Energy Committee

February 21, 2013

The Ohio Manufacturers' Association

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Supplemental Materials

2013 Energy Committee Calendar
Meetings will begin at 10:00am

Thurs., Feb 21, 2013
Wed., May 22, 2013
Wed., Aug. 14, 2013
Wed., Nov. 6, 2013

OMA Energy Committee Meeting Sponsor:

AEP OHIO

OMA Energy Committee Agenda
February 21, 2013

Welcome and Introductions	Brad Belden, Belden Brick Company
Public Policy Report	Ryan Augsburger, OMA Staff
Energy Efficiency Report	John Seryak, PE, GoSustainableEnergy
Counsel's Report	Frank Merrill, Bricker & Eckler, LLP Thomas Siwo, Bricker & Eckler, LLP
Guest Presentations	
• **LNG Exports**	David Keane, BG Group (on behalf of America's Natural Gas Alliance)
• **Research Report**	Iryna Lendel, PhD, Assistant Director, Center for Economic Development Maxine Goodman Levin College of Urban Affairs, Cleveland State University
• **Natural Gas Pipelines**	Brian Adams, Columbia Pipeline Group
Lunch	
Natural Gas Report	Richard Ricks, NiSource Scott Phelps, NiSource

Meeting sponsored by:

To: OMA Energy Committee
From: Ryan Augsburger
Re: Energy Public Policy Report
Date: February 21, 2013

Electricity Rates
Policy shifts in 2012 have transitioned Ohio from a state that sets electric rates based on state regulation towards a competitive pricing model where prices are set by market auction. The PUCO approved a modified AEP rate plan in August. The approved AEP plan paves the way for unlimited shopping while compensating the utility for the transition. Manufactures will be required to pay transition costs. The OMA Energy Group intervened in all cases to advocate for policies to protect the manufacturing sector as a whole and has filed appeals on many fronts.

While their rate plan was previously approved and in effect, Duke Energy recently filed to change (increase) capacity pricing, emulating the AEP decision. See counsel's report.

The AEP cases considered together with Duke and FirstEnergy signals a sea change in the way Ohio regulates and prices electricity for all customer classes. The new environment raises questions on the role of government and the role of programs designed to help customers manage electricity consumption.

Electricity Transmission Constraints NE Ohio
Last autumn Steve Herling, Vice President, Planning, for PJM Interconnection described to the OMA Energy Group the significant transmission constraints facing the greater Cleveland region. The constraints will require some combination of costly investments in new transmission lines and new generation. If you have operations in the region, you'll want to pay attention to this issue in 2013. PJM presentation materials are available upon request.

Shale Gas
In 2012 policymakers acted on law changes to facilitate exploration and production of Ohio's shale gas resources. State public policy impacting the development of gas from shale, and downstream business opportunities will be a top state focus in 2013.

The OMA has held talks with industry leaders of the **American Natural Gas Association**. The national trade group is working to promote policies to increase demand and usage of natural gas. Possible areas for expanded utilization: power generation, transportation propulsion, fuel cell, fleet transportation. ANGA organized and hosted a natural gas vehicles summit in October to discuss options to promote natural gas as a fuel source for cars and trucks. A conference for manufacturing leaders is tentatively planned for September 2013.

Two rounds of **pipeline infrastructure upgrades and investment** have been announced over the past few months. Billions of dollars of system upgrades are literally in the pipeline to serve the abundant new supply.

Legislation (see energy bill tracker)

- **HB 59 State Budget**. The main operating budget will eclipse all state legislation from now through July. The bill makes significant changes to Ohio's business tax structure. Notably, the bill proposes a new severance tax structure largely intended to levy a

competitive tax on horizontal drilling. The new revenue would be used to help fund personal income tax reductions. The General Assembly took a dim view of the Governor's proposal last year. see attached: severance tax modernization

- **Senate place saver legislation**. Senator Bill Seitz (R – Cincinnati) chairs the Senate Public Utilities Committee. See attached memo from Senator Seitz announcing intentions to review renewable energy and energy efficiency standards enacted in SB 221.

Ohio House 21st Century Manufacturing Task Force

The General Assembly has convened a task force to learn about manufacturing and make policy recommendations. The task force, supported by the OMA visited seven Ohio manufacturers and heard from dozens of others in testimony. Energy was a frequent topic. See attached summary of task force testimony. At the start of the 130th General Assembly, the Speaker of the House of Representatives convened Manufacturing and Workforce Development Committee. This committee may consider legislative proposals advanced via task force testimony.

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February 21, 2013

ADMINISTRATIVE ACTIONS: Electric and Gas Proceedings

1. AEP-Ohio Distribution Investment Rider Case (AEP ESP) (Case No. 12-3129-EL-UNC)

In the Public Utility Commission of Ohio's ("PUCO") August 8, 2012 Order in Case No. 11-346-EL-SSO, et. al. (AEP ESP Case), the PUCO approved AEP-Ohio's proposed distribution investment rider ("DIR") for the purpose of allowing AEP-Ohio to replace aging infrastructure and improve service reliability. Further, the PUCO directed AEP-Ohio to work with PUCO Staff to "develop a DIR plan to emphasize proactive distribution maintenance that focuses spending on where it will have the greatest impact on maintaining and improving reliability for customers." The OMA Energy Group ("OMAEG") intervened on January 11, 2013, and filed comments advocating that AEP-Ohio prioritize manufacturers in its distribution investments.

2. AEP-Ohio Storm Damage Recovery Rider Rates (AEP ESP) (Case No. 12-3255-EL-RDR)

In the AEP-Ohio ESP Case, the PUCO also approved a storm damage recovery mechanism that would allow AEP-Ohio to recover any incremental expenses incurred due to major storm events. The PUCO authorized AEP-Ohio to "begin deferral of any incremental distribution expenses above or below $5 million, per year" subject to an audit by PUCO Staff to determine if additional proceedings are necessary to establish recovery levels or refunds.

On December 21, 2012, AEP-Ohio submitted an application seeking recovery of $61.8 million due to expenses it incurred as a result of three storms in summer 2012. The majority of these expenses are from outside contractors and their services.

On February 11, 2013, the OMAEG filed a motion to intervene in this proceeding, regarding AEP-Ohio's request to recover an additional $61.8 million for storm damage expenses it incurred last year. On February 14, 2013, PUCO Staff filed a motion for an extension in order to have adequate time to conduct an audit of AEP-Ohio's storm expenses. Accordingly, the attorney examiner granted the PUCO Staff's request and comments are due on May 29, 2013. The OMAEG will analyze the PUCO Staff's audit and will oppose AEP-Ohio's request if the audit report raises issues of concern.

3. AEP-Ohio 2009 SEET (Case No. 10-1261-EL-UNC)

Amended Substitute Senate Bill No. 221 ("SB 221") included a requirement that the PUCO evaluate the earnings of each electric distribution utility's ("EDU") approved standard service offer ("SSO") to determine whether the SSO produced significantly excessive earnings for the EDU. This test is referred to as the significantly excessive earnings test ("SEET").

On September 1, 2010, Columbus Southern Power ("CSP") and Ohio Power ("OP") (collectively, "AEP-Ohio") filed an application for the administration of the SEET, as required by Ohio law. Hearings began on October 25, 2010, and the parties, including the Ohio Manufacturers' Association ("OMA"), filed briefs in the case. While the PUCO order was pending, AEP-Ohio initiated settlement discussions that resulted in a Stipulation and Recommendation (the "Stipulation") being filed on November 30, 2010. Signatories to the Stipulation included AEP-Ohio, the PUCO Staff, Ohio Hospital Association ("OHA"), Kroger Company ("Kroger"), Ormet Primary Aluminum Corporation ("Ormet") and OMA. The Stipulation included provisions to resolve both the SEET case and a case dealing with AEP-Ohio's fuel adjustment clause. On December 16, 2010, however, AEP-Ohio filed a notice of withdrawal of the Stipulation, which dissolved and voided the Stipulation.

On January 11, 2011, the PUCO issued an Order on the merits of the case finding that, in 2009, CSP had significantly excessive earnings but that OP did not. The PUCO held that for CSP, the appropriate SEET threshold was 17.6%. With a return on equity of 20.84%, the PUCO held that CSP over-earned by 2.13%, which corresponds to a dollar amount of $42.683 million. Accordingly, the PUCO directed CSP to first apply the significantly excessive earnings ($42.683 million) to any deferrals in the fuel adjustment clause ("FAC") account on CSP's books as of January 11, 2011, and then credit any remaining balance to CSP's customers on a per kilowatt hour basis beginning with the first billing cycle in February 2011 and continuing through December 2011. On February 22, 2011, the PUCO denied all applications for rehearing. As a result, AEP-Ohio, IEU-Ohio, and OEG appealed to the Supreme Court in May 2011.

On December 6, 2012, the Supreme Court of Ohio, in a 6-1 decision, upheld the PUCO's decision and rejected AEP-Ohio's argument that the SEET law is unconstitutionally vague and, thus, violates the due process clause of the Constitution. OEG argued that the penalty should have been higher because the PUCO should not have excluded profits from AEP-Ohio's off-system sales from the earnings calculation. The Supreme Court rejected OEG's argument, giving deference to the PUCO's statutory interpretation that the PUCO may selectively exclude certain utility earnings from the SEET calculation.

4. AEP-Ohio's ESP (Case No. 11-346-EL-SSO *et al.*)

This case involves the default or Standard Service Offer ("SSO") pricing for customers who do not shop in AEP-Ohio's service territory for the years 2012-2015. In January 2011, AEP-Ohio filed an application for a 29-month ESP beginning on January 1, 2012, based upon a quasi-cost based default rate. A new market-based rate settlement offer

emerged in August 2011. On September 7, 2011, 22 of the parties agreed to a settlement framework. While the PUCO initially adopted the settlement with some changes, on February 23, 2012, the PUCO reversed itself and rejected the settlement. The result of the PUCO's rejection of the settlement is that AEP-Ohio was required to make a new ESP filing. On March 30, 2012, AEP-Ohio filed its revised ESP proposal ("Revised ESP") and supporting testimony.

On August 8, 2012, the PUCO approved AEP-Ohio's ESP with modifications. The PUCO's decision had multiple moving parts and creates significant costs for future recovery. Generally, the base generation rates remained frozen, and, given that the capacity costs for shopping customers are based upon the PJM RPM auction prices, there are opportunities for customers to shop at favorable generation rates. However, the PUCO increased the non-bypassable charges that appear on the distribution portion of customers' bills by increasing the retail stability rider ("RSR") and adding immediate deferred capacity cost recovery. Additionally, the phase-in recovery rider ("PIRR") cost recovery began. Also, several new cost categories were created where AEP-Ohio is accumulating costs and carrying charges for future recovery that have not and cannot be quantified. In other words, when market costs are projected to increase, the recovery of costs currently being deferred will begin. On August 22, 2012, the PUCO approved the new rates and tariffs proposed by AEP-Ohio. Accordingly, the new rates took effect in the first billing cycle of September.

On September 7, 2012, AEP-Ohio, the OMAEG, and several other parties filed applications for rehearing requesting that the PUCO reverse or clarify numerous parts of its August 8, 2012 decision on AEP-Ohio's ESP.

On January 30, 2013, the PUCO issued its decision on the various petitions for rehearing on the AEP-Ohio ESP case. Below is a summary of the PUCO's Order regarding the various issues raised.

A. 12% Rate Cap. OMAEG and others requested rehearing and clarification on PUCO's order capping rate increases at 12%. PUCO granted OMAEG's request and clarified that the 12% cost cap calculation includes the RSR, DIR, Pool Termination Rider (PTR) and Generation Resource Rider (GRR). In addition, the 12% rate cap applies throughout the entire term of the ESP. AEP-Ohio was provided 90 days to implement a system in its customer billing system to account for the 12% rate cap. AEP-Ohio was further directed to update its bill format to include a customer notification alert if a customer's rate increases by more than 12% and indicate that the bill amount has been decreased automatically in accordance with the rate cap.

B. Other Items Granted Rehearing. While the PUCO denied most requests for rehearing, it did grant rehearing and issued clarifications on the following requests:

   i. Fuel Adjustment Clause. PUCO clarified that it did not intend to establish June 2013 as the date by which the FAC rates of each service zone would be merged and granted AEP-Ohio's request to facilitate a final reconciliation and true-up of the FAC upon termination of the FAC rates.

ii. CRES Provider Issues. PUCO found that AEP-Ohio's switching rules, charges, and minimum stay provisions are inconsistent with the state's objectives. AEP-Ohio was directed to eliminate its minimum stay and notice provisions effective January 1, 2014. PUCO also reduced AEP-Ohio's switching fee from $10.00 to $5.00, which CRES suppliers may pay for the customer.

iii. Distribution Investment Rider. The PUCO granted AEP-Ohio's request to facilitate a final reconciliation and true-up of the DIR at the end of the ESP.

iv. gridSMART. PUCO directed AEP to make a filing with the PUCO for the review and reconciliation of the final year of Phase I gridSMART rider within 90 days after the expiration of this ESP 2.

v. Storm Damage Recovery Mechanism. PUCO revised the process for filing for storm damage recovery to allow AEP-Ohio to amend its filing to include all incurred costs after 30 days of the December 31 filing.

vi. Pool Modification Rider/PTR. PUCO ordered that the termination of the Pool Agreement is a pre-requisite to AEP-Ohio's transition to full structural corporate separation.

vii. Pollution Control Revenue Bonds. Because of the PUCO's decision in the Corporate Separation Case, the 90-day filing requirement contained in PUCO's original order is no longer necessary.

C. Denial of Remaining Requests for Rehearing. The PUCO denied all other requests for rehearing, including the following raised by OMAEG:

i. Statutory Test. OMAEG argued that the PUCO improperly conducted the statutory price test by only considering the time period between June 1, 2013 and May 31, 2015.

ii. Retail Stability Rider. OMAEG argued that the deferral contained within the RSR is unlawful per ORC 4928.144, and even if the RSR is justified, the PUCO overestimated the value of RSR to $508 million.

Based upon the PUCO's denial of numerous party arguments, and simple clarification of the items granted, parties have sixty (60) days from the Entry on Rehearing to appeal the PUCO's decision to the Ohio Supreme Court, but are limited to specific issues argued on rehearing.

5. AEP-Ohio's Cost of Capacity Case (Case No. 10-2929-EL-UNC)

This case establishes the price that competitive retail electric service ("CRES") providers must pay AEP-Ohio for using its capacity to serve shopping customers by establishing a state compensation mechanism for AEP-Ohio. This case was consolidated with the ESP but was separated back out when the PUCO rejected the ESP settlement (discussed above).

In the Entry on Rehearing on the ESP, the PUCO approved AEP-Ohio's requested two-tier capacity pricing scheme until May 31, 2012, under which the first 21% of each customer class (residential, commercial and industrial) that shopped on or before September 7, 2011, was entitled to receive the market capacity price. For all other shopping customers, the second-tier charge for capacity was $255.00/MW-day.

As for the long-term state compensation mechanism to set the capacity price for shopping customers, a full hearing was conducted at the end of April 2012. On July 2, 2012, the PUCO issued an order on the merits of AEP-Ohio's request to charge shopping customers its fully embedded cost of generating capacity. The PUCO determined that the state compensation mechanism should be cost-based and, thus, AEP-Ohio is entitled to recover its costs of capacity at $188.88/MW-D. However, the PUCO also determined that AEP-Ohio is permitted to charge competitive suppliers only the PJM RPM price, and authorized AEP-Ohio to defer the difference between the $188.88/MW-D and the PJM RPM price plus carrying costs for future recovery.

On October 17, 2012 the PUCO issued an entry on rehearing granting in part and denying in part the applications for rehearing. The PUCO granted rehearing for the "limited purpose" of making two clarifications. First the PUCO clarified that all customers that were shopping as of September 7, 2012 should have continued to receive RPM-based capacity pricing during the period in which the interim state compensation mechanism was in effect. Therefore, AEP-Ohio was directed to make the necessary adjustments to CRES billings that occurred during the interim period consistent with the PUCO's clarification. Secondly the PUCO clarified the fact that the PUCO is authorized, pursuant to R.C. Sections 4905.26, 4905.04, 4905.05, and 4905.06, to issue the Capacity Order. Other than two clarifications, the PUCO denied the applications for rehearing. In particular, the PUCO denied OMAEG's argument that AEP-Ohio's proposal to increase and extend AEP-Ohio's interim capacity pricing was not supported by the record. The PUCO further denied OMAEG's request to establish an escrow account in which AEP-Ohio would deposit the difference between the two-tiered interim relief and the RPM-based capacity price. Finally the PUCO found that it was unnecessary to address the arguments raised by OMAEG and the other intervenors regarding the deferral recovery mechanism, and thus denied the requests for clarification and rehearing.

On December 12, 2012, the PUCO denied applications for rehearing filed by IEU-Ohio, OCC, and FirstEnergy Solutions regarding its October 17, 2012 Order. Contrary to the procedural arguments advanced by these parties, the PUCO held that it retains authority to issue decisions regarding wholesale capacity rates, pursuant to R.C. Sections 4905.26, 4905.04, 4905.05 and 4905.06. On January 11, 2013, OCC once again filed an application for rehearing from the December 12, 2012 entry on rehearing. The PUCO denied OCC's application for rehearing on January 11, 2013. IEU-Ohio filed a notice of appeal on February 6, 2013, with AEP-Ohio, OCC, and First Energy filing cross appeals on February 11, 2013.

6. Turning Point Solar Need Case (Case No. 10-501-EL-FOR)

This case is about AEP-Ohio's demonstration that it needs the Turning Point solar project to meet its solar benchmarks through AEP-Ohio's long term forecast process. Specifically, on April 15, 2010, AEP-Ohio filed their 2010 long-term forecast report ("LTFR"), which contains information on AEP-Ohio's energy demand, peak loads, and reserves, as well as a resource plan that AEP-Ohio can implement to meet anticipated demand. On December 20, 2010, AEP-Ohio filed a supplement to its LTFR to offer supporting information concerning its intent to enter a capital leasing arrangement for a total of 49.9 MW of solar energy resources, known as the Turning Point project, to facilitate compliance with its solar energy benchmarks. On January 12, 2011, PUCO Staff filed a motion for a hearing in these cases, and the PUCO determined that as the addition of over 49 MW of solar energy resources was a significant addition in generating facilities, a hearing was required and scheduled for March 2011. On November 21, 2011, AEP-Ohio and Staff filed a settlement that would resolve all of the issues raised in these proceedings. A hearing on the reasonableness of the settlement was held in March 2012, with FirstEnergy Solutions and IEU-Ohio opposing the settlement.

On September 5, 2012, the PUCO reopened the record for the limited purpose of permitting additional briefing on only: (1) how the PUCO should properly determine there is a need for the Turning Point project (limited to energy and capacity only, or compliance with the RPS as well); and, (2) whether the PUCO, in evaluating the need for the Turning Point project, should solely consider AEP-Ohio's need for the project, or whether the PUCO should look beyond the need of AEP-Ohio or its service territory. Initial briefs for the sole purpose of addressing these issues were due on October 3, 2012, and reply briefs were due on October 17, 2012. The PUCO has yet to issue a decision.

