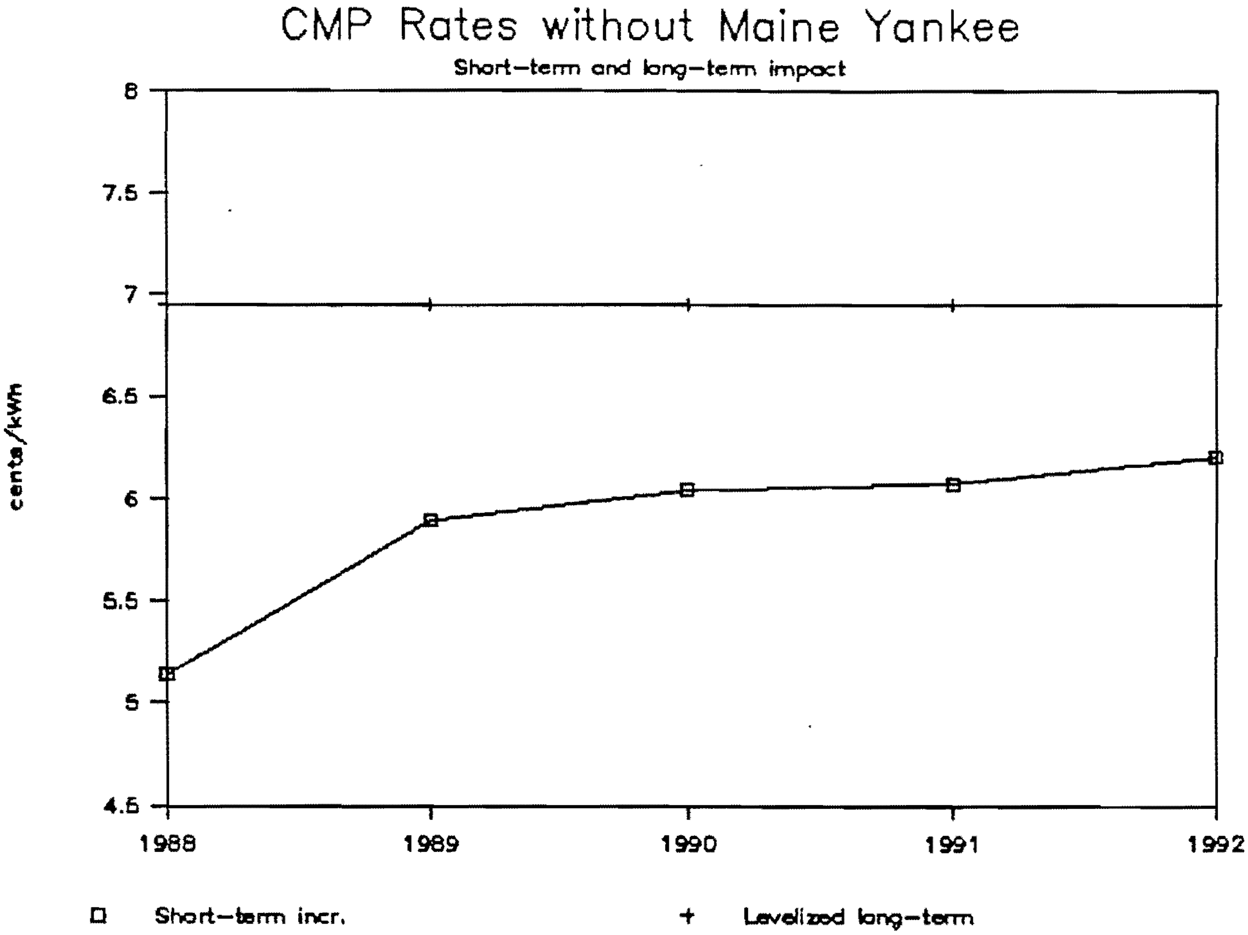
If the annual rate impacts resulting from the closing of Maine Yankee were extended to a 15 year period, the deferred costs would be more evident. If these costs were then levelized, much as contract prices for purchases from small power producers may be, the true cost of the Maine Yankee closing could be experienced in 1988-1992 period. In this case, it would be reasonable to expect that the rate impact in this period could be considerably higher than what we have forecast.

Chart 4-1 indicates what the effect might be for CMP industrial customers. The long-term rates shown on the chart is merely an estimate to illustrate the hidden cost in the early years.

D. <u>Lost opportunities</u>

The rate impact of a Maine Yankee closing must be considered with other forces which, taken together, discourage plant expansions in Maine and new entries into the Maine industrial market.

Chart 4-1



Of course, it is impossible to quantify the value to the state of economic activities that simply have not taken place. But it would be unrealistic to deny that increased costs of doing business, including added costs of power, do not have a chilling effect on economic development.

Consequently, a decision to close Maine Yankee prematurely represents a trade-off of unknown economic gains to the state.

II. Other factors

A. Prevailing level of electric rates

Maine has relatively high electric rates, which directly effect the ability of industries in the state to compete with those based elsewhere in the United States and abroad. Much electric production in the United States is in the hands of Federal power marketing administrations which benefit from taxpayer-financed capital contributions. Consequently, rates are lower elsewhere. There is no power marketing administration in the Northeast.

In addition, much generation elsewhere is fired by coal and natural gas, generally less costly fuels than imported oil, still a major source of generation fuel for Maine.

Coupled with relatively high rates, Maine has experienced a sustained period of rate increases which is projected to continue throughout the five-year period immediately following the proposed closing date for Maine Yankee. (Rate increases through 1986 were calculated on the basis of past rates reported by the PUC, and future rate increases are based on utility projections with Maine Yankee available.)

Even without the closing of Maine Yankee and taking into account decreases in fuel costs as oil prices fell (but probably not all effects of lower Maine Yankee and hydro production in 1987), electric rates will have risen by the following amounts for the three utilities as shown by the following table. The additional Maine Yankee-related rate impacts, it will be recalled, would be substantial.

TABLE 4-1
EXPECTED RATE INCREASES

		1980-1992	1988-1992	Maine Yankee Increases 1988-1992
CMP				
	Industrial	77%	43%	20%
	All	79%	44%	16%
BHE				
	Industrial	93%	19%	18%
	All	101%	16%	14%
MPS				
	Industrial	83%	27%	47%
	All	113%	27%	35%

Maine rates are in a period of sustained increases, reflecting the costs of canceled or sold nuclear power plants, the front-end costs of contracts with small power producers and Millstone 3, a plant from which CMP buys power. Forecast rate increases include projections of relatively routine oil price increases and thus do not take into account the possibility that a Middle East crisis will cause a sudden and substantial increase in the cost of fuel used for generation.

When seen in the light of rate increases that will take place, whether or not Maine Yankee is closed, the impact of the loss of that generating source is substantially greater. Over the next five years, rate increases would be almost twice as much as currently expected for BHE and MPS. They would also be significantly higher for CMP which projects greater rate increases without the loss of Maine Yankee than do the other two utilities.

B. Personal income levels

Electric rates should not be analyzed on an absolute basis; they must be understood on the basis of the ability to pay. For example, approximately the same rates apply in Manhattan and on Vinalhaven Island. Electric consumption is higher in New York than on Vinalhaven. Because incomes are higher in New York and consumers can devote a smaller portion of their incomes to buying the same amount of power, per household consumption is higher in New York. In other words, the impact of rate increases can be more of a burden on low-income areas, such as Maine.

Despite progress in recent years, Maine remains the poorest state in New England and well below the national average in terms of personal income. Some Maine counties have income levels among the lowest in the United States. These are among the counties where the impact of closing Maine Yankee would be the greatest.

C. Insurance costs

Perhaps the most important single issue related to the cost of doing business in Maine is the cost of insurance, notably for workers' compensation. With high benefit levels and concern about workplace safety, Maine employers face workers' compensation costs which are among the highest in the United States.

The likelihood is that, the cost of workers' compensation insurance will continue to increase. Rates have been capped by legislative action, but allowed to rise somewhat. Pressures for more substantial increases are intense. Even with a proposed state fund, there is a high probability that rates would continue to climb.

The negative impact of workers' compensation rates is as tangible as would be an increase in electric rates as a result of the premature closing of Maine Yankee. Not only would both transmit a negative message about the Maine business climate, but together they represent a heavy competitive burden for Maine industry. Our survey shows that these two costs are the most likely to cause major industries in Maine to decide to expand productive operations in other states in preference to Maine and to forego expansions in Maine.

D. Labor costs

Major Maine industries have faced increased foreign and domestic competition in recent years. They have maintained that their ability to remain competitive depends on their ability to control two key elements of the cost of production: energy, especially electricity, and labor costs. While labor costs include workers' compensation, they have been unable to bring about reductions in insurance costs and thus have focused on wages and benefits. The issue has been drawn repeatedly in such firms as Keyes Fibre, Bath Iron Works, Boise Cascade and International Paper.

Clearly, it is not our intention to discuss the merits of these matters in this study. We focus only on the existence of the issue and the belief of many key players in the industrial sector that they must step up their efforts to control costs which they believe make them competitive. At the same time, it is important to recognize that organized labor argues strongly against labor cost reduction proposals and is willing to undertake major strikes in support of its views.

Whatever the ultimate outcome (or, some might say, the objective truth), industry can be expected to continue to regard wage costs in Maine as high. They may want to relieve the pressure on their financial condition caused by increased electric rates by attempting to lower wage costs. If they are successful, they will cause turmoil, itself not healthy for the Maine economy. If not, they may expect to face an enhanced problem in paying both their labor costs and their power bills. This, too, can influence plant cutbacks and encourage expansion elsewhere.

E. Energy costs

Electricity is not the only form of energy on which Maine industry depends. Because of the lack of availability of natural gas and coal, Maine remains heavily dependent on oil, in the industrial and other sectors. Recent easing in oil prices has actually caused oil usage in Maine to increase.

When oil prices rose sharply in the 1970s, industry had no alternative fuels to which to turn and was consequently forced to undertake an aggressive conservation program. Conservation once gained cannot be regained. With the exception of the introduction of some biomass, there has been little opportunity to diversify fuel supply. As a result, Maine industry remains vulnerable to world oil price changes. To some degree, the added use of biomass instead of oil remains a possibility, but the opportunities are limited, especially in light of the substantial progress already made.

Virtually all responsible forecasts suggest that oil prices will move ahead without the kind of relatively sharp rollbacks of recent years. The underlying shortage remains and a healthy economy will make ever increasing demands on known resources. As a result, it is inevitable that at least moderate and continued increases in oil prices will take place, at or above the rate of inflation. Such increases will have a disproportionate effect on Maine industry because of its disproportionate reliance on oil.

F. Raw material availability

Much of Maine's most significant industry is based on its forestry resource. We have long believed that the forests hold an inexhaustible supply of fuel.

More recently, it has become evident that certain of the wood supplies required for industry may be of limited availability. Small power producers are already finding themselves in competition for available chips and waste wood. Paper companies worry that trees needed for their products will instead be burned for power production.

The inevitable result of any competition for raw materials essential to Maine industry can be increased prices for those supplies. Although it is well beyond the scope of this study to examine the potential pressures on raw material supplies or to compare their cost in Maine with their cost elsewhere, it should be noted that Maine industry, in some key sectors at least, will face added pressure on their major resources which could further squeeze their margins.

Seen in the context of the factors discussed in this chapter, the premature closing of Maine Yankee would be a heavy and lasting blow to Maine's ability to compete and prosper.

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B. Alternate Conservation Hypotheses

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Appendix A

Assumptions

APPENDIX A. ASSUMPTIONS

The following are the assumptions used in this study and the limits on its scope, as determined by the study group.

1. Impact studied

This study is limited to a forecast of how closing Maine Yankee in mid-1988 would affect electric rates charged by Maine utilities and on the economic impact of the rate increases on certain industries. It places these economic impacts in a broader context of other economic and financial pressures on these industries.

The study does not include an analysis of the impact of the costs of compensation payable to Maine Yankee's owners because of the loss of the facility. It is our thesis that such costs, while substantial and likely to have a major economic impact, would be borne by the taxpayers of Maine rather than by the ratepayers of Maine utilities.

It should be noted that compensation is entirely distinct from the costs of replacement capacity and energy that would have to be purchased. Compensation would involve a payment to plant owners for lost income from their investment in the facility. The revenues for replacement power would be used only to cover the costs of that power.

2. Effective date

In the Contingency Case, the study assumes that Maine Yankee is permanently closed on July 1, 1988. The proposed legislation provides that the facility would be closed on July 4, 1988 and the first day of the month is used for ease of calculation.

It is widely asserted that, should Maine voters decide to close the facility, protracted litigation could delay or prevent the closing of the generating plant. There is no information that any such legal action will be undertaken or that it will be effective. We must limit ourselves to the known provisions of the bill which call for the plant to cease operation on July 4, 1988.

Any decision to close the plant on a later date would have a different impact from what is contained in this study. The impact of a delayed closing, after July 1988 but before scheduled closing in 2008, would be more costly than what we have found in this study.

3. Period studied

The study projects the rate and economic impacts for only the first five years after the projected closing of the plant. In so doing, we believe that we are able to provide to the industries concerned and to other ratepayers a far more accurate and realistic forecast of impacts than would have been possible if the impact period were longer.

This relatively short-term forecast is based on assumptions and data which is considerably less certain than those which would be used to produce forecasts for a period extending until the scheduled closing of the Maine Yankee facility in 2008. Projections of economic impacts for this longer period would obviously be larger, but they would also be more speculative.

As we discuss in the study, our short horizon does have one drawback. By focusing on alternative power supply for the limited period, we are inevitably borrowing some of the lower cost conservation and generation that would otherwise be exploited later in the 1990s. That means that power costs can be expected to be higher in the second half of the 1990s as Maine repays the future from which it will have borrowed between 1988 and 1992.

4. Replacement power

Some people assume that there is a simple one-for-one trade off of some single new source (conservation, Hydro Quebec) for Maine Yankee. This will simply not be true. The sources of power that would compose the generation mix of each of the three large Maine utilities which were studied (Central Maine Power, Bangor Hydro-Electric, Maine Public Service) will not be the same and will evolve over the years. Neither conservation nor any other resource will have a uniform impact in all parts of the state.

The analytical results regarding the electric cost increased were derived from a production cost model developed for this study which is used to produce a Base Case (with Maine Yankee) and a Contingency Case (without Maine Yankee). The analysis starts from what amounts to a pro forma power supply test year and thus may differ somewhat from actual or utility forecasted rates.

In short, forecasting replacement of Maine Yankee and its rate impacts is complex, and we have tried to move beyond simple trade-offs.

The forecast assumptions are based on those of the utilities themselves, usually as part of the record of proceedings before the Maine Public Utilities Commission as well as our own analyses, based on our familiarity with the New England power supply situation.

5. Rate increases

All costs of replacement power resulting from the closing of Maine Yankee are recovered from ratepayers through the fuel clause in this study. Each kilowatthour (kWh) sold by a utility is assumed to be subject to the same "surcharge". Industrial customers have higher rate increases than their proportionate share of demand might indicate, because they have a higher "load factor" and start from a lower base, so increases of the same absolute amount represent a higher percentage of their rates.

Appendix B

Alternate Conservation Hypotheses

APPENDIX B. ALTERNATE CONSERVATION HYPOTHESES

1. The NRCM and NEEPC reports

Recently two studies have been published which contain significantly greater estimates of conservation that can be achieved. They imply that little or no new generation would be required if proper efforts were made to achieve technologically possible conservation. Because of the importance of conservation as an energy resource, we have reviewed these reports.

In April 1987, the Natural Resources Council of Maine (NRCM) released a report entitled "Energy Efficiency, the Untapped Potential". This report stated that Maine was at an energy crossroads and had to choose between the conventional scenario of relying on traditional generating facilities, and the less traditional course, which would rely heavily on conservation investments and load management. The report concluded:

> the potential to save electricity by improving efficiency is so large that if technology currently available, or soon to become available, were fully implemented, Maine's long-term projected need for electricity could be met without major increases in electricity supplies and the resultant environmental harms which accompany large power plants and certain purchases of electricity.

Soon thereafter, the New England Energy Policy Council (NEEPC), a coalition of regional environmental groups, released a study entitled, "Power to Spare: A Plan for Increasing New England's Competitiveness Through Energy Efficiency." This study reached similar conclusions:

> the resulting analysis demonstrates that New England could meet between 35 and 57 per cent of its total electricity requirement in the next two decades through the efficiency improvements studied in (our) report. Moreover, the analysis shows the New England power needs could be met in

this fashion while maintaining or increasing the rate of economic growth projected by the (electric) utilities.

These two studies raise some questions. Are the estimates of potential savings outlined in these reports reasonable? Are the cost figures, which are in general two or three times lower than supply options, correct? If the answers to these first two questions support the conclusions reached by these reports, it is then appropriate to ask if the necessary incentives and institutions exist to realize the potential conservation.

The purpose of these two reports was to stimulate debate and create a planning process in which energy efficiency improvements are given increased weight by both utilities and state regulators. Even if one were to argue that attainable conservation is considerably lower than forecast in both the NRCM and NEEPC reports, more can be done to invest in energy efficiency improvement than is now being done or proposed, by most New England utilities. Furthermore, conservation improvements carry with them fewer environmental problems than traditional electric generating alternatives.

The NEEPC report stresses that its assessment of the potential savings from energy efficiency improvements is based solely on technological considerations (i.e., is it <u>technically</u> possible to save a certain amount of gigawatt hours (gWh) by a certain future year?). The report notes that its forecast of the rate at which these improvements can be assimilated is subjective. (The NEEPC report uses two options: one predicting 100 per cent assimilation and the other 50 per cent; the NRCM report only uses 100 per cent.)

The 50 per cent rate is probably not unreasonable, but the length of time required to achieve it is uncertain. We are dealing with housing stocks that turn over every 80-100 years, household appliances that turn over every 20 years, industrial engines that are recycled every 30 years, and an array of institutional barriers (see below). Thus, an estimate of 50 per cent assimilation over 13-17 years is likely to be overly optimistic.

Dr. Amory Lovins of the Rocky Mountain Institute and the primary source for many of the study projections contained in these reports has stated that the full panoply of savings options would take several decades to achieve.

Certainly the ability to move even a portion of these new technologies into the New England economy over the next five years will be limited unless certain institutional barriers are removed. This does not mean that it is impossible, but that it would require a 300-400 per cent increase in the amount of money and staff above and beyond that being proposed by even the most progressive utility companies or state energy agencies for energy efficiency programs. Such a commitment of resources is highly unlikely without major changes in the present political and economic environment. Further, unless the long-run marginal costs of other alternatives are still more expensive, it is not sound public policy to make such a commitment.

Both studies agreed that significant changes must be made in the existing institutional structure. Lack of an effective information dissemination system, inadequate and misleading price signals, investment incentives which are skewed against energy efficiency, and state regulatory schemes which are biased against conservation are discussed at some length in both reports. It is quite clear that both reports acknowledge that major institutional changes must occur if even a portion of the potential power savings are to be realized.

While an overly critical reading of these reports might ignore the reality that more can be done to promote energy efficiency, an overly literal reading could also mistakenly conclude that energy efficiency improvements by themselves can meet the region's electricity needs for the next 15-20 years.

Some in New England point to these studies as prima facie evidence that new supply alternatives will be unnecessary in the coming years. Neither of the studies makes this argument, and, in fact, the NEEPC explicitly points out that this is not their conclusion.

Because the message contained in these two reports is so politically appealing, there is danger that the perception of the potential for energy efficiency improvements will be expanded beyond realistic bounds and therefore distort the region's energy planning process.

2. The potential for savings

In measuring the savings potential of any specific technology, these are three critical variables which should be kept in mind: (1) the efficiency of the existing piece of equipment to which the new technology is being compared; (2) the efficiency of the new technology itself; and (3) the estimate of the hours the new technology will be used.

The savings figures contained in both these reports are above and beyond those now predicted by the New England Energy Power Pool (NEPOOL) and its member utilities. Such forecasts incorporate substantial energy efficiency improvements. In developing these forecasts, utilities project a price for electricity, and then calculate the effect of these price changes on the demand for electricity. As prices go up, consumers tend to invest in more energy efficient equipment and use less power. The faster the prices increase the faster the rate at which consumers make such investments. The relationship between electric prices and electricity demand is fairly strong over the long term (a two per cent increase in price results in a minimum of about a one per cent increase in energy efficiency).

It is impossible from the analysis contained in these reports to ascertain how much double-counting has occurred, that is, counting as incremental savings, the savings that utilities have already included in their demand forecasts due to increased electricity prices. However, some double counting appears to have occurred. For example, both studies seem to compare the kWh consumption of the new efficient piece of equipment to the kWh consumption of the average piece of equipment now in use. A portion of this existing equipment will be replaced during the next 15 years, and the newly purchased equipment will be more energy efficient than today's average. The existence of federally mandated appliance efficiency standards alone is predicted to save approximately 370 GWH in Central Maine Power's service territory by 2006. Obviously there is no guarantee that each consumer will always purchase the most efficient equipment available, but the appliance the consumer purchases will almost certainly be considerable less energy intensive that the one which it replaces.

An example illustrate this analysis. The NRCM report compares the average refrigerator in use in 1984, which consumes 1610 kWh per year, to a super-energy-efficient refrigerator which consumes only 359 kWh per year. There are refrigerators now on the market that consume approximately 900 kWh per year. Substituting this figure for that of the 1984 average refrigerator and doing the same calculation as that done in the NRCM report, the energy savings are reduced from 1251 to 541 kWh/year, or by approximately $63 per year. In aggregate terms this reduces the NRCM's figure for total savings from 434 gWh saved to 341 gWh. Obviously, over the next few years, many of the new refrigerators will be purchased. Even if one insisted on using a figure for existing average usage, the 1610 kWh figure is much too high. The Association of Home Appliance Manufacturers estimates that the average refrigerator in the United States used 1100 kWh/year in 1985, or about 2/3 the figure used by the NRCM.

By using a high base figure from which to make their comparisons, these reports tend to overestimate the absolute amount of savings potential available. Furthermore, by making the assumption that the base of comparison should be the average existing appliance, these studies over look the price-induced energy savings that will occur as consumers purchase new appliances, as well as those that will stem from the federal standards - - savings which are already incorporated into the existing forecasts of the utility companies. Given the lack of data in the two reports, it is impossible to quantify this overestimation, but it seems to be considerable.

The second variable is, of course, the energy efficiency of the new appliances and equipment. For the most part, the figures used in these reports are technically feasible, although they differ substantially. In the NRCM study, the estimates of savings were taken largely from Lovins' studies. These estimates are based primarily on prototype projections containing economic calculations that are difficult to replicate. [See testimony by Dr. Bruce Netshert before State of Wisconsin Public Service Commission, November 12, 1985.] The NEEPC study, on the other hand, tries to the greatest extent possible to base its calculations on appliances or equipment that are now available from known manufacturers. This explains why the savings forecast in the NEEPC study are well below those of the NRCM.

In both of the studies, many of the savings estimates are stated in conditional language -- using words such as "predict", "potentially eliminate", "anticipate", "possibility", and "expect". There is now a paucity of empirical evidence to support most of the assertions.

The third variable used in calculating energy savings is the amount of time the appliances are used. Lovins' calculations of the costs of installing SL-18 light bulbs -- a calculation which is seemingly embraced in both reports -- assumes that the light bulb would be used 24 hours a day and would replace a conventional bulb used for a similar amount of time. If more reasonable assumptions are incorporated into the calculations, the cost savings from moving from conventional lighting to the SL-18 light bulbs is reduced.

Basic economic precepts tell us that if the cost of using a piece of equipment, such as a light bulb, is reduced, consumers will tend to use that piece of equipment more. (Admittedly, there are certain electricity-using appliances such as refrigerators which have usage patterns that will not change; i.e., their demand may be totally inelastic.) Therefore, if a person installs lighting which costs less money to use, he or she will be tempted to use it more. This reaction would reduce the cost savings from installing SL-18 bulbs.

The NEEPC study discounts this argument by arguing that the empirical evidence that use increases as the cost per unit decreases is fairly skimpy. Yet the Coalition also argues that one of the most important policy changes would be to move to a system of marginal cost pricing in order to induce consumers to invest in more energy-efficient equipment. If consumers will respond to prices set at marginal costs, it is hard to understand why they would not respond to lower operating costs. The laws of economics cannot be presumed to work in only one direction.

Finally, there is a basic disagreement on the cost of the SL-18 light bulb. Most of Lovins' studies claim that the retail price could be as low as $15.50, but discussions between NERA and the Philips Company, which manufactures these bulbs, indicate that the price may very well be closer to $23-$25. (See testimony of Charles J. Chicchetti before the State of Wisconsin Public Service Commission (Docket No. 05ET4), November 1985.)

