



Consumers in Peril

Why RTO-Run Electricity Markets Fail to Produce
Just and Reasonable Electric Rates

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February 2008



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Executive Summary



This white paper, prepared by the American Public Power Association, comes at a time of increasing peril for electricity consumers—both in present costs and future reliable service. Over the past 15 years, federal and state policymakers have fundamentally restructured wholesale electricity markets and retail electric service in many parts of the country. These changes were predicated on the promise that increased “competition” would spur efficiencies, promote innovation, ensure an adequate infrastructure and, most importantly, result in lower rates for consumers. But the opposite has occurred—restructured markets are producing higher prices (and higher profits) than one would expect in a competitive market. Nor is new infrastructure being constructed. And the only “innovation” many consumers have seen is in the new and complex market mechanisms developed to extract more dollars from them for the same basic product—retail electric service.

During this time, the Federal Energy Regulatory Commission changed its policy emphasis from ensuring non-discriminatory open access transmission service to implementing centralized wholesale electric markets run by regional transmission organizations (RTOs). The commission has limited its regulation of electric markets and allowed electricity generators to charge market-based rates. Many states in regions with RTOs implemented some form of retail electric utility restructuring, to allow retail consumers to choose their own power supplier. As part of the transition to these new retail restructuring regimes, many state-regulated incumbent electric utilities sold off their existing generation assets to unregulated third parties, including their own unregulated affiliates. All of these policy changes were made on the assumption that competition in wholesale and retail electric markets would develop. But, as this white paper explains, the structural features of the electric utility industry (high capital costs, high barriers to entry, control by incumbents of generation sites, etc.) make it difficult for true competition to develop or flourish.

RTO Market Failures

The centerpiece of FERC’s new wholesale electric regulatory policy—development of RTOs and their operation of centralized markets for wholesale power supply, capacity, and ancillary services—has been especially problematic. RTOs do provide services that have substantial value, which should not be overlooked. These services include administration of regional open access transmission tariffs (OATTs) on a non-discriminatory basis, elimination of “pancaked” (utility-by-utility) transmission rates and development of more coordinated regional transmission planning processes. But these substantial accomplishments have been overshadowed by the high costs and dysfunctional nature of RTO-run centralized markets. Dysfunctional features of these markets include:

- Offers to sell power are not connected to the sellers’ actual costs of generating power (average, marginal or otherwise), as FERC would have required under a traditional cost-of-service ratemaking regime and as a more competitive market would have produced. Lower-cost generators are paid the same price as those with higher operating costs, but these additional dollars have not spurred the

entry of new competitors or induced substantial investment in new generation facilities.

- Prices for power sold under bilateral contracts (individual contracts between a buyer and a seller) have been substantially influenced by the high prices sellers can obtain in the RTOs' centralized markets. It is uncommon to see bilateral power supply contracts in RTO regions for terms longer than one to five years, or that are backed by specific electric generation units. Long-term bilateral contracts are increasingly difficult for purchasers to obtain under reasonable terms and conditions.
- RTO-run bid-based markets create incentives for generators to withhold capacity (to create artificial shortages that increase prices) and to refrain from building otherwise-needed new generation capacity (which could reduce prevailing market prices, thus reducing profits).
- In contrast to its theoretical basis, there is no evidence of any relationship between locational marginal pricing (LMP) signals and the construction of new generation and transmission facilities.
- Electric consumers are paying billions in additional charges required by new RTO-run locational capacity markets, but it is highly uncertain, at best, whether these markets will support future development of enough new generation facilities to meet demand.
- Regional high-voltage transmission facilities are essential to support wholesale power supply transactions. However, transmission capacity is often insufficient to meet demand and the associated transmission rates are therefore uncertain, due to substantial congestion charges imposed by the RTO.
- In RTOs, new markets are continually developed to price previously cost-regulated products, e.g., ancillary services, without any rigorous cost-benefit analysis. The administrative and software costs associated with these new markets are very high, with little evident benefit to consumers.

Fundamental Market Reform is Necessary to Protect Consumers

It is time to acknowledge that market forces alone are not sufficient to discipline prices and ensure adequate service in the electric utility industry. There is a significant amount of evidence of problems in RTO-run markets presented in the studies that APPA sponsored during the initial phase of its Electric Market Reform Initiative. APPA summarizes that evidence in this white paper. The EMRI studies—along with the multitude of materials filed by other load-side interests, in FERC's Advanced Notice of Proposed Rulemaking (ANOPR) in Docket Nos. RM07-19-000 and AD07-7-000, Wholesale Competition in Regions with Organized Electric Markets—strongly suggest that RTO-run centralized wholesale electricity markets are not producing just and reasonable rates. In the face of this evidence, FERC has an affirmative obligation—expressly set forth in the Federal Power Act—to investigate whether rates subject to its jurisdiction are unjust and unreasonable and to take remedial steps if it finds they are.

To avoid further harm to consumers while FERC is carrying out this investigation, APPA recommends that FERC quickly place a moratorium on both the establishment of new RTO-run centralized markets, as well as the implementation of new markets for additional products and services in existing RTOs, unless such markets are supported by all classes of stakeholders and accompanied by a valid cost/benefit analysis.

APPA Recommends Restructuring RTOs as Day 1 RTOs

Based on recent indications, APPA is concerned that FERC will not initiate an investigation into the justness and reasonableness of rates in RTO-run centralized markets without first having received specific proposals for RTO market reforms. While a number of RTO market reform proposals have been offered, APPA in this white paper offers its own suggested reform proposal—to restructure full “Day 2” RTOs (RTOs with full centralized power supply markets) into more streamlined “Day 1” RTOs. This proposal is designed to keep what is working relatively well in RTOs, namely the “Day 1” transmission-related functions, but to streamline and ultimately replace those functions and features—mostly associated with RTO-run centralized power supply, ancillary service and locational capacity markets—that have failed to produce sufficient benefits for consumers. Such a regime would de-emphasize participation in RTO-run centralized power supply markets by both buyers and sellers, and foster longer-term bilateral power supply contracting.

The functions that such a Day 1 RTO would carry out are as follows:

- Ensure non-discriminatory access to the grid through independent administration of a regional OATT and provision of transmission service, including needed ancillary services.
- Develop and administer a regional transmission rate design that eliminates rate pancaking and assures the recovery of the cost of transmission facilities for all transmission facility owners that wish to participate in the RTO, regardless of their form of ownership.
- Operate a single regional open access same-time information system (OASIS) and independently calculate available transmission capacity (ATC).
- Conduct independent and collaborative regional transmission and generation interconnection facilities planning, with the full inclusion of affected stakeholders.
- Carry out wide-area system security and reliability-related activities, ensuring that transmission facilities are operated in compliance with relevant North American Electric Reliability Corp. and regional reliability entity criteria.
- Operate an energy imbalance market to enable transmission customers to manage their imbalances and to allow generators (including intermittent renewable generators) to sell excess generation not committed under bilateral contract arrangements.
- Ensure adequate generation reserves through implementation of appropriate regional resource adequacy requirements.

APPA intends to produce a more detailed description of this proposal in a separate

document, which will be published later in 2008.

Until this proposal or similar fundamental RTO market reforms are implemented, there are a number of discrete RTO-related problems that could be addressed more quickly, to provide electric consumers with some interim relief:

- Require cost-benefit studies and proof of broad stakeholder support to accompany any RTO filings to implement new markets and programs or changes to existing markets or programs;
- Revise RTO mission statements and strategic plans to include an explicit goal of reducing electric power costs to customers;
- Improve RTO governance to be more responsive to stakeholders;
- Ensure that market monitors are truly independent and have all of the resources necessary to perform their functions; and
- Improve data transparency by providing public access to generator bid data on a next-day basis, with open identification of generators, as well as generator cost and operating data.

Conclusion

APPA wants this white paper and the proposals it contains to contribute to a constructive dialogue to develop sorely needed reforms to RTO-run centralized wholesale electricity markets. The debate should no longer be about who can best massage the statistics on prices or whether it is more virtuous to support “competition” or “regulation.” Instead, all industry participants need to work together to design a regulatory system for electricity markets that truly benefits consumers, businesses and the environment.

I Introduction



Wholesale electricity markets have changed fundamentally over the past 15 years. The Federal Energy Regulatory Commission changed its policy emphasis from ensuring non-discriminatory open access transmission service to implementing centralized wholesale electricity markets run by regional transmission organizations (RTOs), with limited regulation. Meanwhile, many states implemented programs to provide retail consumers with a choice of electricity providers. In many of these states, shareholder-owned electric utilities sold off their generating plants to third parties (in many cases, unregulated affiliates), who can sell their power at prices that are no longer tied to the cost of production and are subject only to limited RTO “market mitigation” rules.

These changes were predicated on the premise that the combination of open access transmission service and these new centralized wholesale markets would promote “competition” that would spur efficiencies and innovation, ensure adequate supplies and, most importantly, lower rates for consumers. But evidence gathered in investigations of the RTO-run wholesale markets and the real-world experience of consumers shows that the opposite has occurred. These deregulated markets are producing both higher prices and higher profits than one would expect in a competitive market. Prices exceed those prevailing in the remaining regions that have not restructured and have retained cost-of-service regulation.

This is not to say that RTOs provide no benefits. Properly structured, RTOs can provide independent and non-discriminatory transmission service under open access transmission tariffs (OATTs), charge regional, non-pancaked transmission rates, and lead regional collaborative transmission planning and construction processes. Such RTO functions benefit consumers—yet FERC’s policies in promoting centralized RTO-run markets have increasingly lost sight of these RTO functions, as market implementation has taken center stage. It is the RTO-run centralized wholesale markets that are the primary focus of this white paper.

On December 17, 2007, a diverse group of 41 consumer advocacy, business and public power organizations came together to ask the FERC to investigate whether restructured wholesale electricity markets are producing unjust and unreasonable wholesale power prices—prices that are then passed along to retail customers in their monthly bills. Among the serious problems flagged in that filing are the increasingly high electricity prices consumers are paying, while certain sellers of electric generation are earning excessive profits. Worse yet, these higher profits are not invested in new electric generation and transmission facilities and, therefore, will not reduce prices over the longer term.

A large body of evidence gained through various studies that the American Public Power Association and others have commissioned supports these conclusions.¹ These studies contain substantial evidence of market dysfunction, demonstrating that the portion of the electricity industry operating under FERC-jurisdictional RTOs resembles more of a

¹ A summary of the initial studies that APPA commissioned can be found at: <http://www.appanet.org/files/PDFs/EMRISummarybooklet.pdf>. For the full studies, go to <http://www.appanet.org/emri.cfm>.

Supporters of restructuring continue to promote market-based rates, highly restricted access to relevant price and cost data and other policies that could work only in markets with robust competition.

concentrated oligopoly than a competitive market. (For example, financial analyst Edward Bodmer found that shareholders of five owners of unregulated generation assets have earned as much as \$70 billion more than investors in regulated electric utilities over the past few years.)² Analyses by London Economics and Synapse Energy Economics suggest behaviors inconsistent with a competitive market and consistent with the exercise of market power: large and fluctuating disparities between costs and prices, aberrational patterns of offers to sell power, and the absence of effective price signaling for the construction of sorely needed new generation and transmission facilities.³

These non-competitive outcomes are the result of specific policies applicable to centralized RTO-run wholesale markets. For example, FERC allows generators to charge “market-based rates,” relying on a supposedly competitive market to discipline prices to the “just and reasonable” levels required by the Federal Power Act. Such a policy fails to recognize that these markets are fundamentally different from markets for other goods and services. As the December 17 filing notes, “the commission’s ratemaking methodology in RTO-run organized markets is based on presumed conditions that are at variance with reality.”⁴ These presumed conditions include: the absence of significant market power; free entry and exit of competitors; an optimized generation resource mix; the absence of significant structural and behavioral impediments to long-term contracting; the presence of price-responsive demand; and the availability of short-term substitution alternatives.