On January 9, 2013, the PUCO, in a 3-1 ruling, denied AEP-Ohio's need for the Turning Point Solar project to meet its solar benchmarks through AEP-Ohio's long term forecast process. AEP-Ohio requested a non-bypassable charge on all ratepayers in its territory in order to recover its costs to build 49.9 MW of solar energy resources in eastern Ohio. But the PUCO provided that "The evidence offered by AEP-Ohio, as well as Staff, in support of the stipulation, indicates that there is not presently a need for the Turning Point project." However, the PUCO directed AEP-Ohio that it is still obligated to spend $20 million on the Turning Point project or another project. Therefore, this is unlikely the end of Turning Point project.

7. Ormet Deferral Request (Case No. 09-119-EL-AEC)

On October 12, 2012, Ormet Primary Aluminum Corporation ("Ormet") filed a Motion with the PUCO requesting approval of a modification to its existing Unique Arrangement with AEP-Ohio. In its Motion, Ormet requested that the PUCO approve a modification to its existing Unique Arrangement to permit a deferral of the amount billed by AEP to Ormet for October and November 2012 billing periods (due in November and December). Ormet states that it will pay those bills in the twelve months of 2014 and the first five months of 2015 in equal monthly installments equal to $1/17^{th}$ (or 5.88235

percent) of the cumulative amount of those two bills. Ormet alleged "its immediate cash flow problem" as the basis for its request for expedited treatment of its request. Ormet cited the current market conditions for the price of raw aluminum and the economic conditions of Monroe County as further support for its request.

On October 17, 2012, the PUCO approved Ormet's expedited request for payment deferrals, subject to a $20 million cap. The OMAEG was the single party to submit objections to Ormet's plan, arguing that Ormet's request "will impose an additional cost on ratepayers in the event that Ormet defaults on the repayment of the deferral" and that it "gives [Ormet] every incentive to default because AEP-Ohio is held harmless, as a result, the ratepayers will not have standing to sue Ormet in the event of default."

On December 12, 2012, the PUCO denied OCC's application for rehearing regarding the PUCO's October 17, 2012 Order approving Ormet's request for payment deferrals and a modification of its existing unique arrangement. In OCC's application for rehearing, it requested that the PUCO require Ormet to continue to maintain 650 full-time jobs and clarify that the PUCO may terminate the unique arrangement if long-term metal prices do not increase enough for Ormet to operate profitably. The PUCO held that its October 17, 2012 Order only allowed Ormet to defer October and November 2012 payments to AEP-Ohio; therefore, all other terms of Ormet's existing unique arrangement remain in effect. The PUCO also denied the OMAEG's motion to intervene.

8. Duke Electric Distribution Rate Case (Case No. 12-1682-EL-AIR)

On July 9, 2012, Duke filed an application for increase of its natural gas rates in which it seeks an increase in the amount of $44.6 million. Duke is currently earning a 4.9% rate of return and is seeking an 8.13% rate of return. Duke proposes that the increases take effect in January 2013. The proposed rate increases (on average, depending on usage and not including the cost of gas) are as follows:

GS-S (General Service-Small):	3%-41%
GS-L (General Service-Large):	20%-31%
FT-S (Firm Transportation-Small):	3%-41%
FT-L (Firm Transportation-Large):	20%-31%
IT (Interruptible Transportation):	14%

Duke proposes to continue its Accelerated Main Replacement Program ("AMRP"). This program was initiated in 2001 to replace bare steel and cast iron mains that were installed many years ago and have high leak and breakage levels. Duke proposes to also use the AMRP to continue replacing risers that are prone to fail and to move inside meters outside. Duke anticipates spending $211 million between 2012 and 2015 to complete this program.

Duke also is proposing a new program, the Accelerated Service Replacement Program ("ASRP"), to replace both pre-1971 coated steel main-to-curb and curb-to-meter service

lines and other unprotected metallic service lines that are not covered under the AMRP. Duke expects to spend $307 million between 2013 and 2022 on the ASRP program. The estimated annual average amount of this revenue increase (not rate increase) per customer class is: $20.3 million average annual for residential customers, and; $1.8 million average annual for general service and firm transportation customers.

Additionally, Duke plans to continue its Advanced Utility ("AU") rider, which recovers costs of grid modernization, including Advanced Metering Infrastructure ("AMI"). Duke expects to spend $31 million between 2012 and 2014 to complete this program.

On January 18, 2013, the attorney examiner issued an entry establishing a procedural schedule. Accordingly, the schedule provides as follows: 1) objections to PUCO Staff reports due – February 4, 2013; 2) prehearing conference – February 14, 2013; 3) motions to strike objections to PUCO Staff reports due – February 19, 2013; 4) Duke and intervenor testimony due – February 19, 2013; 5) memoranda contra motions to strike objections to PUCO Staff reports due – February 26, 2013; and 6) evidentiary hearing commences – March 25, 2013. The OMAEG will not actively participate in this proceeding because we do not have members in Duke's territory and the PUCO Staff report does not raise significant issues. However, the OMAEG will continue to monitor this case.

9. Duke Gas Distribution Rate Case (Case No. 12-1685-GA-AIR)

Similarly to Duke's gas distribution case, Duke filed an application for increase of its electric rates in which it seeks an increase in the amount of $86.6 million. Duke is currently earning a 3.18% rate of return and is requesting an 8.13% rate of return. Duke proposes that the electric rate increases also take effect in January 2013. The proposed rate increases (on average and depending on usage and season) are as follows:

DS (Distribution at Secondary Voltage):	3%-6%
DM (Secondary Distribution Service-Small):	1%-9%
DP (Primary Voltage):	4%-9%
TS (Transmission Voltage Primary):	less than 1%

On January 18, 2013, the attorney examiner issued an entry establishing a procedural schedule. Accordingly, the schedule provides as follows: 1) objections to PUCO Staff reports due – February 4, 2013; 2) prehearing conference – February 14, 2013; 3) motions to strike objections to PUCO Staff reports due – February 19, 2013; 4) Duke and intervenor testimony due – February 25, 2013; 5) memoranda contra motions to strike objections to PUCO Staff reports due – February 26, 2013; and 6) evidentiary hearing commences – no later than one business day after the conclusion of the electric rate case. The OMAEG will not actively participate in this proceeding because we do not have members in Duke's territory and the PUCO Staff report does not raise significant issues. However, the OMAEG will continue to monitor this case.

10. Duke Capacity Cost Case (Case No. 12-2400-EL-UNC)

Over the last few years, Duke has switched regional transmission organizations ("RTO") from the Midwest Independent System Operation ("MISO") to PJM. PJM's auctions to set the capacity prices take place three years ahead of the delivery date. Thus, when Duke switched to PJM, it was out of cycle on the auction processes and needed to hold Duke-only capacity auctions until it could participate in the base residual auctions as a reliability pricing model ("RPM") entity and get back onto the normal PJM cycle. In the meantime, Duke was considered a fixed resource requirement ("FRR") entity, which essentially means that Duke has its own, off-cycle auctions. Pursuant to the electric security plan ("ESP") that was recently finalized by a near-unanimous settlement, until June 1, 2015, when Duke will be a RPM entity, for its capacity, Duke receives an auction-based final zonal capacity price ("FZCP") in its territory – not Duke's actual costs of capacity.

Based upon the PUCO's AEP-Ohio capacity cost decision, on August 29, 2012, Duke filed an application to defer the difference between its costs and the market price for capacity and to establish a cost-based charge, pursuant to Ohio's newly adopted state compensation mechanism. Duke seeks approval of a new tariff designated as Rider Deferred Recovery – Capacity Obligation ("Rider DR-CO"), which will enable it to collect the deferred difference between the FZCP and its costs, like what the PUCO just authorized AEP-Ohio to do. Specifically, Duke requests to defer over $259 million per year for the next three years.

The OMA filed a motion to intervene on September 13, 2012 and opposed Duke's application. On October 3, 2012, the attorney examiner issued an entry establishing a passive procedural schedule. Accordingly, the schedule provides as follows: 1) deadline for filing comments on the application is January 2, 2013; 2) deadline for all parties to file reply comments is February 1, 2013; 3) deadline for Duke to file testimony is March 1, 2013; 4) deadline for PUCO Staff to file testimony is March 19, 2013; and, 5) the hearing is scheduled to commence on April 2, 2013, at 10:00a.m. at the PUCO. A joint group of intervenors, including the OMA, filed a joint motion to dismiss for the PUCO to deny Duke's request for cost-based capacity pricing. As you may know, if the PUCO grants our joint motion to dismiss, then the case will not proceed.

By attorney examiner entry issued February 13, 2013, OMA's intervention was granted and a prehearing conference has been scheduled for March 7, 2013.

11. The Dayton Power and Light Company's ESP (Case No. 12-426-EL-SSO)

This case involves the default or Standard Service Offer ("SSO") pricing for customers who do not shop in DP&L's service territory for the years 2013 and beyond. The ESP currently in effect through the end of 2012 provided that the parties would file a new ESP application by March 31, 2012.

On March 30, 2012, DP&L filed a market rate offer ("MRO") as its next SSO plan for the period January 1, 2013 through May 31, 2018.

After several months of negotiations, on September 7, 2012, DP&L officially withdrew its MRO filing and announced that it intended to file a new ESP plan that would likely seek some assurance that DP&L has the opportunity to hit a return on equity target of between 7-11%, which would reflect language in the PUCO's AEP ESP decision. DP&L's current rate plan includes a substantial non-by-passable rate stabilization charge ("RSC") that is scheduled to expire at the end of 2012, regardless of whether a new plan has been approved.

DP&L's new ESP sought the following, among other requests:

- Proposed plan covers a 5-year period beginning January 1, 2013 and ending December 31, 2017;
- Blends existing SSO with competitive market-based auction price to derived blended SSO;
    - Initial auction of 10% of load to supply SSO in 2013
    - 40% in 2014
    - 70% in 2015
    - 100% in 2016
- Proposed Service Stability Rider ("SSR") of $120 million per year through the end of the term.

On December 19, 2012, the attorney examiner issued an entry denying the OMAEG's joint motion to discontinue DP&L's RSC, which was set to expire on December 31, 2012. The decision was based on the position that the RSC is part of DP&L's current ESP; therefore, the PUCO will not eliminate the RSC without determining whether the resulting rates are just and reasonable. As a result, the charge will continue for an interim period until the PUCO issues an order regarding DP&L's pending ESP application, which will likely be spring 2013.

Also in December 2012, DP&L filed an amended application, schedules, workpapers, and witness testimony in response to initial errors in its cost data. DP&L's corrections include the following: 1) increased load expenses; 2) increased fuel rider revenues to account for distribution losses; 3) corrected auction revenues and expenses to reflect the filed auction schedule and account for distribution losses; and 4) property tax calculation reflecting its current forecast of property tax expenses. The significance of DP&L's corrections is that it now requests a non-bypassable service stability rider ("SSR") of $137.5 million annually, which initially began at $73 million annually under DP&L's MRO.

On January 14, 2013, the attorney examiner granted the intervening parties' joint motion to vacate the existing procedural schedule. The entry establishes a more reasonable schedule that will allow intervening parties adequate time to evaluate DP&L's ESP and prepare testimony. Accordingly, the new schedule is as follows: 1) prehearing conference – January 30, 2013; 2) intervenor testimony due – February 25, 2013; 3) PUCO Staff testimony due – March 4, 2013; and 4) evidentiary hearing commences – March 11, 2013.

The OMAEG has participated in ongoing settlement discussions between DP&L, PUCO Staff and the other intervening parties. If settlement negotiations are unsuccessful, then the litigation process will take place.

12. FirstEnergy's 3% Compliance with Alternative Energy Requirement Case (Case No. 11-5201-EL-RDR; related to Case No. 11-2479-EL-ACP)

This case is to determine whether FirstEnergy exceeded the 3% cost cap in complying with Ohio's renewable energy portfolio requirements. This case will also establish the method for determining the 3% cost cap, which is the bright-line customer protection provision from excessive costs associated with renewable energy mandate compliance.

On August 15, 2012, external auditor reports were filed with the PUCO, which evaluated whether or not FirstEnergy complied with the 3% cost cap mandate under Ohio law. Specifically, although each utility making sales to retail Ohio customers must ultimately achieve 12.5% of sales from renewable energy resources by 2025, the utilities are excused from the requirements if the reasonably expected cost of that compliance exceeds its reasonably expected cost of otherwise producing or acquiring the requisite electricity by 3% or more. The audits of FirstEnergy's process of acquiring renewable energy credits ("RECs") to achieve its goals found that, while FirstEnergy technically complied with Ohio law, FirstEnergy paid "unreasonably high prices" for RECs that it purchased in comparison to prices paid by other utility companies anywhere in the country. The expenses FirstEnergy incurred by overpaying for its RECs were passed on to customers through the alternative energy resource rider ("Rider AER"), in addition to interest payments. Accordingly, the audit reports recommend that the PUCO consider not allowing FirstEnergy to pass on the excessive costs to customers.

FirstEnergy filed a motion for continuance and it was granted, thereby, establishing a new procedural schedule. The new procedural schedule is as follows: 1) January 23, 2013 – due date for FirstEnergy testimony; 2) January 31, 2013 – due date for intervenor testimony; and 3) February 19, 2013 – commencement of hearing date. The evidentiary hearing began this week with cross-examination of the auditors, FirstEnergy's witnesses, and intervenor witnesses. Upon completion of the hearing, parties will have the opportunity to file post hearing briefs and reply briefs. The OMAEG continues to monitor this proceeding although we are not actively participating.

13. Energy Efficiency/Peak Demand Reduction ("EE/PDR") Portfolio Plan Case (Case No. 12-2190-EL-POR)

On July 31, 2012, FirstEnergy filed an application for approval of its three-year energy efficiency and peak demand reduction program portfolios, as well as for approval of its respective benchmark compliance reports. FirstEnergy filed its plan for the 2013-2015 period for the purpose of complying with mandates established in Amended Substitute Senate Bill 221 ("SB 221"). In general, FirstEnergy states that its proposed plans include virtually all components contained in its existing plans, but also aims to provide customers with more opportunities for energy and related cost savings.

FirstEnergy also requests modification to its demand reduction program to allow it "to count for purposes of peak demand reduction compliance, demand resources participating in the PJM market for the applicable delivery year, without the need to contract for these resources separately."

OMAEG filed a motion to intervene and objections on September 12, 2012. On October 5, 2012, OMAEG filed the testimony of John Seryak, consultant to the OMA. Mr. Seryak's testimony highlighted the OMAEG's initial objections and recommendations with respect to: (1) program offerings; (2) technical assistance for manufacturers; (3) quality in technical assistance; (4) bidding energy efficiency resources into the PJM market; (5) a shared savings cap; and, (6) prescriptive measures for manufacturers. The OMAEG participated in the evidentiary hearing and filed its post hearing brief on November 20, 2012 and reply brief on November 30, 2012. The PUCO should issue a decision soon.

14. PUCO Review of Ohio Administrative Code Chapter 4901:1-10 – Net Metering (Case No. 12-2050-EL-ORD)

The PUCO is empowered by state law to adopt and publish rules to govern proceedings and regulate the method and manner of any valuations, tests, audits, inspections, investigations, and hearings relating to parties and actions before the PUCO. Accordingly, after rules are adopted by the PUCO and approved by the Joint Committee on Agency Rule Review ("JCARR"), they are codified in the Ohio Administrative Code. The PUCO is required by state statute to review each of its rules every five (5) years.

On February 6, 2013, the OMAEG filed reply comments regarding the PUCO's proposed net metering rules. Net metering enables non-utility energy generators to send excess generated power to the grid in exchange for banked energy credits. The OMAEG opposed AEP-Ohio's proposed limit of defining an "excessive generator," which, as proposed by AEP-Ohio, would be an impediment to manufacturers implementing distributed generation. The OMAEG supported its opposition by describing the yearly variation of energy consumption by manufacturers. Also, the OMAEG opposed FirstEnergy's proposed cap of 500 kW in defining a "microturbine." It is quite possible for manufacturers with combined heat and power ("CHP") systems to have combustion-based generators or microturbines greater than 500 kW. The OMAEG will continue to monitor the PUCO's rule review process and provide updates accordingly.

15. PUCO Review of Ohio Administrative Code Chapter 4901:1-22 – Interconnection (Case No. 12-2051-EL-ORD)

This is the PUCO's five year review of its net metering rules.

On January 30, 2012, the OMAEG filed comments regarding the PUCO's proposed interconnection rule modifications, by addressing the issue of backup electricity supply for partial-service customers. Specifically, the OMAEG recommended that the PUCO require EDUs to offer a default tariff for reserved capacity, also referred to as standby

service. Currently, Ohio EDU's offer varying rates for transmission, sub-transmission, primary, and secondary service customers, which is a contributing factor of making the feasibility of combined heat and power ("CHP") projects challenging. Further, the OMAEG recommended that EDU distribution rates be pro-rated, thereby, customers would only pay for distribution service actually used during a given billing period. These comments advocate required changes that will benefit distributed generation technologies and the implementation of CHP systems.

16. PUCO Investigation of Ohio's Retail Electric Service Market (Case No. 12-3151-EL-COI)

On December 12, 2012, the PUCO announced that it has begun evaluating whether or not Ohio's retail electric market is working efficiently, as well as actions the PUCO may take to enhance consumer benefits. The PUCO seeks comments on market design and corporate separation regarding any existing barriers that could prevent the market from operating competitively.

On January 24, 2013, the attorney examiner issued an entry modifying the procedural schedule. Accordingly, interested parties must submit initial comments by March 1, 2013, and reply comments by March 29, 2013. OMAEG members are encouraged to answer the questions below and submit your answers to OMAEG staff.

- What barriers are you/your suppliers experiencing with respect to electric service? i.e. billing, CRES provider relationship, quality of service, data management.
- Should the PUCO consider standardized billing or bid sheets for electric utilities?
- In general what are you observing or experiencing that is preventing the electric market from operating competitively?

17. PUCO hosts PJM and MISO Discussion on Transmission System Interconnectivity

Regional transmission operators ("RTOs") are organizations responsible for moving electricity across large interstate areas by coordinating, controlling, and monitoring electricity grids. Both PJM Interconnection, LLC ("PJM") and the Midwest Independent System Operator ("MISO") have a footprint in Ohio, unlike many other states which are covered by only one RTO. The presence of both RTOs in Ohio presents the issue of seams (point at which the RTOs border each other) coordination and capacity portability between the two RTOs. In order to address these issues, the Joint and Common Market ("JCM") was created, which is a group of stakeholders charged with prioritizing and enhancing coordination at the seam. The ultimate objective of JCM is a combined market across the PJM and MISO regions.

On January 23, 2013, the PUCO hosted a discussion with executives of PJM and MISO to provide the PUCO with a better understanding of interconnection issues faced by the two RTOs. Andy Ott, Senior Vice President of Markets at PJM, and Richard Doying, Executive Vice President for Operations and Corporate Services at MISO, presented their

respective organization's position regarding seams coordination and capacity portability between the two RTOs. Mr. Ott and Mr. Doying have contradicting views regarding capacity deliverability. Mr. Ott, who presented at the September 2012 OMAEG board meeting, believes that the JCM process is working well and substantial progress has been made. Contrary to Mr. Ott, Mr. Doying believes that the priority of deliverability does not reflect market coordination.