By incorporating these three changes -- the difference in hours that these light bulbs will be used, the changes in the use of lighting once the more efficient bulbs are installed, and the cost figures from the Philips Company -- the two cents per kWh suggested as the cost of conservation measures increases to approximately 6.3 cents. To this amount should be added about 1 cent per kWh to cover the cost of the necessary administrative infrastructure. The actual cost that ought to be used in the is close to 7.3 cents per KWh, or about 6 mils higher than the present auction price for the latest decrement of QF power in Maine. Further, this estimate ignores the reality that in most homes or stores additional changes will be needed in order to install SL-18 light bulbs. New fixtures and new harps are usually required in order to fit these bulbs. These costs could on average increase the levelized cost per kWh by 3-5 cents. From a societal perspective, a utility program to promote investments in SL-18 lighting is cost competitive with most supply alternatives. Further, the cost of such lighting could be reduced over time, while the costs of supply options are likely to increase. Thus programs aimed at converting existing incandescent lighting equipment to the SL-18 almost assuredly can eventually become a cost-effective investment, but they are not the economic panacea described in these studies. (It should also be kept in mind that these two reports compare the SL-18 to incandescent lighting, while most commercial establishments rely on the more energy efficient fluorescent lighting; thus the savings potential in the commercial sector will be less.)

Finally, there are two remaining caveats that one must keep in mind in assessing the projections of electricity savings contained in these reports. First, consumers tend to purchase an appliance based on several considerations, only one of which is energy efficiency.

For example, a refrigerator without an icemaker, with substantially thicker walls (which is therefore substantially larger than conventional refrigerators), and without a frost-free freezer is likely to be considerably more energy efficient than a conventional model which has an icemaker, is frost-free, and has thinner walls which meets the contours of the average kitchen. Consumers have demonstrated a willingness to pay for these "accessories". (If energy efficiency were the only factor on which people based their investments, everyone would be driving compact cars. At least in that case the energy efficient alternative is cheaper.) The refrigerator referred to in the NRCM study seems to be the Gram K395, a refrigerator manufactured in Denmark which does not contain a freezer and has approximately 25 per cent less storage space than a conventional appliance. In fact, if consumers purchased the Gram refrigerator, it is likely that they would buy a separate freezer and this freezer would use some electricity -- power not accounted for in the NRCM savings projection. The effect of consumer preferences upon the rate at which energy efficient technologies will be assimilated is not insignificant and cannot be ignored.

Secondly, empirical evidence on the effectiveness of energy conservation programs is scarce. What evidence we do have seems to indicate that actual savings are typically about 50 per cent lower than the savings anticipated when the energy efficiency program was initiated. In a recent study NERA pointed out that reasons for these lower savings are two-fold; first, initial estimates did not take behavior changes into account; second, consumers would often have invested in conservation without the program. (See testimony of Charles J. Cicchetti before the State of Illinois Commerce Commission (Docket No. 86-0249), August 25. 1986.) An evaluation of San Diego Gas and Electric's audit program, for example, specifically accounted for behavioral effects and showed that actual savings were significantly less than anticipated. Further, one of the conclusions reached by Dr. Eric Hirst of the Oak Ridge National Laboratories in his study of the Bonneville Power Weatherization Program was that the program may have succeeded in accelerating weatherization investments, but it did not necessarily induce investments that would not otherwise have made.

In summary, the predictions contained in these two reports suffer from several analytical problems. As a result, the forecasts of the degree and time of implementation of specific measures is overly optimistic, if not invalid.

3. Industrial sector conservation in the reports

If the savings potential in the residential and commercial sectors is less than predicted by these reports, what about the industrial sector? Both the NRCM and the NEEPC studies assert that significant opportunities exist for energy savings in this sector and rely on a Lovins report as their primary source. (In the case of certain industrial processes, the NEEPC cites the same source as the NRCM but uses a higher projection for potential savings.)

Projecting specific energy efficiency improvements for the industrial sector is a difficult, if not impossible, task. First, there are several hundred industries in New England, each with different processes and different energy use profiles. Within each of these industries there is often substantial variability among firms. Further, in most manufacturing processes, each piece of machinery interacts with many other machines. Energy efficiency adjustments to a single machine affect both the productivity and energy use of other machines. Finally, there is very little information on the actual efficiency of existing machines, since to measure the efficiency would necessitate detaching that machine from the system and running several days' worth of tests. Not only could such tests impact on the production process, but there may be hundreds of machines and it would be very costly to decouple and test all of them.

To project energy efficiency potential, one needs a base from which to project, and the sheer number of different machines, together with the absence of hard data, make such projections impossible. The only alternative is to make rough projections, extrapolating from data on several types of motors to arrive at predictions for all industrial motors. These extrapolations can then be adjusted to conform to any anecdotal information which may be available.

The subjective nature of this calculation results in widely varying forecasts. For example, Lovins predicts (as do the NRCM and NEEPC) that high-efficiency industrial motors and computerized motor controls can save approximately 20 per cent of the electricity used by New England industry. By contrast, CMP undertook a fairly rigorous review of the potential energy savings in the industrial sector prior to the publication of these two reports and concluded that a reasonable projection of energy savings would be 4 per cent. (See W.J. Jones and H.M. Smith, "Alternative Electrical Energy Sources for Maine," Supplement B-51 to Appendix B, page 104 [Central Maine Power, May 1987].)

Although considerable, costly research would be required to ascertain the exact number, we do know several facts which are useful to keep in mind. First, it is not cost efficient for companies to accelerate the replacement of their machinery -- if a tripling of oil prices in 1973 and again in 1979 provided insufficient incentives, it is doubtful that much smaller increases in electricity prices will do the job. Second, when motors are replaced, the companies are buying the more efficient machines. Third, the average replacement rate is approximately 6 per cent; i.e., companies replace 6 per cent of their machines each year. Fourth, existing electric utility forecasts incorporate this 6 per cent annual introduction of efficient machinery.

These facts cast doubts on the assessment that savings 20 per cent greater than those projected by the utilities are possible by the year 2004. What conservation may be achieved remains to be determined, but it is likely to be significantly less unless there are significant changes in either technologies or manufacturing processes.

4. The discount rate

One of the critical assumptions in any comparison among electricity supply options is the discount rate used in calculating the present value of conservation measures. The discount rate is used to measure the value of benefits obtained at different points in time. A dollar's worth of benefits obtained in 1990 is obviously of less value than a dollar's worth of benefits obtained in 1987. A low discount rate will favor investments which provide a substantial portion of their benefits in the future, while a high rate will bias the analysis in favor of investments with benefits accruing earlier.

A higher discount rate would lower by a considerable amount the value of the potential savings projected for future years in NRCM and NEEPC. For example, Central Maine Power calculates that the levelized savings from the installation of super-efficient refrigerators decreases by 65 per cent if one uses an 11 per cent discount rate instead of 5 per cent.

Thus, some of the savings projected in the reports are no due to to the potential for conservation, but to a single assumption concerning the discount rate.

5. Institutional barriers

Energy efficiency improvements are not panaceas, but they can make a significant contribution to the region's future electricity supply. While we have been critical of some of the assumptions inherent in the projections in the NEEPC and NRCM reports, there is significant potential for savings, although less than these reports would suggest.

The key question is how policy makers can ensure that the potential savings are captured. The critical problem is the absence of incentives for both consumers and utilities to pursue energy efficiency investments. From the perspective of most consumers, investments that pay back over five to ten years are not attractive. A three to five year payback is on the upper end of what can be expected to be pursued without any additional incentives.

Electric utility companies are limited by regulation to a lower rate of return then they would seem to be the logical investors. But there may be a problem inherent in their undertaking conservation investments. Capitol costs for conservation investments, like paying for power from qualifying facilities, are passed through to customers. Such investments are advantageous to consumers if payments for conservation are less than the avoided costs of incremental generation. If a utility is capacity short and payments for conservation offest payments for purchases that would otherwise have been made, the customer benefits. If, on the other hand, the utility isleft with some fixed costs after its sales are reduced due to conservation, it must seek to increase slightly the rates of all customers to cover the contribution to those fixed costs which had been made by those who now conserve.

Economic incentives for both consumers and utilities are dependent on the cost of competing sources of generation; the market determines. If market prices reach a point where conservation is preferable to inaction, consumers will undertake greater conservation. If avoidable power supply costs are greater than the costs of conservation, a utility will undertake greater conservation. If government wants to stimulate this process, it can subsidize conservation measures with taxpayer dollars in order to make them more competitive or it can mandate some conservation.

6. Timing

These studies of conservation project an amount that could be achieved over an extended period of time. It may be suggested that such conservation could make unnecessary new generation during that period, as these two studies at least imply.

However, we do not know when and where conservation will become available during the period in which it is expected to take place. By contrast, new generation may, within some general limits, be scheduled and relatively accurately forecast. Thus, load growth or the construction of a new manufacturing facility in the service area of a given utility may take place before expected conservation savings are available to free generation to meet the new load. This lack of synchronization may well require a utility to make short-term capacity purchases at higher prices which are paid by all customers, not just those creating incremental demand. This lack of precision would be a problem for any industry, but it is especially troublesome for an industry, such the electric power industry, which must meet rigid reliability requirements.

As a result, it seems unwise to place complete reliance on conservation. Both studies acknowledge that they are not generation expansion plans, such as must be undertaken by utilities and reviewed by regulators and energy agencies. As such, they do not insure that there is a fit between conservation, demand and other energy resources, an elementary requirement of power planning.

7. Other economic benefits of conservation

While the benefits to be derived from improved energy efficiency are not trivial, one should be careful not to overestimate them. Most of the improvements mentioned in the NEEPC and NRCM studies refer to capital improvement, i.e., more efficient motors, lighting, and appliances. No more than 15-20 per cent of the outlays for conservation installation and program administration costs expended in Maine. The manufacture of energy efficient equipment will capture most of the benefits. derived from an accelerated energy efficiency investment program, and its is probable that much of that production will take place outside of Maine.

8. The reports: a starting point

The reports show a technological potential for considerable conservation and that some of the measures are likely to be competitive in the market place. However, they are relatively indifferent to consumer reaction and they are overly optimistic on cost. Finally, they implicitly presuppose that government is willing to provide both additional incentives and mandates to conservation rather than leaving it to the market. Recent decisions by the Maine Legislature to repeal the hook-up fee and to increase the speed limit indicate that this calculation is probably unrealistic.

Appendix C

Data and Projections

Central Maine Power

Bangor Hydro Electric Company

Maine Public Service Company

Central Maine Power Company

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TABLE 1

PEAK AND ENERGY FORECAST

CENTRAL MAINE POWER COMPANY

	1987	1988	1989	1990	1991	1992	ANNUAL COMPOUND GROWTH
BASE CASE:				(GWH)			
RESIDENTIAL	2,921	2,938	2,954	2,986	3,033	3,035	0.77%
COMMERCIAL	1,890	1,909	1,969	2,025	2,113	2,138	2.50%
INDUSTRIAL	3,579	3,737	3,864	4,054	4,393	4,592	5.11%
SALES FOR RESALE	107	115	118	120	123	125	0.00%
OTHER	43	41	40	38	37	36	-3.49%
TOTAL ENERGY DEMAND	8,540	8,740	8,945	9,223	9,699	9,926	3.05%
LOSSES @ 6.7%	572	586	599	618	650	665	
TOTAL ENERGY REQUIREMENTS	9,112	9,326	9,544	9,841	10,349	10,591	3.05%
WINTER PEAK (MW)	1,528	1,554	1,585	1,596	1,616	1,634	1.35%
LOAD FACTOR	68.1%	68.5%	68.7%	70.4%	73.1%	74.0%	

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TABLE 2

FUEL PRICE FORECAST

CENTRAL MAINE POWER COMPANY

		1987	1988	1989	1990	1991	1992
ESCALATION RATES:		----	----	----	----	----	----
INFLATION			3.0%	4.0%	4.0%	5.0%	5.0%
VARIABLE O&M			3.0%	4.0%	4.0%	5.0%	5.0%
COGEN			18.9%	7.8%	5.1%	-6.0%	2.7%
NB SYSTEM			14.9%	7.7%	7.7%	9.7%	9.7%
NO. 2 OIL			6.5%	4.1%	7.9%	8.3%	8.3%
NO. 6 OIL 2%S			14.9%	7.7%	7.7%	9.7%	9.7%
NO. 6 OIL .7%S			14.9%	7.7%	7.7%	9.7%	9.7%
NOMINAL PRICES:							
INFLATION	(INDEX)	1.00	1.03	1.07	1.11	1.17	1.23
VARIABLE O&M	(INDEX)	1.00	1.03	1.07	1.11	1.17	1.23
COGEN	(CENTS/kWh)	6.99	8.31	8.96	9.43	8.86	9.10
NB SYSTEM	(CENTS/kWh)	2.44	2.80	3.02	3.25	3.57	3.91
NO. 2 OIL	(CENTS/MMBtu)	454.00	483.51	503.33	543.10	588.17	636.99
NO. 6 OIL 2%S	(CENTS/MMBtu)	270.00	310.23	334.12	359.84	394.75	433.04
NO. 6 OIL .7%S	(CENTS/MMBtu)	294.00	337.81	363.82	391.83	429.84	471.53

NUCLEAR GENERATION COSTS ARE UNIT SPECIFIC

		1987	1988	1989	1990	1991	1992
1987 PRICES:							
VARIABLE O&M	(INDEX)	1.00	1.00	1.00	1.00	1.00	1.00
COGEN	(CENTS/kWh)	6.99	8.07	8.37	8.46	7.57	7.41
NB SYSTEM	(CENTS/kWh)	2.44	2.72	2.82	2.92	3.05	3.19
NO. 2 OIL	(CENTS/MMBtu)	454.00	469.43	469.88	487.50	502.82	518.62
NO. 6 OIL 2%S	(CENTS/MMBtu)	270.00	301.19	311.91	323.01	337.46	352.57
NO. 6 OIL .7%S	(CENTS/MMBtu)	294.00	327.97	339.64	351.72	367.46	383.91

TABLE 3

RESOURCE PROFILE

CENTRAL MAINE POWER COMPANY

	CONTINGENCY OR BASE RESOURCE	UNIT TYPE	WINTER CAPACITY (MW)	FIRST YEAR RESOURCE AVAILABLE	LAST YEAR RESOURCE AVAILABLE	CAPACITY FACTOR MIN (%)	CAPACITY FACTOR MAX (%)	1987 NON-FUEL VARIABLE O & M EXPENSES (CENTS/kWh)	1987 FUEL EXPENSES (CENTS/kWh)	1987 TOTAL VARIABLE O & M (CENTS/kWh)	1987 MARGINAL FIXED COSTS ($/kW)	ESCALATOR
GENERATING RESOURCES												
RUN OF THE RIVER HYDRO	BASE	HYDRO	100.0	1987	1992	90.0%	90.0%	0.31	N.A.	0.31	$0	
PEAK HYDRO	BASE	HYDRO	219.0	1987	1992	35.0%	35.0%	0.31	N.A.	0.31	$0	
LEWISTON HYDRO	BASE	HYDRO	25.0	1991	1992	41.0%	41.0%	0.31	N.A.	0.31	$0	
MAINE YANKEE	BASE	NUCLEAR	320.0	1987	1992		72.0%	N.A.	N.A.	0.74	$0	NUCLEAR
MILLSTONE 3	BASE	NUCLEAR	29.0	1987	1992		55.0%	N.A.	N.A.	0.87	$0	NUCLEAR
VERMONT YANKEE	BASE	NUCLEAR	19.0	1987	1992		70.0%	N.A.	N.A.	0.72	$0	NUCLEAR
CONN YANKEE	BASE	NUCLEAR	35.0	1987	1992		75.0%	N.A.	N.A.	1.02	$0	NUCLEAR
MASS YANKEE	BASE	NUCLEAR	17.0	1987	1992		75.0%	N.A.	N.A.	0.91	$0	NUCLEAR
NEW BRUNSWICK POWER	BASE	SYSTEM	150.0	1987	1991		85.0%	N.A.	N.A.	2.44	$0	NB SYSTEM
NEW BRUNSWICK POWER EXTENSION	CONTINGENCY	SYSTEM	150.0	1992	1992		85.0%	N.A.	N.A.	2.44	$68	NB SYSTEM
NUCSOS	BASE	SYSTEM	59.0	1987	1992		90.0%	N.A.	N.A.	2.47	$0	NO. 6 OIL .7%S
WYMAN 3	BASE	OIL-ST	116.0	1987	1992	20.0%	65.0%	0.15	2.65	2.80	$0	NO. 6 OIL 2%S
WYMAN 4	BASE	OIL-ST	366.0	1987	1992	20.0%	60.0%	0.11	2.84	2.95	$0	NO. 6 OIL .7%S
WYMAN 2	BASE	OIL-ST	52.0	1987	1992	7.0%	25.0%	0.15	3.04	3.20	$0	NO. 6 OIL 2%S
WYMAN 1	BASE	OIL-ST	53.0	1987	1992	5.0%	20.0%	0.15	3.07	3.22	$0	NO. 6 OIL 2%S
NEW BRUNSWICK PURCHASE 88-89	CONTINGENCY	SYSTEM	200.0	1988	1989	30.0%	65.0%	0.15	2.92	3.07	$68	NO. 6 OIL 2%S
NEW BRUNSWICK PURCHASE 1990	CONTINGENCY	SYSTEM	150.0	1990	1990	30.0%	65.0%	0.15	2.92	3.07	$68	NO. 6 OIL 2%S
NEPOOL PURCHASE	CONTINGENCY	OIL-ST	20.0	1989	1991	30.0%	65.0%	0.11	3.18	3.29	$50	NO. 6 OIL .7%S
MASON 4	CONTINGENCY	OIL-ST	36.0	1993	1993	0.0%	60.0%	0.20	3.75	3.95	$20	NO. 6 OIL .7%S
MASON 3	CONTINGENCY	OIL-ST	36.2	1993	1993	0.0%	60.0%	0.20	3.77	3.97	$20	NO. 6 OIL .7%S
MASON 5	CONTINGENCY	OIL-ST	36.7	1993	1993	0.0%	60.0%	0.20	3.81	4.01	$20	NO. 6 OIL .7%S
MASON 2	CONTINGENCY	OIL-ST	22.8	1993	1993	0.0%	60.0%	0.20	3.88	4.08	$20	NO. 6 OIL .7%S
MASON 1	CONTINGENCY	OIL-ST	21.9	1993	1993	0.0%	60.0%	0.20	3.88	4.08	$20	NO. 6 OIL .7%S
COMBUSTION TURBINE 87	BASE	OIL-GT	50.0	1987	1987	5.0%	20.0%	0.19	5.55	5.74	$0	NO. 2 OIL
COMBUSTION TURBINE 88	BASE	OIL-GT	75.0	1988	1988	5.0%	20.0%	0.19	5.55	5.74	$0	NO. 2 OIL
COMBUSTION TURBINE 89	BASE	OIL-GT	25.0	1989	1989	5.0%	20.0%	0.19	5.55	5.74	$0	NO. 2 OIL
COMBUSTION TURBINE 90	BASE	OIL-GT	25.0	1990	1990	5.0%	20.0%	0.19	5.55	5.74	$0	NO. 2 OIL
COMBUSTION TURBINE 92	BASE	OIL-GT	100.0	1992	1992	5.0%	20.0%	0.19	5.55	5.74	$0	NO. 2 OIL
CAPE GAS TURBINE 5	BASE	OIL-GT	19.0	1987	1992	4.0%	20.0%	0.53	6.58	7.10	$0	NO. 2 OIL
CAPE GAS TURBINE 4	BASE	OIL-GT	19.0	1987	1992	4.0%	20.0%	0.53	6.97	7.50	$0	NO. 2 OIL
QF POWER 87	BASE	COGEN	168.0	1987	1987	100.0%	100.0%	N.A.	N.A.	6.99	$0	COGEN
QF POWER 88	BASE	COGEN	239.0	1988	1988	100.0%	100.0%	N.A.	N.A.	6.99	$0	COGEN
QF POWER 89	BASE	COGEN	286.0	1989	1989	100.0%	100.0%	N.A.	N.A.	6.99	$0	COGEN
QF POWER 90	BASE	COGEN	317.0	1990	1990	100.0%	100.0%	N.A.	N.A.	6.99	$0	COGEN
QF POWER 91	BASE	COGEN	390.0	1991	1991	100.0%	100.0%	N.A.	N.A.	6.99	$0	COGEN
QF POWER 92	BASE	COGEN	390.0	1992	1992	100.0%	100.0%	N.A.	N.A.	6.99	$0	COGEN
QF OR AVAILABLE CAPACITY 1989	CONTINGENCY	COGEN	50.0	1989	1992	70.0%	70.0%	N.A.	N.A.	7.34	$0	INFLATION
QF CONTRACT 1990	CONTINGENCY	COGEN	50.0	1990	1992	70.0%	70.0%	N.A.	N.A.	7.34	$0	INFLATION
QF CONTRACT 1991	CONTINGENCY	COGEN	50.0	1991	1992	70.0%	70.0%	N.A.	N.A.	7.34	$0	INFLATION
CONSERVATION 88	CONTINGENCY		15.0	1988	1992	100.00%	100.00%	N.A.	N.A.	7.30	$0	
CONSERVATION 89	CONTINGENCY		15.0	1989	1992	100.00%	100.00%	N.A.	N.A.	7.30	$0	
CONSERVATION 90	CONTINGENCY		15.0	1990	1992	100.00%	100.00%	N.A.	N.A.	7.30	$0	
CONSERVATION 91	CONTINGENCY		15.0	1991	1992	100.00%	100.00%	N.A.	N.A.	7.30	$0	
CONSERVATION 92	CONTINGENCY		15.0	1992	1992	100.00%	100.00%	N.A.	N.A.	7.30	$0	

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TABLE 4

BASE CASE WINTER SYSTEM CAPABILTIES AND PROJECTED PEAK LOADS - MW

CENTRAL MAINE POWER COMPANY

GENERATING RESOURCES	1987	1988	1989	1990	1991	1992
RUN OF THE RIVER HYDRO	100.0	100.0	100.0	100.0	100.0	100.0
PEAK HYDRO	219.0	219.0	219.0	219.0	219.0	219.0
LEWISTON HYDRO	0.0	0.0	0.0	0.0	25.0	25.0
MAINE YANKEE	320.0	320.0	320.0	320.0	320.0	320.0
MILLSTONE 3	29.0	29.0	29.0	29.0	29.0	29.0
VERMONT YANKEE	19.0	19.0	19.0	19.0	19.0	19.0
CONN YANKEE	35.0	35.0	35.0	35.0	35.0	35.0
MASS YANKEE	17.0	17.0	17.0	17.0	17.0	17.0
NEW BRUNSWICK POWER	150.0	150.0	150.0	150.0	150.0	0.0
NEW BRUNSWICK POWER EXTENSION	0.0	0.0	0.0	0.0	0.0	0.0
NUCSOS	0.0	0.0	0.0	0.0	0.0	0.0
WYMAN 3	116.0	116.0	116.0	116.0	116.0	116.0
WYMAN 4	366.0	366.0	366.0	366.0	366.0	366.0
WYMAN 2	52.0	52.0	52.0	52.0	52.0	52.0
WYMAN 1	53.0	53.0	53.0	53.0	53.0	53.0
NEW BRUNSWICK PURCHASE 88-89	0.0	0.0	0.0	0.0	0.0	0.0
NEW BRUNSWICK PURCHASE 1990	0.0	0.0	0.0	0.0	0.0	0.0
NEPOOL PURCHASE	0.0	0.0	0.0	0.0	0.0	0.0
MASON 4	0.0	0.0	0.0	0.0	0.0	0.0
MASON 3	0.0	0.0	0.0	0.0	0.0	0.0
MASON 5	0.0	0.0	0.0	0.0	0.0	0.0
MASON 2	0.0	0.0	0.0	0.0	0.0	0.0
MASON 1	0.0	0.0	0.0	0.0	0.0	0.0
COMBUSTION TURBINE 87	50.0	0.0	0.0	0.0	0.0	0.0
COMBUSTION TURBINE 88	0.0	75.0	0.0	0.0	0.0	0.0
COMBUSTION TURBINE 89	0.0	0.0	25.0	0.0	0.0	0.0
COMBUSTION TURBINE 90	0.0	0.0	0.0	25.0	0.0	0.0
COMBUSTION TURBINE 92	0.0	0.0	0.0	0.0	0.0	100.0
CAPE GAS TURBINE 5	19.0	19.0	19.0	19.0	19.0	19.0
CAPE GAS TURBINE 4	19.0	19.0	19.0	19.0	19.0	19.0
QF POWER 87	168.0	0.0	0.0	0.0	0.0	0.0
QF POWER 88	0.0	239.0	0.0	0.0	0.0	0.0
QF POWER 89	0.0	0.0	286.0	0.0	0.0	0.0
QF POWER 90	0.0	0.0	0.0	317.0	0.0	0.0
QF POWER 91	0.0	0.0	0.0	0.0	390.0	0.0
QF POWER 92	0.0	0.0	0.0	0.0	0.0	390.0
QF OR AVAILABLE CAPACITY 1989	0.0	0.0	0.0	0.0	0.0	0.0
QF CONTRACT 1990	0.0	0.0	0.0	0.0	0.0	0.0
QF CONTRACT 1991	0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 88	0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 89	0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 90	0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 91	0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 92	0.0	0.0	0.0	0.0	0.0	0.0
HYDRO-QUEBEC PHASE 2	0.0	0.0	0.0	0.0	105.0	105.0
a. BASE CASE CAPACITY	1,732.0	1,828.0	1,825.0	1,856.0	2,034.0	1,984.0
CAPACITY REQUIREMENTS						
b. PEAK LOAD	1,528	1,554	1,585	1,596	1,616	1,634
c. RESERVE REQUIREMENT @18% (b x 18%)	275	280	285	287	291	294

d. CAPABILITY RESPONSIBILITY	(b + c)	1,803	1,834	1,870	1,883	1,907	1,928
e. CAPACITY SURPLUS (DEFICIT)	(a - d)	-71.0	-5.7	-45.3	-27.3	127.1	55.9
f. PERCENT SURPLUS (DEFICIT)	(e / a)	-3.9%	-0.3%	-2.4%	-1.4%	6.7%	2.9%