Despite the large body of evidence that these markets do not meet the preconditions for effective competition and in fact demonstrate outcomes indicative of the exercise of market power, supporters of restructuring continue to call these markets “competitive.” They continue to promote market-based rates, highly restricted access to relevant price and cost data and other policies that could work only in markets with robust competition. Many of these restructuring supporters are entities with large portfolios of generation facilities in RTO regions; they are the primary beneficiaries of the current dysfunction in centralized RTO-run wholesale electric markets.

Supporters of these markets try to frame the debate by characterizing critics as opposing “markets” and “competition” and instead supporting “regulation.” But it is becoming increasingly apparent that leaving electricity pricing and supply up to these “markets” is an invitation to exercise market power. Because current wholesale regulatory policies

² Affidavit of Edward Bodmer, Comments of the American Public Power Association, FERC Dockets RM07-19-000 and AD07-7-000, Wholesale Competition in Regions with Organized Electric Markets, September 14, 2007.

³ *A Comparative Analysis of Actual Locational Marginal Prices in the PJM Market and Estimated Short-Run Marginal Costs: 2003-2006*, prepared by Serkan Bahceci, Julia Frayer, Amr Ibrahim and Sanela Pecenkovic, London Economics International, February 2007, and *LMP Electricity Markets: Market Operations, Market Power, and Value for Consumers*, prepared by Ezra Hausman, Robert Fagan, David White, Kenji Takahashi and Alice Napoleon, Synapse Energy Economics, at <http://www.appanet.org/emri.cfm>.

⁴ Request to Expand the Scope of the 206 Proceeding, Docket Nos. RM07-19-000 and AD07-7-000, December 17, 2007.

ignore these problems, they are detrimental to consumers. Moreover, the problems are growing worse. These policies are harming not just public power utilities and the consumers they serve, but also consumers and businesses throughout the country.

Because many states that implemented retail access programs required their investor-owned utilities to sell off their generation facilities to unregulated entities, these generation facilities are now largely concentrated in the hands of owners that can charge “market rates” for this power (often unregulated affiliates of the traditional utility supplier). Most consumers in these states are still purchasing retail electric service from their traditional electric utility under “default” or “provider of last resort” service. As a result, most residential customers are receiving power from the same utility as before, but that utility must now procure electricity on the wholesale market, at substantially higher “market” rates, in many cases from the same generation facilities that the utilities themselves used to own. With retail rate caps now expiring in many states, consumers are finding themselves exposed to the full brunt of the resulting higher wholesale power prices for the first time.

In restructured states where customers are now fully exposed to market prices, electricity rates increased almost 40 percent since 2002, compared to 19 percent for states that remain regulated.⁵ In July 2007, the average electricity price in states located within RTOs was almost 11 cents per kilowatt-hour, about 2.4 cents greater than the rates paid outside of RTO markets (about a 30 percent difference). This differential was significantly greater than the 1 cent difference in January 2003, when non-RTO states had an average rate of about 6 cents.⁶

Not only are prices increasing at a faster rate in RTO-run markets, but also wholesale customers in these regions (load-serving electric utilities that procure power to serve their end-use customers and large industrial customers that can purchase directly in wholesale markets) are finding it difficult to obtain reasonably priced longer-term power supply contracts.⁷ The lack of such long-term contracting makes it more difficult to

⁵ *The Impact of Competition on Electricity Prices: Can We Discern a Pattern?*, Kenneth Rose, Ph. D., Consultant and Senior Fellow, Institute of Public Utilities, presentation to the Harvard Electricity Policy Group, December 6, 2007, available at <http://www.appanet.org/emri.cfm>.

⁶ *The Missing Benchmark in Electricity Deregulation*, by Robert McCullough, Managing Partner, and Ann Stewart, Research Analyst, McCullough Research, December 2007, available at <http://www.appanet.org/emri.cfm>.

⁷ See for example the following testimony provided to FERC in Conferences on Competition in Wholesale Power Markets, Docket No. ADO7-7-000: Prepared Statement of Roy Thilly, President and CEO of Wisconsin Public Power Inc., February 27, 2007, <http://www.ferc.gov/EventCalendar/Files/20070301133025-Thilly,%20Wisconsin%20Public%20Power.pdf>; Testimony of Walter Brockway – Manager of Regulatory Affairs – Energy for Alcoa, May 8, 2007, <http://www.ferc.gov/EventCalendar/Files/20070508083948-Brockway,%20Alcoa.pdf>; Statement of Duane S. Dahlquist On Behalf of Blue Ridge Power Agency, May 8, 2007, <http://www.ferc.gov/EventCalendar/Files/20070509151931-Dahlquist,%20Blue%20Ridge%20Power.pdf>

finance needed new electric generation projects, including clean and innovative sources of power. Moreover, in the absence of regulatory measures to assure adequate supplies of electricity to enforce a traditional service obligation by electric utilities to their retail customers, generation owners and incumbent utilities have little incentive to invest in new generation and transmission infrastructure.

It is time to acknowledge that “market forces” alone are not sufficient to discipline prices and ensure adequate service in the electric utility industry. The market failures described above must be addressed before the lack of affordable electricity becomes even more of a threat to the quality of life and the economy of much of the nation. As the electric utility industry implements carbon-reduction measures to address climate change, and as needed new transmission and generation infrastructure additions come on line to meet increasing demand, the financial burden on retail electric customers will increase. State and federal policymakers owe it to these customers to make sure that rate increases are not layered on top of already unjust and unreasonable rates engendered by dysfunctional RTO markets.

The purpose of this white paper is to present an overview of the problems in today’s restructured wholesale electric markets and to identify the steps needed to address these problems. Section II provides a brief discussion of the public power business model and our perspective on the industry. Section III then addresses the unique characteristics of the wholesale electricity market that make competition difficult to achieve and the statutory responsibility of FERC to ensure that rates are just and reasonable. Section IV details the specific problems that have arisen in the RTO-run wholesale markets. Section V introduces APPA recommendations for longer-term reforms, and is followed by a listing in Section VI of proposed interim remedial actions that FERC should take in the near-term to protect consumers until more fundamental changes can be agreed upon and implemented.

II Public Power's Perspective



Public power utilities were created by state or local governments to serve the public interest. They are not-for-profit entities controlled locally by the customers they serve. Their purpose is to provide reliable and low-cost electric power to their retail and wholesale customers, consistent with good environmental stewardship, and to do so consistently year after year. They have retained their traditional utility obligation to serve all customers in their service areas; indeed, they see this as their mission.

Some public power utilities, particularly the largest ones, are fully vertically integrated. They own and operate all of the facilities—generation, transmission and distribution—necessary to provide electric service to their retail customers. Large public power utilities also provide transmission services to other eligible customers and partner with their neighboring utilities to jointly plan transmission to meet regional needs. Other public power utilities are “virtually” vertically integrated—they have contract and tariff arrangements under which they buy wholesale transmission and power supply services from others. Many have joined together to form municipal joint action agencies to own or procure wholesale generation and transmission services. Nearly 1,000 public power utilities belong to joint action agencies.

Still other public power utilities are distribution-only utilities that purchase the energy and transmission services they need from larger utilities, including the Tennessee Valley Authority, the Bonneville Power Administration or neighboring investor-owned or cooperatively owned utilities. A significant number of public power utilities are located in or near RTO regions and thus rely on RTO markets to meet a major portion of their wholesale power supply and transmission needs.

III Competition and Wholesale Electric Power Markets

What is Competition?



Supporters of RTO-run centralized wholesale electricity markets and state retail restructuring regimes commonly use the term “competitive” to describe these markets and programs. Of course, calling a market “competitive” does not make it so, particularly when there is no basis to believe these markets meet the basic criteria for effective competition.

Notwithstanding this lack of analysis, RTO-run centralized wholesale markets assume that competitive forces would somehow keep prices at reasonable levels.

Advocates of these markets argue that wholesale electric power is essentially no different from other industries and all that needs to be done is to improve market rules and market oversight. But the threshold question—whether the economic and technical characteristics of electric power production and transmission are compatible with truly competitive markets—has never been thoroughly addressed. Even the economist Alfred Kahn, a proponent of deregulating electricity markets, recognized that a determination of whether market forces could sufficiently discipline prices and guide investment decisions “would have to take into account the extraordinary and in some respects literally unique characteristics of the industry.”⁸

Addressing the question of whether true competition is achievable in electricity markets first requires a common understanding of the term “competition.” As simple as the concept may seem, it is a major source of misunderstanding in the restructuring policy debate. Economists disagree on a practical definition of competition, and many policymakers apparently have not understood the implications and importance of this disagreement.

The conventional textbook definition of competition requires numerous buyers and sellers, no barriers to entry, price flexibility in response to underlying cost changes, perfect information, and foresight by buyers and sellers. While the textbook definition of competition might be too stringent as a practical matter, the listed characteristics still serve as a useful guide and, if too many of them are not present, policymakers should be concerned. Columbia University economist Joseph Stiglitz, a Nobel laureate, provides what he calls a simple “old-fashioned” definition of competition: It is a “rivalry among firms to supply the needs of consumers and producers at the lowest price with the highest qualities.”⁹ If such rivalry is present, then sellers will be “price takers,” not “price setters,” and consumers will benefit.

⁸ Kahn, Alfred. “The Deregulatory Tar Baby: The Precarious Balance Between Regulation and Deregulation, 1970–2000 and Henceforward.” *Journal of Regulatory Economics*. Vol. 21. Issue 1 (2002), 46.

⁹ Stiglitz, Joseph. *Whither Socialism?* Cambridge (MA): The MIT Press, 1994, 255.

Structural Characteristics of Electricity Markets

Price competition is especially important in electric power markets. In other industries, lack of vigorous price competition may not be a major problem because firms can compete by improving existing products or introducing new ones. But this is not so for electricity. Price is essentially the only dimension over which suppliers can compete and if suppliers are not vigorously competing on the basis of price, then consumers will not be better off. (One exception is the offering of “green power” whereby consumers can purchase electricity generated by renewable energy facilities. But the “product” that is consumed is still the same.)

A number of very important structural characteristics of the electric power industry raise substantial barriers to entry and thus severely limit competition. Most obvious, perhaps, is the size of the capital investment needed to enter the industry.¹⁰ Other threshold questions confronting a potential competitor are how much lead time it takes to enter the market, where to build a new generation plant and, most importantly, whether there will still be the same level of demand for electricity once the new plant is built and what impact the addition of its new supply will have on prices.

A new competitor might see a market opportunity where prices have been high for a significant period of time and so might believe this would be the case for the next year or two. But it takes a minimum of five years to build a large fossil fuel-fired plant and even longer for a nuclear plant. Price forecasts become less reliable that far out and risks increase correspondingly. Without a long-term commitment by one or more buyers to purchase the plant’s output, financing becomes very problematic. Hence, the longer it takes to enter the market, the less certain the amount of future revenues becomes. This factor poses a significant barrier to entry, especially in the electric power industry, where the incumbents generally already control many of the best generation sites.

