SPIEGEL & MCDIARMID
1333 NEW HAMPSHIRE AVENUE, NW
WASHINGTON, DC 20036
TELEPHONE 202.879.4000
FACSIMILE 202.393.2866
DIRECT DIAL 202.879.4040
EMAIL ROBERT.MCDIARMID@SPIEGELMCD.COM

A work in progress inspired by preparation for the American Antitrust Institute 5th Annual Energy Roundtable Workshop: Taking Stock: The Successes and Limitations of Open Access

As of Tuesday, January 11, 2005
National Rural Electric Cooperative Association

Robert C. McDiarmid [1]

INTRODUCTION

AAI has asked several of the speakers today to examine the FERC activities involving restructuring on a retrospective basis. As usual, AAI has chosen the right topic at the right time. This paper attempts to approach the problem both from the legal and economic viewpoints. I suggest that we need to look more closely at what elements of FERC restructuring are working and which are not. "Open access," for example, is sometimes used as shorthand for the entire restructuring effort, but open access itself seems to me to be working more or less as anticipated (but with some severe issues associated with inadequate transmission construction, dealt with below) while several other aspects of restructuring have (with apologies to the ghost of Robert Burns) "gang aft a-gley."[2] I attempt here to deal with the questions posed as applicable to the entire restructuring effort.

We ought not, of course, restrict our larger view of these matters to the United States (or the US North of the (ERCOT) border). The electric industry is going through the throes of restructuring in United Kingdom, Australia, New Zealand, several provinces

[1] As usual, the author greatly appreciates all suggestions received, but takes full responsibility for his views, which do not necessarily represent those of any of his partners, clients or colleagues, or of any other living person. The author, again as usual, reserves full rights to be persuaded of the errors of his thinking at some later date.

[2] To a Mouse (1785), Robert Burns.

in Canada, the European Union, and in a number of other states. Perhaps because of the more chaotic nature of the United States policies and people, but more probably because of the fact that we are starting from a point of at least local monopoly with the monopolists having great political power, the problems here appear to have been more extreme than problems elsewhere. Recent publication of papers addressing the issue of FERC's success or failure on this point from several very different points of view only emphasize the importance of the issue. There have, of course, been a plethora of papers arguing that FERC (and/or Congress, or the Administration, or California) have chosen a model of deregulation that will not and cannot work, either because it permits monopolists too much freedom [3] or not enough.[4] However, when those as diverse as the Cato Institute [5] American Public Power Association [6] and other astute observers of the industry [7] agree that something is going very wrong, and even agree as to much of the cause of the problem and the things that are needed to fix the problem, we may be able to agree on a solution. To steal a line from Bill Hogan, one of the other members of this panel, "in the case of electricity, the market cannot solve the problem of market design."[8] And if we have the market design wrong, it is very likely that we will bear the consequences.

This presentation is designed, as requested, to focus on a retrospective view, and others will focus on the potential for solutions.[9] Unless we understand what has gone wrong, however, the odds of getting the solutions right are very small. One should not blink the fact that restructuring, after what appeared to be a brave beginning, has largely ground to a halt. Not only have the ideas behind restructuring lost the intellectual high ground, but the whole experiment may well have failed to produce the savings to consumers on which the experiment was premised. We need, therefore, to focus on

---

[3] Mark N. Cooper , *Reconsidering Electricity Restructuring: Do Market Problems Indicate A Short Circuit Or A Total Blackout?*, Consumer Federation of America (November 30, 2000). http://www.consumersunion.org/telecom/deregdc1100.htm.

[4] *Throwing the Baby Out With the Bathwater*, Center for the Advancement of Energy Markets (December 16, 2004). At http://www.caem.org/.

[5] Policy Analysis 530. Rethinking Electricity Restructuring, by Peter Van Doren and Jerry Taylor, (November 30, 2004). http://www.cato.org/pub_display.php?pub_id=2609.

[6] Restructuring at the Crossroads, FERC Electric Policy Reconsidered, APPA, December 2004). http://www.appanet.org/files/PDFs/APPAWhitePaperRestructuringatCrossroads1204.pdf.

[7] See *e.g.*, Paul L. Joskow, Statement of Professor Paul L. Joskow Before the Committee on Governmental Affairs United States Senate (January 12, 2002), http://econ-www.mit.edu/faculty/download_pdf.php?id=542; Lester B. Lave, Jay Apt and Seth Blumsack, *Rethinking Electricity Deregulation*, 17 Electricity Journal 8 (October 2004).

[8] William W. Hogan, *Electricity Restructuring: Standard Market Design and Beyond* (June 3, 2003), a presentation at the Tenth Annual Spring Energy Conference of the Connecticut Power and Energy Society. I no longer find this presentation on Dr. Hogan's website. Of course, we may not agree on the correct design.

[9] But see the potential confluence of thinking in the material in footnotes 5, 6 and 7, *supra* I commend these analyses to those charged with finding solutions.

things that have clearly gone wrong, and to attempt to isolate the errors involved. Examination of the entrails of sacrificed animals or the pattern of cracking on ox bones thrown into the fire is not likely to be effective in analysis. My observations in this paper are my own, although I do find that there is at least some academic and experiential published support from others, and cite some of those sources.

I suggest that the failures of the restructuring experiment are in substantial part a result of a form of cognitive dissonance, in which those of varying disciplines involved in the experiment have chosen to interpret words in their own way, without ever reaching real agreement with other disciplines about what was meant and the likely consequences. Electricity has historically been regulated as a public good and public necessity. Thus regulation is utilized as a device to assure that electricity is available to all at a reasonable price. The historical antecedents in the English speaking world for this form of regulation extend back to the period where courts imposed just and reasonable rates on wharfingers, ferries, and places of public accommodation along the roads of medieval England. But when economists at FERC argue that there are more "efficient" means of regulation, the concept of a public duty to assure provision of services takes a different meaning than when the concept of duty is used by lawyers. As a practical matter, economists at FERC interpret words and ideas differently than the engineers, lawyers and regulators with whom they deal, and *vice versa*. Indeed, it is not clear that any one profession understands entirely the meaning and implications of concepts proposed by another. This "Tower of Babel" effect in turn means that the policy pronouncements have a tendency toward the "half baked," so that the real effects and likely consequences are neither fully understood nor foreseen by those who in theory are making the policy determinations for which they are charged by Congress.

The consequences of FERC actions to date in these areas are both good and ill, and it would be unfair to focus only on the ill effects without at least acknowledging the good. While this paper focuses on the problems, which I think overshadow much of the good effects, I try at least first to outline some of the positive effects that do not otherwise appear in the remainder of the paper.

I suggest that there are several very basic problem areas with what FERC has done, which have had and will have a cumulative effect. These areas are:

- Legal: Changing the form of regulation required without legislative change in the organic statute requires either a suspension of disbelief or an assumption that courts will not interfere with a result determined to be "good."

- Economic: Trying to force an economic model never shown to work beyond a fairly simple set of assumptions into an arena where the basic structure almost certainly makes it unstable if not unworkable without major industry changes which are neither explicitly recognized nor imposed, and

- Policy: Trying to solve all the problems of the industry with one very complicated approach, which is probably wrong, and which turns out to have adverse consequences on reliability of the country's electric system which were not anticipated.

I set each of these out with a little more detail below, then turn to the consequences, which are so interrelated as really to be inseparable.[10] I caution that there may well be hidden agendas involved in the decision making, but I can only guess at those, and thus have to address the factors as they are publicly disclosed in the process as the legal structure would require.

Matthew Henry famously paraphrased Jeremiah 5:21 as "there are none so blind as those that will not see."[11] Perhaps because we all started the restructuring process thinking of transmission as generally available, and the effects of conscious failure to add transmission has been building up, the Commission finds itself in a situation analogous to the lobster placed in a pot of cold water placed on the fire not seen by the lobster. If nothing else, the Commission's face should be red by now, since it has not realized or dealt with the fact that failure to build transmission is itself a method of market manipulation. Instead, of course, the Commission has found itself flirting with the concept of participant funding, which is simply a device to further postpone new transmission and further expand the market power of some transmission owners. Perhaps it is appropriate to quote directly from the original basis for Henry's aphorism:[12]

> Declare this in the house of Jacob, and publish it in Judah, saying, Hear now this, O foolish people, and without understanding; which have eyes, and see not; which have ears, and hear not:

DISCUSSION

1. Advance Caveats

The structure of the electric industry has changed greatly in some areas of the country following FERC's restructuring approaches, and very little in others. Some of the consequences of the changes that have occurred are likely to be significant, although I will not discuss them in the remainder of this presentation. Those changes should be

[10] I come at this problem as a lawyer, of course, struggling to understand economic theory as relevant. I can only address the issues I understand, and so beg the forgiveness of those of other disciplines who are welcome to correct my errors and suggest alternative approaches. Because I oversimplify to make the points, and name names where I believe I know the facts and the facts illustrate a point, I may well insult everyone at this conference. The insult is not intentional, and the facts are cited as examples. They are not unique.

[11] Matthew Henry, *Commentaries*.