TABLE 5

MUST RUN GENERATION - GWH

CENTRAL MAINE POWER COMPANY

GENERATING RESOURCES	BASE CASE 1987	1988	1989	1990	1991	1992	CONTINGENCY CASE 1987	1988	1989	1990	1991	1992
RUN OF THE RIVER HYDRO	788.4	788.4	788.4	788.4	788.4	788.4	788.4	788.4	788.4	788.4	788.4	788.4
PEAK HYDRO	671.5	671.5	671.5	671.5	671.5	671.5	671.5	671.5	671.5	671.5	671.5	671.5
LEWISTON HYDRO	0.0	0.0	0.0	0.0	89.8	89.8	0.0	0.0	0.0	0.0	89.8	89.8
MAINE YANKEE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MILLSTONE 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VERMONT YANKEE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CONN YANKEE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MASS YANKEE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NEW BRUNSWICK POWER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NEW BRUNSWICK POWER EXTENSION	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NUCSOS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WYMAN 3	203.2	203.2	203.2	203.2	203.2	203.2	203.2	203.2	203.2	203.2	203.2	203.2
WYMAN 4	641.2	641.2	641.2	641.2	641.2	641.2	641.2	641.2	641.2	641.2	641.2	641.2
WYMAN 2	31.9	31.9	31.9	31.9	31.9	31.9	31.9	31.9	31.9	31.9	31.9	31.9
WYMAN 1	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2
NEW BRUNSWICK PURCHASE 88-89	0.0	0.0	0.0	0.0	0.0	0.0	0.0	262.8	525.6	0.0	0.0	0.0
NEW BRUNSWICK PURCHASE 1990	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	394.2	0.0	0.0
NEPOOL PURCHASE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.3	52.6	52.6	52.6	0.0
MASON 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MASON 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MASON 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MASON 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MASON 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COMBUSTION TURBINE 87	21.9	0.0	0.0	0.0	0.0	0.0	21.9	0.0	0.0	0.0	0.0	0.0
COMBUSTION TURBINE 88	0.0	32.9	0.0	0.0	0.0	0.0	0.0	32.9	0.0	0.0	0.0	0.0
COMBUSTION TURBINE 89	0.0	0.0	11.0	0.0	0.0	0.0	0.0	0.0	11.0	0.0	0.0	0.0
COMBUSTION TURBINE 90	0.0	0.0	0.0	11.0	0.0	0.0	0.0	0.0	0.0	11.0	0.0	0.0
COMBUSTION TURBINE 92	0.0	0.0	0.0	0.0	0.0	43.8	0.0	0.0	0.0	0.0	0.0	43.8
CAPE GAS TURBINE 5	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
CAPE GAS TURBINE 4	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
QF POWER 87	1,471.7	0.0	0.0	0.0	0.0	0.0	1,471.7	0.0	0.0	0.0	0.0	0.0
QF POWER 88	0.0	2,093.6	0.0	0.0	0.0	0.0	0.0	2,093.6	0.0	0.0	0.0	0.0
QF POWER 89	0.0	0.0	2,505.4	0.0	0.0	0.0	0.0	0.0	2,505.4	0.0	0.0	0.0
QF POWER 90	0.0	0.0	0.0	2,776.9	0.0	0.0	0.0	0.0	0.0	2,776.9	0.0	0.0
QF POWER 91	0.0	0.0	0.0	0.0	3,416.4	0.0	0.0	0.0	0.0	0.0	3,416.4	0.0
QF POWER 92	0.0	0.0	0.0	0.0	0.0	3,416.4	0.0	0.0	0.0	0.0	0.0	3,416.4
QF OR AVAILABLE CAPACITY 1989	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	306.6	306.6	306.6	306.6
QF CONTRACT 1990	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	306.6	306.6	306.6
QF CONTRACT 1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	306.6	306.6
CONSERVATION 88	0.0	0.0	0.0	0.0	0.0	0.0	0.0	65.7	131.4	131.4	131.4	131.4
CONSERVATION 89	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	131.4	131.4	131.4	131.4
CONSERVATION 90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	131.4	131.4	131.4
CONSERVATION 91	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	131.4	131.4
CONSERVATION 92	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	131.4
	3,866.3	4,499.2	4,889.0	5,160.6	5,878.9	5,922.7	3,866.3	4,854.0	6,036.6	6,614.8	7,376.9	7,499.5

TABLE 6

AVERAGE MARGINAL COSTS
(CENTS/kWh)

CENTRAL MAINE POWER COMPANY

	1987	1988	1989	1990	1991	1992
GENERATING RESOURCES:						
RUN OF THE RIVER HYDRO	0.3050	0.3142	0.3267	0.3398	0.3568	0.3746
PEAK HYDRO	0.3050	0.3142	0.3267	0.3398	0.3568	0.3746
LEWISTON HYDRO	0.3050	0.3142	0.3267	0.3398	0.3568	0.3746
MAINE YANKEE	0.7430	0.7130	0.6910	0.6670	0.7000	0.7350
MILLSTONE 3	0.8710	0.8440	0.8410	0.8730	0.8810	0.9250
VERMONT YANKEE	0.7200	0.7320	0.7380	0.7610	0.7780	0.8170
CONN YANKEE	1.0800	1.0220	1.0190	1.0150	1.0060	1.0560
MASS YANKEE	0.9140	0.9310	0.9780	1.0260	1.0780	1.1320
NEW BRUNSWICK POWER	2.4400	2.8036	3.0194	3.2519	3.5674	3.9134
NEW BRUNSWICK POWER EXTENSION	2.4400	2.8036	3.0194	3.2519	3.5674	3.9134
NUCSOS	2.4740	2.8426	3.0615	3.2972	3.6171	3.9679
WYMAN 3	2.8049	3.2045	3.4453	3.7045	4.0558	4.4407
WYMAN 4	2.9530	3.3799	3.6359	3.9116	4.2852	4.6948
WYMAN 2	3.1953	3.6531	3.9285	4.2249	4.6266	5.0669
WYMAN 1	3.2236	3.6856	3.9635	4.2626	4.6681	5.1124
NEW BRUNSWICK PURCHASE 88-89	3.0700	3.5274	3.7990	4.0916	4.4885	4.9238
NEW BRUNSWICK PURCHASE 1990	3.0700	3.5274	3.7990	4.0916	4.4885	4.9238
NEPOOL PURCHASE	3.2852	3.7747	4.0653	4.3784	4.8031	5.2690
MASON 4	3.9490	4.5134	4.8532	5.2189	5.7146	6.2578
MASON 3	3.9681	4.5354	4.8769	5.2444	5.7425	6.2884
MASON 5	4.0134	4.5874	4.9329	5.3047	5.8087	6.3611
MASON 2	4.0828	4.6671	5.0188	5.3972	5.9102	6.4723
MASON 1	4.0828	4.6671	5.0188	5.3972	5.9102	6.4723
COMBUSTION TURBINE 87	5.7369	6.1032	6.3532	6.8472	7.4086	8.0162
COMBUSTION TURBINE 88	5.7369	6.1032	6.3532	6.8472	7.4086	8.0162
COMBUSTION TURBINE 89	5.7369	6.1032	6.3532	6.8472	7.4086	8.0162
COMBUSTION TURBINE 90	5.7369	6.1032	6.3532	6.8472	7.4086	8.0162
COMBUSTION TURBINE 92	5.7369	6.1032	6.3532	6.8472	7.4086	8.0162
CAPE GAS TURBINE 5	7.1048	7.5483	7.8572	8.4560	9.1385	9.8768
CAPE GAS TURBINE 4	7.4966	7.9655	8.2916	8.9247	9.6461	10.4265
OF POWER 87	6.9900	8.3122	8.9646	9.4253	8.8580	9.0960
OF POWER 88	6.9900	8.3122	8.9646	9.4253	8.8580	9.0960
OF POWER 89	6.9900	8.3122	8.9646	9.4253	8.8580	9.0960
OF POWER 90	6.9900	8.3122	8.9646	9.4253	8.8580	9.0960
OF POWER 91	6.9900	8.3122	8.9646	9.4253	8.8580	9.0960
OF POWER 92	6.9900	8.3122	8.9646	9.4253	8.8580	9.0960
OF OR AVAILABLE CAPACITY 1989	7.3395	7.5597	7.8621	8.1766	8.5854	9.0147
OF CONTRACT 1990	7.3395	7.5597	7.8621	8.1766	8.5854	9.0147
OF CONTRACT 1991	7.3395	7.5597	7.8621	8.1766	8.5854	9.0147
CONSERVATION 88	7.3000	7.3000	7.3000	7.3000	7.3000	7.3000
CONSERVATION 89	7.3000	7.3000	7.3000	7.3000	7.3000	7.3000
CONSERVATION 90	7.3000	7.3000	7.3000	7.3000	7.3000	7.3000
CONSERVATION 91	7.3000	7.3000	7.3000	7.3000	7.3000	7.3000
CONSERVATION 92	7.3000	7.3000	7.3000	7.3000	7.3000	7.3000

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TABLE 7

BASE CASE SUPPLY FORECAST - GWH

CENTRAL MAINE POWER COMPANY

GENERATING RESOURCES	1987	1988	1989	1990	1991	1992		GENERATION REQUIREMENTS UNMET PRIOR TO UNITS DISPATCH 1987	1988	1989	1990	1991	1992
							ENERGY	9112.2	9325.6	9544.3	9840.9	10348.8	10591.0
							MUST RUN	3866.3	4499.2	4889.0	5160.6	5878.9	5922.7
RUN OF THE RIVER HYDRO	788.4	788.4	788.4	788.4	788.4	788.4		5245.9	4826.4	4655.3	4680.3	4469.9	4668.3
PEAK HYDRO	671.5	671.5	671.5	671.5	671.5	671.5		5245.9	4826.4	4655.3	4680.3	4469.9	4668.3
LEWISTON HYDRO	0.0	0.0	0.0	0.0	89.8	89.8		5245.9	4826.4	4655.3	4680.3	4469.9	4668.3
MAINE YANKEE	2018.3	2018.3	2018.3	2018.3	2018.3	2018.3		5245.9	4826.4	4655.3	4680.3	4469.9	4668.3
MILLSTONE 3	139.7	139.7	139.7	139.7	139.7	139.7		3227.6	2808.1	2637.0	2662.0	2451.6	2650.0
VERMONT YANKEE	116.5	116.5	116.5	116.5	116.5	116.5		3087.8	2668.3	2497.2	2522.3	2311.9	2510.3
CONN YANKEE	230.0	230.0	230.0	230.0	230.0	230.0		2971.3	2551.8	2380.7	2405.8	2195.4	2393.8
MASS YANKEE	111.7	111.7	111.7	111.7	111.7	111.7		2741.4	2321.9	2150.8	2175.9	1965.4	2163.8
NEW BRUNSWICK POWER	1116.9	1116.9	1116.9	1116.9	1116.9	0.0		2629.7	2210.2	2039.1	2064.2	1853.7	2052.1
NEW BRUNSWICK POWER EXTENSION	0.0	0.0	0.0	0.0	0.0	0.0		1512.8	1093.3	922.2	947.3	736.8	2052.1
NUCSOS	465.2	465.2	465.2	465.2	465.2	465.2		1512.8	1093.3	922.2	947.3	736.8	2052.1
WYMAN 3	660.5	660.5	660.3	660.5	474.9	660.5		1047.6	628.1	457.0	482.1	271.7	1587.0
WYMAN 4	1231.6	812.1	641.2	666.1	641.2	1770.9		590.4	170.9	-0.0	24.8	-0.0	1129.7
WYMAN 2	31.9	31.9	31.9	31.9	31.9	31.9		-0.0	-0.0	-0.0	-0.0	-0.0	0.0
WYMAN 1	23.2	23.2	23.2	23.2	23.2	23.2		0.0	0.0	0.0	0.0	0.0	0.0
NEW BRUNSWICK PURCHASE 88-89	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
NEW BRUNSWICK PURCHASE 1990	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
NEPOOL PURCHASE	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
MASON 4	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
MASON 3	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
MASON 5	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
MASON 2	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
MASON 1	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
COMBUSTION TURBINE 87	21.9	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
COMBUSTION TURBINE 88	0.0	32.9	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
COMBUSTION TURBINE 89	0.0	0.0	11.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
COMBUSTION TURBINE 90	0.0	0.0	0.0	11.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
COMBUSTION TURBINE 92	0.0	0.0	0.0	0.0	0.0	43.8		0.0	0.0	0.0	0.0	0.0	0.0
CAPE GAS TURBINE 5	6.7	6.7	6.7	6.7	6.7	6.7		0.0	0.0	0.0	0.0	0.0	0.0
CAPE GAS TURBINE 4	6.7	6.7	6.7	6.7	6.7	6.7		0.0	0.0	0.0	0.0	0.0	0.0
QF POWER 87	1471.7	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
QF POWER 88	0.0	2093.6	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
QF POWER 89	0.0	0.0	2505.4	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
QF POWER 90	0.0	0.0	0.0	2776.9	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
QF POWER 91	0.0	0.0	0.0	0.0	3416.4	0.0		0.0	0.0	0.0	0.0	0.0	0.0
QF POWER 92	0.0	0.0	0.0	0.0	0.0	3416.4		0.0	0.0	0.0	0.0	0.0	0.0
QF OR AVAILABLE CAPACITY 1989	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
QF CONTRACT 1990	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
QF CONTRACT 1991	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 88	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 89	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 90	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 91	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 92	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
	9112.2	9325.6	9544.3	9840.9	10348.8	10591.0							
	9112.2	9325.6	9544.3	9840.9	10348.8	10591.0							

29-Sep-87

TABLE 8

CONTINGENCY CASE SUPPLY FORECAST - GWH

CENTRAL MAINE POWER COMPANY

GENERATING RESOURCES	1987	1988	1989	1990	1991	1992		GENERATION REQUIREMENTS UNMET PRIOR TO UNITS DISPATCH 1987	1988	1989	1990	1991	1992
							ENERGY	9112.2	9325.6	9544.3	9840.9	10348.8	10591.0
							MUST RUN	3866.3	4854.0	6036.6	6614.8	7376.9	7499.5
RUN OF THE RIVER HYDRO	788.4	788.4	788.4	788.4	788.4	788.4		5245.9	4471.6	3507.7	3226.2	2971.9	3091.5
PEAK HYDRO	671.5	671.5	671.5	671.5	671.5	671.5		5245.9	4471.6	3507.7	3226.2	2971.9	3091.5
LEWISTON HYDRO	0.0	0.0	0.0	0.0	89.8	89.8		5245.9	4471.6	3507.7	3226.2	2971.9	3091.5
MAINE YANKEE	2018.3	1009.2	0.0	0.0	0.0	0.0		5245.9	4471.6	3507.7	3226.2	2971.9	3091.5
MILLSTONE 3	139.7	139.7	139.7	139.7	139.7	139.7		3227.6	3462.4	3507.7	3226.2	2971.9	3091.5
VERMONT YANKEE	116.5	116.5	116.5	116.5	116.5	116.5		3087.8	3322.7	3368.0	3086.5	2832.2	2951.8
CONN YANKEE	230.0	230.0	230.0	230.0	230.0	230.0		2971.3	3206.2	3251.5	2969.9	2715.7	2835.3
MASS YANKEE	111.7	111.7	111.7	111.7	111.7	111.7		2741.4	2976.2	3021.5	2740.0	2485.8	2605.3
NEW BRUNSWICK POWER	1116.9	1116.9	1116.9	1116.9	1116.9	0.0		2629.7	2864.6	2909.8	2628.3	2374.1	2493.6
NEW BRUNSWICK POWER EXTENSION	0.0	0.0	0.0	0.0	0.0	1116.9		1512.8	1747.7	1792.9	1511.4	1257.2	2493.6
NUCSOS	465.2	465.2	465.2	465.2	465.2	465.2		1512.8	1747.7	1792.9	1511.4	1257.2	1376.7
WYMAN 3	660.5	660.5	660.5	660.5	660.5	660.5		1047.6	1282.5	1327.8	1046.3	792.0	911.6
WYMAN 4	1231.6	1466.5	1511.7	1230.2	976.0	1095.6		590.4	825.2	870.5	589.0	334.8	454.3
WYMAN 2	31.9	31.9	31.9	31.9	31.9	31.9		-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
WYMAN 1	23.2	23.2	23.2	23.2	23.2	23.2		0.0	0.0	0.0	0.0	0.0	0.0
NEW BRUNSWICK PURCHASE 88-89	0.0	262.8	525.6	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
NEW BRUNSWICK PURCHASE 1990	0.0	0.0	0.0	394.2	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
NEPOOL PURCHASE	0.0	26.3	52.6	52.6	52.6	0.0		0.0	0.0	0.0	0.0	0.0	0.0
MASON 4	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
MASON 3	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
MASON 5	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
MASON 2	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
MASON 1	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
COMBUSTION TURBINE 87	21.9	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
COMBUSTION TURBINE 88	0.0	32.9	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
COMBUSTION TURBINE 89	0.0	0.0	11.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
COMBUSTION TURBINE 90	0.0	0.0	0.0	11.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
COMBUSTION TURBINE 92	0.0	0.0	0.0	0.0	0.0	43.8		0.0	0.0	0.0	0.0	0.0	0.0
CAPE GAS TURBINE 5	6.7	6.7	6.7	6.7	6.7	6.7		0.0	0.0	0.0	0.0	0.0	0.0
CAPE GAS TURBINE 4	6.7	6.7	6.7	6.7	6.7	6.7		0.0	0.0	0.0	0.0	0.0	0.0
QF POWER 87	1471.7	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
QF POWER 88	0.0	2093.6	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
QF POWER 89	0.0	0.0	2505.4	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
QF POWER 90	0.0	0.0	0.0	2776.9	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
QF POWER 91	0.0	0.0	0.0	0.0	3416.4	0.0		0.0	0.0	0.0	0.0	0.0	0.0
QF POWER 92	0.0	0.0	0.0	0.0	0.0	3416.4		0.0	0.0	0.0	0.0	0.0	0.0
QF OR AVAILABLE CAPACITY 1989	0.0	0.0	306.6	306.6	306.6	306.6		0.0	0.0	0.0	0.0	0.0	0.0
QF CONTRACT 1990	0.0	0.0	0.0	306.6	306.6	306.6		0.0	0.0	0.0	0.0	0.0	0.0
QF CONTRACT 1991	0.0	0.0	0.0	0.0	306.6	306.6		0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 88	0.0	65.7	131.4	131.4	131.4	131.4		0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 89	0.0	0.0	131.4	131.4	131.4	131.4		0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 90	0.0	0.0	0.0	131.4	131.4	131.4		0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 91	0.0	0.0	0.0	0.0	131.4	131.4		0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 92	0.0	0.0	0.0	0.0	0.0	131.4		0.0	0.0	0.0	0.0	0.0	0.0
	9112.2	9325.6	9544.3	9840.9	10348.8	10591.0							
	9112.2	9325.6	9544.3	9840.9	10348.8	10591.0							

TABLE 9

BASE CASE MARGINAL COSTS - INITIAL SOLUTION

CENTRAL MAINE POWER COMPANY

GENERATING RESOURCES	1987	1988	1989	1990	1991	1992
RUN OF THE RIVER HYDRO	$2,404,620	$2,476,759	$2,575,829	$2,678,862	$2,812,805	$2,953,445
PEAK HYDRO	$2,047,935	$2,109,373	$2,193,748	$2,281,498	$2,395,572	$2,515,351
LEWISTON HYDRO	$0	$0	$0	$0	$320,347	$336,365
MAINE YANKEE	$14,995,999	$14,390,508	$13,946,481	$13,462,088	$14,128,128	$14,834,534
MILLSTONE 3	$1,216,979	$1,179,254	$1,175,062	$1,219,773	$1,230,951	$1,292,429
VERMONT YANKEE	$838,858	$852,839	$859,829	$886,626	$906,432	$951,870
CONN YANKEE	$2,483,460	$2,350,089	$2,343,190	$2,333,992	$2,313,297	$2,428,272
MASS YANKEE	$1,020,847	$1,039,834	$1,092,328	$1,145,939	$1,204,018	$1,264,331
NEW BRUNSWICK POWER	$27,252,360	$31,312,962	$33,724,060	$36,320,812	$39,843,931	$0
NEW BRUNSWICK POWER EXTENSION	$0	$0	$0	$0	$0	$0
NUCSOS	$11,507,959	$13,222,645	$14,240,789	$15,337,330	$16,825,051	$18,457,081
WYMAN 3	$18,526,212	$21,165,574	$22,748,614	$24,468,499	$19,261,429	$29,331,263
WYMAN 4	$36,368,795	$27,447,578	$23,314,830	$26,053,565	$27,478,148	$83,143,009
WYMAN 2	$1,018,860	$1,164,826	$1,252,647	$1,347,154	$1,475,257	$1,615,657
WYMAN 1	$748,333	$855,581	$920,098	$989,529	$1,083,641	$1,186,789
NEW BRUNSWICK PURCHASE 88-89	$0	$0	$0	$0	$0	$0
NEW BRUNSWICK PURCHASE 1990	$0	$0	$0	$0	$0	$0
NEPOOL PURCHASE	$0	$0	$0	$0	$0	$0
MASON 4	$0	$0	$0	$0	$0	$0
MASON 3	$0	$0	$0	$0	$0	$0
MASON 5	$0	$0	$0	$0	$0	$0
MASON 2	$0	$0	$0	$0	$0	$0
MASON 1	$0	$0	$0	$0	$0	$0
COMBUSTION TURBINE 87	$1,256,377	$0	$0	$0	$0	$0
COMBUSTION TURBINE 88	$0	$2,004,889	$0	$0	$0	$0
COMBUSTION TURBINE 89	$0	$0	$695,675	$0	$0	$0
COMBUSTION TURBINE 90	$0	$0	$0	$749,769	$0	$0
COMBUSTION TURBINE 92	$0	$0	$0	$0	$0	$3,511,091
CAPE GAS TURBINE 5	$473,011	$502,533	$523,101	$562,966	$608,407	$657,555
CAPE GAS TURBINE 4	$499,095	$530,313	$552,020	$594,169	$642,200	$694,154
QF POWER 87	$102,870,432	$0	$0	$0	$0	$0
QF POWER 88	$0	$174,026,529	$0	$0	$0	$0
QF POWER 89	$0	$0	$224,595,628	$0	$0	$0
QF POWER 90	$0	$0	$0	$261,733,429	$0	$0
QF POWER 91	$0	$0	$0	$0	$302,624,886	$0
QF POWER 92	$0	$0	$0	$0	$0	$310,754,431
QF OR AVAILABLE CAPACITY 1989	$0	$0	$0	$0	$0	$0
QF CONTRACT 1990	$0	$0	$0	$0	$0	$0
QF CONTRACT 1991	$0	$0	$0	$0	$0	$0
CONSERVATION 88	$0	$0	$0	$0	$0	$0
CONSERVATION 89	$0	$0	$0	$0	$0	$0
CONSERVATION 90	$0	$0	$0	$0	$0	$0
CONSERVATION 91	$0	$0	$0	$0	$0	$0
CONSERVATION 92	$0	$0	$0	$0	$0	$0
INCREMENTAL CAPACITY COSTS	$0	$0	$0	$0	$0	$0
	$225,530,131	$296,632,085	$346,753,928	$392,166,000	$435,154,502	$475,927,627

