

**Testimony of Andrew Ott on Behalf of PJM Interconnection
Pennsylvania Senate Consumer Protection and Professional Licensure Committee
September 13, 2013**

Good morning, Chairman Tomlinson, members of the Senate Consumer Protection and Professional Licensure Committee, and members of the Senate. My name is Andrew Ott, and I am PJM's Executive Vice President for Markets. I appreciate the opportunity to appear before you today to discuss PJM's role in maintaining the reliability of the bulk electric system, commonly known as 'the grid', in conjunction with running the world's largest wholesale electricity market. PJM is the Regional Transmission Organization (RTO) operating in all of Pennsylvania and all or parts of twelve other states and the District of Columbia. Its day-to-day operations, market structure, and transmission system planning provide a foundation at the wholesale level for reliable and reasonably priced retail electricity for 58 million people in a 211,000 square mile market area. PJM's market does not encompass Pennsylvania retail transactions or Pennsylvania retail market, which is under the jurisdiction of the Pennsylvania Public Utility Commission.

My goal today is to convey a sense of how PJM employs its Regional Transmission Expansion Planning Process, wholesale energy and capacity markets to accomplish its core missions – maintaining electric system reliability for Pennsylvania and throughout the region we serve. In discussing PJM's markets I will describe the evolution of the supply mix, driven by: Marcellus Shale Gas development, US EPA regulations, and a flattening demand for electricity. I will discuss the development of increasing levels of demand response resources and energy efficiency resources as well as renewable resources. I will explain how PJM's regional transmission expansion planning process assures the continuing reliability of the high voltage power system into the future. I will also describe the process PJM follows in performing reliability analysis to evaluate deactivation notices that we receive from electric generators planning to retire, such as the notice PJM received on July 9th from FirstEnergy regarding their Hatfield's Ferry and Mitchell generating stations. This analysis is fully underway and I will summarize the available results and provide an approximate timeline for the completion of the analysis. I will also discuss the remedies available to PJM to ensure reliability of the bulk electric system. I would like to mention that we at PJM understand the implications and potential outcomes of the analyses and work that we perform and that we sincerely empathize with those who are being negatively impacted by the pending generating plant closures.

How PJM Maintains Bulk Power System Reliability

PJM is responsible for ensuring safe and reliable regional grid operations – "keeping the lights on." PJM largely does so through wholesale power grid operation, through administration of competitive wholesale electricity, capacity and ancillary service markets, and through coordinated long-term, regional transmission planning.

As an RTO, PJM operates as a, not-for-profit corporation; PJM does not own transmission or generation facilities, nor do we generate electricity; we do not buy energy for resale; we do not have retail customers.

As a "system operator," PJM coordinates the operation of transmission and generation facilities so that all market participants have equal access to the benefits of the regional grid operation. PJM ensures that energy deliveries are scheduled reliably and are coordinated inter-regionally. Since electricity cannot be stored in significant quantities, electricity supply and demand must be balanced on a minute-by-minute basis. PJM performs this region-wide, real-time balancing of load and generation while ensuring that all regional transmission reliability constraints are respected and overall costs of reliable grid operation are minimized.

Evolution of Electricity Supply and Demand Response Resources

PJM ensures there are adequate resources to meet the forecasted demand of customers plus a reserve margin. The reserve margin is a sort of insurance policy to account for operational issues, necessary maintenance of generating resources or increases in customer demand above the forecasted level. The resource adequacy mechanism is called a capacity market and the capacity product ensures that each wholesale customer procures sufficient resources to meet expected demand plus reserves.

As illustrated on page 3 of the attachment, in 2011, shortly after the US EPA issued its final Mercury and Air Toxics Standards rule, PJM began to receive notification of retirements from generation owners. Some of the retirements have already occurred and most will be complete by early 2015. As you can see, many of the retirements will occur in Pennsylvania. The operation of the power grid will remain reliable because the PJM forward capacity market is attracting investment in new gas-fired resources and demand response resources and PJM's regional transmission planning process has identified transmission upgrades necessary to maintain reliable power grid operation. However, the costs of the replacement resources and transmission upgrades will increase costs to customers because of the volume of retirements.

