GOVERNANCE OF THE NEW ENGLAND WHOLESALE ELECTRICITY MARKET

presented at

HARVARD ELECTRICITY POLICY GROUP SPECIAL SEMINAR

The ISO Governance, Scope and Rules

James H. Caldwell Jr.
P.O. Box 26
Tracys Landing, MD 20779

March 21, 1996

General Considerations

In broad strokes, it is assumed that the "restructured" New England wholesale electricity market will be organized at the same scale as the current NEPOOL control area with grid operations run by an Independent System Operator ("ISO") using roughly the same facilities as the current NEPEX operations centers. The ISO will operate under FERC approved network transmission tariffs and a set of operating protocols agreed to by the market participants. This discussion is concerned with the structure and governance of the ISO, but will not cover the tariffs and protocols used by the ISO. Important issues like transmission pricing are not discussed. It does assume a "minimalist" model of the ISO that calls for strict separation between the ISO and any market making commercial function. As a result, the ISO is a necessary piece but clearly not the only wholesale market institution. It is proper to think of the issue as governance of a regional wholesale market rather than simply oversight of the ISO itself.

Governance of the ISO requires a delicate balance. Tight governance by a select group of market participants for their own interest is NEPEX today. No fiddling with voting formulas or NEPOOL membership rules like "reforms" currently being contemplated by NEPOOL itself, will correct this fundamental problem. By the same token, sole reliance on FERC enforcement proceedings or contract driven lawsuits to resolve disputes among market participants or between market participants and the ISO is equally flawed governance. The high proportion of common goods associated with transmission of electricity means that parties can be affected by the operation of contracts, whether bilateral or contracts for differences in a pool, whose terms or even whose very existence is unknown. The threshold of "abuse" necessary to justify costly and lengthy proceedings in court or at the FERC is simply too high. High transaction costs required to police contract performance and deal with externalities will make for a less efficient market.

Whether the ISO is a for profit corporation under incentive regulation or a publicly owned agency or a non-profit special purpose corporation, some process must monitor the ISO's conduct. The ISO cannot operate like Zeus from his perch on Mt Olympus dispatching thunderbolts into the mass of humanity struggling on the competitive plains below. By definition, the ISO is a pure franchise monopoly within its control area. By definition, any "market forces" guiding the ISO's conduct will be artificially created by some quasi-regulatory process and must be monitored on an on-going basis for unintended consequences. This is true regardless of the form of ownership of the ISO or whether it possesses a profit motive—both of which we consider to be secondary issues. We also believe the relevant geographic scope of oversight is neither state nor federal. With limited exceptions, Alaska, Hawaii, and Texas being the obvious ones, state boundaries are not logical choices for oversight of transmission operations and investments. At best, federal oversight constitutes some least common denominator that is not likely to accommodate significant regional differences and preferences. The FERC has limited legal authority and no desire to affirmatively police an agreement which does not directly pertain to comparable transmission access.

Like it or not, the electric power industry is "affected with the public interest." To believe that issues like significant increases in imports from New York or Quebec or disposition of aging, brittle nuclear power plants—all of which involve regional transmission grid planning and operation—will be settled without significant political input is naive at best. The vacuum between state regulation of the local distribution function and FERC oversight of wholesale transmission tariffs will be filled somehow. Long experience shows that lack of early political input results in gridlock at the new facility siting stage which remains a state function. No one benefits in this situation. The challenge is to design a governance system that lubricates day to day operation, facilitates constructive capital investment, and channels the political energy in a constructive way.

Electricity is not a "special commodity"—there is no such animal. However, there are three reasons why specific care in market governance is required as compared to other commodities. First, electricity cannot be inventoried (more properly it is very expensive to store electricity except in specific cases.) Second, options for transportation of electricity and mechanisms to regulate electricity flow consistent with acceptable product quality are very limited. The analogues of "line pack" in gas transportation—voltage and/or frequency variation, are out of the question. In combination, these physical facts mean that monopoly functions which, by definition, must be tightly regulated must smoothly and efficiently overlap with what we would like to make competitive functions regulated only by the marketplace and anti-trust considerations. This overlap resists precise definition and the drawing of "bright lines" that define regulatory interfaces consistent with physical interfaces.