It appears that PJM is focused on incentivizing generators to locate new generating assets in areas deficient in generation without considering the challenges of siting new generation and transmission facilities. This debate will be a growing issue as we continue to monitor the PJM locational deliverability area ("LDA") issue in northern Ohio.

18. Governor Kasich Appoints Beth Trombold to Fill Vacant Commissioner Seat

On November 15, 2012, PUCO Commission Cheryl Roberto announced that she would resign from her position at the end of 2012. Commissioner Roberto, whose term was set to expire in April 2013, did not provide an explanation for her resignation or her future plans.

On January 17, 2013, the PUCO nominating council selected four finalists to fill the vacant seat of former PUCO Commissioner Cheryl Roberto. The four finalists included: M. Beth Trombold, Dan Shields, Andrew Bergman, and Raymond Lorello. On February 15, 2013, Governor Kasich selected Beth Trombold to serve a term through April 10, 2018. Trombold, currently serving as the assistant of the Ohio Development Services Agency, is a longtime PUCO employee and legislative staffer.

OHIO'S RETAIL ELECTRIC SERVICE MARKET COMMENTS

On December 12, 2012, the Public Utilities Commission of Ohio ("PUCO") announced that it is evaluating whether or not Ohio's retail electric market is working efficiently. The PUCO seeks comments on market design and corporate separation regarding any existing barriers that could prevent the electric market from operating competitively. Interested parties must submit initial comments by March 1, 2013, and reply comments by March 29, 2013.

Below is a matrix regarding all of the questions presented by the PUCO. In summary, the OMAEG seeks input from energy committee members regarding the following three questions:

1) What barriers are you/your suppliers experiencing with respect to electric service? i.e. billing, CRES provider relationship, quality of service, data management, shopping.
2) Should the PUCO consider standardized billing for electric utilities? If so, how?
3) In general, what are you experiencing that is preventing the electric market from operating competitively?

MARKET DESIGN	**Relevance to Manufacturing**	**OMA Position**	**Subject Matter Expert**	**Overall Importance**
				Scale 1(low)-5(high)
A. Does the existing retail electric service market design present barriers that prevent customers from obtaining, and suppliers from offering, benefits of a fully functional competitive retail electric service market? To the extent barriers exist, do they vary by customer class?	Reasonable pricing for manufacturers.	Predictable, stable energy pricing achieved through effective energy rate design to attract job-creating capital investments.	Economist.	5.
B. Does default service provide an unfair advantage to the incumbent provider and/or its generation affiliate(s)?			Economist.	
C. Should default service continue in its current form?			Economist.	

MARKET DESIGN	Relevance to Manufacturing	OMA Position	Subject Matter Expert	Overall Importance
D. Does Ohio's current default service model impede competition, raise barriers, or otherwise prevent customers from choosing electricity products and services tailored to their individual needs?			Economist.	
E. Should Ohio continue a hybrid model that includes an ESP and MRO option?			OMAEG Staff and Counsel.	5.
F. How can Ohio's electric default service model be improved to remove barriers to achieve a properly functioning and robust competitive retail electric service electricity market?			Economist.	
G. Are there additional market design changes that should be implemented to eliminate any status quo bias benefit for default service?			Economist.	
H. What modifications are needed to the existing default service model to remove any inherent procurement (or other cost) advantages for the utility?			Economist.	
I. What changes can the Commission implement on its own under the existing			Economist and Counsel.	

MARKET DESIGN	Relevance to Manufacturing	OMA Position	Subject Matter Expert	Overall Importance
default service model to improve the current state of retail electric service competition in Ohio?				
J. What legislative changes, if any, including changes to the current default service model, are necessary to better support a fully workable and competitive retail electric service market?			Economist, OMAEG Staff, and Counsel.	
K. What potential barriers, if any, are being created by the implementation of a provider's smart meter plans? Should CRES suppliers be permitted to deploy smart meters to customers? Should the Commission consider standardizing installations to promote data availability and access?			Engineer and Economist.	
L. Should the Commission consider standardized billing for electric utilities?			Economist.	
M. Do third party providers of energy efficiency products, renewables, demand response or other alternative energy products have adequate market access? If not, how could this be enhanced?			Engineer, Economist, and OMAEG Staff.	

MARKET DESIGN	Relevance to Manufacturing	OMA Position	Subject Matter Expert	Overall Importance
N. Does an electric utility have an obligation to control the size and shape of its native load so as to improve energy prices and reduce capacity costs?	Reasonable pricing for manufacturers.		Counsel.	3.

CORPORATE SEPARATION	Relevance to Manufacturing	OMA Position	Subject Matter Expert	Overall Importance
				Scale 1(low)-5(high)
A. Whether an electric utility should be required to disclose to the Commission any information regarding the utility's analysis or the internal decision matrix involving plant retirements, capacity auction, and transmission projects, including correspondence and meetings among affiliates and their representatives?			Economist, OMAEG Staff, and Counsel.	
B. Should a utility's transmission affiliate be precluded from participating in the projects intended to alleviate the constraint or should competitive bidding be required?			Economist, OMAEG Staff and Counsel.	
C. How long should a utility be permitted to retain their injection rights?			Economist, OMAEG Staff, and Counsel.	
D. As fully separate entities, does a utility's distribution affiliate have a duty to oppose the incentive rate of return at FERC?			Economist, OMAEG Staff, and Counsel.	
E. Is there potential for consumers to be misled by a utility's corporate separation structure?			Economist, OMAEG Staff and Counsel.	

CORPORATE SEPARATION	Relevance to Manufacturing	OMA Position	Subject Matter Expert	Overall Importance
F. Are shared services within a "structural separation" configuration causing market manipulation and undue preference?			Economist.	
G. Should generation and competitive suppliers be required to completely divest from transmission and distribution entities, maintain their own shareholders and, therefore, operate completely separate from an affiliate structure?			Economist.	
H. Are there PJM tariffs or FERC rules that would mitigate market power and/or facilitate retail electric service competition?			Economist, OMAEG Staff, and Counsel.	

Energy

Senate to Evaluate Ohio's Renewable Energy & Efficiency Standard

Senator Bill Seitz (R – Cincinnati), chairman of the Senate Public Utilities Committee, announced his plans to "begin a meaningful review of the energy efficiency and renewable portfolio standard issues last addressed by Senate Bill 221 in 2008 and Senate Bill 315 in 2012." He intends to introduce legislation and conduct hearings.

In his memo to interested parties, Senator Seitz invites input regarding various provisions of Ohio's energy efficiency policy, including: "Whether the annual targets for energy efficiency should be frozen in place given the changes occurring since 2008; whether the "3% cost cap" contained in the legislation should be revised, and whether it has been properly interpreted by the PUCO, and whether and to what extent utilities should be free to exceed the 3% cost cap if they wish to do so; and whether and to what extent the cost incurred by utilities in complying with the energy efficiency/renewable portfolio standard mandates are or should be bypassable or non-bypassable charges," among other provisions.

Interested members should contact OMA's Ryan Augsburger, who will be coordinating manufacturers' response. Additionally, members can register for either in-person or phone participation in the OMA Energy Committee on February 21. *2/7/2013*

Distributed Generation: High Cost of Standby Power is Obstacle

Which technologies will be necessary to ensure plentiful, affordable energy for Ohio for the long-term?

Andrew Thomas, Executive in Residence at the Energy Policy Center of the Levin College of Urban Affairs at Cleveland State University, describes the opportunities of distributed generation for large consumers, including energy intensive manufacturers, and the utilities' financial challenges (standby costs) to supply backup power to these consumers if their onsite generation fails. *01/31/2013*

AEP Endorses E3 Program for Manufacturers (video)

While available to a wide variety of manufacturers, not just AEP Ohio customers and not just central Ohio based companies, AEP has gone on record as supporting the E3 program that helps manufacturers improve energy and operational efficiency.

Here is a video (7 min.) that highlights Ohio manufacturer, and OMA member, C.O.W. Industries, which has benefited from the program.

OMA engineering consultant, John Seryak, of Go Sustainable Energy LLC, says the best candidates for E3 include small to mid-size manufacturers interested in identifying energy efficiency opportunities, reducing or reselling their waste stream, and identifying water-saving opportunities.

For more information about related services and available grant funding, contact Brandi Whetstone, Mid-Ohio Regional Planning Commission; her number is (614) 233-4174. *1/30/2013*

If You Have a FirstEnergy DSE2 Rider Exemption, Read On

Manufacturers who have filed for an exemption from First Energy's DSE2 rider because of their documented energy efficiency projects are required to file an annual report with FirstEnergy by January 31, 2013.

The one-page form requests verification that the energy savings that qualified your company for the rider exemption are ongoing. Failure to file on time will result in the DSE2 rider being added to your bill.

Members who have filed for this exemption should have received the annual report form by email from FirstEnergy's Rachel Greer; her phone number is (330) 384-5534.

If you need further information or assistance, contact OMA's John Laughman.

AEP Seeks "Cost Recovery" for June Storm Damage

American Electric Power (AEP) has requested permission of the Public Utilities Commission of Ohio (PUCO) to charge customers for repairs resulting from a series of storms in June and July last year. The reimbursement request of $61.8 million would be recouped from customers over one year. The OMA Energy Group will be intervening in the proceedings on behalf of manufacturers.

Meanwhile, another case is pending at the PUCO that would determine a funding formula for electric utility distribution investments. Manufacturers in the AEP service area that have experienced ongoing reliability issues are encouraged to contact OMA's Ryan Augsburger to describe service interruptions and business impacts; the data could be useful in protecting manufacturing's interests in the case. *1/17/2013*

State Agencies Produce CNG Recommendations

State agencies charged by the legislature released a report this week on expanded use of compressed natural gas (CNG) and natural gas vehicles (NGVs).

The agencies recommended: "Increased and expanded usage of CNG and NGVs should be encouraged and actively pursued by the state and political subdivisions whenever it is economical and practical to do so. As a result of the momentum generated thus far, the state should immediately establish an advisory group comprised of stakeholders and interested parties, made up of both public and private entities, for the purpose of strategizing and determining how best to advance CNG and NGV development in Ohio."

This advisory group would look at issues of: fleet transition, infrastructure expansion, incentives, financial assistance, and education. *1/17/2013*

Turning Point Solar Project Abruptly Comes to an End

The Turning Point solar project announced in October 2010 to much fanfare is on life support today. This week, the Public Utilities Commission of Ohio (PUCO) voted 3-1 to strip the Turning Point Solar project from an AEP case.

Although PUCO staff determined the project was necessary, the commissioners felt otherwise. The commissioners said that AEP needed to do more to justify Turning Point. Turning Point was at one time envisioned to be one of the largest solar generating facilities east of the Mississippi River. This week's decision prevents AEP from funding the project through charges on consumers' utility bills and appears to put a hold on the project. *1/10/2013*

OMA Signs Letter to the President Urging Keystone Pipe Action

On Wednesday, the National Association of Manufacturers submitted a letter to the President urging him to work to approve the Keystone XL Pipeline. The OMA and 151 other businesses and business groups signed on the letter.

The pipeline is estimated to create 20,000 manufacturing and construction jobs, and more than 118,000 spin-off jobs. The project has been in limbo for nearly five years and continues to be reviewed by the current the administration. *12/20/2012*

The Cost of Lighting Up the Holidays

OMA Connections Partner, Duke Energy, compiled the costs associated with lighting up your home or office this holiday.

Assuming a cost of 10 cents per kWh, operating an average of five hours per day, a display that uses 10 25-bulb strings of C7 lights would cost an estimated $19 dollars per month, while a similar display using C9 bulbs might cost $26 per month.

Ten sets of 100 mini-lights lights operating at the same rate would cost $6 per month.

The newer, light emitting diode (LED) holiday lights use only 0.04 watts per bulb, or 1/10 the amount of miniature bulbs. Ten sets of 100 LED bulbs would cost only 60 cents per month to operate.

Duke Energy – and all investor-owned utilities - has resources to help you with your *real* lighting and energy conservation projects. Contact OMA's John Laughman so we can connect you. *12/18/2012*

39,000 Jobs Linked to Ohio Shale and Gas

A new study finds that more than 39,000 Ohio jobs will be created by the shale drilling industry. The study states that the number of jobs attributed to this industry in Ohio could easily triple by the end of the decade. The report was financed by groups that are advocating for shale drilling, including the American Petroleum Institute and America's Natural Gas Alliance. *12/20/12*

Energy Efficiency Opportunities for Manufacturers (Video)

If you are wondering what energy efficiency is all about, OMA has created a 14-minute video that summarizes the benefits and opportunities for Ohio manufacturers. In this video, professional energy engineers succinctly describe which energy-reducing projects typically provide a good return on investment in manufacturing settings.

To learn more about how you can investigate energy and cost-savings for your facility, contact OMA's John Laughman. *12/12/2012*

Energy Efficiency Acquisition Models Compared

From a new study by the Institute for Industrial Productivity: "Thinking about energy efficiency as a "resource" that can be purchased is a novel concept. Energy savings resulting from more efficient use of energy is indeed something that cannot be seen – it is energy that is not being consumed ... Over thirty years of practical experience in energy efficiency resource acquisition have proven that energy efficiency resources can be calculated reasonably well and relied upon as a key resource to meet electricity system demands. Costs, resource characteristics, and availability over time can be

analyzed and determined with reasonable certainty. As a result, to cite just one example, the four states of the U.S. Pacific Northwest are now relying with confidence on energy efficiency to meet 85% of their new demand for electricity over the next twenty years."

The study analyses acquisition models from several states and Canadian provinces. *12/12/2012*

A View to 2040

ExxonMobil released its annual "Outlook for Energy," which assesses "future trends in energy supply, demand and technology to help guide the long-term investments that underpin our business strategy." This one looks out to the year 2040.

Key findings of this year's Outlook include: "Efficiency will continue to play a key role in solving our energy challenges; Energy demand in developing nations will rise 65 percent by 2040 compared to 2010, reflecting growing prosperity and expanding economies; Technology is enabling the safe development of once hard-to-produce energy resources, significantly expanding available supplies to meet the world's changing energy needs; and, Oil will remain the No. 1 global fuel, while natural gas will overtake coal for the No. 2 spot." *12/12/2012*

Supreme Court Upholds AEP "Excessive Earnings" Order

In a 6 to 1 decision, the Ohio Supreme Court this week upheld a PUCO decision that American Electric Power had profits that were excessive enough to require a financial penalty. AEP had argued that the law, Senate Bill 221, passed in 2008, was too vague to be enforceable. The PUCO had fined AEP $42 million.

Justice Paul Pfeifer disagreed with his colleagues on the adequacy of the level of the penalty: "Our deference to…the commission's interpretation of statutes diminishes this court's role in reviewing the commission's determinations and shifts the balance too far in favor of the executive branch in the separation of powers. Ultimately, Ohio consumers pay the price for that deference. Judging from Ohio utilities' status at the top of the heap in profits nationwide—Columbus & Southern Power (AEP) had the highest equity return of 143 investor owned regulated electric utilities in the United States in 2009—that price is steep." *12/6/2012*

Are Electricity Markets Working?

In the energy policy arena, there's a simmering, and economically important, debate about whether electricity markets organized through "Regional Transmission Organizations" (RTO's) are working, or whether RTO price signals fail to develop adequate generation resources.

Recently, the American Public Power Association took issue with a white paper from the Compete Coalition (made up of merchant electricity generators) that praised the RTO markets.

"Instead of inducing new resource development, RTO price signals provide a financial incentive for incumbent generation owners to keep supplies constrained and drive up prices. The financial benefits of constrained supplies can be seen in the presentations by merchant generation owners to the financial community wherein factors that restrict power supply, such as the potential closure of coal plants, are touted as a benefit to their earnings," wrote APPA.

"Investment in new generation requires long-term contracting and not the volatile revenue streams from the RTO markets, as confirmed by a recent APPA study finding that 98 percent of the new capacity constructed in 2011 was built under utility or customer ownership and not for sales into RTO markets." *12/6/2012*

LNG export vs. Manufacturing Feedstock

A much anticipated, and twice delayed, federally-commissioned study on the national economic effects of LNG exporting appears to give a green light for permitting LNG exporting facilities.

This controversial study outcome triggers a big concern: the rich asset that lies beneath Ohio, and other shale formation regions of the country, might now be put on the balance sheet of other nations, rather than on developing the infrastructure that would improve the competitiveness of U.S. manufacturing. And here is a Forbes piece on the issue. *12/7/2012*

No Lame Duck Energy Efficiency Amendment

The Cleveland Plain Dealer's John Funk reports, "Ohio's energy efficiency standards will remain intact -- for now. FirstEnergy Corp. has abandoned its behind-the-scene lobbying campaign to persuade lawmakers to gut a four-year-old law requiring utilities to help customers use less electricity by switching to energy efficient equipment and lighting."

The OMA had circulated an energy efficiency fact sheet to call for more study of the issue before legislative action. The OMA has commissioned research on the issue. *11/30/2012*

Does Ohio Need Energy Efficiency Standards?

Andrew Thomas, Executive in Residence at the Energy Policy Center of the Levin College of Urban Affairs at Cleveland State University, offers a good perspective on the state's energy efficiency standards enacted in Senate Bill 221 several years ago. *11/26/2012*

Ohio's Energy Efficiency Standards: Are They Working?

Last week, *Leadership Briefing* reported that among items rumored for lame duck legislative consideration is a reversal on the state's energy efficiency standards enacted several years ago in Senate Bill 221. The standards were designed to help avoid or delay the high cost of building new generation plants.

This week, the OMA, in collaboration with the American Council for an Energy-Efficient Economy (ACEEE), developed a fact sheet that includes data about the state's progress against the standards.

The OMA backs the lowest-cost electricity options for manufacturers and other consumers, and has commissioned comprehensive research about the effectiveness and affordability of energy efficiency programs. That study is due early in 2013.

In the meantime, OMA's position is: Any proposal to weaken, reduce or dismantle the energy efficiency requirements established in SB 221 should be received with caution and subjected to thoughtful, thorough, data-driven study and analysis, so all stakeholders will have the information they need to determine what energy policies are best – and produce the lowest-cost electricity – for Ohio customers. *11/16/2012*

Large Capacity Costs Looming in Northern Ohio

Manufacturers with operations in FirstEnergy service territory should be preparing for significant increases in capacity prices in 2015. An example: a one shift operation using 5,000,000 kWh with a 40% load factor could go from an annual capacity cost of $10,500 today to $181,000 starting June 2015, due to the results of the capacity auction for the period. *11/16/2012*

FirstEnergy and AMP Ohio to Build Gas Fired Generator

FirstEnergy Corporation inked an agreement with American Municipal Power, Inc. (AMP) for the construction of a natural gas peaking facility in the company's Eastlake unit. The natural gas plant is projected to come online by early 2016.

