TESTIMONY OF SUSAN TOMASKY BEFORE THE UNITED STATES HOUSE OF REPRESENTATIVES COMMITTEE ON ENERGY AND COMMERCE SUBCOMMITTEE ON ENERGY AND POWER

SEPT 7, 2016

Good morning Mr. Chairman, Ranking Minority Member and members of the Committee. Thank you for the invitation to speak to you about the history of competitive electricity markets in the US. My specific topic today concerns the efforts of the Federal Energy Regulatory Commission (FERC or the Commission), through Order No. 888 and its progeny, to create a framework for fostering competition in power generation and supply. My testimony reflects my experiences as General Counsel of the Commission as these policies were being developed, as an executive of an electric utility implementing these policies and developing a significant competitive power business, and more recently as a Director on the Board of an energy company that is an active participant in the competitive wholesale marketplace. Although these experiences have shaped the comments I make today, I am not appearing on behalf of any of those entities and the views I express are entirely my own.

As the Committee is well aware, the array of rules, precedents, purposes and opinions that surround the administration of US wholesale markets is complex, arcane, and often subject to dispute, so that any attempt to tell the story of its evolution will most assuredly omit much and oversimplify almost everything. Recognizing that my comments will do both, I will nevertheless offer my thoughts on a few questions that I hope will be useful to the Committee's work:

1—Why did the FERC establish competitive wholesale markets?

2- What were goals of Order 888 and what are the essential elements of the competitive market framework as envisioned by FERC at that time?

3- How did Order 888 approach the issue of Federal vs. state regulation of competitive markets?

4-Are competitive markets working as FERC envisioned, and do current market conditions pose challenges that the competitive market and the current regulatory framework cannot address?

1. WHY DID FERC ESTABLISH COMPETITIVE WHOLESALE MARKETS?

To answer this, it is necessary to talk about the structure of the industry before the introduction of competition. In general, the nation's electricity service industry grew quickly throughout the mid-20th century in relation to a significant expansion of residential, commercial and industrial demand in most parts of the country. Federal laws adopted in the 1930's created a strong regulatory preference for keeping utility operations in a single state or contiguous states and utility infrastructure – power plants, high voltage transmission lines and local distribution systems -- expanded within the ownership structure of many investor-owned regulated utilities, and, in some areas of the country, municipally-owned utilities and rural electric cooperatives. For the most part, utilities provided an end product (electricity service) to customers at the point of use -- a home, a manufacturing plant, a grocery store – and the customer paid a rate established by a regulator (typically a state regulator) that was intended to permit the utility the opportunity to recover the cost of providing service (primarily the cost of building and maintaining power plants, transmission lines and distribution facilities, and the cost of fuel to run the plants) and a "reasonable", i.e., regulatory-determined, return on capital invested to provide that service.

While most electricity service during this time was delivered through retail sales, and thus regulated by states, exceptions emerged, giving rise to Federal rather than state authority over electricity transactions. For example, some local utilities, often municipalities and coops, did not have their own generation facilities, and instead relied upon neighboring utilities for the generation supply, requiring wholesale contracts for power and the provision of Federally regulated transmission service to get the power to the wholesale customer. As networks and interconnections between utilities improved, and separately owned systems became operationally more interdependent, utilities began to buy power from each other in "bulk" sales; these were wholesale sales, i.e., they were sales for resale, and the power was delivered to customers through high voltage transmission interconnections, and thus they were Federally regulated. In some cases, utilities that owned assets serving multiple jurisdictions, or groups of utilities across states, pooled their generation facilities and allocated the costs and benefits through wholesale contracts that were also Federally regulated. Then, with the enactment of the Public Utility Regulatory Policies Act of 1978 (PURPA), utilities were required to purchase power from independently owned generation sources that met national policy goals of fuel source diversity, creating a new universe of wholesale transactions and mandates for transmission service, and expanding the scope of electricity transactions that were subject to Federal regulation.