[12] Jeremiah 5:20-21.

recognized, and are outlined below, since we should not lose sight of them in the policy debate that is going on. In general, it is not apparent to me that there is a good quantification available of the positive (or negative) effects outlined here, but it does not appear likely that the positive changes outweigh the negative.

a. Greater Efficiency of Nuclear Operation

One consequence of the changes in structure is that the country's nuclear fleet appears to be operating much more efficiently after much of it has been consolidated under new ownership. Subsidiaries of Entergy, Dominion, and Amergen, for example, have been engaged in buying up nuclear plants around the country, and applying something much closer to best practices management. Refueling times are down, availability is up, and safety is probably better (given the known characteristics of personnel that can be rotated – with appropriate retraining – among plants of varying designs and operating characteristics as opposed to being left to stagnate in one plant that never changes).[13]

The longer term effects of the structural change for the nuclear fleet are less clear. Ownership in many cases is through limited liability shell corporations which are subsidiaries to holding companies. That fact, while it protects the holding companies from liability for adverse events such as economic changes in the industry or a repetition of the Three Mile Island accident, effectively seeks to externalize social or environmental costs which used to be internalized when the plant was owned by a single operating utility.[14] The NRC regulation pattern was developed for nuclear plants owned by a vertically integrated utility which could be depended upon to generate the money needed to pay for solutions for untoward events if they occurred. The NRC has not yet focused on the fact that it is now dealing with corporate shells with little, if any, ability to generate money if the licensed generator fails. If there are adverse events that test that approach, there may also be consequences on the willingness of the NRC to allow this process to continue, and on the willingness of Congress to extend the Price Anderson Act, as well as on availability of credit.

The same caveat as to corporate shells owning generation plants applies to hydro projects, where FERC has also not focused at all on the potential risk differential associated with licensees with little or no capability to pay for the damages to the public from an external event.[15]

---

[13] One of the consequences of these improvements has been the yardstick effects, by which regulators have used the clearly improved operational characteristics of these plants owned by merchant generators to force vertically integrated utilities to improve their own performance.

[14] One should not ignore a caveat that unions representing employees at these nuclear plants have raised questions about work practices imposed under the new management which are potentially stressing the system in a manner which might raise the risk of accidents.

[15] As a lawyer, I must also say that an accident in either case would test the ability of the bar and the courts to "pierce the corporate veil" to get to the parent holding company where the assets are.

b. Faster Replacement of Aging Generation Fleet

It may also be that the anecdotal information as to more efficient operation of generation in general is true. It certainly is true that the vast majority of independent power plants were designed with greater operating efficiency than the older fleet that existed in utility hands before restructuring, and also that these more efficient plants would not have been built as rapidly (or at all) under the older regulatory regime. Those plants are operating in some areas of the country on a reasonably rational basis (New England, PJM, *etc*.), but not at all on a rational basis in areas where they are effectively shut in, such as the Southern and Entergy service areas along the Gulf Coast. In the case of transmitting utilities that have opted to fail to build transmission so as to shut in the more efficient units not owned or controlled by them, the faster replacement occurs by what appears to be unfair business practices which permit those who invested the capital in the newer units to be intentionally and routinely bankrupted when FERC promises have not proven true in the event. That is not a good societal result.

c. Open Access Creates Larger Market

I think we would all agree that the idea of open access to transmission without artificial restraints is a good one. I suggest below that I think that FERC has gone about the process of transmission rule design from the wrong viewpoint, but even so, the underlying concept is good. Although I will address some of the other issues associated with open access below, it should also be said that the larger scale of access of load serving entities ("LSEs") to generation associated with open access has (to the extent not artificially impeded by FERC's market design of charging marginal losses[16]) probably reduced the average cost of energy to customers, since the more efficient generation should be running more frequently than in the pre-restructuring world. As load grows, however, the problem of inadequate transmission becomes more and more of a constraint on the efficiency of the market that would otherwise result, a problem discussed in more detail below.

2. Outline of Legal Problems

The primary problem facing FERC restructuring of the electric industry is that FERC is not clearly authorized by Congress to do anything of the sort. The basic Federal Power Act ("FPA" or "the Act") authority being utilized was given to FERC in 1935, when Parts 2 and 3 of the Act were originally passed as Title II of the Public Utilities Act. Title I of that Act was the Public Utility Holding Company Act ("PUHCA"). While amendments to the Act were passed in 1978 (PURPA), 1988 (Regulatory Fairness Act), and 1992 (Energy Policy Act), the key legal tools used by FERC in this process (other

[16] Since marginal loss calculations by definition collect more than actual losses, if the excess "loss" recovery is not returned to the parties to the transactions the excess assessment acts as a "pancaked rate" and will also preclude transactions that would be economic from an overall viewpoint.

than the authority to require refunds after the market meltdown which derives from the 1988 Regulatory Fairness Act) date from 1935 without significant amendment.

While the SEC has in recent years permitted PUHCA to become something of a dead letter, simply ignoring it where possible, FERC has tried to find any and all arguments to permit it to use provisions of the FPA in a way that furthered its view of the restructured world. Some of these arguments have been internally inconsistent, and some have been blatantly opportunistic. The result of this is that while the Commission was initially relatively successful in defending its actions in court, the courts are beginning to note the inconsistencies and to either force the Commission to live up to its representations in briefs and argument in previous cases [17] or conclude that there is no power to take the actions which FERC believed it needed to take. While it is something of an oversimplification, it may not be unreasonable to observe that the DC Circuit has tended to fall into the latter category, and the 9th Circuit in the former.[18] Either result, of course, means that the Commission will be significantly constrained in doing what it wanted to do toward furtherance of the goals of restructuring.

The Commission has been totally unwilling thus far to take the opportunity to draft legislation that would explicitly give it the power to regulate markets in a rational way. Part of the reason for this unwillingness may be the conviction that if it acknowledged that it needed new legislation, it would undercut the actions it has taken in purported consistency with the 1935 Act. Part may also be the conviction (at least initially) that if it could just force action and then hold off judicial review and likely reversal for a few years, the industry would be so irremediably changed that all sides would acknowledge that it could not be changed back to the *status quo ante*. But I would guess that the courts will eventually back the Commission into enough of a corner that things will come apart in quite a messy fashion unless there is a very rapid legislative fix. And it is not at all clear that the Commission has the political clout to result in a fix which actually helps; it certainly does not appear that it has done the political homework to acquire adequate sympathy for the fixes it will need.

3. Outline of Economic Problems

A significant part of the problems that FERC has had arise, I suggest, from the overextension of a very good economic theory well beyond its known limitations, and the adverse consequences of attempting to apply a good theory in areas where its creator recognized it could not be relied upon. A second part of the problems results from the

---

[17] Some of these representations have been carefully phrased and perhaps misunderstood by the courts, but some have been based almost entirely on wishful thinking, at last as perceived by counsel on the other side. In either event, the directive to live up to these representations has the effect of requiring action by FERC it had not anticipated.

[18] While this simplified observation is not inaccurate, the breakdown is more of a basic philosophical difference than a difference that would lend itself to an easy resolution of differences by the Supreme Court.

infatuation with the very idea of competition and the extension of that idea (promoted by the owners of generation assets) without examination into the transmission area, where it never belonged and which has the effect of cutting off the very competition in generation which could reduce costs to consumers. Both of these elements may be said to be the consequence of sloppy thinking; both go far to destroy the benefits to the public that should accrue from competition in the industry.

a. Second Price Auctions do Not Work Reliably to Accomplish the Stated End, Even Theoretically, in the Circumstances Existing in Fact in the Electric Industry in Most of the United States

The basic economic theory of a market economy works well where everything in a particular market is unregulated, where there is ease in entry and exit of competitors, where no single participant in the market controls the necessary infrastructure, and no single participant controls enough of the market to be able to control pricing in the market. This much is largely unexceptionable, and the general wisdom is that a market economy in such a structured environment works better than a regulated one. FERC has taken the idea of a market economy, however, and superimposed upon it a model taken from the Nobel-Prize winning work of Vickrey and Mirrlees,[19] which led to the concept of "second-price auctions" (sometimes referred to as "Vickrey auctions"). That superposition and some of the assumptions which are hidden in the regulatory underbrush have created more problems than are always recognized.

Vickrey's work lies at the heart of the market model used by FERC, which clears every market every few minutes (or every hour) with a single "market clearing" price.[20] In principle, that model produces the Pareto optimal result, and FERC is heavily invested in its being the appropriate market model to use for these purposes. The key conclusion is that no rational producer will ever bid more than the short range marginal cost (including opportunity cost) to produce in a market where all winning bidders will receive the market clearing price. The proof of this conclusion was based on a market model in which no producer controlled more than a single production unit (in this case, a generator).

The problem, however, is two-fold. First, Vickrey's seminal paper *Counterspeculation, Auctions, and Competitive Sealed Tenders,* published in the Journal

---

[19] Technically, the Nobel Prize in Economics is the Bank of Sweden Prize in Economic Sciences in Memory of Alfred Nobel, and is not one of the traditional "Nobel Prizes" awarded annually since 1901 by the *Nobelstiftelsen* (the Nobel Foundation), established under the will of Alfred Nobel in 1900. The *Sveriges Riksbank* (Bank of Sweden) began to award the prize in economics in 1968 on the occasion of its own 300th anniversary.

[20] The market clearing model may not work for all the markets in which it is being asked to provide the economic engine. The original model was applied to energy markets, and the varying ancillary services markets to which it is now being asked to work do not all have the same characteristics as the energy markets. This detail is not dealt with further in this paper.

of Finance, Vol. XVI, No. 1, March 1961, cited prominently in the Nobel award,[21] itself has a very significant recognition of the limitations of the theory on the ability to achieve a Pareto-optimal result. The proof breaks down in "the more general case where an individual bidder may be interested in securing two or more of the units [of production], while the number of bidders is still too few to produce a fully competitive market." *Ibid.* at 27-28. Of course, that is precisely the state of the industry in every state in the union. And so far as I am aware, no one has ever been able to prove the result beyond the point where it was shown by Vickrey to work.