The evolution of installed generation by fuel type and demand resource capability in the PJM market is illustrated on page 4 of the attachment. The coal retirements and EPA regulations coupled with shale gas opportunities are causing a shift from coal to gas fired generation and the increasing penetration of demand resources and renewable resources is also apparent. The primary driver of increased electricity production from gas-fired resources, illustrated on page 5 of the attachment, is the reduction in gas prices due to shale gas developments. The reduction in electricity demand growth due to the economy, the economics of fuel supply and the increased costs for coal plants due to environmental regulations have significantly altered power market operations. Wholesale electricity prices have decreased substantially since 2008. Recently the forward contract prices for electricity have reduced by over 10% which has triggered further consideration of even more coal unit retirements. While these price reductions are beneficial for electric consumers, they present substantial economic challenges to continued operation of some coal units that are facing increasing operational costs. While the announced retirements are economically rational, PJM understand the difficulties that are created for affected parties.

PJM's Regional Transmission Expansion Planning process

As a Federal Energy Regulatory Commission ("FERC")-approved independent RTO, PJM is responsible to ensure the reliability of the transmission grid in the PJM Region. FERC has approved the NERC Reliability Standards to which PJM plans and operates. Among other functions, PJM is designated by NERC as the Planning Authority and the Transmission Planner with respect to compliance with the NERC Reliability Standards. PJM applies NERC Reliability Standards to evaluate the reliability of the transmission system, and then PJM determines the transmission solutions that are needed to ensure those standards are met.

Managing the future growth of the electric transmission system is another integral aspect of PJM's role as an RTO. PJM conducts a long-range Regional Transmission Expansion Planning process that identifies what changes and additions to the grid are needed to ensure reliability and the successful operation of the wholesale markets. As part of the regional planning process, PJM evaluates requests for generation deactivation. A generation owner that desires to deactivate a unit within PJM must notify PJM no later than 90 days prior to the proposed deactivation date for the generating unit. Once notified, PJM completes a series of engineering studies to determine if deactivating the generating unit will have an adverse impact on the reliability of the bulk electric system. In the event there are no adverse reliability impacts to the reliability of the bulk electric system, the generation owner may deactivate the unit. In the event PJM determines there would be adverse reliability impacts to the bulk electric system without the installation of transmission upgrades, PJM must notify the generation owner and provide an estimate of the time it will take to complete the transmission system reliability upgrades necessary to alleviate the adverse reliability impact. However, regardless of whether deactivating a generation unit would adversely impact the reliability of the bulk electric transmission system; the generation owner may deactivate the generating unit anytime subsequent to ninety days after the generation owner's notice to PJM of intent to deactivate.

After a formal deactivation request is received, PJM conducts reliability studies to identify reliability criteria violations caused by the deactivation and develops transmission solutions to solve them. The scope of those reliability studies is very comprehensive. System expansion solutions may include upgrades to existing facilities, scope expansion for current baseline projects already in RTEP or the construction of altogether new bulk electric system facilities. In the event that an upgrade will not be in-service until after deactivation of the generator, PJM may also implement operating procedures to manage the constraints reliably. PJM also has the ability to request the deactivating generators to remain in service for a limited period under the terms of reliability contracts. PJM cannot *require* a generation resource to operate after its proposed Deactivation Date, however a generation owner may *voluntarily* agree to operate beyond the proposed Deactivation Date (while the required upgrades to the system are being constructed) and seek cost recovery pursuant to the PJM Tariff formula or a cost of service filing with the FERC.