TABLE 10

CONTINGENCY CASE MARGINAL COSTS - INITIAL SOLUTION

CENTRAL MAINE POWER COMPANY

GENERATING RESOURCES	1987	1988	1989	1990	1991	1992
RUN OF THE RIVER HYDRO	$2,404,620	$2,476,759	$2,575,829	$2,678,862	$2,812,805	$2,953,445
PEAK HYDRO	$2,047,935	$2,109,373	$2,193,748	$2,281,498	$2,395,572	$2,515,351
LEWISTON HYDRO	$0	$0	$0	$0	$320,347	$336,365
MAINE YANKEE	$14,995,999	$7,195,254	$0	$0	$0	$0
MILLSTONE 3	$1,216,979	$1,179,254	$1,175,062	$1,219,773	$1,230,951	$1,292,429
VERMONT YANKEE	$838,858	$852,839	$859,829	$886,626	$906,432	$951,870
CONN YANKEE	$2,483,460	$2,350,089	$2,343,190	$2,333,992	$2,313,297	$2,428,272
MASS YANKEE	$1,020,847	$1,039,834	$1,092,328	$1,145,939	$1,204,018	$1,264,331
NEW BRUNSWICK POWER	$27,252,360	$31,312,962	$33,724,060	$36,320,812	$39,843,931	$0
NEW BRUNSWICK POWER EXTENSION	$0	$0	$0	$0	$0	$43,708,792
MUCSOS	$11,507,959	$13,222,645	$14,240,789	$15,337,330	$16,825,051	$18,457,081
WYMAN 3	$18,526,212	$21,165,574	$22,756,559	$24,468,499	$26,788,683	$29,331,263
WYMAN 4	$36,368,795	$49,564,593	$54,966,201	$48,120,344	$41,822,954	$51,434,318
WYMAN 2	$1,018,860	$1,164,826	$1,252,647	$1,347,154	$1,475,257	$1,615,657
WYMAN 1	$748,333	$855,581	$920,098	$989,529	$1,083,641	$1,186,789
NEW BRUNSWICK PURCHASE 88-89	$0	$9,270,086	$19,967,765	$0	$0	$0
NEW BRUNSWICK PURCHASE 1990	$0	$0	$0	$16,128,962	$0	$0
NEPOOL PURCHASE	$0	$991,990	$2,136,746	$2,301,275	$2,524,499	$0
MASON 4	$0	$0	$0	$0	$0	$0
MASON 3	$0	$0	$0	$0	$0	$0
MASON 5	$0	$0	$0	$0	$0	$0
MASON 2	$0	$0	$0	$0	$0	$0
MASON 1	$0	$0	$0	$0	$0	$0
COMBUSTION TURBINE 87	$1,256,377	$0	$0	$0	$0	$0
COMBUSTION TURBINE 88	$0	$2,004,889	$0	$0	$0	$0
COMBUSTION TURBINE 89	$0	$0	$695,675	$0	$0	$0
COMBUSTION TURBINE 90	$0	$0	$0	$749,769	$0	$0
COMBUSTION TURBINE 92	$0	$0	$0	$0	$0	$3,511,091
CAPE GAS TURBINE 5	$473,011	$502,533	$523,101	$562,966	$608,407	$657,555
CAPE GAS TURBINE 4	$499,095	$530,313	$552,020	$594,169	$642,200	$694,154
QF POWER 87	$102,870,432	$0	$0	$0	$0	$0
QF POWER 88	$0	$174,026,529	$0	$0	$0	$0
QF POWER 89	$0	$0	$224,595,628	$0	$0	$0
QF POWER 90	$0	$0	$0	$261,733,429	$0	$0
QF POWER 91	$0	$0	$0	$0	$302,624,886	$0
QF POWER 92	$0	$0	$0	$0	$0	$310,754,431
QF OR AVAILABLE CAPACITY 1989	$0	$0	$24,105,114	$25,069,319	$26,322,784	$27,638,924
QF CONTRACT 1990	$0	$0	$0	$25,069,319	$26,322,784	$27,638,924
QF CONTRACT 1991	$0	$0	$0	$0	$26,322,784	$27,638,924
CONSERVATION 88	$0	$4,796,100	$9,592,200	$9,592,200	$9,592,200	$9,592,200
CONSERVATION 89	$0	$0	$9,592,200	$9,592,200	$9,592,200	$9,592,200
CONSERVATION 90	$0	$0	$0	$9,592,200	$9,592,200	$9,592,200
CONSERVATION 91	$0	$0	$0	$0	$9,592,200	$9,592,200
CONSERVATION 92	$0	$0	$0	$0	$0	$9,592,200
INCREMENTAL CAPACITY COSTS	$0	$0	$15,639,520	$12,477,338	$1,169,750	$12,528,027
	------	------	------	------	------	------
	$225,530,131	$326,612,021	$445,500,309	$510,593,504	$563,929,837	$616,498,992

TABLE 11

MAINE YANKEE SHUTDOWN COSTS - INITIAL SOLUTION

CENTRAL MAINE POWER COMPANY

	1987	1988	1989	1990	1991	1992	TOTAL (1987 $)
TOTAL COST ($)	$0	$29,979,937	$98,746,381	$118,427,504	$128,775,335	$140,571,365	$452,130,956
PER UNIT COST (CENTS/kWh)	0.0000	0.3430	1.1039	1.2840	1.3277	1.4162	1.0723
PERCENTAGE INCREASE IN RESIDENTIAL RATES	0.0%	4.0%	12.2%	13.3%	13.3%	13.6%	
PERCENTAGE INCREASE IN COMMERCIAL RATES	0.0%	4.2%	12.7%	13.9%	13.8%	14.1%	
PERCENTAGE INCREASE IN INDUSTRIAL RATES	0.0%	6.3%	18.4%	19.9%	19.7%	20.0%	
PERCENTAGE INCREASE IN OTHER RATES	0.0%	3.8%	11.4%	12.5%	12.4%	12.7%	

TABLE 12

PEAK AND ENERGY FORECAST

CENTRAL MAINE POWER COMPANY

	1987	1988	1989	1990	1991	1992	ANNUAL COMPOUND GROWTH
BASE CASE:				(GWH)			
RESIDENTIAL	2,921	2,938	2,954	2,986	3,033	3,035	0.77%
COMMERCIAL	1,890	1,909	1,969	2,025	2,113	2,138	2.50%
INDUSTRIAL	3,579	3,737	3,864	4,054	4,393	4,592	5.11%
SALES FOR RESALE	107	115	118	120	123	125	3.16%
OTHER	43	41	40	38	37	36	-3.49%
TOTAL ENERGY DEMAND	8,540	8,740	8,945	9,223	9,699	9,926	3.05%
LOSSES @ 6.7%	572	586	599	618	650	665	
TOTAL ENERGY REQUIREMENTS	9,112	9,326	9,544	9,841	10,349	10,591	3.05%
WINTER PEAK (MW)	1,528	1,554	1,585	1,596	1,616	1,634	1.35%

PEAK AND ENERGY FORECAST

REFLECTING ELASTICITY RESPONSE

			0.99596	0.9838	0.97068	0.95781	ANNUAL COMPOUND	PRICE
CONTINGENCY CASE:	1987	1988	1989	1990	1991	1992	GROWTH	ELASTICITY
RESIDENTIAL	2,921	2,938	2,942	2,950	2,993	3,023	0.69%	0.50
COMMERCIAL	1,890	1,909	1,961	1,999	2,084	2,129	2.41%	0.30
INDUSTRIAL	3,579	3,737	3,840	3,980	4,306	4,564	4.98%	0.65
SALES FOR RESALE	107	115	117	118	121	124	3.06%	0.50
OTHER	43	41	40	38	37	36	-3.56%	0.50
TOTAL ENERGY DEMAND	8,540	8,740	8,900	9,084	9,540	9,876	2.95%	
LOSSES @ 6.7%	572	586	596	609	639	662		
TOTAL ENERGY REQUIREMENTS	9,112	9,326	9,496	9,693	10,179	10,538	2.95%	
WINTER PEAK (MW)	1,528	1,554	1,577	1,572	1,590	1,626	1.25%	

LOSSES ASSUMED TO BE 6.7%
OF TOTAL SALES

TABLE 13

CONTINGENCY CASE WINTER SYSTEM CAPABILITIES AND PROJECTED PEAK LOADS - MW

CENTRAL MAINE POWER COMPANY

GENERATING RESOURCES	1987	1988	1989	1990	1991	1992
RUN OF THE RIVER HYDRO	100.0	100.0	100.0	100.0	100.0	100.0
PEAK HYDRO	219.0	219.0	219.0	219.0	219.0	219.0
LEWISTON HYDRO	0.0	0.0	0.0	0.0	25.0	25.0
MAINE YANKEE	320.0	320.0	0.0	0.0	0.0	0.0
MILLSTONE 3	29.0	29.0	29.0	29.0	29.0	29.0
VERMONT YANKEE	19.0	19.0	19.0	19.0	19.0	19.0
CONN YANKEE	35.0	35.0	35.0	35.0	35.0	35.0
MASS YANKEE	17.0	17.0	17.0	17.0	17.0	17.0
NEW BRUNSWICK POWER	150.0	150.0	150.0	150.0	150.0	0.0
NEW BRUNSWICK POWER EXTENSION	0.0	0.0	0.0	0.0	0.0	150.0
NUCSOS	0.0	0.0	0.0	0.0	0.0	0.0
WYMAN 3	116.0	116.0	116.0	116.0	116.0	116.0
WYMAN 4	366.0	366.0	366.0	366.0	366.0	366.0
WYMAN 2	52.0	52.0	52.0	52.0	52.0	52.0
WYMAN 1	53.0	53.0	53.0	53.0	53.0	53.0
NEW BRUNSWICK PURCHASE 88-89	0.0	0.0	200.0	0.0	0.0	0.0
NEW BRUNSWICK PURCHASE 1990	0.0	0.0	0.0	150.0	0.0	0.0
NEPOOL PURCHASE	0.0	0.0	20.0	20.0	20.0	0.0
MASON 4	0.0	0.0	0.0	0.0	0.0	0.0
MASON 3	0.0	0.0	0.0	0.0	0.0	0.0
MASON 5	0.0	0.0	0.0	0.0	0.0	0.0
MASON 2	0.0	0.0	0.0	0.0	0.0	0.0
MASON 1	0.0	0.0	0.0	0.0	0.0	0.0
COMBUSTION TURBINE 87	50.0	0.0	0.0	0.0	0.0	0.0
COMBUSTION TURBINE 88	0.0	75.0	0.0	0.0	0.0	0.0
COMBUSTION TURBINE 89	0.0	0.0	25.0	0.0	0.0	0.0
COMBUSTION TURBINE 90	0.0	0.0	0.0	25.0	0.0	0.0
COMBUSTION TURBINE 92	0.0	0.0	0.0	0.0	0.0	100.0
CAPE GAS TURBINE 5	19.0	19.0	19.0	19.0	19.0	19.0
CAPE GAS TURBINE 4	19.0	19.0	19.0	19.0	19.0	19.0
QF POWER 87	168.0	0.0	0.0	0.0	0.0	0.0
QF POWER 88	0.0	239.0	0.0	0.0	0.0	0.0
QF POWER 89	0.0	0.0	286.0	0.0	0.0	0.0
QF POWER 90	0.0	0.0	0.0	317.0	0.0	0.0
QF POWER 91	0.0	0.0	0.0	0.0	390.0	0.0
QF POWER 92	0.0	0.0	0.0	0.0	0.0	390.0
QF OR AVAILABLE CAPACITY 1989	0.0	0.0	50.0	50.0	50.0	50.0
QF CONTRACT 1990	0.0	0.0	0.0	50.0	50.0	50.0
QF CONTRACT 1991	0.0	0.0	0.0	0.0	50.0	50.0
CONSERVATION 88	0.0	15.0	15.0	15.0	15.0	15.0
CONSERVATION 89	0.0	0.0	15.0	15.0	15.0	15.0
CONSERVATION 90	0.0	0.0	0.0	15.0	15.0	15.0
CONSERVATION 91	0.0	0.0	0.0	0.0	15.0	15.0
CONSERVATION 92	0.0	0.0	0.0	0.0	0.0	15.0
HYDRO-QUEBEC PHASE 2	0.0	0.0	0.0	0.0	105.0	105.0
TOTAL AVAILABLE BASE CASE CAPACITY	1,732.0	1,843.0	1,805.0	1,851.0	1,944.0	2,039.0
CAPACITY REQUIREMENTS						
PEAK LOAD	1,528	1,554	1,577	1,572	1,590	1,626
RESERVE REQUIREMENT	275	280	284	283	286	293

CAPABILITY RESPONSIBILITY	1,803	1,834	1,861	1,855	1,876	1,918
CAPACITY SURPLUS (DEFICIT)	-71.0	9.3	-55.9	-4.0	68.3	120.6
PERCENT SURPLUS (DEFICIT)	-3.9%	0.5%	-3.0%	-0.2%	3.6%	6.3%

29-Sep-87

TABLE 14

CONTINGENCY CASE SUPPLY FORECAST - FINAL SOLUTION

CENTRAL MAINE POWER COMPANY

GENERATION REQUIREMENTS UNMET PRIOR TO UNITS DISPATCH

GENERATING RESOURCES	1987	1988	1989	1990	1991	1992		1987	1988	1989	1990	1991	1992
							ENERGY	9112.2	9325.6	9496.1	9693.0	10179.4	10537.5
							MUST RUN	3866.3	4854.0	6036.6	6614.8	7376.9	7499.5
RUN OF THE RIVER HYDRO	788.4	788.4	788.4	788.4	788.4	788.4		5245.9	4471.6	3459.5	3078.3	2802.5	3038.0
PEAK HYDRO	671.5	671.5	671.5	671.5	671.5	671.5		5245.9	4471.6	3459.5	3078.3	2802.5	3038.0
LEWISTON HYDRO	0.0	0.0	0.0	0.0	89.8	89.8		5245.9	4471.6	3459.5	3078.3	2802.5	3038.0
MAINE YANKEE	2018.3	1009.2	0.0	0.0	0.0	0.0		5245.9	4471.6	3459.5	3078.3	2802.5	3038.0
MILLSTONE 3	139.7	139.7	139.7	139.7	139.7	139.7		3227.6	3462.4	3459.5	3078.3	2802.5	3038.0
VERMONT YANKEE	116.5	116.5	116.5	116.5	116.5	116.5		3087.8	3322.7	3319.8	2938.6	2662.8	2898.3
CONN YANKEE	230.0	230.0	230.0	230.0	230.0	230.0		2971.3	3206.2	3203.3	2822.1	2546.2	2781.8
MASS YANKEE	111.7	111.7	111.7	111.7	111.7	111.7		2741.4	2976.2	2973.4	2592.1	2316.3	2551.8
NEW BRUNSWICK POWER	1116.9	1116.9	1116.9	1116.9	1116.9	0.0		2629.7	2864.6	2861.7	2480.4	2204.6	2440.1
NEW BRUNSWICK POWER EXTENSION	0.0	0.0	0.0	0.0	0.0	1116.9		1512.8	1747.7	1744.8	1363.5	1087.7	2440.1
MUCSOS	465.2	465.2	465.2	465.2	465.2	465.2		1512.8	1747.7	1744.8	1363.5	1087.7	1323.2
WYMAN 3	660.5	660.5	660.5	660.5	660.5	660.5		1047.6	1282.5	1279.6	898.4	622.5	858.1
WYMAN 4	1231.6	1466.5	1463.6	1082.3	806.5	1042.0		590.4	825.2	822.3	441.1	165.3	400.8
WYMAN 2	31.9	31.9	31.9	31.9	31.9	31.9		-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
WYMAN 1	23.2	23.2	23.2	23.2	23.2	23.2		0.0	0.0	0.0	0.0	0.0	0.0
NEW BRUNSWICK PURCHASE 88-89	0.0	262.8	525.6	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
NEW BRUNSWICK PURCHASE 1990	0.0	0.0	0.0	394.2	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
NEPOOL PURCHASE	0.0	26.3	52.6	52.6	52.6	0.0		0.0	0.0	0.0	0.0	0.0	0.0
MASON 4	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
MASON 3	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
MASON 5	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
MASON 2	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
MASON 1	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
COMBUSTION TURBINE 87	21.9	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
COMBUSTION TURBINE 88	0.0	32.9	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
COMBUSTION TURBINE 89	0.0	0.0	11.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
COMBUSTION TURBINE 90	0.0	0.0	0.0	11.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
COMBUSTION TURBINE 92	0.0	0.0	0.0	0.0	0.0	43.8		0.0	0.0	0.0	0.0	0.0	0.0
CAPE GAS TURBINE 5	6.7	6.7	6.7	6.7	6.7	6.7		0.0	0.0	0.0	0.0	0.0	0.0
CAPE GAS TURBINE 4	6.7	6.7	6.7	6.7	6.7	6.7		0.0	0.0	0.0	0.0	0.0	0.0
QF POWER 87	1471.7	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
QF POWER 88	0.0	2093.6	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
QF POWER 89	0.0	0.0	2505.4	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
QF POWER 90	0.0	0.0	0.0	2776.9	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
QF POWER 91	0.0	0.0	0.0	0.0	3416.4	0.0		0.0	0.0	0.0	0.0	0.0	0.0
QF POWER 92	0.0	0.0	0.0	0.0	0.0	3416.4		0.0	0.0	0.0	0.0	0.0	0.0
QF OR AVAILABLE CAPACITY 1989	0.0	0.0	306.6	306.6	306.6	306.6		0.0	0.0	0.0	0.0	0.0	0.0
QF CONTRACT 1990	0.0	0.0	0.0	306.6	306.6	306.6		0.0	0.0	0.0	0.0	0.0	0.0
QF CONTRACT 1991	0.0	0.0	0.0	0.0	306.6	306.6		0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 88	0.0	65.7	131.4	131.4	131.4	131.4		0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 89	0.0	0.0	131.4	131.4	131.4	131.4		0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 90	0.0	0.0	0.0	131.4	131.4	131.4		0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 91	0.0	0.0	0.0	0.0	131.4	131.4		0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 92	0.0	0.0	0.0	0.0	0.0	131.4		0.0	0.0	0.0	0.0	0.0	0.0
	9112.2	9325.6	9496.1	9693.0	10179.4	10537.5							
	9112.2	9325.6	9496.1	9693.0	10179.4	10537.5							

TABLE 15

CONTINGENCY CASE MARGINAL COSTS - FINAL SOLUTION

CENTRAL MAINE POWER COMPANY

GENERATING RESOURCES	1987	1988	1989	1990	1991	1992
RUN OF THE RIVER HYDRO	$2,404,620	$2,476,759	$2,575,829	$2,678,862	$2,812,805	$2,953,445
PEAK HYDRO	$2,047,935	$2,109,373	$2,193,748	$2,281,498	$2,395,572	$2,515,351
LEWISTON HYDRO	$0	$0	$0	$0	$320,347	$336,365
MAINE YANKEE	$14,995,999	$7,195,254	$0	$0	$0	$0
MILLSTONE 3	$1,216,979	$1,179,254	$1,175,062	$1,219,773	$1,230,951	$1,292,429
VERMONT YANKEE	$838,858	$852,839	$859,829	$886,626	$906,432	$951,870
CONN YANKEE	$2,483,460	$2,350,089	$2,343,190	$2,333,992	$2,313,297	$2,428,272
MASS YANKEE	$1,020,847	$1,039,834	$1,092,328	$1,145,939	$1,204,018	$1,264,331
NEW BRUNSWICK POWER	$27,252,360	$31,312,962	$33,724,060	$36,320,812	$39,843,931	$0
NEW BRUNSWICK POWER EXTENSION	$0	$0	$0	$0	$0	$43,708,792
NUCSOS	$11,507,959	$13,222,645	$14,240,789	$15,337,330	$16,825,051	$18,457,081
WYMAN 3	$18,526,212	$21,165,574	$22,756,559	$24,468,499	$26,788,683	$29,331,263
WYMAN 4	$36,368,795	$49,564,593	$53,214,820	$42,335,268	$34,560,625	$48,921,272
WYMAN 2	$1,018,860	$1,164,826	$1,252,647	$1,347,154	$1,475,257	$1,615,657
WYMAN 1	$748,333	$855,581	$920,098	$989,529	$1,083,641	$1,186,789
NEW BRUNSWICK PURCHASE 88-89	$0	$9,270,086	$19,967,765	$0	$0	$0
NEW BRUNSWICK PURCHASE 1990	$0	$0	$0	$16,128,962	$0	$0
NEPOOL PURCHASE	$0	$991,990	$2,136,746	$2,301,275	$2,524,499	$0
MASON 4	$0	$0	$0	$0	$0	$0
MASON 3	$0	$0	$0	$0	$0	$0
MASON 5	$0	$0	$0	$0	$0	$0
MASON 2	$0	$0	$0	$0	$0	$0
MASON 1	$0	$0	$0	$0	$0	$0
COMBUSTION TURBINE 87	$1,256,377	$0	$0	$0	$0	$0
COMBUSTION TURBINE 88	$0	$2,004,889	$0	$0	$0	$0
COMBUSTION TURBINE 89	$0	$0	$695,675	$0	$0	$0
COMBUSTION TURBINE 90	$0	$0	$0	$749,769	$0	$0
COMBUSTION TURBINE 92	$0	$0	$0	$0	$0	$3,511,091
CAPE GAS TURBINE 5	$473,011	$502,533	$523,101	$562,966	$608,407	$657,555
CAPE GAS TURBINE 4	$499,095	$530,313	$552,020	$594,169	$642,200	$694,154
QF POWER 87	$102,870,432	$0	$0	$0	$0	$0
QF POWER 88	$0	$174,026,529	$0	$0	$0	$0
QF POWER 89	$0	$0	$224,595,628	$0	$0	$0
QF POWER 90	$0	$0	$0	$261,733,429	$0	$0
QF POWER 91	$0	$0	$0	$0	$302,624,886	$0
QF POWER 92	$0	$0	$0	$0	$0	$310,754,431
QF OR AVAILABLE CAPACITY 1989	$0	$0	$24,105,114	$25,069,319	$26,322,784	$27,638,924
QF CONTRACT 1990	$0	$0	$0	$25,069,319	$26,322,784	$27,638,924
QF CONTRACT 1991	$0	$0	$0	$0	$26,322,784	$27,638,924
CONSERVATION 88	$0	$4,796,100	$9,592,200	$9,592,200	$9,592,200	$9,592,200
CONSERVATION 89	$0	$0	$9,592,200	$9,592,200	$9,592,200	$9,592,200
CONSERVATION 90	$0	$0	$0	$9,592,200	$9,592,200	$9,592,200
CONSERVATION 91	$0	$0	$0	$0	$9,592,200	$9,592,200
CONSERVATION 92	$0	$0	$0	$0	$0	$9,592,200
INCREMENTAL CAPITAL COST	$0	$0	$15,639,520	$12,477,338	$1,169,750	$12,528,027
	$225,530,131	$326,612,021	$443,748,928	$504,808,427	$556,667,508	$613,985,946

TABLE 16

MAINE YANKEE SHUTDOWN COSTS - FINAL SOLUTION

CENTRAL MAINE POWER COMPANY

	1987	1988	1989	1990	1991	1992	TOTAL (1987 $)
TOTAL COST ($)	$0	$29,979,937	$96,995,000	$112,642,428	$121,513,006	$138,058,320	$437,048,642
PER UNIT COST (CENTS/kWh) FUEL CHARGES	0.0000	0.3430	1.0898	1.2400	1.2737	1.3979	1.0463
PERCENTAGE INCREASE IN RESIDENTIAL RATES	0.0%	4.0%	12.3%	13.6%	13.5%	13.6%	
PERCENTAGE INCREASE IN COMMERCIAL RATES	0.0%	4.2%	12.8%	14.1%	14.0%	14.2%	
PERCENTAGE INCREASE IN INDUSTRIAL RATES	0.0%	6.3%	18.3%	19.6%	19.3%	19.8%	
PERCENTAGE INCREASE IN OTHER RATES	0.0%	3.8%	11.5%	12.8%	12.7%	12.8%	
PERCENTAGE INCREASE IN SYSTEM AVE.RATES	0.0%	4.8%	14.3%	15.6%	15.5%	15.8%	

TABLE 17

INCREMENTAL CAPACITY REQUIREMENTS

CENTRAL MAINE POWER COMPANY

(MW)

