SUMMARY STATEMENT OF THE ELECTRIC POWER SUPPLY ASSOCIATION
Subcommittee on Energy and Power – Discussion Draft of Title IV
June 4, 2015

EPSA is the national trade association for leading competitive wholesale power suppliers. Members are independent power producers and competitive generation affiliates of holding companies that represent over 200,000 fuel diverse megawatts, over 95 percent in the "organized markets" that are the subject of the discussion draft.

The power sector is in the early stages of what will likely be a multi-year, even multi-decade, series of profound changes in how electricity is generated and consumed. Well-designed and properly regulated competitive wholesale markets remain the best model to capture these benefits while managing challenges because markets are inherently more flexible, adaptable and place more risks on investors than consumers.

EPSA appreciates the inclusion of fundamental energy price formation principles in the criteria in section 4421(b)(6) of the discussion draft for required wholesale power market improvements. EPSA is joined by Edison Electric Institute, Nuclear Energy Institute, Natural Gas Supply Association and America's Natural Gas Alliance in stressing the importance of further FERC action this year on energy price formation reforms.

"Energy price formation" refers to a basket of issues around how ISOs/RTOs determine the granular Locational Marginal Prices ("LMPs") for sales of electric energy. For most plants (all but peaking units) energy sales are the primary source of revenues. LMPs and associated revenues are tightly bounded by FERC-approved market designs and tariff rules along with ISO/RTO grid operator actions. Electricity has unique characteristics that can make it a challenge to consistently arrive at prices truly reflective of total costs to provide reliable service.

ISOs/RTOs generally work well and provide meaningful benefits to consumers, the economy and the environment, which is why their geographic scope has expanded. Including energy price formation in the discussion draft raises timely awareness of how FERC should continue to work with ISOs/RTOs to adapt to changing dynamics that impact investment decisions. Accelerating reforms this year will help address concerns about base load generation, renewables, flexible resources, and capacity markets.

FERC has accomplished a great deal since 2013 looking into these issues. There is now a compelling record before the Commission demonstrating that follow up actions to improve how ISO/RTO energy prices are determined are urgently required this year to avoid adverse consequences for investment in electricity supply infrastructure.

The discussion draft correctly includes operational needs during emergency and severe weather conditions and essential reliability services in the criteria in section 4221. EPSA also urges consideration by EPA and FERC of how the Clean Power Plan should be modified to address concerns about its potential impacts on wholesale power markets as outlined in a report EPSA released last week.

STATEMENT OF THE ELECTRIC POWER SUPPLY ASSOCIATION

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U.S. House of Representatives
Committee on Energy and Commerce
Subcommittee on Energy and Power

June 4, 2015

Thank you for inviting the Electric Power Supply Association ("EPSA") to today's hearing on the discussion draft of Title IV – Energy Efficiency and Accountability. EPSA commends the Committee for considering important electricity policy issues. Doing so allows all of you as policymakers and each of us as market participants who deliver reliable power supplies to step back from day-to-day matters to look at the bigger picture. That has never been more important than today given all the opportunities and challenges facing the energy sector, including electricity.

EPSA is the national trade association for leading competitive wholesale power suppliers. EPSA members are independent power producers and competitive generation affiliates of utility holding companies that represent over 200,000 megawatts essential to resource adequacy and reliability. EPSA members are fuel diverse and among the largest operators of each fuel type: over half of member assets is natural gas; one-fifth is nuclear; over one-sixth is coal; and the balance is renewable (wind, solar, geothermal and hydro). Over 95 percent of EPSA assets are in "organized markets" administered by the Independent System Operators ("ISOs") and Regional Transmission Organizations ("RTOs") that are the subject of the discussion draft. Competitive electricity represents nearly all of the supply in many states and regions.

