CPC

Competitive Power Coalition

of New England, Inc.

MEMORANDUM

TO: NEPOOL Members and Other Interested Parties

FROM: Competitive Power Coalition of New England, Inc.

RE: Blueprint for New England Electricity Supply System

DATE: January 5, 1996

The Competitive Power Coalition of New England, Inc. ("CPC") is pleased to provide you with a copy of A Blueprint for a Competitive Electricity Supply System in New England ("Blueprint").

Over the course of the past year, the restructuring of the electricity industry has been the focus of intensive discussions in a wide array of regulatory and other forums. In New England, considerable discussion has taken place around the reform of the New England Power Pool ("NEPOOL"). While CPC members participated actively in NEPOOL reform discussions through most of 1995, in October of this past year CPC determined that it would be difficult -- if not impossible -- to address incremental NEPOOL reform without first clearly defining the framework for a new electricity supply marketplace in New England.

Recognizing the significant issues posed by the rapid movement toward industry restructuring in New England and elsewhere, CPC set out to develop this comprehensive Blueprint for New England's electricity supply market. Over the past several weeks, CPC has engaged in intensive discussions with all stakeholders and has developed a Blueprint that goes well beyond NEPOOL reform and presents a vision of a new electricity supply marketplace -- a marketplace where (1) all customers have access to the widest possible choice of products and services, and (2) the system reliability and security that has been NEPOOL's hallmark for the last 30 years is fully maintained.

Although the scope of this document is broad, CPC notes that our Blueprint does not attempt to address every issue related to electricity industry restructuring. In particular, while the Blueprint offers a comprehensive description and discussion of a restructured wholesale market, the Blueprint does not attempt to offer a similarly comprehensive discussion of a restructured retail market. Rather, the Blueprint assumes and is fully compatible with the plans for retail competition being discussed by state regulators and other stakeholders. In addition, our Blueprint does not map out a plan for the transition from the current industry structure to a fully competitive electricity supply marketplace. However, the Blueprint is premised on the view that

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any transition to a new marketplace is more smoothly and readily achieved once a clear vision of that marketplace is formulated. We believe firmly that this Blueprint offers such a vision.

In developing our Blueprint, CPC has sought to define a framework that can support a fully competitive electricity industry, as opposed to merely presenting a plan that seeks to improve the competitive position of IPPs or other market entities. As we move forward with serious negotiations regarding a new electricity marketplace, CPC believes that it is a good time for all interests to focus on further defining this framework for a truly competitive industry. The Blueprint offers all stakeholders a real opportunity to approach the discussion regarding a new industry framework in the most creative manner possible.

CPC is quite confident that 1996 indeed will be the year when New England makes great strides toward adopting the framework necessary to allow for the many benefits associated with a restructured electricity industry. It is also CPC's view that our Blueprint represents an appropriate starting point for the discussion which will ensue in the coming year. In the weeks ahead, CPC looks forward to continuing to discuss the ideas presented in this Blueprint with all interested parties.

Thank you.

A Blueprint for a Competitive Electricity Supply System in New England

Competitive Power Coalition of New England

January 5, 1996

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I. INTRODUCTION

A. Background

The electricity supply industry in the United States is evolving rapidly from an industry structure based on vertically-integrated, regulated monopolies into a structure where numerous power suppliers compete for consumers while using in a non-discriminatory fashion the facilities of transmission and distribution monopolists. Current pressure to reform the industry results from consumers' legitimate demands for a wider array of power products and services at reduced prices. Throughout the United States, policy makers and industry stakeholders are responding by exploring ways to introduce greater competition to the electricity supply industry.

In New England, this discussion has largely centered on reforming the New England Power Pool ("NEPOOL"). NEPOOL's creation 30 years ago integrated the region's disparate utilities, providing electrical system reliability. Today, confronted with demands for increased competition, the challenge is to ensure that all power suppliers have an equal opportunity to compete for customers, and that all customers have access to a full array of products and suppliers, while maintaining traditional standards of electrical system reliability.

The Competitive Power Coalition of New England ("CPC") takes up this challenge and offers this Blueprint to NEPOOL participants, state regulators and other stakeholders as its vision of a restructured electricity market in New England. The Blueprint is evolutionary, retaining NEPOOL operations that have been effective in the past and translating them into the new context of an independent system operator ("ISO"). It seeks to define an industry structure that is responsive to the interests of all stakeholders -- large and small consumers, federal and state regulators, environmental advocates, the financial community, and both traditional and non-traditional suppliers of energy products and services.

Significantly, the Blueprint seeks to redefine NEPOOL in the context of, and consistent with, other changes occurring in the industry. These other changes include (1) the Federal Energy Regulatory Commission's ("FERC's") ongoing rulemaking proposals to require generic, non-discriminatory open access tariffs for transmission service, together with an electronic information network to support access to, and possibly trading in, rights to transmission capacity, and (2) the efforts of an increasing number of states that are moving away from exclusive retail franchises and moving toward retail competition and direct access. The Blueprint is designed to complement and be considered in tandem with these changes and the individual New England utility restructuring plans called for by state regulatory and legislative restructuring efforts.