In my view, this framework served the country fairly well for quite some time, through the 1980's at least, but was eventually tested and found wanting for several reasons. First, and perhaps most significantly, was the rising cost of power supply reflected in increasing consumer rates, due primarily to the escalating costs of new nuclear power plants in some parts of the

country. Disputes over the recovery of these costs (or the costs of abandoning that investment when it faltered in the face of regulatory delay or local and environmental opposition) plagued regulatory proceedings at the state and Federal level; however, these disputes in and of themselves may not have led to industry structural change – simply because for a long time there was nowhere else for customers to go. Although a handful of industrial customers could build facilities for their own use, most generation technology required long lead times to build, large capital commitments, and significant skill and cash flow to maintain and operate, creating significant barriers to entry for new suppliers. And even if those issues could be addressed, utilities owned and controlled the delivery systems, and were not inclined to offer them up to competitors seeking to woo away their customers.

Despite these barriers, the rise in retail rates did indeed create a demand, particularly from more sophisticated industrial customers, for access to lower cost generation supply. In relatively short order, technological innovation rose to meet that demand, with the development of new natural gas fired turbines that could enter the market with materially shorter lead times and at much lower investment cost than the utilities' large scale plants and operate more efficiently than their predecessor natural gas technologies. Many customers bound under state regulatory regimes to pay some utilities' higher cost-of-service rates sought the freedom to leave their utility suppliers and negotiate directly with independent generators or intermediary marketers for the power supply portion of their electricity service; these willing buyers and sellers wanted FERC to permit the transactions and to require utilities to make their transmission facilities available to facilitate these transactions. Capital sat ready to support that new investment, if contracts and regulatory approval could be obtained. For understandable reasons, many utilities resisted this

new market entry, and regulators were conflicted – while there was a strong desire to make lower cost generation available to customers, (and considerable argument over whether the utilities' large investments were "prudently incurred" and therefore appropriate for recovery), there was also a commitment to the "regulatory compact" -- the concept inherent in the regulatory framework that utilities and their investors should be fairly compensated for their substantial capital commitments, and that financially stable utilities are essential to ensuring that customers have a safe, adequate and reliable source of electricity. There was also the concern that if some more sophisticated industrial and commercial customers were permitted to depart the system, residential and other less agile customers would be left with an undue cost burden. As a result, regulators, utilities and customers found themselves mired in litigated battles over costs and service commitments without a real framework for dealing with the issues created by the emerging demand for different supply arrangements.

Although some new generation facilities and related wholesale deals were working their way through the regulatory system, vertically integrated utilities in the 1990's were still by far the major owners of generation in the US; many had excess power to sell and were drawn to the opportunities to participate in this emerging marketplace. In a relatively short period of time, the Commission found itself facing frequent requests from utilities to sell power to "off-system" customers at market based rates, and FERC began to grant these requests subject to the condition that the utility provide some form of "open access" to third party generators seeking to move power across the utility's transmission system. Although the terms of open access conditions were very general at first, they had in common the requirement that the utility provide the service on non-discriminatory basis, i.e., the utility was expected to provide transmission access to third

parties on terms and conditions that were "comparable" to those governing the way it used its own system for its own wholesale transactions. The proceedings to determines those terms and conditions became, in effect, ad hoc regulatory laboratories where parties debated complex operating and economic issues under the supervision of administrative law judges before arriving at "settlements" that would work their way to the Commission for case-by-case modification and approval.

So, after all of this, why did the FERC seek to establish competitive wholesale markets in Order 888? The simple answer is that the need for a competitive wholesale market had begun to emerge from customer demand for access to a lower cost supply. The potential for that lower cost supply to be met by independent generators was demonstrated, both technologically and financially. However, the piecemeal approach to approving wholesale transactions and providing transmission access was slow, creating litigation opportunities on every issue of charges and terms of access. It offered limited advantages and only to a small number of customers, created risks for others, provided only a glimmer of capital markets security to new market entrants, and created uncertainty for utilities who still had the job of provide reliable power at reasonable costs to all customers. Concluding that the demand for change needed to be met more efficiently, fairly and transparently, the Commission initiated the regulatory inquiries and rulemakings necessary to establish a systematic set of rules governing wholesale sales of electricity and open access to the nation's high voltage transmission facilities.