ISO/RTO Market Reforms In Context: Rapid Change Is The New Constant

Wholesale competitive power markets have been decades in the making and continue to evolve while providing a range of benefits to consumers, the environment and the economy. (See Attachment A for a brief history of electricity business models.) All business models and their regulatory paradigms – whether cost-of-service regulation of vertically-integrated utilities or market design, tariffs and operator practices in ISO/RTO markets – must rapidly improve to keep pace with the changes occurring due to technological, economic and policy developments. Chapter 2 of the discussion draft is important because proposed section 4421(b)(6) would require the Federal Energy Regulatory Commission ("FERC") and ISOs/RTOs to better align market design, tariff rules and grid operator actions to produce more efficient and transparent results to guide needed investments.

EPSA has always stressed that from both resource adequacy and operational perspectives, reliability requires ample supplies of affordable and environmentally responsible electricity. This requires generation from a network of power plants operating simultaneously with base load, mid-merit and peaking capabilities deploying a range of fuels and technologies because electricity demand fluctuates hourly and seasonally. EPSA's preferred policy approach is to refine market-based mechanisms that to the maximum extent possible are fuel neutral. This means estimating quantities and defining attributes the grid needs for reliability and letting those who can provide them compete in the wholesale markets. That is easier said than done given numerous federal and state policy debates, the outcome of which could undermine the ability of wholesale power markets to perform reliably and efficiently as intended.

The power sector is in the early stages of what will likely be a multi-year, even multi-decade, series of profound changes in how electricity is generated and consumed. For starters, the correlation between economic growth and demand for electricity has weakened so volumetric-based revenues weaken as well. While evolutionary in apparent pace at the moment, the end result could be revolutionary compared to the system today. The one-directional power flows exclusively from central station power plants to consumers are shifting to greater multi-directional power flows with enhanced consumer tools to manage consumption. As intermittent resources such as wind and solar increase, other power plants are required to operate differently than designed, with greater wear and tear on those plants. Resources that can ramp up and down rapidly become central to reliability when electricity from intermittent resources declines.

As the cost of renewables continues to reach those of conventional resources, as supplies of relatively low-cost natural gas are plentiful for decades, as new technologies such as distributed generation and battery storage emerge, and as the relative economics of conventional fuels changes, traditional centralized "integrated resource planning" falls victim to the conceit of perfect knowledge that is elusive when change is accelerating rapidly for the power sector and could in fact quicken.

As a result, well-designed and properly regulated competitive wholesale markets remain the best model to manage these challenges and risks because markets are inherently more flexible, adaptable and place more risks on investors than consumers. Any market depends on ample opportunities – not guarantees – for suppliers to earn market revenues sufficient to recover costs and earn a fair risk-adjusted return of and on invested capital to meet consumer demand.

The Critical Importance of Making Energy Price Formation Improvements Soon

EPSA appreciates the inclusion of fundamental energy price formation principles in the criteria in section 4421(b)(6) of the discussion draft for required wholesale power market improvements. EPSA is pleased to be joined by Edison Electric Institute, Nuclear Energy Institute, Natural Gas Supply Association and America's Natural Gas Alliance in stressing the importance of energy price formation reforms.[1]

From the outset, it is important to differentiate three types of markets that ISOs/RTOs administer: (1) sales of electric energy when power plants are dispatched, (2) sales of ancillary services (such as voltage support and frequency response), and (3) capacity markets where they exist (in many but not all ISOs/RTOs) to help recover fixed power plant costs. "Energy price formation" refers to a basket of issues that go to how ISOs/RTOs determine the granular Locational Marginal Prices ("LMPs") at thousands of nodes in the Day Ahead and Real Time markets for sales of electric energy. For most plants (all but peaking units) energy sales are the primary source of revenues. LMPs and associated revenues are tightly bounded by FERC-approved market designs and tariff rules along with ISO/RTO actions as explained below.

Everyone – consumer and supplier alike – should want energy price formation improvements this year. Markets require prices that accurately reflect supply, demand and system conditions. This is true regardless of whether generation is base load, peaking, or in between; whether the fuel is coal, natural gas, nuclear or renewables; and whether from central station plants or distributed resources. Absent accurate prices,

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[1] *Price Formation in Energy and Ancillary Services Markets Operated by [RTOs] and [ISOs],* Docket No. AD14-14-000, Letter on Joint Price Formation Principles from EPSA, EEI, NEI, NGSA and ANGA, (submitted March 9, 2015), http://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13797119.