The third reason for special care is that there are significant externalities associated with both the generation and the use of electricity. On the supply side, electricity generation accounts for a disproportionate share of stationary source air pollution. Electricity production causes one third to two thirds of industrial emissions of criteria pollutants that are transported across political and regulatory boundaries. Traditional regulation of the individual facility potential to emit by either federal or state air quality agencies is ineffective and expensive compared to mechanisms that internalize pollution costs into the production function at the same scale as the transmission grid. On the demand side, the role of electricity in facilitating commerce and participation in modern life is so pervasive that the price and terms of access or denial will always be intensely political. There is no place in the world where and almost no time in history when a "free market" in electricity exists or has existed.

Definition of the "ISO"

Central to the concept of effective functional disaggregation which is at the heart of most restructuring models is the existence of the ISO to operate the transmission grid. There is growing acceptance of the proposition that, due to the jurisdictional and physical ambiguities mentioned above, simple functional unbundling is

insufficient to prevent cross subsidization without draconian regulatory oversight. The ISO is touted as the solution to this problem—even if it is only to curb a perception of bias that chills the market and dampens the Keynesian "animal spirits" guiding long term investment. Each word in the phrase "Independent System Operator" is important.

We believe the word "independent" means:

> The system operator and its key employees must not have any financial interest in the generation or distribution of electric service or equipment used to provide those services or other related energy services. It must not have any interest in companies that consume a substantial amount of electricity in the region or have a pecuniary interest in the electricity market.

Note that this definition does not preclude ownership of transmission assets by the ISO. Transmission assets owned and operated in a regulated "common carrier" mode is perhaps the ideal model. In fact, separation of ownership from operating control presents thorny governance issues to keep short term operations and long term investment incentives properly balanced. However, existing variegated ownership patterns and contractual relationships, and vaguely defined "transmission rights" held by non-owners mitigate against expecting a "Big Bang" sale of all transmission assets at first market formation. Governance must be designed to accommodate this existing situation or no progress will be made in a reasonable amount of time.

We believe that the word "system" means essentially those assets currently owned and controlled by NEPEX and necessary for operation of the common network. The proposed functional definition of "transmission" in the FERC NOPR is simply too expansive and invites continued messy federal/state jurisdictional battles and venue shopping by disgruntled market participants. As technology expands the use of dispersed, distributed generation; and retail reforms allow self-wheeling, customer choice of alternate suppliers and voluntary customer aggregation this issue will simply get worse, especially where the distribution function carries with it a residual obligation to serve select customers in a defined territory. Assets should not be under the purview of the ISO simply because they may possibly be involved in some wholesale or retail cum wholesale transaction. The only valid reason for ISO monopoly control is that the assets are used for "network" operations, expensive to duplicate, and "comparable" access and terms of use are an issue.

In particular, it is critical that generation assets "in support of transmission" not be part of or affiliated with the transmission monopoly "system." A vigorous arms length market in "ancillary services" is absolutely critical to any functionally disaggregated model. The quantity, quality, and location of generation assets used in grid operations must be seen by the ISO as a cost to be minimized consistent with reliability. The ISO must be free to contract for these assets whether from generation capacity or interruptible demand. Lack of an ownership interest in these generation

assets by the ISO is not sufficient. Operator convenience, tradition, and lack of initiative in the absence of incentives for efficient supply could prove to be a more difficult barrier to a market than self dealing for financial gain. Nevertheless, policing of market power by generators in the supply of ancillary services will be one of the principal on-going regulatory issues.