Hatfield's Ferry Units 1-3 and Mitchell Units 2 and 3 Notice of Deactivation

On July 9, 2013, PJM received notices of deactivation for FirstEnergy's Hatfield's Ferry and Mitchell Generating Stations, with planned effective date of October 9, 2013. PJM's initial analyses of the impacts

of these deactivations, completed within thirty days as required by our tariff, identified reliability issues that will need to be addressed. As the analysis has progressed, PJM has found that most of the identified reliability issues will be resolved by transmission upgrades that are already approved and included in PJM's RTEP. PJM has been working with the impacted transmission owners to determine if the upgrades can be accelerated to accommodate the generation deactivations.

Some of the required transmission upgrades will not be able to be completed prior to the expected on-set of reliability issues. In these instances PJM has been working with the affected transmission owners to develop interim operating procedures that will enable PJM Operators to maintain system reliability. We expect to complete that work and the evaluation of any possible need to retain any of the deactivating generators past their desired deactivation date over the next few weeks.

It should be noted that the facility overloads, for which transmission upgrades cannot timely be placed in-service, are limited and only expected to occur on the hottest days of the year when system load is at its peak. Even under those conditions the facility loadings are only slightly beyond the capability of the facility and could likely be addressed by system adjustments in real-time operation. This means that any potential need to retain any of these generators past the desired deactivation dates would be very limited in scope and timing.

Mr. Chairman, distinguished members of the Committee, thank you for your time this morning discussing the very important issue of the pending deactivation of Hatfield's Ferry and Mitchell Generating Stations. I would be happy to answer any questions you may have.