ISO/RTO energy markets will send distorted information about when, where and how to invest efficiently to meet future needs. While always important, this is critical today given long-lead times and multi-decade projects at a time of considerable change in the electric sector's needs and resource mix.

There are unique characteristics of electricity that make it a challenge to arrive at prices truly reflective of the total costs of providing reliable service. The physics of electricity are such that generation from dozens to hundreds of power plants is needed simultaneously to meet demand in any instant. Electricity production from multiple plants is essentially co-mingled to supply consumers, not delivered in physically separate packages. Electricity supply is required to be in surplus through necessary mandatory reserve margins, not in the equilibrium of economics text books. Electricity supply and demand are thus more interconnected physically and financially than is the case for other goods and services in the economy.

In ISO/RTO markets, grid operators independent of generators ultimately determine the dispatch of specific power plants. This is done under detailed FERC-approved tariff rules including limits on what costs can be included in supplier bids, which units can set the single market-clearing price paid to all resources, and an outdated artificial cap on supply offers even when supplier costs exceed the cap, as happened during the 2014 Polar Vortex. Thus, power producers do not unilaterally determine the prices they to bid into RTO/ISO markets, much less set the prices they receive. This generally works well to produce competitive pricing outcomes as documented through periodic data-driven analytical reports and state of the market assessments from ISO/RTO external and internal market monitors.

Various power plants have widely differing operating characteristics including as to how long it takes for the unit to come online, how long it needs to stay online, and at what minimum and maximum output. Grid operators dispatch plants not only on the basis of pure economics, but constantly take different plant operating characteristics and their expectations of changes to near term demand levels into account. In short, largely for good reason, grid operators make dispatch decisions "conservatively" so as not to run even the slightest risk of coming up short of power.

When the grid operator takes out of market actions the effect is to call on certain plants to be dispatched out of merit order and others to stand by in reserve or not run at all even if otherwise they would run on a purely least cost basis. Generally, units called out of merit order are not allowed to set the market price for the remaining units even though the effect of calling on them is to reduce prices and volumes that determine compensation for the rest. Instead, the out of merit units are paid separately through "uplift" to cover their costs. The "uplift" is ultimately allocated to consumers. "Uplift" is not hedgeable, meaning it is a risk for consumers that cannot be protected against in advance through financial arrangements as can be done to manage energy price risk. "Uplift" reached very high record levels in the winter of early 2014 and while 2015 winter levels were lower than 2014 they were still high by historical measures. Such levels of "uplift" – like elevated body temperature – are a sign of potentially unhealthy conditions. While "uplift" will never be eliminated nor should it be, most wholesale power market experts agree it should be kept to a minimum.

While operator actions and "uplift" have existed for a long time, it was not material to energy price formation until the advent of plentiful relatively low-cost natural gas and weaker power demand artificially put structurally downward pressure on wholesale prices, which as shown in multi-year ISO/RTO data have been much lower in recent years than earlier ones, sometimes as much as half historic peaks. Understandably, one might conclude this is a boon for consumers, but on further inspection it is at best temporary if the present situation is not sustainable for certain power plants and the long-term overall health of wholesale markets. The reason is that no business asset can survive for long if it cannot recover its costs plus an adequate risk-adjusted return of and on invested capital.

In any market, over time some assets will retire and new assets will enter. When that happens on the basis of true economic merit, it is markets at work. Here, however, the substantial risk is that consumer costs will actually increase over time if more power plants continue to retire prematurely and other power plants with operational attributes the changing resource mix requires (e.g., natural gas plants that can ramp up and down quickly to adjust to rising and falling intermittent resource) are not properly compensated. The replacement cost of new plants could be substantially higher than what some existing resources facing closure would have needed to stay in operation.

ISOs and RTOs generally work well and provide meaningful benefits to consumers, the economy and the environment, which is why their geographic scope has expanded. However, any market, particularly relatively new ISO/RTO markets, can and should be improved as lessons are learned. Including energy price formation in the discussion draft raises timely awareness of how RTOs and ISOs need to adapt quickly to changing dynamics that impact investment decisions as to the viability of existing and new supply resources.