The control of most of the best locations for new generation sites provides a significant absolute cost advantage to incumbent utility generators. These generators can add capacity at existing sites by increasing the size of existing units, building new units in their place or by adding new units to old ones at existing sites. In contrast, new entrants face the challenge of finding sites not too far from high-population areas, transmission lines, sources of water, rail lines, etc., depending on the type of unit they wish to build. Consequently, new entrants often have to build plants at less desirable locations where they may not have convenient access to other necessary infrastructure. If they do locate plants closer to end users, land values are likely to be high, and siting and environmental requirements more stringent and costly.

The control of most of the best locations for new generation sites provides a significant absolute cost advantage to incumbent utility generators.

¹⁰ A new 500-600-megawatt, base-load coal plant costs about \$800 million and a new comparably sized nuclear facility costs more than a billion dollars. Energy Information Administration, Table 39. Cost and Performance Characteristics of New Central Station Electricity Generating Technologies, <http://www.eia.doe.gov/oiaf/aeo/assumption/pdf/electricity.pdf#page=3>.

Many of the generation units in their portfolios are the same units that the vertically integrated utility built prior to restructuring to serve their retail customers. Thus, the generation portion of their business went from being a regulated monopoly to part of an unregulated oligopoly.

Advocates of RTO-run centralized markets have touted the entrance of “merchant generators” into the marketplace as a sign that these markets are competitive. But many of these companies are the deregulated generation affiliates of former vertically integrated electric utility companies. Many of the generation units in their portfolios are the same units that the vertically integrated utility built prior to restructuring to serve their retail customers. Thus, the generation portion of their business went from being a regulated monopoly to part of an unregulated oligopoly.¹¹

For example, the 6,000 megawatts of electric generation capacity that Baltimore Gas and Electric Co., a state-regulated transmission and distribution utility, once owned is now owned by the company’s unregulated affiliates within the Constellation Energy holding company.¹² Constellation’s “merchant” affiliates therefore do not face many of the high barriers to entry—such as financing the plant and locating a site—that a true new entrant would. This head start enhances the market power of these merchant affiliates of traditional utilities. They can charge prices substantially above their own economic costs of producing power (reaping very handsome profits as they do so) and have little to fear from new entrants. As a result, there are only a limited number of generation competitors in RTO markets, further undermining the ability of “competition” to bring prices to reasonable levels.¹³

Despite these and other impediments, advocates of RTO markets believe competition can be “made to work,” “designed” or “created.” This belief assumes that the basic physical characteristics of the production and delivery of electric energy and the economic characteristics of the industry matter little and that legal, structural and institutional changes can make the industry competitive, in the process rendering price regulation unnecessary. But this view is inconsistent with one of the cardinal elements of competition: Competition itself restrains the behavior of market participants so there is little or no need for government involvement. If wholesale electric power markets were truly competitive, then the market itself would produce the correct levels of investment in reliable and environmentally responsible electric service and assure that electricity is produced and priced efficiently. Were the markets truly competitive, there would not be a constant need for patchwork solutions to address concerns about reliability, excessive prices and the adequacy of future generation capacity, as there are today.

¹¹ A market characterized by such a small number of sellers such that each one can take actions that affect the prices in the market.

¹² Constellation Energy Group, 2006 Form 10-K p. 6.

¹³ For example, in peak hours in PJM in 2006, the Herfindahl-Hirschman Index (HHI), a measure of market concentration, averaged 4,157, well above the cutoff of 1,800 for a “highly concentrated market.” The average for intermediate hours was similarly high, at 2,664. (An HHI of 1,800 represents about five or six firms with equal market shares.) *2006 State of the Market*, PJM Interconnection, LLC.

Are Restructured Markets Synonymous with Competition?

It is time to ask: Are continuing concerns about adequate capacity, reliability and generation market power simply due to the fact that we haven't yet been able to come up with the correct "market design," or is it because the basic characteristics of electric power markets ensure a large and unacceptable level of market power that cannot simply be "designed away?" Are the disconnects between how competitive markets should theoretically perform and what is actually happening in RTO wholesale power markets due to faulty market design or, alternatively, do they reflect faulty assumptions regarding what can realistically be done about the inherent lack of competitiveness of electric power markets?

APPA believes a detailed, unbiased study of the inherent economic conditions of the electric power industry would raise serious questions about the competitiveness of RTO-run centralized markets and their ability to discipline wholesale prices to just and reasonable levels. This does not mean that prices should not vary by time of use to reflect varying costs of production in different hours at different levels of customer demand. But variability in prices does not mean, and should not serve as a pretext for, setting prices far above costs, resulting in excessive returns to a limited set of oligopolistic generators. Nor should extreme price spikes be justified as promoting demand response, when the actual result is "demand destruction" that can greatly harm consumers and businesses.

There are significant natural and artificial impediments to competitive RTO-run centralized wholesale markets that policymakers cannot simply assume away. The views of RTO-market proponents about the real or alleged failures of traditional regulation need to be balanced with other views about the failures of electricity deregulation and RTO markets in particular. It is precisely those who must deal with these RTO market realities—consumers and the load-serving entities¹⁴ responsible for meeting their needs—who have expressed the most concerns, while it is the RTOs themselves and the generators who participate in these markets who claim consumers are benefiting from them. This disconnect in itself should prompt policymakers to question whether these markets benefit consumers or oligopoly generators.

How the Federal Power Act Addresses the Potential for Anti-Competitive Behavior Through the Just and Reasonable Rate Standard

During the early years of the electric utility industry, concerns about utilities exercising market power to exploit consumers led to enactment of federal and state statutes requiring that wholesale rates meet a "just and reasonable" standard. This standard still

¹⁴ A load-serving entity is a utility that has a responsibility to provide electricity to retail customers and purchases or generates electricity in order to satisfy that responsibility.

exists in the Federal Power Act (FPA), which Congress has entrusted the FERC to enforce.

The FERC's core responsibility under the FPA is to "guard the consumer from exploitation by non-competitive electric power companies."¹⁵ Its primary (but not its only) statutory tools to protect consumers are FPA Sections 205 and 206.¹⁶ These sections require commission-regulated "public utilities" to charge rates that are "just and reasonable." In reviewing public utilities' rates under this standard, the commission must balance competing interests: it must ensure that investors in the public utility receive a fair return on their investment while, at the same time, protecting consumers from excessive rates.¹⁷

Although the statute does not stipulate what method should be used to achieve just and reasonable rates, the commission has until relatively recently used cost-of-service regulation to make sure that rates were just and reasonable. The recent shift toward the use of markets and supposed competitive forces to ensure just and reasonable rates, while not prohibited by the FPA as a method, is clearly not working to achieve the required result.

Because the commission has decided to allow alleged competitive forces to discipline wholesale power rates, it takes on the heavy burden of ensuring that public utility sellers in fact still charge only just and reasonable rates.¹⁸ The U.S. Court of Appeals for the District of Columbia Circuit has found that while "contrasting or changing characteristics" within the industry may justify "taking a new approach to the determination of just and reasonable rates," FERC may not abdicate "its statutory responsibilities in favor of a method that guards against only grossly exploitative pricing practices."¹⁹ Evidence from the restructured markets clearly shows that market-based rates and unregulated prices do not equate to just and reasonable rates.

In an effectively competitive market, where neither buyers nor sellers have significant market power, the commission can rationally assume that the terms of their voluntary exchanges are reasonable, and specifically infer that the sales prices are close to marginal cost, so that a seller makes only a normal return on its investment.²⁰ (A normal return is that which is sufficient to attract adequate levels of capital financing and not a level that earns supra-normal profits.) But, as explained above, the structural features of the

¹⁵ *NAACP v. FPC*, 520 F.2d 432, 438 (D.C. Cir. 1975), *aff'd*, 425 U.S. 662 (1976).

¹⁶ 16 U.S.C. §§ 824d and 824e.

¹⁷ *Public Utility District No. 1 of Snohomish County, Wash. v. FERC*, 471 F.3d 1053, 1058 (9th Cir. 2006).

¹⁸ *Cal. ex rel. Lockyer v. FERC*, 383 F.3d 1006 (9th Cir. 2004).

¹⁹ *Farmers Union Cent. Exch., Inc. v. FERC*, 734 F.2d 1486, 1503-04 (D.C. Cir. 1984) ("*Farmers Union*").

²⁰ *Tejas Power v. FERC*, 908 F.2d 998, 1004 (D.C. Cir. 1990).

wholesale electric power industry, and the resultant market power of generators, make it very difficult for competitive forces actually to discipline prices to just and reasonable levels. Moreover, research conducted for APPA in the first phase of its Electric Market Reform Initiative (undertaken in 2006) shows that wholesale power prices in RTO markets bear no relationship to sellers' marginal costs of production;²¹ to the contrary, certain owners of generation are "earning supra-competitive returns that are not commensurate with returns on investments in other enterprises having corresponding risks."²²

These facts, taken together, lead APPA to conclude that wholesale rates in RTO-run centralized markets are not just and reasonable. APPA believes the commission has the statutory responsibility to investigate this situation, and to remedy it if it finds rates to be unjust and unreasonable. As FERC Chairman Joseph Kelliher himself has pointed out, "[t]he legal duty of the commission to prevent unjust and unreasonable rates and undue discrimination or preference in the sale of wholesale power or interstate transmission by jurisdictional sellers is absolute; the commission does not have the discretion to ignore them."²³

²¹ "A Comparative Analysis of Actual Locational Marginal Prices in the PJM Market and Estimated Short-Run Marginal Costs," prepared by London Economics International, LLC (February 5, 2007) (LEI's analysis of bidding in PJM markets based on short-run marginal costs showed that offers to sell electricity into PJM's organized markets are often not tied to the seller's marginal cost of producing that electricity; for example, in PJM Interconnection, during peak periods in recent years, as much as 10 to 25 percent of the price appears to be attributable to the difference between that price and the short-run marginal costs of the generator whose bid cleared the market.).

²² Request to Expand the Scope of the Section 206 Proceeding, Docket Nos. RM07-19-000 and AD07-7-000, December 17, 2007 at 4.

²³ Joseph T. Kelliher, *Market Manipulation, Market Power, and the Authority of the Federal Energy Regulatory Commission*, 26 Energy L.J. 1, 3-4 (2005).

IV. Failures of Centralized RTO-Run Wholesale Electricity Markets



entral to FERC's policies encouraging competition in the wholesale electricity markets has been the promotion of RTOs and their operation of centralized markets for wholesale electricity and ancillary services. These markets, while operated without traditional cost-of-service regulation, are very complex, entailing numerous market rules, large bureaucracies and expensive software packages. The history of these RTO markets has been characterized by continued attempts to address various issues through a series of market "fixes." However, because these centralized markets were assumed to be competitive, the fact that continual "fixes" have been required calls into serious question the underlying assumption of competition.

