

New Energy: CMP Resource Needs and Acquisition Procedures

A Guidebook for Potential Suppliers



**Central Maine Power Company
Edison Drive
Augusta, Maine 04336
(207) 623-3521**

December 1992

TABLE OF CONTENTS

I.	Letter from the Senior Vice President	ii
II.	Introduction	1
III.	Resource Availability and Resource Needs	3
IV.	Acquisition Process	9
V.	Standard Agreements	14
VI.	Interconnection Requirements	17
VII.	Notes and Supplemental Material	
	A. Endnotes	19
	B. List of Contact Persons/Areas of Responsibility	19
	C. Legal and Regulatory Background	19

A note to readers of "New Energy"

Dear Energy Project Developer:

Efficient competitive markets provide customers with the quality and variety of goods and services that satisfy their demands.

Central Maine Power Company aims for that same outcome in its practice of "least-cost planning" to select supply- and demand-side resources for an adequate, reliable electric system. To that end, CMP makes appropriate use of competitive forces to stimulate the energy marketplace for its customers' benefit, including their interest in developing the Maine economy and in preserving Maine's environmental quality.

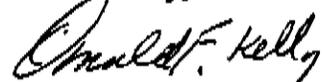
While complying with federal and state policies that promote the use of non-utility power, CMP pioneered the use of the competitive Request for Proposal Process for acquiring resources. CMP has won industry and government awards for its Power Partners conservation-contract program that has energy-efficiency projects competing directly against supply-side options in bidding. And we've developed "customized" avoided costs that recognize project-specific characteristics like delivery-date flexibility, voltage level, seasonality, and dispatchability.

We're committed to competition. And to promote effective competition, we want to help you be an effective competitor. That's why we've prepared this guide book to CMP's resource-acquisition methods.

Its descriptions are meant to help you become familiar with CMP's practices, needs, and expectations related to energy resource acquisition so you can make the most effective and efficient presentation of your potential project.

We intend to update and reissue this booklet periodically, so please let me know if there's anything CMP can do to make it more useful to you and other players in the energy marketplace. The more accessible and efficient we make the process, the more benefits we create for Maine electricity customers, Maine energy policy, and your Maine energy business.

Yours truly,



Donald F. Kelly
Senior Vice President,
Production, Engineering, and
Power Supply

II. Introduction

The energy marketplace grows more complicated, competitive, and difficult to forecast with every day that passes. Yet law, policy, and our customers' expectations require Central Maine Power Company to meet the demand for electricity through effective least-cost planning that fully integrates demand-side-management techniques with supply-side options, whether utility-owned or independent.

CMP has committed itself to carrying out that mandate. This guide book has been produced as a core information resource for both supply- and demand-side energy-project developers and others. Briefly, "New Energy: CMP Resource Needs and Acquisition Procedures" will acquaint you with:

- ▲ The energy resources currently serving CMP customers' needs, and the forecast for additional or replacement resources that may be needed in the future.
- ▲ How CMP solicits, evaluates, and negotiates agreements with proposed energy-resource projects.
- ▲ The technical and legal considerations that govern interconnection between new generating projects and the CMP transmission system.
- ▲ Citations and summaries of the various regulatory filings, agreements, forecasts, and reports that bear on resource planning and acquisition.

Because resource acquisition is a long-term process under constant review, CMP intends to update and republish this guide book to keep it current. Readers' comments and suggestions on its format and usefulness are welcome, and will guide future revisions.

If the future brings as much change as the past, those revisions could be substantial. Simple statistics dramatize the changes prompted by federal and state energy policies in recent years:

- ▲ In 1980, less than 1 percent of the energy sold to CMP customers came from non-utility sources. In 1991, 38 percent of CMP's kilowatt-hour sales were supplied by 545 megawatts of Maine non-utility projects using biomass, coal, hydro, municipal solid waste, and wind resources. Other projects already contracted are under development.
- ▲ CMP budgeted \$180,000 for conservation programs in 1983, the first year of concerted effort to tap that energy resource. In 1991, investment in CMP conservation programs was nearly 100 times higher, amounting to \$17.5 million. The results of the 1991 efforts are calculated to save 48 million kilowatt-hours a year and to reduce peak demand by more than 19 megawatts.

In the course of producing these results, CMP has established itself among the electric industry's leaders in promoting innovation and competition in resource planning and acquisition.

CMP acted early to institute a competitive request-for-proposals process to solicit and systematically screen proposed sales from non-utility-generation projects. Our award-winning

Power Partners program allowed proposals for sales of energy-efficiency savings to compete directly in RFPs with supply-side projects.

Our methods for customizing avoided costs allow us to give objective recognition to special project features like dispatchability when selecting resources. And our commissioned studies into area-specific demand-side-management potential may help us identify locally useful DSM projects to avoid or reduce new transmission-and-distribution investment.

These activities, in turn, fit under the umbrella of extensive modelling and planning efforts that continually examine the outlook for future energy demand, the useful lives and operating limitations of energy sources, comparative prices, and other factors critical to meeting the requirements of least-cost planning.

Least-cost planning is more than a utility management practice. The Maine Energy Policy Act of 1988 declares that "The Legislature finds that it is in the best interests of the State to ensure that Maine and its electric utilities pursue a least-cost energy plan..[that] takes into account many factors including cost, risk, diversity of supply, and all available alternatives..." That same law established a policy preference for meeting new energy demand through conservation and energy management, then from purchases from Qualifying Facilities as defined under a 1978 federal law, when alternatives are otherwise equivalent.

As you read "New Energy," you'll see how everything from our RFP procedures to the Energy Resource Plan we filed with state regulators in September 1991 relates to those federal and State policies.

You'll also see how these activities relate to CMP's Corporate Goals, which include environmental commitment, service to customers -- and "Balance in Electric Energy Resources: A portfolio of resources that is reliable, efficient and environmentally responsible."

Most important, we hope you'll see how it relates to your energy project development business.

▲ ▲ ▲

¹ See Section VII, "Notes," for descriptions of this and other federal and State legislation that critically affect the activities described in this guide book. In the event of any inconsistency between statements in this summary document and the requirements of laws, regulations or contract provisions, the latter requirements will be controlling.