2. WHAT WERE THE GOALS OF ORDER 888 AND WHAT ARE THE ESSENTIAL ELEMENTS OF THE COMPETITIVE MARKET FRAMEWORK AS ENVISIONED BY FERC AT THAT TIME?

In my view, the FERC's primary goal in Order 888 was to create a framework in which the price of electricity in wholesale transactions could be determined efficiently by the forces of competition, rather than through a utility-driven process overseen by regulators and compensated for by customers on the basis of the utility's cost. Its chief regulatory instrument for achieving this was to eliminate impediments faced by competitive power suppliers in gaining access to transmission service necessary to get their power to their customers. To find an appropriate regulatory model, the Commission looked first to the success of similar efforts on the natural gas side of its regulatory house. From that experience, the Commission drew upon certain critical principles that had worked well in the natural gas context: the adoption of standard open access tariff terms that would set common terms and conditions for use of transmission facilities, whether by third parties or the utility itself; the grant of authority to buyers and sellers to engage in market-based rather than cost of service transactions, where the Commission was satisfied that competitive market conditions exist; and, a requirement that changed the basic transactional structure of a wholesale sale by separating the sale of the commodity from the contract for transmission service. In short, the Commission intended to create a distinct and transparent commodity market for power generation and supply while continuing to regulate the transmission business as a monopoly service, albeit under a new set of terms designed to ensure that the transmission system was operated to maximize the effective functioning of the emerging competitive wholesale marketplace. So borrowing largely from the gas model, the FERC adopted a rule with the following essential components:

1. A general requirement that each FERC regulated utility file an open access tariff that conformed to a fairly specific and common set of terms, and which provided third

parties reasonable access to transmission service necessary to meet their contracted for load;

2. A set of rules that provided a fairly simple path for all jurisdictional wholesale sellers of electricity –- for example, independent generators, marketing arms of utilities, and independent marketers -- to win authority to sell power in wholesale transactions at market-based rates. In addition to requiring the filing of an open access tariff as a pre-condition to receiving market based rate authority, the Commission also established a set of rules, or codes of conduct, for utilities to ensure that their wholesale marketing arms did not gain unfair advantage viz. independent market participants;
3. A requirement that rates, terms and conditions for the wholesale sales and transmission of electricity be "unbundled", i.e., utilities making wholesale sales would be required to sell the electricity commodity separately from transactions governing the provision of transmission service; they would also be required to obtain and pay for wholesale transmission service, even across their own system, under the open access tariff, on the same terms and their competitors;
4. To ensure transparency and fairness, utilities were required to develop electronic platforms or systems – accessible to all market participants on the same basis -- for communicating the rules for using the systems and providing critical information, such as what transmission capacity would be available and when, the priorities for using the system, the terms on which service could be terminated and interrupted, and a host of other extraordinarily complicated matters that needed to be clear in order to

permit the utilities to run the system effectively while integrating third party suppliers and ensuring they didn't favor their own company's marketing arms.

5. Recognizing that some utilities may have undertaken investments based on the expectation of serving load under pre-existing supply arrangements, the FERC provided an opportunity for utilities to seek to recover their stranded costs. (Although this was at the time one the most controversial aspects of Order 888, as events unfolded there were few requests for stranded cost recovery at the Federal level. However, by offering the possibility of a non-bypassable wires charge as a recovery mechanism, the FERC set an influential precedent for states pursuing similar competitive market programs.)