Features of RTO Markets²⁴

There are currently six FERC-regulated ISOs: ISO New England (ISO NE); the New York ISO (NY ISO); the PJM Interconnection (PJM, which covers the Mid-Atlantic states and some parts of the Midwest); the Midwest ISO (MISO, which covers other parts of the Midwest); the California ISO (CAISO); and the Southwest Power Pool (SPP), which covers parts of Texas, Louisiana, Arkansas, Missouri, Kansas and Oklahoma.²⁵ The concerns expressed in this paper focus specifically on the centralized RTO-run markets that have come to dominate RTO operations. RTOs do provide services that have substantial value and should not be eliminated. RTOs have implemented regional OATTs, administered on a non-discriminatory basis, eliminated pancaked transmission rates (allowing transactions to take place over a broader geographic area, provided that the necessary transmission infrastructure is available) and attempted to strengthen regional transmission planning. Yet these substantial accomplishments have been overshadowed by the costs and dysfunctional nature of RTO-run centralized markets. RTOs generally operate centralized day-ahead and real-time spot markets for electricity, as well as markets for ancillary services needed to use open access transmission service. The prices for electric power in these markets are set at certain intervals (often every hour) based on the offers to sell power submitted by generation owners to the RTO. These offers need not reflect the sellers' actual costs of generating power (average, marginal or otherwise), as FERC would have required under a traditional cost-of-service ratemaking regime. Rather, the sellers set their own price offers, unless the prices they propose trigger pre-set "market mitigation" thresholds set by the RTO.²⁶

²⁴ For a more detailed description, see *Understanding Electricity Markets An examination of how electricity markets work—and how they don't*, by Gary Newell and Ransom E. (Ted) Davis, Thompson Coburn, for APPA, November 2006, at <http://www.appanet.org/aboutpublic/index.cfm?ItemNumber=17766>.

²⁵ The Electric Reliability Council of Texas ("ERCOT") is also an ISO, but since ERCOT does not operate in interstate commerce, it is regulated by the Texas Public Utility Commission.

²⁶ For example, there are exemptions from mitigation granted to generators in PJM. The Maryland Public Service Commission asserts in a complaint filed with FERC against PJM in January 2008 that "a significant share of generation resources in the PJM footprint avoids mitigation even though they exercise market power," and that these exemptions "added \$87.5 million to Maryland's 2006 real-time energy related charges."

The RTO takes all offers for a particular upcoming time interval in ascending price order, stopping with the last offer needed to meet the power needs of loads during that time interval. All sellers in that time interval, regardless of the amount of their own price offers, are paid the price based on the last and highest offer the RTO accepts to supply power to meet its regional demand—known as the bid that “clears the market.” This market design is known as a “single clearing price” market, and such markets are called “Day 2” markets.²⁷

Bid-based markets create well-known incentives for generators to withhold capacity (to create artificial shortages that increase prices) and to refrain from building otherwise-needed new generation capacity (which could reduce prevailing market prices, thus reducing profits). This combination of complex market rules, incentives for short-term withholding, and depending on the “market” to assure adequate generation and transmission infrastructure can ultimately jeopardize reliable service to retail customers, as witnessed by the load shedding that customers experienced in California during the 2000-2001 energy crisis. The complexity of the transition to using RTO markets to operate a large multi-state power system may also have contributed to the August 14, 2003 Midwest/Northeast blackout, by distracting bulk power system facility operators at the Midwest Independent Transmission System Operator and First Energy from their respective obligations to comply with the North American Electric Reliability Corp. reliability standards. Price volatility in RTO energy markets has also resulted in irrational generating unit commitment and dispatch directives, as transitory RTO market price spikes cause market participants to chase prices up and down in search of profit.

Another central element of RTO-operated energy markets is “locational marginal pricing” (LMP) in which electricity is bought and sold at prices that vary by location within the RTO area. LMP reflects the differences in the costs of delivering electric power to different parts of the transmission grid due to transmission constraints (often called “congestion”). Prices for power vary within the RTO’s region during hours in which transmission congestion (demand for use of specific transmission facilities that exceeds those facilities’ capacity to move power) makes it impossible for electricity to reach every part of the RTO’s system at the lowest overall economically efficient cost. If a customer happens to be located in a portion of the transmission system affected by such a limitation (a “constrained zone”), the price the customer pays reflects the offer submitted by the generator that is actually able to deliver electricity to the customer, even if there are generators offering lower prices elsewhere in the RTO. The difference between the lowest price and that charged in the constrained zone is referred to as the “congestion charge.”

Advocates of locational marginal pricing argue that the higher costs charged when congestion occurs on the transmission system will give market participants an incentive

Price volatility in RTO energy markets has also resulted in irrational generating unit commitment and dispatch directives, as transitory RTO market price spikes cause market participants to chase prices up and down in search of profit.

²⁷ The California ISO does not yet use a full-fledged “Day 2” market, but intends to implement one in April 2008 (according to the California ISO Web site). SPP has not to date proposed a “Day 2” market, but does run an energy imbalance market.

Hedge funds, investment banks and other financial entities have begun purchasing FTRs through the auctions, further exposing transmission customers to undue risks. These entities often have no stake in the market except a financial one and are therefore bidding on these FTRs purely for speculative purposes.

to pay for construction of new generation and transmission facilities. Alternatively, the higher costs might prompt electricity customers to reduce consumption or to use power during periods of lower overall demand. However, there is no evidence that such pricing signals have led to construction of generation or transmission.²⁸ RTOs offer their transmission customers an opportunity to limit the adverse impact of these congestion charges by issuing financial transmission rights (FTRs), which generally give their holders a right to receive a share of the congestion charges. Typically, RTOs allocate some portion of these FTRs based on the amount and location of the generating resources that each transmission customer has declared it will use to serve its retail loads. Some RTOs also operate auctions and facilitate the secondary purchase and sale of FTRs among customers.

But load-serving entities and large customers have faced difficulty obtaining sufficient FTRs to hedge deliveries of power from their own electric generation sources.²⁹ The number of financial rights an RTO issues is limited by the physical capability of the network, which varies from time to time, depending on forecasted operating conditions. Some load-serving entities have suffered sharp cuts in their financial rights allocations when forecasted changes in operating conditions caused the RTO to impose reductions. In addition, the amount of revenue FTRs provide is not guaranteed at any particular level and can fluctuate due to a number of factors.

In another development, hedge funds, investment banks and other financial entities have begun purchasing FTRs through the auctions, further exposing transmission customers to undue risks. These entities often have no stake in the market except a financial one and are therefore bidding on these FTRs purely for speculative purposes. Load-serving entities, industrial customers and other wholesale power buyers must purchase FTRs as a hedge against real congestion costs.

In December 2007, two hedge funds defaulted on \$85 million in payments to PJM after they suffered financial losses associated with FTRs they had purchased for speculative purposes. The two funds had purchased “counterflow positions” that historically would have earned them money. When PJM-controlled transmission lines were shut down for routine maintenance in New Jersey, the power flows on the system changed and these FTRs lost money. Both funds then defaulted on their financial obligations associated with these FTRs. It appears that the remaining participants in PJM (and ultimately, retail

²⁸ In *LMP Electricity Markets: Market Operations, Market Power, and Value for Consumers*, by Synapse Energy Economics, February 2007, the authors found that “[t]here is simply no evidence that the price signaling associated with LMP has been an effective spur to investment in generation, transmission or demand response initiatives, and some evidence to the contrary.”

²⁹ In response to new legal requirements included in the Energy Policy Act of 2005 (incorporated in new Section 217 of the FPA), the commission has required RTOs to develop long term (e.g., 10-year) financial transmission rights. These rights, however, are not yet fully available due to the time required for the commission to develop the relevant generic guidelines for these rights and to approve the subsequent compliance filings the various RTOs have made to implement the guidelines.

customers in the PJM region) will be billed for these losses.³⁰

RTOs also administer markets for the sale and purchase of generation capacity, or the ability to produce electric energy on an instantaneous basis as and when needed. Load-serving entities with traditional service obligations have historically maintained an adequate amount of capacity to meet their respective contributions to the region's projected peak loads plus a reserve margin.

Because of concerns regarding the future adequacy of generation resources to meet demand in RTO regions, three RTOs (ISO NE, PJM and the NY ISO) have implemented locational capacity markets, under which existing and new generators bid to receive additional revenues (in addition to the centralized spot energy markets) from the RTO and its load-serving customers in exchange for assuring the RTO that their generation facilities can be called on in future periods to supply power. These markets have proven to be very controversial, due to their high prices and questionable efficacy in supporting the development of substantial new generation resources.

Buyers and sellers in Day 2 markets can attempt to avoid purchasing power in the RTO-run spot markets by entering into individual contracts with generators (called "bilateral" contracts). But the prices for power sold under those contracts are substantially influenced by the prices the sellers can obtain in the RTOs' centralized markets. Very substantial volumes of power are sold through the centralized markets. It is uncommon to see bilateral contracts in RTO regions for terms longer than five years and most such contracts are only to supply electric power; they are not tied to specific electric generating resources and therefore cannot be used to meet the buyer's locational capacity market obligations. These contracts are often called "seller's choice agreements," meaning the seller will determine exactly what generation sources the power sold will come from at the time it is actually supplied. Moreover, bilateral contracts do not insulate the customer from the payment of RTO congestion charges, which are collected through an additional charge on top of the RTO's "base" transmission rate.

The generators' preference for selling into RTO-run centralized power markets rather than under bilateral contracts is illustrated by a presentation made by Public Service Enterprise Group (PSEG) to the Edison Electric Institute in November 2007.³¹ One of the slides in the presentation shows a decline in the percentage of coal and nuclear output sold under bilateral contracts from 80 to 20 percent from 2008 to 2010. Generation capacity under bilateral contracts is projected to decline from about 90 to 50 percent in the same time period.

It is uncommon to see bilateral contracts in RTO regions for terms longer than five years.

³⁰ "PJM Completes Analysis of Recent Market Payment Default and Announces Steps to Mitigate Future Risk Exposure," PJM Press Release, December 26, 2007, <http://www.pjm.com/contributions/news-releases/2007/20071226-credit-default-news-release.pdf>; Two companies default on payment of \$85M in financial transmission rights, says PJM, *Public Power Daily*, January 4, 2008.

³¹ Presentation by the Public Service Enterprise Group at the 42nd EEI Financial Conference, Lake Buena Vista, Fla., November 6, 2007, http://library.corporate-ir.net/library/99/998/99807/items/268128/PSEG_EEL.pdf

Bilateral markets in certain parts of the country (for example, the Desert Southwest and Pacific Northwest) are very active, with many wholesale sellers offering power on a short- and long-term basis, and many buyers seeking to purchase such supplies.

APPA members in (or even near) RTO regions cannot avoid dealing with their RTOs simply by constructing their own generation resources or contracting with third-party suppliers. Under either arrangement, the APPA members would still be required to take wholesale transmission service from their RTOs under FERC-regulated rates and tariffs. Hence, they must obtain FTRs to hedge the transmission congestion costs associated with their power supply transactions. And they must still participate in their RTO's centralized day-ahead and real-time power supply markets, if only to resolve their hourly energy imbalances. They are increasingly required to participate in RTO locational capacity markets and ancillary services markets as well.

Features of Bilateral Markets without RTOs

The absence of centralized RTO-run markets in some regions of the country does not necessarily equate to thin wholesale power markets in those regions. Bilateral markets in certain parts of the country (for example, the Desert Southwest and Pacific Northwest) are very active, with many wholesale sellers offering power on a short- and long-term basis, and many buyers seeking to purchase such supplies. As would be expected, the strength of the wholesale electric power supply market in any particular region depends on the same basic factors: the number of wholesale power buyers and sellers (and whether they have significant market power); the level of access to transmission service needed to support transactions; long-term sufficiency of the underlying transmission and generation infrastructure; and adequacy of information about different power supply and transmission service options. This holds true in both RTO and non-RTO regions.