III. Resource Availability and Resource Needs

Establishing a basis for planning requires examining the factors that influence customers' needs for electricity.

In practice, however, no one can predict resource needs with great precision. Uncertainty pervades estimates for critical factors including population growth, technical advances, economic conditions, and relative prices.

The Company's obligation to provide electric service requires energy resource planning that addresses such uncertainty.

CMP's Energy Resource Plan⁽¹⁾ (ERP), filed in September 1991 with the Maine Public Utilities Commission, was designed to be flexible enough to respond not only to changes in existing demand for electricity, but also to respond to increasing competition from rival sources of energy and to uncertainties in the marketplace. The discussion that follows draws upon and, where appropriate, updates the ERP's longer analyses of these matters.

A. Customer Demand and Uses for Electricity

The first requirement of electric service is possessing resources adequate to meet customers' demands on the system for energy.

CMP's annual system peak load, is projected to increase at a compound rate of 1.5 percent over the medium-term planning horizon. Peak load is anticipated to increase from approximately 1,717 MW in January 1993 to 2,088 MW in January 2005. Beyond 2005, peak load growth will slow to 1.4 percent per year.

The key document elaborating these projections is CMP's load forecast.⁽²⁾ The forecast projects electricity sales to grow at rates similar to those expected for system peak.

Because of the uncertainty inherent in forecasting consumer demand, CMP has developed two load-growth scenarios in addition to the reference-case load forecast. One scenario assumes a growth rate of zero beginning in 1993, an extreme assumption on the downside; the second, a high growth scenario, assumes a return to a robust economy in CMP's service territory and low growth in the near-term price of electricity.

While the assumption of no load growth in the first scenario is extreme, there are circumstances under which electric load would be less than forecast in the reference case. Upward price pressure, for instance, could result in a loss of electric space and water heating customers. CMP's need for resources to meet the forecast demand and the resource need under the two scenarios are examined below. In time, under any of the scenarios, CMP clearly will need new demand- and supply-side energy resources for its customers' use. Besides reckoning the uncertainties of

future demand, however, resource planning must also consider scheduled or the unexpected loss of resources for meeting demand.

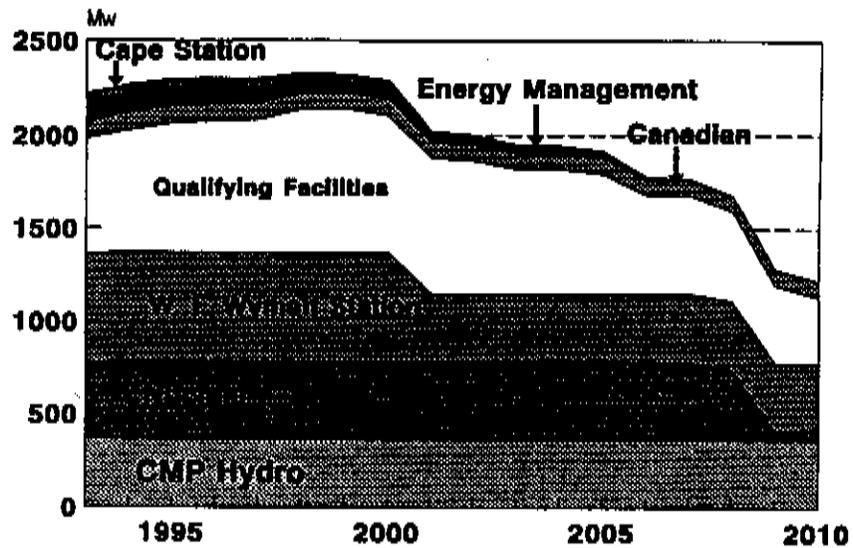
B. Resource Attrition

While sales and peak demand are expected to grow, some significant existing energy resources will expire, reach design age limits, or otherwise undergo attrition:

- ▲ Five of CMP's six operating oil-fired steam units will reach the end of their initial design lives by the end of this decade.
- ▲ More than half of the Company's hydroelectric facilities must succeed in federal relicensing proceedings during the '90s if they are to continue operating as regulated-utility units for the benefit of CMP customers.
- ▲ By 2000, the first of CMP's non-utility purchased-power contracts will have reached the end of their terms and will expire if not renegotiated and renewed. By 2005, nearly 100 MW will have expired. (Expired capacity does not include paper industry cogeneration. Although significant contracts for these facilities will expire, the industry is expected to continue cogeneration as an integral part of mill operations and either continue sale of power output to CMP or use the power to serve electrical load at the mill.)
- ▲ Looking further ahead, many of CMP's nuclear-power supplies will approach the end of their initial licenses within 20 years. The Main Yankee license, for example, expires in 2008.
- ▲ Over the next 20 years, savings from many of the demand-side management measures that CMP has installed or for which it has contracted could decline if, for example, efficient light bulbs or other limited-life equipment are not replaced.

Chart 1, "Resource Attrition," illustrates the projected decline in CMP's energy-resource base from the various causes if no action is taken to avoid, defer, or offset the attrition process. Such actions – contract extensions, renewal and extension of DSM measures, unit life-extension or repowering – are themselves resource options for filling the gap between customer demand and the declining energy-resource base.

Existing and Committed Resources Expected Attrition



1/10/00/10/10/00/00

Chart 1

Just as there is uncertainty in forecasting demand, key uncertainties could cause attrition to occur at faster or slower rates than projected, though most uncertainties would tend toward accelerating the attrition rate. Plausible and significant attrition-producing events could include delays or cancellations of purchased-power contracts or a successful referendum to close the Maine Yankee plant. In addition, increasing environmental concern evidenced in media coverage and in the passage of amendments to the Clean Air Act could limit the availability of existing supplies, particularly in hydro production and fossil-fuel operations.

C. Indicated Energy and Capacity Needs

Comparing CMP's existing and committed capacity, adjusted over time for expected resource attrition, with the peak-load forecast indicates the expected capacity need to be met. Uncertainty in forecasting customer demand and in predicting the continuing availability of existing supplies requires careful consideration of distinct alternatives. CMP has examined the need for resources to meet peak-capacity requirements under the reference case load forecast and under the two load scenarios previously discussed (see Table 1). Chart 2, "Energy Resource Needs: Committed Capacity vs. Expected Demand" on page 8, provides a graphical depiction of this process.