Thus the theoretical competitive model breaks down in the real world of electricity as it exists in the US, at least, where there are very few enterprises that control only one generating unit, and most control many and wish to control more. Those with long or short term control over both transmission and generation can indirectly control the output of more than they own, especially where the transmission infrastructure is less than robust, as discussed below. On a real world test, the California market using Vickrey auctions melted down in 2000-2001, at least partially as an apparent result of market manipulation, although no single producer held more than an 11% share of the generation supply in the state.[22] So the Vickrey auction model is known to break down in situations where there exist enterprises that control more than one generator or in situations where generators conspire, directly or indirectly (including through conscious parallelism), to fix bidding behavior, and thus the price. This will continue to happen where there is not adequate transmission to bring in enough competitors to break the advantages of conscious parallelism. But until and unless the Commission gets adequate transmission built, that is the real world which the Commission faces, and using a tool that is known to break down in real world circumstances without recognition of and accommodation for its known weakness is rather like setting off to conquer the known world with a balsa wood sword. That was obviously a mistake, and one that is not yet fully recognized.

b. Generation and Transmission are not Generally Substitutable Products That Compete

The second basic economic mistake stems from muddy thinking. Thus, the idea of competition has been taken to absurd lengths, with the apparent idea that generation and transmission are substitutable products which should compete against each other. This is rather like saying that a potato farmer and a road builder are in competition for the sale of potatoes to McDonalds. I am not aware that roads or railroads actually compete (or are even considered by economists to compete) against producers of the many other commodities that are transported over the roads or railroads in any industry, and some of the consequences of the FERC notion that they do compete are highly costly and counterproductive. While it is true that there are times when additional generation or

[21] www.nobel.se/economics/laureates/1996/back.html.

[22] This whole area is dealt with in more depth in Robert C. McDiarmid, Lisa G. Dowden, and Daniel I. Davidson, A Modest Proposal, 14 Electricity Journal 11 (2001).

additional transmission could solve a particular problem, the two disparate products are not only generally not interchangeable, but one (transmission) is an absolute prerequisite for the other (generation) to work or to have any competition in its own arena.

Even if it were true that for a few locations new transmission could substitute temporarily for new generation (or at least to permit other generation to reach the market), the notion that the two are generally in competition with each other confuses short term and long term effects, impairs reliability, and generally works to raise prices well beyond what would otherwise be the Pareto optimal point. If the idea of a competitive electric market is that customers (whom FERC exists to protect) would be benefited, then the imposition of the jerry-built "competitive" element of transmission into the picture goes far to destroy the basic rationalization for the whole restructuring.

The idea that transmission need be built only where there is no other way to get *any* generation to a load, regardless of the cost of power to the public taking service through the node is a gigantic change in the whole concept of public utility responsibility which the Commission has not explained, will not explain, and in reality cannot explain in any way that would be politically satisfactory to the polity. Nor does this element (or the more recent related approach of "participant funding") seem to be something that is replicated in any other country's restructuring.

The confusion of thinking that leads to a restriction of (or failure to require additional) transmission needed to permit restructuring to work has largely destroyed the possible benefits of a competitive market in generation product. This basic mistake may be thought of as the equivalent of a national policy at the turn of the last century not to build highways but to require individual automobile buyers to build them. One may easily imagine the automobile industry that would have resulted.

c. Functional Unbundling as a Policy has not Been Functional

Perhaps because of the lack of legislative direction, and perhaps because the policy makers did not understand the limitations of the economic theory, FERC chose to attempt the necessary restructuring of the industry by being nice to the monopolists and to convince them to do the right thing by a form of economic seduction. Where it could not convince the utilities to sell off their generation and/or transmission, however, it chose the solution of "functional unbundling;" rewarding public utilities that joined RTOs (originally ISOs) and turned control of their existing transmission over to the RTO dispatcher, who was supposed to make decisions in the interest of the RTO as a whole, and not to take direction from the utility.

As it has turned out, the Commission failed to understand the dynamic nature of the industry. Even if the utility turned over all decision making as to the use of the existing transmission system to the RTO (and there are many horror stories to demonstrate that in many instances the RTO dispatchers simply turn to the old utility for answers whenever there is a question or a problem), in fact within a few years load grows

and the transmission system that was turned over to the RTO becomes woefully inadequate. Of course, to the extent that the utility kept control of generation, as most have done, that inadequate transmission becomes a tool to guarantee higher returns on its own generation. While both the Commission's OATT and most RTOs have ostensible requirements to build transmission to provide adequate service, in most cases this obligation goes unfulfilled, with most RTOs/ISOs leaving transmission planning and even more surely construction, to the same utilities that own the existing system. Very little new transmission has actually been built, and thus the system becomes more and more constrained as load grows. Very shortly, the utility which made a big deal of turning its transmission over to the RTO is back in a position where it can eliminate competition and manipulate the market, since the Commission has not enforced the obligation to construct.

4. Outline of Policy Problems

In principle, the observation that all who trade in a market should use a single set of rules is almost axiomatic, having been used since the days of Genghis Khan in his empire, the Hanseatic League in Northern Europe, the great merchant states of Venice and Genoa in Southern Europe, and many others. Having said that, however, FERC has taken this observation well beyond the point of usefulness in its varying decisions on Standard Market Design (or the many decisions which are not so denominated, but effectively cover the same area).

a. Day 1, Day 2 or Day X?

The Commission has insisted upon "Day 2" market designs so complicated and so expensive as to sop up all savings to consumers and indeed, apparently to impose a fairly heavy additional cost upon most consumers.[23] Indeed, much of the Day 2 designs insisted upon by FERC are academic exercises not wanted by any participant in the actual markets responsible for serving load at a reasonable cost, and certainly not by any LSE responsible for seeking the lowest cost power supply for a community. Nor are they always wanted by those responsible for the RTO/ISO.

b. Short Term or Long Term Design?

In some ways even more important, the Commission has turned to market design in a manner which encouraged short term transactions, and made it difficult to engage in longer term transactions which might have the ability to stabilize markets which otherwise would go awry.

---

[23] FERC's recent apologia on the comparatively reasonable costs associated with "Day 1' operation of RTOs and ISOs (Staff Report on Cost Ranges for the Development and Operation of a Day One Regional Transmission Organization, Docket No. PL04-16-000 (October 2004)) is totally irrelevant to the real cost issues, almost all of which are associated with the "Day 2" markets.

The model used, which essentially assumes that all resources are available to all buyers on a short term basis, focuses on an energy market. In an industry with high capital costs and relatively low energy costs, a market which focuses only on energy will almost certainly develop a boom and bust investment cycle, and a market which does not require reserves beyond the rather minimal reserves required for regulation/load following will become far more prone to significant blackout risks. Some economists seem to believe that this is the right result, on the theory that those who wish will pay for reliability on their own, and that those who do not need reliability should not have to pay for it. Because of the commons characteristics [24] of the electric grid, in which cutting load requires that it be cut for an entire feeder at a time (rather than only to those who do not choose to pay extra), those who wish to pay for reliability are in essence forced to install their own backup generation on site, because of the inherent inflexibility of the transmission and distribution system with respect to short term changes. This is a very high cost way to obtain the necessary reliability of supply, and society as a whole in the developed world does not accommodate planned or rolling blackouts well.

The cost of shutting down production on supply lines, closing down offices when computers go down (not to mention lost data and equipment when power goes down) is a very high cost to pay for the "advantage" in economic theory of bringing third world electric reliability to the United States. Worse, when all of these characteristics converge, the result makes widespread and uncontrolled blackouts of the sort that occurred in August of 2003 significantly more likely.

The only way to avoid this sort of reliability crisis is with at least a partial return to the old world, where generation has to be available together with enough surplus to accommodate unexpected growth and unexpected weather conditions with enough flexibility to permit generation and transmission installation to catch up.[25] And the fact of a centralized control area means that the generation has to be sited in very limited areas near loads (with the consequent political and public health objections that would be expected [26]) or significant expansions of the transmission grid will be required, and LSEs will be required to show deliverability of the resources they control to the control area where they can be used. It is not at all clear to me that the dissonance between this sort

---

[24] *Cf.*, Garrett Hardin, *The Tragedy of the Commons*, Science, 162(1968):1243-1248. http://dieoff.org/page95.htm.

[25] Of course, this means some form of engineering calculation/central planning to determine the tradeoff society will accept between outage probability and generation levels. Some economists do not like the idea of returning to a societally developed norm requirement on the grounds that it would be better to let the invisible hand of the market decide these matters.

[26] While there are always some who will assert that there are no problems in siting generation within cities, there are significant public health, environmental justice and cost problems that almost uniformly come up when this sort of siting is considered. The case of the PG&E Potrero units within the City of San Francisco, where the community has sought for what appear to be very good reasons to shut down the units for many years, is an example.

of approach and the short term energy market approach has yet been appreciated by FERC.

c. LMP as the Loadstone [27]

As a subset of the short term market design outlined above, FERC has taken a perfectly rational concept, that of Locational Marginal Price ("LMP") and turned a tool for economic dispatch into a lodestone (or loadstone around the neck) of a very complicated market design which cannot ever be actually used in the broad sense, but will destroy a number of smaller competitors to whom it is applied.

d. Reliability is a Key Aspect of a Successful Design; Mathematics Impose Constraints on Design Which Cannot be Ignored

While reliability has not heretofore been a key element of FERC authority under the Act, the Commission was forced to deal with the problems of reliability first when President Johnson charged the FPC with coming up with a solution after the 1965 Northeast blackout. NERC's formation, and the formation of the regional reliability councils and power pools was a part of the result of the FPC efforts, and it is now clear (and pretty much all elements of the industry have agreed upon legislation to make it happen) that the Commission will have to have supervisory authority over some form of self-regulating organization ("SRO") to provide the necessary rules of the road for reliability.

