TESTIMONY OF GLEN THOMAS
PRESIDENT, PJM POWER PROVIDERS GROUP
OHIO ENERGY MANDATES STUDY COMMITTEE
JUNE 1, 2015

Co-Chairs Balderson and Roegner and members of the Energy Mandates Study Committee, thank you for allowing me to provide testimony before you here today. My name is Glen Thomas and I am the president of the PJM Power Providers Group ("P3").

P3 is a non-profit organization consisting of power providers whose mission is to promote properly designed and well-functioning competitive wholesale electricity markets in the 13-state region and the District of Columbia served by PJM Interconnection, L.L.C. ("PJM"). Combined, P3 members own more than 87,000 megawatts of generation assets in PJM and over 51,000 miles of transmission lines, and serve nearly 12.2 million customers and employ over 55,000 people.

My comments before you today represent the position of P3 as an organization, but not necessarily the views of any particular member with respect to any issue.

P3 commends the Legislature and this Committee for taking the time to thoroughly evaluate various impacts that subsidies and mandates can have on Ohio customers. P3 believes that well-functioning competitive wholesale electricity markets are the most effective means of ensuring a reliable supply of power to the state of Ohio and the other 12 Mid-Atlantic and Midwestern states and the District of Columbia in the PJM service territory. PJM's market – which includes 945 members operating in a wholesale marketplace of over $50 billion – focuses on operational efficiencies to deliver the most affordable, diverse and reliable source of energy to its ultimate customers, including those businesses and residents in the state of Ohio. In short, PJM is focused on the same goals as the Ohio Legislature: affordable, reliable energy that spurs job growth, promotes a healthy environment and minimizes government mandates.

Competitive markets promote the efficient allocation of resources, hold down costs to consumers, spur innovation, and ensure that prices paid reflect the true costs of providing electricity. Competitive markets deliver enormous value to Ohio power consumers on a daily basis and represent the most cost effective means of achieving Ohio's goal of maintaining a sufficient supply of power to fuel Ohio's economy.

Ohio's success in creating competitive markets has been strongly supported by federal policymakers who see similar value from competitive market structures. Over the past two decades, the Federal Energy Regulatory Commission ("FERC") has encouraged competition by supporting the growth of non-utility electric generation, opening access to the transmission grid on a non-discriminatory basis, endorsing and overseeing the formation of transparent, centralized wholesale markets that are run, in part, by FERC-authorized Regional Transmission Organizations, such as PJM, and regulating such wholesale markets to ensure that electricity prices are established competitively.

One of PJM's primary responsibilities is ensuring that there is a reliable supply of electric

generation available to meet the needs of Ohio and the other states it serves. PJM has market-based mechanisms in place to make sure that it has sufficient supplies of generation available to meet its needs plus an additional "reserve margin" over and above what is needed in the event of unexpected contingencies. PJM has the added benefit of being able to use market signals to select the most efficient units from across its footprint compared to a state program, which would largely be limited to resource options in its footprint. Approximately two weeks ago, PJM projected the "peak" for the summer of 2015 to be 155,279 MW, while noting that PJM has available to it 177,650 MW to meet that demand this summer. These numbers equate to about a 21% reserve margin. Note that the highest demand ever in PJM was 165,492 MW in July of 2011.

Moving forward, even with the significant number of projected coal retirements, PJM continues to maintain robust reserve margins for both the summer of 2016 and the summer of 2017.[1] PJM has maintained these reserve margins as stricter environmental regulations have forced the closure of many plants by consistently adding new facilities to meet projected demands. Attached to my testimony is a list of the new power plants currently under construction in PJM, as well as newspaper accounts of the significant activity in Ohio surrounding the developing of new generation resources.

It is worth noting that the builders of these new facilities in Ohio and other states are financing and constructing these plants based on existing market signals with "at risk" capital. Investors, not ratepayers, bear the risk of construction delays, cost overruns, market fluctuations, competitive pressures, fuel costs and inefficient performance. Moreover, the market prices that consumers are paying for these new facilities and the energy that they produce are consistently below levels that are being sought by some companies in the form of out-of-market revenue guarantees.[2]

Also, the environmental benefits of this market-based approach are not insignificant. Not only are the new units coming on line quickly, they are producing electricity more efficiently and more cleanly than the units that are retiring. Attached to this testimony is a chart produced by PJM that clearly shows how PJM's competitive market structure has led to substantial declines in NOX, SOX and CO2 emissions.