GENERATING RESOURCES	1987	1988	1989	1990	1991	1992
RUN OF THE RIVER HYDRO	0.0	0.0	0.0	0.0	0.0	0.0
PEAK HYDRO	0.0	0.0	0.0	0.0	0.0	0.0
LEWISTON HYDRO	0.0	0.0	0.0	0.0	0.0	0.0
MAINE YANKEE	0.0	0.0	-320.0	-320.0	-320.0	-320.0
MILLSTONE 3	0.0	0.0	0.0	0.0	0.0	0.0
VERMONT YANKEE	0.0	0.0	0.0	0.0	0.0	0.0
CONN YANKEE	0.0	0.0	0.0	0.0	0.0	0.0
MASS YANKEE	0.0	0.0	0.0	0.0	0.0	0.0
NEW BRUNSWICK POWER	0.0	0.0	0.0	0.0	0.0	0.0
NEW BRUNSWICK POWER EXTENSION	0.0	0.0	0.0	0.0	0.0	150.0
NUCSOS	0.0	0.0	0.0	0.0	0.0	0.0
WYMAN 3	0.0	0.0	0.0	0.0	0.0	0.0
WYMAN 4	0.0	0.0	0.0	0.0	0.0	0.0
WYMAN 2	0.0	0.0	0.0	0.0	0.0	0.0
WYMAN 1	0.0	0.0	0.0	0.0	0.0	0.0
NEW BRUNSWICK PURCHASE 88-89	0.0	0.0	200.0	0.0	0.0	0.0
NEW BRUNSWICK PURCHASE 1990	0.0	0.0	0.0	150.0	0.0	0.0
NEPOOL PURCHASE	0.0	0.0	20.0	20.0	20.0	0.0
MASON 4	0.0	0.0	0.0	0.0	0.0	0.0
MASON 3	0.0	0.0	0.0	0.0	0.0	0.0
MASON 5	0.0	0.0	0.0	0.0	0.0	0.0
MASON 2	0.0	0.0	0.0	0.0	0.0	0.0
MASON 1	0.0	0.0	0.0	0.0	0.0	0.0
COMBUSTION TURBINE 87	0.0	0.0	0.0	0.0	0.0	0.0
COMBUSTION TURBINE 88	0.0	0.0	0.0	0.0	0.0	0.0
COMBUSTION TURBINE 89	0.0	0.0	0.0	0.0	0.0	0.0
COMBUSTION TURBINE 90	0.0	0.0	0.0	0.0	0.0	0.0
COMBUSTION TURBINE 92	0.0	0.0	0.0	0.0	0.0	0.0
CAPE GAS TURBINE 5	0.0	0.0	0.0	0.0	0.0	0.0
CAPE GAS TURBINE 4	0.0	0.0	0.0	0.0	0.0	0.0
QF POWER 87	0.0	0.0	0.0	0.0	0.0	0.0
QF POWER 88	0.0	0.0	0.0	0.0	0.0	0.0
QF POWER 89	0.0	0.0	0.0	0.0	0.0	0.0
QF POWER 90	0.0	0.0	0.0	0.0	0.0	0.0
QF POWER 91	0.0	0.0	0.0	0.0	0.0	0.0
QF POWER 92	0.0	0.0	0.0	0.0	0.0	0.0
QF OR AVAILABLE CAPACITY 1989	0.0	0.0	50.0	50.0	50.0	50.0
QF CONTRACT 1990	0.0	0.0	0.0	50.0	50.0	50.0
QF CONTRACT 1991	0.0	0.0	0.0	0.0	50.0	50.0
CONSERVATION 88	0.0	15.0	15.0	15.0	15.0	15.0
CONSERVATION 89	0.0	0.0	15.0	15.0	15.0	15.0
CONSERVATION 90	0.0	0.0	0.0	15.0	15.0	15.0
CONSERVATION 91	0.0	0.0	0.0	0.0	15.0	15.0
CONSERVATION 92	0.0	0.0	0.0	0.0	0.0	15.0

TABLE 18

INCREMENTAL CAPACITY COSTS

CENTRAL MAINE POWER COMPANY

GENERATING RESOURCES	1987	1988	1989	1990	1991	1992
RUN OF THE RIVER HYDRO	$0	$0	$0	$0	$0	$0
PEAK HYDRO	$0	$0	$0	$0	$0	$0
LEWISTON HYDRO	$0	$0	$0	$0	$0	$0
MAINE YANKEE	$0	$0	$0	$0	$0	$0
MILLSTONE 3	$0	$0	$0	$0	$0	$0
VERMONT YANKEE	$0	$0	$0	$0	$0	$0
CONN YANKEE	$0	$0	$0	$0	$0	$0
MASS YANKEE	$0	$0	$0	$0	$0	$0
NEW BRUNSWICK POWER	$0	$0	$0	$0	$0	$0
NEW BRUNSWICK POWER EXTENSION	$0	$0	$0	$0	$0	$12,528,027
NUCSOS	$0	$0	$0	$0	$0	$0
WYMAN 3	$0	$0	$0	$0	$0	$0
WYMAN 4	$0	$0	$0	$0	$0	$0
WYMAN 2	$0	$0	$0	$0	$0	$0
WYMAN 1	$0	$0	$0	$0	$0	$0
NEW BRUNSWICK PURCHASE 88-89	$0	$0	$14,568,320	$0	$0	$0
NEW BRUNSWICK PURCHASE 1990	$0	$0	$0	$11,363,290	$0	$0
NEPOOL PURCHASE	$0	$0	$1,071,200	$1,114,048	$1,169,750	$0
MASON 4	$0	$0	$0	$0	$0	$0
MASON 3	$0	$0	$0	$0	$0	$0
MASON 5	$0	$0	$0	$0	$0	$0
MASON 2	$0	$0	$0	$0	$0	$0
MASON 1	$0	$0	$0	$0	$0	$0
COMBUSTION TURBINE 87	$0	$0	$0	$0	$0	$0
COMBUSTION TURBINE 88	$0	$0	$0	$0	$0	$0
COMBUSTION TURBINE 89	$0	$0	$0	$0	$0	$0
COMBUSTION TURBINE 90	$0	$0	$0	$0	$0	$0
COMBUSTION TURBINE 92	$0	$0	$0	$0	$0	$0
CAPE GAS TURBINE 5	$0	$0	$0	$0	$0	$0
CAPE GAS TURBINE 4	$0	$0	$0	$0	$0	$0
QF POWER 87	$0	$0	$0	$0	$0	$0
QF POWER 88	$0	$0	$0	$0	$0	$0
QF POWER 89	$0	$0	$0	$0	$0	$0
QF POWER 90	$0	$0	$0	$0	$0	$0
QF POWER 91	$0	$0	$0	$0	$0	$0
QF POWER 92	$0	$0	$0	$0	$0	$0
QF OR AVAILABLE CAPACITY 1989	$0	$0	$0	$0	$0	$0
QF CONTRACT 1990	$0	$0	$0	$0	$0	$0
QF CONTRACT 1991	$0	$0	$0	$0	$0	$0
CONSERVATION 88	$0	$0	$0	$0	$0	$0
CONSERVATION 89	$0	$0	$0	$0	$0	$0
CONSERVATION 90	$0	$0	$0	$0	$0	$0
CONSERVATION 91	$0	$0	$0	$0	$0	$0
CONSERVATION 92	$0	$0	$0	$0	$0	$0
	$0	$0	$15,639,520	$12,477,338	$1,169,750	$12,528,027

TABLE 1

PEAK AND ENERGY FORECAST

BANGOR HYDRO-ELECTRIC COMPANY

	1987	1988	1989	1990	1991	1992	ANNUAL COMPOUND GROWTH
BASE CASE:				(GWH)			
RESIDENTIAL	464	471	481	492	502	513	3.40%
COMMERCIAL	417	426	435	443	452	461	2.03%
INDUSTRIAL	509	547	559	571	584	596	3.21%
SALES FOR RESALE	32	34	35	35	36	37	2.95%
OTHER	17	17	16	16	16	15	-2.47%
TOTAL ENERGY DEMAND	1,439	1,495	1,526	1,557	1,590	1,622	2.42%
LOSSES @ 8.9%	128	133	136	139	142	144	
TOTAL ENERGY REQUIREMENTS	1,567	1,628	1,662	1,696	1,732	1,766	2.42%
WINTER PEAK (MW)	253	259	261	261	270	279	1.98%
LOAD FACTOR	70.7%	71.8%	72.7%	74.2%	73.2%	72.3%	

1987 & 1988 FORECASTS ARE BASED ON 2/87 SHORT-TERM FORECAST UPDATE PREPARED BY BHE. THE 1989-92 FORECAST FIGURES ARE BASED ON THE UNDERLYING GROWTH RATE IN BHE LONG-TERM FORECAST WHICH WAS APPLIED TO THE SHORT TERM SALES FORECAST FIGURES.

TABLE 2

FUEL PRICE FORECAST

BANGOR HYDRO-ELECTRIC COMPANY

ESCALATION RATES:		1987	1988	1989	1990	1991	1992
INFLATION			3.0%	4.0%	4.0%	5.0%	5.0%
VARIABLE O&M			3.0%	4.0%	4.0%	5.0%	5.0%
BIOMASS UP			4.6%	4.8%	4.9%	4.9%	4.9%
BIOMASS 2			4.6%	4.8%	4.9%	4.9%	4.9%
NB SYSTEM			2.6%	4.4%	7.7%	7.7%	7.7%
NO. 2 OIL			4.2%	4.0%	5.8%	5.8%	5.8%
NO. 6 OIL 2%S			2.6%	4.4%	7.7%	7.7%	7.7%
NO. 6 OIL .7%S			2.6%	4.4%	7.7%	7.7%	7.7%
NOMINAL PRICES:							
INFLATION	(INDEX)	1.00	1.03	1.07	1.11	1.17	1.23
VARIABLE O&M	(INDEX)	1.00	1.03	1.07	1.11	1.17	1.23
BIOMASS UP	(CENTS/kWh)	7.38	7.72	8.09	8.49	8.90	9.34
BIOMASS 2	(CENTS/kWh)	N.A.	AVOIDED COST PAYMENTS ARE PROJECT SPECIFIC				
NB SYSTEM	(CENTS/kWh)	N.A.	ENERGY COSTS ARE CONTRACT SPECIFIC				
NO. 2 OIL	(CENTS/MMBtu)	449.31	469.01	487.77	516.06	545.99	577.66
NO. 6 OIL 2%S	(CENTS/MMBtu)	316.00	324.22	338.48	364.54	392.61	422.85
NO. 6 OIL .7%S	(CENTS/MMBtu)	316.00	324.22	338.48	364.54	392.61	422.85
1987 PRICES:							
VARIABLE O&M	(INDEX)	1.00	1.00	1.00	1.00	1.00	1.00
BIOMASS UP	(CENTS/kWh)	7.38	7.49	7.55	7.62	7.61	7.60
BIOMASS 2	(CENTS/kWh)	N.A.	AVOIDED COST PAYMENTS ARE PROJECT SPECIFIC				
NB SYSTEM	(CENTS/kWh)	N.A.	ENERGY COSTS ARE CONTRACT SPECIFIC				
NO. 2 OIL	(CENTS/MMBtu)	449.31	455.35	455.35	463.23	466.76	470.32
NO. 6 OIL 2%S	(CENTS/MMBtu)	316.00	314.77	315.98	327.23	335.64	344.27
NO. 6 OIL .7%S	(CENTS/MMBtu)	316.00	314.77	315.98	327.23	335.64	344.27

TABLE 3

RESOURCE PROFILE

BANGOR HYDRO-ELECTRIC COMPANY

	CONTINGENCY OR BASE RESOURCE	UNIT TYPE	WINTER CAPACITY (MW)	FIRST YEAR RESOURCE AVAILABLE	LAST YEAR RESOURCE AVAILABLE	HEAT RATE (Btu/kWh)	CAPACITY FACTOR MIN (%)	MAX (%)	1987 NON-FUEL VARIABLE O & M EXPENSES (CENTS/kWh)	1987 FUEL EXPENSES (CENTS/kWh)	1987 TOTAL VARIABLE O & M (CENTS/kWh)	1987 MARGINAL FIXED COSTS ($/kW)	ESCALATOR
GENERATING RESOURCES													
RUN OF THE RIVER HYDRO	BASE	HYDRO	34.5	1987	1992		65.0%	65.0%	0.69	N.A.	0.69	$0	VARIABLE O&M
WEST ENFIELD HYDRO	BASE	HYDRO	7.4	1988	1992		85.0%	85.0%	0.69	N.A.	0.69	$0	VARIABLE O&M
MILFORD HYDRO	BASE	HYDRO	1.7	1992	1992		47.0%	47.0%	0.69	N.A.	0.69	$0	VARIABLE O&M
MAINE YANKEE	BASE	NUCLEAR	59.0	1987	1992	10470		72.0%	N.A.	N.A.	0.74	$0	NUCLEAR
NEW BRUNSWICK POWER 1987	BASE	SYSTEM	29.0	1987	1987	N.A.	85.0%	90.0%	N.A.	N.A.	2.46	$0	NB SYSTEM
NEW BRUNSWICK POWER 1988-91	BASE	SYSTEM	24.0	1988	1991	N.A.	85.0%	90.0%	N.A.	N.A.	2.46	$0	NB SYSTEM
NEW BRUNSWICK POWER EXTENSION 92	CONTINGENCY	SYSTEM	24.0	1992	1992	N.A.	85.0%	90.0%	N.A.	N.A.	2.46	$68	NB SYSTEM
NEW BRUNSWICK CLASS III	BASE	SYSTEM	10.0	1987	1991	N.A.	90.0%	90.0%	N.A.	N.A.	2.66	$0	NB SYSTEM
NEW BRUNSWICK PURCHASE	CONTINGENCY	SYSTEM	25.0	1988	1990	10800	30.0%	65.0%	0.15	3.41	3.57	$68	NO. 6 OIL 2%S
WYMAN 4 1987-88	BASE	OIL-ST	34.6	1987	1988	9670	20.0%	65.0%	0.11	3.06	3.17	$0	NO. 6 OIL .7%S
WYMAN 4 1989-91	BASE	OIL-ST	41.6	1989	1991	9670	20.0%	65.0%	0.11	3.06	3.17	$0	NO. 6 OIL .7%S
WYMAN 4 1992	BASE	OIL-ST	51.6	1992	1992	9670	20.0%	65.0%	0.11	3.06	3.17	$0	NO. 6 OIL .7%S
MIDDLETON 4	BASE	OIL-ST	12.0	1987	1987	10911	10.0%	65.0%	0.11	3.45	3.56	$0	NO. 6 OIL .7%S
GRAHAM 5	BASE	OIL-ST	29.0	1987	1992	13000	10.0%	65.0%	0.15	4.11	4.26	$0	NO. 6 OIL 2%S
GRAHAM 4	BASE	OIL-ST	18.2	1987	1992	13500	10.0%	65.0%	0.15	4.27	4.42	$0	NO. 6 OIL 2%S
GRAHAM 3	BASE	OIL-ST	12.6	1987	1992	13600	10.0%	65.0%	0.15	4.30	4.45	$0	NO. 6 OIL 2%S
DIESELS	BASE	OIL-IC	23.2	1987	1992	10933	5.0%	40.0%	0.35	4.91	5.26	$0	NO. 2 OIL
GAS TURBINE 1987	BASE	OIL-IC	20.0	1987	1987	14500	5.0%	20.0%	0.53	6.51	7.04	$0	NO. 2 OIL
GREAT NORTHERN PAPER	BASE	COGEN	12.0	1987	1992	N.A.	30.4%	30.4%	N.A.	N.A.	4.62	$0	NO. 6 OIL 2%S
PURPA HYDRO	BASE	HYDRO	3.4	1987	1992	N.A.	40.0%	40.0%	N.A.	N.A.	7.69	$0	BIOMASS 2
ULTRAPOWER 5	BASE	BIOMASS	16.0	1988	1992	N.A.	85.0%	85.0%	N.A.	N.A.	7.38	$0	BIOMASS UP
ULTRAPOWER 6	BASE	BIOMASS	16.0	1988	1992	N.A.	85.0%	85.0%	N.A.	N.A.	7.38	$0	BIOMASS UP
ABD	BASE	BIOMASS	11.0	1987	1992	N.A.	85.0%	85.0%	N.A.	N.A.	6.65	$0	BIOMASS 2
PERC	BASE	BIOMASS	16.0	1988	1992	N.A.	85.0%	85.0%	N.A.	N.A.	8.59	$0	BIOMASS 2
QF OR AVAILABLE POWER	CONTINGENCY	COGEN	10.0	1989	1992	N.A.	70.0%	70.0%	N.A.	N.A.	8.00	$0	BIOMASS 2
CONSERVATION 88	CONTINGENCY		3.0	1988	1992	N.A.	100.00%	100.00%	N.A.	N.A.	7.30	$0	
CONSERVATION 89	CONTINGENCY		3.0	1989	1992	N.A.	100.00%	100.00%	N.A.	N.A.	7.30	$0	
CONSERVATION 90	CONTINGENCY		3.0	1990	1992	N.A.	100.00%	100.00%	N.A.	N.A.	7.30	$0	
CONSERVATION 91	CONTINGENCY		3.0	1991	1992	N.A.	100.00%	100.00%	N.A.	N.A.	7.30	$0	
CONSERVATION 92	CONTINGENCY		3.0	1992	1992	N.A.	100.00%	100.00%	N.A.	N.A.	7.30	$0	

TABLE 4

BASE CASE WINTER SYSTEM CAPABILTIES AND PROJECTED PEAK LOADS

BANGOR HYDRO-ELECTRIC COMPANY

(MW)

	GENERATING RESOURCES	1987	1988	1989	1990	1991	1992
	RUN OF THE RIVER HYDRO	34.5	34.5	34.5	34.5	34.5	34.5
	WEST ENFIELD HYDRO	0.0	7.4	7.4	7.4	7.4	7.4
	MILFORD HYDRO	0.0	0.0	0.0	0.0	0.0	1.7
	MAINE YANKEE	59.0	59.0	59.0	59.0	59.0	59.0
	NEW BRUNSWICK POWER 1987	29.0	0.0	0.0	0.0	0.0	0.0
	NEW BRUNSWICK POWER 1988-91	0.0	24.0	24.0	24.0	24.0	0.0
	NEW BRUNSWICK POWER EXTENSION 92	0.0	0.0	0.0	0.0	0.0	0.0
	NEW BRUNSWICK CLASS III	0.0	0.0	0.0	0.0	0.0	0.0
	NEW BRUNSWICK PURCHASE	0.0	0.0	0.0	0.0	0.0	0.0
	WYMAN 4 1987-88	34.6	34.6	0.0	0.0	0.0	0.0
	WYMAN 4 1989-91	0.0	0.0	41.6	41.6	41.6	0.0
	WYMAN 4 1992	0.0	0.0	0.0	0.0	0.0	51.6
	MIDDLETON 4	12.0	0.0	0.0	0.0	0.0	0.0
	GRAHAM 5	29.0	29.0	29.0	29.0	29.0	29.0
	GRAHAM 4	18.2	18.2	18.2	18.2	18.2	18.2
	GRAHAM 3	12.6	12.6	12.6	12.6	12.6	12.6
	DIESELS	23.2	23.2	23.2	23.2	23.2	23.2
	GAS TURBINE 1987	20.0	0.0	0.0	0.0	0.0	0.0
	GREAT NORTHERN PAPER	12.0	12.0	12.0	12.0	12.0	12.0
	PURPA HYDRO	0.0	0.0	0.0	0.0	0.0	0.0
	ULTRAPOWER 5	0.0	16.0	16.0	16.0	16.0	16.0
	ULTRAPOWER 6	0.0	16.0	16.0	16.0	16.0	16.0
	AED	11.0	11.0	11.0	11.0	11.0	11.0
	PERC	0.0	16.0	16.0	16.0	16.0	16.0
	QF OR AVAILABLE POWER	0.0	0.0	0.0	0.0	0.0	0.0
	CONSERVATION 88	0.0	0.0	0.0	0.0	0.0	0.0
	CONSERVATION 89	0.0	0.0	0.0	0.0	0.0	0.0
	CONSERVATION 90	0.0	0.0	0.0	0.0	0.0	0.0
	CONSERVATION 91	0.0	0.0	0.0	0.0	0.0	0.0
	CONSERVATION 92	0.0	0.0	0.0	0.0	0.0	0.0
	HYDRO-QUEBEC PHASE 2	0.0	0.0	0.0	0.0	24.0	24.0
a.	BASE CASE CAPACITY	295.1	313.5	320.5	320.5	344.5	332.2

CAPACITY REQUIREMENTS							
b. PEAK LOAD		253	259	261	261	270	279
c. RESERVE REQUIREMENT	(b x 18%)	46	47	47	47	49	50
d. CAPABILITY RESPONSIBILITY	(b + c)	299	306	308	308	319	329
e. CAPACITY SURPLUS (DEFICIT)	(a - d)	-3.4	7.9	12.5	12.5	25.9	3.0
f. PERCENT SURPLUS (DEFICIT)	(e / a)	-1.2%	2.6%	4.1%	4.1%	8.1%	0.9%

ASSUMES A RESERVE REQUIREMENT OF: 18.0%

TABLE 5

MUST RUN GENERATION - GWH

BANGOR HYDRO-ELECTRIC COMPANY

	BASE CASE						CONTINGENCY CASE					
GENERATING RESOURCES	1987	1988	1989	1990	1991	1992	1987	1988	1989	1990	1991	1992
RUN OF THE RIVER HYDRO	196.4	196.4	196.4	196.4	196.4	196.4	196.4	196.4	196.4	196.4	196.4	196.4
WEST ENFIELD HYDRO	0.0	36.8	55.1	55.1	55.1	55.1	0.0	36.8	55.1	55.1	55.1	55.1
MILFORD HYDRO	0.0	0.0	0.0	0.0	0.0	7.0	0.0	0.0	0.0	0.0	0.0	7.0
MAINE YANKEE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NEW BRUNSWICK POWER 1987	215.9	0.0	0.0	0.0	0.0	0.0	215.9	0.0	0.0	0.0	0.0	0.0
NEW BRUNSWICK POWER 1988-91	0.0	178.7	178.7	178.7	178.7	0.0	0.0	178.7	178.7	178.7	178.7	0.0
NEW BRUNSWICK POWER EXTENSION 92	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	178.7
NEW BRUNSWICK CLASS III	78.8	78.8	78.8	78.8	78.8	0.0	78.8	78.8	78.8	78.8	78.8	0.0
NEW BRUNSWICK PURCHASE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.9	65.7	65.7	0.0	0.0
WYMAN 4 1987-88	60.6	60.6	0.0	0.0	0.0	0.0	60.6	60.6	0.0	0.0	0.0	0.0
WYMAN 4 1989-91	0.0	0.0	72.9	72.9	72.9	0.0	0.0	0.0	72.9	72.9	72.9	0.0
WYMAN 4 1992	0.0	0.0	0.0	0.0	0.0	90.4	0.0	0.0	0.0	0.0	0.0	90.4
MIDDLETON 4	10.5	0.0	0.0	0.0	0.0	0.0	10.5	0.0	0.0	0.0	0.0	0.0
GRAHAM 5	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4
GRAHAM 4	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9
GRAHAM 3	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
DIESELS	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2
GAS TURBINE 1987	8.8	0.0	0.0	0.0	0.0	0.0	8.8	0.0	0.0	0.0	0.0	0.0
GREAT NORTHERN PAPER	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
PURPA HYDRO	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9
ULTRAPOWER 5	0.0	119.1	119.1	119.1	119.1	119.1	0.0	119.1	119.1	119.1	119.1	119.1
ULTRAPOWER 6	0.0	119.1	119.1	119.1	119.1	119.1	0.0	119.1	119.1	119.1	119.1	119.1
AED	81.9	81.9	81.9	81.9	81.9	81.9	81.9	81.9	81.9	81.9	81.9	81.9
PERC	0.0	119.1	119.1	119.1	119.1	119.1	0.0	119.1	119.1	119.1	119.1	119.1
QF OR AVAILABLE POWER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	61.3	61.3	61.3	61.3
CONSERVATION 88	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.1	26.3	26.3	26.3	26.3
CONSERVATION 89	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.3	26.3	26.3	26.3
CONSERVATION 90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.3	26.3	26.3
CONSERVATION 91	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.3	26.3
CONSERVATION 92	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.3
	759.4	1,097.1	1,127.7	1,127.7	1,127.7	894.7	759.4	1,143.1	1,307.3	1,333.6	1,294.1	1,266.1

TABLE 6

AVERAGE MARGINAL COSTS
(CENTS/kWh)

BANGOR HYDRO-ELECTRIC COMPANY

BASE CASE RESOURCES:	1987	1988	1989	1990	1991	1992
RUN OF THE RIVER HYDRO	0.6900	0.7107	0.7391	0.7687	0.8071	0.8475
WEST ENFIELD HYDRO	0.6900	0.7107	0.7391	0.7687	0.8071	0.8475
MILFORD HYDRO	0.6900	0.7107	0.7391	0.7687	0.8071	0.8475
MAINE YANKEE	0.7430	0.7130	0.6910	0.6670	0.7000	0.7350
NEW BRUNSWICK POWER 1987	2.4550	2.5188	2.6297	2.8321	3.0502	3.2851
NEW BRUNSWICK POWER 1988-91	2.4550	2.5188	2.6297	2.8321	3.0502	3.2851
NEW BRUNSWICK POWER EXTENSION 92	2.4550	2.5188	2.6297	2.8321	3.0502	3.2851
NEW BRUNSWICK CLASS III	2.6550	2.7240	2.8439	3.0629	3.2987	3.5527
NEW BRUNSWICK PURCHASE	3.5668	3.6595	3.8206	4.1147	4.4316	4.7728
WYMAN 4 1987-88	3.1657	3.2485	3.3909	3.6477	3.9253	4.2240
WYMAN 4 1989-91	3.1657	3.2485	3.3909	3.6477	3.9253	4.2240
WYMAN 4 1992	3.1657	3.2485	3.3909	3.6477	3.9253	4.2240
MIDDLETON 4	3.5579	3.6508	3.8110	4.1001	4.4125	4.7488
GRAHAM 5	4.2620	4.3734	4.5652	4.9106	5.2841	5.6881
GRAHAM 4	4.4200	4.5355	4.7345	5.0929	5.4604	5.9976
GRAHAM 3	4.4516	4.5680	4.7683	5.1294	5.5197	5.9399
DIESELS	5.2623	5.4882	5.7077	6.0320	6.3788	6.7454
GAS TURBINE 1987	7.0450	7.3465	7.6404	8.0733	8.5369	9.0270
GREAT NORTHERN PAPER	4.6200	4.7401	4.9487	5.3297	5.7401	6.1821
PURPA HYDRO	7.6950	8.0490	8.4353	8.8487	9.2822	9.7371
ULTRAPOWER 5	7.3800	7.7155	8.0900	8.4864	8.9023	9.3385
ULTRAPOWER 6	7.3800	7.7195	8.0900	8.4864	8.9023	9.3385
AED	6.6500	6.9559	7.2898	7.6470	8.0217	8.4147
PERC	8.5880	8.9830	9.4142	9.8755	10.3594	10.8670
QF OR AVAILABLE POWER	8.0000	8.3680	8.7697	9.1994	9.6501	10.1230
CONSERVATION 88	7.3000	7.3000	7.3000	7.3000	7.3000	7.3000
CONSERVATION 89	7.3000	7.3000	7.3000	7.3000	7.3000	7.3000
CONSERVATION 90	7.3000	7.3000	7.3000	7.3000	7.3000	7.3000
CONSERVATION 91	7.3000	7.3000	7.3000	7.3000	7.3000	7.3000
CONSERVATION 92	7.3000	7.3000	7.3000	7.3000	7.3000	7.3000