FirstEnergy will oversee the construction phases of the four combustion turbine units having capacity generation of 873 megawatts. AMP will provide finances for the construction and will hold 75% of the output. FirstEnergy will bankroll the rest and own 25% of the production. *11/16/2012*

FirstEnergy to Make Big Transmission Upgrades

FirstEnergy Corp. has announced plans to build a series of transmission projects to help enhance service reliability across its five-state service area. The projects have been approved by PJM Interconnection (PJM), the regional transmission organization.

According to FirstEnergy, its "Energizing the Future" initiative will include "transmission projects – new or rebuilt high voltage power lines, new substations, and the installation of specialized voltage regulating equipment – in northern Ohio. PJM has determined the projects are needed to enhance system reliability as coal-fired power plants in the region are deactivated based on the U.S. EPA Mercury and Air Toxics Standards (MATS) and other environmental rules."

One of the key projects involves building a new 345-kilovolt (kV) transmission line that will run more than 100 miles from the company's Bruce Mansfield Plant in Beaver County, Pa., to a new substation that will be built in the Cleveland suburb of Glenwillow. *11/16/2012*

Energy Efficiency Standards Questioned

Among items rumored for lame duck legislative consideration is a reversal on the state's energy efficiency standards enacted several years ago in Senate Bill 221. The standards were designed to avoid or delay the high cost of building new generation plants.

The Toledo Blade this week editorialized on the issue.

The OMA backs the lowest cost electricity options for manufacturers and others and has commissioned research on the effectiveness of energy efficiency programs. *11/02/2012*

HB12 **LICENSED OPERATOR REQUIREMENT** (ROEGNER K) To eliminate the licensed operator requirement for gaseous fuel and fuel oil fired boilers that comply with certain safety and engineering standards.

Current Status: 2/20/2013 - House Commerce, Labor and Technology, (Second Hearing)

All Bill Status: 2/13/2013 - House Commerce, Labor and Technology, (First Hearing)
1/30/2013 - Referred to Committee House Commerce, Labor and Technology
1/30/2013 - Introduced

State Bill Page: http://www.legislature.state.oh.us/bills.cfm?ID=130_HB_12

HB41 **OIL-GAS DRILLING HEALTH-SAFETY STANDARDS** (HAGAN R) To authorize a political subdivision to enact and enforce health and safety standards for oil and gas drilling and exploration.

Current Status: 2/13/2013 - Referred to Committee House Agriculture and Natural Resources

All Bill Status: 2/12/2013 - Introduced

State Bill Page: http://www.legislature.state.oh.us/bills.cfm?ID=130_HB_41

HB42 **OIL AND GAS LAW CHANGES** (HAGAN R) To revise the requirements concerning an oil and gas permit application, an oil and gas well completion record, designation of trade secret protection for chemicals used to drill or stimulate an oil and gas well, and disclosure of chemical information to a health care professional or emergency responder, to require an owner to report all chemicals brought to a well site, and to make other changes in the Oil and Gas Law.

Current Status: 2/13/2013 - Referred to Committee House Agriculture and Natural Resources

All Bill Status: 2/12/2013 - Introduced

State Bill Page: http://www.legislature.state.oh.us/bills.cfm?ID=130_HB_42

HB63 **TAX CREDIT- OIL AND GAS PRODUCTION** (CERA J, O'BRIEN S) To establish a nonrefundable commercial activity tax credit for companies involved in horizontal well drilling or related oil and gas production services that hire Ohio residents or dislocated workers who have enrolled in or completed a federally registered apprenticeship program.

Current Status: 2/20/2013 - Referred to Committee House Ways and Means

All Bill Status: 2/14/2013 - Introduced

State Bill Page: http://www.legislature.state.oh.us/bills.cfm?ID=130_HB_63

SB17 **OIL-GAS LAW CHANGES** (SKINDELL M) To revise the requirements concerning an oil and gas permit application, an oil and gas well completion record, designation of trade secret protection for chemicals used to drill or stimulate an oil and gas well, and disclosure of chemical information to a health care professional or emergency responder, to require an owner to report all chemicals brought to a well site, and to make other changes in the Oil and Gas Law.

Current Status: 2/13/2013 - Referred to Committee Senate Energy and Natural Resources

All Bill Status: 2/12/2013 - Introduced
State Bill Page: http://www.legislature.state.oh.us/bills.cfm?ID=130_SB_17

SB34 **ELECTRIC DISTRIBUTION COMPANIES** (JORDAN K) To repeal the requirement that electric distribution utilities and electric services companies provide 25% of their retail power supplies from advanced and renewable energy resources by 2025.

Current Status: 2/13/2013 - Referred to Committee Senate Public Utilities
All Bill Status: 2/12/2013 - Introduced
State Bill Page: http://www.legislature.state.oh.us/bills.cfm?ID=130_SB_34

SB46 **OIL AND GAS LAW** (SCHIAVONI J, LAROSE F) To increase criminal penalties for violations of the Oil and Gas Law relating to improper disposal, transport, and management of brine, and to require the revocation of a violator's permits and registration certificate and denial of future permit and registration certificate applications under that Law.

Current Status: 2/20/2013 - Referred to Committee Senate Energy and Natural Resources
All Bill Status: 2/19/2013 - Introduced
State Bill Page: http://www.legislature.state.oh.us/bills.cfm?ID=130_SB_46

TO: **OMA Energy Committee**
FROM: **John Seryak, OMA Energy Efficiency Engineer**
DATE: **February 21, 2013**
RE: **Energy Efficiency Report**

General Review of Currently Available Programs

1. AEP Efficiency Programs (see attachments)
   - Review new AEP Retro-commissioning program (their marketing material attached)
   - Review new AEP pilot program for IMMs (their marketing material attached)
   - Review new AEP Continuous Energy Improvement program (their marketing material attached)

2. DL&L Efficiency Programs (see attachments)
   - Review DRG3 program in DP&L territory (no material)

CHP and Industrial Efficiency Work Groups (Description attached)
   - Call for participation

ENERGY IS PRECIOUS. **LET'S NOT WASTE IT.** AEP OHIO®

AEP OHIO RETROCOMMISSIONING PROGRAM **QUICK START GUIDE**

WHAT IS RETROCOMMISSIONING?

Retrocommissioning (RCx) is the process of ensuring that an existing building's systems are working together effectively and efficiently. RCx targets building systems, operating schedules and energy-using equipment.

HOW THE PROGRAM WORKS

1. SELECT AN RSP
   Contact a Retrocommissioning Service Provider (RSP) to find out if your facility qualifies for RCx.

2. FACILITY SCREENING/PROGRAM OPTION
   Your RSP determines if your facility qualifies for RCx Lite or RCx Comprehensive & helps you complete an RCx Program Application.

3. APPLICATION PRE-APPROVAL/STUDY
   AEP Ohio reviews the application & if approved, the RSP proceeds with the RCx Study.

4. PROJECT APPROVAL & IMPLEMENTATION
   AEP Ohio provides final approval to proceed & you implement RCx measures (those with < 2-year payback must be implemented to receive incentives).

BENEFITS OF PARTICIPATING

- **Building systems operate more efficiently, so typical savings can range from 5% to 15% of annual energy costs**
- **Extended equipment life - RCx actions focus on operations & maintenance**
- **Building occupants are more comfortable and work more productively**

5. FINAL APPLICATION REVIEW & VERIFICATION
   AEP Ohio reviews final application & verifies measures were implemented. If approved, incentives are paid.

6. INCENTIVES PAID
   AEP Ohio releases the funds to you within 30 business days of approval.

For more information, email AEPOhioRCx@CLEAResult.com or call 888-826-7774.

CUSTOMER ELIGIBILITY & INCENTIVES*

	RCx LITE	RCx COMPREHENSIVE
Peak demand	Minimum 500 kW	Minimum 500 kW
Square footage	Approx. 100,000-150,000	Approx. > 150,000
Implementation incentives**	$5,000	$0.10/s.f.
Additional incentives***	N/A	$0.05 kWh

*All RCx Projects are subject to the standard AEP Ohio project cap of $600,000. Additional cost-effectiveness caps apply. Contact the RCx Program team for further details on caps.
**Customers must implement ALL measures with a payback period under 2 years to be eligible for Implementation Incentives. No partial Incentives will be paid.
***RCx Lite Customers are not eligible for additional incentives. RCx Comprehensive must implement ALL measures with a payback period under 2 years to be eligible for additional incentives.

CEI Continuous Energy Improvement

CONTINUOUS ENERGY IMPROVEMENT WORKSHOP SCHEDULE

	WORKSHOP TITLE	FORMAT	TIMING
1	CEI Kickoff & Building a Foundation	Combined group session – 4 hours	Month 1
2	Energy Inventory and Initial Opportunity Assessment	Individual on-site session – 4-6 hours	Months 3-4
3	Monitoring, Targeting & Reporting (MT&R) Energy Savings	Combined group session – 4-6 hours	Month 3
4	Identifying Energy Saving Opportunities	Combined group session – 4 hours	Month 4
5	Engaging Employees in Saving Energy	Combined group session – 4 hours	Month 5
6	Mid-year Executive Management Review and MT&R Handoff	Individual on-site session – 2.5 hours	Months 5-7
7	Saving Energy with Industrial Equipment and Systems	Combined group session – 4 hours	Month 7
8	Energy Roundtable Discussions (3)	Online meeting – 30 minutes	Months 8, 9, 10
9	Energy Saving Employee Engagement Event(s)	Individual on-site session(s) – Duration TBD	Months 5-10
10	Energy Management Assessment and Planning	Individual on-site session – 2.5 hours	Months 7-10
11	Sustaining Your Energy Saving Effort	Combined group session – 4 hours	Month 11
12	Report Out/Celebration	Combined group session – 4 hours	Month 13

Please contact your CEI Coach with questions

Rich Miller
▶▶▶ (541) 941-2612 richm@triplepointenergy.com
www.aepohio.com/save/programs/ContinuousImprovementProgram.aspx

CEI Continuous Energy Improvement

AEP OHIO IS NOW OFFERING THE CONTINUOUS ENERGY IMPROVEMENT (CEI) PROGRAM TO INDUSTRIAL SITES.

CEI helps participants apply principles and practices of continuous improvement to implement **strategic energy management** that may help reduce your energy bill by **5% to 15%** annually with little to no capital investment. Plus, AEP Ohio provides a total incentive of $0.06 per kWh saved*.

AEP Ohio's CEI program provides the tools, coaching, structure, and resources necessary to achieve energy savings through operations and maintenance changes and by engaging your employees.

What's the Cost?

Participation requires no financial commitment. Your investment is the staff time to participate, including attending free monthly workshops throughout the year. Cost savings and incentives are directly related to the **energy savings opportunities** you execute.

Who Can Participate?

Industrial customers served by AEP Ohio who use a minimum of 10 GWh (10 million kWh) of electricity annually. This includes manufacturing facilities, distribution centers, mining operations, municipal waste and clean water processing facilities and others.

Please call for more information

*$0.06 per kWh based on $.0.02 per kWh/year for three years.

BENEFITS OF PARTICIPATING

- ✓ Energy cost savings of 5%-15%
- ✓ Total incentive of $0.06/kWh saved*
- ✓ Coaching assistance and tools
- ✓ Custom statistical models
- ✓ Reduced maintenance costs
- ✓ Increased quality and productivity
- ✓ Improved safety
- ✓ Energy Coach and resources
- ✓ Support group of local companies

CEI Continuous Energy Improvement

Your CEI Coach

Rich Miller
richm@triplepointenergy.com
▶▶▶ (541) 941-2612

www.aepohio.com/save/programs/ContinuousImprovementProgram.aspx

SAVING ENERGY: INJECTION MOLDING MACHINE INITIATIVE

Injection molding machines (IMM) play a key role in plastics manufacturing. These machines turn melted polymer resin into molded plastic parts that are used in electronics, toys, medical equipment, appliances and much more. This energy-intensive process offers plastics manufacturers a range of opportunities to reduce energy costs and produce maintenance and operational benefits. Manufacturers can reap valuable savings by upgrading from hydraulic or hybrid IMMs to all-electric IMMs.

Custom Incentive

AEP Ohio's Business Incentive Program is initiating an Early Commitment Custom Incentive to simplify the incentive application process and clarify the incentive payment for IMM upgrades.

Since the energy savings opportunities vary with the process and equipment, AEP Ohio will offer a minimum incentive commitment for approved pre-notification applications of $.05 per kWh estimated energy saved. The final incentive will be paid at $.07 per kWh of monitored energy savings, with a minimum of the committed incentive indicated in the reservation letter.

For this initiative AEP Ohio will accept up to 10 applications from 10 facilities through 4/30/2013 to evaluate the potential risks and benefits from this committed incentive level. The incentive is only available for installation of all-electric IMMs. All standard program eligibility requirements apply.

Contact AEP Ohio Business Incentive Program

at aepohioincentives@dnvkema.com
or call (877) 607-0739.

Before You Start

- Submit pre-notification application with estimated energy savings. The Program team will perform a general engineering review of the savings estimate.
- Conduct pre-metering. The Program team will work with the applicant to gather all required data.
- Receive application pre-approval. Pre-approved projects will be reserved at $.05 per kWh of estimated energy savings.

After Receiving Pre-Approval

- Install equipment. Follow program requirements.
- Submit final application. Include all necessary documentation.
- Conduct post-metering. The new equipment will be metered according to standard Program procedures. Savings will be evaluated based on the metering.
- Receive incentive payment. The final incentive will be paid at $.07 per kWh of monitored energy savings, with a minimum of the committed incentive indicated in the reservation letter.

CHP/WER Working Group

The Ohio Manufacturer's Association is creating a CHP/WER working group of interested OMA members. The working group would meet bi-monthly via web-conference, with additional one-on-one engagement between Go Sustainable Energy and working group members. The purposes of the CHP/WER Working Group would be:

- Educate working group members on rules changes and new incentives for CHP, such as net-metering rules, interconnection and stand-by rates, efficiency program incentives, financing, etc.
- Connect working group members with professional resources, such as the Midwest Clean Energy Application Center, etc.
- Connect working group members with CHP and WER development companies such as Primary Energy, Recycled Energy Development, and others.
- Connect members with financial resources if available.
- Solicit feedback from members that are developing or considering developing CHP or WER projects at their facility.
- Develop recommendations for rules changes or legislative action based on the working group feedback.

Industrial Energy-Efficiency Working Group

The Ohio Manufacturer's Association is creating an industrial energy-efficiency working group of interested OMA members. The working group would meet quarterly via web-conference. The topics of the industrial energy-efficiency working group would be all other efficiency opportunities not CHP/WER. Thus, this working group would engage manufacturers who aren't ideal candidates for CHP/WER.

The purposes of the Industrial Energy Efficiency Working Group would be:

- Educate working group members on industrial energy efficiency technologies, opportunities, cost-effectiveness, etc.
- Connect working group members with electric utility, gas utility, and government financial resources and educational programs.
- Solicit feedback from members that are implementing or planning to implement efficiency projects on obstacles and challenges they face, and pros/cons of utility and government programs.
- Develop pilot program concepts for utilities, rules changes, or legislative action based on the working group feedback.

Ohio's Energy Efficiency Resource Standard:
Confirming the Right Strategy to Ensure Lowest-Cost Electricity

Background

In July 2008, the State of Ohio passed legislation (SB 221) introducing an Energy Efficiency Resource Standard (EERS) that requires Ohio's electric utilities to achieve incremental increases in annual energy savings from energy efficiency programs that will result in cumulative electricity savings of 22.5 percent by 2025. These savings are to be realized by utilities and customers working together to implement a range of energy efficiency strategies.

This policy was driven by several factors, including the following:

- Ohio's rising demand for electricity
- Concerns about the potential cost of future investments in new base load generation that would be needed to meet growing demand in Ohio
- Concerns that Ohio was not incorporating the lowest-cost utility system resource – i.e., energy efficiency[1]

One of the main goals of SB 221 was to restrain increases in the cost of electricity by identifying, incentivizing and deploying ways to use power more efficiently, thereby reducing the need for utilities to build costly new generating capacity. This goal was consistent with the OMA's historical advocacy for least-cost energy solutions for manufacturers.

The costs associated with SB 221's required energy efficiency improvements are collected by the utilities through a rider on customers' electric bills. Customers either contribute energy efficiency projects to their utility, or they pay the energy efficiency rider. Options are available to certain larger customers for receiving rebates for their energy efficiency investments and possibly even avoiding the rider altogether. While these surcharges can be significant, the OMA's support for SB 221 – and also for SB 315 (June 2012), which reaffirmed Ohio's requirement that electric utilities attain annual targets for energy efficiency – was based on the belief that these energy-efficiency investments are a lower-cost option than the cost of future investment in new gas-fired base load generation.

[1] In 2007, Ohio ranked 31st among all states in electric energy savings in the American Council for an Energy-Efficient Economy's "State Energy Efficiency Scorecard," reporting annual savings of just two-hundredths of one percent of utility sales (http://www.aceee.org/research-report/e097). Energy efficiency was essentially nonexistent as a utility system resource, resulting in an unbalanced and more costly "supply only" approach.

Ohio's Progress to Date with Its Energy Efficiency Resource Standard

Ohio's four investor-owned electric utilities are successfully incorporating customer energy efficiency as a utility system resource, just as SB 221 envisioned. Collectively, the utilities have exceeded the annual energy savings goals for each of the first three years of the enactment of SB 221 (0.3% of sales in 2009; 0.5% in 2010; and 0.7% in 2011). American Electric Power (AEP), Dayton Power & Light, and Duke Energy far exceeded their energy efficiency goals, while FirstEnergy fell just short of achieving its target.

The benefits to customers have been significant. AEP, for example, achieved its energy efficiency goals at an estimated program cost of just under 2 cents per kWh for AEP.[2] According to AEP self-reporting to its collaborative members, energy efficiency programs from 2009-2014 will cost customers a total of $436 million, while saving customers a total $1.483 billion – creating a net savings to AEP customers alone of more than $1 billion.[3] FirstEnergy, on the other hand, estimates net savings to customers for its current programs to be a lower amount, but still an impressive $720 million.[4] Additionally, the Energy Efficiency Resource Standards has produced significant additional savings from helping to keep wholesale market electricity prices lower than they would otherwise be due to reduced market demand.

Current Challenges and Concerns

Since 2008, the national economy has experienced its worst recession in almost a century, which has had a dampening effect on the demand for energy. Meanwhile, the extraction of shale gas resources through a process called hydraulic fracturing, or "fracking," has boomed and, consequently, lowered natural gas prices considerably. As a result, utilities are reconsidering new investments in natural gas-fired generation facilities to supplant potential investments in coal-fired generation.

FirstEnergy and others have used these circumstances to argue that Ohio should in effect abandon its energy efficiency program. They are circulating a proposed amendment to SB 221 that would freeze SB 221 energy efficiency benchmarks at 2012 levels and allow utilities to opt out of participating in Ohio's energy efficiency program going forward – effectively gutting the program. They argue that energy efficiency mandates are blocking job creation in Ohio by imposing unnecessary costs on "job-creating" companies. They contend that energy producers are less likely to build new gas-fired generation in the region because of flat or declining electric load growth resulting from the energy efficiency requirement established in SB 221.