That means, of course, that the economic model which the Commission imposes in restructuring will have to work in concert with the reliability rules which the SRO will promulgate, if the SRO is in fact created by legislation. If Congress does not act to do so, the Commission will have to find backdoor ways to accomplish the same end. But the necessity to make physical and engineering rules work with the economic rules imposed by regulation is not yet fully accepted by the Commission, which has lost sight of some key mathematical and engineering facts.

The grid is a highly complex dynamic system which operates in real time, and much faster than current computer modeling techniques can be carried out. The stability of the system in normal operation is in large part due to the "self-healing" characteristics of the AC system, in which each of the four interconnections in the US and Canada operates as a single machine in which a number of potential problems can be handled by automatic feedback loops. What is more, every change in generator output will change the load-carrying capacity of the transmission system. So in real life (and in the actual operation of the system), it may be necessary to back down a more efficient generator simply in order to permit more power from other sources to flow to the load which demands more. System operators have been aware of these system characteristics and needs for many years. As some level, if there were significant transmission constraints,

[27] Spelling intended.

watching system operators in the old – centrally dispatched – pools at a time of system stress was like watching a conductor of an orchestra vary his calls upon the various instruments to perform a piece of music at the highest level.

The theoretical construct behind the LMP model assumes that there are sufficiently few transmission constraints so that pool dispatchers can essentially be replaced by computers automatically choosing the least cost solution for each change in dispatch required. Of course, anyone who has actually talked to the dispatchers should be aware, in a system with serious constraints the dispatchers ignore the computer generated options and do what they think is easiest and most likely to solve the problem they perceive. This is not irrational, since they can react faster than a "state estimator" in most cases. This means, however, that another theoretical advantage of the LMP model – that the model will select units without regard to extraneous characteristics such as ownership or size – fails in the actual event of use.

I have noted that the grid is highly dynamic in its operation, and that the carrying capacity of any point on the system is affected by the next change in system dispatch. That means that there is an optimal dispatch scheme at any point in real time, which will produce the least cost dispatch possible given the real pattern of load and generation availability at that moment in time.[28] But the LMP model produces a different result, in which the conductor of an orchestra is turned into a mechanic watching a bunch of automatons attempting to be musicians. The system limits in this case are preprogrammed and likely to be less than fully efficient. An analogy would be Beethoven's Ninth Symphony reduced to a single chord, repeated endlessly throughout the performance.

The dispatch model, as suggested above, is far from the most efficient. Taking the same model further, however, the Commission makes the rational judgment that if power could be transmitted in the *status quo ante* without uplift costs, the system should be able to do so under the LMP model, with FTRs awarded to produce the financial equivalent of the congestion-free transmission available under the old system. But this rather simple observation ignores several other things that the Commission has done. If it is no longer possible for the system dispatcher to adjust the system to its maximum performance level as he proceeds during the day, with loads of individual LSEs going up and down, and generation sources becoming more or less available, the entire system's performance will be degraded. And FTRs are awarded, not based on what could be done in the *status quo ante*, but based on a simultaneous dispatch limit.

Of course, the actual operation of resources in the *status quo ante* was based on meeting loads of the LSEs, which had significant diversity in time and seasonality.

---

[28] It is not necessary for this point to distinguish between a dispatch based on incremental cost and one based on bids. But I observe that the second price auction theory suggests that the bid will be the actual incremental cost at most times, and the Commission's rerun of the California markets explicitly uses the incremental cost as the bid that should have been made in a properly working market.

Economic trades on top of that operation for load were based on the availability of transmission capacity at the time the trade took place, not at the time of system peak. So the idea of FTR allocation limited by simultaneous dispatch automatically devalues FTS by a significant amount.

Moreover the Commission has never been consistently clear as to whether FTRs are premised on the needs of the load (LSEs) or the generators (IPPs). It is not mathematically possible to map both generation to load and load to generation at the same time without very substantial inefficiencies and inaccuracies. FERC has not focused on this mathematical problem, and to the limited extent it has said anything relevant to this problem, it has chosen the wrong solution – mapping generation to load.

e. Religious Belief in an Economic Theory can Produce Unacceptable Results

FERC market designs have developed in strange ways. First, of course, came the pools. PJM, NEPOOL, the NYPP, SPP and MAPP developed quite different ways in which to share reserves, account for transactions, and provide for an attempt at least cost dispatch. Each of these functions was designed to save money for all participants, and each of these pools was attractive enough so that all possible participants generally joined voluntarily.

After the blackout of 1965, NERC was formed, and eventually began (through the various reliability councils) to propose and establish some rules related to reliability.[29] These rules of reliability, while generally pretty amorphous and subject to interpretation, were superimposed on the rules established by the pools for their operation, so that all participants were in essence subject to both.

Eventually PJM became the poster child for FERC's thinking on standard market design. But at the same time the California ISO was being developed based on a very different set of academic criteria imposed as a result of the infamous AB 1890.[30] While the PJM model was being developed on a more or less consensual framework, based in part on the previous PJM tight pool model, and had some potential of developing into a model for a competitive wholesale market, the CAISO model was developed to accommodate a theoretical model of the industry envisioned by the drafters of the AB 1890, where the incumbent utilities auctioned off all of their generation, [31] transferred all control over transmission to the CAISO, and bought all of the energy needed to serve their loads from the day ahead or hour ahead (CAPX) or real time

[29] While PJM substantially predates the 1985 blackout, most of the other pools followed in the wake of the work done by NERC and its regional reliability councils (MAPP and SPP, for example, were also reliability councils, as effectively was PJM (through MAAC)).

[30] The following discussion is quite over-simplified to make a point, but I believe the point to be valid.

[31] Except nuclear, which was thought to be too high cost to be acceptable to any purchaser (but see discussion above in Section 1, supra).

imbalance energy (CAISO) markets. In other words, it was explicitly relying solely on the short term market with no longer term arrangements. At the time of the 1996 passage of AB 1890, California was considered to be long in generation resources, and if one were to credit the drafters of that legislation as having reasonable foresight and perhaps as having read *The Prince*,[32] the logical inference would be that thought had been that if the existing utilities had no generation resources, eventually all the customers of the incumbent utilities would switch to alternative suppliers, and the incumbent utilities would simply own transmission as passive owners, which the CAISO would actually run.[33]

California's electric market was effectively designed as a time bomb, whether the designers recognized it or not. FERC, presented with the design and told that from the viewpoint of the State of California, its only option was to take the design as it was, without modification, or leave the badly broken preexisting situation as it was, took it.[34] Unlike the situation in PJM, there were a bevy of experts advising that the California market design was the only correct solution, and that FERC Commissioners had no acceptable solution other than that solution, which should "clearly" be used throughout the country.

Because of the design weaknesses, and also because of the tendency of at least some in the West and in the FERC to believe strongly that the Good Lord will take care of those who believe the right thing (the right thing for these purposes may be religious, economic, political, or other possible beliefs, but entails sufficiently enthusiastic adherence to some assumed creed) strongly enough, nothing much was done to prepare for the end of the surplus generation condition that was perceived to exist. The incumbent IOUs made a desultory effort to convince the CPUC that they should be permitted to enter into longer term contracts, but when they were told that they could do so, but at their own risk if the result turned out badly, the effort was aborted.

Neither did they build or even design or try to site any new transmission. In hindsight, this latter result was either an indication of extreme lack of foresight (if they believed that the divestiture model would take place, since the inadequacy of the grid would clearly raise the price to their consumers and also reduce the rate base on which

---

[32] Niccolo di Bernardo dei Machievelli, *Il Principe*, and various translations.

[33] Both the incumbent utilities and the representatives of the CPUC who presented the package to FERC were (or claimed to be) convinced that the monopsony power of the incumbent utilities in the first few years (while the competitive transition charge was being paid off) would hold the price of energy down so that the customers of California would not be disadvantaged and the incumbent utilities would profit significantly, perhaps not noticing the potential that lay in store for them when the market became tighter.

[34] There is a lot of historic revisionism going on now, with then-State Senator and Committee Chairman Steve Peace, who sheparded and controlled the so-called "death march" which led to the unanimous agreement on the terms of AB 1890, now denying that he had anything to do with it, apparently hoping to be remembered politically instead for his earlier cult film "the Attack of the Killer Tomatoes." Many others involved with the design and with telling FERC to "take it or leave it" also seem conveniently to have forgotten their roles.

they could earn) or a prescient attempt to destroy the competition envisioned by the divestiture model. California continued in its tradition of making it hard to site new generation (because it "wasn't needed") and thus little or no new generation was actually constructed, although some was in fact certificated. Those in a position to take action continued to assume that the rivers would always flow, the rain would always come, and the snow pack would always take care of the West. When the rain did not always come, the state of California, the entire West Coast, and FERC itself, were woefully unprepared to deal with it.