Table 1

Peak-load scenario, starting 1993	Average annual peak-demand growth	Capacity need in year 2000*	First capacity need and year
No growth	0.0%	None	115 MW, 2001
✓ Reference case	1.5%	120 MW	45 MW, 1999
High Growth	4.0%	735 MW	160 MW, 1995

*"Capacity Need" includes capacity required to maintain system reserves.

The year-2000 capacity requirements presented do not distinguish between the need for peaking resources (dispatchable facilities) and the need for base-loaded resources (facilities providing around-the-clock capacity and energy, such as nuclear and most hydro and QF units). Most of CMP's recent resource additions have been base-loaded, while much of the older capacity in the system is peaking. The status of CMP's base-load capacity needs, which is depicted graphically in Chart 3, "Base and Peak Load Resource Needs" on Page 8 can be derived by revising Table 1 to exclude peak requirements.

Table 2

Base-load scenario, starting 1993	Average annual peak-demand growth	Base-load Capacity Need in year 2000*	First Base-load capacity need and year
No growth	0.0%	None	140 MW, 2009
✓ Reference case	1.5%	None	330 MW, 2009
High growth	4.0%	None	175 MW, 2006 ²

Taken together, Tables 1 and 2 provide a clear assessment of CMP's expected capacity needs. Three key points emerge from this analysis:

- ▲ Under any of the scenarios presented, CMP needs no new base-load resources until at least 2006 and, more probably, not until after Maine Yankee retires in 2008. However, an unexpected loss of base-load capacity could create a need for base-load resources sooner than is forecasted.
- ▲ CMP may need additional peaking resources in the late nineties.

²The first base-load capacity need and the year in which it is needed, does not change even if paper company cogeneration contracts are not renewed.

- ▲ Dispatchability will be an essential component of additions to CMP's system for the foreseeable future.

In addition to dispatchability, other characteristics of capacity are also important to CMP. New resources must meet NEPOOL operational constraints and be in compliance with regulations emerging from the Clean Air Act Amendments of 1990. Fuel diversity is an important consideration as well.

Energy resource options currently being analyzed include gas-fired combined-cycle units, combustion turbines, power-purchase proposals from non-utility generators, unit life extensions, demand-side management options and purchases from the New England energy market. For further information on the New England and Canadian energy market, see the June 1992 Resource Adequacy Study published by NEPOOL.^[3]

ENERGY RESOURCE NEEDS Committed Capacity Vs Expected Demand

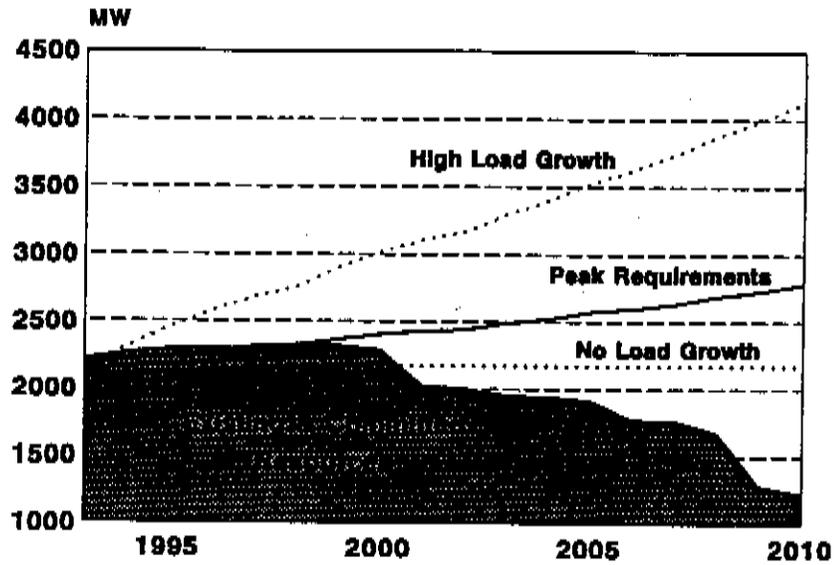


Chart 2

Base and Peak Load Resource Needs Committed Resources v. Expected Demand

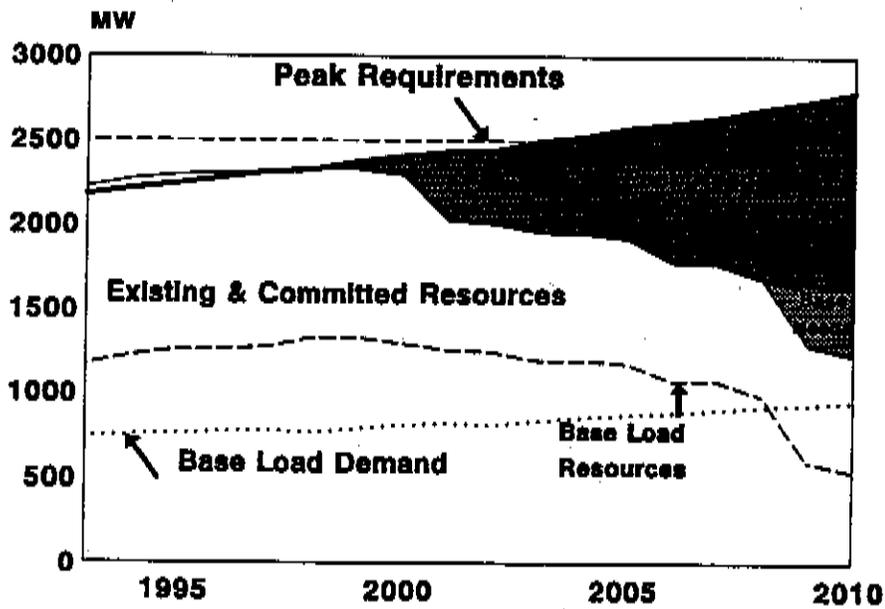


Chart 3

IV. Acquisition Process

A. Request for Proposals Process and Unsolicited Proposals

1. Introduction:

In 1984, Central Maine Power (CMP) developed its Request For Proposals (RFP) process as a way to evaluate and select Qualifying Facilities (QFs). The process combined bidding and negotiation, which ensured that the projects chosen were the best value for our customers. In the bid process, CMP examines the feasibility, reliability, and relative operational merits of each project. Over the past eight years, CMP has adapted its process to fit changing needs and requirements.