PJM fulfills its responsibilities, in large part, by operating its markets in an independent manner. This means that PJM, itself, must be independent from any market participant, and that PJM's markets are overseen by an Independent Market Monitor ("IMM" or "Market Monitor"). As you recently heard from Joseph Bowering, the IMM for PJM, the role of the Market Monitor is to support and promote the public interest in competitive markets. The role of the Market Monitor includes monitoring the PJM markets to detect

---

[1] PJM's reserve margin for 2016 is 21.1% and 2017 is 19.7%. The target reserve margin for both years is around 16%.

[2] For example, recent efforts in New Jersey, that have since been determined to be unconstitutional, would have required consumers to pay $286/MW-day for capacity in 2015 for a power plant built by Competitive Power Ventures (CPV). The "market" price for capacity in New Jersey in 2015 was $167/MW-day. Fortunately for the families and businesses of New Jersey, the contract was ruled unconstitutional and the CPV plant is producing energy into the market without a ratepayer supported subsidy.

and deter the potential exercise of market power, recommending market design changes to increase competition, and reporting on the markets to the public.

Both PJM and the IMM must ensure that the operation of the wholesale competitive market occurs in the absence of market power or market manipulation. Most people are familiar with the outcomes of seller market power, which can, in part, result in unwarranted increases in market prices. But PJM and the IMM must also ensure that market manipulation does not occur by way of *buyer-side* market power – which would result in unwarranted *decreases* in market prices. Market prices that are depressed by out-of-market subsidies benefit those inefficient producers receiving the subsidy at the expense of more efficient ones. Over the long term, such a market policy will lead to higher prices as generators compete to get the highest subsidy rather than compete to provide the lowest price power.

Depressed prices can, of course, be the result of unfair subsidies in an otherwise competitively-neutral market. While I will not refer to specific details in pending cases before the Ohio Public Utilities Commission, suffice it to say that out-of-market subsidies, be they in the form of state-sponsored energy contracts or non-bypassable energy riders – can have a clear, distorting effect on competitive markets and have proven to be a bad deal for consumers.

Taking particular note of the potential for uneconomic capacity additions to artificially depress prices, FERC has stressed that the exercise of market power by both sellers and buyers must be mitigated to ensure that prices are neither artificially inflated nor artificially suppressed.[3] Moreover, federal courts have recently found that certain state actions in the form of state-mandated subsidized contract rates designed to encourage new generation interfered with FERC's regulation of wholesale markets and thus violated the Supremacy Clause of the U.S. Constitution.[4] The fact that out-of-market state subsidies and mandates may not only violate the law, but may also harm other policy goals at the state and federal level, certainly warrants careful consideration as policy leaders consider such options.

PJM is fully aware of coal-fired units that are slated to be retired in its footprint, including those units within Ohio, and is taking the appropriate measures to maintain the reliability of the system given these retirements. As Mr. Ott stated, "[T]he operation of the power grid will remain reliable because the PJM forward capacity market is attracting investment in new gas-fired resources and alternative resources . . . and the PJM's regional transmission planning process has identified transmission upgrades necessary to

---

[3] Direct Testimony of Jospeh P. Kalt, PH.D., on behalf of the PJM Power Providers Group and the Electric Power Supply Association, Public Version, *In the Matter of the Application of Ohio Edison Company, The Cleveland Electric Illuminating Company and The Toledo Edison Company for Authority to Provide for a Standard Service Offer Pursuant to R.C. 4928.143 in the Form of an Electric Security Plan,* Case No. 14-1297-EL-SSO, dated December 22, 2014, p. 13 (citations omitted).

[4] *PPL v. Nazarian,* Docket No. 12-1286 (D.MD September 30, 2013) and *PPL v. Hanna*, CA11-745 (D.NJ October 11, 2013).

maintain reliable power grid operation."[5]

In short, Ohio policy makers can remain confident that the PJM markets will continue to meet the reliability needs of Ohio and the other 12 states in the PJM footprint at prices that ensure consumers receive the benefits of competitive markets. PJM has consistently maintained reserve margins above what is required at prices that are lower than monopoly cost of service regulation. While challenges certainly lie ahead and rules may need to be adjusted to meet these challenges, Ohio consumers will be well served by working within in the competitive market paradigm rather slipping than back to the antiquated and inefficient market construct of the past.