Of course, any system that will not work under stress conditions which should be anticipated is seriously flawed. The California market did not work under such stress conditions. As Vickrey had recognized could occur, the combination of low rain conditions in the entire West and a general inadequacy of infrastructure permitted at least the implementation of conscious parallelism in pricing behavior on the part of many participants in the California short term markets, and the fact that so much of the power purchases were in the day ahead and hour ahead markets made the "hockey stick" bidding pattern extremely attractive for those with a large number of resources in the market. They used that pattern, and it showed.[35]

FERC, while this was going on, did little or nothing to show that it understood what was going on, or to investigate. It may not be totally unfair to say that FERC, with very few exceptions, acted very much in the tradition of cargo cult priests,[36] running around attempting to look wise, and issuing statements to the effect that the God of the market would correct things in his or her own time. Thus all participants in the market began to believe that FERC would do nothing to correct the behavior involved, and began to consider their own opportunity costs, to the extent that they had emissions-limited generation or hydro generation with storage. If they could not believe that the cost they would incur to replace limited energy resources when needed would be lower than prices that day, they rationally chose to build into their willingness to sell power the expectation that the price in the future when they would need it themselves would be higher, and the pattern began to build on itself in a vicious cycle.

FERC did two things eventually, to finally take action to deal with the problem, and it is not at all clear that it even yet recognizes which one worked. On April 26, 2001, it issued an order [37] which was to be effective on June 1, 2001, and which (among other things) declared hockey stick bidding to be an unlawful manipulation of the market. And

---

[35] *See*, Robert C. McDiarmid, Lisa G. Dowden and Daniel I. Davidson, *op cit.*, n. 22, *supra.*

[36] An amusing but accurate description of a variant of this effect was provided by Richard Feynman, later to win the 1965 Nobel Prize in physics, in a famous Caltech commencement address of 1974. http://www.physics.brocku.ca/etc/cargo_cult_science.html. Professor Feynman also had some observations which might profitably be examined by many in this dismal science. *Ibid.*

[37] Order Establishing Prospective Mitigation and Monitoring Plan for the California Wholesale Electric Markets and Establishing an Investigation of Public Utility Rates in Wholesale Western Energy Markets, *San Diego Gas & Electric Co. v. Sellers of Energy etc.*, 95 F.E.R.C. ¶ 61,115 (April 26, 2001).

on June 19, 2001 it issued an order requiring even more in the way of mandated actions.[38] In fact, for those who followed the pricing data which was then compiled and issued by the (late, now dead) CAPX, it became clear that the price in the California and West Coast markets dropped to a normal range precisely on June 1, 2001, the date on which the billing behavior rule became effective.

While the California market design was inherently unstable because of the requirement imposed by AB 1890 and the CPUC that all energy for the customers of the three IOUs had to be purchased through the spot market, several other factors were also in play. There had always been something of a duality in the approach by the State of California to the regulation of energy. The CAISO was set up as a state corporation, and eventually a law was passed changing the board from a participant board to one appointed by the Governor and confirmed by the Legislature. The initial appointments to that board had a politically California-centric viewpoint and did not believe that FERC wanted to or was able to deal with the fact that the market was out of control. From the point of view of California, the effect of the market meltdown was calamitous, whether or not it should have been foreseen.[39] The $12 billion budget surplus which was planned to cover improvements in public education which had long been postponed and improvements in the transportation structure which was strangling the state's economic development was used, and more, for purposes of trying to deal with the power supply meltdown instead. Thus those in power in California were required, metaphorically, to try to solve the problem at the expense of those least able to cope for themselves. And if they regarded FERC blathering while doing nothing effective with the same level of approbation as those in ancient times who watched their children being sacrificed to Moloch (or an angry and irrational god of markets) while the priests postured, it can be readily understood.

This level of distrust on the part of the States is driving a great deal of the effective resistance to FERC's market driven model in the Pacific Northwest and the Southeast, and the Commission has done nothing to defuse it.

5. What Lessons Should Have Been Learned?

With some considerable trepidation, I suggest several lessons that should have been learned, although I confess it is not clear that they have been. The descriptions below are necessarily simplified.

---

[38] Order on Rehearing of Monitoring and Mitigation Plan for the California Wholesale Electric Markets, Establishing West-Wide Mitigation, and Establishing Settlement Conference, *San Diego Gas & Electric Co. v. Sellers of Energy etc.*, 95 F.E.R.C. ¶ 61,418 (June 19, 2001).

[39] It is also fair to note that with the exception of Commissioner Massey no one at FERC had taken a public stance suggesting that there were any problems lurking in the California market design that could lead to anything like the disaster that occurred, and the various "let the market solve itself" statements made by FERC Commissioners at the time looked very much like Herbert Hoover's 1932 platform of "prosperity is just around the corner;" wishful thinking.

a. The "Gods of the Market" Are Not The Answer

Whatever else may be clear, no rational human being with an ounce of political sense should ever again suggest in public the simple-minded nostrum "the Market will take care of the problem," at least without careful analysis and review so that there is assurance that natural market forces will in fact "take care of the problem" in anyone's political lifetime. Else, political lifetimes will be, and should be, quite short.

In a market in which the regulators were not so tied to the almost theological truth of the economic model as they were at FERC during the 2000-2001 period, the usual ways of dealing with the imperfections in competitive markets would be recognized and made explicit. The potential and use of antitrust remedies, for example, could be expected to impose some restraints on the players in such a market, and recompense for those harmed. But antitrust remedies are not permitted in general in markets regulated under the FPA, because of FERC's supposedly pervasive regulation of the market. See, *e.g., Montana-Dakota Utilities Co. v. Northwestern Public Service Co.*, 341 U.S. 246 (1951). *See, California v.Dynegy, Inc.*, 375 F.3d 831, 850-853 (9th Cir. 2004).

Similarly, in a normal market, both States and the FTC have jurisdiction over what are generally summarized in the category of "unfair trade practices." But here, again, the Courts have held that the Commission has exclusive jurisdiction over pricing and refunds. *E.g., Pub. Utility Dist. No. 1 of Grays Harbor County Washington v. Idacorp, Inc.*, 379 F.3d 641 (9th Cir. 2004); *PUD No. 1 of Snohomish County v. Dynegy Power*, 384 F.3d 756 (9th Cir. 2004).

The SEC and the CFTC, with considerable experience in regulating the operation or markets (as opposed to the price at which securities or commodities are sold on the market) have the statutory authority to intervene in market operations when needed and to (metaphorically) take those found to have sought to rig the markets out behind the barn and shoot them.[40] FERC has no analogous authority.

In fact, the authority which FERC has claimed in the cases arising from the California meltdown leads to an entirely different result from the authority which the SEC and CFTC have. FERC's trust in the Vickrey auction theory is so complete that it has essentially required, pursuant to section 206 of the Act, the rerun of the California central market operations for every price during the refund period of the meltdown, so that the price will be the short run marginal price of the unit which clears the market in every interval during that period. This regulatory reconstruction of an ideal market appears to be a much more invasive and costly form of regulation than the original form of price regulation would have been.[41] It goes so far as to reset the price of natural gas

[40] In fact, the ability of those agencies to bar malefactors from participating in the business in the future and to impose really healthy fines (and to have the United States Attorney put malefactors in jail) operates to eliminate malefactors from the market "with extreme prejudice."

[41] As a lawyer, one can only observe that the effect of this series of cases has been to provide sustained employment for members of the ever growing energy bar, and for the Commissioners, staff and

which the electric market participants should have seen if the natural gas markets had not themselves been under attack, and is totally antithetical to the very concept of a market economy where market participants are supposed to make their own judgments of value rather than those which are decided solely by regulators.

The specter of ever repeating the experience of the regulatory efforts to deal with the California rerun market as an ideal set of interrelated markets "should" run should guarantee that no one would ever wish to repeat the experience. FERC and Congress must do something to assure that there are no more regulatory disasters leaving only destruction in their wake.

b. A Birfurcated Regulatory System Will Almost Always Lose Something Critical In The Cracks

Bill Hogan has well stated a very basic conceptual point which is dimly conceived by some, and not understood at all by others. [42]

> Fundamental to electric restructuring in the United States is a shift of jurisdiction from the states to the federal level.

It should be obvious to everyone that if each state required that transactions by residents of that state in stocks or commodities had to be on markets regulated and designed by that State, the vaunted efficiency of this country's system of trading would be substantially impaired. There is no reason to assume that a North Dakota commodities market not tied to the operations of the national commodity exchanges would be any more efficient than the markets in the Cote d'Ivoire. By the same token, the electric industry, which has already become a series of regional markets and is becoming more of a national one, is becoming more and more dysfunctional to the extent it is controlled by the several states.

If Bill is correct (and I think he is on this one), the industry very badly needs more coherent direction, and at a national level. In the long run, if we do not move in the direction of a national regulatory system – but one based on accurate facts and analysis rather than on wishful thinking – we risk the degeneration into chaos that can be seen for the future, hiding in the shadows.

c. Legislative Direction Is Key

If the key to successful competition is a real divestiture and national markets, that is going to have to come through legislative direction. Neither of these propositions have

---

Administrative Law Judges at the Commission. Thus instead of deregulation resulting in the regulatory agency and proceedings slipping away, the agency and its regulation has become far more intrusive. Recollection of the similar experience with the prediction of Marx as to the withering away of the state under Marxism might be instructive.

[42] William W. Hogan, *op cit.*, fn 8, *supra.*

a wide constituency in Congress at the moment, largely because of the missteps on the part of FERC outlined above. So FERC may have squandered its credibility and much of its legislative "chips" in the California meltdown and the events following that meltown.[43]

FERC has more than run out its luck on the approach of convincing powerful monopolies that do not want to lose their monopoly power to be seduced by promises of competitive pie in the sky. While some adopted the vision of making more money by their investment in unregulated generation abroad or in this country or in communications as a salvation to the state-required divestiture of generation (in those states which moved in that direction), most of those investments abroad have turned out badly, some disastrously[44] and the investments in this country have not been anywhere nearly as successful as initially hoped.[45] There are no more states that seem to be headed toward a requirement for utilities to divest, or that even seem to be willing to think about retail competition. The savings that seemed to occur as a result of legislatively required discounts during a transition period are expiring, and we will soon see the first real test of competition at retail in the states which opted for that solution. Current indications give no reason to suspect that the retail test will produce such substantial savings as to induce the states that are now in the "hell no, we won't go" position to move further toward ceding authority to the national government without a considerable legislative fight.