The clear benefits from restructuring the electricity supply industry are greater customer choice and reduced prices. While the restructuring efforts cited above are a step in the right direction, CPC believes that competition will flourish when there is true separation between those market participants that utilize the transmission network and those that operate the network. The inherent potential for discrimination by any entity that competes with other market participants while controlling the transmission network impedes the development and fair functioning of the electricity supply industry. Hence, to achieve the promise of restructuring, we advocate the creation of an ISO that separates the operations of the network from its commercial interests.

Our Blueprint does not address transition issues, such as the potential for stranded investment. Rather, the Blueprint concentrates on the creation of an ISO and its relationship to industry structures needed to retain system reliability and accommodate increased competition and consumer choice.

B. Overview of the Blueprint

The cornerstone of our Blueprint is transforming NEPOOL into an ISO, charged with maintaining the integrity of the New England electricity supply system. The ISO has responsibility for network coordination, which involves operating the transmission network to accommodate transactions of market participants and for supplying those services required to maintain system reliability. The requirement that the transmission network be operated within its design limitations and consistent with appropriate engineering protocols is no less imperative in a competitive market than under the current industry structure.

The ISO will provide transmission delivery services at FERC-approved rates. Importantly, the ISO will not perform NEPOOL's role of attempting to ensure economic efficiency through centralized dispatch of generating units. Instead, market participants, including generators, aggregators, and consumers, will nominate transactions to the ISO which reflect their commercial interests for dispatching generation and load. The ISO will schedule these transactions ensuring system reliability. A state-regulated Local Distribution Company ("LDC") will continue to provide distribution delivery services.

Our Blueprint envisions a commercial market in kilowatt hours, where electricity will be bought and sold through forward and spot markets, rather than through a state-regulated, administratively-determined resource procurement process. The forward market for electricity, where market participants make commitments to buy or sell electricity for future delivery, permits hedging against price and delivery uncertainty, and allows discovery of future prices which is necessary to guide investment decisions in new supply or demand resources. The spot market allows buyers to purchase electricity for near-term delivery in as short a time period as fifteen minutes, ensuring the instantaneous availability of electricity at prices that reflect real-time supply and demand.

While forward and spot markets exist in the current environment, only when full open access and non-discriminatory tariffs have been established and implemented by a truly independent system operator will these markets become deep, broad and transparent, thereby providing the opportunity for customer choice and reduced prices.

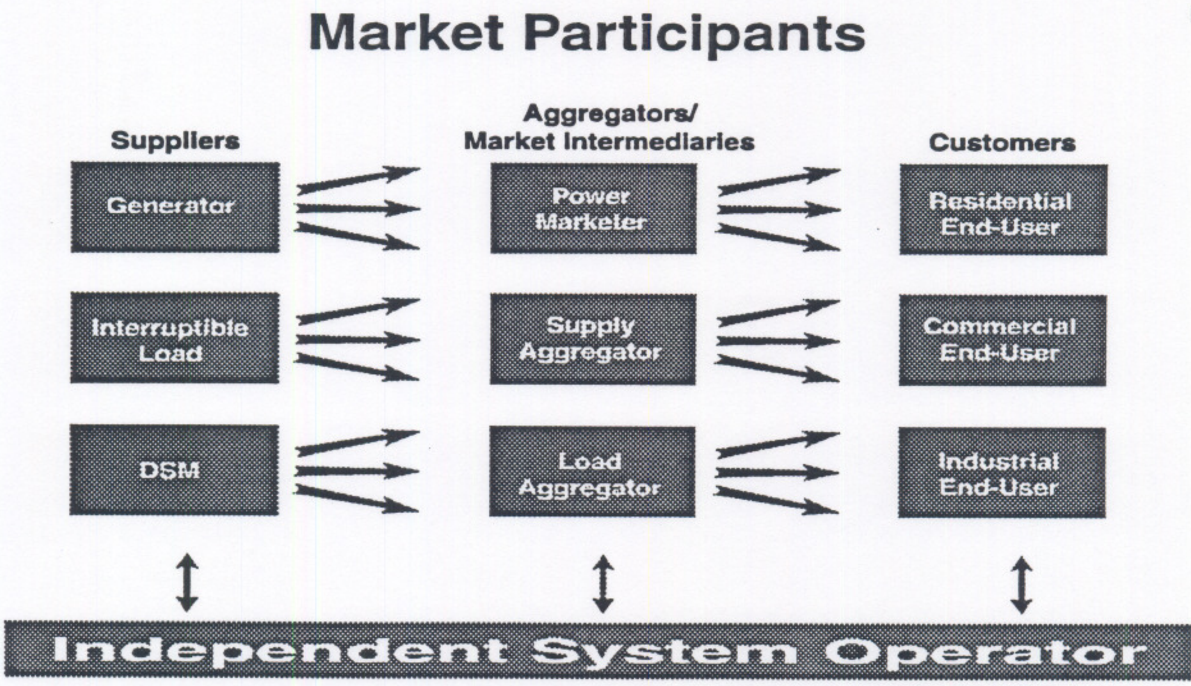
II. FRAMEWORK FOR A COMPETITIVE MARKET

This section outlines the framework of a competitive electricity supply system for New England. First, we identify the participants in a competitive market. Next, our Blueprint discusses the functions of a competitive market with regard to day-to-day operations, maintenance and capital investment. Our Blueprint then addresses the issue of reliability, including the provision of ancillary services, in a competitive market. Finally, we propose a method for determining transmission prices and resolving system constraints.