The natural gas model was useful in many important respects; however, in applying these rules to electric power supply, FERC faced a number of complicating factors that made it impossible simply to just swallow whole the natural gas model and call it a day. First, as you will hear from others – probably everyone who appears before you to talk about the electricity industry – electricity is, as a matter of physics, different from natural gas and almost every other delivered product: it moves along the path of least resistance at the speed of light, and because it cannot (yet?) be stored economically on a large scale, it must be produced and consumed at about the same moment in time. So while we may talk about transmission as a "pipe" and describe transactions as having "contract paths" where power flows from a seller to a buyer, in fact those concepts are virtual at best. The power goes where it goes, and it is remains an extraordinary feat of engineering design and operational skill to coordinate supply and demand across large geographic regions and keep the system up and running day in and day out.

The unique physical characteristics of the electricity system prompted significant legitimate concern on the part of utilities as they contemplated the operational changes necessarily to integrated a wide variety of power sources, with different operational characteristics and under the control of a wide variety of entities with different levels of expertise, financial wherewithal and varying business objectives. The FERC took these concerns seriously, but ultimately concluded that the prevailing integrated business structure of the industry was not essential to its operational integrity and that utilities were capable of figuring out how to unbundle generation and transmission transactions and accommodate multiple sellers and market-based pricing, while maintaining the system's superior operational performance. FERC ultimately looked to the industry's experience in successfully integrating PURPA facilities and the extraordinary technical expertise embedded in the utility companies, and concluded that operational issues could be addressed by giving the industry a reasonable period of time for compliance and by creating collaborative (if sometimes contentious) proceedings in which market participants and experts could work through the many technical implementation issues. The initial resolution of these operational and technical issues by market participants was critical to successfully implementing competition amid the unique complexities of the country's electrical systems. Emerging from those collaborative proceedings were independent governing organizations (e.g., the RTO's and the reliability councils overseen by FERC) that today play critical -- if sometimes cumbersome-- roles in convening industry experts and market participants to address emerging issues and ensure that markets function effectively and reliability is maintained. While electricity markets are not truly deregulated, in many regions of

the country wholesale markets now function effectively to set prices efficiently and with significant benefit to wholesale customers – without undermining the systems' reliability.

3- **HOW DID ORDER 888 APPROACH THE ISSUE OF FEDERAL VS. STATE REGULATION OF COMPETITIVE MARKETS?**

A second challenge the FERC faced in using the natural gas model to restructure electricity supply arrangements stemmed from the underlying division of labor between state and Federal electricity regulators. For natural gas, the FERC's authority is fairly comprehensive. For most natural gas consumers, gas is produced in one part of the country and transported to consuming markets through FERC regulated pipelines; the gas is typically sold to separate (though sometimes affiliated) local gas distribution companies at a fictional point called "the city gate," creating a wholesale transaction and a clearly marked jurisdictional line between Federal and state authority. When FERC ordered the upstream unbundling of commodity sales and transportation service, it was setting the stage for a national competitive market for almost all natural gas, except that produced and consumed in a single state. In contrast, at the time of Order No. 888, the vast majority of electricity transactions -- electricity delivered to consumers in their homes, factories, and workplaces -- were bundled retail sales; consequently, unbundling wholesale electricity transactions only would not have the same reach and effect as did unbundling of upstream natural gas transactions. As FERC was keenly aware, unless states followed the FERC lead and unbundled retail transactions, or the FERC chose to test its jurisdictional mettle and force retail unbundling itself, most electricity would continue to be sold

in bundled retail transactions and the scope of the competitive wholesale electricity market would be severely limited.