What is worse, some of the states in the "hell no" camp have allowed themselves to be coopted by vested monopolists in a way that makes restructuring much less likely to be successful, unless FERC can find a way to shift the incentives. As discussed below, no real transmission investments have been made in most states (Wisconsin is an exception, following the institution of American Transmission Company) except as is being forced by the few state regulatory agencies which are awaking to the reality of the congestion resulting from a decade of inaction. And FERC has no direct authority to require investment in transmission facilities and such actions as it has taken are entirely counterproductive to the needed investment in transmission being made, other than promising more and more "FERC candy" in the way of returns to a preset and privileged set of utilities who will follow FERC's changing directions. There should be little

---

[43] I should note that the diddling while Rome burned approach taken during the California meltdown largely predated the term of Chairman Wood, but Chairman Wood has not been able to recover the political advantage which FERC largely held prior to those events.

[44] AEP and a number of others have now largely sold out their overseas generation interests.

[45] PG&E Corporation, the holding company parent of PG&E (the regulated utility in California) and of PG&E NEG (along with dozens of less important investments in the market) initially spent some efforts in constructing a "firewall" when it appeared that PG&E itself was headed for bankruptcy so that the creditors of PG&E would be unable to reach PG&E NEG and its brethren through the bankruptcy processes. While the attempt to create the firewall succeeded, in the event PG&E NEG itself was forced to seek bankruptcy protection, and (unlike PG&E itself) has been forced into a bankruptcy plan of divesting its assets for the benefit of creditors (and not its shareholder PG&E Corp.). Montana Power's decision to invest in communications was made just as that market cratered, and the bankruptcy courts have been dealing with the fallout of that decision ever since.

wonder that a utility that has no competition to build transmission will hold out for more and more FERC candy before it actually builds any of the critically needed transmission. The latest approach seems to be for powerful IOUs that are still largely vertically integrated to convince state utility commissions and then have them pressure FERC for "participant funding," a device that essentially assures that no significant further transmission will be built for another decade, thus stretching the period in which no significant transmission is built from one decade to two, while the vertically integrated utility effectively freezes competition out of the market, exactly what FERC began restructuring to prevent.[46]

FERC has been using ingenious interpretations of its FPA authority to find ways to control public utilities in a indirect fashion, but it has been losing challenges to that authority when the Courts realized that it was seeking to use powers never before thought to have been delegated to it by Congress.[47] In addition, Courts have been deciding that FERC has to actually do the things it has been understood to have suggested to the Courts in the past that it will do.[48]

It seems clear that FERC will have to decide how it wishes to regulate and to then compete with the CFTC [49] for the authority to be delegated by Congress to regulate the market, if it wishes to go in that direction (as it seems to me it clearly should, if it is serious about believing that there are benefits to the competitive generation structure). It probably also needs certification authority over the siting and construction of transmission lines with interstate impacts if it is to make this structure work, but it may have to forego that in anything other than the backup approach envisioned in the last Energy Bill, since it does not appear to me that it has the political clout to wrest that authority from the states, and the states are clearly not in a mood voluntarily to give up

---

[46] FERC could find ways to enforce the obligation to construct in the OATT by providing an explicitly lower return on preexisting transmission facilities for those transmission owners that do not comply, and by enforcing its requirement in section 30.9 of the OATT that those transmission users who build transmission get full credit from the transmission owner. That combination should at least reduce the incentives to stall on new transmission. The Commission would have to have the guts to actually require that the transmission owner explicitly take full service under its OATT at the same time, something which it has been unclear about in the past.

[47] *E.g., Electric Power Supply Association v. FERC, _ F.3d _* , 2004 U.S. App. LEXIS 25470 (D.C. Cir., December 10, 2004) (holding that FERC cannot except market monitors from the Government in the Sunshine Act, so cannot have special relationship with market monitors); *Atlantic City Electric Co. v. FERC*, 295 F.3d 1 (D.C. Cir. 2002), reaffirmed and mandamus granted, 329 F.3d 856 (FERC cannot impose requirement that public utility stay in RTO or limit ability to file rate change under FPA §205); *California Independent System Operator v. FERC, 372 F.3d 395* (D.C. Cir., 2004) (FERC cannot direct change in Board of ISO or RTO).

[48] *E.g., California ex rel Lockyer v. FERC*, 383 F.3d 1006 (9th Cir. 2004) (FERD must review each quarterly filing report by those with market based rates to assure that the filing utility is not manipulating the market).

[49] Robert C. McDiarmid, *Trading Spaces?; Will the CFTC Move Into FERC's House?* Public Utilities Fortnightly, January 2004.

that authority at this point. It also needs, but probably will not be able to get, authority over mergers and sales involving only generation assets.

The problem, as discussed below, is that the electric market is very sensitive to multifold methods of manipulation, and the conviction that the Vickrey auction model is the best way to proceed makes it even more sensitive. The only way in which the Vickrey auction model can reliably work is if transmission is entirely spun off to what everyone who has studied the subject over the last fifty years has concluded is a necessary structure – a "national grid."[50] Worse, from a political viewpoint, it is necessary to have generation divested so that no party controls enough generation to have market power (which clearly can occur when there is no more than 11% of the market in any one producer – see the California meltdown). The chances of FERC being able to get that kind of authority from Congress in the current political situation seems about as likely as my being elected President. So FERC is going to have settle for some second best legislative authority, at least for awhile, and if it is right in its economic forecasts, the current IOUs will wither away (as they would have to do for the theoretical preconditions for reliably successful Vickrey auctions to work) and the world will become convinced of the validity of the competitive model of regulation of generation.

What FERC needs [51] is authority:

- To regulate markets,
    - Including the power equivalent to the SEC's authority under section 10, 15 U.S.C.A. 78i to define and deal with market manipulation (Rule 10b(5)).
- Ensure the reliability of the electric transmission system,
- Require the transfer of transmission assets to something like an RTO,
- Ensure the adequacy of the nation's supply of generation,
- Require the divestiture of enough generation assets to avoid problems with market power.

A possibly achievable legislative package might, for example, involve giving FERC:

[50] Even Nixon's Secretary of the Interior, the notoriously market oriented Wally Hickel, concluded that a national grid was necessary, shortly before he was asked to leave the cabinet as a political liability.

[51] This subject is discussed at more length in Robert C. McDiarmid and N. Beth Emery, *Power Failure,* Public Utility Fortnightly, September 15, 2003.

- SEC- or CFTC-like authority to regulate markets (as opposed to prices), in generation product sales, and also to regulate the participation in markets as do those agencies,

- SEC or CFTC-like authority to define and deal with market manipulation,

- Backup authority to site transmission with impacts on interstate markets, including eminent domain authority similar to that in the Natural Gas Act,

- Authority to require (perhaps if approved by the States involved) the transfer of transmission assets to a larger transmission entity, designed so that non-jurisdictional transmission owners can also contribute their assets or money. This would follow the ATC model in Wisconsin.

- Authority more directly to regulate transmission prices and access.

This would probably also involve giving up price regulation over generation product where Market Based Rate ("MBR") authority had been granted, but also giving up the protection that utilities have traditionally had against suit under the common law and typical statutory protections against manipulation.

- Under section 10 of the Securities and Exchange Act, those who manipulate the markets are liable in damages to all those that purchase or sell at a price that was affected by such act of manipulation. 15 U.S.C. 78(i)(e). That is a solution far better adapted to a regulation of market structure.

- The filed rate doctrine bar would have to be lifted, and the normal remedies associated with non-regulated price markets would have to be recognized.

d. Infrastructure, Infrastructure, Infrastructure

As noted both above and below,[52] a strengthened transmission grid is a prerequisite for competition at the generator level, rather than a competitive alternative to new generation. Every engineer [53] and most economists [54] who have looked at this issue have concluded that the use of competition and an open access grid to regulate the price of generation will require a transmission grid which is stronger and more redundant than

[52] Merchant Transmission On An AC Grid Is A Chimera. Every FERC Commission-Designate Should Be Required To Say at Least Ten Times "I Will Not Let Myself Be Seduced Into Accepting The Nonsensical Concept That Transmission Is Just Another Substitute For Generation."

[53] E.g, Eric Hirst, *U.S. Transmission Capacity: Present Status And Future Prospects*, (June 2004), http://www.ehirst.com/PDF/TransmissionCapacityFinal.pdf.

[54] See also, *e.g*., Paul L. Joskow, *The Difficult Transition To Competitive Electricity Markets In The U.S.*, (May, 2003), http://econ-www.mit.edu/faculty/download_pdf.php?id=537; Paul Joskow and Jean Tirole, *Reliability and Competitive Electricity Markets* (October 26, 2004), http://econ-www.mit.edu/faculty/download_pdf.php?id=917.

would be required for the old vertically integrated model of cost of service utility regulation. As Professor Joskow put it: [55]

> Well functioning competitive power markets require a more robust transmission systems [*sic*] than we had under with vertically integrated regulated monopolies. Yet transmission investment continues to stagnate as congestion problems increase. In some parts of the country, reliability problems are growing, not because there is inadequate generating capacity in the region, but because there is inadequate transmission capacity to deliver it where it is needed. More transmission congestion increases local market power problems which in turn triggers the need for more regulatory interventions which may simultaneously undermine investment incentives. If we are not successful in adopting policies that stimulate more investment in transmission capacity to support competitive electricity markets we will face very serious electricity reliability and local market power problems in many parts of the U.S. within a few years.