A. The Participants

Our Blueprint for a competitive market includes the following participants: the ISO, suppliers, aggregators/market intermediaries, and customers (please see **Figure 1**).

Fig. 1



1. The ISO

At the heart of our proposal is the creation of an ISO. The ISO will operate the transmission network in a way that maintains system reliability, while maximizing its use. The ISO will ensure that the energy nominated by suppliers and buyers will be delivered.

The ISO will be a FERC-regulated entity that is independent, having no corporate relationship with any market participant. The ISO is likely to contain the same personnel and use the same facilities that now exist for the operation of the transmission network in New England (*i.e.,* NEPEX). Unlike the NEPOOL of today, however, market participants will have no authority over the ISO, and therefore, there simply will be no need for cumbersome voting and governance rules like those currently used by NEPOOL. The ISO will operate pursuant to rules established in FERC-approved tariffs that provide for open, non-discriminatory access for all transmission facilities.[1] The ISO also will act in accordance with engineering criteria and operational protocols established by organizations such as the North American Electrical Reliability Council ("NERC") and the Northeast Power Coordinating Council ("NPCC") and with good utility practice[2].

The ISO will own no physical assets; instead it will lease (or otherwise obtain a concession to) New England's transmission facilities from their current owners for a period of

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[1] Although a precise definition of New England transmission assets cannot be made, in general, transmission is likely to include all facilities at or above 115 kV, and possibly, a limited number of 69 kV facilities.

[2] NERC and NPCC membership and governance rules will need to change to reflect the increasing number and diversity of market participants.

time, thereby acquiring operational control over the transmission network. Having leased the assets to the ISO, the owners will receive a specified return on their investment and, through the lease agreement, a guarantee that those assets will be returned in functioning condition. In order to streamline the lease negotiation process, FERC could establish a *pro forma* lease arrangement.

Our Blueprint does not prescribe the corporate form of the ISO. What is important is that the ISO should have no ownership interest in generation and have no corporate affiliation with any other participant in the commercial electricity market.

As part of its mandate to maintain the reliability of the transmission network, the ISO will contract for the right to call upon a resource to provide ancillary services not directly provided by the market participants. (See Section II.C.2 for a more detailed discussion of ancillary services.) Through these contracts the ISO will have physical control over the assets needed to maintain system reliability.

In addition, the ISO will monitor all transactions and any deviation from quantities nominated for transmission by market participants. The ISO will charge the appropriate market participant for the costs of using the transmission network, for the supply of ancillary services provided by the ISO, and for any balancing in supply and demand that remains at the end of a billing period. Our Blueprint proposes that these deficit and surplus amounts be paid for at the ISO's incremental or decremental cost (plus appropriate penalties). Because the resources of the ISO may be among the most expensive resources available, having been purchased to meet variously defined reliability criteria, there should be no advantage for a market participant who delivers either too little or too much to the transmission network.

The ISO, in conjunction with other interested parties, and pursuant to FERC-approved tariffs, will determine what new transmission facilities will be required in the region. Construction of these new transmission facilities will be competitively bid, privately undertaken, and leased back to the ISO. While our Blueprint does not require a Regional Transmission Group, a regional power council similar to the Northwest Power Planning Council in the Northwestern United States may be a desirable entity to provide for coordinated governmental actions where additional interstate transmission capacity is needed.

The ISO also will be responsible for maintaining the transmission network. The ISO's role will be to schedule maintenance of the transmission network so as to minimize total costs while maintaining system reliability. Maintenance will be competitively bid.

2. Suppliers

Suppliers will consist of generators and demand-side service providers who will compete to provide kilowatt hours and "negawatt" hours. Delivery of these products will be governed by contractual responsibility rather than regulatory oversight.

The present concentration of generation market power must be addressed, however, to allow the development of a fully competitive electricity market that is accessible to a broad range of suppliers. It is worth recalling that in today's electricity supply industry the utility incumbents are: (a) the sole or monopsonistic purchaser of generation for their service territory; (b) a competing seller of generation within their service territory; and (c) are compensated based on the size of their investments in generation to meet the needs of their service territories. Only with a major change in the pattern of ownership of generation will the potential for the exercise of market power be lessened sufficiently for there to be an open and competitive market. A number of proposals have been put forth for assuring that market power will not be exercised. This Blueprint provides a step in that direction by introducing a bilaterally-based market structure supported by an ISO. Both the structural change—the introduction of an ISO—and the market definition—bilateral contracting—provide safeguards against the potential for exercise of vertical market power. The structural imposition of the ISO guarantees that all players have comparable access to the transmission system. Bilateral contracting assures regulators that all market participants have access to and can compete within the market.

Our Blueprint alone does not guarantee, however, that a generation owner who is also a distribution owner will not self-deal, i.e., that the LDC will not use its purchasing discretion to favor its own or affiliated generation. While applying performance-based regulation to the distribution company may lessen this temptation to self-deal, it is not sufficient to prevent it.

Evaluating the vertical market power issue, we conclude that the separation of generation—the competitive function of the commercial electric market—from the other functions of the currently vertically-integrated utility is essential. It is critical to separate the monopoly business from the potentially competitive functions. Beyond creating an ISO with control over the transmission network, the distribution functions of the incumbent utilities should also be separated from their power generation operations.