In regions without RTOs, bilateral contracts between power sellers and buyers are the norm. They can be for very short terms (e.g., one hour to 30 days) or very long terms (e.g., 20 years). They are more often tied to sales of power (with or without associated capacity) from specific generation resources or fleets of such resources, although seller's choice-type energy-only agreements not tied to specific plants are also used in bilateral regions. Because there is no centralized spot market run by one regional institution, there are no regional "clearing prices" for any time interval. However, trade press periodicals collect information on specific bilateral transactions and publish "index prices" at certain key points on regional transmission systems.³²

In bilateral regions, individual transmission owners provide the associated transmission services needed to support bilateral wholesale power supply deals under their own open access transmission tariffs (OATTs), which establish standard rates for the provision of transmission service. Transmission providers generally offer transmission service under a "physical rights" model, where they will only sign "firm" transmission service agreements (under which transmission service is guaranteed unless curtailments are required to maintain system reliability). The provider will offer these physical rights only if it has sufficient available transfer capability (ATC) to support the specified transaction over the

³² For example, trade publications publish market index prices for the Southeast (into TVA, into Entergy, into Southern, etc.) and the West (California-Oregon Border, Palo Verde, Mead, etc.).

proposed contract term. Hence, they do not ration access to their transmission systems through the use of congestion pricing. While customers must obtain transmission service from individual transmission providers instead of over a single RTO-managed grid, some tools have been developed to support easier procurement of transmission, such as the joint WestTrans computer site, where market participants can obtain transmission service from 24 Western transmission providers (both FERC-regulated and non-jurisdictional) using a common computer interface.³³

One example of a non-RTO-based approach to transmission system management and planning is the ColumbiaGrid in the Northwestern United States.³⁴ This is a nonprofit membership corporation formed in 2006. ColumbiaGrid does not own transmission; its members and the parties to its agreements own and operate an extensive network of transmission facilities. While different models may be appropriate for different regions, the ColumbiaGrid demonstrates that there are effective and consumer-friendly alternatives to the use of pricing incentives to manage the power grid.

Public Power's Concerns with RTO-Run Wholesale Markets

APPA was an early and strong supporter of ISO development. Many APPA members hoped ISOs would eliminate “pancaked” (individual system-by-system) transmission rates, bring a more coordinated regional approach to planning and constructing transmission facilities, and ensure non-discriminatory transmission access. But as the commission moved from encouraging initial ISO development to full-fledged RTOs, its policies underwent a fundamental shift. The FERC’s RTO policies morphed from promoting open access to the transmission grid and a more coordinated approach to transmission planning and construction into advancing centralized, RTO-run markets for day-ahead and real-time energy, capacity and ancillary services, and the use of LMP to price transmission congestion. The use of market-based rates, combined with the single-price auctions in these markets, often allowed generators to collect the higher of their own units’ specific costs (if they had higher cost units needed for reliability purposes, regardless of costs) or the RTO-determined market price (if they had lower cost units).

Further, centralized bid-based auction markets have changed the incentive structures faced by deregulated generators: measures that would reduce congestion or prevailing market prices will reduce the profits of incumbent companies with large deregulated generation portfolios. Incumbent generators have clear disincentives to make investments that might reduce prevailing prices (and benefit consumers); new competitors often find asset-based entry difficult to impossible, unless such entry is supported by factors such as long-term contracts with load-serving entities (often public

ColumbiaGrid does not own transmission; its members and the parties to its agreements own and operate an extensive network of transmission facilities.

³³ www.westTrans.net.

³⁴ <http://www.columbiagrid.org>. The corporation, with the participation and agreement of its members, conducts transmission planning, including determination of cost allocation methodologies, analyzes long-term reliability projects, and administers an Open-Access Same-Time Information System (OASIS).

Incumbent generators have clear disincentives to make investments that might reduce prevailing prices (and benefit consumers).

power utilities rather than investor-owned utilities which, in many cases, no longer have an obligation to serve) or regulatory and tax policies (principally state renewable portfolio standards and federal production tax credits).

APPA first made its concerns about these RTO-run markets public in December 2004, when it issued a white paper entitled *Restructuring at the Crossroads; FERC Electric Policy Reconsidered*.³⁵ APPA there noted (at page 6): “APPA members located in RTO regions report substantial, across-the-board problems with spiraling RTO costs, unaccountable governance, lack of understanding of transmission customer and end-user needs and less-than-satisfactory service options. They see more and more RTO services being provided through questionable market mechanisms, and RTO resistance to any questioning of the economic theories underpinning these actions.” APPA discussed the problems its members were encountering in some detail, and suggested a number of proposed “mid-course corrections,” including development of long-term FTRs, meaningful mechanisms to get additional transmission facilities constructed, encouragement of joint ownership of transmission, more scrutiny of RTO administrative costs, and more accountability of RTO managements to stakeholders. As APPA stated in the conclusion of its white paper (at page 26), it sought to “reform the existing RTOs, so that they operate to benefit electric consumers (rather than particular industry participants), and employ market mechanisms only as a means to an end (serving electric customers), and not an end in themselves.”

There have been some improvements in the commission’s RTO policies in the three years since APPA issued that white paper. In part as a result of changes in the membership of the commission, in 2005, the commission abandoned its insistence on RTO formation in all regions, permitting more regional diversity. The commission also revised its public utility accounting rules and reporting requirements to better accommodate RTOs’ administrative and operating cost categories. This will bring much-needed cost accounting standardization, so the costs billed to market participants for the administration and operation of each RTO can be better compared across RTOs. Finally, the commission conducted the rulemaking required by EPart 2005 to set guidelines for long-term FTRs in RTO regions, which RTOs are now implementing.

Despite these improvements, the fundamental problem of an absence of effective regulation and oversight in these wholesale markets has not been addressed. The problems have indeed worsened since the release of *Restructuring at the Crossroads*. As a result, the gap between regulated and unregulated prices has widened and profits of owners of unregulated generation facilities have increased, while projected reserve margins continue to shrink and many portions of the transmission system remain congested. Because of the failure of RTO-run centralized spot markets and LMP-based congestion pricing to support the construction of new generation and transmission facilities, three RTOs have implemented separate locational capacity markets to try to fill

³⁵The paper is available at: <http://www.appanet.org/files/PDFs/APPAWhitePaperRestructuringatCrossroads1204.pdf>.

the void. It is unclear whether such markets are now, or will in the future, support development of substantial new generation,³⁶ but it is abundantly clear that electric consumers in these three RTO regions are paying billions of dollars in additional locational capacity charges.³⁷

Prices in RTO-run centralized spot markets continue at very high levels, while certain utility-affiliated merchant generators holding fully depreciated, formerly utility-owned generation assets are reaping extraordinary profits. The price expectations that sellers have formed from the high RTO spot market prices have bled over into bilateral markets in RTO regions. In the experience of most APPA members, nearly all medium and long-term contracts are indexed to natural gas prices and tend to pass through RTO administrative costs, congestion charges and the exorbitant costs of RTO generation capacity markets. Power marketers generally demand a substantial price/risk premium above their costs, perhaps reflecting uncertainty about their own costs as well as the foregone profits that might otherwise be made from sales into RTO spot, capacity and ancillary services markets.

RTO “markets” are continually applied to previously cost-regulated products, e.g., ancillary services, without any rigorous cost-benefit analysis to ensure that end-use customers are well served by such markets. Administrative costs associated with these new markets are also very high, adding to the RTO costs that are passed directly on to the customers who purchase power through these markets.

APPA filed comments on September 14, 2007, with FERC on its “Advance Notice of Proposed Rulemaking” (ANOPR) in Wholesale Competition in Regions with Organized Wholesale Markets, FERC Docket Nos. AD07-7-000 and RM07-19-000.³⁸ In those comments, APPA delineated in great detail load-serving entities’ substantial concerns with RTO markets, casting significant doubt on the commission’s statement that RTO markets “benefit consumers.” APPA also filed sworn affidavits providing additional evidence about the complex relationship between higher fuel prices and high RTO spot-market prices, and the extremely high profits enjoyed by certain merchant generators in RTO regions. Based on this evidence, together with the findings of its Electric Market Reform Initiative studies, which were filed with the commission, APPA asked FERC to investigate the prices charged in RTO markets, asserting that they are not just and reasonable, as Sections 205 and 206 of the Federal Power Act require. As of this writing,

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³⁶ At least one study, prepared for APPA, concludes they will not. “*Investment Performance in Deregulated Markets for Electricity: A Case Study of New York State*,” prepared by Dr. Timothy Mount of Cornell University, September 2007.

³⁷ James F. Wilson, a principal at LECG LLC, found that although “it is too soon to conclude that RPM is working...the evidence to date suggests the contrary; that it is not attracting new capacity where needed, and the bidding and price formation in the auctions are not as intended and expected...capacity prices for the first three RPM delivery years reflect an approximately \$15 billion increase in capacity value relative to the highest capacity price from the prior four years, adjusted for inflation. “Too Soon to Determine Success of PJM’s Reliability Pricing Model, *Power Market Today*, October 29, 2007.

³⁸ These comments are available at http://www.appanet.org/files/PDFs/APPA_Cmts_AD07-7_9-14-07%20%5Bas%20filed%5D.pdf.

the commission has not acted on APPA's request.

The remainder of this section describes the growing body of evidence on the consumer harms and absence of benefits from the current market structure and the importance of FERC action in response.

Findings of EMRI Studies of Wholesale Markets

During the initial phase of its Electric Market Reform Initiative in 2006, APPA commissioned a series of studies to gather more information about wholesale RTO market operations and the associated impacts on consumers. APPA in these studies attempted to delve more deeply into assumptions and assertions often made in support of the current markets.

The findings of these studies paint a very disturbing picture of RTO-run centralized markets and the state of "competition" in them. There is real evidence of RTO market failures that are harming consumers, and strong indications that the wholesale rates these markets produce are not just and reasonable. The findings in these studies stand in stark contrast to the contrary claims of the RTOs and the owners of unregulated generation selling into those markets.

To begin to evaluate the results of restructuring, APPA decided to examine a group of studies often cited by RTO market proponents, concerning the impacts of restructuring on consumers. Dr. John Kwoka, an economist at Northeastern University, reviewed these studies and found that the methodologies used in them fell short of the standards necessary for reliable economic research. As a result there "[i]s no reliable and convincing evidence that consumers are better off as a result of the restructuring of the U.S. electric power industry," Dr. Kwoka said.

Given this dearth of reliable data and analyses, APPA decided to undertake a more careful examination of the impacts of restructuring. One important indicator of whether "competition" is disciplining prices to just and reasonable levels is the profitability of the generators making sales into these markets. APPA therefore asked independent consultant and financial analyst Ed Bodmer to look at the current and future profitability of the five largest sellers of unregulated wholesale power in PJM. Using publicly available data, Mr. Bodmer calculated the earnings by shareholders in these PJM companies to be \$32 billion and \$40 billion greater than those for cost-regulated utility companies, for a three- and 10-year time period, respectively.³⁹ Information these companies themselves have prepared for investors and analysts contains predictions of additional substantial profits upon expiration of state retail rate caps and full implementation of PJM's locational capacity market, known as the "reliability pricing model," or RPM. Indeed, in a

³⁹ *The Electric Honeypot: The Profitability of Deregulated Electric Generation Companies*, by Edward Bodmer, February 2007.