Energy Efficiency as a Strategy for Achieving Lowest-Cost Electricity

The OMA believes that advocates of this course of action will need to bring much more data and analysis to the table to demonstrate why energy efficiency should be removed from Ohio's mix of factors that contribute to a lowest-cost electricity environment for manufacturers. At the current time, a compelling body of evidence exists to support a continued statewide commitment to achieving the energy efficiency targets established in SB 221 and reaffirmed in SB 315.

[2] AEP 2012-2014 energy efficiency plan
[3] AEP self-reporting to Ohio Collaborative
[4] Energy Action Month Press Release, Toledo City Council, October 31, 2012

Proponents of retaining energy efficiency as a strategy for ensuring lowest-cost electricity for customers argue that amending SB 221 would not be in Ohio's best interests for the following reasons:

- **Energy efficiency is still the lowest-cost electric system resource, even in a time of very low natural gas prices.** The cost of a kilowatt-hour (kWh) of energy efficiency averages around 3 cents per kWh; a new natural gas plant, on the other hand, has an average cost of 8 cents per kWh[5]. In other words, pursuing energy efficiency results in significantly lower total energy costs for Ohioans.

- **Experts warn that the recent extremely low natural gas market prices are not sustainable.** Current natural gas prices are below the cost of production for most shale gas formations[6], and analysts predict that prices will increase and continued price volatility will impose additional costs on consumers forced to hedge against the uncertainty. Meanwhile, the price of coal is increasing due to global demand and rising production costs. This not only increases market prices directly, it also further increases the demand for natural gas as a replacement fuel for electricity generation, which puts upward pressure on natural gas market prices.

- **Energy-efficiency reduces risk by diversifying energy resources.** For example, in the northern-Ohio American Transmission System, Inc. (ATSI) zone, capacity costs are set to dramatically increase in 2015. Energy efficiency can be implemented in concert with new generation plants or transmission lines, thus reducing risk of unexpected capacity constraints and helping suppress electricity capacity prices should there be a delay in planned new generation or transmission projects.

- **Energy efficiency investment returns more money to the community than new generation, thereby creating more jobs.** Energy efficiency is a labor-intensive industry that directly addresses economic challenges by putting money back into consumers' pockets, lowering business costs, stimulating production and creating jobs. While building new generation capacity creates jobs during construction, it supports very few jobs in the long run. For example, FirstEnergy estimates that a new natural gas plant would create 150 jobs,[7] while recent studies have shown that the energy-efficiency industry in Ohio employs more than 10,000[8] people. Further, a recent ACEEE study found that, on average, $1 million spent in the U.S. economy supports approximately 17 jobs across all sectors and industries. In the *energy generation* industry, the study found that a $1 million investment supports about 10 jobs. Investments in *energy efficiency,* on the other hand, first create opportunities in labor-intensive industries, such as manufacturing and construction,

[5] http://votesolar.org/wp-content/uploads/2012/07/Lazard-June-11-Levelized-Cost-of-Energy-and-proj-to-2020-copy.pdf
[6] http://www.nytimes.com/2012/10/21/business/energy-environment/in-a-natural-gas-glut-big-winners-and-losers.html
[7] http://www.crainscleveland.com/article/20121108/FREE/121109850#
[8] http://www.dispatch.com/content/stories/business/2012/10/30/10000-jobs-in-ohio-tied-to-energy-efficiency.html

where a $1 million investment supports, on average, 14 and 20 jobs, respectively.[9] Energy savings will then be reinvested in the economy, supporting jobs in other industries.

- **Electricity customers need energy efficiency more than ever.** Even with the current low natural gas and wholesale electricity prices, retail electricity prices for customers in Ohio are still higher than they were ten years ago, having risen steadily in the last five years. The energy efficiency programs that have been introduced by utilities are enabling all Ohio ratepayers to control, and reduce, their energy bills.

Impact on Manufacturers

The OMA's support for SB 221 and SB 315 was based in part on the belief that as the lowest-cost energy resource, investments in energy efficiency can be a significant boon to Ohio manufacturing. Reducing manufacturers' energy consumption helps to lower their energy bills, freeing up resources to increase production, create jobs and, in general, make Ohio manufacturers more competitive in national and global markets. Specific examples of how manufacturers can benefit include the following:

- Direct energy bill reductions from implementing energy efficiency in their own facilities
- Reduced market prices for energy for all customers due to reduced demand for electricity
- A potential income source from "selling" energy efficiency to utilities to help utilities meet their energy savings goals[10]
- Co-benefits such as improved worker safety, improved plant reliability, improved product quality and reduced maintenance costs
- Heightened demand for Ohio-manufactured products that are energy efficient, such as insulation, heating and cooling equipment, variable frequency drives, etc. (because a greater portion of dollars invested in energy efficiency , as opposed to dollars invested in generation capacity, will remain in Ohio)
- Expanded access to an affordable and plentiful supply of natural gas for manufacturers to use as a feedstock.

Furthermore, SB 221 advocates argue, as the economy recovers and aging coal power plants are retired due to increasing coal prices and moderating natural gas prices, utilities will need to invest in new transmission and generation capacity to replace lost capacity and increasing demand. These investments will need to be recovered through higher electricity prices for consumers. Investing in energy efficiency can redeploy or delay these investments in order to improve the health of the Ohio's economy and make manufacturers more competitive, while keeping energy prices lower for all consumers.

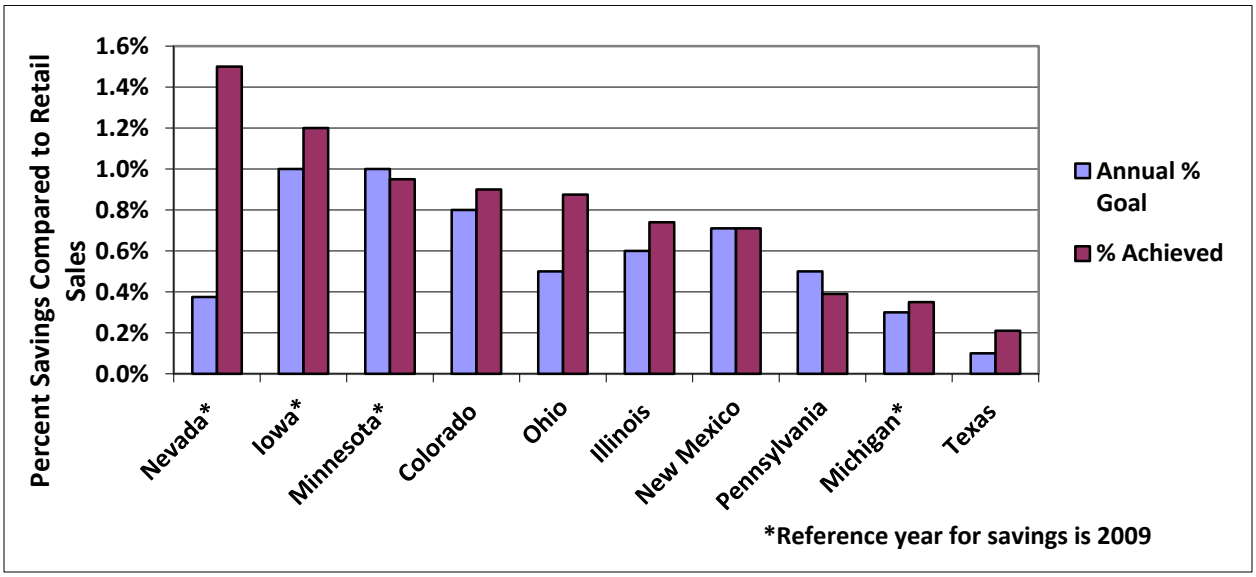
[9] Bell, Casey. 2012. *Energy Efficiency Job Creation: Real World Experiences*.
[10] Industrial customers have some of the largest and least-expensive energy efficiency opportunities available and should be in a good position to negotiate with utilities to "sell" them energy efficiency resources.

Utility Energy Efficiency Program Performance in Ohio and Relative to Other States

In the American Council for an Energy-Efficient Economy (ACEEE) *2012 State Energy Efficiency Scorecard*, Ohio ranked 22nd overall. The *Scorecard* ranks states on their energy efficiency policy and program efforts, which includes utility and public benefits programs and policies. In this category, ACEEE considers and scores states efforts relative to program budgets (electric and natural gas), energy savings (electricity only), enabling policy (energy efficiency resource standards) and utility financial incentives (addressing utility lost revenues and performance incentives).

Since 2010 – the year for which data would begin to reflect the impact of Ohio's EERS on its efficiency program performance – Ohio has steadily climbed the overall rankings in ACEEE's *Scorecard*. This is mostly due to the electricity savings achieved as a result of utility implementation of energy efficiency programs. As the annual targets ramp up and utilities achieve greater savings, Ohio's performance in this category will rise as well, helping Ohio to become a national leader in energy efficiency.

Figure 1. State EERS Targets vs. Achieved Savings in 2010[11]



The impact of SB 221 on electricity savings is apparent. Since its inception, Ohio utilities have steadily achieved greater savings from their energy efficiency programs: 200 megawatt-hours (MWh) in 2009, 800 MWh in 2010, and 1,900 MWh in 2011.[12] According to a recent ACEEE study,[13] Ohio is one of 13 states out of 20 with an Energy Efficiency Resource Standard in place for at least two years that are achieving 100 percent or more of their annual energy savings goals (see Figure 2, which shows selected

[11] Iowa savings and targets based on investor-owned utilities reporting savings as of 2010 only. Colorado includes only PSCo. Ohio does not include FirstEnergy.
[12] Data from the U.S. Department of Energy's Energy Information Administration, Form 861.
[13] Sciortino et al. 2011. *Energy Efficiency Resource Standards: A Progress Report on State Experience*. Report Number U112.

states from ACEEE's study).[14] Of those 13 states, nine have cumulative savings targets that are more stringent than Ohio's goals *State Energy Efficiency Scorecard* through 2020 (see Table 1).

Table 1. Cumulative Electricity Savings of State EERS Policies Extrapolated to 2020[15]

State	Cumulative 2020 Target
Illinois	18.00%
Minnesota	16.50%
Iowa*	16.10%
Colorado	14.93%
Ohio	12.13%
Michigan	10.55%
Pennsylvania*	9.98%
New Mexico	8.06%
Texas	4.60%
Nevada	3.76%

* Savings beginning in 2009 extrapolated out to 2020 based on the final year of annual savings required.

Call to Action

Ohio is in the still relatively early stages of implementation of an Energy Efficiency Resource Standard that requires Ohio's electric utilities to achieve incremental increases in annual energy savings from energy efficiency programs that will result in cumulative savings of 22.5 percent by 2025. The program is working as intended and delivering substantial documented benefits for customers.

Nonetheless, certain parties are mounting an effort to dismantle Ohio's energy efficiency program. To date, however, little if any evidence has been presented to warrant such a course of action.

The OMA continues to support policy solutions that produce a lowest-cost electricity environment in which manufacturers can thrive and compete nationally and globally. Fostering and sustaining such an environment is a matter of great importance to Ohio's manufacturing competitiveness and the state's economic health. Any proposal to weaken, reduce or dismantle the energy efficiency requirements established in SB 221 should be received with caution and subjected to thoughtful, thorough, data-driven study and analysis, so all stakeholders will have the information they need to determine what energy policies are best – and produce the lowest-cost electricity – for Ohio customers.

In this matter, it will be important to fully understand and consider the potential *short-term* benefits of immediate cost savings from no longer having to pay the energy efficiency rider compared to the potential *long-term* benefit of delaying or avoiding the cost of building new base load generation. Rushing to judgment on the question of retreating from or staying the course outlined in SB 221 could

[14] Three states are achieving over 90 percent of their goals and three are realizing savings below 80 percent of their goals.
[15] Colorado savings for PSCo only. Delaware is in the process of formulating rules for its EERS. ACEEE does not extrapolate the goal out to 2020. Other assumptions noted in footnotes of the Energy Efficiency Resource Standard summary table.

have dangerous consequences that put Ohio customers unnecessarily at risk. Thoughtful study, deliberation and discussion are called for.

This document was developed in collaboration with the American Council for an Energy-Efficient Economy (ACEEE). ACEEE is a nonprofit, 501(c)(3) organization that acts as a catalyst to advance energy efficiency policies, programs, technologies, investments, and behaviors.

MEMORANDUM

TO: **Public Utilities Interested Parties**

FROM: **Senator William J. Seitz**

DATE: **February 1, 2013**

SUBJECT: **Topics for Discussion**

We intend to introduce placeholder legislation to begin a meaningful review of the energy efficiency and renewable portfolio standard issues last addressed by Senate Bill 221 in 2008 and Senate Bill 315 in 2012. As the Chair of the Senate Public Utilities Committee, I write to solicit your input on topics that should be studied as we move towards holding that review.

The gist of the bill to be introduced will simply be that "It is the General Assembly's intent to review the energy efficiency and renewable portfolio standard provisions of SB 221, as thereafter modified by legislation, including but not limited to the following sub-issues:"

I am open to considering any sub-issues that you would like to see us review. Some of the ones that occur to me are:

1. Whether the annual targets for energy efficiency should be frozen in place given the changes occurring since 2008.

2. Whether the "3% cost cap" contained in the legislation should be revised, and whether it has been properly interpreted by the PUCO.

3. Whether and to what extent utilities should be free to exceed the 3% cost cap if they wish to do so.

4. Whether and to what extent the cost incurred by utilities in complying with the energy efficiency/renewable portfolio standard mandates are or should be bypassable or non-bypassable charges, and whether the PUCO has correctly upheld the original intent of the law in permitting incentive programs by utilities that in effect make certain charges non-bypassable.

5. Whether renewables offerors face undue legal barriers to more cost effectively competing which could be reduced by programs such as virtual net metering or facilitating master limited partnerships.

6. Whether processes need to be established in statute or at the PUCO level to permit more accurate and transparent levelized cost comparisons of the true cost of various fuels available to produce electricity.

7. Whether it makes sense to continue to have carve outs or separate silos within the EE/RPS categories for particular forms of fuels, or whether instead they should all be placed in the same sandbox to compete head to head in their attraction to utility companies.

8. Whether adequate processes exist to determine whether utilities are being prudent purchasers of their requirements to fulfill the existing mandates.
9. In the event that the current EE/RPS benchmarks are significantly altered or abolished, whether and to what extent provisions should be made to nonetheless protect the validity of contracts entered into in good faith on the strength of the prior statutory mandates.

Inasmuch as I am not as knowledgeable on these subjects as are any of the recipients of this invitation, I am sure there are more topics to consider and I wouldn't be surprised if the list above is not even correctly worded. Therefore, you are cordially invited to chime in by sending your suggestions to my Senate Office not later than two weeks from today's date (February 15).

Once the placeholder is introduced, I intend to commence hearings on the sub-issues identified, and when that process runs its course, to then amend the placeholder with a substitute bill on which there will be additional hearings before any vote is taken in the committee. Should you have questions, please call my office at 614-466-8068.

Thank you in advance for any input you choose to provide.

cc: Senate Public Utilities Committee Members
Representative Peter Stautberg, House Public Utilities Committee Chairman
Jason Mauk
Liz Connolly
Steve Ewing

The Ohio Manufacturers' ASSOCIATION

February 15, 2013

The Honorable William Seitz III
Chairman, Senate Public Utilities Committee
The Ohio Senate
Statehouse
Columbus, OH 43215

Dear Chairman Seitz:

The OMA appreciates the opportunity to comment on your placeholder legislation intended to review the state's energy efficiency and renewable portfolio standards.

Per your invitation, the OMA suggests some issues to consider:

- Electricity customers benefit from deployment of least cost resources. Is energy efficiency a least cost resource?
- Energy efficiency competes directly with generation in the PJM Base Residual Auction and has the effect of suppressing electricity prices. What would be the effect on ratepayers of eliminating this competition?
- Generation and transmission constraints in the northern Ohio ATSI-zone will dramatically increase capacity prices in 2015, adversely affecting all ratepayers in northern Ohio. What strategies and tools are available to protect ratepayers and mitigate price increases in future years?
- Utility efficiency program costs and performance vary widely across Ohio's utilities. A consumer cannot currently choose who delivers their efficiency resource. Are there market mechanisms that would allow customer choice and improve program performance and lower administrative costs? Could creating a competitive efficiency provider market (like the CRES market) produce better performance and more innovation in energy efficiency programs?

33 N. High St., 6th floor
Columbus, Ohio 43215-3005

Phone: 614-224-5111 • **Toll free:** 800-662-4463
Fax: 614-224-1012

oma@ohiomfg.com
WWW.OHIOMFG.COM

- How do the efficiency and renewable energy benchmarks position Ohio competitively in regards to 1) manufacturing products which supply the energy markets, 2) retaining and attracting engineering and entrepreneurial talent, and 3) competing with other states that bid efficiency resources into PJM?
- Ohio has considerable potential for implementation of combined heat and power (CHP) and waste-energy recover (WER). Energy savings from these technologies can now be counted towards a utility's efficiency benchmarks. How much of each utility's efficiency benchmark can be met with CHP/WER in the future?

We look forward to working with you and members of the Senate Public Utilities Committee. Thank you for your leadership on this issue.

Sincerely,

Eric L. Burkland
President

Ryan Augsburger
Managing Director of Public Policy

cc: Representative Stautberg
Jason Mauk
Liz Connolly
Steve Ewing

OHIO HOUSE OF REPRESENTATIVES 21ST CENTURY MANUFACTURING TASK FORCE

Task Force Leadership:

Chairman State Representative Kirk Schuring
Vice Chairman State Representative Ross McGregor

Task Force Members:

State Representative Barbara Sears
State Representative Christina Hagan
State Representative Sean O'Brien
State Representative Denise Driehaus
State Representative Anne Gonzales
State Representative Jack Cera
State Representative Nickie Antonio

Task Force Hearing Locations:

The Timken Company, Canton, Ohio, August 9, 2012
O-I, Perrysburg, Ohio, September 27, 2012
Pentaflex, Springfield, Ohio, October 11, 2012
DuPont, Circleville, Ohio, October 18, 2012
Worthington Industries, Columbus, Ohio, November 15, 2012
Lincoln Electric, Cleveland, Ohio, November 26, 2012
GE Aviation, Cincinnati, Ohio, December 7, 2012
Ohio Statehouse, Columbus, Ohio, December 11, 2012

INTRODUCTION:

In June 2012, the Speaker of the Ohio House of Representatives, William G. Batchelder, announced the creation of the Ohio House's 21st Century Manufacturing Task Force. The Task Force was designed to facilitate discussion and interaction between Ohio's manufacturing community, public policy makers and interested parties regarding the state of manufacturing in Ohio and what can be done to improve Ohio's manufacturing competitiveness in the 21st century.

The Task Force crisscrossed the state and conducted eight hearings. The Task Force sought to gather information about:

- Resources to assist manufacturing
- Impediments to Ohio manufacturing
- Perceived future challenges to manufacturing
- The unique characteristics of each geographic section of the state that could foster new manufacturing opportunities
- Ways for manufacturing to partner with higher education research and development
- Trends in manufacturing and specific ways to capitalize on those trends

A final report with recommendations to the Speaker was initially scheduled to be completed by December 31, 2012. However, in light of the quality and quantity of information that was gathered, Chairman Schuring requested that the report be delayed in order to provide a thoughtful and accurate statement regarding the recommendations.