In May 1989, CMP issued an All-Source solicitation in which QFs, IPPs, utility resources, and Demand-Side-Management (DSM) projects could participate. Avoided costs were no longer used as ceiling prices; instead projects were encouraged to be competitive by bidding against each other. Emphasis was placed on operating flexibility, fuel-price stability, permit ability, and willingness to provide liquid security. CMP continues to review and revise the RFP process as system resource needs change.

In lieu of published avoided cost, CMP conducts customized avoided cost analysis using its integrated planning optimization model and its production cost model. This customization has been instrumental in the evolution of the Company's RFP process.

In this analysis, CMP uses the most current projections for such factors as load growth, fuel prices, and operation of existing units. Project characteristics (e.g. fuel type, on-line date, level of dispatchability) for all CMP options are entered into the model and facilities are compared against each other. This approach allows CMP to evaluate the risks and benefits for many combinations of projects. CMP is able to select projects based on their performance against other facilities, not artificial benchmarks such as proxy units or avoided costs. For a more detailed discussion, see the Customization section on page 12.

a. The Need For an RFP:

Load projections showing future capacity needs in CMP's system may trigger an RFP solicitation. Capacity needs occur as operating units retire or proposed facilities do not materialize. Also, growing electrical demands (e.g. increased population, new businesses or expansion of current businesses) contribute to these needs. Based upon the typical lead time required to construct a new facility, CMP would anticipate conducting an RFP solicitation approximately 5 years in advance of a significant need for new capacity. CMP expects that the next major addition of capacity will be needed after the year 2000, indicating translating to a 1995 RFP date, though solicitations targeted to high-growth areas or for peaking capacity may be conducted prior to this date.

CMP will also entertain unsolicited proposals at any time. Receipt of an attractive proposal with a capacity large enough to displace the need for significant additional capacity by 5 years may also trigger an RFP solicitation. A project of this magnitude could foreclose some appealing options that would be available in one to two years. Soliciting other market options against which to compare the proposal will assure that the most beneficial addition is made to CMP's system for our customers.

b. Characteristics of CMP's RFP Process:

CMP's bid process has evolved into All-Source solicitations. Qualifying facilities, independent power producers, utilities, and demand-side-management projects may all participate. Extensions of current agreements and expansions of existing projects as well as new projects are evaluated. Benchmark avoided costs are not included in bid packages so as to encourage competition by bidders. The Company reserves the right to extend the life of existing CMP-owned facilities or to build its own generation should these options prove more beneficial to our customers than a project proposal received in response to a solicitation.

The bid package has been divided into qualitative and quantitative sections. The qualitative section addresses project feasibility (including location and facility description), fuel supply, the ability to finance, operate reliably, and construct the facility on schedule. The quantitative section measures the relative benefits of the proposals for CMP's customers and develops a ranking index. Included in this section are the ability to provide firm capacity, the amount and type of security to be provided, and operational characteristics of the project (e.g. dispatchability, ability to schedule maintenance at a favorable time for CMP). An "Alternative" index allows the project sponsor to describe other facility attributes that may represent a benefit to CMP's customers and assign a proposed score to those attributes.

CMP prefers the projects with the most operating flexibility and whose sponsors are significant equity owners in the project and are willing to put up liquid security. The ability to get projects permitted and obtain stable and reliable fuel-supply contracts (i.e. the project sponsor minimizes the fuel price risk to CMP), as well as projects that are able to minimize system line losses, also provide benefits to CMP's customers.

Demand-side proposals follow the same outline with customers as "sites", and available conservation measures as "fuel". Also in conservation projects, avoidance of line losses and T&D investment can work to the project's benefit.

Bidders must also submit a pricing proposal with their response. The price proposal may consist of annual rates, leveled rates, or indexed rates (e.g. rates that are tied to changes to the Implicit Price Deflator). CMP seeks long-term

price stability when evaluating proposals. Indexing rates is one way to minimize the risks for both CMP and the project sponsor.

Items supplied by CMP in its bid package may include interconnection requirements, a transmission map of CMP's system, samples of Power Purchase Agreements, and the applicable portions of the New England Power Pool (NEPOOL) criteria, rules, and standards.

c. Evaluation of Solicited Bids:

In order to review the bid responses, both supply and demand side, in a consistent and logical manner, CMP assembles an interdepartmental review team to examine sections of each proposal. Simultaneously, quantitative project characteristics are evaluated often using computer analysis to determine a cost/benefit ratio. After the results of the reviews are compiled, they are summarized for review by CMP's management. Following that review, bidders are notified regarding the status of their proposal.

d. Evaluation of Unsolicited Bids:

Though CMP does not anticipate needing additional capacity or load reduction until after the year 2000, the Company accepts unsolicited proposals for generation or DSM projects. Here, the project sponsors are expected to provide the same information that would be requested in one of CMP's RFP solicitations. An interdepartmental team is not typically assembled to review a single proposal, although the expertise from various disciplines (e.g. financial planning, engineering) may be requested by the Purchased Power department. On the Demand Side, CMP may accept unsolicited proposals for Residential Conservation projects, or it may accept Commercial and Industrial proposals if the measures included in the bid are not already covered in CMP's other existing Marketing programs. After analysis and management review, the project sponsor is informed of the status of his proposal.

e. Possible Changes to CMP's Bid Solicitation Process:

Because of the changes in CMP's operating environment and limited resources, potential project sponsors should anticipate the following requirements in future CMP solicitations:

- ▲ Application fees to defray CMP evaluation expenditures. This may be a combination of a per kilowatt of capacity fee (e.g. \$.05/kW) and a "flat" fee (e.g. \$100). The total application fee would be applicable to both solicited and unsolicited proposals. A customer net energy project (i.e. under 100 kW) would be exempt from this application fee. If a proposal were determined to be worthy of additional study, CMP might require additional funds to cover the actual cost of a more detailed evaluation.