⁴⁰ Affidavit of Edward Bodmer, Comments of the American Public Power Association, FERC Dockets RM07-19-000 and AD07-7-000, September 14, 2007.

September 2007 update of his study using 2006 data, Mr. Bodmer found that these extra investor earnings have now grown to between \$44 billion and \$67 billion.⁴⁰

Such excessive profit levels indicate that sellers with lower costs do not face substantial competitive pressures to pass on such savings to consumers. Another key question is the extent to which there is a relationship in a deregulated market between power supply prices and the costs of production. If a generator can successfully offer to sell power at a price significantly above its actual cost to run its generation unit, then it is unlikely that such a generator is facing any meaningful competition.

London Economics International, LLC (LEI) conducted a computer simulation for APPA that asked what clearing prices would result if generator offers to sell power into PJM's spot markets were actually based on their short-run marginal costs. LEI then calculated the difference between this simulated clearing price and the actual clearing price and found that offers to sell electricity are often not tied to the marginal cost of producing that electricity. For example, during peak periods in PJM in recent years, as much as 10 to 25 percent of the price is attributable to a markup above the short-run marginal costs of the generator whose bid cleared the market. The LEI study also showed a high degree of variation in the markup, raising questions about PJM's publication of only an average measure of the markup in its "State of the Market" reports. LEI also noted that PJM's markup index results are based on the production costs generators report to the market monitor, rather than independently verified cost data, and also noted that much of the data that LEI needed to conduct its study was unavailable from PJM.⁴¹

A study for APPA by Synapse Energy Economics provides further evidence of the gap between generators' offers and their actual production costs. Synapse examined offer data from generators in both PJM and ISO New England and found that offers from the same generating unit fluctuated by over \$100 per megawatt-hour within one month. Yet, generating units typically have only minimal day-to-day changes in their production costs. These data indicate that these sellers of electric power may have sufficient market power to manipulate prices, or at a minimum are pursuing a strategy of attempted manipulation.

As data raising questions about the supposed price benefits from restructuring became increasingly prevalent, supporters of RTO markets have employed a new rhetorical strategy. They now acknowledge price increases, but claim such increases have been driven by rising fuel costs, principally natural gas. Yet, Dr. Ken Rose, a consultant and senior fellow with the Institute of Public Utilities at Michigan State University, found in a study APPA commissioned that fuel costs cannot fully explain the increase in wholesale electricity prices. According to Dr. Rose, "attributing electricity price increases to only the cost of fuels used to generate electricity is overly simplistic at best." In fact, recent trends in PJM prices show that, rather than moving in lockstep, electricity prices and fuel costs

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⁴¹ London Economics International, February 2007, p. 77.

Areas where LMP prices are the highest, and thus transmission facilities are the most congested, do not correspond with the areas where the greatest investments in new generation and transmission have been made.

can sometimes even move in opposite directions.⁴² Dr. Rose's conclusions were recently confirmed by an analysis by Dr. Robert McCullough showing that when fuel costs are removed from prices, the differential between retail rates in RTO and non-RTO states was 2.8 cents in July 2007, compared to 1.1 cents in January 2003.⁴³

Another critical measure of the success of a market structure is its ability to support reliable electricity service, by ensuring that sufficient generation and transmission facilities are in place to meet projected future consumer needs. RTO-run centralized markets attempt to ensure future facilities adequacy largely through pricing incentives. Synapse found, however, that the areas where LMP prices are the highest, and thus transmission facilities are the most congested, do not correspond with the areas where the greatest investments in new generation and transmission have been made.⁴⁴

Alarmed by the continuing lack of adequate investment, some RTOs are increasingly relying on locational capacity payments to generators to encourage the needed infrastructure investments. At APPA's request, Dr. Timothy Mount of Cornell University examined the effectiveness of the locational capacity market the New York ISO administers. Dr. Mount found that the main accomplishment of the hundreds of millions of dollars consumers have paid to generators through the New York capacity markets has been to increase the market value of generators' existing capacity. He concluded "the evidence from New York shows that paying a large amount of additional money to generators in the [New York locational capacity] market does not guarantee that investment in new generating capacity will be made in a timely way."⁴⁵

The findings from these various studies and the increased questions they raise about the results from "competitive" RTO-run markets have led both the generation owners and the RTOs themselves to step up their defense of the status quo. Yet additional claims of benefits are now emerging. One of the most prominent is the claim that RTOs have promoted the development of renewable generation resources. To fully investigate this claim, Dr. Lester Lave and Kathleen Spees of the Carnegie Mellon Electricity Industry Center conducted a rigorous statistical analysis and found "no indication that RTOs have facilitated the development of renewable resources." Rather, it appears that state policies fostering renewables are most effective, such as rebate programs, loan programs, net metering, required green power offerings and renewable portfolio standards.

Supporters of restructured RTO markets also contend that restructuring promotes improvements in operational efficiencies in generating plants. At the request of APPA

⁴² *The Impact of Fuel Costs on Electric Power Prices*, by Kenneth Rose, June 2007.

⁴³ *The Missing Benchmark in Electricity Deregulation*, by Robert McCullough, Managing Partner, and Ann Stewart, Research Analyst, McCullough Research, December 2007.

⁴⁴ *LMP Electricity Markets: Market Operations, Market Power, and Value for Consumers*, by Ezra Hausman, Robert Fagan, David White, Kenji Takahashi and Alice Napoleon, Synapse Energy Economics, February 2007.

⁴⁵ *Investment Performance in Deregulated Markets for Electricity: A Case Study of New York State*, by Timothy Mount, PhD, Professor of Applied Economics and Management, Cornell University, September 2007.

and the National Rural Electric Cooperative Association, Laurence D. Kirsch and Matthew J. Morey of Christensen Associates Energy Consulting reviewed a study by Kira Fabrizio, Nancy Rose and Catherine Wolfram on this topic. They also reviewed the COMPETE Coalition's press release publicizing this study. Kirsch and Morey found that in addition to several flaws in the study's methodology, the COMPETE Coalition's public statement that the study provides "further evidence that competitive forces in restructured electricity markets drive efficiencies that benefit consumers by helping to drive down costs and reduce adverse environmental impacts" is misleading. They found that the study itself provides no evidence of how competitive forces work in restructured environments, or whether any cost reductions resulting from increased operational efficiencies were passed on to consumers. Nor does the study attempt to measure any environmental impacts associated with this market model.⁴⁶

Evaluations of RTO-run centralized markets are hampered by the dearth of adequate data to explain the extent to which the RTO-operated markets diverge from the competitive model. Moreover, it is impossible to identify the degree to which participants exert market power. At the request of APPA, William Dunn, a consultant with Sunset Point LLC, analyzed available RTO electricity market data to determine what information would be needed to allow adequate oversight of RTO markets. Mr. Dunn recommends that generator offer data in RTO markets be made publicly available on the next day with the specific generation owners identified, as is common practice in the markets in England, Wales and Australia. He also recommends providing the operating characteristics of the generation plants.⁴⁷ The issue of data transparency is discussed further in Section V of this white paper.

Not only are consumers in RTO regions bearing the brunt of power prices higher than those in non-RTO regions, but their electricity bills also include the costs RTOs charge simply to run their centralized markets. In an analysis for APPA, the consulting firm GDS Associates found that RTO participants in 2005 paid more than \$1 billion in total administrative and operational costs to RTOs.⁴⁸ This figure did not include the RTO customers' own increased internal administrative and other costs incurred to participate in RTOs. These high costs, taken together with the highly problematic power prices in RTO-run markets, point up the need for an unbiased analysis of the costs and benefits of

Not only are consumers in RTO regions bearing the brunt of power prices higher than those in non-RTO regions, but their electricity bills also include the costs RTOs charge simply to run their centralized markets.

⁴⁶ *The Compete Coalition Oversells Independent Study Findings*, by Laurence D. Kirsch and Mathew J. Morey of Christensen Energy Associates Energy Consulting, December 2007.

⁴⁷ Concept Paper by William H. Dunn Jr.: *Data Required for Market Oversight*, December 2007.

⁴⁸ *Analysis of Operational and Administrative Cost of RTOs* prepared by William M. Bateman and Robert C. Smith, GDS Associates, February 2007.

These “markets” are essentially administratively developed constructs featuring centralized repeated auctions, in which oligopoly sellers can quickly learn the strategies of other bidders and adjust their own bids accordingly.

these markets.

Regulators And Other Policymakers Must Take Action

Given the results of these studies, and the increasing turmoil in states with retail restructuring regimes,⁴⁹ federal and state energy regulators and legislators cannot allow the current problems with RTO-run centralized wholesale markets to continue unexamined or unaddressed. The RTOs themselves and the “merchant” generators reaping extraordinary profits in RTO-run markets have bombarded the public with a steady stream of public announcements asserting that electric consumers benefit from “competition” and “free markets.” But RTO-run markets are neither competitive nor free. These “markets” are essentially administratively developed constructs featuring centralized repeated auctions, in which oligopoly sellers can quickly learn the strategies of other bidders and adjust their own bids accordingly. According to the generators, their offers are extensively mitigated, preventing full recovery of their costs, yet some generators are clearly making profits far in excess of the “cost plus a reasonable return” that they would earn in a regulated market. Moreover, few of these dollars are reinvested in new generation and transmission facilities. Access to regional transmission facilities is essential to support wholesale transactions, but capacity is often insufficient and the associated transmission rates are uncertain, due to LMP congestion fees and limited FTRs.


No amount of free market rhetoric or touting of environmental benefits can cover up the increasing shortfall of new generation capacity required to ensure adequate electricity supplies in future years, at the same time that billions of dollars are simply leaving the market in the form of profits to shareholders of unregulated generators. Failure to take appropriate corrective actions to fix these systemic problems will not only leave consumers prey to unjust and unreasonable rates, but could also lead to inadequate transmission and generation capacity that undermines the electrical reliability of entire regions of the country.

The next two sections discuss steps that should be taken to address these market problems, including both fundamental reforms and more discrete steps to deal with immediate problems with RTO-run markets.

⁴⁹ Examples include recent actions taken against Constellation by the Maryland Public Service Commission, the current debate over Governor Strickland’s legislation in the Ohio House of Representatives, and recent attempts in Pennsylvania by the state legislature to extend the rate caps.

V. Fundamental Market Reform is Necessary to Protect Consumers

Consumer, Business, Public Interest and Other Groups Agree on the Need for Reform

 broad range of load-side interest and advocacy groups share APPA's concerns about problems in the RTO-run markets and agree that fundamental market reforms are needed.⁵⁰ For example, in their September 2007 comments on the FERC's advanced notice of proposed rulemaking, the Electricity Consumers Resource Council (ELCON), American Iron and Steel Institute (AISI) and American Chemistry Council (ACC) (collectively Industrial Consumers) said the "Industrial Customers believe that, as currently designed, the organized (e.g., RTO) markets are permanently structured as sellers' markets." They further said: "...fundamental changes in the Day 2 market paradigm will be necessary to establish a robust forward market capable of delivering net benefits to consumers."

In that same proceeding, the Portland Cement Association (PCA) said: "It is the hope of PCA that the commission will seriously consider the impacts of prior commission decisions on electricity consumers and address some of the basic market design deficiencies that currently exist and cause the current system to effectively impose a tax on electricity consumers for the benefit of the shareholders and management of electricity generating companies."