I agree, and suggest that FERC's "Field of Dreams" concept, that if there is a market model using LMP, merchant transmission will be built, is nonsense promulgated by those generation interests who profit from higher congestion costs.

The basic fact is that no significant merchant transmission has been built on the "Field of Dreams" model.[56] While there are non-preexisting IOU entities that have built transmission (the Trans-Elect NTD Path 15, LLC fix in California is a good example), all examples of AC transmission fixes have been built on a "cost of service" basis.[57] What is more, Path 15 is a good example of a line that was built to alleviate political pressure. In the Field of Dreams paradigm, it would not have been built, since it was not "needed for reliability" but was built to reduce congestion costs. FERC has from time to time adopted the view, which I here try to debunk, that "merely" reducing congestion costs is not an adequate reason to allow transmission to be added to the grid costs. But it is interesting to note that when Secretary of Energy Abraham saw the political implications of continuing to tell California that it should simply absorb excess congestion costs and

---

[55] Statement of Professor Paul L. Joskow Before the Committee on Governmental Affairs United States Senate (January 12, 2002), http://econ-www.mit.edu/faculty/download_pdf.php?id=542, at 6.

[56] There are a few examples of interconnections between new generators and the grid.

[57] There have been a couple of DC (usually underwater) merchant lines constructed, but DC lines can be operated so as to deny access to those who will not pay, unlike AC lines, on which power flows according to Kirchoff's law, and not in accordance with payments or contracts. DC lines, while less efficient for the purposes of the total grid efficiency, and quite expensive, may thus be able to take advantage of the Field of Dreams paradigm, although at a considerable cost to the efficiency of the grid and to the public.

lump it (as FERC's model would suggest), FERC was sufficiently aware of consequences to go along, in spite of the fact that the very existence of the Path 15 fix was a violation of the theoretical rule that congestion that just leads to high costs is something that should only be fixed by merchant transmission and paid for with FTRs.

Historically, of course, the California IOUs, like most other IOU transmitting utilities, have been able to block most transmission additions not owned by them, and to delay or avoid transmission additions that would be owned by them.[58] That is a tradition which is in place in most parts of the country. There are significant economic reasons having to do with market power in transmission which make it profitable for vertically integrated IOUs to block additional transmission construction, and in most so-called RTOs or ISOs, the planning and construction function is essentially controlled by the existing transmission owners, whether or not they otherwise are deemed to "control" their transmission investment for FERC purposes in qualifying RTOs or ISOs. So there is little or no real incentive for those utilities to build more transmission, and many reasons for them not to do so.[59] Most State regulatory agencies are largely dependent for economic analysis upon the industries they regulate, and when the electric company is multistate in character it can effectively cow most state regulators in all of the states in question.[60]

The most recent device to avoid transmission being built is another version of the Field of Dreams construct, known as "participant funding." If an entity is sufficiently hurt by congestion, have the entity fund (but usually not own) the transmission addition needed to solve its problem, without recovery of its transmission investment. Since there have been significant tendencies in the past to build transmission so that it bypassed competitor LSEs or left them subject to congestion, this has the general effect of forcing extra costs on smaller LSEs that might compete effectively. Of course the problem with this model is that transmission is inherently lumpy (a result of its natural monopoly characteristics) and the model is used to attempt to force the building of transmission – if

---

[58] In the mid 1900's, PG&E expended a great deal of effort to block the then Department of the Interior from building new EHV transmission which it tried to build to serve its own customers and to tie in with BPA in the North. And more recently, both PG&E and SCE are alleged to have almost blocked construction of the third 500 Kv AC line to the Pacific NW by first proposing to be a partner with the Transmission Agency of Northern California ("TANC") and then convincing the CPUC to prohibit them from going forward with the investment. When the construction went forward anyhow, funded entirely by public entities, PG&E picked up the first offer (by the City of Vernon) to rent a share of the line.

[59] Entergy, for example, has effectively locked in many thousands of MW of IPP plants in the Entergy Gulf Coast area, who cannot obtain transmission adequate to permit them to sell the output of their plants to anyone other than Entergy because of serious transmission constraints in reaching the "outside." Entergy permits them to bid to sell energy to Entergy on a periodic auction, so it obtains the knowledge about the plant design that it may want to have, and when they go bankrupt as a result of this treatment Entergy buys the plant. On a short run basis that practice is probably good for Entergy's retail customers (not subject to retail competition yet, if ever), and Entergy has managed to convince most of its state regulators that this practice is a good one.

[60] Actually the other gender comes to mind as well, and the process might be described as "bull."

any is actually built under this model – which is clearly suboptimal from a public interest viewpoint, thus generally raising prices to the ultimate consumer because of the destruction of such competition as might otherwise exist.

The use of LMP as a device to create a "market signal" for additional transmission was a masterful sales job to the Commission on the part of those who really did not want new transmission built. In addition to the basic problem with the "field of dreams" concept, discussed above, the fact is that new transmission takes years to plan and build, so by the time the LMP price differentials appear, it is already five to ten years or more beyond the point where the planning and siting should have been started and it will be that long again before the problem is fixed. Thus the LMP "market signal" is in fact a distinctly lagging indicator rather than a leading one. By comparison, if national fiscal policy were set on the basis of lagging indicators, we would not expect that the Federal Reserve could manage inflation on any adequate basis. Since transmission planning engineers have for much of the last century managed to do the studies which permitted planning to be done before the crisis hit, it is entirely arbitrary and capricious to rely on a far less capable indicator than one that our grandfathers used with accuracy and efficiency. The only effective purpose of the use of the LMP "market signal" in this regard is to artificially increase the price being paid to some generators for a significant period of years.

There is a second point to be made about the Commission's sometime use of the LMP concept. An argument has been made by some that if LMP were applied on a nodal basis to all load, then the customers being hit by the high cost of congestion would somehow pay for the transmission improvements required if cheaper than the congestion costs. This argument, of course, is knowingly misleading. In fact, there is no state in the union where the retail regulator would even consider permitting the customers of a utility in one area to pay more because of inadequate transmission construction by the serving transmission provider than the customers in another area also served by the same utility. Unless the argument can be made that the customers have blocked transmission additions (arguably the case in SW Connecticut, where the issue is very hot politically), the idea of punishing one set of customers on a geographic basis for the inadequate planning of their transmission provider is clearly a political non-starter. But of course, state regulators usually do not consider the rates of municipal or cooperative LSEs that compete with the transmission provider. Indeed, PUCs usually expressly consider themselves as protecting only the retail customers of the IOUs, and frequently make every effort to push costs in the direction of the LSEs they do not regulate. This makes the concept of nodal LMPs very attractive to IOUs that see municipals and coops as their competition, as many do. Thus the combination of using the "market signal" argument as a way to avoid spending money on transmission and therefore saving their own inefficient generation from competition, while also having the potential of doing in the competition can be very attractive to a number of IOUs, and the economists for hire available to them, and the idea has not yet died the natural death it so richly deserves.

The single most critical lesson the Commission should have learned is thus the absolute necessity for adequate transmission if the grid is to be reliable and if competition at the generation product level is to have any chance of working. While the OATT includes an explicit obligation on a transmission provider to jointly plan and construct additional transmission needed for service to a load and from needed network resources,[61] the obligation has been largely ignored, or argued to simply require comparable service, so that if the transmission providers own service is highly congested, it will argue that it is appropriate to provide the same inadequate service to its network customers. Most of the extant ISO/RTOs are so weak in this regard that they have left transmission planning and construction to their transmission owning members rather than taking on the proactive obligation to plan and construct themselves. Recent testimony at FERC has demonstrated that there are areas where it is not possible (according to the ATC reported, at least) to move 600 KW of power from any source other than the incumbent vertically integrated utility. So the idea of leaving the adequacy of transmission planning and construction to the level deemed appropriate by the ISO, RTO, transmission provider or state PUC has been a disaster for the development of a competitive market.[62]

e. Merchant Transmission On An AC Grid Is A Chimera. Every FERC Commission-Designate Should Be Required To Say at Least Ten Times "I Will Not Let Myself Be Seduced Into Accepting The Nonsensical Concept That Transmission Is Just Another Substitute For Generation."

Those of us who toil in the vineyard of the real world have seen the Emperor in what we are told is his fine new suit of clothes. With apologies to Hans Christian Anderson, the Emperor in fact is naked, and ugly in the bargain.[63]

There have been swindlers who have sold FERC a bill of goods on the concept that transmission is just another equivalent to generation, and if generation can be controlled in the public interest through market forces, so can transmission. Of course,

---

[61] OATT § 28.2 obligates Transmission Providers to plan and "endeavor to construct and place into service sufficient transmission capacity to deliver the Network Customer's Network Resources to serve its Network Load on a basis comparable to the Transmission Provider's delivery of its own generating and purchased resources to its Native Load Customers." *See also* Preamble to OATT Part III ("Network Integration Transmission Service allows the Network Customer to integrate, economically dispatch and regulate its current and planned Network Resources to serve its Network Load in a manner comparable to that in which the Transmission Provider utilizes its Transmission System to service its Native Load Customers")

[62] As noted above, many transmission providers simply find it in their interest to have inadequate transmission systems. Since adding transmission would cost money, they have found it fairly easy to "convince" their state regulators to also oppose construction of transmission unless it is entirely financed by someone else (participant funding). Of course, this ignores entirely the benefits of cheaper energy that should be available as a result of competition over an upgraded grid.