TABLE 7

BASE CASE SUPPLY FORECAST - GWH

BANGOR HYDRO-ELECTRIC COMPANY

GENERATION REQUIREMENTS UNMET PRIOR TO UNITS DISPATCH

GENERATING RESOURCES	1987	1988	1989	1990	1991	1992		1987	1988	1989	1990	1991	1992
							ENERGY	1567.1	1628.1	1661.8	1695.6	1731.5	1766.4
							MUST RUN	759.4	1097.1	1127.7	1127.7	1127.7	894.7
RUN OF THE RIVER HYDRO	196.4	196.4	196.4	196.4	196.4	196.4		807.6	531.0	534.1	567.9	603.8	871.7
WEST ENFIELD HYDRO	0.0	36.8	55.1	55.1	55.1	55.1		807.6	531.0	534.1	567.9	603.8	871.7
MILFORD HYDRO	0.0	0.0	0.0	0.0	0.0	7.0		807.6	531.0	534.1	567.9	603.8	871.7
MAINE YANKEE	372.1	372.1	372.1	372.1	372.1	372.1		807.6	531.0	534.1	567.9	603.8	871.7
NEW BRUNSWICK POWER 1987	228.6	0.0	0.0	0.0	0.0	0.0		435.5	158.8	162.0	195.7	231.7	499.6
NEW BRUNSWICK POWER 1988-91	0.0	189.2	189.2	189.2	189.2	0.0		422.8	158.8	162.0	195.7	231.7	499.6
NEW BRUNSWICK POWER EXTENSION 92	0.0	0.0	0.0	0.0	0.0	0.0		422.8	148.3	151.5	185.2	221.2	499.6
NEW BRUNSWICK CLASS III	78.8	78.8	78.8	78.8	78.8	0.0		422.8	148.3	151.5	185.2	221.2	493.6
NEW BRUNSWICK PURCHASE	0.0	0.0	0.0	0.0	0.0	0.0		422.8	148.3	151.5	185.2	221.2	499.6
WYMAN 4 1987-88	197.0	197.0	0.0	0.0	0.0	0.0		422.8	148.3	151.5	185.2	221.2	499.6
WYMAN 4 1989-91	0.0	0.0	224.4	236.9	236.9	0.0		286.4	11.9	151.5	185.2	221.2	499.6
WYMAN 4 1992	0.0	0.0	0.0	0.0	0.0	293.8		286.4	11.9	-0.0	21.2	57.2	499.6
MIDDLETON 4	68.3	0.0	0.0	0.0	0.0	0.0		286.4	11.9	-0.0	21.2	57.2	296.1
GRAHAM 5	165.1	37.3	25.4	46.7	82.6	165.1		228.6	11.9	-0.0	21.2	57.2	296.1
GRAHAM 4	103.6	15.9	15.9	15.9	15.9	103.6		88.9	-0.0	0.0	-0.0	0.0	156.4
GRAHAM 3	12.2	11.0	11.0	11.0	11.0	71.7		1.2	0.0	0.0	0.0	0.0	68.7
DIESELS	10.2	10.2	10.2	10.2	10.2	18.2		0.0	0.0	0.0	0.0	0.0	8.0
GAS TURBINE 1987	8.8	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	-0.0
GREAT NORTHERN PAPER	32.0	32.0	32.0	32.0	32.0	32.0		0.0	0.0	0.0	0.0	0.0	-0.0
PURPA HYDRO	11.9	11.9	11.9	11.9	11.9	11.9		0.0	0.0	0.0	0.0	0.0	0.0
ULTRAPOWER 5	0.0	119.1	119.1	119.1	119.1	119.1		0.0	0.0	0.0	0.0	0.0	0.0
ULTRAPOWER 6	0.0	119.1	119.1	119.1	119.1	119.1		0.0	0.0	0.0	0.0	0.0	0.0
ABD	81.9	81.9	81.9	81.9	81.9	81.9		0.0	0.0	0.0	0.0	0.0	0.0
PERC	0.0	119.1	119.1	119.1	119.1	119.1		0.0	0.0	0.0	0.0	0.0	0.0
QF OR AVAILABLE POWER	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 88	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 89	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 90	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 91	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 92	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
	1567.1	1628.1	1661.8	1695.6	1731.5	1766.4							
	1567.1	1628.1	1661.8	1695.6	1731.5	1766.4							

29-Sep-87

TABLE 8

CONTINGENCY CASE SUPPLY FORECAST - GWH

BANGOR HYDRO-ELECTRIC COMPANY

GENERATING RESOURCES	1987	1988	1989	1990	1991	1992
RUN OF THE RIVER HYDRO	196.4	196.4	196.4	196.4	196.4	196.4
WEST ENFIELD HYDRO	0.0	36.8	55.1	55.1	55.1	55.1
MILFORD HYDRO	0.0	0.0	0.0	0.0	0.0	7.0
MAINE YANKEE	372.1	186.1	0.0	0.0	0.0	0.0
NEW BRUNSWICK POWER 1987	228.6	0.0	0.0	0.0	0.0	0.0
NEW BRUNSWICK POWER 1988-91	0.0	189.2	189.2	189.2	189.2	0.0
NEW BRUNSWICK POWER EXTENSION 92	0.0	0.0	0.0	0.0	0.0	189.2
NEW BRUNSWICK CLASS III	78.8	78.8	78.8	78.8	78.8	0.0
NEW BRUNSWICK PURCHASE	0.0	109.5	142.4	142.4	0.0	0.0
WYMAN 4 1987-88	197.0	197.0	0.0	0.0	0.0	0.0
WYMAN 4 1989-91	0.0	0.0	236.9	236.9	236.9	0.0
WYMAN 4 1992	0.0	0.0	0.0	0.0	0.0	293.8
MIDDLETON 4	68.3	0.0	0.0	0.0	0.0	0.0
GRAHAM 5	165.1	100.8	128.8	136.3	165.1	165.1
GRAHAM 4	103.6	15.9	15.9	15.9	103.6	103.6
GRAHAM 3	12.2	11.0	11.0	11.0	46.5	70.0
DIESELS	10.2	10.2	10.2	10.2	10.2	10.2
GAS TURBINE 1987	8.8	0.0	0.0	0.0	0.0	0.0
GREAT NORTHERN PAPER	32.0	32.0	32.0	32.0	32.0	32.0
PURPA HYDRO	11.9	11.9	11.9	11.9	11.9	11.9
ULTRAPOWER 5	0.0	119.1	119.1	119.1	119.1	119.1
ULTRAPOWER 6	0.0	119.1	119.1	119.1	119.1	119.1
ABD	81.9	81.9	81.9	81.9	81.9	81.9
PERC	0.0	119.1	119.1	119.1	119.1	119.1
QF OR AVAILABLE POWER	0.0	0.0	61.3	61.3	61.3	61.3
CONSERVATION 88	0.0	13.1	26.3	26.3	26.3	26.3
CONSERVATION 89	0.0	0.0	26.3	26.3	26.3	26.3
CONSERVATION 90	0.0	0.0	0.0	26.3	26.3	26.3
CONSERVATION 91	0.0	0.0	0.0	0.0	26.3	26.3
CONSERVATION 92	0.0	0.0	0.0	0.0	0.0	26.3
	1567.1	1628.1	1661.8	1695.6	1731.5	1766.4
	1567.1	1628.1	1661.8	1695.6	1731.5	1766.4

GENERATION REQUIREMENTS UNMET PRIOR TO UNITS DISPATCH

	1987	1988	1989	1990	1991	1992
ENERGY	1567.1	1628.1	1661.8	1695.6	1731.5	1766.4
MUST RUN	759.4	1143.1	1307.3	1333.6	1294.1	1266.1
	807.6	485.0	354.5	362.0	437.4	500.3
	807.6	485.0	354.5	362.0	437.4	500.3
	807.6	485.0	354.5	362.0	437.4	500.3
	807.6	485.0	354.5	362.0	437.4	500.3
	435.5	298.9	354.5	362.0	437.4	500.3
	422.8	298.9	354.5	362.0	437.4	500.3
	422.8	288.4	344.0	351.5	426.9	500.3
	422.8	288.4	344.0	351.5	426.9	489.7
	422.8	288.4	344.0	351.5	426.9	489.7
	422.8	211.8	267.4	274.8	426.9	489.7
	286.4	75.4	267.4	274.8	426.9	489.7
	286.4	75.4	103.4	110.9	262.9	489.7
	286.4	75.4	103.4	110.9	262.9	286.3
	228.6	75.4	103.4	110.9	262.9	286.3
	88.9	0.0	-0.0	-0.0	123.1	146.6
	1.2	0.0	0.0	0.0	35.5	58.9
	0.0	0.0	0.0	0.0	0.0	-0.0
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0

TABLE 9

BASE CASE MARGINAL COSTS - INITIAL SOLUTION

BANGOR HYDRO-ELECTRIC COMPANY

GENERATING RESOURCES	1987	1988	1989	1990	1991	1992
RUN OF THE RIVER HYDRO	$1,355,457	$1,396,120	$1,451,965	$1,510,044	$1,585,546	$1,664,823
WEST ENFIELD HYDRO	$0	$261,196	$407,262	$423,553	$444,731	$466,967
MILFORD HYDRO	$0	$0	$0	$0	$0	$59,317
MAINE YANKEE	$2,764,887	$2,653,250	$2,571,382	$2,482,072	$2,604,874	$2,735,117
NEW BRUNSWICK POWER 1987	$5,613,014	$0	$0	$0	$0	$0
NEW BRUNSWICK POWER 1988-91	$0	$4,766,029	$4,975,735	$5,358,866	$5,771,499	$0
NEW BRUNSWICK POWER EXTENSION 92	$0	$0	$0	$0	$0	$0
NEW BRUNSWICK CLASS III	$2,093,202	$2,147,625	$2,242,121	$2,414,764	$2,600,701	$0
NEW BRUNSWICK PURCHASE	$0	$0	$0	$0	$0	$0
WYMAN 4 1987-88	$6,236,861	$6,399,886	$0	$0	$0	$0
WYMAN 4 1989-91	$0	$0	$7,607,908	$8,640,361	$9,297,767	$0
WYMAN 4 1992	$0	$0	$0	$0	$0	$12,410,626
MIDDLETON 4	$2,431,025	$0	$0	$0	$0	$0
GRAHAM 5	$7,037,670	$1,633,053	$1,159,750	$2,290,909	$4,364,106	$9,389,303
GRAHAM 4	$4,580,481	$723,110	$754,825	$811,974	$873,757	$6,111,696
GRAHAM 3	$544,534	$504,193	$526,307	$566,159	$609,242	$4,261,511
DIESELS	$534,735	$557,688	$579,995	$612,949	$648,183	$1,227,325
GAS TURBINE 1987	$617,142	$0	$0	$0	$0	$0
GREAT NORTHERN PAPER	$1,476,389	$1,514,775	$1,581,426	$1,703,195	$1,834,341	$1,975,586
PURPA HYDRO	$916,752	$958,922	$1,004,950	$1,054,193	$1,105,848	$1,160,035
ULTRAPOWER 5	$0	$9,196,680	$9,638,120	$10,110,388	$10,605,797	$11,125,481
ULTRAPOWER 6	$0	$9,196,680	$9,638,120	$10,110,388	$10,605,797	$11,125,481
ABD	$5,446,749	$5,697,299	$5,970,770	$6,263,338	$6,570,241	$6,892,183
PERC	$0	$10,702,044	$11,215,742	$11,765,314	$12,341,814	$12,946,563
QF OR AVAILABLE POWER	$0	$0	$0	$0	$0	$0
CONSERVATION 88	$0	$0	$0	$0	$0	$0
CONSERVATION 89	$0	$0	$0	$0	$0	$0
CONSERVATION 90	$0	$0	$0	$0	$0	$0
CONSERVATION 91	$0	$0	$0	$0	$0	$0
CONSERVATION 92	$0	$0	$0	$0	$0	$0
	$41,648,898	$58,308,551	$61,326,380	$66,118,408	$71,864,245	$83,552,015

TABLE 10

CONTINGENCY CASE MARGINAL COSTS - INITIAL SOLUTION

BANGOR HYDRO-ELECTRIC COMPANY

GENERATING RESOURCES	1987	1988	1989	1990	1991	1992
RUN OF THE RIVER HYDRO	$1,355,457	$1,396,120	$1,451,965	$1,510,044	$1,585,546	$1,664,823
WEST ENFIELD HYDRO	$0	$261,196	$407,262	$423,553	$444,731	$466,967
MILFORD HYDRO	$0	$0	$0	$0	$0	$59,317
MAINE YANKEE	$2,764,887	$1,326,625	$0	$0	$0	$0
NEW BRUNSWICK POWER 1987	$5,613,014	$0	$0	$0	$0	$0
NEW BRUNSWICK POWER 1988-91	$0	$4,766,029	$4,975,735	$5,358,866	$5,771,499	$0
NEW BRUNSWICK POWER EXTENSION 92	$0	$0	$0	$0	$0	$6,215,904
NEW BRUNSWICK CLASS III	$2,093,202	$2,147,625	$2,242,121	$2,414,764	$2,600,701	$0
NEW BRUNSWICK PURCHASE	$0	$4,007,193	$5,438,562	$5,857,331	$0	$0
WYMAN 4 1987-88	$6,236,861	$6,399,886	$0	$0	$0	$0
WYMAN 4 1989-91	$0	$0	$8,032,152	$8,640,301	$9,297,767	$0
WYMAN 4 1992	$0	$0	$0	$0	$0	$12,410,626
MIDDLETON 4	$2,431,026	$0	$0	$0	$0	$0
GRAHAM 5	$7,037,670	$4,406,786	$5,879,448	$6,691,572	$8,725,473	$9,389,303
GRAHAM 4	$4,580,481	$723,110	$754,825	$811,974	$5,679,421	$6,111,696
GRAHAM 3	$544,534	$504,193	$526,307	$566,159	$2,566,534	$4,155,905
DIESELS	$534,735	$557,688	$579,995	$612,949	$648,183	$685,445
GAS TURBINE 1987	$617,142	$0	$0	$0	$0	$0
GREAT NORTHERN PAPER	$1,476,389	$1,514,775	$1,581,426	$1,703,195	$1,834,341	$1,975,586
PURPA HYDRO	$916,752	$958,922	$1,004,950	$1,054,193	$1,105,848	$1,160,035
ULTRAPOWER 5	$0	$9,196,680	$9,638,120	$10,110,388	$10,605,797	$11,125,491
ULTRAPOWER 6	$0	$9,196,680	$9,638,120	$10,110,388	$10,605,797	$11,125,481
AED	$5,446,749	$5,697,299	$5,970,770	$6,263,338	$6,570,241	$6,892,183
PERC	$0	$10,702,044	$11,215,742	$11,765,314	$12,341,814	$12,946,563
QF OR AVAILABLE POWER	$0	$0	$5,377,558	$5,641,058	$5,917,470	$6,207,426
CONSERVATION 88	$0	$959,220	$1,918,440	$1,918,440	$1,918,440	$1,918,440
CONSERVATION 89	$0	$0	$1,918,440	$1,918,440	$1,918,440	$1,918,440
CONSERVATION 90	$0	$0	$0	$1,918,440	$1,918,440	$1,918,440
CONSERVATION 91	$0	$0	$0	$0	$1,918,440	$1,918,440
CONSERVATION 92	$0	$0	$0	$0	$0	$1,918,440
	------	------	------	------	------	------
	$41,648,898	$64,722,072	$78,551,940	$85,290,708	$93,974,924	$102,184,942

TABLE 11

MAINE YANKEE SHUTDOWN COSTS - INITIAL SOLUTION

BANGOR HYDRO-ELECTRIC COMPANY

	1987	1988	1989	1990	1991	1992	TOTAL (1986 $)
TOTAL COST ($)	$0	$6,413,521	$17,225,561	$19,172,300	$22,110,679	$18,632,927	$73,589,425
PER UNIT COST (CENTS/kWh)	0.0000	0.4290	1.1288	1.2314	1.3906	1.1488	1.3221
PERCENTAGE INCREASE IN RESIDENTIAL RATES	0.0%	4.0%	9.8%	10.4%	11.5%	9.4%	
PERCENTAGE INCREASE IN COMMERCIAL RATES	0.0%	4.4%	10.6%	11.3%	12.5%	10.2%	
PERCENTAGE INCREASE IN INDUSTRIAL RATES	0.0%	6.6%	15.5%	16.6%	18.3%	14.9%	
PERCENTAGE INCREASE IN SYSTEM COSTS	0.0%	4.9%	11.8%	12.6%	13.9%	11.3%	

TABLE 12

PEAK AND ENERGY FORECAST

BANGOR HYDRO-ELECTRIC COMPANY

	1987	1988	1989	1990	1991	1992	ANNUAL COMPOUND GROWTH
BASE CASE:				(GWH)			
RESIDENTIAL	464	471	481	492	502	513	2.03%
COMMERCIAL	417	426	435	443	452	461	2.03%
INDUSTRIAL	509	547	559	571	584	596	3.21%
SALES FOR RESALE	32	34	35	35	36	37	2.95%
OTHER	17	17	16	16	16	15	-2.47%
TOTAL ENERGY DEMAND	1,439	1,495	1,526	1,557	1,590	1,622	2.42%
LOSSES @ 8.9%	128	133	136	139	142	144	
TOTAL ENERGY REQUIREMENTS	1,567	1,628	1,662	1,696	1,732	1,766	2.42%
WINTER PEAK (MW)	253	259	261	261	270	279	1.98%

PEAK AND ENERGY FORECAST

REFLECTING ELASTICITY RESPONSE

CONTINGENCY CASE:	1987	1988	1989	1990	1991	1992	ANNUAL COMPOUND GROWTH	PRICE ELASTICITY
RESIDENTIAL	464	471	479	487	497	507	1.79%	0.50
COMMERCIAL	417	426	434	440	449	458	1.87%	0.30
INDUSTRIAL	509	547	554	560	572	582	2.71%	0.65
SALES FOR RESALE	32	34	35	35	36	36	2.66%	0.50
OTHER	17	17	16	16	16	15	-2.74%	0.50
TOTAL ENERGY DEMAND	1,439	1,495	1,518	1,537	1,569	1,598	2.12%	
LOSSES @ 8.9%	128	133	135	137	140	142		
TOTAL ENERGY REQUIREMENTS	1,567	1,628	1,653	1,674	1,709	1,740	2.12%	
WINTER PEAK (MW)	253	259	260	258	266	275	1.67%	

TABLE 13

CONTINGENCY CASE WINTER SYSTEM CAPABILITIES AND PROJECTED PEAK LOADS - MW

BANGOR HYDRO-ELECTRIC COMPANY

GENERATING RESOURCES	1987	1988	1989	1990	1991	1992
RUN OF THE RIVER HYDRO	34.5	34.5	34.5	34.5	34.5	34.5
WEST ENFIELD HYDRO	0.0	7.4	7.4	7.4	7.4	7.4
MILFORD HYDRO	0.0	0.0	0.0	0.0	0.0	1.7
MAINE YANKEE	59.0	59.0	0.0	0.0	0.0	0.0
NEW BRUNSWICK POWER 1987	29.0	0.0	0.0	0.0	0.0	0.0
NEW BRUNSWICK POWER 1988-91	0.0	24.0	24.0	24.0	24.0	0.0
NEW BRUNSWICK POWER EXTENSION 92	0.0	0.0	0.0	0.0	0.0	24.0
NEW BRUNSWICK CLASS III	0.0	0.0	0.0	0.0	0.0	0.0
NEW BRUNSWICK PURCHASE	0.0	25.0	25.0	25.0	0.0	0.0
WYMAN 4 1987-88	34.6	34.6	0.0	0.0	0.0	0.0
WYMAN 4 1989-91	0.0	0.0	41.6	41.6	41.6	0.0
WYMAN 4 1992	0.0	0.0	0.0	0.0	0.0	51.6
MIDDLETON 4	12.0	0.0	0.0	0.0	0.0	0.0
GRAHAM 5	29.0	29.0	29.0	29.0	29.0	29.0
GRAHAM 4	18.2	18.2	18.2	18.2	18.2	18.2
GRAHAM 3	12.6	12.6	12.6	12.6	12.6	12.6
DIESELS	23.2	23.2	23.2	23.2	23.2	23.2
GAS TURBINE 1987	20.0	0.0	0.0	0.0	0.0	0.0
GREAT NORTHERN PAPER	12.0	12.0	12.0	12.0	12.0	12.0
PURPA HYDRO	0.0	0.0	0.0	0.0	0.0	0.0
ULTRAPOWER 5	0.0	16.0	16.0	16.0	16.0	16.0
ULTRAPOWER 6	0.0	16.0	16.0	16.0	16.0	16.0
ABD	11.0	11.0	11.0	11.0	11.0	11.0
PERC	0.0	16.0	16.0	16.0	16.0	16.0
QF OR AVAILABLE POWER	0.0	0.0	10.0	10.0	10.0	10.0
CONSERVATION 88	0.0	3.0	3.0	3.0	3.0	3.0
CONSERVATION 89	0.0	0.0	3.0	3.0	3.0	3.0
CONSERVATION 90	0.0	0.0	0.0	3.0	3.0	3.0
CONSERVATION 91	0.0	0.0	0.0	0.0	3.0	3.0
CONSERVATION 92	0.0	0.0	0.0	0.0	0.0	3.0
HYDRO-QUEBEC PHASE 2	0.0	0.0	0.0	0.0	24.0	24.0
TOTAL AVAILABLE BASE CASE CAPACITY	295.1	341.5	302.5	305.5	307.5	322.2

CAPACITY REQUIREMENTS	1987	1988	1989	1990	1991	1992
PEAK LOAD	253	259	260	258	266	275
RESERVE REQUIREMENT	46	47	47	46	48	49
CAPABILITY RESPONSIBILITY	299	306	306	304	314	324
CAPACITY SURPLUS (DEFICIT)	-3.4	35.9	-3.8	1.4	-6.9	-2.1
PERCENT SURPLUS (DEFICIT)	-1.2%	11.7%	-1.3%	0.5%	-2.2%	-0.7%