Given this, it is important to note what FERC did not do in Order No. 888: the FERC did not attempt to require utilities to unbundle all transmission service, although there are strong arguments that it had the authority to do so, by virtue of its broad jurisdiction of all transmission in interstate commerce, and the equally broad definition of interstate commerce that was well establish under Supreme Court precedent at the time. Instead FERC limited the unbundling requirement to wholesale transactions, leaving to the states the decision whether to unbundle retail transactions and create a broad foundation for competitively priced generation in their states. The objective of this decision, in general, was not to disturb the state's historic purview over generation. While most states, either through their Commissions or their legislatures, studied a possible move to generation competition, many, typically those satisfied with their utility cost structure, ultimately chose not to move forward. However, other States, experiencing significant generation cost increases (usually due to expensive nuclear power) quickly found themselves facing the same kinds of arguments raised at FERC by customers seeking lower cost supplies and generators seeking to serve them. Either by legislative or regulatory action (usually both) they ordered the restructuring of retail transactions with the hope of opening up new power supply options to customers, and creating a competitive market that would over time reduce the cost of electricity. While there were similarities in many of the state approaches, there were also stunning variations: for example, to assure non-discrimination in transmission service the FERC rules required that utilities functionally separate their transmission and power supply businesses, with different personnel and codes of conduct that limited communication and proscribed certain

business dealings between the two sides of the business. Several states went much further, mandating "structural separation" i.e., requiring utilities to sell their generation to independent parties, jump-starting a generation-only sector that became immediately subject to both the opportunities and the risks of a competitive business in a sometimes volatile marketplace. States also took varied views as to what stranded utility costs would be compensated and how they would be recovered. These various state approaches, alongside the FERC pro-competition mandates, have led to the network of independent and affiliated utility ownership of generation we have today.

Although FERC left the states to their own devices in certain respects, it would be unfair to suggest that the Order 888 was broadly welcomed among the states. Even though FERC did not force retail unbundling, its pro-competition policies, combined with restructuring actions in some states, broadened FERC's influence over transmission service dramatically, and also increased the breadth of power supply transactions subject to FERC control. This was an uncomfortable outcome for many states and hung as a cloud over the otherwise cooperative efforts of states and the FERC to work through many of the complex issues addressed in Order 888 implementation. In general, FERC has embraced this enhanced sphere of influence wholeheartedly, as it continues to refine and advance its regulation of both transmission and wholesale power, in the interest of ensuring that competitive markets prosper and the transmission systems operates effectively and reliably to meet that purpose. However, the patchwork of state and federal regulation that the Commission chose not to disturb remains today, providing both opportunity for many voices to be heard and the risk that important issues will not be addressed, either because it is not clear where the decision-making authority lies or

because authority is so diffuse, and policy goals so much in conflict, that decisions cannot be made to address them.

4-ARE COMPETITIVE MARKETS WORKING AS FERC ENVISIONED, AND DO CURRENT MARKET CONDITIONS POSE CHALLENGES THAT THE COMPETITIVE MARKET AND THE CURRENT REGULATORY FRAMEWORK CANNOT ADDRESS?

It is hard for me, or for any one person involved the development of Order 888, to say whether the competitive markets are working as the Commission envisioned, since there were so many different ideas, principles and constructs that were melded together to push these policies to fruition. But I will attempt to hazard a guess. Fundamentally, the competitive markets that do exist are working quite effectively to achieve their primary objective: to create a functioning commodity market for electricity where price is set by competitive forces. The value of competitive markets is clear: we have many suppliers and capital has been available when new investment has been justified. And, when the market is permitted to work, capital does not flow to projects that are not justified, either because there is no new demand or investment cost is too high to be competitively viable. That is market discipline that directly benefits customers who do not have to pay for unnecessary facilities or overpriced supply. In recent years, we have seen a significant decline in prices being paid for capacity in competitive markets due the availability of shale gas, and in prior periods we have also seen relative higher prices which may signal the need for new generation or transmission – also a necessary outcome of a properly functioning market. There are winners and losers, of course, and they change over time based on external

conditions and how effectively and nimbly suppliers are able to respond to those conditions. There are of course conditions that affect a generator's fortunes that are beyond its control, changing environmental requirements for example or newly advantaged conditions for a competitor (e.g. lower fuel costs.) The market does not correct for these circumstances and assumes that the generator, not the customer, is at risk for these changing conditions. In this regard I think the market has worked generally as FERC had hoped, incentivizing disciplined investment and insulating customers from investor risk.