While divestiture is the cleanest and most effective way to address market power issues, there are other alternatives that may, in the short run, provide some of the benefits of divestiture.

One alternative is to segregate generation as a separate profit center within the corporate structure. Transactions between the generation unit and other affiliates should be limited to those activities for which there are published tariffs or posted rates. Assets and profits of the individual units and their management must be kept completely separate. Another possibility is to require regulatory scrutiny of transactions between utility generation and distribution affiliates.

An additional concern regarding the concentration of market power is that horizontal market power can be exercised by entities that own a significant amount of generating capacity within a specific area. The ability of that generation owner to influence the short-term and long-term energy markets may be significant. We recommend further discussion of these issues.

3. Aggregators/Market Intermediaries

Aggregators/Market Intermediaries ("Aggregators") will act as intermediaries between customers or customer groups and suppliers. Aggregators will acquire generation, transmission and distribution services, or any combination thereof, for customers who elect not to procure these services themselves.

Supply Aggregators, such as power marketers, will take title to power and resell it on the wholesale market. By contrast, load Aggregators will group customers to increase their buying power, maximize their load factors, and otherwise take better advantage of retail competition opportunities. In addition to these market participants, other market players and services may emerge in response to new customer demands.[3]

One form of Aggregator may be a regulated, voluntary energy exchange. If established, the energy exchange, like other market participants, would be separate from the ISO and would engage in short-term purchases and sales of energy. Market participants would not be required to participate in the energy exchange. Since the ISO will operate the transmission network in a non-discriminatory manner, all Aggregators, including the voluntary energy exchange, will be subject to the same physical nomination protocols and will utilize the same communication interfaces with the ISO.

Aggregators will provide or procure: energy and capacity; customer billing and payment collection services; responses to customer requests for service, customer bill inquiries and customer complaints; demand-side management products and services that promote economic efficiency; inspection, new connection and installation services; and other energy services. Prices for these energy services will be determined as competing Aggregators vie for market share and respond to specific customer demand for a range of contract alternatives.

4. Customers

Customers, or end users, consume electricity and electricity services. Their demands will drive investments in, and the service offerings of, the commercial electricity market. Our Blueprint anticipates that all customers will be capable, both individually and as a part of a

[3] For example, an Aggregator could bundle a power sale with metering and associated equipment services.

group, of directly accessing competing suppliers, aggregators, marketers and other service providers. Customers will be connected to the transmission network through LDC distribution facilities. The LDC will have the obligation to connect all customers in its service area and to maintain and operate its distribution system in a manner that allows for open, non-discriminatory access and service.

During some short period of transition to a fully competitive retail market, the LDC is likely to be required to offer a regulated basic service package, or "default" service, for customers who do not yet have alternative supply options in the marketplace or who choose not to exercise those options. We expect that LDCs will be subject to some form of performance-based regulation for their distribution facilities.

B. Functions in a Competitive Electricity Supply Industry

This section outlines the functions performed in a competitive electricity supply industry. Our Blueprint frames this discussion around three elements: day-to-day operations, maintenance, and capital investments.

1. Day-to-Day Operations

In the short-term, market participants will forecast load and generation requirements, procure capacity and energy needed to serve this forecasted load, nominate with the ISO their planned transactions, and commit and dispatch generation units. In addition, market participants will calculate their respective operating reserve requirements, and, if needed, procure these operating reserves from other market participants or the ISO.[4]

Unlike current NEPOOL practices, the ISO will not control or dispatch generation unit commitment, rather market participants will perform both of these functions by informing the ISO of the amount of generation to be delivered to the transmission network through the nomination process. A nomination to the ISO will simply describe points of supply and points of delivery, and the quantity and duration of the transaction. The ISO will then ensure that transmission of these nominated volumes does not result in a failure of system reliability.

If the ISO identifies a potential problem associated with a nominated transaction, its response will vary depending on whether the nominated transaction is firm or non-firm. All firm transactions will be scheduled, even when a potential problem has been identified. In the event of such a problem, the ISO either will curtail non-firm transactions or will use its independently secured capacity contracts to relieve the potential problem based on its economics. When non-firm transactions present potential problems, the ISO will schedule or reject the transaction based on its economic decision as to whether the revenues from the transaction exceed the costs of reconfiguring the transmission schedule to accommodate the potential transaction. In addition, market participants whose non-firm nominations are not scheduled will have the opportunity to purchase firm transmission rights in the secondary market from other market participants, enabling the transaction to proceed.

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[4] Operating reserve requirements will be calculated in accordance with NERC and NPCC guidelines.

In addition to scheduling nominated transactions, the ISO will plan for reliability by ensuring that operating reserve requirements are met by the individual market participants.[5] Historically, operating reserves have been provided by NEPOOL. In our Blueprint, operating reserves will be procured directly by market participants, either through bilateral transactions or from the ISO pursuant to a tariff. Penalties for not supplying sufficient operating reserves will be assessed by the ISO to the responsible market participant.