We believe the word "operator" is restricted to short term grid operations exclusively. The ISO cannot be a "market maker." The ISO cannot be allowed to take title to any quantity of electricity for resale. The ISO physically balances the system in real time but does not provide after the fact financial balancing services for individual transactions in a spot market. The theoretical justification for combining the duties of the ISO with the operation of a spot market that performs the financial clearing mechanism is, (1) the increase in transaction costs associated with separation of these functions, and (2) fear of differences between ex-ante estimates and ex-post real time marginal costs. Without joining the grand debate as to whether efficient markets must be designed or believing they will arise naturally that has populated the literature, there is no empirical evidence to support either proposition that suggests the desirability of a merchant function for the ISO. What data do exist indicate that the bulk of potential savings from a more efficient wholesale market will come from lower operating reserve margins and, in general, lower "fixed" cash costs from proper valuation of short term capacity rather than reduction in variable costs from reducing out of merit order dispatch in a commodity energy market. That is, the real question is how the decision is made as to which units are available to be dispatched rather than which of those units are actually operated at what level. A series of studies done by and for the FERC in 1981 showed that central dispatch generally achieved savings of less than 2% except in cases where pooling was accompanied by transmission reinforcements not associated with pooling per se. This same level of improvement has been shown to occur in, for example, the Western Systems Power Pool through operation of an electronic bulletin board for short term economy energy trades without any central dispatch. The cost-benefit analysis in the Draft Environmental Impact Statement for the FERC "MegaNOPR" open access rule shows that redispatch of power plants when transmission usage charges are driven towards zero gives only minor savings compared to an assumed improvement in operation at a lower target reserve margin.

The governance consequences of combining the ISO and the spot market are large. The "market" loves competition but hates competitors. Collusion of the market to exclude or disadvantage some unfavored competitors, especially new entrants who might not speak the same language or have the same priorities is inevitable. The most effective governance is to allow disgruntled buyers and sellers to vote with their feet and bypass the "pool." It is true that one way to eliminate transaction costs is to eliminate all transactions. However, the very divisions that create potential transaction costs require underlying transactions through openly bid contracts that are transparent and can be easily monitored. The ISO, by definition, is a monopolist—it will be impossible to prevent it from seeking monopoly rents. Minimum governance costs do not mean zero transaction costs and definitely will not occur by mixing monopoly and market functions.

Governance Functions

These a priori statements of general principals need to be interpreted on an on-going basis. The market will quickly "learn" what works and what does not. This learning must be efficiently transferred into changes in tariffs and operating procedures or little gain will be realized. It is doubtful that learning will be a consensus process—one person's monopoly rents is another person's savings from competition. Some pro-active governance is required.

It is doubtful the FERC will issue strict, comprehensive, and prescriptive guidelines on the meaning of "Independent," " System," and "Operator" in the near future. The chances are that only the individual jurisdictional entity pro-forma tariffs will be prescribed in the "final" ruling on the MegaNOPR. The FERC seems to be of a mind to receive "Phase II" filings from whatever RTGs and/or pools emerge on a regional basis to co-ordinate operations between and among transmission owners and to allow significant variations in operating structures as long as the "comparability" standard (whatever that means) is met. In addition, all indications are that the Federal legislative underpinnings of electric utility regulation will be revisited in the next session of Congress. Results of this exercise are anyone's guess but probably involve a multi-year debate. All of this suggests that it will be a long drawn out process before anything other than a Section 211 complaint alleging discrimination in transmission access will be available to an aggrieved party from the FERC. We need to do better.

Thus, the principal wholesale market governance issues are the following:

- Alternative dispute resolution procedures and market feedback mechanisms to speed decisions, lower threshold complaint costs, and streamline updates to ISO tariffs and operating procedures.
- ISO incentive regulation oversight.
- Long term planning and early political consensus on regional policy issues.

Presented below is one proposed solution that builds on a New England context of multi-state cooperative regional oversight. Clearly, there are other governance models available to address these concerns that may be more appropriate in other regions. The collective groans about another layer of government and another political body are duly noted. However, the issues being discussed require as much political science as economics and physics. In this era of devolution of political power to the states, the importance of regional governance of regional issues will only increase. As state PUCs become just another party to their own restructuring proceedings and the real action shifts to legislatures and Congress, this will become more obvious as time goes on.