ISSUE AND TOPIC REFERENCES OUTLINE FOR FINAL REPORT

What follows is a catalog of the issues raised in testimony, organized by subject area, using the actual words and phrasing of the people who testified. The names and companies of the specific presenters are captured to facilitate easy reference to their testimony.

ENERGY

Energy continues to be a major issue for the manufacturing sector. Ohio has recently gone through some of the most dramatic changes to the energy market the state has ever experienced – among them: a shift to market-based pricing, retirement of coal-fired generation facilities, mounting environmental regulation, and kWh reduction mandates on the investor-owned utilities. In order to be successful, manufacturers need reliable energy at a competitive price.

Shale Gas

- Ohio needs to foster responsible development of shale gas. Ohio has very few cost advantages when competing with the rest of the world. Shale gas offers us one. Let's make sure we take advantage of that.

Tom Shepard
The Shepard Chemical Company

- Shale gas can lead to new investment, jobs, wages and tax revenue for Ohio

Cal Dooley
American Chemical Council

- The abundance of stable priced natural gas has provided many American companies to revitalize their workforce and bring manufacturing operations back to America
- Gas generation plants will have a stronger competitive position against coal

Michelle Bloodworth
American Natural Gas Alliance

Energy Efficiency

- Allow energy efficiency innovation
- Energy efficiency – 15% improvement of energy efficiency in purchased energy use by 2020

Richard Murrin
International Paper

- Combined heat and power (CHP) provides an opportunity to better utilize the conversion heat generated from fossil-fired power generation sources
- Favorable natural gas outlook
- CHP plants in the electric power sector typically have an arrangement with a neighboring industrial facility to purchase the waste heat

Michelle Bloodworth
American Natural Gas Alliance

Renewable Energy and Alternative Energy

- Un-politicize renewable energy
- Companies like Parker are very selective about obtaining direct funding from government
    - Exception for facility expansions and improvements
    - More likely to be a supplier to a grant recipient
- Provide a stable environment
    - Market forces are driving renewables closer to grid parity
    - PTC's, FIT's, tax grants: provide continuity or eliminate
    - RES's foster long term development

Richard Nagel
Parker Hannifin Corporation

General Energy Policy

- Competitive energy costs
- Predictability and reliability

Jeff Durham
Whirlpool Corporation

- Upward pressure on electricity prices

Michelle Bloodworth
American Natural Gas Alliance

- Cost of energy (electricity)

John Burke
OSCO Industries

- Keep us competitive with a good energy policy for the state

Mark Russell
Worthington Industries

- Provide priority status for manufacturers to secure energy rebates and participate in energy optimization programs
- Encourage economic development rates when tied to capital investments

Michael Fedorka
Chrysler Corporation

- Concern over the instability of future electricity prices as Ohio moves to an unregulated market
- Keep costs competitive

Stephen Lewis
Ford Motor Company

- Need a comprehensive energy policy

Barry Racey
AK Steel

- Support industrial co-generation as part of a distributed energy strategy

Ned Hill
Cleveland State University

- Concern about new Ohio electricity markets
- Timken identifies four existing tools: 1) interruptible rates; 2) an opt-out for industrial customers from energy efficiency surcharges; 3) reasonable arrangements; and,4) reasonable load factor provisions.

Peggy Claytor
Timken Company

Ohio and Electricity Markets

- Ohio electric restructuring history
- Ohio's current electricity market
- The benefits of electric competition
- Where the Ohio electric market is headed

Todd Snitchler
Chairman, PUCO

ENVIRONMENT

Manufacturers benefit from an environment that is clean and healthy. Industry typically leads the way when it comes to recycling and solid waste reduction. However there needs to be a common sense balance between regulation and business. Regulations that provide clarity, predictability and consistency based on scientific consensus leads to common sense standards and enforcement.

General Environmental Regulating

- Burdensome permitting process

John Burke
OSCO Industries

- Corporate conservation and sustainability goals, e.g.
    - GHG emissions (Scope 1 and 2) associated with the production of our products by 2020;
    - Air Emissions – 10% reduction in criteria pollutant emissions (SO2, NOx, PM) by aligning with our Energy Efficiency Initiatives by 2020;
    - Solid Waste- 15% increase in the recovery of old corrugated containers by exploring new sources and diverting useable fiber from the landfill.

Richard Murrin
International Paper

- Regional sources contribute more to the Northeast Ohio Air Quality than do local sources
- Rate of improvement limited by existing assets

Brian Edwards
Eaton Corporation

- While much regulation occurs on the federal level, our state officials need to advocate on behalf of Ohio manufacturing

Michele Kuhrt
Lincoln Electric

- Emission regulation impacting non-utility boilers

Michelle Bloodworth
American Natural Gas Alliance

- How Ohio EPA has been transforming their office to make things more efficient and less costly
- Challenging US EPA where it makes sense and is necessary for Ohio

Scott Nally
Director, Ohio EPA

- We need a reasonable regulatory approach, one that enhances our global competitiveness

Barry Racey
AK Steel

Recycling

- Make more recycling friendly laws

Jay Scripter
O-I

FEDERAL ISSUES

Issues at the federal level impact Ohio and Ohio manufacturers each day. There is a value in understanding the impact of federal regulation on Ohio manufacturing so that as much commonsense integration between state and federal regulation as possible can be fostered.

General Federal Issue Policies

- Two threats
  - "Obamacare"
  - Sequestration

Dr. Larry Dosser
Mound Laser & Photonics Center, Inc.

- Modern day federal tax policy that promotes increased investment in manufacturing and equipment
- Enforce existing trade laws

Barry Racey
AK Steel

INFRASTRUCTURE

Ohio's infrastructure plays a key role in the success of manufacturing. Ohio is blessed to have multiple highways, major airports, a Great Lake, and one of the most important inland waterways in the country. However in order to maximize these advantages, Ohio must do a better job of taking care of, repairing, and building new infrastructure systems.

General Infrastructure Improvements

- Over the years Ohio's infrastructure system has eroded to dangerous levels, Ohio needs to upgrade its infrastructure (rail, roads and water)

Tom Shepard
The Shepard Chemical Company

- Lower transportation costs

Richard Murrin
International Paper

- Support for continued investment in multi-modal infrastructure – roads, railways, and waterways
- From an agribusiness perspective, the increase in freight movement by truck versus rail, as detailed in ODOT's 2012 Freight Study is dependent on continued investment in road and bridge infrastructure
- Cargill is supportive of ODOT and the Ohio Rail Development Commission effort to preserve "strategic" economic corridors for business and for financing initiatives that enable rural communities to address rail infrastructure concerns
- Support incentives for short line railroads
- Railroads should reinvest earnings in rail infrastructure to maintain rail corridors

Bill Tom
Cargill AgHorizons

- Repair roads and bridges

Barry Racey
AK Steel

Water Infrastructure Improvements

- Create a maritime division in the state

Joe Starck
Great Lakes Towing

- Emphasize the need for water transportation and capital funding for inter-modal roadway connections to Ohio ports
- Assist agribusiness and other river shippers to raise the visibility for inland waterways investment with Congress
- Reliability of the system is fast becoming a questionable assumption

Bill Tom
Cargill AgHorizons

CNG Infrastructure

- Policies to promote infrastructure development including incentives, loans and non-cash programs along key freeways and turnpikes
- Policies to promote annual fleet conversions for OEM-produced natural gas vehicles

Michael Fedorka
Chrysler Corporation

INNOVATION AND RESEARCH & DEVELOPMENT

New products and innovation are central to a manufacturer's survival. Producing new products for new and existing markets preserves Ohio's manufacturing's competitiveness. Research and development plays a vital role in manufacturing's ability to change and adapt. Ohio must support its manufacturers and use its assets to assist its companies move with the global economy.

General Research and Development Policies

- Create a two tier loan program where companies will still be able to get low interest loans to invest in new equipment without tying it to job creation, while an even lower rate could be given to those companies buying new equipment and creating new jobs through those purchases

Ed Leventhal
Valco Industries

- Industry cannot afford to perform research and development. Universities have the facilities and the trained individuals to do this work
- We need to find a way to collaborate and innovate and tie the innovations to the region

Glenn Daehn
The Ohio State University

- Innovation is essential to the growth and maturity of manufacturing in Ohio both as a destination for investment and employees

Matthew Kinkley
Rhodes State Community College

- Continue to use Third Frontier and university partnerships for increased research and development

Bob McEwan
GE Aviation

- Make universities and research institutions more "industry friendly"
- Cut down on the "red tape" it takes to work with universities for research and development

Nick Nikolaides
The Proctor & Gamble Company

TAX

Manufacturers are supportive of today's broad-based state tax system, which enables lower rates. The General Assembly enacted major tax reforms in 2005 that improved a tax system that was outdated and eroded by loopholes and carve outs. The 2005 reforms included reducing overall tax rates, eliminating tax on investment, broadening the tax base, providing more stable and predictable revenues and simplifying compliance. Ohio is a leader in manufacturing and the state's tax policies must support it.

Preserve the 2005 Tax Reforms and History of Tax Reform

- Preserve the broad base and low rate; no carve outs

Jeff Durham
Whirlpool Corporation

- Ohio's 2005 tax reform and elimination of the franchise and personal property tax gratefully improved Ohio manufacturers' ability to compete in the global economy
- Ohio's current tax structure is an important benefit to Lincoln Electric, on that has "tipped the scales" in several investment evaluations

Michelle Kuhrt
Lincoln Electric

- History of the CAT
- Need to protect the CAT for manufacturers

Mark Engel
Bricker & Eckler

- Consistent tax policy, preservation of 2005 reforms

Rick Schostek
Honda of America

- 2005 reforms significantly improved environment
- CAT should stay

Mark Russell
Worthington Industries

- Preserve the tax exemption status for personal property like machining and equipment

Michael Fedorka
Chrysler Corporation

- Keep the integrity of CAT tax, understand the role of the economic base

Ned Hill
Cleveland State University

Municipal Income Tax Uniformity

- Municipal uniformity – provide certainty for Ohio manufacturers and those seeking to invest in our state

Michelle Kuhrt
Lincoln Electric

- Municipal tax should be streamlined

Mark Russell
Worthington Industries

- Complicated municipal tax system. Ford files numerous city tax returns and each return has a different set of rules. As an employer, differing municipal tax withholding rules are burdensome. It is overly complex and burdensome system and uniform rules would help.

Stephen Lewis
Ford Motor Company

Use Tax Definitions

- Use tax – there is significant complexity and uncertainty surrounding the definition of those two rather basic concepts. The current statutes offer little clarity as to what defines a manufacturing or research process.

Michelle Kuhrt
Lincoln Electric

- Exempt gasoline fuel used at Ohio assembly plants from the sales and use tax

Michael Fedorka
Chrysler Corporation

- The elimination of the personal property tax removed the penalty on manufacturing equipment being located in Ohio
- Since Ohio taxes on gross receipts and not net income, it is critical to preserve the low rate of the Commercial Activities Tax

Stephen Lewis
Ford Motor Company

General Tax Policies

- Encourage investment growth in Ohio
- Need tax consistency over time

Brian Edwards
Eaton Corporation

- Find ways to incentivize innovation of the success of all Ohio manufacturers, like the Ohio 3rd frontier grant programs and tax rebate incentives for private R&D activities

Steve Hatkevich
American Trim

- Ohio ranked 39th …far worse than our neighboring states (Tax Foundation)

John Winch
The Minster Machine Company

- Expand cash-based incentives to encourage capital and equipment investments
- All the job retention tax credit to be refundable

Michael Fedorka
Chrysler Corporation

TECHNICAL ASSISTANCE

Ohio has some the best technical assistance programs in the country but not a comprehensive distribution and deployment strategy. Spread across the state, these centers provide assistance that manufacturers would not be able to obtain on their own. Mutualizing the cost of technical innovation creates competitive advantage.

Technical Assistance Program Policies

- Ohio manufacturers continue to need and benefit from services that only the Edison Centers provide
- Maintaining and restoring funding for the Edison Center program should be a priority for the Administration and Legislature
- Additional funding should be provided to enable Edison Centers to better connect Ohio manufacturers to the Ohio University System capabilities and leverage the state's $4.5 billion annual higher education expenditure

Combined testimony of Dan Berry, MAGNET; Alan Schultice, Venture Plastics; Bruce Broxterman, Richards Industry; and Gary Conley TechSolve

- Technical resources for suppliers

Rick Schostek
Honda of America

WORKERS' COMPENSATION

Injured workers need to receive fair and timely benefits. When a worker is injured on the job it is to the benefit of all parties that they receive the best treatment available to get them back in the workplace. There is room for state lawmakers to improve processes for injured workers and employers to drive system costs down and provide best in class medical care and case management.

General Workers' Compensation Policy Changes

- Improve worker's compensation system

Richard Murrin
International Paper

- Review of the WC system since the new administration took over

Steve Buehrer
Administrator, Ohio Bureau of Workers' Compensation

Recorded hearings

- If each hearing provided a record of what transpired, it would not only ensure better accuracy in the orders, but would ensure better consistency in the outcome of the hearings, and likely fewer appeals

Cathy Duhigg Gannon
Eaton Corporation

Permanent Partial Disability (PPD)

- While most states make this a one-time payment, our PPD process allows an injured worker to apply for an increase in the award as many times as they like and for as long as the claim is kept active. This results in multiple examinations and hearings as well as multiple increases in these awards, usually none of which are based on an actual percentage of impairment contained in one of the submitted reports. This process also contributes to keeping a claim open for many years, sometimes, decades.
- This repeated filing process is unique to Ohio. While Ohio may be one of the least expensive states when it comes to the calculation of the initial PPD benefit, by paying incremental increases we add significant value to the PPD award and significant cost to the PPD process. This also results in extending the timeline of these claims unnecessarily, which ultimately adds additional cost, sometimes significant.

Cathy Duhigg Gannon
Eaton Corporation

Permanent Total Disability (PTD)

- The great majority of states cap the number of weeks that a PTD benefit is paid. In many states, the PTD benefit ends when the clamant turns 65. Of those states that pay past age 65, there is an offset provision that allows the benefit to be reduced because the assumption is that the claimant can now receive social security retirement.

Cathy Duhigg Gannon
Eaton Corporation

- That the task force be open to WC reforms. Adopting new measures that will make our WC system as state of the art as Ohio's employers have been forced to become as a result of the ever more competitive world in which we live.

Dave Johnson
Summitville Tile

WORKFORCE DEVELOPMENT

A strong diversified economy requires an adequate and reliable supply of skilled workers. These workers must have the technical knowledge and life skills to meet the challenges faced by Ohio manufacturers in the global market place. At each hearing, one company after another testified that Ohio's workforce needs to be better trained, better prepared, and better educated to participate effectively in today's manufacturing workplace.

More Educational Programs Focused on Manufacturing Needs

- Company's find it hard to find qualified workers who understand the high tech machines operating in industry. Because of this often positions of machine maintenance and electricians go unfilled.

John Burke
OSCO Industries

- Ohio needs to emphasize effectiveness in education; promote competition (i.e. charter schools); promote STEM (Science, Technology, Engineering and Math)

Tom Shepard
The Shepard Chemical Company

- The legislature should enhance and promote the skilled trades career path within Ohio's education institutions. This would include marketing the positive image of a career in the skilled trades, partnering with the State's manufacturers to develop training programs and offering financial assistance for students seeking a career in manufacturing.

Michelle Kuhrt
Lincoln Electric

- Education and training of existing employees in the manufacturing setting

Steve Hatkevich
American Trim

- Continue to advocate a pro-manufacturing agenda through job training initiatives, capital investment opportunities, and infrastructure
- Promote a strong foundation for science and mathematics for technical vocational careers

Jim Rumpf
Navistar

- Expand the reach and influence of career technical centers and continue to improve their image as job training programs helping to promote job creation
- Evaluate how the post-secondary system interfaces with manufacturing. The current model is not well structured to support engineering as it applies to manufacturing.

Ed Leventhal
Valco Industries

- Mound Laser and Wright State University, with the support of the Ohio Board of Regents, signed an agreement to share a faculty member
- Engaged Sinclair Community College to assist with developing training curriculum

Dr. Larry Dosser
Mound Laser & Photonics Center, Inc.

- Creation of a larger certified manufacturing workforce

Kelly Wallace
Career and Technology Education Centers of Licking County

- Formally bridge high school curriculum so that all students in their high school career receive technical skills training in at technical area that can lead to employment or bridge to community and technical colleges
- Market the image of manufacturing to visibly and functionally change the image to one that is a career, with opportunity, stability and advancement

Matthew Kinkley
Rhodes State Community College

- Develop and deploy manufacturing curriculums at community colleges
- Fund robust incumbent and new worker training programs
- Provide priority to the automotive industry for training assistance based on the high economic contribution and job multiplier associated with the industry

Michael Fedorka
Chrysler Corporation

- Educated workforce including maintenance technicians

Rick Schostek
Honda of America

- Job retention credit not as robust as many other competing states
- Lack of federal resources for incumbent workers puts pressure on states to fill the void
- Ohio training voucher system is a good step

Stephen Lewis
Ford Motor Company

- Support workforce initiatives that focus on:
  - Safety and health;
  - Education; and
  - Retraining workers so that we can continue to compete in the global marketplace

Barry Racey
AK Steel

<u>Increase Internship, Co-ops and Apprenticeships</u>

- We must structure new programs that are designed to strengthen and improve the existing worker
- The continuation of support if not the expansion of the Internship Programs offered by the State of Ohio

Steve Hatkevich
American Trim

- State should encourage on the job training and provide greater flexibility in training programs that can be customized into manufacturers' needs

Jeff Durham
Whirlpool Corporation

- Industry needs a bridge from technical training to hands on experience
- Good technical programs exist (Cleveland industrial training center, Auburn, etc.)
- Funding for one or two year apprentice programs is needed

Brian Edwards
Eaton Corporation

- Investigate the development of apprenticeship programs modeled after the German model. Starting children 16 and 17 years old in apprenticeship programs.

Ed Leventhal
Valco Industries

- Other programs that are of benefit include the Third Frontier Internship program, job creation tax credit, and rapid outreach grants

Dr. Larry Dosser
Mound Laser & Photonics Center, Inc.

- Provide more cooperative education and academic internships
- Increase service learning/civic engagement
- Develop more undergraduate research and get undergraduate students to participate in some form of experiential learning

Anita Todd
University of Cincinnati

- Establish apprenticeships/apprenticeship like programs at community colleges that are content and industry specific where companies can sponsor, recruit, and engage individuals supported by the company and state
- Expand internship/co-op programs offered at community colleges for skilled trades and engineering technology students – supported by state and company support

Matthew Kinkley
Rhodes State Community College

- Support experiential education and training
    - The labor market will work as long as there is baseline literacy and numeracy
    - Industry-recognized skill based credentials and certificates as complements to academic degrees
    - Apprentices, interns, cooperative education as essential parts, or alternatives to the traditional educational system
    - Find ways to allow younger workers into manufacturing workplaces

Ned Hill
Cleveland State University

<u>Ohio's Workforce Statistics</u>

- 2012 CNBC special report ranked Ohio 49th in workforce issues
- Challenges at Minster as we try to hire
    - Skills gap – machinist and engineering openings with no qualified applicants
    - Lack of basic employment skills/work ethic
    - Brain drain – 50% of Ohio's technical talent leaves Ohio after graduation and does not return

John Winch
The Minster Machine Company

OHIO'S JOBS BUDGET 2.0

JOBS. MOMENTUM. TRANSFORMATION.