In addition to ensuring that operating reserve requirements are met, the ISO will interpret operating performance criteria which will continue to be established by NERC and the NPCC. The ISO also will analyze system needs and will forecast and analyze transmission line loadings, capabilities, limits, and losses. This information will enable the ISO to develop transmission capacity information, including determinations of Available Transfer Capacity ("ATC"). Market participants will use the ATC information to determine when and where resources can be procured.

2. Maintenance

In our Blueprint, market participants will individually plan, schedule, and perform maintenance of their generation facilities in response to market conditions signaled in the forward market. This decentralized approach, along with the forward market, encourages flexibility and innovation in maintenance, thereby reducing overall costs. The region's

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[5] Two forms of reserves are necessary to maintain reliability: operating reserves (the total of reserves that can provide energy in ten-minutes and the total of reserves that can provide energy in thirty-minutes) and planning reserves (total installed capacity less peak load). Planning reserves are discussed below in Section II.B.3 Capital Investments

generation capability will be improved under our Blueprint as generation owners recognize the financial impact of poorly organized or unnecessarily lengthy maintenance periods. For example, a generation owner could organize a three-week maintenance project such that the unit could be dispatched at any point during the repairs with a twelve-hour notice. This approach, of course, would not relieve any generator of its regulatory obligations relative to safety or the mitigation of environmental impacts.

In contrast, today, NEPOOL participants centrally schedule generation maintenance under the premise that centrally scheduled maintenance minimizes operating costs. This central control approach to maintenance will, however, prove less effective in the future in harnessing market forces to improve maintenance efficiency and in the minimization of costs.

3. Capital Investments

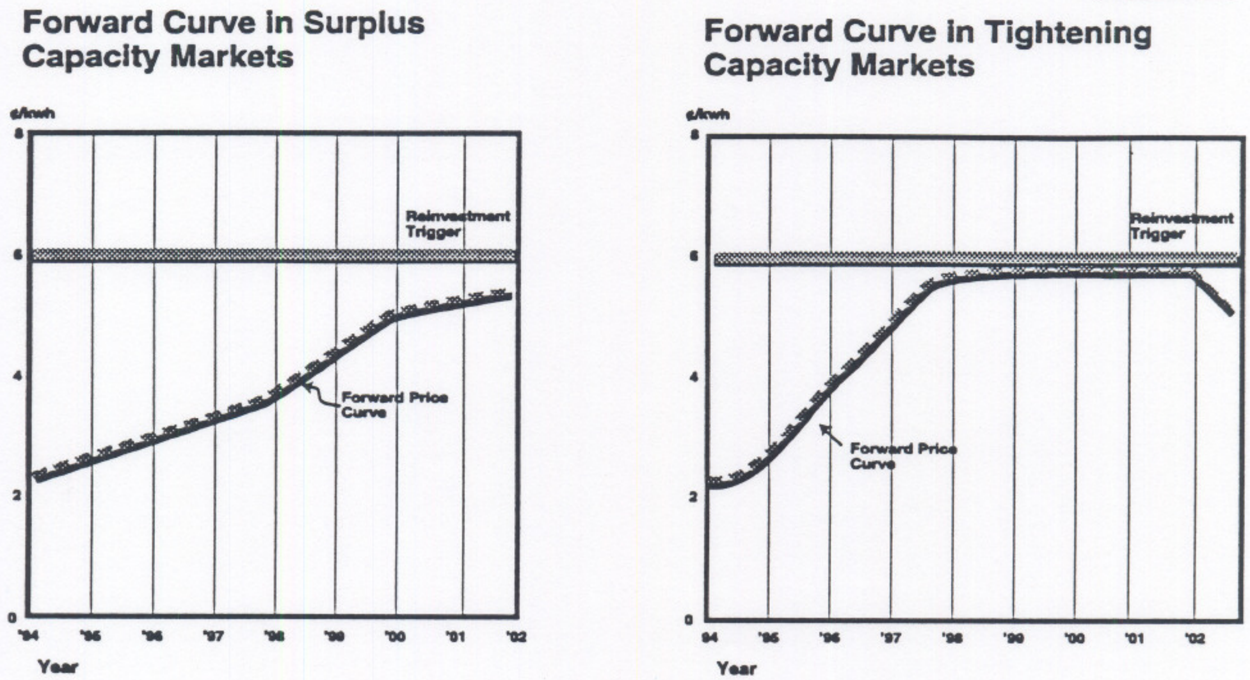
Under our Blueprint, investments in planning reserves will be made by investors in response to two factors. First, when forward market prices increase, investors will see that consumer demand is calling for additional capacity, evidenced by a willingness to pay a premium for longer-term contracts -- *i.e,* more reliable supplies. As these forward prices increase, investors will enter the market to supply that additional capacity. Second, the ISO will procure resources necessary for supplying operating reserves. As the prices for operating reserves increase, this market also will show an increase in prices. Again, these price increases will induce investors to invest in capacity additions.

As the volume of activity increases, these markets become more transparent (visible to all market participants) and liquid, and, correspondingly, investment decisions become more informed and better disciplined, allowing market rationale to replace regulatory oversight. Simply put, when the forward price equals or exceeds the cost of production from an incremental plant, the plant will be constructed. Conversely, if the projected cost of an incremental plant is higher than the forward price, new capacity will not be built.