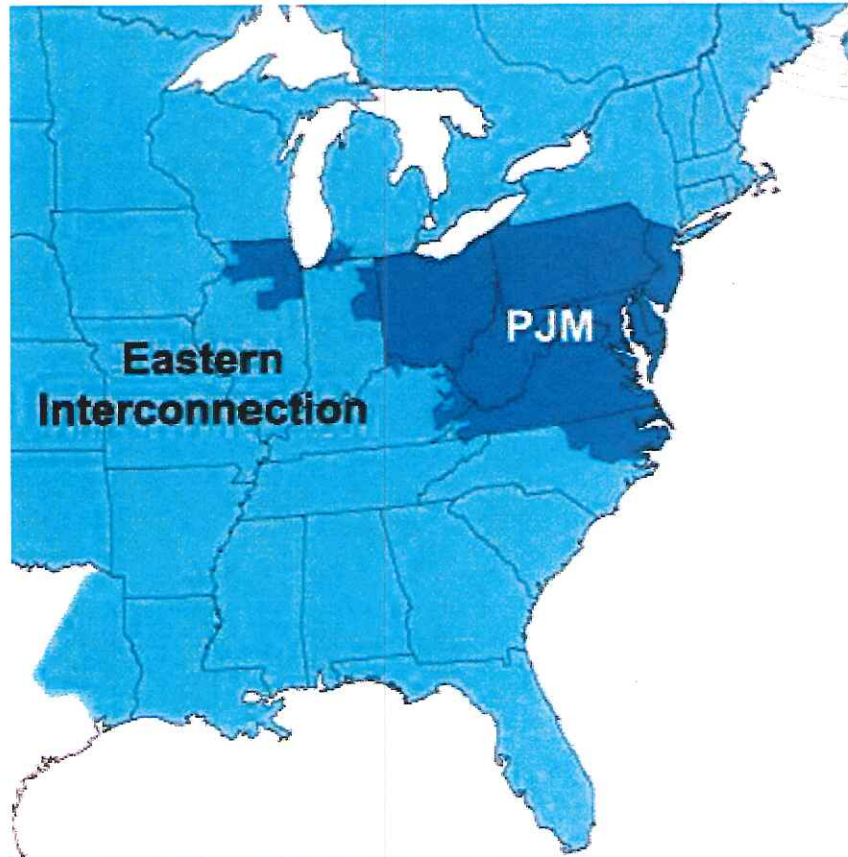


ATTACHMENT

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PJM: Who We Are

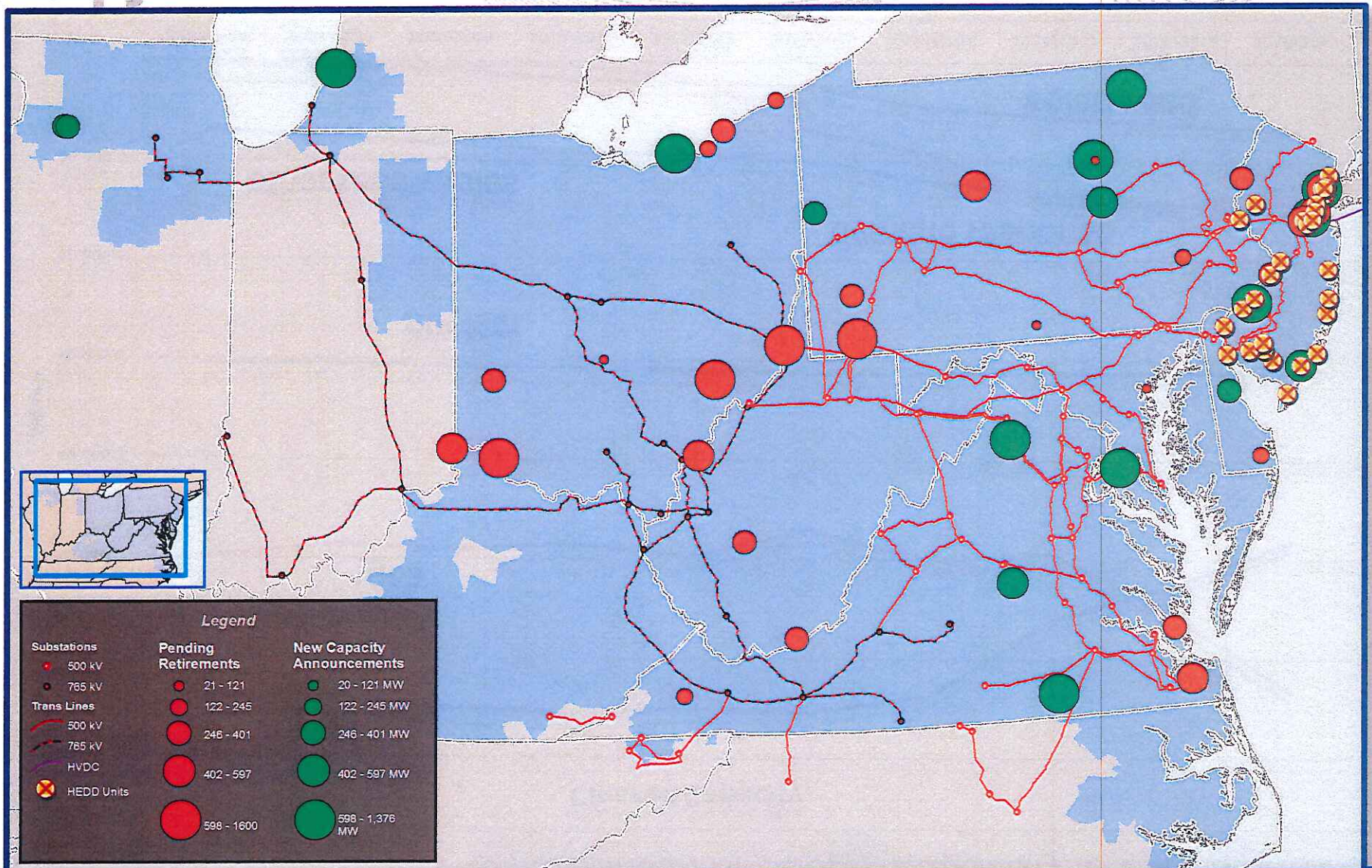


**21% of U.S. GDP
produced in PJM**

KEY STATISTICS

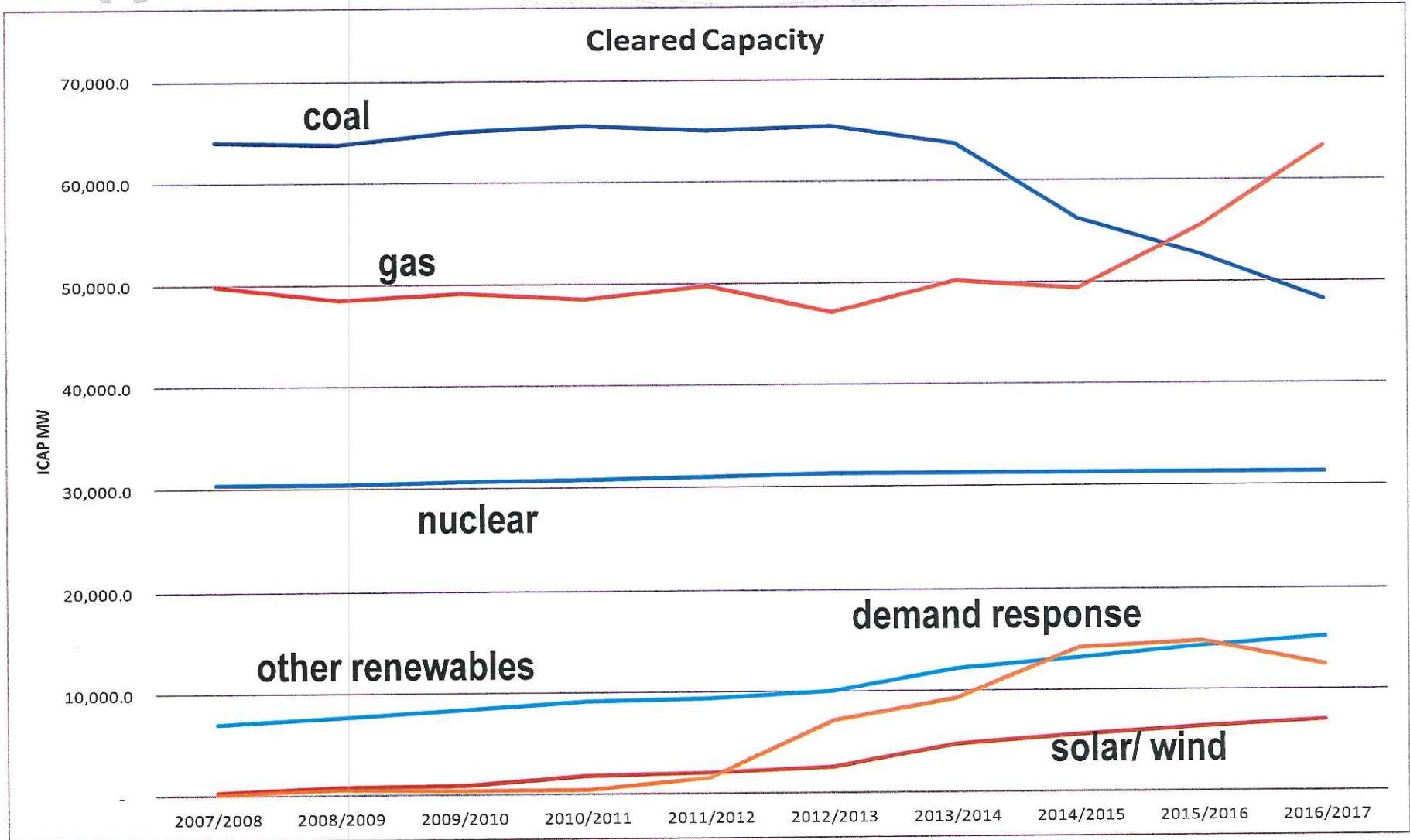
Member companies	800+
Millions of people served	60
Peak load in megawatts	163,848
MW of generating capacity	185,600
Miles of transmission lines	59,750
GWh of annual energy	832,331
Generation sources	1,365
Square miles of territory	214,000
States served	13 + DC