- ▲ Targeted bids (area specific). Certain areas in CMP's system are projected to grow faster than others and thus may need additional capacity sooner based on the avoidance of transmission line construction. CMP may issue an RFP soliciting projects willing to locate in specified locations.
- ▲ Request for a delay-of-in-service-date option. For example, a project sponsor may bid a project with an in-service date 5 years in the future, but provide an option for CMP to defer the initial date of delivery for 1 or more years.
- ▲ Request for a buyout option. Project sponsors may include buyout options when proposing a facility. The options may include the ability to buy out prior to start-up or at various times throughout the project's operating life.
- ▲ To minimize negotiation time, potential project sponsors may be required to include all proposed contract changes (based on the samples included in the RFP package) when submitting a proposal.
- ▲ CMP may solicit proposals to accommodate peaking-power demand requirements system-wide or in targeted areas.
- ▲ NEPOOL requirements such as automatic generation control (AGC), spinning reserves, and interruptibility provisions will become increasingly important in the evaluation of proposals.
- ▲ In previous RFPs, CMP has issued supply-side and DSM solicitations simultaneously. In the future, CMP may seek to conduct these solicitations separately, depending on system requirements.
- ▲ For demand-side proposals, CMP would use an Avoided Cost that took into account the procurement cost, per kWh, in existing Marketing programs, for projects similar to the measures identified in the proposal.

B. Evaluation Criteria and Process

1. Energy-Resource Planning Criteria

The principal criteria for CMP's planning include cost, reliability, adequacy, environmental acceptability, diversity, financial integrity, and flexibility. While each of these criteria is important, they often conflict. CMP reserves the right to consider the merits of each proposal relating to each of the criteria.

These criteria are essential components of a "least-cost" energy-resource plan. Throughout this document, integrated energy-resource planning is used to encompass this set of planning criteria and reflects our understanding of the least-cost mandate of MEPA. For a discussion of these criteria as they affect CMP's planning, see Chapter 2 of CMP's 1991 Energy Resource Plan.

2. Customizing Avoided Costs

Many of the differences among alternative projects cannot be adequately evaluated using the standard set of avoided costs. The standard avoided costs are

designed based on small, baseloaded (100% annual capacity factor), 30-year projects. Many projects can depart significantly from these characteristics in size, timing, and operating flexibility. Thus, CMP has established a process to evaluate a particular project by customizing standard avoided costs according to the project's particular attributes. This customization process is consistent with Public Utilities Commission directives for customization of avoided costs to value dispatchability, size, location, in-service date and other factors for each proposal.⁴

CMP uses a four-level customization process to evaluate non-utility energy resource proposals against avoided costs. The four levels were established to streamline the evaluation process of power supply and demand-side management resource option proposals to CMP. The levels of customization are:

1. Standard Long-Term Avoided Cost Rates – Established under the rules of MPUC Chapter 36⁵, these rates are based on the costs of a thirty-year 50 MW base-load unit at the generation level.
2. Standard Chapter 36 Customization – This process considers the dispatchability adjustment prescribed in MPUC Chapter 36 and transmission losses for each individual proposal.
3. Time and Voltage Differentiation – This analysis incorporates the value of avoiding the incremental costs of transmission and distribution as well as the time and seasonal value of energy resources.
4. Full Least-Cost Planning Customization – Typically reserved for projects that are large or have a high total cost, this level of customization analyzes the value of each proposal compared to other options in CMP's Least-Cost-Planning model.

The first two levels of customization are intended to expedite evaluation of small projects and those with high benefits and relatively low total costs. The third level customizes avoided costs to value project start date, size, location and dispatchability. The fourth level, the most analysis-intensive, is typically reserved for large projects that pose the greatest risk to CMP and its ratepayers in cost and reliability.

The choice among the levels of customization is based on the cost effectiveness of the proposed project and the value of information to be gained by conducting more detailed analysis. If a project is clearly cost-effective and low-risk in the initial avoided cost comparison, little will be gained by extensive analysis. However, if a project is marginally cost-effective, further analysis will provide increased information for the decision-making process. Finally, if the project poses significant risk or benefits in costs and/or operations, it is important to carry out detailed analysis to understand these risks and benefits.

V. Standard Agreements

A. Standard Agreement on file with MPUC

Currently, CMP has three standard Power Purchase Agreements⁶ (PPAs) applicable to projects greater than 100 kW: an agreement for projects under 1 MW (on file with the MPUC), an agreement for projects greater than 1 MW that provide firm power with limited dispatchability, and an agreement for projects greater than 1 MW that are dispatchable. These standard agreements are the starting point from which contractual agreements are developed. Described below are some of the important terms to Central Maine Power. (Note: if your project is 100 kW or less, contact the Cogeneration/Small Power Purchases department at CMP to discuss the arrangements available to you).

Applicable Avoided Costs:

CMP customizes avoided costs for projects greater than 1 mW. See section IV(B) of this report for a brief discussion of the customization process. Avoided costs for facilities under 1 MW may be eligible for certain adjustments (e.g. dispatchability, scheduled maintenance, line losses) depending on project attributes. CMP uses the avoided costs in its evaluation of cost/benefit ratios for proposed projects and to determine if payments would be "front-end" loaded" (i.e. partially levelized payments). Partially levelized payments must be secured by the project sponsor.

Dispatchability:

Dispatchability provisions vary significantly among the three standard PPAs. Different sources of generation can provide various levels of dispatchability. CMP's present system requires that projects that can offer the most dispatchability and value to the system. Thermal facilities (as opposed to run-of-the-river hydro projects) can provide dispatchability through on-peak delivery obligations and reduced and/or zero load periods.

A reduced dispatch period restricts the output of the facility to be at a lower level during specified off-peak hours when the generation would be of minimal value to CMP and our customers. During a zero load dispatch period, the facility should not be producing any power. Zero load periods typically occur during weekend and holiday periods. Further, some projects can provide dispatch on an hourly basis. These contracts allow CMP to take advantage of energy transaction pricing if the facility is turned over to NEPOOL for dispatch and also allow economic dispatch.

Project sponsors with dispatchable facilities must install telecommunications equipment at their sites that enable CMP to monitor the facilities' operation. The larger facilities (greater than 25 MW) must be equipped for automatic generation control (AGC) to allow change in generation level at a response rate of at least 1 MW per minute.