As a first step toward such reforms, APPA joined with these organizations and a wide range of other groups representing consumers, large industrial users, businesses and the public interest to file a petition in this proceeding requesting the FERC to "expand the scope of the Section 206 proceeding beyond the four issues discussed in the ANOPR to comprehensively investigate the justness and reasonableness of wholesale power supply prices in the centralized markets administered by regional transmission organizations."⁵¹

⁵⁰ Among the market participants filing comments or making presentations in Docket No. AD07-7-000 expressing strong concerns about the impacts of RTO-run centralized markets were the following: the National Rural Electric Cooperative Association; Golden Spread Electric Cooperative; the Electricity Consumers Resource Council; the Steel Manufacturers Association; the PJM Industrial Customer Coalition; Industrial Energy Users-Ohio; West Virginia Energy Users Group; NEPOOL Industrial Customer Coalition; Southwest Industrial Customer Coalition; Coalition of Midwest Transmission Customers; American Transmission Co., LLC; Alcoa, Inc.; Office of the Ohio Consumers' Counsel; and Eastman Chemical Co.

⁵¹ Request of AARP, American Antitrust Institute, American Chemistry Council, American Forest & Paper Association, American Iron and Steel Institute, American Municipal Power—Ohio, American Public Power Association, Association of Businesses Advocating Tariff Equity, Citizen Power, Citizens Utility Board of Illinois, Coalition of Midwest Transmission Customers, Colorado Office of Consumer Counsel, Consumer Federation of America, Council of Industrial Boiler Owners, Democracy and Regulation, Electricity Consumers Resource Council, Florida Industrial Power Users Group, Illinois Industrial Energy Consumers, Illinois Public Interest Research Group, Industrial Energy Consumers of America, Industrial Energy Consumers of Pennsylvania, Industrial Energy Users—Ohio, Louisiana Energy Users Group, Maryland Office of the People's Counsel, Maryland Public Interest Research Group, Missouri Industrial Energy Consumers, National Association of State Utility Consumer Advocates, NEPOOL Industrial Customer Coalition, Office of the People's Counsel of the District of Columbia, Ohio Hospital Association, Ohio Manufacturers' Association, Ohio Partners for Affordable Energy, PJM Industrial Customer Coalition, Portland Cement Association, Power in the Public Interest, Public Citizen, Inc., Public Utility Law Project of New York, Inc., Steel Manufacturers Association, West Virginia Energy Users Group, Wisconsin Industrial Energy Group, Inc., and Wisconsin Paper Council to Expand the Scope of the 206 Proceeding, Docket Nos. RM07-19-000 and AD07-7-000, December 17, 2007.

APPA suggests the commission consider restructuring full “Day 2” RTOs as more streamlined “Day 1” RTOs. Such an approach would maintain most of the demonstrated consumer and economic benefits of RTOs, which are in the Day-1 transmission-related functions.

FERC Must Lead the Effort to Protect Consumers

Neither APPA nor other interest groups, no matter how well-informed, have the means, the legal authority, or the access to pertinent data necessary to investigate fully and adequately the causes of dysfunction in RTO-run wholesale markets. However, based on its research, APPA believes such a thorough examination would likely reveal a mélange of administratively determined market rules, algorithms understandable only to a few, ad hoc patches, makeshift and incomplete mitigation, perverse incentives, and profit-taking at the expense of consumers.

Even with limited access to data, APPA’s Electric Market Reform Initiative studies have presented a significant amount of evidence of market problems. Moreover, the multitude of materials filed in the ANOPR proceeding by other load-side interests provide ample evidence that RTO-run centralized wholesale electricity markets are not producing just and reasonable rates and do not, in fact, meet many of the basic criteria for competitive markets. In the face of this evidence, FERC cannot simply claim that it has found the “right mix” of competition and regulation for RTO markets⁵² and decline to examine the situation. FERC has an affirmative obligation—expressly set forth in the FPA—to investigate whether rates subject to its jurisdiction are unjust and unreasonable, and to take appropriate remedial steps.

APPA Recommends Restructuring RTOs as “Day 1” RTOs

APPA does not believe that RTO-run centralized markets produce just and reasonable rates. APPA believes a thorough investigation by FERC, subject to appropriate congressional oversight, would confirm this. FERC, however, has indicated that it would not initiate such an investigation without first having received specific proposals for RTO market reforms to assist it in that effort. While some affirmative RTO market reform proposals have been offered,⁵³ APPA has borne the brunt of considerable criticism from regulators, generators and the RTOs themselves for not providing any affirmative reform proposal.

To contribute another policy option to the ongoing debate about possible “solutions” for RTO market problems, APPA suggests the commission consider restructuring full “Day 2” RTOs as more streamlined “Day 1” RTOs. Such an approach would maintain most of the demonstrated consumer and economic benefits of RTOs, which are in the Day 1 transmission-related functions. Thus, this proposal is designed to keep what is working relatively well in RTOs and replace those functions and features, mostly associated with

⁵² ANOPR at Paragraph 6.

⁵³ *Deregulation/Restructuring – Where Should We Go From Here?*, Carnegie Mellon Electricity Industry Center Working Paper 07-07 <http://wpweb2.tepper.cmu.edu/ceic/papers/ceic-07-07.asp>; Comment of American Forest & Paper Association under RM07-19 and AD07-7, September 14, 2007, http://elibrary.ferc.gov/idmws/File_list.asp?document_id=13538931, Comments of Portland Cement Association, Multiple Intervenors, PJM Industrial Customer Coalition, et al under RM07-19-000, January 11, 2008.

RTO-run centralized energy and capacity markets, that have failed to produce sufficient benefits to consumers. The functions that such a Day 1 RTO would carry out are described in general terms below. Several questions and concerns that APPA is exploring are listed next to these functions.

- Ensure non-discriminatory access to the grid through independent administration of an open access transmission tariff and provision of transmission service, including needed ancillary services. For services that require generation, an appropriate pricing method would need to be developed (e.g., cost-based, price-capped, market-based, etc.) If the RTO were to provide ancillary services using market-based rates, strong market power monitoring and mitigation tools would be necessary.
- Develop and administer a regional transmission rate design that eliminates rate pancaking and assures the recovery of the cost of transmission facilities owned by all transmission owners and providers that wish to participate in the RTO, regardless of their form of ownership.
- Operate a single regional open access same-time information system (OASIS) and independently calculate available transmission capacity (ATC). A crucial question here is whether implementation of a Day 1 RTO would require a return to a physical transmission rights regime and, if so, how such a transition would be accomplished. It may be difficult to provide non-pancaked non-discriminatory transmission service under a physical transmission rights regime (at least without a substantial transition period) given that Day 2 RTOs superseded such rights with financially based rights. Physical rights may also be more difficult to administer, given the size of some existing RTOs.
- Conduct independent and collaborative regional transmission and generation interconnection facilities planning, with the inclusion of affected stakeholders, including state authorities, thus building the regional support required to get siting authority for needed new transmission facilities and upgrades.
- Carry out wide-area system security and reliability-related activities, ensuring that transmission facilities are operated in compliance with relevant North American Electric Reliability Corp. (NERC) and regional reliability entity criteria. A minimalist congestion regime is likely to be required, but would need to be designed to avoid the substantial problems that have developed under LMP-based congestion regimes.
- Operate an energy imbalance market to enable transmission customers to manage their imbalances and to allow generators (including intermittent renewable generators) to sell excess generation not committed under bilateral contract arrangements. As with the ancillary services market, the pricing system used in the imbalance market would have to be carefully considered. A market-based system should only be considered if the imbalance market is limited to no more than 5 percent of the load and accompanied by strong market power monitoring and mitigation tools.
- Carry out additional functions (e.g., operation of a power pool) if all classes of stakeholders in the region agree on the need for such functions and the RTO can justify them as beneficial to ultimate consumers through thorough cost-benefit analyses.
- Ensure adequate generation reserves through implementation of resource adequacy

Supporting a more robust bilateral market and reducing reliance on a bid-based spot market would come at a time when several retail choice states are already reevaluating their retail access regimes and are considering regimes that provide a greater role for their incumbent utilities in the construction or procurement of generation.

requirements. Individual load-serving entities would meet these requirements through development of appropriate power supply and capacity portfolios.

Such a Day 1 RTO would provide substantial consumer benefits from regional transmission open access, elimination of rate-pancaking and capturing of short-term operational efficiencies in the imbalance market. Equally important, it would minimize the market dysfunction problems that have plagued Day 2 RTOs. The RTO would operate an energy market only to balance loads. Thus the bulk of the energy would be sold under regulated retail rates, wholesale bilateral contracts (which would be at market-based rates if the seller held the appropriate market-based rate authority), or retail supplier pass-through of wholesale power purchases.

Such a regime would de-emphasize spot market participation by both buyers and sellers. APPA believes this is important to foster long-term power supply contracting, thus providing the certainty needed for construction of new generation facilities. It would also reduce the complexity and costs imposed on end-use consumers by Day 2 RTOs, both directly through their tariffs and administrative fees and indirectly through load-serving entities' increased costs of internal operations. It would eliminate the mandatory RTO bid-based energy and capacity markets that magnify both the effects of generator market power and the design flaws in RTO-administered markets.

Supporting a more robust bilateral market and reducing reliance on a bid-based spot market would come at a time when several retail choice states are already reevaluating their retail access regimes and are considering regimes that provide a greater role for their incumbent utilities in the construction or procurement of generation. Examples include steps to allow incumbent utilities to build generation facilities (as in Connecticut) or to procure power through long-term contracts (as in Maryland.)⁵⁴ Power supply choices should be determined under rigorous review procedures to ensure that retail customers are served by the most economic set of generation resources.

APPA presents its Day 1 recommendation here in broad outline to introduce it and allow policymakers to consider it in the context of the issues discussed in this paper. APPA intends to produce a more detailed version of this proposal in a separate document, which will be published later in 2008.

APPA recognizes that implementation of such a Day 1 RTO regime would take time. Many thorny transition issues would have to be resolved. Substantial institutional and political obstacles exist as well. Moreover, differences among RTOs and the retail regimes in the states they serve, as well as their different stages of development, likely requires

⁵⁴ *Interim Report of the Public Service Commission of Maryland to the Maryland General Assembly, Part I: Options For Re-Regulation and New Generation*, December 3, 2007, p. 34. Connecticut enacted a law in July 2005 that allows the state's regulated utilities to build up to 250 megawatts of peaking capacity. See "What Is Happening In State Retail Choice Programs? August Update: A Focus on Obtaining Power Supply," APPA, <http://www.appanet.org/files/pdfs/stateupdateaugust2006.pdf>.

customized application of this proposal in each RTO in a manner that recognizes and accommodates these differences. Hence, APPA proffers this solution as a long-term one, but one the industry should begin to move toward now. In the interim, there are several more discrete RTO-related problems that FERC should address, which are discussed in the final section of this report.

FERC Should Do No Harm in the Interim

In APPA's view, returning to just and reasonable rates requires FERC first to ensure that there is no further development of RTO-run centralized wholesale markets. As discussed above, one of the difficulties in addressing the failure of these markets is the extent and level of complexity to which they have already evolved and the continuing series of patches that have been applied in attempts to remedy shortcomings in market design. Adding further levels of complexity will only make the eventual return to just and reasonable rates more difficult. Thus, APPA recommends that FERC quickly place:

- A moratorium on the establishment of any new Day 2 RTOs; and
- A moratorium on the establishment of new RTO-run markets for additional products and services within existing RTOs, unless accompanied by the type of cost/benefit analysis discussed later in this paper.