The functioning of a forward market and its ability to discipline investment decisions is demonstrated in **Figure 2**, which illustrates the relationship between the forward price curve and the reinvestment "trigger" for building new capacity. The forward price curve is simply a graphical representation of the prices that people are willing to pay today for electricity to be bought or sold at various dates in the future. As long as the forward price curve remains below the cost of production from a new facility, no additional capacity will be built because customers needing power will be able to obtain commitments for it at a lower price in the forward market. This situation is depicted in the left-hand panel of **Figure 2**. As can be seen in the right-hand panel of **Figure 2**, the cost of production from a new facility acts as the ceiling on the forward price curve. This is because no user will commit to buy power with an effective price of more than what power from a new plant would cost. This interrelationship between forward prices and production costs is the mechanism that prevents uneconomic investment in new generation facilities while ensuring that new facilities will be built only when they are economically justified. Further, as technological developments continue to decrease the incremental cost of new generation, the trigger price will be lowered.

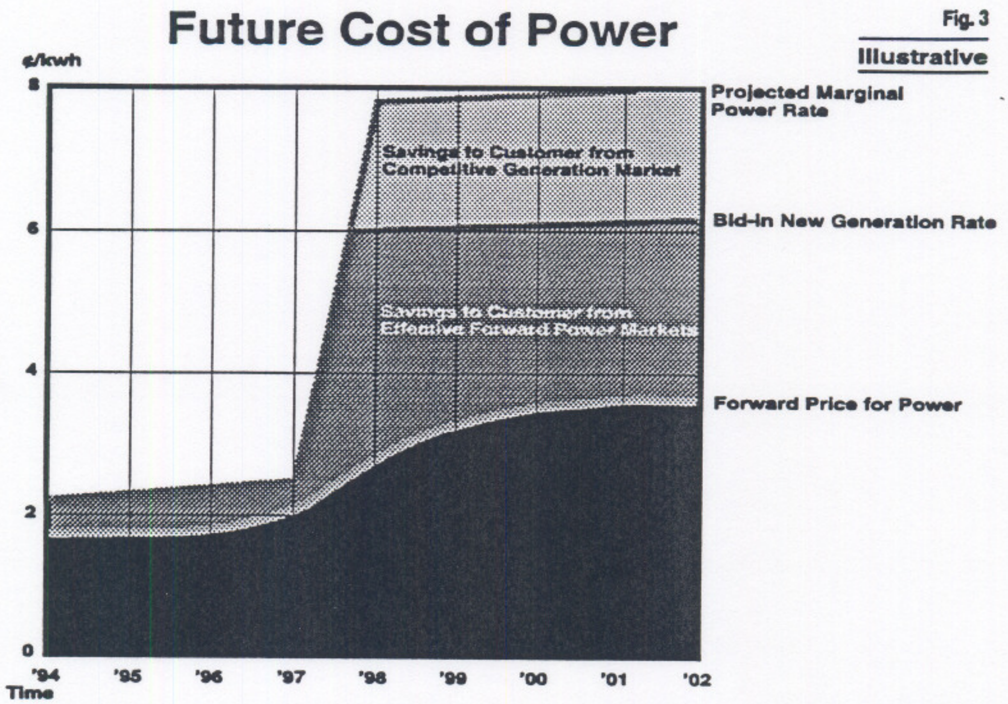
Fig. 2

Illustrative



The forward price/production cost relationship provides market "discipline," which today can only be provided by regulatory oversight of the capacity expansion process. It is exactly this sort of market discipline which ensures that adequate supplies of commodity products are made available to meet demand in many industries, including petroleum, agriculture, and precious metals.

Figure 3 provides additional perspective. This graph shows the potential benefits of allowing actual market decisions, rather than planning based on economic and engineering projections, to drive electricity prices. In the past, if new capacity was needed, it would be constructed by the utility and the marginal cost of power would equal the cost of production from the utilities' new generation plant. Competitive bidding has allowed non-utility suppliers to undercut the expected cost of new utility generation through innovation and a willingness to accept risk previously borne by the ratepayer.



The development of properly functioning forward markets has the ability to ensure a revenue stream sufficient to recover costs in a manner that will minimize the risk of building new capacity with the potential of lowering the industry's cost of capital. This is because the cost of capital for building new production facilities in any industry is largely a function of the risk of recovering the capital investment. Today, electric utilities raise capital to construct new plants largely on the strength of their retail franchise and the regulatory compact between utilities and state governments that assures the utility an opportunity to earn a reasonable return on its investments. In a restructured market, where market participants compete to sell kilowatt hours, investment in new capacity will no longer be supported by franchises or regulatory compacts. Rather, the method of raising capital for new generation investment will become a direct function of the market risk—a change that financial markets have readily made in other deregulated industries, such as transportation, telecommunications and natural gas.

Not only will the development of a forward market assist generators in mitigating their business risk, but a forward market also allows customers to obtain price certainty. One benefit of price certainty for industrial customers will be the ability to ensure that investments in production and new conservation technology are cost effective relative to future electricity prices. A forward market further allows customers to mitigate price risk by allowing them to "lock in" a power price and avoid the hardship of fluctuating prices. Residential customers can avoid price volatility through tools available in the forward market, such as options and futures contracts.[6]

A forward market—and with it, risk management products—will be available only if a robust spot market with numerous buyers and sellers develops. For the efficient functioning of a competitive generation market and the development of viable forward markets and risk management products, the spot market price should be determined solely by market forces. It is

[6] An option allows the contract parties to buy a commodity in the future at an agreed upon price (call option) or the option to sell a commodity in the future at an agreed upon price (put option). A futures contract is a standardized contract bought and sold on an exchange with the terms and conditions approved by the Commodity Futures Trading Commission ("CFTC").

important that the structure of the new market provide assurance to investors that the market price will not be subject to intervention by political or regulatory forces.