[5] Testimony of Andrew Ott on behalf of PJM Interconnection, Ohio Energy Mandates Study Committee, March 18, 2015, p.3.

NEW ENTRY IN PJM CAPACITY AUCTIONS

Type of Capacity Addition	Capacity (MW-UCAP) 2015-16	2016-17	2017-18
New Generation	4,899	4,282	5,927
Generation Uprates	447	1,181	340
Total	5,346	5,463	6,267

Source: PJM, 2017-2018-base-residual-auction-report.pdf, 2014
Note: All capacities are expressed in MW unforced capacity (UCAP)

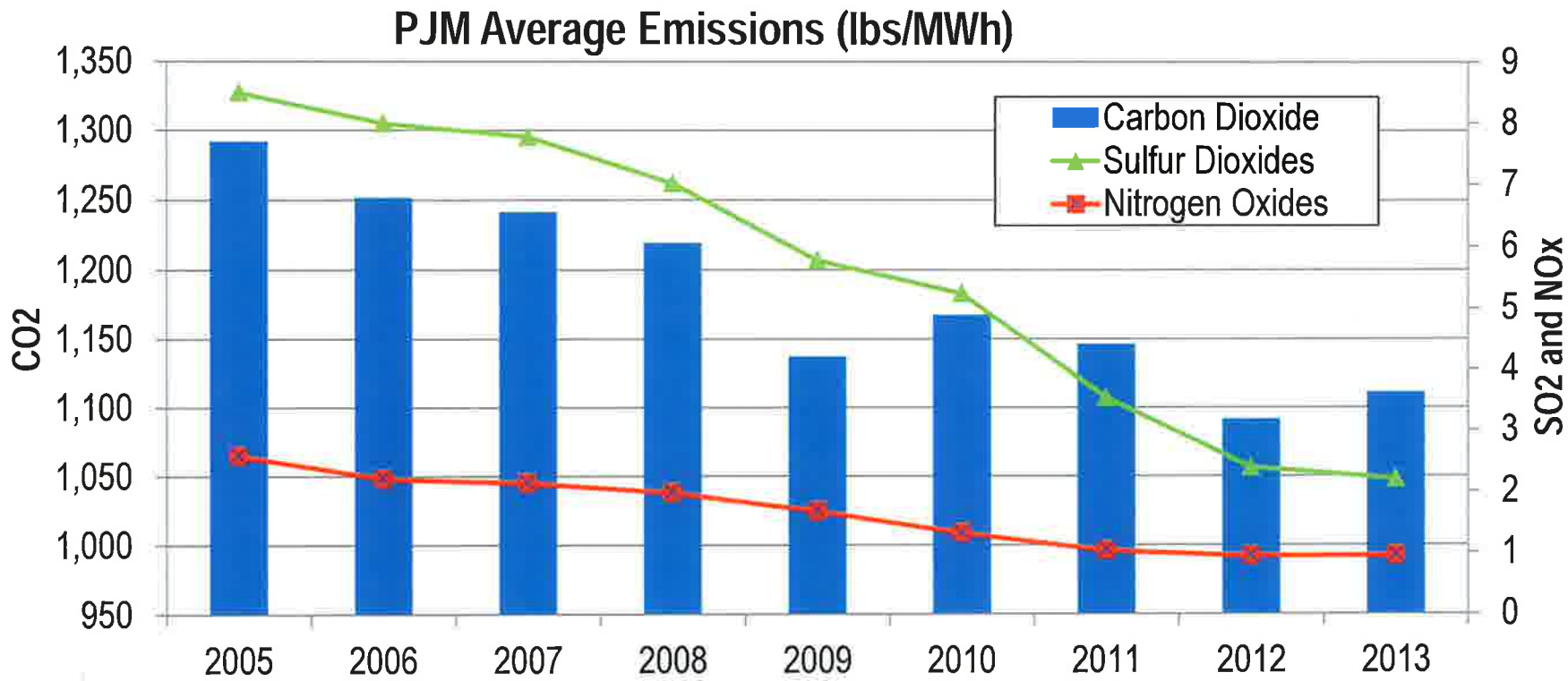
PJM NATURAL GAS PLANTS CURRENTLY UNDER CONSTRUCTION

Name	Owner	Capacity (MW)	State	Technology	Sources
Woodbridge Energy Center	Competitive Power Ventures Inc	700	NJ	CC	"CPV breaks ground on Woodbridge Energy Center in New Jersey", Energy Business Review, October 28, 2013.
Garrison Energy Center	Calpine Corp	309	DE	CC	"Garrison Energy Center generator project on schedule", Delaware State News, January 25, 2014.
Panda Liberty Power Project	Panda Power Funds	829	PA	CC	"Construction ahead of schedule on Panda Liberty plant", Daily Review, April 13, 2014.
Panda Patriot Power Project	Panda Power Funds	829	PA	CC	"[Panda Power Funds Breaks] Ground on Pennsylvania's Second 829-MW Marcellus Shale-Gas Power Plant", Panda Funds Online Newsroom, August 12, 2014.
West Deptford Energy Station Project	LS Power Group	738	NJ	CC	"Christie attends LS Power groundbreaking in West Deptford; officials announce expansion", Gloucester County Times, February 09, 2012.
Newark Energy Center	Energy Investors Funds Group	655	NJ	CC	"Energy Investors Funds Acquires Hess Corporation's 50 Percent Equity Stake in GE-Powered Newark Energy Center", Business Wire, June 20, 2014.
Perryman	Exelon Corp	120	MD	GT	"Exelon breaks ground on two natural-gas generating units at Perryman Station", The Baltimore Sun, July 22, 2014.
St Charles	Competitive Power Ventures Inc	725	MD	CC	"Competitive Power Ventures, [...] Close Financing of $775 Million CPV St. Charles Energy Center in Maryland", PR Newswire, August 8, 2014.
Wildcat Point Generation Facility	Old Dominion Electric Coop	1,000	MD	CC	"Capacity Results: Who's In, Who's Out?", RTO Insider, June 3, 2014.