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I do think many of us had also hoped that wholesale markets would evolve more quickly and that other states would follow the positive example being set in regional competitive markets. Of course, few were prepared for the damage done to the goal of competitive electricity markets by the market manipulation and illegal activities that compounded the inherently difficult supply conditions in California in the early 2000's. I believe from that experience came some important lessons for market advocates and skeptics alike, including a recognition of the value of effective enforcement of market rules. Perhaps most importantly, we were reminded that while it is possible to construct market rules that permit electricity to be bought and sold as a commodity, when a supply related outage occurs, or future supply is not expected to be adequate, or the price escalates beyond some point of customer tolerance, that commodity becomes an essential service and everyone – utilities, regulators and suppliers -- is required to come together to solve the problem.

Overall, I believe we have many examples in which competitive markets, and the existing regulatory structure as complex as it is, have responded appropriately to address emerging issues

since Order 888. On the positive side, we have in many regions of the country effective and efficient competitive markets that work well for consumers in the near term. Also in recent years, we have seen some improvement in the framework for authorizing new transmission facilities, which has permitted necessary build out of some, though not all, the transmission infrastructure necessary to strengthen the system and open up bottlenecks. Across many regions, transmission and distribution investment is receiving support, systems are being upgraded and reliability oversight has improved. The financial strength of the regulated utility business is in general pretty strong. However, there are some significant issues on the horizon that current market and regulatory structures may not be able to resolve. These issues generally revolve around questions of new generation choices and the future of existing generation facilities, including certain coal and nuclear plants, that competitive markets do not currently favor. At the time of Order No. 888, we had before us a broad range of studies projecting various outcomes for future power market conditons. Some things have played out as expected – a strong role for natural gas in new generation builds, for example. Other events have been surprising, most significantly, a long period of flat demand I many parts of the country, and the vast amount of natural gas that has become available not only to support new supply but also to substitute on an economic basis for existing, for some coal and nuclear power supply. I cannot say that the FERC envisioned the specific market conditions that exist today. But what we did expect was that the market would operate efficiently, whatever those conditions proved to be, to make the most cost effective choice for consumers and, in my view, in competitive markets that is happening.

The challenge is, as I mentioned earlier, that even in competitive markets and regardless of the legal structure, electricity supply is both a commodity and an essential service. Policy-

makers, whether they are state and federal regulators, or members of Congress, don't stop caring about the many public policy issues that affect and are affected by this industry, simply because the markets are working the way one might expect. To this end, the Committee will hear much in the way of arguments in the future about the relative social value of adversely affected nuclear and coal plants, such as the value of a diverse generation mix, the value of coal plants to local economies and the challenge of aggressive environmental regulation, the environmental value of nuclear generation and the need for a reasonable price structure that supports their complex operations and safety requirements, the relative merits of renewable power subsidies, the locational value of plants for reliability purposes and the overall value of existing plants to regional supply adequacy. These are difficult and heavily debated matters that are generally are beyond the scope of this hearing. I point to them only to observe that the challenge faced by those generators are not challenges to the effectiveness of competitive markets but rather public policy challenges. Although the industry has changed considerably in the last twenty years, we find ourselves in some regions with good systems for operating short term markets, and for incentivizing economic capacity additions, but with limited ability to commit to long term strategies that take other values and policy objectives into account. Other regions continue to operate within state-based regulatory constructs that are largely unchanged from twenty years ago, which may effectively support ordinary regulatory activity but which cannot reach very well across state boundaries to solve broader problems on a regional basis. Between these two sets of challenges there are many committed, creative individuals, Federal and state regulators, entrepreneurs and market participants who are fully capable of shaping an excellent future for this industry, if a framework for decision-making around these broader issues can be agreed upon. I greatly appreciate the willingness of this Committee to look to the history of this

industry to begin to identify the path forward. I hope you find these comments useful in those efforts. I would be happy to answer any questions.