C. Reliability in a Competitive Market

1. Competition Will Not Reduce Reliability

Our Blueprint is designed to maintain the reliability of the New England transmission network. The requirement that the transmission network be operated within its design limitations and consistent with appropriate engineering protocols is no less imperative in a competitive market than under the current industry structure. In a competitive world, consumers are entitled to receive the commodity and service for which they have paid. More importantly, the public interest requires as a matter of fundamental principle that "the lights stay on". We fully support this principle.

Under our Blueprint, the most important responsibility of the ISO is to maintain system reliability. Engineering criteria and operational protocols designed to achieve reliability currently are developed for NEPOOL by organizations such as NERC and NPCC and by good utility practice. The ISO similarly will operate within the guidelines of these organizations and practices.

Reliability in a competitive market will be maintained (much as it is today) through a set of individual entities purchasing or providing resources to the system. As discussed above, operating reserves will be provided by market participants under the supervision of the ISO;

planning reserves will be provided by investors in response to market signals. The reliability that is enjoyed today by customers in New England shall continue unabated.

Reliability should not be confused with an individual customer's desire to pay less per kilowatt when the customer chooses to interrupt its load at times of high prices. Giving customers a choice of service quality will not compromise overall system reliability. In fact, the debate between customer choice and reliability is based on the false premise that customer choice offers customers differing levels of reliability. Rather, customer choice allows for differing levels of service in terms of quality and curtailability. Our Blueprint assumes that customers are capable of discerning the option that best meets their needs from among a range of services and corresponding prices.

Under true emergency conditions, the ISO must be able to lessen load. As is done today by NEPOOL under current operating procedures ("OP 4" and "OP 7"), the ISO will (1) use interruptible contracts and voltage reduction, and (2), on rare occasions, shed load on an equitable basis for all transactions in the region. Because the objective of the Blueprint is to maintain overall transmission network reliability, the ISO will have the ability to interrupt transactions when and where needed with the knowledge that the reasons for the interruption and any financial settlement will follow as an after-the-fact bookkeeping activity.

2. Ancillary Services

Within NEPOOL today, member utilities trade ancillary services consistent with each member's agreed to responsibilities, with NEPOOL as the provider of last resort. Each member utility is responsible for its share of ancillary services, such as operating reserves and Voltage-Ampere Reactive ("VAR") support. Some ancillary services, such as Automatic Generation Control ("AGC"), are not traded, but are rather provided to all member utilities by NEPOOL.

Our Blueprint largely retains the relationships currently in effect within NEPOOL; however, under our Blueprint far more market participants will be admitted as both buyers and sellers of ancillary services, expanding the products and services offered.[7] While some ancillary services must be provided centrally by the ISO, our Blueprint envisions a day in the future when market participants can transact for all, or almost all, ancillary services.[8]

Our Blueprint recognizes that, given the limitations of today's technology, some ancillary services are "common goods", in that once they are supplied to the transmission network they cannot be denied to anyone using the transmission network. For common good ancillary services, such as frequency control, compensation to the providers becomes problematic. Under our Blueprint, the ISO will provide common good ancillary services, which will be sold to all transmission users pursuant to FERC-approved tariffs. When market participants determine that these ancillary services are no longer common goods, they will be sold in the market, where their price will be capped by the cost-based charge of the ISO.

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7 Many of these services can be provided by generators, demand-side management tools and capital investment.

8 For example, transmission losses and operating reserves can be provided as efficiently by the bilateral market as they can be provided by the ISO.

D. Transmission Pricing and System Constraints in a Competitive Market

Under our Blueprint, the ISO will be responsible for providing unbundled transmission services to all eligible users of the transmission network on a non-discriminatory basis. Contracts to supply these services can vary in term, from hours to days or weeks or for a period of years. The ISO will establish FERC-approved tariffs that set forth the terms, conditions and rates for transmission services. The ISO will be required to supply transmission services at the agreed upon prices even if the cost of providing those services exceeds the FERC-approved tariff.

The FERC will determine a maximum price or price cap for the ISO's transmission services to be calculated in advance for a fixed period in the future.[9] Under our Blueprint, because the ISO has no investment in capital assets there will be no return on investment, *per se*, but rather only an ability to operate the system efficiently and thereby earn profits from reduced operating costs or increased usage of the system beyond a baseline projection.