ASSUMES A RESERVE REQUIREMENT OF: 18.0%

29-Sep-87

TABLE 14

CONTINGENCY CASE SUPPLY FORECAST - FINAL SOLUTION

BANGOR HYDRO-ELECTRIC COMPANY

GENERATION REQUIREMENTS UNMET PRIOR TO UNITS DISPATCH

GENERATING RESOURCES	1987	1988	1989	1990	1991	1992		1987	1988	1989	1990	1991	1992
							ENERGY	1567.1	1628.1	1652.9	1674.1	1708.5	1740.1
							MUST RUN	759.4	1143.1	1307.3	1333.6	1294.1	1266.1
RUN OF THE RIVER HYDRO	196.4	196.4	196.4	196.4	196.4	196.4		807.6	485.0	345.7	340.6	414.4	474.0
WEST ENFIELD HYDRO	0.0	36.8	55.1	55.1	55.1	55.1		807.6	485.0	345.7	340.6	414.4	474.0
MILFORD HYDRO	0.0	0.0	0.0	0.0	0.0	7.0		807.6	485.0	345.7	340.6	414.4	474.0
MAINE YANKEE	372.1	186.1	0.0	0.0	0.0	0.0		807.6	485.0	345.7	340.6	414.4	474.0
NEW BRUNSWICK POWER 1987	228.6	0.0	0.0	0.0	0.0	0.0		435.5	298.9	345.7	340.6	414.4	474.0
NEW BRUNSWICK POWER 1988-91	0.0	189.2	189.2	189.2	189.2	0.0		422.8	298.9	345.7	340.6	414.4	474.0
NEW BRUNSWICK POWER EXTENSION 92	0.0	0.0	0.0	0.0	0.0	189.2		422.8	288.4	335.1	330.1	403.9	474.0
NEW BRUNSWICK CLASS III	78.8	78.8	78.8	78.8	78.8	0.0		422.8	288.4	335.1	330.1	403.9	463.5
NEW BRUNSWICK PURCHASE	0.0	109.5	142.4	142.4	0.0	0.0		422.8	288.4	335.1	330.1	403.9	463.5
WYMAN 4 1987-88	197.0	197.0	0.0	0.0	0.0	0.0		422.8	211.8	258.5	253.4	403.9	463.5
WYMAN 4 1989-91	0.0	0.0	236.9	236.9	236.9	0.0		286.4	75.4	258.5	253.4	403.9	463.5
WYMAN 4 1992	0.0	0.0	0.0	0.0	0.0	293.8		286.4	75.4	94.5	89.4	239.9	463.5
MIDDLETON 4	68.3	0.0	0.0	0.0	0.0	0.0		286.4	75.4	94.5	89.4	239.9	260.1
GRAHAM 5	165.1	100.8	119.9	114.8	165.1	165.1		228.6	75.4	94.5	89.4	239.9	260.1
GRAHAM 4	103.6	15.9	15.9	15.9	103.6	103.6		88.9	0.0	0.0	0.0	100.2	120.4
GRAHAM 3	12.2	11.0	11.0	11.0	23.5	43.7		1.2	0.0	0.0	0.0	12.5	32.7
DIESELS	10.2	10.2	10.2	10.2	10.2	10.2		0.0	0.0	0.0	0.0	0.0	0.0
GAS TURBINE 1987	8.8	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
GREAT NORTHERN PAPER	32.0	32.0	32.0	32.0	32.0	32.0		0.0	0.0	0.0	0.0	0.0	0.0
PURPA HYDRO	11.9	11.9	11.9	11.9	11.9	11.9		0.0	0.0	0.0	0.0	0.0	0.0
ULTRAPOWER 5	0.0	119.1	119.1	119.1	119.1	119.1		0.0	0.0	0.0	0.0	0.0	0.0
ULTRAPOWER 6	0.0	119.1	119.1	119.1	119.1	119.1		0.0	0.0	0.0	0.0	0.0	0.0
AED	81.9	81.9	81.9	81.9	81.9	81.9		0.0	0.0	0.0	0.0	0.0	0.0
PERC	0.0	119.1	119.1	119.1	119.1	119.1		0.0	0.0	0.0	0.0	0.0	0.0
QF OR AVAILABLE POWER	0.0	0.0	61.3	61.3	61.3	61.3		0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 88	0.0	13.1	26.3	26.3	26.3	26.3		0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 89	0.0	0.0	26.3	26.3	26.3	26.3		0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 90	0.0	0.0	0.0	26.3	26.3	26.3		0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 91	0.0	0.0	0.0	0.0	26.3	26.3		0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 92	0.0	0.0	0.0	0.0	0.0	26.3		0.0	0.0	0.0	0.0	0.0	0.0
	1567.1	1628.1	1652.9	1674.1	1708.5	1740.1							
	1567.1	1628.1	1652.9	1674.1	1708.5	1740.1							

TABLE 15

CONTINGENCY CASE MARGINAL COSTS - FINAL SOLUTION

BANGOR HYDRO-ELECTRIC COMPANY

GENERATING RESOURCES	1987	1988	1989	1990	1991	1992
RUN OF THE RIVER HYDRO	$1,355,457	$1,396,120	$1,451,965	$1,510,044	$1,585,546	$1,664,823
WEST ENFIELD HYDRO	$0	$261,196	$407,262	$423,553	$444,731	$466,967
MILFORD HYDRO	$0	$0	$0	$0	$0	$59,317
MAINE YANKEE	$2,764,887	$1,326,625	$0	$0	$0	$0
NEW BRUNSWICK POWER 1987	$5,613,014	$0	$0	$0	$0	$0
NEW BRUNSWICK POWER 1988-91	$0	$4,766,029	$4,975,735	$5,358,866	$5,771,499	$0
NEW BRUNSWICK POWER EXTENSION 92	$0	$0	$0	$0	$0	$6,215,904
NEW BRUNSWICK CLASS III	$2,093,202	$2,147,625	$2,242,121	$2,414,764	$2,600,701	$0
NEW BRUNSWICK PURCHASE	$0	$4,007,193	$5,438,562	$5,857,331	$0	$0
WYMAN 4 1987-88	$6,236,861	$6,399,886	$0	$0	$0	$0
WYMAN 4 1989-91	$0	$0	$8,032,152	$8,640,301	$9,297,767	$0
WYMAN 4 1992	$0	$0	$0	$0	$0	$12,410,626
MIDDLETON 4	$2,431,026	$0	$0	$0	$0	$0
GRAHAM 5	$7,037,670	$4,406,786	$5,474,422	$5,638,918	$8,725,473	$9,389,303
GRAHAM 4	$4,580,481	$723,110	$754,825	$811,974	$5,679,421	$6,111,696
GRAHAM 3	$544,534	$504,193	$526,307	$566,159	$1,298,492	$2,596,611
DIESELS	$534,735	$557,688	$579,995	$612,949	$648,183	$685,445
GAS TURBINE 1987	$617,142	$0	$0	$0	$0	$0
GREAT NORTHERN PAPER	$1,476,389	$1,514,775	$1,581,426	$1,703,195	$1,834,341	$1,975,586
PURPA HYDRO	$916,752	$958,922	$1,004,950	$1,054,193	$1,105,848	$1,160,035
ULTRAPOWER 5	$0	$9,196,680	$9,638,120	$10,110,388	$10,605,797	$11,125,481
ULTRAPOWER 6	$0	$9,196,680	$9,638,120	$10,110,388	$10,605,797	$11,125,481
AED	$5,446,749	$5,697,295	$5,970,770	$6,263,338	$6,570,241	$6,892,183
PERC	$0	$10,702,044	$11,215,742	$11,765,314	$12,341,814	$12,946,563
QF OR AVAILABLE POWER	$0	$0	$5,377,556	$5,641,058	$5,917,470	$6,207,426
CONSERVATION 88	$0	$959,220	$1,918,440	$1,918,440	$1,918,440	$1,918,440
CONSERVATION 89	$0	$0	$1,918,440	$1,918,440	$1,918,440	$1,918,440
CONSERVATION 90	$0	$0	$0	$1,918,440	$1,918,440	$1,918,440
CONSERVATION 91	$0	$0	$0	$0	$1,918,440	$1,918,440
CONSERVATION 92	$0	$0	$0	$0	$0	$1,918,440
INCREMENTAL CAPITAL COST	$0	$1,751,030	$1,821,040	$1,893,882	$0	$2,004,464
	$41,648,896	$66,473,072	$79,967,954	$86,131,935	$92,706,882	$102,630,133

TABLE 16

MAINE YANKEE SHUTDOWN COSTS - FINAL SOLUTION

BANGOR HYDRO-ELECTRIC COMPANY

	1987	1988	1989	1990	1991	1992	TOTAL (1986 $)
TOTAL COST ($)	$0	$8,164,521	$18,641,574	$20,013,528	$20,842,637	$19,078,117	$76,644,863
PER UNIT COST (CENTS/kWh)	0.0000	0.5461	1.2282	1.3018	1.3285	1.1940	7.6869
PERCENTAGE INCREASE IN RESIDENTIAL RATES	0.0%	5.1%	10.9%	11.6%	11.6%	10.5%	
PERCENTAGE INCREASE IN COMMERCIAL RATES	0.0%	5.6%	11.7%	12.3%	12.3%	11.0%	
PERCENTAGE INCREASE IN INDUSTRIAL RATES	0.0%	8.4%	17.2%	18.2%	18.2%	16.4%	
PERCENTAGE INCREASE IN SYSTEM COSTS	0.0%	6.3%	13.1%	13.9%	13.9%	12.5%	

TABLE 17

INCREMENTAL CAPACITY REQUIREMENTS

BANGOR HYDRO-ELECTRIC COMPANY

(MW)

GENERATING RESOURCES	1987	1988	1989	1990	1991	1992
RUN OF THE RIVER HYDRO	0	0	0	0	0	0
WEST ENFIELD HYDRO	0	0	0	0	0	0
MILFORD HYDRO	0	0	0	0	0	0
MAINE YANKEE	0	0	-59	-59	-59	-59
NEW BRUNSWICK POWER 1987	0	0	0	0	0	0
NEW BRUNSWICK POWER 1988-9	0	0	0	0	0	0
NEW BRUNSWICK POWER EXTENS	0	0	0	0	0	24
NEW BRUNSWICK CLASS III	0	0	0	0	0	0
NEW BRUNSWICK PURCHASE	0	25	25	25	0	0
WYMAN 4 1987-88	0	0	0	0	0	0
WYMAN 4 1989-91	0	0	0	0	0	0
WYMAN 4 1992	0	0	0	0	0	0
MIDDLETON 4	0	0	0	0	0	0
GRAHAM 5	0	0	0	0	0	0
GRAHAM 4	0	0	0	0	0	0
GRAHAM 3	0	0	0	0	0	0
DIESELS	0	0	0	0	0	0
GAS TURBINE 1987	0	0	0	0	0	0
GREAT NORTHERN PAPER	0	0	0	0	0	0
PUSPA HYDRO	0	0	0	0	0	0
ULTRAPOWER 5	0	0	0	0	0	0
ULTRAPOWER 6	0	0	0	0	0	0
AED	0	0	0	0	0	0
PERC	0	0	0	0	0	0
QF OR AVAILABLE POWER	0	0	10	10	10	10
CONSERVATION 88	0	3	3	3	3	3
CONSERVATION 89	0	0	3	3	3	3
CONSERVATION 90	0	0	0	3	3	3
CONSERVATION 91	0	0	0	0	3	3
CONSERVATION 92	0	0	0	0	0	3

TABLE 18

INCREMENTAL CAPACITY COSTS

BANGOR HYDRO-ELECTRIC COMPANY

GENERATING RESOURCES	1987	1988	1989	1990	1991	1992
RUN OF THE RIVER HYDRO	$0	$0	$0	$0	$0	$0
WEST ENFIELD HYDRO	$0	$0	$0	$0	$0	$0
MILFORD HYDRO	$0	$0	$0	$0	$0	$0
MAINE YANKEE	$0	$0	$0	$0	$0	$0
NEW BRUNSWICK POWER 1987	$0	$0	$0	$0	$0	$0
NEW BRUNSWICK POWER 1988	$0	$0	$0	$0	$0	$0
NEW BRUNSWICK POWER EXTE	$0	$0	$0	$0	$0	$2,004,484
NEW BRUNSWICK CLASS III	$0	$0	$0	$0	$0	$0
NEW BRUNSWICK PURCHASE	$0	$1,751,000	$1,821,040	$1,893,882	$0	$0
WYMAN 4 1987-88	$0	$0	$0	$0	$0	$0
WYMAN 4 1989-91	$0	$0	$0	$0	$0	$0
WYMAN 4 1992	$0	$0	$0	$0	$0	$0
MIDDLETON 4	$0	$0	$0	$0	$0	$0
GRAHAM 5	$0	$0	$0	$0	$0	$0
GRAHAM 4	$0	$0	$0	$0	$0	$0
GRAHAM 3	$0	$0	$0	$0	$0	$0
DIESELS	$0	$0	$0	$0	$0	$0
GAS TURBINE 1987	$0	$0	$0	$0	$0	$0
GREAT NORTHERN PAPER	$0	$0	$0	$0	$0	$0
PUSPA HYDRO	$0	$0	$0	$0	$0	$0
ULTRAPOWER 5	$0	$0	$0	$0	$0	$0
ULTRAPOWER 6	$0	$0	$0	$0	$0	$0
AED	$0	$0	$0	$0	$0	$0
PERC	$0	$0	$0	$0	$0	$0
QF OR AVAILABLE POWER	$0	$0	$0	$0	$0	$0
CONSERVATION 88	$0	$0	$0	$0	$0	$0
CONSERVATION 89	$0	$0	$0	$0	$0	$0
CONSERVATION 90	$0	$0	$0	$0	$0	$0
CONSERVATION 91	$0	$0	$0	$0	$0	$0
CONSERVATION 92	$0	$0	$0	$0	$0	$0
	$0	$1,751,000	$1,821,040	$1,893,882	$0	$2,004,484

TABLE 1

PEAK AND ENERGY FORECAST

MAINE PUBLIC SERVICE COMPANY

	1987	1988	1989	1990	1991	1992	ANNUAL COMPOUND GROWTH
BASE CASE:				(GWH)			
RESIDENTIAL	174	176	176	178	181	182	1.47%
COMMERCIAL	126	127	127	129	131	132	0.89%
INDUSTRIAL	154	160	165	172	177	183	3.46%
SALES FOR RESALE	148	148	148	148	148	148	0.00%
OTHER	42	42	42	42	42	42	0.00%
TOTAL ENERGY DEMAND	644	653	658	667	678	686	1.27%
LOSSES @ 6%	39	39	39	40	41	41	
TOTAL ENERGY REQUIREMENTS	683	692	697	707	719	728 663 132	1.27%
WINTER PEAK (MW)	129	130	131	133	135	136	1.07%
LOAD FACTOR	60.4%	60.5%	60.6%	60.8%	60.9%	61.0%	

TABLE 2

FUEL PRICE FORECAST

MAINE PUBLIC SERVICE COMPANY

ESCALATION RATES:	1987	1988	1989	1990	1991	1992
INFLATION	N.A.	3.0%	4.0%	0.4%	5.0%	5.0%
VARIABLE O&M	N.A.	3.0%	4.0%	4.0%	5.0%	5.0%
BIOMASS	N.A.	0.0%	5.0%	5.0%	5.0%	5.0%
BIOMASS 2	N.A.	0.0%	5.0%	5.0%	5.0%	5.0%
NEW BRUNSWICK	N.A.	7.3%	5.3%	7.2%	9.1%	9.3%
NO. 2 OIL	N.A.	7.1%	5.6%	7.6%	10.5%	10.1%
NO. 6 OIL 2%S	N.A.	7.3%	5.3%	7.2%	9.1%	9.3%
NO. 6 OIL .7%S	N.A.	7.1%	5.6%	7.6%	10.5%	10.1%

NOMINAL PRICES:		1987	1988	1989	1990	1991	1992
INFLATION	(INDEX)	1.00	1.03	1.07	1.08	1.13	1.19
VARIABLE O&M	(INDEX)	1.00	1.03	1.07	1.11	1.17	1.23
BIOMASS	(CENTS/kWh)	8.20	8.20	8.61	9.04	9.49	9.97
BIOMASS 2	(CENTS/kWh)	8.00	8.00	8.40	8.82	9.26	9.72
NEW BRUNSWICK	(CENTS/kWh)	3.50	3.76	3.95	4.24	4.63	5.06
NO. 2 OIL	(CENTS/kWh)	410.00	439.29	463.95	499.40	551.80	607.29
NO. 6 OIL 2%S	(CENTS/MMBtu)	245.00	263.00	277.00	297.00	324.00	354.00
NO. 6 OIL .7%S	(CENTS/MMBtu)	266.00	285.00	301.00	324.00	358.00	394.00

1987 PRICES:		1987	1988	1989	1990	1991	1992
VARIABLE O&M	(INDEX)	1.00	1.00	1.00	1.04	1.04	1.04
BIOMASS	(CENTS/kWh)	8.20	7.96	8.04	8.41	8.41	8.41
BIOMASS 2	(CENTS/kWh)	8.00	7.77	7.84	8.20	8.20	8.20
NEW BRUNSWICK	(CENTS/kWh)	3.50	3.65	3.69	3.94	4.10	4.26
NO. 2 OIL	(CENTS/kWh)	410.00	426.49	433.11	464.35	488.64	512.17
NO. 6 OIL 2%S	(CENTS/MMBtu)	245.00	255.34	258.59	276.15	286.91	298.55
NO. 6 OIL .7%S	(CENTS/MMBtu)	266.00	276.70	280.99	301.26	317.02	332.29

TABLE 3

RESOURCE PROFILE

MAINE PUBLIC SERVICE COMPANY

	CONTINGENCY OR BASE RESOURCE	UNIT TYPE	WINTER CAPACITY (MW)	FIRST YEAR RESOURCE AVAILABLE	LAST YEAR RESOURCE AVAILABLE	CAPACITY FACTOR MIN (%)	CAPACITY FACTOR MAX (%)	1987 NON-FUEL VARIABLE O & M EXPENSES (CENTS/kWh)	1987 FUEL EXPENSES (CENTS/kWh)	1987 TOTAL VARIABLE O & M (CENTS/kWh)	1987 MARGINAL FIXED COSTS ($/kW)	ESCALATOR
GENERATING RESOURCES												
BASE HYDRO	BASE	HYDRO	3.0	1987	1992	100.0%	100.0%	0.69	N.A.	0.69	$0	VARIABLE O&M
INTERMEDIATE HYDRO	BASE	HYDRO	10.0	1987	1992	65.7%	65.7%	0.69	N.A.	0.69	$0	VARIABLE O&M
PEAK HYDRO	BASE	HYDRO	23.0	1987	1992	24.8%	24.8%	0.69	N.A.	0.69	$0	VARIABLE O&M
MAINE YANKEE	BASE	NUCLEAR	45.6	1987	1992		72.0%	N.A.	N.A.	0.74	$0	NUCLEAR
WYMAN 4	BASE	OIL-ST	20.2	1987	1992	20.0%	65.0%	0.11	2.57	2.68	$0	NO. 6 OIL .7%S
NEW BRUNSWICK ENERGY PURCHASES	BASE	SYSTEM	22.0	1987	1991	30.0%	65.0%	0.15	2.65	2.80	$0	NO. 6 OIL 2%S
NEW BRUNSWICK PURCHASE 88-90	CONTINGENCY	SYSTEM	25.0	1988	1990	30.0%	65.0%	0.15	2.65	2.80	$68	NO. 6 OIL 2%S
NEW BRUNSWICK PURCHASE 1991	CONTINGENCY	SYSTEM	15.0	1991	1991	30.0%	65.0%	0.15	2.65	2.80	$68	NO. 6 OIL 2%S
CARIBOU 2	BASE	OIL-ST	14.0	1987	1992	20.0%	65.0%	0.15	2.76	2.91	$0	NO. 6 OIL 2%S
CARIBOU 1	BASE	OIL-ST	9.0	1987	1992	20.0%	65.0%	0.15	2.94	3.09	$0	NO. 6 OIL 2%S
DIESELS	BASE	OIL-IC	13.0	1987	1992	5.0%	20.0%	0.35	4.48	4.83	$0	NO. 2 OIL
SIGNAL/SHERMAN	BASE	BIOMASS	17.6	1987	1992	82.0%	82.0%	N.A.	N.A.	8.20	$0	BIOMASS
LORING AFB	BASE	BIOMASS	5.0	1987	1992	40.0%	40.0%	N.A.	N.A.	8.00	$0	BIOMASS 2
QF OR AVAILABLE POWER 1989	CONTINGENCY	BIOMASS	15.0	1989	1992	85.0%	85.0%	N.A.	N.A.	8.20	$0	BIOMASS 2
QF POWER 1991	CONTINGENCY	BIOMASS	7.5	1991	1992	85.0%	85.0%	N.A.	N.A.	8.20	$0	BIOMASS 2
CONSERVATION 88	CONTINGENCY		2.0	1988	1992	100.00%	100.00%	N.A.	N.A.	7.30	$0	
CONSERVATION 89	CONTINGENCY		2.0	1989	1992	100.00%	100.00%	N.A.	N.A.	7.30	$0	
CONSERVATION 90	CONTINGENCY		2.0	1990	1992	100.00%	100.00%	N.A.	N.A.	7.30	$0	
CONSERVATION 91	CONTINGENCY		2.0	1991	1992	100.00%	100.00%	N.A.	N.A.	7.30	$0	
CONSERVATION 92	CONTINGENCY		2.0	1992	1992	100.00%	100.00%	N.A.	N.A.	7.30	$0	

TABLE 4

BASE CASE WINTER SYSTEM CAPABILTIES AND PROJECTED PEAK LOADS

MAINE PUBLIC SERVICE COMPANY

(MW)

	GENERATING RESOURCES		1987	1988	1989	1990	1991	1992
	BASE HYDRO		3.0	3.0	3.0	3.0	3.0	3.0
	INTERMEDIATE HYDRO		10.0	10.0	10.0	10.0	10.0	10.0
	PEAK HYDRO		23.0	23.0	23.0	23.0	23.0	23.0
	MAINE YANKEE		45.6	45.6	45.6	45.6	45.6	45.6
	WYMAN 4		20.2	20.2	20.2	20.2	20.2	20.2
	NEW BRUNSWICK ENERGY PURCHASES		0.0	0.0	0.0	0.0	0.0	0.0
	NEW BRUNSWICK PURCHASE 88-90		0.0	0.0	0.0	0.0	0.0	0.0
	NEW BRUNSWICK PURCHASE 1991		0.0	0.0	0.0	0.0	0.0	0.0
	CARIBOU 2		14.0	14.0	14.0	14.0	14.0	14.0
	CARIBOU 1		9.0	9.0	9.0	9.0	9.0	9.0
	DIESELS		13.0	13.0	13.0	13.0	13.0	13.0
	SIGNAL/SHERMAN		17.6	17.6	17.6	17.6	17.6	17.6
	LORING AFB		0.0	0.0	0.0	0.0	0.0	0.0
	QF OR AVAILABLE POWER 1989		0.0	0.0	0.0	0.0	0.0	0.0
	QF POWER 1991		0.0	0.0	0.0	0.0	0.0	0.0
	CONSERVATION 88		0.0	0.0	0.0	0.0	0.0	0.0
	CONSERVATION 89		0.0	0.0	0.0	0.0	0.0	0.0
	CONSERVATION 90		0.0	0.0	0.0	0.0	0.0	0.0
	CONSERVATION 91		0.0	0.0	0.0	0.0	0.0	0.0
	CONSERVATION 92		0.0	0.0	0.0	0.0	0.0	0.0
a.	BASE CASE CAPACITY		155.4	155.4	155.4	155.4	155.4	155.4
	CAPACITY REQUIREMENTS							
b.	PEAK LOAD		129	130	131	133	135	136
c.	RESERVE REQUIREMENT	(b x 18%)	23	23	24	24	24	25
d.	CAPABILITY RESPONSIBILITY	(b + c)	152	154	155	157	159	161
e.	CAPACITY SURPLUS (DEFICIT)	(a - d)	3.0	1.4	0.4	-1.4	-3.7	-5.3
f.	PERCENT SURPLUS (DEFICIT)	(e / a)	2.0%	0.9%	0.2%	-0.9%	-2.3%	-3.3%

ASSUMES A RESERVE REQUIREMENT OF: 18.0%

TABLE 5

MUST RUN GENERATION - GWH

MAINE PUBLIC SERVICE COMPANY

GENERATING RESOURCES	BASE CASE 1987	1988	1989	1990	1991	1992	CONTINGENCY CASE 1987	1988	1989	1990	1991	1992
BASE HYDRO	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3
INTERMEDIATE HYDRO	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5
PEAK HYDRO	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
MAINE YANKEE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WYMAN 4	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3
NEW BRUNSWICK ENERGY PURCHASES	57.8	57.8	57.8	57.8	57.8	0.0	57.8	28.9	57.8	57.8	57.8	0.0
NEW BRUNSWICK PURCHASE 88-90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.9	65.7	65.7	0.0	0.0
NEW BRUNSWICK PURCHASE 1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39.4	0.0
CARIBOU 2	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5
CARIBOU 1	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8
DIESELS	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
SIGNAL/SHERMAN	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4
LORING AFB	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
QF OR AVAILABLE POWER 1989	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	111.7	111.7	111.7	111.7
QF POWER 1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	55.8	55.8
CONSERVATION 88	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.8	17.5	17.5	17.5	17.5
CONSERVATION 89	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.5	17.5	17.5	17.5
CONSERVATION 90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.5	17.5	17.5
CONSERVATION 91	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.5	17.5
CONSERVATION 92	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.5
	416.9	416.9	416.9	416.9	416.9	359.1	416.9	429.6	625.4	646.9	694.0	614.2

TABLE 6

AVERAGE MARGINAL COSTS
(CENTS/kWh)

MAINE PUBLIC SERVICE COMPANY

	1987	1988	1989	1990	1991	1992
BASE CASE RESOURCES:						
BASE HYDRO	0.6900	0.7107	0.7391	0.7687	0.8071	0.8475
INTERMEDIATE HYDRO	0.6900	0.7107	0.7391	0.7687	0.8071	0.8475
PEAK HYDRO	0.6900	0.7107	0.7391	0.7687	0.8071	0.8475
MAINE YANKEE	0.7430	0.7130	0.6910	0.6670	0.7000	0.7350
WYMAN 4	2.6822	2.8693	3.0285	3.2556	3.5905	3.9451
NEW BRUNSWICK ENERGY PURCHASES	2.8000	2.9990	3.1566	3.3792	3.6793	4.0123
NEW BRUNSWICK PURCHASE 88-90	2.8000	2.9990	3.1566	3.3792	3.6793	4.0123
NEW BRUNSWICK PURCHASE 1991	2.8000	2.9990	3.1566	3.3792	3.6793	4.0123
CARIBOU 2	2.9127	3.1200	3.2840	3.5158	3.8284	4.1752
CARIBOU 1	3.0940	3.3146	3.4890	3.7356	4.0681	4.4371
DIESELS	4.8325	5.1632	5.4473	5.8498	6.4423	7.0694
SIGNAL/SHERMAN	8.2000	8.2000	8.2000	8.2000	8.2000	8.2000
LORING AFB	8.0000	8.0000	8.4000	8.8200	9.2610	9.7241
QF OR AVAILABLE POWER 1989	8.2000	8.2000	8.6100	9.0400	9.4930	9.9670
QF POWER 1991	8.2000	8.2000	8.6100	9.0400	9.4930	9.9670
CONSERVATION 88	7.3000	7.3000	7.3000	7.3000	7.3000	7.3000
CONSERVATION 89	7.3000	7.3000	7.3000	7.3000	7.3000	7.3000
CONSERVATION 90	7.3000	7.3000	7.3000	7.3000	7.3000	7.3000
CONSERVATION 91	7.3000	7.3000	7.3000	7.3000	7.3000	7.3000
CONSERVATION 92	7.3000	7.3000	7.3000	7.3000	7.3000	7.3000