Governing Board

Form through interstate compact a new regional body (consider federal legislation ala the Northwest Power Planning Act if federal deregulation legislation is taken up.) This body, tentatively called the New England Power Planning Council is to

have a Board of Governors consisting of one appointee by the governor of each state in the compact. The position of Chair rotates among the states and is the only full time appointment, the others are part time appointments. The full time staff of the NEPPC would be limited to about 12 people in addition to the Chair, and the operating budget would be limited to about $2.5M/yr including intervenor funding for participation by non-profit groups. The NEPPC would have four standing committees: a Market Operations Committee, a Dispute Resolution Committee, a Planning Committee, and a Compensation Committee. The structure and duties of each Committee are as follows.

Market Operations Committee
This committee would consist of representatives of market participants including transmission owners, distribution and customer aggregation entities, generators, power marketers, brokers. It would have two or three full time staff members specializing in anti-trust issues and responsible for at least rudimentary self-regulation in this area. The other functions of the committee are to appoint a representative to the Compensation Committee, facilitate open communications among market participants, and recommend changes in ISO operating procedures and FERC filed tariffs. This role is advisory with the only enforcement mechanism being through consensus, dispute resolution or, ultimately, appeal to FERC.

Dispute Resolution Committee
This Committee would have one full time staff member to serve as logistics co-ordinator and obundsman for dispute resolution. It is anticipated that the dispute resolution process itself would be contracted out and conducted under the rules of an established organization like the American Arbitration Association with costs of individual actions borne by the parties to the dispute under the American system (each party bears his own costs unless punitive damages are granted.) One of the issues in any dispute would be for the arbitrator(s) to recommend changes in ISO operating procedures and/or FERC tariffs to avoid or mitigate the problem. These recommendations would trigger a duty to study the issue in the Market Operations Committee. Arbitration between parties that did not involve changes to operating procedures of the ISO or changes in tariffs would be binding.

Planning Committee
This Committee would be staffed with less than half a dozen professionals charged with responsibility for developing and maintaining a regional plan both for transmission and anticipated generation retirements and additions. The plan and associated analytical studies would be used as a guidance document in siting decisions and an impartial reference and research arm for the Market Operations and Compensation Committees. Reports and deliberations would be public, and mechanisms to secure public input including intervenor funding would be included in this Committee's operating procedures.

Compensation Committee
This Committee would be chaired by the Council Chair with a small dedicated staff, and include the Board of Governors and a representative of the Market Operations

Committee. Assuming the probable case that the ISO is a private corporation, this Committee would set terms for hiring and firing the ISO and design incentive mechanisms for compensation of the ISO subject to FERC approval of tariffed rates. In the unlikely event that the ISO is a government agency, the need for at least indirect political oversight is obvious. Only the President could fire the air traffic controllers. Key to this process is an operational definition of "reliability" and a determination of whether the ISO is efficiently discharging this principal duty.

Discussion

Appropriate governance of the ISO cannot be divorced from the question of who the ISO is and what it does. The model presented here tries to give the ISO the absolute minimum functions required for the efficient delivery of electricity over a reliable transmission network. It recognizes the unique physical characteristics of electricity as compared to most other commodities which can be inventoried and transported for a fraction of their value by multiple willing buyers and sellers generally without crowding out other potential buyers and sellers. It also recognizes the unique place central provision of electricity holds in modern life.

The New England region with several small states included within the logical geographic reach of one ISO and a history of common regional action represents an extra layer of political complexity, but the issues are common to a one state ISO/wholesale market. Each ISO/market area will also have a "foreign policy" governed by contract or compact with neighboring electrically connected regions. This necessity and the demands of the Commerce Clause (and even NAFTA) will force homogenization where appropriate and confine the powers of the Board of Governors to legitimate regional concerns. Politics is the art of the possible. It must be accomodated in utility restructuring and the creation of an efficient wholesale market, or the solution will be at least as unstable and potentially even less efficient than the hated present.