Importantly, these regulatory reforms will help address the concerns raised by Subcommittee Members across the aisle in recent hearings on matters as varied as base load generation, renewable resources, and capacity markets.

FERC has spent a great deal of time on important issues around capacity markets as they were introduced in certain ISOs/RTOs, with several pending dockets on which decisions are imminent. Until recently, FERC spent far less time on the larger energy markets. To their credit, FERC and its staff have accomplished a great deal since 2013 looking into how prices are formed in these markets. FERC held three day-long technical conferences preceded by issuance of detailed staff reports from September through December 2014. Earlier this year, FERC posed a series of thoughtful questions for public comment on which numerous submissions from various points of view were made. FERC's docket now forms a compelling record that improvements to how energy prices are determined are urgently required.

EPSA's recommended reform priorities focus on improved market pricing through steps to price dispatch decisions made by grid operators in the name of reliability more frequently in the market prices for all to see and less so through opaque out-of-market "uplift" payments; greater transparency around grid operator actions; lifting or changes to energy offer caps; sub-hourly pricing to better compensate plants capable of ramping quickly; and intra-day offer flexibility so that supplier bids to ISOs/RTOs better reflect market conditions such as fuel costs. [2] The much less desirable alternative, which is likely in the absence of action in the next few months, is Balkanization of the power

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[2] *Price Formation in Energy and Ancillary Services Markets Operated by [RTOs] and [ISOs]*, Docket No. AD14-14-000, Comments of the Electric Power Supply Association (filed March 6, 2015), http://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13795045.

sector by fuel type and plant location. This would be accompanied by more requests for out-of-market payment mechanisms, eroding rather than reinforcing the competitive markets that Congress and FERC spent decades developing on a bipartisan basis.

While FERC is presumably considering options for next steps, EPSA cannot overstate the importance of public FERC follow up in the next several months putting the ISOs and RTOs on a clear path toward energy market pricing reforms. This is critical because the surplus supply that generally existed when wholesale competition and restructuring began in the 1990s has been reduced as plants retired for a variety of reasons. Decisions as to whether to retire, repower, or replace large amounts of existing megawatts will continue to be made this year impacting reliability for decades. Competitive suppliers in ISO/RTO markets have proven they will respond with timely investments when accurate price signals show the need, as the results from recent capacity market auctions amply demonstrate.

In sum, reliability in ISOs/RTOs turns on investment decisions made independently by a multitude of market participants, including developers, owners and operators of power plants as well as lenders and investors. Market participants make economically efficient decisions as to existing and new plants when price signals are accurate and resulting revenues justify investments. These decisions are now influenced by expectations of whether identified deficiencies in energy price formation will be addressed soon so future revenues are in better focus. ISOs/RTOs follow priorities set by FERC, which in turn implements the Federal Power Act as enacted by Congress. Continued Commission leadership is key to timely implementation of reforms that parallel those in the discussion draft to avoid adverse consequences.

The Discussion Draft Also Draws Attention to Other Significant Issues: Electric/Gas Coordination and Essential Reliability Services

The discussion draft also includes operational characteristics during emergency and severe weather conditions among the criteria for the reform plans required by section 4221. FERC is to be commended for its multi-year work on coordination between the natural gas and electricity sectors. Much progress has been made and more is at hand. As ISOs/RTOs respond by July 23, 2015, to FERC Order No. 809 on adjustments to electric day timing and operations in light of recently approved changes on the natural gas side, EPSA urges ISOs/RTOs to reduce processing times in determining Day Ahead commitments so that power plants have more opportunities to procure natural gas while those markets are liquid each day. ISOs/RTOs should also provide greater intraday offer flexibility so that bids reflect accurate fuel costs.

Another criteria in the discussion draft relates to "essential reliability services." The North American Electric Reliability Corporation ("NERC") has recognized the importance of this subject through its Essential Reliability Services Task Force, of which EPSA and its members are active participants. NERC has made progress in educating policymakers and the public about the critical importance of voltage support, ramping capability and frequency response. These system needs were once taken for granted as a byproduct of the "rotating mass machines" that largely made up the power fleet. The need for these services to maintain reliability shows that not every megawatt of supply or demand resources is equal. If less of these services will be available as traditional sources of generation that provided them as a matter of course decline, then they must be procured and compensated separately through market-based products.