We believe transmission constraint conditions are relatively easy to forecast within the New England region. It is our understanding that the New England electricity system consists of

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[9] In the simplest structure, the price cap can be set equal to the expected lease cost plus operating expenses divided by the amount of energy expected to be transferred on the network. This equation becomes more complex when ancillary services are provided on an unbundled basis. It will then be necessary to separate out those services supplied by the ISO from those to be supplied by transmission customers or third party suppliers. We expect these and related ancillary services issues to be addressed in the context of the FERC mega-NOPR and related proceedings.

only one operating cost zone more than 95% of the time.[10] It is our further understanding that during the remaining 5% of the time, when network constraints develop, the New England electricity system divides into only two operating cost zones. Under current operating conditions, these constraints show only a small, though important, difference in costs. For these reasons, our Blueprint charges the ISO with establishing transmission service zones for which simple, predictable prices can be quoted and which can form the basis for ISO contracts that can be readily traded in the secondary market. Postage-stamp pricing coupled with the development of an active secondary market in transmission services will create locational price signals wherever and whenever constraints develop.

The cost effects of transmission constraints are important, but will *not* be reflected in the embedded-cost postage-stamp rates that the FERC will prescribe for the ISO's rate schedules. In its role as a transmission monopolist, the ISO should not be put in a position of exacting scarcity rents for use of transmission bottlenecks. Under our Blueprint, it is in the secondary or resale market for transmission that constraint costs will be reflected. Buyers and sellers of transmission rights in this unregulated, secondary market (just as buyers and sellers in the unregulated market for electricity) will negotiate price terms and conditions reflective of prevailing market conditions at the time and place of the transaction. In so doing, they will ration scarce resources (*i.e.*, by bidding up the rights to move power at constrained times and places) and maximize the

[10] A detailed analysis of constraints on the New England transmission network requires review of voluminous empirical data. We support such an analysis by an independent entity that is not a stakeholder in this discussion. Until such an analysis is complete, the simplified pricing structure proposed in our Blueprint provides a sound framework for developing a competitive wholesale market.

use of abundant resources (*i.e.*, by pricing rights to move power at unconstrained locations or times at or near marginal cost).

Market participants will price both transmission rights and energy to reflect different values at different locations separated by transmission constraints. These secondary-market prices will appropriately value constraints even if the starting point is the embedded-cost postage-stamp rate charged by the ISO. This has been the experience of the natural gas pipeline industry, which has seen location-based spot prices emerge, with a secondary market helping to establish those locational values. The process that led to development of location-based pricing in the natural gas industry can be summarized as follows.

1. Allocation of Firm Capacity Rights. Customers of interstate natural gas pipelines participated in an iterative process to claim rights to the transmission system.[11]

    - Capacity entitlements were based on customers' peak loads.
    - Customers selected receipt points to the full extent of their transmission entitlement.
    - Conflicting requests were resolved, typically by pro rata allocation, and new nominations were made to select receipt points to replace earlier, unsatisfied selections.
    - With each round, the conflicts were fewer until a workable allocation of receipt and delivery point rights was obtained.

2. Additional available firm capacity was sold on a first-come first-served basis to producers and marketers, and pipelines were free to sell, on an interruptible basis, capacity not being used by the firm customer (*e.g.*, in an off-peak period for that customer).

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[11] In this proposal, the CPC does not recommend a specific methodology for allocation of transmission rights that would be coincident with the creation of an ISO. Any such allocation, however, must be made on a non-discriminatory basis. We believe, given the multitude of proposals that have been presented on this issue, that further dialogue is necessary to determine the most equitable allocation method.

3. Most importantly for the development of location-based spot prices, firm customers were given the right in FERC's Order No. 636 to resell their firm rights on a full-or-partial, temporary-or-permanent basis, in the so called "secondary" market for transmission.

4. Transmission rights are transferred in the primary and secondary markets, ranging from one day ahead of real time (the natural gas pipeline equivalent of hour-ahead transactions in the electric power industry) to years in advance. These transactions define a spot and forward market in transmission rights, provide price transparency, and establish price relationships between locations.

In this open-access environment, the secondary market for pipeline capacity produces locational pricing and pricing relationships (both spot and forward), without the active involvement of the regulated pipeline or the regulators.

A similar result can be obtained in the commercial electric market. Like gas pipelines, electric power systems are integrated networks, not susceptible to articulation in terms of contract paths. Further, power systems, like gas pipeline systems, depend on a system operator to ensure reliability in the delivery mechanism and to make real-time adjustments to changes in supply and demand. Transmission rights in either market can be defined and allocated with sufficient specificity to be bought and sold,[12] and participants in the marketplace can make arrangements for every aspect of supply and demand *except* adjustments within the hour which must be made in real time by the system operator.

To conclude, we must not let the tail wag the dog on this issue. It is less important to devise the perfect algorithm for pricing transmission that the ISO sells than it is to develop transmission rights that have resale capability, which, in turn, can establish prices for

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[12] The *pro forma* tariffs associated with the FERC's mega-NOPR provide for the right to resell transmission rights, thus laying the essential groundwork for the operation of a secondary transmission rights market.

transmission rights and energy that will move to consumers during any day. The market as an institution is better suited to solving the problem of accurate transmission pricing and efficient locational pricing. The market will ensure a dynamic, ongoing solution, which static regulatory processes cannot replicate.

III. CONCLUSION

The CPC hopes that the New England electric community receives this Blueprint in the spirit it is offered. Our hope is to re-energize and help expedite the debate in order to ensure that the restructuring of the New England electricity industry, and NEPOOL's role in that future industry, are compatible with the competitive principles espoused by consumers and by regional and federal regulators.