Modernizing Ohio's Severance Tax

A Fair, Competitive Tax on Oil and Gas Drillers Will Mean Lower Income Taxes for Every Ohioan

Asking energy corporations to pay a fair share of the profits they make by tapping Ohio's oil and gas resources is a key part of Gov. John Kasich's plan to cut state income taxes for every working Ohioan, including small-business owners who are key to job creation. At the same time, the governor's plan will eliminate the severance tax rates for traditional, small-volume gas producers, who have long been the backbone of Ohio's local oil and gas industry, and require companies that are using new high-volume horizontal drilling technology to pay a modest increase in severance taxes, which are still below other oil and gas producing states.

The Kasich Plan Tackles an Urgent Problem: Ohio's High Income Taxes Hold Back Job Creation: Ohio taxpayers carry one of the heaviest income tax burdens in America according to the Tax Foundation, which compares taxation rates in the 50 states. High income taxes not only limit the economic well-being and purchasing power of Ohio families, they also slow the state's economic recovery and consume dollars that small-business owners could invest in new jobs. Gov. Kasich's tax reform plan attacks this problem head-on by reducing income tax rates for every Ohioan – a 20 percent tax cut over the next three years. Fair and competitive severance tax rates on the largest crude oil and natural gas drillers are an important part of the plan.

Ohio's Obsolete Taxes on Oil and Gas Drilling Create a Windfall for Corporate Giants: It's been nearly 30 years since the state has comprehensively updated the way it taxes oil and gas drillers, going back to an era when most Ohio producers ran small, local operations. But new technology allows producers to extract millions of dollars' worth of natural gas, natural gas liquids and oil from beneath our feet. Today, Ohio's mineral riches are traded in a vast global marketplace and the world's largest and most important energy corporations are flocking here to drill. In fact, more than $3 billion has been invested in Ohio by these energy companies over the past year.

Current severance tax rates are:

- 20 cents on a $96 barrel of oil (NYMEX Cushing price – 1/29/2013)
- 3 cents on a $3.23 MCF (million cubic feet) unit of natural gas – (NYMEX Henry Hub price – 1/29/2013)

New Tax Rules on Oil and Gas Drilling Will Be Fair, Reasonable and Competitive with Other States: While the largest oil and gas producers will see modest tax increases on the resources they extract from Ohio, the new rates they pay will be lower than in almost every other oil- and gas-producing state. In fact, most other states with resource-rich shale formations – Pennsylvania (which assesses an impact fee on gas based on price and well production decline similar to a severance tax), West Virginia, Texas, and North Dakota – all have higher severance taxes than those proposed in this plan.

In addition to maintaining Ohio's competitive edge among other resource-rich states, the Kasich plan:

- Eliminates severance taxes for small-volume natural gas producers (less than 10 MCF per day). This means that almost all of the state's small, conventional natural gas producers (90 percent of more than 44,000 wells) will no longer pay any severance tax on natural gas.
- Revenue generated through this severance tax modernization will allow virtually all small businesses in Ohio to benefit from the overall tax plan's 50 percent cut in their taxes.

- Severance tax rates for natural gas produced by new horizontal wells will be changed from the current 3 cents per MCF to 1.0 percent of the average price of product produced each quarter.
- To help new horizontal-well drillers during the initial start-up year, they will pay a 1.0 percent severance tax rate on gas and a 1.5 percent special first-year rate on oil and natural gas liquids.
- Severance tax rates for crude oil from small producers will remain unchanged at the current 20 cents/barrel. Conventional gas severance tax will be 1.0 percent of price and is capped at 3 cents/MCF.
- Ohio currently does not apply a separate severance tax on natural gas liquids produced by small, vertical wells. That won't change. These hydrocarbons are valuable, highly-sought raw materials for plastics and other advanced polymers.
- Ohio's current severance tax rates are among the lowest in the country. Under this plan, Ohio will retain that competitive edge.

NEW SEVERANCE TAX RATES ARE FAIR AND COMPETITIVE		
Product	**Conventional Wells**	**High-Volume Horizontal Wells ("Shale Wells")**
Crude Oil	20 cents per barrel (unchanged)	1.5% for first year, 4% following years
Natural Gas	No tax for wells less than10MCF/day, 1% for wells more than10MCF/day, capped at 3 cents/MCF	1%
Natural Gas Liquids	Currently no separate tax is applied (unchanged)	1.5% for first year, 4% in following years

SEVERANCE TAX RATES IN OTHER OIL AND GAS STATES		
State	**Crude Oil**	**Natural Gas**
Michigan	6.6%	5%
North Dakota	5%/6.5%[3]	11.43 cents/MCF[3]
Texas	4.6%	7.5%[4]
West Virginia	5%	5%
Pennsylvania	n/a	2.2%[5]

[3]North Dakota Tax Department website (1/29/13)

[4]Lower rate is applied by Texas to certain high-cost gas wells until well construction costs have been recovered.

[5] Based on estimated first year production of a Marcellus gas well.

BOTTOM LINE: Who should have lower taxes – out-of-state oil companies or Ohio families?

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Opponents of LNG exports miss the paradigm shift

January 11, 2013 | Posted by Ken Cohen

The technological revolution that has unleashed the tremendous increase in U.S. domestic energy production has turned traditional thinking about America's energy and economic policies on its head.

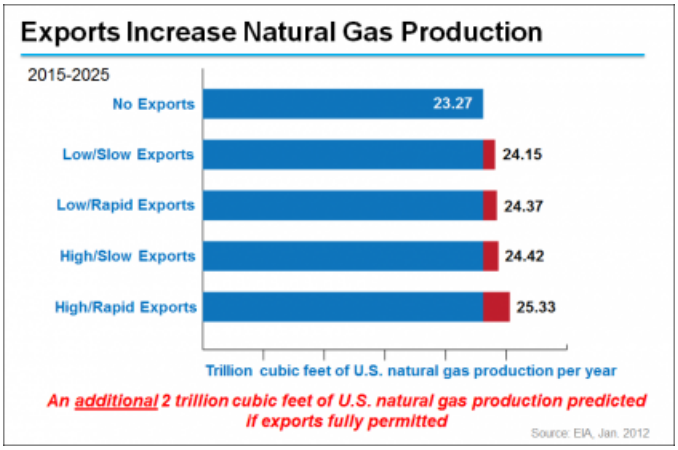
As a result, in just a short period of time our public policy debates have transitioned from multi-decade discussions of scarcity and limits to growth, to discussions of American energy abundance and the enormous benefits that it can offer.

Yet not everyone appreciates or even understands the fundamental shifts underway in our economy as a result of the nation's increased production of natural gas and oil from unconventional sources such as shale.

Yesterday, for instance, a handful of opportunistic companies held a press conference in Washington, D.C., calling on the federal government to restrict the free trade of America's abundant energy supplies. The group argues that unrestricted exports of liquefied natural gas (LNG) pose risks that the U.S. economy cannot afford.

That protectionist argument seems to assume that energy production and use is a zero-sum game, but it's not. The group's warnings that "unfettered exports" will put upward pressure on the prices that manufacturers pay for natural gas feedstocks are rooted in what Jack Gerard, head of the American Petroleum Institute, describes as "misguided economic theories."

It's a false choice to claim that increasing exports comes at the expense of domestic manufacturing. In fact, says Jack, the coalition's "ill-considered policies could have disastrous consequences" for our economy.



I have to agree, and would add several points.

One is that increased exports of LNG will likely end up *increasing* domestic gas production. That's because domestic energy supplies are not static – they expand and contract as they become more or less economic to produce. If more markets are opened to their sale, then there will be more demand, more investment and more production. In other words more trade means more supply – and with it, more jobs and economic expansion.

That insight was supported by analysis last year from the U.S. Energy Information Administration (EIA) examining a variety of export-related scenarios (see chart).

According to the EIA, moving toward the most robust pro-trade scenario would likely yield an *additional* 2 trillion cubic feet of U.S. natural gas production. That translates to more American jobs, growth and government revenues.

Trade expands the pie. That wisdom is well understood when it comes to our major exports of chemicals, cars and agricultural products – and so it should be with energy as well.

The broader point to remember is that society has long recognized the tremendous benefits of free trade, regardless of the commodity or product being traded. Secretary of State Clinton eloquently reinforced that

point in a speech last fall, one the members of the coalition calling for import restrictions would be wise to read.

When it comes to the subject of LNG exports, a recent study commissioned by the Department of Energy showed that under all trading scenarios, the economic benefits to the country from LNG exports are significant and exceed any localized impacts; in fact, the benefits increase as exports expand.

Finally, in a curious twist, the group of companies demanding protectionist trade policies from Washington calls its coalition America's Energy Advantage.

But is preventing exports really to America's advantage? The U.S. Department of Energy doesn't think so. Neither do scholars at the Brookings Institution, Manhattan Institute and Rice University, not to mention trade groups like the National Association of Manufacturers, the American Chemistry Council, the Small Business & Entrepreneurship Council and the U.S. Chamber of Commerce. Then there are the editorial boards of the *Wall Street Journal*, *New York Times* and *Washington Post*, among others. And don't forget award-winning economics columnist Robert Samuelson. Or the bipartisan pairing of former energy secretaries Bill Richardson (Democrat) and Spencer Abraham (Republican). They understand that American consumers would suffer if the federal government moved to limit energy exports.

Protectionist trade policies may work to the advantage of the special interests that lobby for them, but they don't serve the nation's interest as a whole.

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January 7, 2013

President Barack Obama
The White House
1600 Pennsylvania Avenue NW
Washington, DC 20500

Dear President Obama:

Liquefied natural gas (LNG) presents a significant opportunity for our country. Many states and regions are now enjoying the benefits of their own natural gas production, and thanks to technological advances, the United States has enough natural gas to meet American consumer demand.

However, natural gas production is outpacing demand and the surplus of natural gas has depressed prices for producers, making drilling operations unprofitable. As a result, the number of rigs drilling for natural gas today is at its lowest point in 16 years. In Pennsylvania, the number of drill rigs boring wells dropped from 115 to 70 rigs in one year. In Bradford County, Pennsylvania, which has more Marcellus Shale wells that anywhere else in the state, only 14 wells were drilled this June, compared to 45 in June of 2011.

Selling LNG into the global marketplace is not only necessary for businesses, but would create more American jobs, increase demand, and spur more production without significantly impacting domestic prices.

The natural gas industry is helping reverse economic downturns in many regions of the country and could continue to revive once declining industries. According to the U.S. International Trade Administration, each $1 billion of exports will result in more than 6,000 new jobs. These jobs would be at LNG facilities and throughout the value chain, including the steel industry, turbine manufacturing, construction and more. Additionally, each LNG export terminal will generate millions of dollars in new tax revenue for the federal, state and local governments.

In addition to producing significant economic benefits here at home, LNG exporting will have a significant positive impact on the U.S. trade balance. Selling natural gas could help countries coping with serious energy challenges diversify their natural gas supplies and allow more money to flow into the United States. Furthermore, because natural gas produces less carbon dioxide emissions than other fossil fuels when burned for electricity, by exporting LNG, the United States will be providing the world with increased access to a cleaner source of energy.

I urge you to take the steps necessary to expedite the approval process for the export of LNG. Building the energy infrastructure necessary to allow market-based exports of liquefied natural gas will not only add stability to the energy production cycle in our region, it will create more American jobs, help reverse economic downturns, and continue reviving once declining industries.

Thank you for your time and attention to this important matter.

Sincerely,

Gene Barr
President and CEO

US LNG exports

BG GROUP

David Keane

21 February 2013

Methane Lydon Volney LNG vessel

BG Group

BG GROUP

- Market leader:
  - FTSE top 15 company
  - Listed on London Stock Exchange
  - Market capitalization
    - Circa $60 billion
  - Production approximately 70% gas; 30% oil and liquids
- Global gas major:
  - Over 6,000 employees; 65% outside UK

Global LNG: assets, supply and markets

BG GROUP

Equity position

Existing long term supply source

Existing import capacity

Liquefaction under construction

Potential import capacity

Potential liquefaction

Long term customer

** exclusive right to supply*

BG Group's LNG business

BG GROUP

The LNG chain





Production | **Liquefaction** | **Shipping** | **Regasification** | **Markets / price**

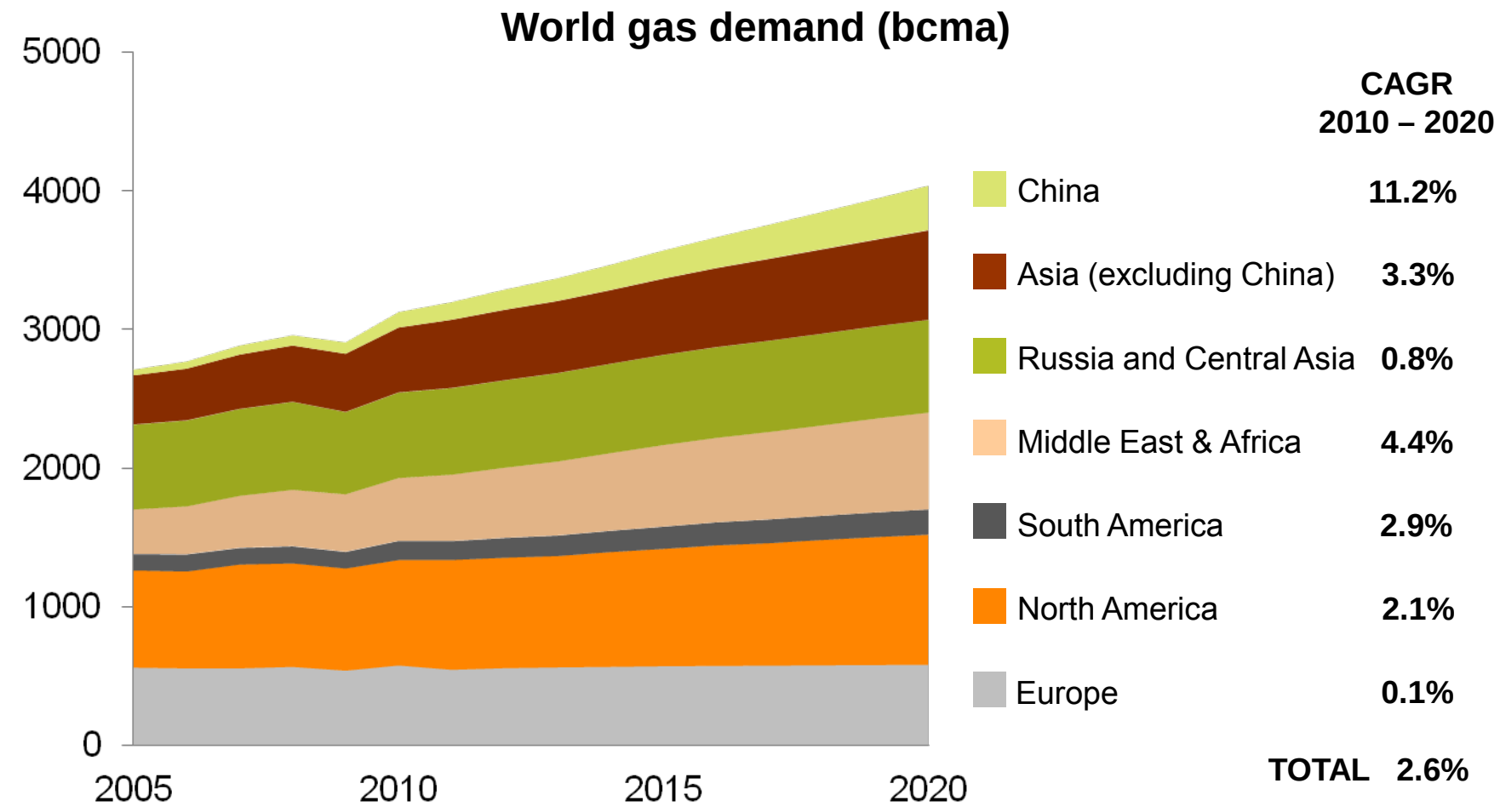
- Integrated – a presence in all segments
- Portfolio business model
- From Atlantic basin foundation to a global business
- Reputation for innovation
- Market focused – strong market anchors