York Energy Center	Calpine Corp	760	PA	CC	"Calpine Reports Strong Second Quarter Results [...] Including Announcement of York 2 Energy Center in PJM", Calpine Corp, August 1, 2014.
Brunswick County Power Station	Dominion Resources Inc	1,358	VA	CC	"Dominion Hosts Groundbreaking Event for Brunswick County Power Station", PR Newswire, May 16, 2014.
Warren Power Generating	Dominion Resources Inc	1,329	VA	CC	"Dominion's natural gas-fired Warren County Power Station half complete", Power Engineering, September 26, 2013.
Nelson Energy Center	Invenergy LLC	600	IL	CC	"Invenergy Completes Project Financing For Nelson Energy Center in Illinois", Invenergy, December 12, 2013.
Oregon Energy Center	North American Project Development LLC	799	OH	CC	In the Matter of the Application of Oregon Clean Energy, LLC for a Certificate of Environmental Compatibility and Public Need to Construct an Electric Generation Facility, Case No. 12-2959-EL-BGN, Notice of Start of Construction November 12, 2014.
Loudoun Hybrid	Panda Power Funds	750	VA	CC	"Construction begins on Loudoun County power plant", The Washington Post, November 17, 2014.
Carroll County Energy Project	Advanced Power Services LLC	672	OH	CC	In the Matter of the Application of Carroll County Energy, LLC for a Certificate of Environmental Compatibility and Public Need to Construct an Electric Generation Facility, Case No. 13-1752-EL-BGN, Notice of Start of Construction April 7, 2015.
	Total	12,173			

Note: CC indicates combined cycle and GT indicates gas turbine

Sources: PJM Generation Queue; Ventyx Velocity Suite Products

PJM Market – Average Power Generation Emissions
Pounds Per MWh of Electricity Produced



PJM©2014

cleveland.com

Gas-fired power plants sprouting in Ohio to replace old coal-burners

John Funk, The Plain Dealer By **John Funk, The Plain Dealer**

Follow on Twitter

on April 09, 2015 at 7:00 AM, updated April 09, 2015 at 9:38 AM

View full size

The high-voltage lines outside NRG Energy's Avon Lake power plant will continue to be needed after NRG converts the plant's coal-fired boilers to gas rather than closing them.