Metering/Interconnection/Relay Provisions:

Since all of CMP's standard PPAs encourage generation during on-peak hours, the metering at all new facilities must be able to distinguish between on-peak and off-peak deliveries. Project sponsors must pay for metering while CMP is responsible for reading, inspecting, testing, and adjusting the equipment.

The PPAs describe the obligations of interconnecting into CMP's system and the application of Contribution in Aid of Construction (CIAC). Also, projects greater than 5 MW require CMP to submit an application under Section 10.4 of the NEPOOL Agreement for approval. NEPOOL will determine whether the proposed interconnection of the facility will have an adverse impact on the reliability or operating characteristics of CMP's system or the system of any other NEPOOL member. See the Interconnection section of this report for further discussion of these matters.

Scheduled Maintenance:

Facilities willing to schedule maintenance during periods that are acceptable offer the most benefit to CMP. CMP notifies the project sponsors of the acceptable maintenance periods to allow the sponsor to schedule maintenance of the facility.

Security:

Under all standard PPAs on file with the MPUC and applicable to facilities with capacities greater than 100 kW, a sponsor must provide security to protect CMP's customers against the following situations: failure of the facility to demonstrate capacity, an energy shortfall during a specified period, front-end-loaded payments, and early termination of the PPA. The security to be provided for capacity shortfall and termination is tied to the NEPOOL Capability Responsibility Adjustment Charge (NCRAC), which is currently \$72/kW. Energy-shortfall security amounts may be determined by the following formula: CMP's Short-Term Energy Rate (times) Minimum Delivery Level. The termination provision requires that security be provided before the in-service date. CMP prefers coverage in the forms of letters of credit or a pledge of securities but will entertain other options such as insurance, bonds, or mortgage agreements.

Demonstration of Capability:

All projects that are to be claimed capacity with NEPOOL must perform winter-period and summer-period capability demonstrations. Capability for hydro projects is measured against monthly flow-duration curves for "daily-cycled" units. Thermal projects are required to perform 8-hour demonstrations during each period. In addition, thermal facilities must maintain an 80% on-peak capacity factor (OPCF) after the initial 12 months of operation.

Minimum/Maximum Purchase Obligations:

CMP's standard PPAs specify minimum and maximum purchase obligations. Project sponsors must agree to deliver a specified amount of energy (typically 80% of committed generation) during each year of operation and must secure this obligation (see the Security section). Flexibility to accept less than the minimum energy would also be very attractive to CMP.

Purchase obligations are restricted on both an hourly and an annual basis. For example, a project sponsor may agree to deliver up to 20,000,000 kWh during a power year (November 1 – October 31) and 4,000 kWh per hour over that same period. The sponsor will receive contract rates for power up to these limits. CMP will accept but not pay for power delivered in excess of the limits. Limits and rates are structured to encourage on-peak deliveries.

Other Provisions:

Typically, CMP's agreements have terms of 5 to 30 years. CMP is willing to be flexible if the project requires a long lead time to construct depending upon the project's risks and benefits. Extensions of contract terms are at CMP's option. Standard forms (e.g. sample letter of credit, opinion of counsel) are provided to assist the project sponsor. Other terms and conditions of the standard PPAs include conditions for demonstrating the in-service date, conditions for offsetting payment amounts, providing semi-annual milestone updates, providing evidence of insurance coverage, requiring the sponsor to assure his project has QF status (this includes providing information on the types and amounts of fuel used at the facility), and requiring that the sponsor has a substantial (typically 25%) equity position in the project.

B. Energy Management Agreement

The standard Energy Management Agreement⁷ follows the same general outline as the Power Purchase Agreement. It defines the maximum and minimum purchase obligations, such that penalties kick in generally when a project falls below 50% of its savings rate. CMP will not pay for savings which exceed 115% of the projected annual amount.

Monitoring and measuring savings can be difficult. CMP insists upon absolute verification of savings from bidding proposals. Projects that need gross assumptions of "average performance" for a technology are not acceptable. Administrators look for meters, accepted engineering calculations, and simplicity in methods for demand side savings verification.

The security requirements in the standard EMA are modelled after the supply side agreement. CMP is securing performance of demand-side measures over the projected life of savings. In this method, a bidder would lose twice if a project failed: first, he would lose future payments; second, he would have to pay CMP the value of the savings over the projected life of the contract.

VI. Interconnection Requirements

A. Responsibilities of the Parties

CMP's primary concern when interconnecting with Non-Utility Generators (NUG) is maintaining power quality and a power-delivery system that operates as safely and reliably as possible. CMP has developed a comprehensive set of Interconnection Requirements^a as well as specific language in our Power Purchase Agreements (PPAs) that state the responsibilities of the parties involved.

CMP is required by the Public Utilities Commission to maintain certain power-quality standards regarding frequency and voltage level variability. To maintain these standards, substantial consideration has been given to the requirements of overall system stability, intertie protective devices, and reactive power support.

Before interconnecting with CMP, the Company requires a study be performed to identify system requirements to accept deliveries, maintain standards, and associated costs. All costs incurred to allow connection to CMP's system are borne by the connecting party. Also, the addition of projects that are 5 MW or larger require CMP to seek approval under Section 10.4 of the New England Power Pool (NEPOOL) Agreement for the addition of new generation and its impact on transmission in New England.

As a result of the Tax Reform Act of 1986, certain facilities that are constructed to interconnect NUGs to the utility system may create a Contribution In Aid Of Construction (CIAC) tax liability that is the responsibility of the NUG. Internal Revenue Service Notice 88-129 provides a detailed description of the obligations and liabilities.

In the event that a NUG wishes to wheel power either interstate or intrastate through CMP's system, CMP is willing to enter into arrangements for wheeling services that comply with current regulations and are in the best of interest of CMP's customers. It is the responsibility of the NUG to make all arrangements for wheeling services that may be required outside of CMP's service territory.

B. System Stability

The size and location of new facilities on CMP's grid may have varying system stability impacts. CMP requires that all new generation additions be reviewed by planning and engineering personnel to assure that overall system stability is maintained at all times.

Continuous voltage support and frequency control during normal operations as well as during system emergencies are imperative.