29-Sep-87

TABLE 7

BASE CASE SUPPLY FORECAST - GWH

MAINE PUBLIC SERVICE COMPANY

GENERATING RESOURCES	1987	1988	1989	1990	1991	1992
BASE HYDRO	26.3	26.3	26.3	26.3	26.3	26.3
INTERMEDIATE HYDRO	57.5	57.5	57.5	57.5	57.5	57.5
PEAK HYDRO	50.0	50.0	50.0	50.0	50.0	50.0
MAINE YANKEE	266.0	274.9	280.6	287.6	287.6	287.6
WYMAN 4	35.3	35.3	35.3	38.3	49.7	114.8
NEW BRUNSWICK ENERGY PURCHASES	57.8	57.8	57.8	57.8	57.8	0.0
NEW BRUNSWICK PURCHASE 88-90	0.0	0.0	0.0	0.0	0.0	0.0
NEW BRUNSWICK PURCHASE 1991	0.0	0.0	0.0	0.0	0.0	0.0
CARIBOU 2	24.5	24.5	24.5	24.5	24.5	25.9
CARIBOU 1	15.8	15.8	15.8	15.8	15.8	15.8
DIESELS	5.7	5.7	5.7	5.7	5.7	5.7
SIGNAL/SHERMAN	126.4	126.4	126.4	126.4	126.4	126.4
LORING AFB	17.5	17.5	17.5	17.5	17.5	17.5
QF OR AVAILABLE POWER 1989	0.0	0.0	0.0	0.0	0.0	0.0
QF POWER 1991	0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 88	0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 89	0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 90	0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 91	0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 92	0.0	0.0	0.0	0.0	0.0	0.0
	683.0	691.9	697.5	707.4	718.9	727.6
	683.0	691.9	697.5	707.4	718.9	727.6

GENERATION REQUIREMENTS UNMET PRIOR TO UNITS DISPATCH

	1987	1988	1989	1990	1991	1992
ENERGY	683.0	691.9	697.5	707.4	718.9	727.6
MUST RUN	416.9	416.9	416.9	416.9	416.9	359.1
	266.0	274.9	280.6	290.5	302.0	368.5
	266.0	274.9	280.6	290.5	302.0	368.5
	266.0	274.9	280.6	290.5	302.0	368.5
	266.0	274.9	280.6	290.5	302.0	368.5
	0.0	0.0	0.0	2.9	14.4	80.9
	0.0	0.0	0.0	0.0	0.0	1.4
	0.0	0.0	0.0	0.0	0.0	1.4
	0.0	0.0	0.0	0.0	0.0	1.4
	0.0	0.0	0.0	0.0	0.0	1.4
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0

TABLE 8

CONTINGENCY CASE SUPPLY FORECAST - GWH

MAINE PUBLIC SERVICE COMPANY

GENERATING RESOURCES	1987	1988	1989	1990	1991	1992
BASE HYDRO	26.3	26.3	26.3	26.3	26.3	26.3
INTERMEDIATE HYDRO	57.5	57.5	57.5	57.5	57.5	57.5
PEAK HYDRO	50.0	50.0	50.0	50.0	50.0	50.0
MAINE YANKEE	266.0	143.8	0.0	0.0	0.0	0.0
WYMAN 4	35.3	114.8	103.5	95.9	60.3	114.8
NEW BRUNSWICK ENERGY PURCHASES	57.8	67.8	57.8	57.8	57.8	0.0
NEW BRUNSWICK PURCHASE 88-90	0.0	32.9	65.7	65.7	0.0	0.0
NEW BRUNSWICK PURCHASE 1991	0.0	0.0	0.0	0.0	39.4	0.0
CARIBOU 2	24.5	24.5	24.5	24.5	24.5	58.4
CARIBOU 1	15.8	15.8	15.8	15.8	15.8	15.8
DIESELS	5.7	5.7	5.7	5.7	5.7	5.7
SIGNAL/SHERMAN	126.4	126.4	126.4	126.4	126.4	126.4
LORING AFB	17.5	17.5	17.5	17.5	17.5	17.5
QF OR AVAILABLE POWER 1989	0.0	0.0	111.7	111.7	111.7	111.7
QF POWER 1991	0.0	0.0	0.0	0.0	55.8	55.8
CONSERVATION 88	0.0	8.8	17.5	17.5	17.5	17.5
CONSERVATION 89	0.0	0.0	17.5	17.5	17.5	17.5
CONSERVATION 90	0.0	0.0	0.0	17.5	17.5	17.5
CONSERVATION 91	0.0	0.0	0.0	0.0	17.5	17.5
CONSERVATION 92	0.0	0.0	0.0	0.0	0.0	17.5
	683.0	691.9	697.5	707.4	718.9	727.6
	683.0	691.9	697.5	707.4	718.9	727.6

GENERATION REQUIREMENTS UNMET PRIOR TO UNITS DISPATCH

	1987	1988	1989	1990	1991	1992
ENERGY	683.0	691.9	697.5	707.4	718.9	727.6
MUST RUN	416.9	429.6	629.4	646.9	694.0	614.2
	266.0	262.2	68.1	60.6	24.9	113.3
	266.0	262.2	68.1	60.6	24.9	113.3
	266.0	262.2	68.1	60.6	24.9	113.3
	266.0	262.2	68.1	60.6	24.9	113.3
	0.0	118.4	68.1	60.6	24.9	113.3
	0.0	38.9	0.0	0.0	0.0	33.8
	0.0	0.0	0.0	0.0	0.0	33.8
	0.0	0.0	0.0	0.0	0.0	33.8
	0.0	0.0	0.0	0.0	0.0	33.8
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0

TABLE 9

BASE CASE MARGINAL COSTS - INITIAL SOLUTION

MAINE PUBLIC SERVICE COMPANY

GENERATING RESOURCES	1987	1988	1989	1990	1991	1992
BASE HYDRO	$181,332	$186,772	$194,243	$202,013	$212,113	$222,719
INTERMEDIATE HYDRO	$396,936	$408,844	$425,198	$442,205	$464,316	$487,532
PEAK HYDRO	$345,190	$355,545	$369,767	$384,558	$403,786	$423,975
MAINE YANKEE	$1,976,643	$1,960,318	$1,938,652	$1,918,347	$2,013,258	$2,113,921
WYMAN 4	$947,839	$1,013,931	$1,070,207	$1,245,308	$1,784,457	$4,530,852
NEW BRUNSWICK ENERGY PURCHASES	$1,618,848	$1,733,913	$1,825,000	$1,953,697	$2,127,248	$0
NEW BRUNSWICK PURCHASE 88-90	$0	$0	$0	$0	$0	$0
NEW BRUNSWICK PURCHASE 1991	$0	$0	$0	$0	$0	$0
CARIBOU 2	$714,427	$765,274	$805,496	$862,351	$939,025	$1,080,830
CARIBOU 1	$487,862	$522,649	$550,140	$589,024	$641,465	$699,650
DIESELS	$275,164	$293,993	$310,167	$333,090	$366,824	$402,533
SIGNAL/SHERMAN	$10,366,794	$10,366,794	$10,366,794	$10,366,794	$10,366,794	$10,366,794
LORING AFB	$1,401,600	$1,401,600	$1,471,680	$1,545,264	$1,622,527	$1,703,654
QF OR AVAILABLE POWER 1989	$0	$0	$0	$0	$0	$0
QF POWER 1991	$0	$0	$0	$0	$0	$0
CONSERVATION 88	$0	$0	$0	$0	$0	$0
CONSERVATION 89	$0	$0	$0	$0	$0	$0
CONSERVATION 90	$0	$0	$0	$0	$0	$0
CONSERVATION 91	$0	$0	$0	$0	$0	$0
CONSERVATION 92	$0	$0	$0	$0	$0	$0
	$18,712,635	$19,009,634	$19,327,343	$19,842,651	$20,941,814	$22,032,459

TABLE 10

CONTINGENCY CASE MARGINAL COSTS - INITIAL SOLUTION

MAINE PUBLIC SERVICE COMPANY

GENERATING RESOURCES	1987	1988	1989	1990	1991	1992
BASE HYDRO	$181,332	$186,772	$194,243	$202,013	$212,113	$222,719
INTERMEDIATE HYDRO	$396,936	$408,844	$425,198	$442,205	$464,316	$487,532
PEAK HYDRO	$345,190	$355,545	$369,767	$384,558	$403,786	$423,975
MAINE TANKER	$1,976,643	$1,025,324	$0	$0	$0	$0
WYMAN 4	$947,839	$3,295,276	$3,133,448	$3,122,447	$2,164,096	$4,530,852
NEW BRUNSWICK ENERGY PURCHASES	$1,618,848	$2,034,269	$1,825,000	$1,953,697	$2,127,248	$0
NEW BRUNSWICK PURCHASE 88-90	$0	$985,178	$2,073,863	$2,220,118	$0	$0
NEW BRUNSWICK PURCHASE 1991	$0	$0	$0	$0	$1,450,396	$0
CARIBOU 2	$714,427	$765,274	$805,496	$862,351	$939,025	$2,436,652
CARIBOU 1	$487,862	$522,649	$550,140	$589,024	$641,465	$699,650
DIESELS	$275,164	$293,993	$310,167	$333,090	$366,824	$402,533
SIGNAL/SHERMAN	$10,366,794	$10,366,794	$10,366,794	$10,366,794	$10,366,794	$10,366,794
LORING AFB	$1,401,600	$1,401,600	$1,471,680	$1,545,264	$1,622,527	$1,703,654
QF OR AVAILABLE POWER 1989	$0	$0	$9,616,509	$10,096,776	$10,602,732	$11,132,142
QF POWER 1991	$0	$0	$0	$0	$5,301,366	$5,566,071
CONSERVATION 88	$0	$639,480	$1,278,960	$1,278,960	$1,278,960	$1,278,960
CONSERVATION 89	$0	$0	$1,278,960	$1,278,960	$1,278,950	$1,276,960
CONSERVATION 90	$0	$0	$0	$1,278,960	$1,278,960	$1,278,960
CONSERVATION 91	$0	$0	$0	$0	$1,278,950	$1,278,960
CONSERVATION 92	$0	$0	$0	$0	$0	$1,278,960
INCREMENTAL CAPACITY COSTS	$0	$1,751,000	$1,821,040	$1,828,324	$1,151,844	$0
	$18,712,635	$24,031,998	$35,521,264	$37,783,533	$42,930,372	$44,367,373

TABLE 11

MAINE YANKEE SHUTDOWN COSTS - INITIAL SOLUTION

MAINE PUBLIC SERVICE COMPANY

	1987	1988	1989	1990	1991	1992	TOTAL (1987 $)
TOTAL COST ($)	$0	$5,022,364	$16,193,921	$17,940,882	$21,988,558	$22,334,915	$74,983,524
PER UNIT COST (CENTS/kWh)	0.0000	0.7695	2.4611	2.6882	3.2422	3.2539	2.4859
PERCENTAGE INCREASE IN RESIDENTIAL RATES	0.0%	7.5%	21.7%	22.8%	26.3%	24.8%	
PERCENTAGE INCREASE IN COMMERCIAL RATES	0.0%	8.3%	24.1%	25.4%	29.2%	27.5%	
PERCENTAGE INCREASE IN INDUSTRIAL RATES	0.0%	11.6%	33.7%	35.3%	41.1%	38.7%	
PERCENTAGE INCREASE IN SYSTEM AVE. RATES	0.0%	8.9%	26.0%	27.3%	31.4%	29.6%	

TABLE 13

CONTINGENCY CASE WINTER SYSTEM CAPABILITIES AND PROJECTED PEAK LOADS - MW

MAINE PUBLIC SERVICE COMPANY

GENERATING RESOURCES	1987	1988	1989	1990	1991	1992
BASE HYDRO	3.0	3.0	3.0	3.0	3.0	3.0
INTERMEDIATE HYDRO	10.0	10.0	10.0	10.0	10.0	10.0
PEAK HYDRO	23.0	23.0	23.0	23.0	23.0	23.0
MAINE YANKEE	45.6	45.6	0.0	0.0	0.0	0.0
WYMAN 4	20.2	20.2	20.2	20.2	20.2	20.2
NEW BRUNSWICK ENERGY PURCHASES	0.0	0.0	0.0	0.0	0.0	0.0
NEW BRUNSWICK PURCHASE 88-90	0.0	25.0	25.0	25.0	0.0	0.0
NEW BRUNSWICK PURCHASE 1991	0.0	0.0	0.0	0.0	15.0	0.0
CARIBOU 2	14.0	14.0	14.0	14.0	14.0	14.0
CARIBOU 1	9.0	9.0	9.0	9.0	9.0	9.0
DIESELS	13.0	13.0	13.0	13.0	13.0	13.0
SIGNAL/SEEBMAE	17.6	17.6	17.6	17.6	17.6	17.6
LORING AFB	0.0	0.0	0.0	0.0	0.0	0.0
QF OR AVAILABLE POWER 1989	0.0	0.0	15.0	15.0	15.0	15.0
QF POWER 1991	0.0	0.0	0.0	0.0	7.5	7.5
CONSERVATION 88	0.0	2.0	2.0	2.0	2.0	2.0
CONSERVATION 89	0.0	0.0	2.0	2.0	2.0	2.0
CONSERVATION 90	0.0	0.0	0.0	2.0	2.0	2.0
CONSERVATION 91	0.0	0.0	0.0	0.0	2.0	2.0
CONSERVATION 92	0.0	0.0	0.0	0.0	0.0	2.0
TOTAL AVAILABLE BASE CASE CAPACITY	155.4	182.4	153.8	155.8	155.3	142.3

CAPACITY REQUIREMENTS	1987	1988	1989	1990	1991	1992
PEAK LOAD	129	130	130	129	131	121
RESERVE REQUIREMENT	23	23	23	23	24	22
CAPABILITY RESPONSIBILITY	152	154	154	153	155	143
CAPACITY SURPLUS (DEFICIT)	3.0	28.4	0.2	3.2	0.8	-1.0
PERCENT SURPLUS (DEFICIT)	2.0%	18.4%	0.1%	2.1%	0.5%	-0.7%

ASSUMES A RESERVE REQUIREMENT OF: 18.0%

TABLE 14

CONTINGENCY CASE SUPPLY FORECAST - FINAL SOLUTION

	MAINE PUBLIC SERVICE COMPANY							GENERATION REQUIREMENTS UNMET PRIOR TO UNITS DISPATCH					
GENERATING RESOURCES	1987	1988	1989	1990	1991	1992		1987	1988	1989	1990	1991	1992
							ENERGY	683.0	691.9	691.0	688.3	698.5	648.8
							MUST RUN	416.9	429.6	629.4	646.9	694.0	614.2
BASE HYDRO	26.3	26.3	26.3	26.3	26.3	26.3		266.0	262.2	61.6	41.5	4.5	34.6
INTERMEDIATE HYDRO	57.5	57.5	57.5	57.5	57.5	57.5		266.0	262.2	61.6	41.5	4.5	34.6
PEAK HYDRO	50.0	50.0	50.0	50.0	50.0	50.0		266.0	262.2	61.6	41.5	4.5	34.6
MAINE YANKEE	266.0	143.8	0.0	0.0	0.0	0.0		266.0	262.2	61.6	41.5	4.5	34.6
WYMAN 4	35.3	114.8	97.0	76.8	39.9	69.9		0.0	118.4	61.6	41.5	4.5	34.6
NEW BRUNSWICK ENERGY PURCHASES	57.8	67.8	57.8	57.8	57.8	0.0		0.0	38.9	0.0	0.0	0.0	0.0
NEW BRUNSWICK PURCHASE 88-90	0.0	32.9	65.7	65.7	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
NEW BRUNSWICK PURCHASE 1991	0.0	0.0	0.0	0.0	39.4	0.0		0.0	0.0	0.0	0.0	0.0	0.0
CARIBOU 2	24.5	24.5	24.5	24.5	24.5	24.5		0.0	0.0	0.0	0.0	0.0	0.0
CARIBOU 1	15.8	15.8	15.8	15.8	15.8	15.8		0.0	0.0	0.0	0.0	0.0	0.0
DIESELS	5.7	5.7	5.7	5.7	5.7	5.7		0.0	0.0	0.0	0.0	0.0	0.0
SIGNAL/SHERMAN	126.4	126.4	126.4	126.4	126.4	126.4		0.0	0.0	0.0	0.0	0.0	0.0
LORING AFB	17.5	17.5	17.5	17.5	17.5	17.5		0.0	0.0	0.0	0.0	0.0	0.0
QF OR AVAILABLE POWER 1989	0.0	0.0	111.7	111.7	111.7	111.7		0.0	0.0	0.0	0.0	0.0	0.0
QF POWER 1991	0.0	0.0	0.0	0.0	55.8	55.8		0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 88	0.0	8.8	17.5	17.5	17.5	17.5		0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 89	0.0	0.0	17.5	17.5	17.5	17.5		0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 90	0.0	0.0	0.0	17.5	17.5	17.5		0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 91	0.0	0.0	0.0	0.0	17.5	17.5		0.0	0.0	0.0	0.0	0.0	0.0
CONSERVATION 92	0.0	0.0	0.0	0.0	0.0	17.5		0.0	0.0	0.0	0.0	0.0	0.0
	683.0	691.9	691.0	688.3	698.5	648.8							
	683.0	691.9	691.0	688.3	698.5	648.8							

TABLE 15

CONTINGENCY CASE MARGINAL COSTS - FINAL SOLUTION

MAINE PUBLIC SERVICE COMPANY

GENERATING RESOURCES	1987	1988	1989	1990	1991	1992
BASE HYDRO	$181,332	$186,772	$194,243	$202,013	$212,113	$222,719
INTERMEDIATE HYDRO	$396,936	$408,844	$425,198	$442,205	$464,316	$487,532
PEAK HYDRO	$345,190	$355,545	$369,767	$384,558	$403,786	$423,975
MAINE YANKEE	$1,976,643	$1,025,324	$0	$0	$0	$0
WYMAN 4	$947,839	$3,295,276	$2,936,788	$2,500,309	$1,430,873	$2,757,247
NEW BRUNSWICK ENERGY PURCHASES	$1,610,000	$2,034,269	$1,825,000	$1,953,697	$2,127,248	$0
NEW BRUNSWICK PURCHASE 88-90	$0	$985,178	$2,073,863	$2,220,118	$0	$0
NEW BRUNSWICK PURCHASE 1991	$0	$0	$0	$0	$1,450,396	$0
CARIBOU 2	$714,427	$765,274	$805,496	$862,351	$939,025	$1,024,090
CARIBOU 1	$487,862	$522,649	$550,140	$589,024	$641,465	$699,650
DIESELS	$275,164	$293,993	$310,167	$333,090	$366,824	$402,533
SIGNAL/SHERMAN	$10,366,794	$10,366,794	$10,366,794	$10,366,794	$10,366,794	$10,366,794
LORING AFB	$1,401,600	$1,401,600	$1,471,680	$1,545,264	$1,622,527	$1,703,654
QF OR AVAILABLE POWER 1989	$0	$0	$9,616,509	$10,096,776	$10,602,732	$11,132,142
QF POWER 1991	$0	$0	$0	$0	$5,301,366	$5,556,071
CONSERVATION 88	$0	$639,480	$1,278,960	$1,278,960	$1,278,960	$1,278,960
CONSERVATION 89	$0	$0	$1,278,960	$1,278,960	$1,278,960	$1,278,960
CONSERVATION 90	$0	$0	$0	$1,278,960	$1,278,960	$1,278,960
CONSERVATION 91	$0	$0	$0	$0	$1,278,960	$1,278,960
CONSERVATION 92	$0	$0	$0	$0	$0	$1,278,960
INCREMENTAL CAPITAL COST	$0	$1,751,000	$1,821,040	$1,828,324	$1,151,844	$0
	$18,712,635	$24,021,998	$35,324,604	$37,161,395	$42,197,150	$41,181,206

TABLE 16

MAINE YANKEE SHUTDOWN COSTS - FINAL SOLUTION

MAINE PUBLIC SERVICE COMPANY

	1987	1988	1989	1990	1991	1992	TOTAL (1987 $)
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TOTAL COST ($)	$0	$5,022,364	$15,997,261	$17,310,744	$23,255,336	$19,148,747	$70,326,838
PER UNIT FUEL COST (Cts/kWh)	0.0000	0.7599	2.4540	2.6678	3.2257	3.1285	2.4282
PERCENTAGE INCREASE IN RESIDENTIAL RATES	0.0%	7.6%	22.2%	24.2%	27.9%	30.2%	
PERCENTAGE INCREASE IN COMMERCIAL RATES	0.0%	8.3%	24.6%	26.2%	30.1%	30.5%	
PERCENTAGE INCREASE IN INDUSTRIAL RATES	0.0%	11.6%	34.5%	37.6%	43.6%	47.0%	
PERCENTAGE INCREASE IN SYSTEM AVE. RATES	0.0%	8.9%	26.5%	28.9%	33.1%	35.4%	

TABLE 17

INCREMENTAL CAPACITY REQUIREMENTS

MAINE PUBLIC SERVICE COMPANY

(MW)

GENERATING RESOURCES	1987	1988	1989	1990	1991	1992
BASE HYDRO	0	0	0	0	0	0
INTERMEDIATE HYDRO	0	0	0	0	0	0
PEAK HYDRO	0	0	0	0	0	0
MAINE YANKEE	0	0	-45.6	-45.6	-45.6	-45.6
WYMAN 4	0	0	0	0	0	0
NEW BRUNSWICK ENERGY PURCHA	0	0	0	0	0	0
NEW BRUNSWICK PURCHASE 88-9	0	25	25	25	0	0
NEW BRUNSWICK PURCHASE 1991	0	0	0	0	15	0
CARIBOU 2	0	0	0	0	0	0
CARIBOU 1	0	0	0	0	0	0
DIESELS	0	0	0	0	0	0
SIGNAL/SHERMAN	0	0	0	0	0	0
LORING AFB	0	0	0	0	0	0
QF OR AVAILABLE POWER 1989	0	0	15	15	15	15
QF POWER 1991	0	0	0	0	7.5	7.5
CONSERVATION 88	0	2	2	2	2	2
CONSERVATION 89	0	0	2	2	2	2
CONSERVATION 90	0	0	0	2	2	2
CONSERVATION 91	0	0	0	0	2	2
CONSERVATION 92	0	0	0	0	0	2

TABLE 18

INCREMENTAL CAPACITY COSTS

MAINE PUBLIC SERVICE COMPANY

GENERATING RESOURCES	1987	1988	1989	1990	1991	1992
BASE HYDRO	$0	$0	$0	$0	$0	$0
INTERMEDIATE HYDRO	$0	$0	$0	$0	$0	$0
PEAK HYDRO	$0	$0	$0	$0	$0	$0
MAINE YANKEE	$0	$0	$0	$0	$0	$0
WYMAN 4	$0	$0	$0	$0	$0	$0
NEW BRUNSWICK ENERGY PURC	$0	$0	$0	$0	$0	$0
NEW BRUNSWICK PURCHASE 88	$0	$1,751,000	$1,821,040	$1,828,324	$0	$0
NEW BRUNSWICK PURCHASE 19	$0	$0	$0	$0	$1,151,044	$0
CARIBOU 2	$0	$0	$0	$0	$0	$0
CARIBOU 1	$0	$0	$0	$0	$0	$0
DIESELS	$0	$0	$0	$0	$0	$0
SIGNAL/SHERMAN	$0	$0	$0	$0	$0	$0
LORING AFB	$0	$0	$0	$0	$0	$0
QF OR AVAILABLE POWER 198	$0	$0	$0	$0	$0	$0
QF POWER 1991	$0	$0	$0	$0	$0	$0
CONSERVATION 88	$0	$0	$0	$0	$0	$0
CONSERVATION 89	$0	$0	$0	$0	$0	$0
CONSERVATION 90	$0	$0	$0	$0	$0	$0
CONSERVATION 91	$0	$0	$0	$0	$0	$0
CONSERVATION 92	$0	$0	$0	$0	$0	$0
	$0	$1,751,000	$1,821,040	$1,828,324	$1,151,044	$0