Marvin Fong, The Plain Dealer

CLEVELAND, Ohio -- At least six gas-fired power plants are being built or on the drawing boards in Ohio.

All are being built by independent power companies. They hope to capitalize on Ohio's plentiful and cheap shale gas, on the decision by companies like FirstEnergy to close old coal-burning power plants rather than upgrade them or replace them with natural gas plants, and on proposed federal rules requiring power companies to cut their carbon dioxide emissions.

The latest gas project to make the news is in shale gas-rich Carroll County, where a Swiss power plant builder has begun grading parts of a 77-acre parcel about 2 miles outside of the county seat Carrollton. Carroll County Energy's 750-megawatt gas-fired power plant will have the capacity to generate enough electricity to power about 750,000 homes, on average.

Unlike conventional coal, the new plants combine gas turbines and steam boilers, making them far more efficient than coal-fired steam boilers. Also, these "combined cycle" gas-fired generators can ramp up to full power in minutes rather than hours or days that coal burners require.

On the downside, gas -- unlike coal -- cannot be stored at these power plants, and is delivered only by pipelines, leaving the power plants vulnerable to terrorists or natural calamities.

Advanced Power, the privately owned Swiss company building Carroll County Energy, partnered with a large retirement fund, a Japanese utility and two investment groups connected to insurance companies to raise a little more than half of the $890 million construction costs. It secured a financing package from 10 large banks for the rest.

Ohio regulators recently told state lawmakers that they expect 4,300 megawatts of electricity to flow from new

gas-fired power plants by 2019, most of it from plants owned by independent power companies.

At the same time, Ohio's old utilities are expected to close their coal plants. FirstEnergy, for example, is expected to close several old coal plants next week, including remaining boilers in Eastlake and at East 72nd Street off the East Shoreway in Cleveland.

This change-over is occurring as Ohio lawmakers are trying to decide whether to allow the state's energy efficiency standards to spring back to life automatically in 2017 as they are set to do under a temporary two-year freeze put in place last spring with the passage of a bill for which FirstEnergy heavily lobbied.

Energy efficiency programs can cut demand and that can reduce the pressure on utilities to scrap older coal-fired power plants, a study released last month by grid manager PJM Interconnection concluded.

Advanced Power has chosen the internationally ranked heavy construction company Bechtel to build the Carrollton plant. About 700 temporary jobs will be created. The company expects to be generating and selling electricity by December 2017.

The power will be sold into the regional high-voltage grid through a nearby 345,000-volt American Electric Power line.

The plant will take gas from Kinder Morgan's transcontinental Tennessee Gas Pipeline that runs through Ohio's Utica shale gas fields and northeast in the Marcellus shale gas fields in Pennsylvania. Some of Ohio's shale producers already use the line now to ship gas south to Louisiana.

Here are other gas-fired power plants already being built or planned.

- Developers began building the Oregon Clean Energy gas-fired power plant near Toledo in December at a cost of about $850 million. The 799-megawatt gas fired plant will fill the gap left by FirstEnergy's decision to close some old coal-fired boilers nearby rather than retrofit or replace them to meet modern emission standards.
- Florida-based NTE Energy, another independent power company, is poised to begin construction of a 525-megawatt gas-fired power plant in Middletown, Ohio, in Butler County. That plant is projected to be on-line in early-to-mid 2018.
- The Rolling Hills power plant has been operating in Vinton County, Ohio, since 2003, and is now in the final stages of permitting to expand, add new technology, and boost its output from 850 megawatts to 1,414, enough power for more than a million households.
- Clean Energy Future-Lordstown, LLC, is proposing to build an 800-megawatt gas-fired plant in Trumbull County. The project, which will use gas from nearby pipelines and will connect to power lines owned by a FirstEnergy subsidiary, is under review at the Ohio Power Siting Board.
- NRG Energy, **is converting** its 725-megawatt coal-fired Avon Lake power plant to gas and is awaiting approval to build a 20-mile gas line from Dominion East Ohio and Columbia Gas of Ohio lines to its plant on Lake Erie. There has been opposition to the placement of the new gas line and a public hearing was scheduled this week.

Edited to update temporary construction numbers at Carroll County Energy.

© 2015 cleveland.com. All rights reserved.