VI: Recommended Solutions to Specific, More Discrete Market Problems



rotection of consumers' interests requires a return to just and reasonable rates as mandated by federal law. While the fundamental long-term changes necessary to protect consumers are implemented, other discrete market problems could be addressed more quickly. These, especially in the aggregate, could provide substantial consumer benefits. Following are some examples.

RTO Costs and Services

RTOs have unbundled their services into many separate markets, including day-ahead and real-time energy, locational capacity and ancillary services. Since most of these products are provided by the same generation base, pricing such services separately makes it difficult to determine whether the generation owner is receiving revenue more than once to cover the same claimed costs. As a result, such separation can result in costs higher than what would be charged for an integrated product.

In addition, the proliferation of RTO-operated markets has resulted in more complexity, requiring that participants, including load-serving entities, conduct detailed monitoring of billing procedures and extensive training of employees to learn the technical aspects of market participation. Stakeholders also incur administrative and legal costs to participate in RTO system planning, stakeholder governance and other RTO processes.

Whether the benefits derived from participation in RTO markets outweigh the sum of these costs remains an open question—but APPA's Electric Market Reform Initiative studies imply this is unlikely. To begin to provide a definitive answer, FERC should require RTOs to obtain unbiased cost-benefit studies to accompany any filing of any new markets and programs, as well as changes in existing markets and programs. No new program or change should be put in place unless it is affirmatively shown to provide true net benefits to end-use consumers in the form of lower costs and more reliable service. Such assessments should be performed by neutral third parties (such as an independent policy analysis group, academic department, outside market review committee or a consulting firm engaged on a one-time basis) rather than for-profit consulting firms beholden to the RTOs for continuing future business.

FERC should also develop clear criteria to measure the performance of RTOs. Measures could include: differentials between generator costs and prices charged in RTO-run power markets; success in meeting RTO transmission expansion plans; responsiveness in dealing with transmission service and interconnection requests; reductions or increases in the level of transmission congestion costs over time; and benchmarking of administrative and operating costs among RTOs.

RTO Mission Statements and Objectives

Judging by their mission statements, RTOs believe their core objective is to ensure reliability and the effective operation of wholesale electricity markets. While some RTO mission statements include references to customers and to the public interest, the focus on the end-use customer must be stronger, more explicit and in fact central to an RTO's purpose. The justification for introducing competition into electricity markets was to

increase economic efficiency and thereby provide lower prices and greater reliability to electricity consumers. RTOs grew out of the competition experiment. Ultimately, to be cost-effective and efficient, an RTO must make end-use customers better off than they would be without the RTO.

RTOs must be accountable for the cost impacts of their decisions. Their mission statements should include an explicit goal of reducing electric power costs to customers. This entails keeping costs—both from RTO operations and from the design of wholesale markets—as low as reasonably possible. In addition, RTOs’ strategic plans should be developed in view of the central goal of providing tangible benefits to consumers.

RTO Governance

RTO boards must reflect a balance between independence from industry stakeholders and accountability to the industry as a whole. Board decisions affect all aspects of RTO market design and costs. It is therefore crucial that stakeholders have direct and effective access to RTO boards.

Current RTO governance structures include independent boards as well as processes for developing stakeholder input. However, these processes do not always function well. In particular, smaller load-serving entities, which include many public power utilities and their joint action agencies, do not have the resources to participate in the numerous RTO committees and working groups. In addition, RTO boards often are not responsive to stakeholder input even when it is provided. They have implemented significant changes in spite of strong opposition from a large number of stakeholders.⁵⁵

Hybrid RTO boards, composed of a majority of independent directors and a minority of stakeholder directors, would ensure that stakeholder input is heard as part of all board discussions. Since they have experience operating in an RTO, stakeholder board members could provide practical advice on how RTO markets work and how potential changes could affect various market participants. Stakeholder board members should be elected by a supermajority of the stakeholder sectors. This approach would ensure that the stakeholder directors are well-respected and have the broad support of the stakeholder community.

Governance would also improve through better use of stakeholder advisory committees to provide a broader range of input to RTO boards. An advisory committee’s interaction

Governance would also improve through better use of stakeholder advisory committees to provide a broader range of input to RTO boards.

⁵⁵ A recent example is the January 30, 2008 filing made by PJM in FERC Docket No. ER08-516-000, in which PJM proposes to increase the “Cost of New Entry” component of its RPM framework (see <http://www.pjm.com/documents/ferc/documents/2008/20080130-er08-xxx-000.pdf>). PJM notes in that filing (at 5) that it was unable to obtain the support of the PJM Members Committee to proceed with the filing, since the sector vote held in the Members Committee was split between supply and load interests. (93% of generation owners voted in favor of the proposal, while only 9% of electric distributors and 0% of end-use customers voted in favor of it.) The PJM Board subsequently voted to proceed with the filing, notwithstanding the outcome of the vote in the Members’ Committee.

RTO management should not be allowed to direct market monitor activities, change market monitor reports or otherwise interfere with a market monitor’s activities.

with the board should not be limited to making formal presentations prior to the board’s vote on a topic. Rather, the process should allow the advisory committee to have early and unfiltered access to the board. This could occur through monthly teleconferences or quarterly meetings, with agendas set through nominations by the stakeholders.

Market Monitoring

Given the important role that has fallen to market monitors, FERC must ensure that market monitors are truly independent and have all of the resources necessary to perform their functions. The structure of the market monitoring unit (MMU)—internal vs. external—and the specific tariff provisions regarding the MMU are less important than what happens in practice. In particular, RTO management should not be allowed to direct market monitor activities, change market monitor reports or otherwise interfere with a market monitor’s activities. FERC should require the market monitor to report directly to the RTO board or a board committee and FERC itself should be active in enforcing the MMU tariff provisions.

The MMU should also have the full cooperation of market participants in data gathering, including access to company-specific financial information and generating unit cost and operating data. The market monitor must have sufficient resources to carry out its duties. This includes unrestricted access to RTO data and a budget that provides for the necessary personnel, computer systems and training. If possible, the market monitor should have an office and staff on site at the RTO, along with complete access to RTO staff and RTO computer information systems.

A central part of the market monitor’s mission is to protect wholesale and retail customers from the exercise of market power and the payment of unjust and unreasonable rates. Thus, the MMU must have the right to review bids submitted into RTO markets and to take actions to prevent the exercise of market power or the manipulation of RTO markets. As part of this mission, the MMU must also be responsible for identifying adverse competitive consequences of RTO market rules. The MMU should not participate in the initial development of rules, but should be allowed to express in public forums its views on proposed rules. The RTO should also ask the MMU for an independent assessment of the efficacy of a proposed rule, including the effect of the rule on consumers and suppliers. Finally, the market monitor should have the right to file in FERC dockets to make clear any concerns it has with RTO proposals.

Information Transparency

RTOs publish a large volume of data on market operations, but currently keep the most crucial information—generator bid data—confidential, releasing it only in masked form after a delay of several months. Providing the public with access to this data on a next-day basis and with open identification of generators would allow third parties to conduct their own analysis of bidding behavior and price formation in RTO markets. (Note that the release of bid data on a next-day basis is standard practice in international electricity markets such as Australia, England and Wales.) This added transparency would discipline market behavior because bidders would know that they were operating in full view of the

public. It would also raise confidence in market operations because all market participants and the public could independently validate how well markets were working. They would be able to analyze bidding patterns, compare bids with cost factors, search for indications of market power and, ultimately, advocate for better RTO market rules.

According to Frank Wolak, professor of economics at Stanford University, regulators must have sufficient information to thoroughly analyze market operations and public release of data is crucial:

The second crucial aspect of “smart sunshine regulation” is public data release. Specifically, all data submitted to a real-time market and produced by the system operator should be released to the public immediately. The public data release should identify the market participant and specific generation unit associated with each bid, generation schedule or output level. Masking the identity of the market participants, as is done in all U.S. wholesale markets, limits the disciplining value of public data release on market participant behavior.⁵⁶

The FERC should also consider requiring RTOs to report their “system lambdas”—the variable cost of the last kilowatt produced over a set time period (e.g., each hour) from the dispatchable generation units participating in each RTO’s power supply markets. This would allow observers to compare the prices set by these markets with the underlying generation costs.⁵⁷ Similarly, non-utility generators should be required to report annual cost and operating data to FERC and this information should be made publicly available, as is currently the case with the generator cost data reported to FERC by regulated public utilities. This information would allow FERC and the public to determine whether rates in RTO-operated markets are just and reasonable.

Generators cite two basic arguments against making their cost and bid information publicly available. First, they claim that revealing cost information would harm their competitive position. Second, they assert that revealing bid data could facilitate collusion among bidders. But, in fact, large generators already have substantial market information because of their active roles—often with multiple plants—in both electricity and fuel markets. In addition, generators can learn the bidding strategies of their competitors through repeated interaction in an RTO’s auction-based markets. Large generators also have access to more information resources, such as subscriptions to proprietary databases of generation units and fuel market information that allow them to model market behavior and analyze their competitors’ costs and bidding patterns. Making cost and bid data public would put the same information in the hands of smaller market players,

The FERC should also consider requiring RTOs to report their “system lambdas”—the variable cost of the last kilowatt produced over a set time period (e.g., each hour) from the dispatchable generation units participating in each RTO’s power supply markets.

⁵⁶ Frank A. Wolak, “Unilateral Market Power in Wholesale Electricity Markets,” published in *CEsifo Dice Report, Journal for Institutional Comparisons*, Ifo Institute for Economic Research, Vol. 4, No. 2, Summer 2006, p. 12.

⁵⁷ This recommendation is contained in “The Missing Benchmark in Electricity Deregulation,” McCullough and Stewart.

regulators, academics and the public, so it would not be available only to those with superior market positions or the financial resources to purchase it.

Finally, FERC and the public should have greater access to financial information on unregulated generating companies. Some generating companies are privately held and thus report little information. Others are units of larger holding companies, so the publicly available statistics are on a holding company-wide basis and provide few specific details on particular unregulated affiliates' generation operations. Electric generation companies should be required to file with FERC basic financial information at the individual company level, similar to the information regulated investor-owned public utilities file in their FERC Form 1s, including balance sheets, operating income and expenses, retained earnings and cash flows. FERC should require annual reporting of data specific to generation operations in detail sufficient to allow FERC to develop basic profit statistics. Data on prices, costs and profits are essential to determine whether rates are just and reasonable, whether they are set using cost-of-service regulation or a market-based regime.

VII. Conclusion



he electricity markets are in a time of crisis, with dire implications for the economy, reliability and the general well-being of the population. It is our intention that this white paper and the proposals contained herein will open a constructive dialogue to develop sorely needed reforms to the wholesale electricity markets. The first step in achieving such a solution, however, will be for FERC and other RTO market supporters to cease the rhetoric and acknowledge that these markets are not competitive.

The debate should no longer be about who can best massage the statistics on prices or whether it is more virtuous to speak of competition or regulation. But instead, we all must work together to design a regulatory system for electricity markets that is truly in the best interest of consumers, businesses and the environment.

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