C. Intertie Relaying

To allow parallel operation of customer generators on CMP's system, certain protective devices such as relays and circuit breakers must be installed at any location where a customer desires to operate generation in parallel with the CMP system. The purpose of these devices is to remove the customer's generation promptly from the CMP system whenever a fault occurs on that section of the system, thereby eliminating any feedback to the line to protect the public and CMP personnel and facilities from damage

or hazards caused by the customer's generators. These devices also serve to ensure proper quality of power (voltage and frequency) from the customer-owned generator.

CMP does not assume any responsibility for protection of the customer's generator(s) or of any other portion of the customer's electrical equipment. The customer is fully responsible for protection of its own equipment in such a manner that faults or other disturbances on the CMP system do not cause damage to the customer's equipment.

D. Reactive Power Support

Over the course of the year, CMP's system experiences light and heavy load periods that may cause system instabilities. The PPAs require that each customer continuously operate its generator in a mode that maintains voltage and general system stability.

To comply with the voltage requirements set by the Maine Public Utilities Commission, it may become necessary to require the customer's generator to provide reactive power support to the CMP system. This may be accomplished by use of the customer's synchronous generator or by the installation of automatic voltage control equipment.

E. Interconnection Studies and NEPOOL 10.4 Applications

Whenever a new facility is proposed for connection to CMP's system, CMP shall conduct a study to identify the necessary system modifications and costs associated with the proposed interconnection. The study identifies all changes that will need to be made to CMP's transmission and distribution lines, substations, protective relaying and metering equipment and recommends the best method of interconnecting with our system. All costs associated with the study and the interconnection are the responsibility of the project sponsor.

When a NUG of 5 MW or more is added to the CMP system, it becomes necessary to file an application for approval under Section 10.4 of the NEPOOL Agreement. This application requires approval for the generation as well as the associated transmission impact. CMP as the purchasing utility prepares and submits the application for the new facility. The cost to conduct the necessary studies and prepare the application is the responsibility of the new facility sponsor. The PPA is contingent upon receiving NEPOOL approval.

VII. Notes and Supplemental Material

A. Endnotes

1. Central Maine Power's September 1991 Energy Resource Plan.
2. August 1992 Update of the Long-Range Forecast of Electric Energy and Peak Load, 1990-2020: Overview of the Forecast" (CMP Load Forecasting Department, June 1991)
3. NEPOOL Resource Adequacy Study, June 1992
4. Maine Public Utilities Commission Order of January 25, 1989 in Docket No. 87-261
5. Maine Public Utilities Commission Rules for Cogeneration and Small Power Production, March 1987
6. Standard Power Purchase Agreement, current version
7. Standard Energy Management Agreement, current version
8. Customer-Owned Generation Interconnection Requirements, June 1990
Estimated 1991 Long-Term Avoided Cost Filing, June 28, 1991
Energy Management Five-Year Plan, March 10, 1992

B. List of contact persons/areas of responsibility

Edward A. Chaisson, Manager, Purchased Power Administration

Robert K. Gasper, Director of Cogeneration/Small Power Production

Michelle Brown, Director of Industrial Services and Direct Sales

Jonathan Linn, Supervisor of DSM Sales and Service

C. Legal and regulatory background

General note: Central Maine Power Company operates under legal requirements and regulations of federal, State, and local-government entities. They affect everything from the pricing of interstate energy sales and air-quality monitoring of generating stations, to the phrasing of rate-change notices and visual screening of power lines and substations. Many of these laws and regulations bear on CMP's planning, selection, and use of energy resources.

This appendix lists some of the key rules and statutes that affect CMP operations, indicates sources, and provides a short description of requirements and implications.

State requirements

Corporate charter: CMP is the successor to the Messalonskee Electric Company, chartered by the Maine Legislature under Chapter 129 of the Private and Special Laws of Maine, 1905. Messalonskee itself was an expansion into other towns of the Oakland Electric Company,

purchased by CMP's founders in 1899. The 1905 charter noted "The purpose of said corporation shall be to make, generate, sell, distribute and supply electricity in the city of Waterville, and the towns of Oakland, Fairfield, Benton and Winslow," with authority to make future purchases and additions.

As system expansion continued, the Company changed its name to Central Maine Power Company in 1910; the Legislature ratified the name change and authorized additional expansions in 1911. CMP's service area now encompasses 11,000 square miles of Maine with roughly three-fourths of the State population.

Service and rates of public utilities: Title 35-A, Maine Revised Statutes Annotated, Section 301 (1954, with many subsequent modifications)

This law requires every public utility to furnish "safe, reasonable, and adequate facilities and service," at "just and reasonable" rates.

Electric Rate Reform Act: 35-A MRSA Sec. 3152-55 (1977; amended 1979, 1981, 1987, 1989, 1991)

Among other things, this Act directs the MPUC to use rate-design techniques to relate electric rates more closely to the cost of providing electric service; to develop rates that promote "maximum efficient utilization" of Maine energy resources "to the extent that this will reduce overall electric cost"; to promote energy conservation; minimize the need for new generating capacity; and "minimize the cost of electricity to consumers."

Energy planning, construction, and purchases: 35-A MRSA Sec. 3131-3141

These statutes, among other things, require that CMP seek MPUC approval for significant construction and purchases of generating capacity, energy, or transmission capacity. With respect to purchases, section 3133 authorizes the MPUC, when reviewing any request for approval for purchase of generating capacity or energy from outside the State, to consider the "comparative economic impact" of in-state power production of conservation investment versus the proposed purchases from outside the state.

Maine Energy Policy Act: 35-A MRSA Sec. 3191 (1987)

"MEPA" includes a legislative finding that it is in the State's best interests "to ensure that Maine and its electric utilities pursue a least-cost energy plan," meaning one that "takes into account many factors including cost, risk, diversity of supply and all available alternatives, including purchases of power from Canadian sources." MEPA establishes a policy preference, "when the available alternatives are otherwise equivalent," for conservation and demand-side management, then for purchases from "qualifying facilities" (certain cogeneration or renewable-resource-fueled generating projects as defined under the federal PURPA law of 1978), before other options are selected.

Small Power Production Act: 35-A MRSA Sec. 3301-3308

The "SPPA" includes a legislative finding that "the development of small energy production facilities using renewable resources and cogeneration facilities will have a significant and beneficial effect on the State," and an expression of the legislative intent to "[e]ncourage the development of energy production systems using renewable resources" and "[p]romote the more efficient use of existing energy systems particularly through the cogeneration of power." The law encouraged long-term contracts and prescribed rates not to exceed a utility's avoided cost.