[63] Hans Christian Anderson, *The Emperor's New Suit* (1837).

no one has ever really argued that transmission is something that is capable of being dealt with in the public interest by competitive forces. But those who thought that those who funded and built generation should be allowed to capture the difference in LMP (congestion costs) so that they would become rich argued that transmission investments should be governed by market forces, and not by an obligation to the public interest.

> One day two swindlers came to this city; they made people believe that they were weavers, and declared they could manufacture the finest cloth to be imagined. Their colours and patterns, they said, were not only exceptionally beautiful, but the clothes made of their material possessed the wonderful quality of being invisible to any man who was unfit for his office or unpardonably stupid.

Some of us have sought to ask FERC Commissioners and Staff at speaking engagements the basic question "Why should any investor in his right mind invest in transmission that will solve and eliminate congestion if the FTRs (for the value of the congestion difference) he or she is supposed to get in return for the investment are rendered valueless by the operation of the transmission line?" To date, I have heard only answers along the line of "my assistant, who understands these matters far better than I, will tell you when he or she talks next." Of course, that never actually happens. It may not be unfair to suggest that Andersen had hit upon a basic truth of human nature. The results he suggested also appear to be those we see in fact.

> The emperor marched in the procession under the beautiful canopy, and all who saw him in the street and out of the windows exclaimed: "Indeed, the emperor's new suit is incomparable! What a long train he has! How well it fits him!" Nobody wished to let others know he saw nothing, for then he would have been unfit for his office or too stupid. Never emperor's clothes were more admired.
>
> "But he has nothing on at all," said a little child at last. "Good heavens! listen to the voice of an innocent child," said the father, and one whispered to the other what the child had said. "But he has nothing on at all," cried at last the whole people. That made a deep impression upon the emperor, for it seemed to him that they were right; but he thought to himself, "Now I must bear up to the end." And the chamberlains walked with still greater dignity, as if they carried the train which did not exist.

With all humility, this result sounds very much like what FERC is doing, and does no good to anyone. No transmission to speak of has been built under the merchant transmission model, and no Commissioner can explain why it should be as an economic

matter. Perhaps the Commissioners should consider that they are bright enough to understand basic facts and question whether they are being sold a bill of goods in the proposed transmission and Day 2 models.

If Commissioners do not wish to take to word of Hans Christian Andersen, perhaps they would listen to Paul Joskow on the subject?[64]

f. There Some Things That Are More Important Than Personal Politics

There seems to be an unfortunate tendency of at least some FERC Commissioners and those responsible for the direction of orders and opinions to take personal offense when market players conclude that the cost of participating in a full "Day 2" model is far too expensive and raises the cost to consumers. In the wake of the decision of the Western Area Power Administration ("WAPA" or "Western") to take itself out of the CAISO and to join SMUD in a separate control area which may eventually become a part of GridWest (if that ever actually materializes), the Commission has taken several actions that would appear to be entirely inconsistent with past policies if not for a desire to punish WAPA and those dependent on it. While WAPA may or may not have made a decision that FERC liked, the fact is that it made a decision, even under pressure from DoE to lean toward staying in CAISO, that it could not rationally justify the excessive costs to its customers from doing so, and FERC policies should not force higher costs on consumers for the sake of doing so.

g. It Makes a Difference Which End of the Telescope One Uses to Look at a Problem

i) LSE-centric vs Generator-Centric

The FERC analysis that led to its design of markets adopted the approach being advocated by the IPP industry at the time. The idea was based on a paradigm of infinitely available transmission capacity, and the IPPs wanted to the ability to sell generation directly to retail or wholesale load without constraints. Part of that idea was that there would be short term energy markets into which generation capacity could be sold at any time the capacity was not otherwise committed (and for some, even if the capacity were committed, if the energy was not otherwise being called upon). In such a market, LMP was a minor factor, and since there was no obligation to worry about existing generation resources, new generation could in principle be located anywhere where it was needed. Longer term needs were not considered particularly important, since no one was worried about long term contracts.

But once the problems of an inadequate transmission grid began to become apparent, money was no longer freely available to new IPPs, and lenders have begun to

---

[64] *Merchant Transmission Investment*, Paul Joskow and Jean Tirole, http://econ-www.mit.edu/faculty/download_pdf.php?id=910.

refuse to lend to those without long term contracts for the output of the plant. But long term contracts are not easily attainable for generation located in what would otherwise be societally desirable spots not immediately adjacent to load. As a consequence, very little new IPP generation is being built today. While there is a lot of talk, most of it can be dismissed or discounted as puffery until money to build is actually available.

Worse, for IPPs, the upcoming developments as to reliability will require that generation sources ("iron in the ground") be contractually and actually available to LSEs in amounts that will meet maximum load plus installed reserve requirements, just as was the case in the pools that preexisted the restructuring movement. That means that long term contracts will have to incorporate the risk of congestion costs between the point of receipt into the grid and the point of delivery. If the Commission continues to consider that LMP differences are a legitimate cost of transmission for each such transaction, very few such long term contracts can be afforded by whichever party accepts the risk of increased LMP differentials, and further construction of new generation will be subject to even greater burdens.

The alternative was (and is) a model built upon the assumption that load is the one constant (and generally growing) force upon which a transmission grid is based and which pays for all generation. In that model, it would be clear that the long-term contracts needed for any LSE need to be protected against the wild fluctuations in congestion costs that occur in an LMP model.

The Commission's financial transmission rights ("FTR") concept is built on the obvious fact that a certain amount of generation can be shipped over an AC grid without congestion, and thus the imposition of LMP congestion costs on all generation to load transactions far overcharges users of the transmission grid. But the basic proposition for the FTR development is that there has to be a "simultaneous use" test, which of course is nonsense, since AC grids and the generators on them are not actually run that way. If the simultaneous use test is actually imposed, the FTRs that are provided to some of the users of the grid are far less than the grid carried in the pre restructuring days without much, if any, uplift cost. So the whole FTR package is a house of cards built upon a foundation of sand.

A model that might work with some stability would be a LSE-centric model in which each LSE on a grid would be able to make use of enough generation to meet its load plus reserves, with uplift charges spread across the grid to the extent uplift charges are actually incurred. And the transmission owners should be charged with limiting the uplift charges in the interest of reducing total costs to the total load. This could be done by imposing something like the current obligation under the OATT to build for network load, and then actually enforcing it. As a practical matter, if there are no long-term transmission rights, it will not be possible to have the contracts which are needed to provide financing for new generation. The alternative is a model in which the existing transmission owners serve all load growth from bankrupting competitive generators and buying them at a fire sale price. That is not a long term solution to load growth, nor one

that can be ethically or legally considered as a business model approved by the Commission.

h. There Are Some Obvious Market Power Problems Which Cannot Be Swept Under The Rug

i) In situations where the incumbent remains fully vertically integrated, market power will almost certainly continue to exist

It should be obvious that in almost all cases in which a vertically integrated utility controls both transmission and generation, it will have market power, whether or not there is an entity with RTO in its name around. This is true so long as the utility controls whether and when and where new transmission gets built, whether or not the utility ostensibly operates it. Yet EEI and its members have spent quite a lot of money on consultants attempting to prove that this is not the case. While I suppose that one should never propose to ignore efforts by otherwise credible academics or other consultants, this sort of thing may well erode or terminate that basic rule of politeness. For FERC, in particular, the situation reminds one of Inspector Renault in the movie *Casablanca*, who states as he accepts his winnings, that "I'm shocked, shocked to find that gambling is going on in here!" What else do FERC members expect? The fact is that one cannot possibly avoid market power in a situation where a utility's home market has not had the generation control adequately broken up, and where the owner of some generation has the ability not to add transmission needed to make competition work.

ii) In situations where a market participant controls generation and can prevent transmission from being built, market power will almost certainly continue to exist

None of the market power models really deals with the situation where a generation owner can prevent new transmission from being built simply by declining to build it when others think it is needed. In many cases, a generation owner can, by its pattern of plant use (sometimes a pattern that does not produce least cost energy), load or unload transmission. There were examples of that in the California meltdown situation, which were recognized as violations where they were used to drive the price in the central clearing market higher (or lower) for the profit of the manipulator. But this can occur in a traditional vertically integrated utility as well, although the pattern is not necessarily as easily detectable, and it is compounded when new and needed transmission to strengthen the grid is not constructed. FERC needs to be able to catch and deal with such attempts to manipulate the market or drive competitors out of business.

iii) Ancillary Services as a Source of Market Power

The Commission has not seriously examined the manipulation of ancillary services markets or the use of ancillary services as a way to manipulate other markets.

While not much research has been done on the ancillary services market in general, it may be noted that certain types of resources (hydro is a very good example) can effectively control certain ancillary services markets. In California, during the meltdown, for example, PG&E, which retained control of its hydro resources, provided a hugely disproportionate amount of certain key ancillary services to the CAISO region, and could essentially name its price for those services. Again, picking particular resources to bid for these purposes will require the ISO/RTO to leave capacity in certain transmission lines for the ancillary services to be utilized as called upon, and leaving capacity, in turn, can further congest an already congested transmission system. This sort of control can easily change the price in the basic energy market and other markets. But the Commission has not seriously examined this sort of practice for its contribution to manipulation of one or more of the markets in the region.

RCMCD:rcmcd