The Interaction of EPA's Clean Power Plan and ISO/RTO Wholesale Markets

While the Clean Power Plan ("CPP") is not the subject of this hearing, it is impossible to consider how power markets will function in future years without taking it into account. EPSA spoke at the FERC national conference on the CPP on February 19, 2015, stressing that FERC is uniquely qualified and responsible for addressing aspects of the CPP that might undermine competitive markets. EPSA focused on making sure the CPP is developed and implemented consistent with the bid-based, security-constrained economic dispatch used to procure the least cost mix of resources.

FERC's expertise in assessing the power market impacts of EPA regulations was recently confirmed by the U.S. Court of Appeals for the District of Columbia Circuit in *Delaware Department of Natural Resources and Environmental Control v. Environmental Protection Agency*, Nos. 13-1093, *et al.*, 2015 WL 194736 (D.C. Cir. May 1, 2015) . EPSA was an intervenor and was pleased a unanimous three-judge panel overturned an EPA rule exempting behind-the-meter generators used in demand response from hazardous air pollution requirements. The court recognized the adverse effects of such a discriminatory exemption on power markets, including on cleaner sources of electricity and the prices received by all types of plants dependent on market revenues. The court directed EPA to work with FERC on remand.

Last week, EPSA released a report by The Analysis Group entitled "Carbon Control and Competitive Wholesale Electricity Markets: Compliance Paths for Efficient Market Outcomes."[3] The report goes into detail on how aspects of the CPP could

[3] *See*, "Carbon Control and Competitive Wholesale Electricity Markets: Compliance Paths for Efficient Market Outcomes," prepared as an independent report by Susan F. Tierney and Paul J. Hibbard of the Analysis Group and funded by Electric Power Supply Association, May 2015, available at www.epsa.org.

interfere with or undermine competitive market outcomes in ISOs/RTOs unless these concerns are addressed by EPA, FERC and the States. This largely stems from the proposed state-by-state emissions rate-based approach in the CPP that could produce market-distorting results given widely varying numerical targets among states within the same multi-state ISO/RTO. Thus, similarly situated power plants will receive potentially widely varying revenue streams merely as a function of which state they are located in, even though power flows do not follow state boundaries.

Similarly, the CPP covers “existing” power plants while “new” power plants (defined as those with a commercial operation date after January 1, 2014) are not automatically covered. Thus, “new” plants operating outside of the CPP under the separately proposed New Source Performance Standards (“NSPS”) would be artificially advantaged to the detriment of accurate energy market price signals and revenues for existing power plants. Under the proposed allowable emissions levels under the NSPS rules, newly constructed natural gas combined-cycle plants (“CCGT”) would not incur compliance costs while similarly situated existing CCGT plants could be required to do so depending on state emissions rate targets in the CPP and a state’s implementation plan. Last week’s report outlines options for states to implement the CPP more consistently within regional markets by coordinating with each other, and for EPA, with FERC’s help, to encourage them to place “new” power plants within the CPP so all plants competing with each other are on a level playing field. It took Congress years to correct the costly distortions caused by artificial vintage pricing of “old” and “new” natural gas production based on arbitrary in-service dates under price controls enacted in 1978; FERC should work with EPA to avoid repeating that mistake with the CPP.

Conclusion

EPSA greatly appreciates Congressional direction and FERC leadership on electricity issues, including the ISO/RTO market improvements outlined in the discussion draft of Title IV. Many say, correctly, that reliability is job one. EPSA agrees given the important contributions its members make to reliability, particularly in the ISOs/RTOs that are the focus of the discussion draft. Follow through this year on energy price formation reforms, compensation for essential reliability services, natural gas/electric coordination, and the market impacts of the Clean Power Plan is critical to maintaining reliability while pursuing important public policy goals related to the economy and the environment.