MPUC Chapters 36 and 380, Rules of the Maine Public Utilities Commission (current).

The MPUC's Chapter 36 rule "establishes the principles and procedures used by the Commission in setting rates for purchases of electricity from small power production facilities and cogenerators." The rule describes the methods for determining utilities' avoided costs, utility obligations for making contracts with qualifying facilities, and conditions under which the MPUC will review qualifying facility transactions before a contract has been executed.

The Chapter 380 rule "provides standards of cost effectiveness, rate impact, and societal impact for electric utility demand-side management programs." The rule authorizes programs that are "reasonably likely" to result in an end use's being served more efficiently with the program than without it, "considering the costs and benefits of the program to the utility and to ratepayers, taken together."

Maine environmental and land-use agencies:

Department of Environmental Protection: The Maine DEP has authority to regulate the siting and construction of certain transmission lines, service buildings, and other structures of certain size or located in a protected resource area pursuant to the Site Location or Development Act (38 MRSA Sec. 481-490), the Natural Resource Protection Act (38 MRSA 480-A-480-T), and the Mandatory Shoreland Zoning Act (38 MRSA Sec. 435 et seq.). The Maine DEP also has authority under other statutes codified in 38 MRSA to regulate the construction, operation, and maintenance of CMP's transmission lines, service buildings, and generating facilities.

Department of Inland Fisheries and Wildlife: Maine DIFW has the authority under 12 MRSA Sec. 37701-A to require installation of fishways for the passage of alewives, shad, salmon, sturgeon, or other anadromous or migratory fish.

Land Use Regulatory Commission: LURC is charged under 12 MRSA Sec. 681-689 with planning and zoning, among other things, in the unorganized and deorganized townships. LURC has the authority to regulate the siting and construction of certain CMP facilities such as transmission lines, substations, and hydroelectric projects in these areas pursuant to many of the same statutes that authorize MDEP regulation.

Federal requirements

Public Utility Holding Company Act of 1935: 15 United States Code Sec. 79-79z-6 (1935; 1958, 1970, 1975, 1978, 1987, 1990)

PUHCA, a policy response to the collapse of the highly leveraged and pyramided electric-utility holding companies during the Depression, established regulations on utility holding-company investment, accounting, financing, acquisitions, and establishment and financing of affiliates. Among other things, the Act provides that acquisition of 10 percent or more of the voting securities of a public utility (including an independent power producer) by a non-utility, or 5 percent or more by a utility, may establish holding-company status and subject the acquirer to PUHCA's requirements, which are enforced by the federal Securities and Exchange Commission. PUHCA generally limits holding-company operations to a single geographic area and a single line of business, such as electricity or gas.

Federal Power Act: 16 USC Sec. 791a-828c (1920, with subsequent amendments)

The FPA governs the construction, operation, and maintenance of hydropower projects located on navigable waterways or which otherwise affect interstate commerce; it also establishes federal authority to regulate the terms of access to transmission systems and to regulate wholesale electric rates.

Federal Energy Regulatory Commission: 42 U.S.C. Sec. 7171-7178xxx (1933 et seq.)

FERC was created as an independent commission within the Department of Energy to regulate, among other things, rules and charges for the transmission and sale of electricity, and licenses and permits for the construction, operation, and maintenance of dams on certain waterways. FERC acquired these and other functions in 1977 upon the termination of the Federal Power Commission.

United States Environmental Protection Agency jurisdiction:

The EPA regulates the treatment, storage, and disposal of hazardous waste; sets water-quality standards and licenses discharges into waterways; and establishes standards for the regulation of pesticides.

Public Utility Regulatory Policy Act of 1978: P.L. 95-617, 92 Stat. 3117 (9 Nov. 1978)

PURPA was enacted to provide for "increased conservation of electric energy, increased efficiency in the use of facilities and resources by electric utilities," and "the expeditious development of hydroelectric potential at existing small dams," among other things. PURPA required electric utilities to offer to purchase electric energy from qualifying facilities at a rate not to exceed the utilities' avoided costs. It also exempted QFs (but not independent power producers in general) from PUHCA, most requirements of the Federal Power Act, and from state laws on the rates and financial organization of electric utilities.

The Electric Consumers Protection Act of 1986: Public Law 99-495, 100 Stat. 1243 (16 Oct. 1986)

This Act was an amendment to the Federal Power Act. It provides, among other things, that in considering applications for licensing or relicensing hydroelectric facilities, FERC shall give equal consideration to operators' performance in public access, water quality, historic and cultural preservation, recreation, fisheries, and other issues, as to their performance in generating electricity.

The Clean Air Act, and Amendments: 42 USC 7401 et seq. (1967, 1977, 1990)

The CAA sets criteria for national ambient air-quality standards, new-source performance standards, hazardous air-pollution standards, and motor-vehicle standards. CAA addresses acid-rain emission limitations and ozone standards, which, in conjunction with state initiatives, directly impact electric-power generation.

The Energy Policy Act of 1992: [multiple sections, United States Code]

This law's 30 main titles extend from energy- and water-use efficiency standards, to promotion of electric vehicle and changes in utility holding-company regulation. Key requests from other parties seeking access to transmission lines for energy wheeling. If the utility grants access or if access is ordered by FERC, the utility must design and attempt to build any necessary new transmission. The law also eliminates applicability of the Public Utility Holding Company Act's detailed financial and reporting requirements for wholesale generating units owned by non-utility entities or by utilities outside their service areas.

Inter-utility requirements

New England Power Pool Agreement:

The members of "NEPOOL," the regional power pool, transmit and distribute more than 99 percent of the electricity used in New England. Its automated-dispatch facility, the New England Power Exchange or "NEPEX," provides computerized selection among members' generating stations to ensure the region's power needs are met at the lowest total cost.

NEPOOL also provides a market for sales of surplus energy, coordinates scheduled maintenance of generating units, and arranges joint projects such as the Phase II transmission line linking New England with Quebec.

Northeast Power Coordinating Council:

The purpose of the Council is to promote maximum reliability and efficiency of electric service in the interconnection systems of the member utilities by extending the coordination of their system planning and operating procedures.