As of 7/2012



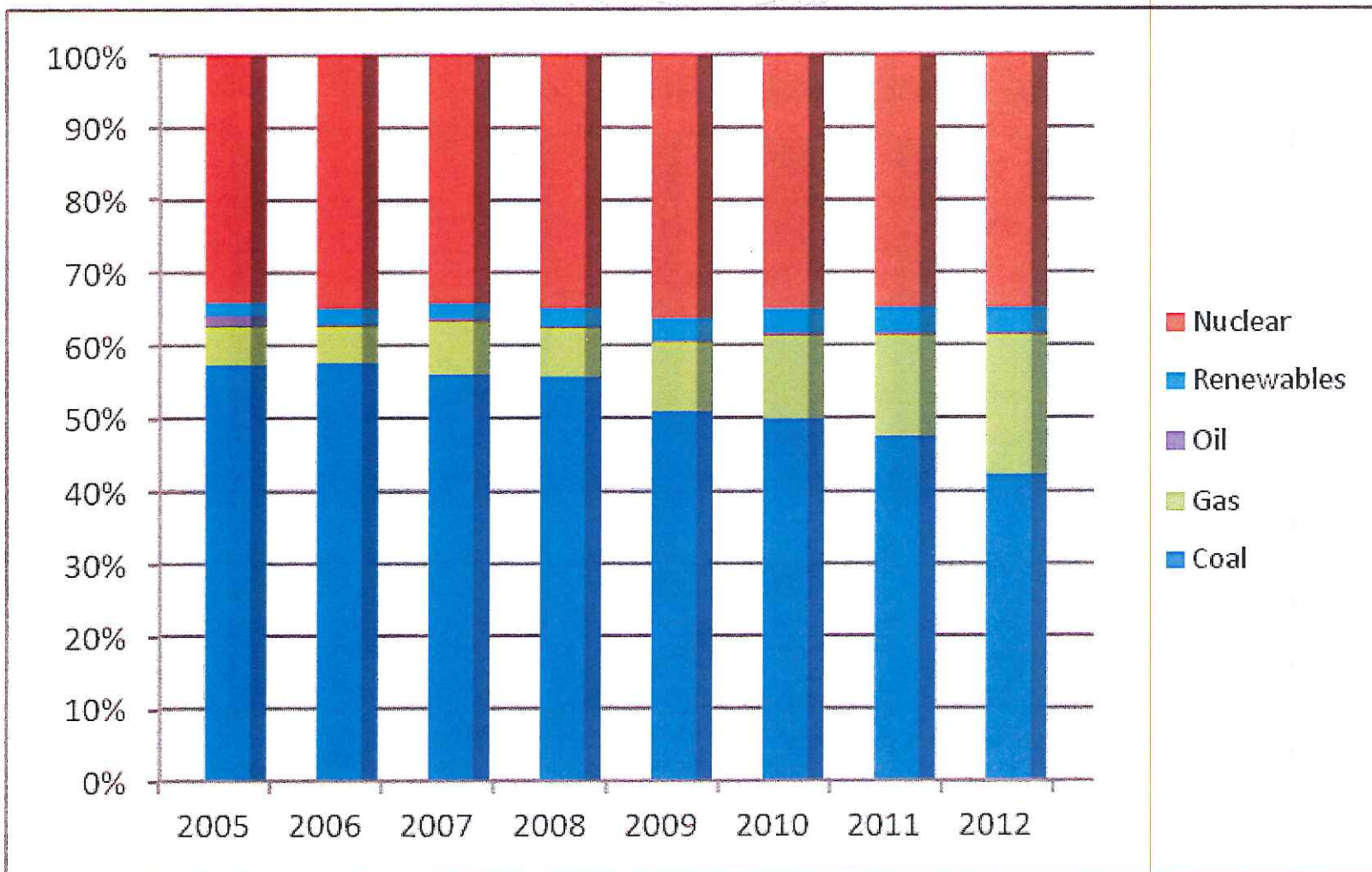


Evolution of Supply Capability in PJM Market



Note: Adjusted to reflect integrations

Evolution of Fuel Mix for Annual Electricity Production





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