Attachment A to EPSA Testimony

Brief History of Competitive Wholesale RTO/ISO Power Markets

Prior to wholesale and retail competition in the 1990's, the nation was dependent on vertically-integrated utilities with defined exclusive service territories. These utilities generate electricity at power plants they own, move the power over their high-voltage transmission lines to load within their service territories, and operate the local distribution wires over which that electricity reaches consumers. As franchised monopolies, these utilities are subject to cost-of-service regulation. Regulators set rates such that these utilities are allowed to recover prudently incurred costs and a rate of return based on their capital structure. As outlined below, while several regions remain dependent on such utilities, that is no longer the case in most of the country.

Serious concerns about how vertically-integrated utilities operated began to emerge in the 1970's and 1980's with vigorous debates in this Committee, elsewhere in Congress, and at the state level. Lack of competition and the cost-based nature of traditional utility regulation meant that utilities were rewarded for higher costs, not lower ones. Multi-billion dollar cost overruns and construction delays were increasingly common with attendant costs passed on to captive ratepayers. Vertically-integrated utilities operating over relatively small geographic footprints meant that each utility built more and more power plants to service its exclusive territories. This was rightfully seen as highly inefficient and ultimately costly for consumers. These utilities controlled transmission lines which allowed them to block access to or through their systems by competitors with less expensive power. At the same time, greater reliance on market forces was largely working in various transportation and telecommunications sectors.

Congress took the first steps toward wholesale electricity competition through the Public Utility Regulatory Policies Act of 1978 ("PURPA") that required utilities to purchase power from certain renewable and small power plants known as "qualifying facilities." While the implementation of PURPA had its imperfections, the law proved that power generation is not a natural monopoly that justifies only allowing the same entity to control generation, transmission and distribution and giving them the exclusive right to provide power supplies to customers in a defined service territory.

Congress under the bipartisan leadership of the Energy and Commerce Committee added provisions to the Energy Policy Act of 1992 ("EPACT02") that jump-started wholesale power competition in a major way. In EPACT92, Congress directed the Federal Energy Regulatory Commission ("FERC") to allow greater non-discriminatory access to the transmission system to facilitate the movement of power across multiple transmission systems. The new law also created "exempt wholesale generators" to allow independent power producers to pursue larger scale projects than those allowed under PURPA.

FERC implemented EPACT92 through a series of landmark orders adopted on a bipartisan basis in the 1990's. These orders imposed open access tariff requirements on transmission owners so that new entrants independent of the vertically-integrated utility could get their power to customers choosing to purchase it. FERC also encouraged the voluntary formation of Regional Transmission Organizations ("RTOs") to operate the grid independently of the owners of the transmission lines. RTOs also began to run wholesale markets through which power plants are dispatched on a least cost basis using bid-based security-constrained economic dispatch (SCED).

In RTO markets, power plants in a given state, in the case of a single state independent system operator (California, New York and Texas), or across states in a multi-state region (ISO-New England, PJM Interconnection, Midcontinent ISO, and Southwest Power Pool) dispatch power plants regardless of who owns them so that consumers receive the benefit of the least cost supply resources to meet demand at any given time. In addition, some states restructured their retail systems, including by unbundling generation from traditional cost-of-service rate-regulation and allowing entities other than the vertically-integrated utilities to sell power at retail to customers.

The combination of greater wholesale and retail competition fundamentally altered the economics in a way better suited to delivering consumer benefits. Instead of cost-plus rates paid by captive customers, power producers within these new "organized markets" had to earn revenues through power sales in competition with others. No longer would simply spending more ratepayer money mean making more in profits. Predictably, with the economic incentives better aligned, competitive power producers took over the operation of then-existing power plants, getting more out of them: capacity factors increased considerably, refueling times at nuclear plants shortened dramatically, and the fuel efficiency of coal plants increased substantially.

At the same time, new entrants came into the business with new technologies and resource types such as wind, solar and combined-cycle natural gas plants. Investments in existing and new plants started to be made as they are generally in a market economy with much greater risks on developers, owners, operators, and investors better able to manage those risks, not on captive customers with no choice but to pay up for mistakes and miscalculations made by others in their name.