Global LNG

BG GROUP

Methane Lydon Volney LNG vessel

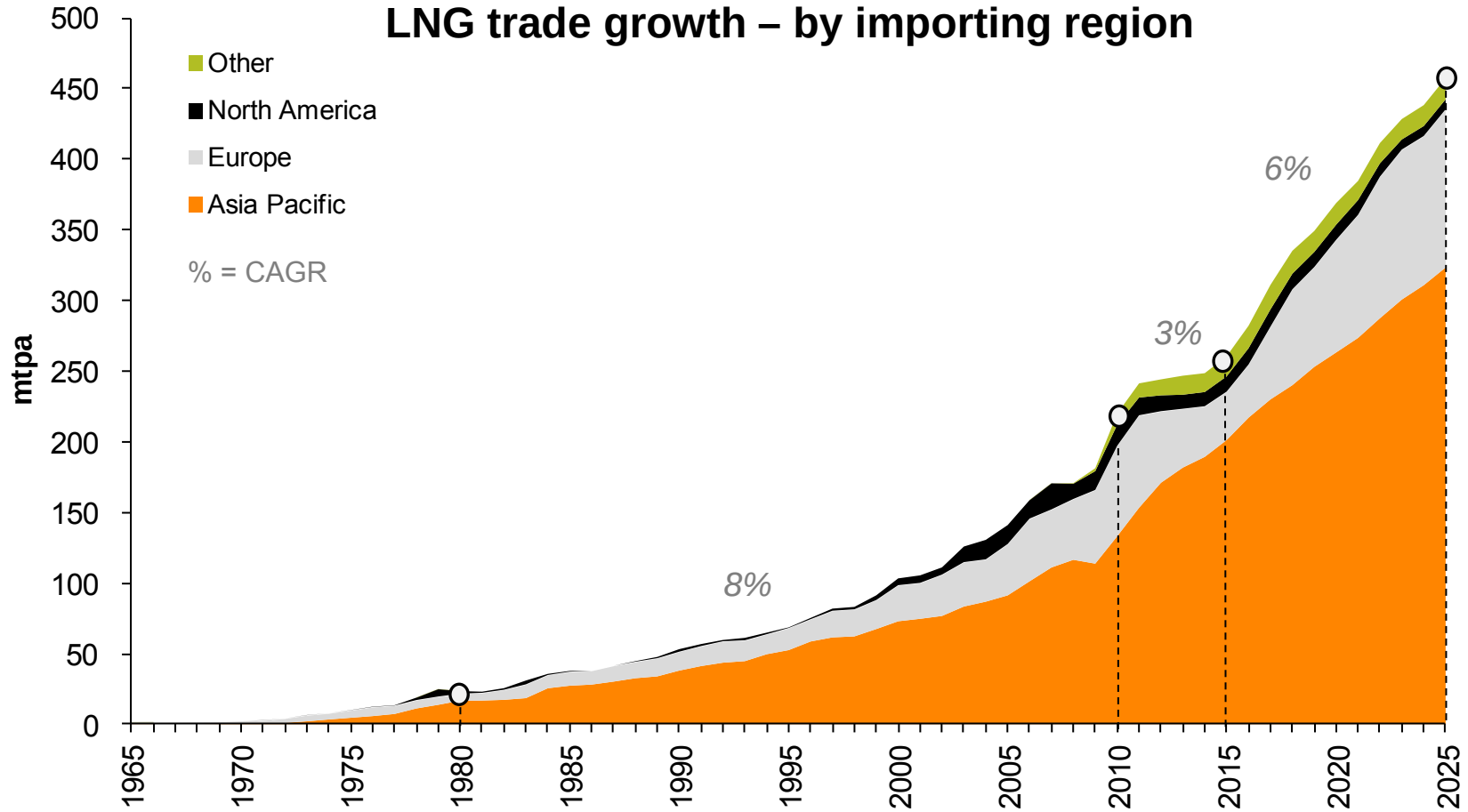
Strong gas demand growth



Source: IEA

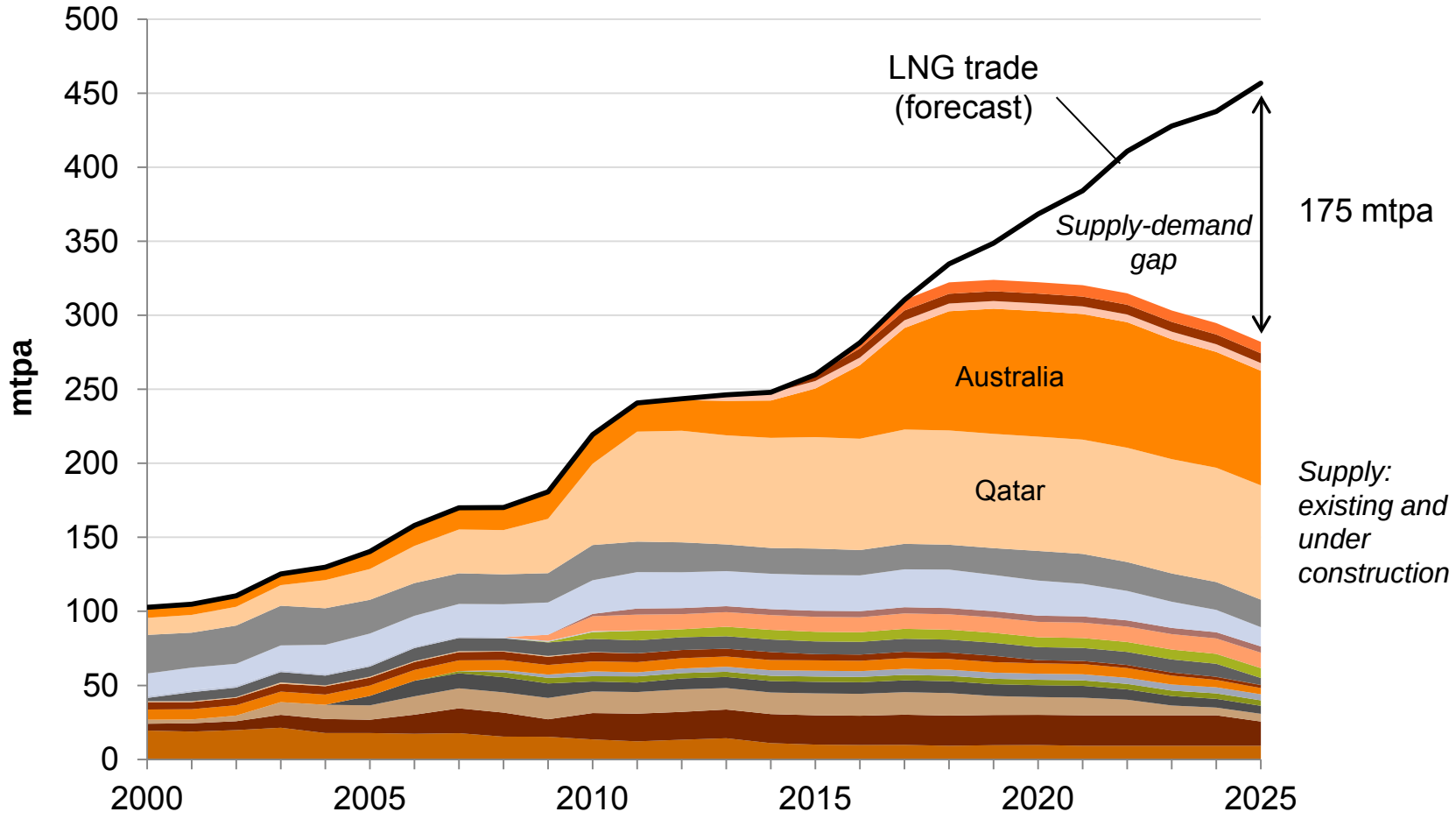
LNG – a high growth industry

BG GROUP



Source: CEDIGAZ World Outlook (1965 – 1999) and Wood Mackenzie (2000 – 2025) (Aug 2012) demand outlook

The LNG supply challenge



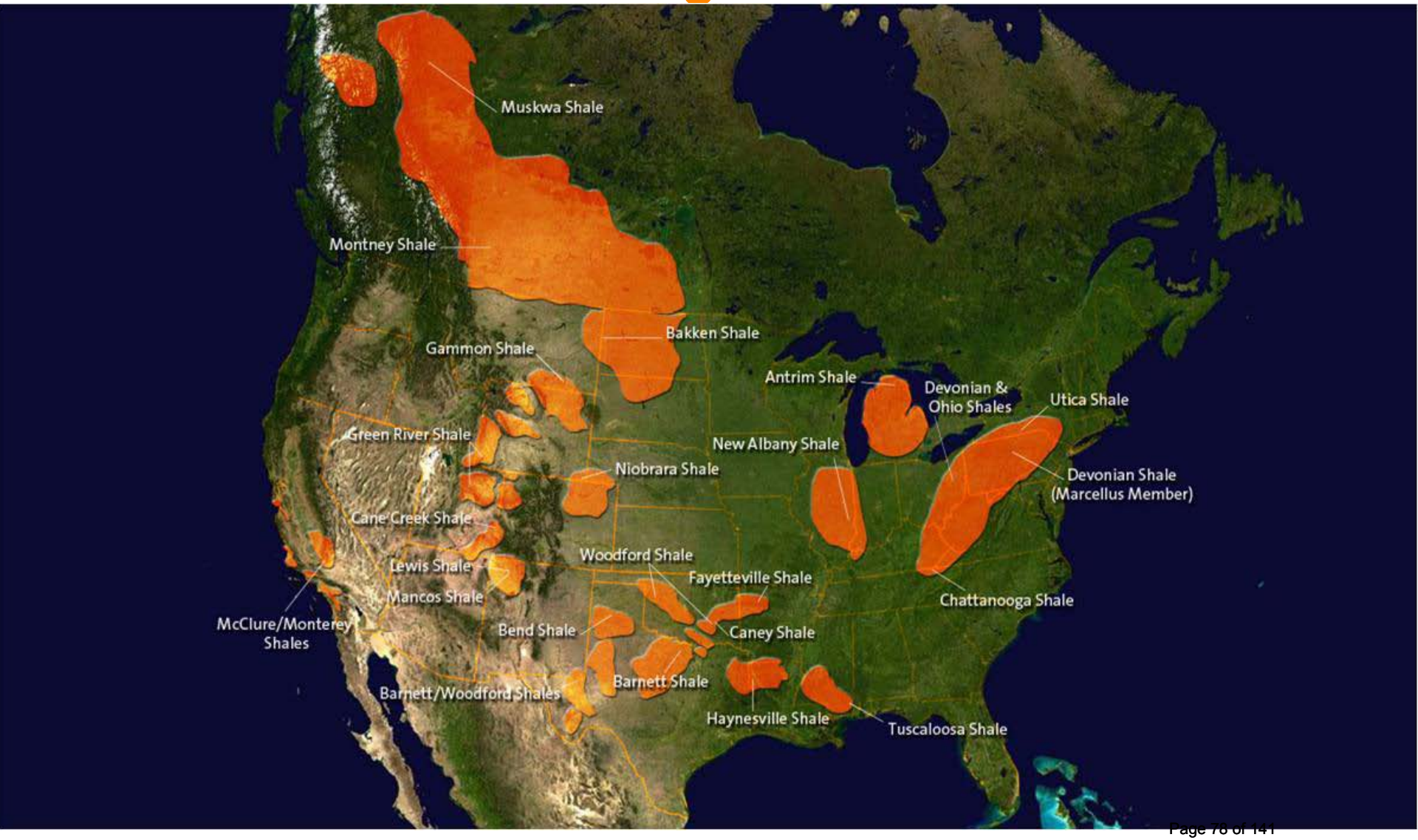
Source: BG Group interpretation of Wood Mackenzie data (Aug 2012)

US LNG exports

Worker on LNG tank
Elba Island, USA

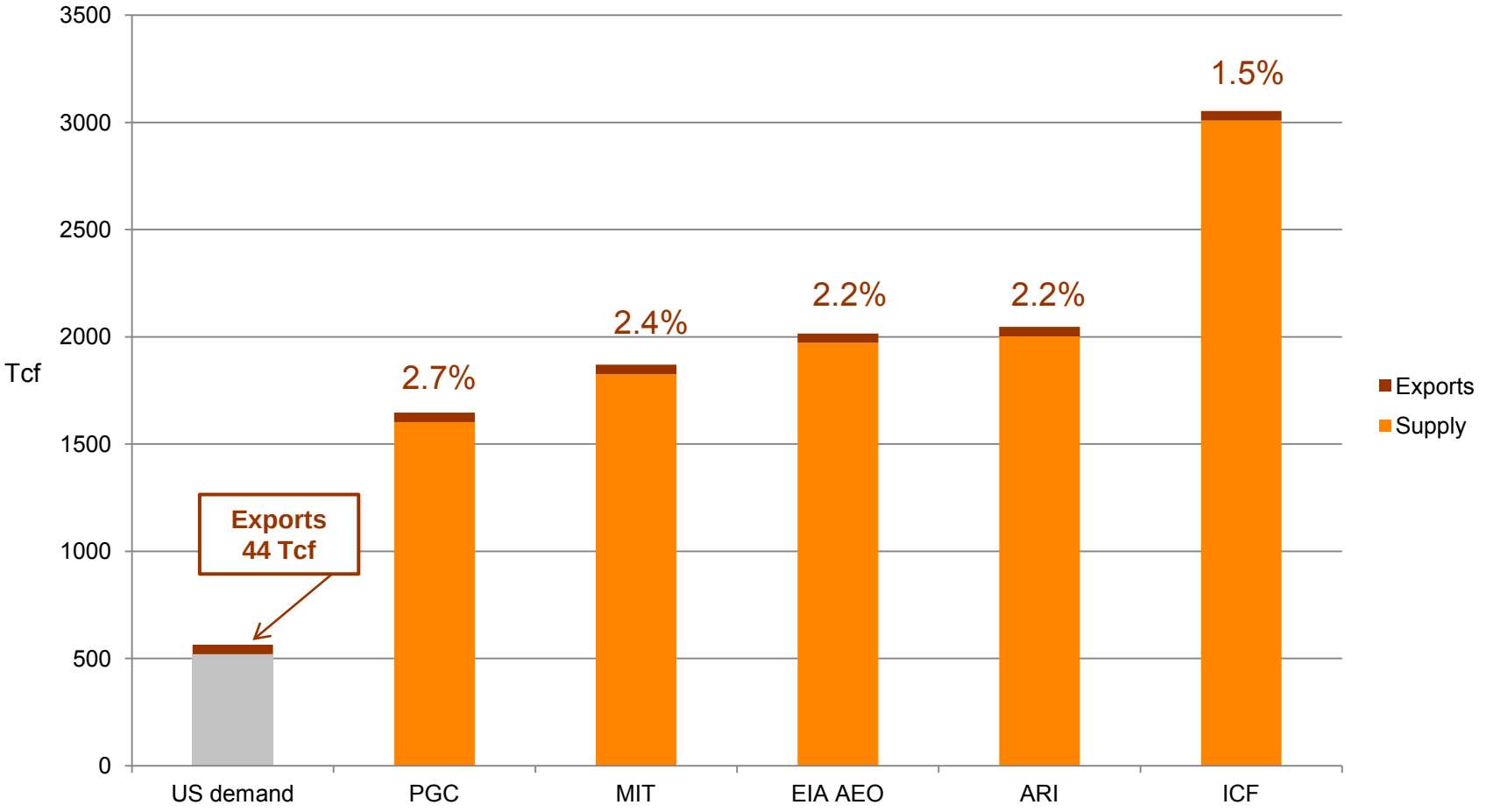
North American shale gas basins

BG GROUP



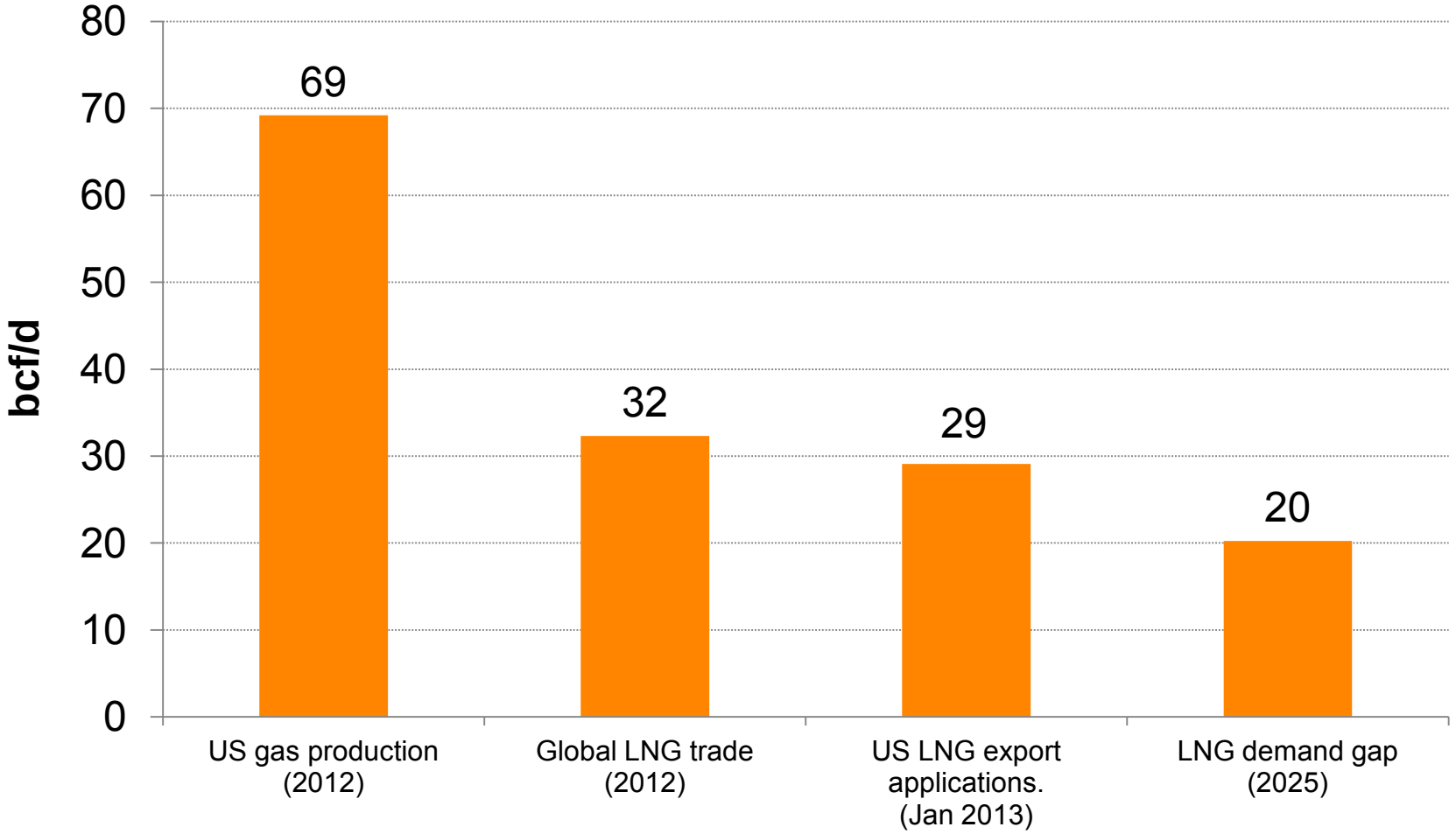
US natural gas supply (2016-2035)

BG GROUP



Assumes 6 bcf/d of LNG exports, EIA data is from 2011

US LNG exports in perspective

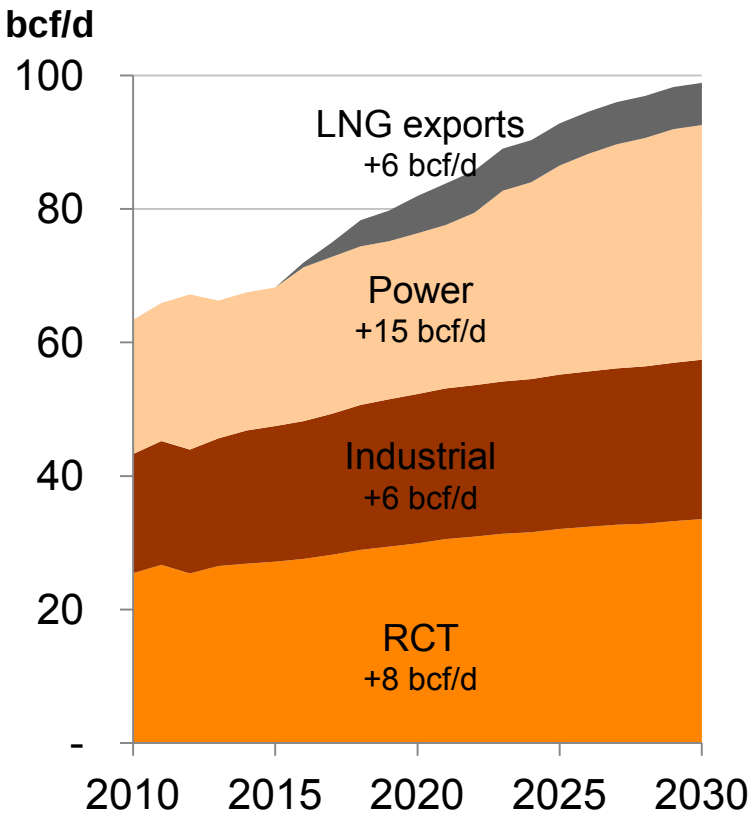


Source: BG Group interpretation of Wood Mackenzie data (2012), DOE (2013), Waterborne Energy (2012)

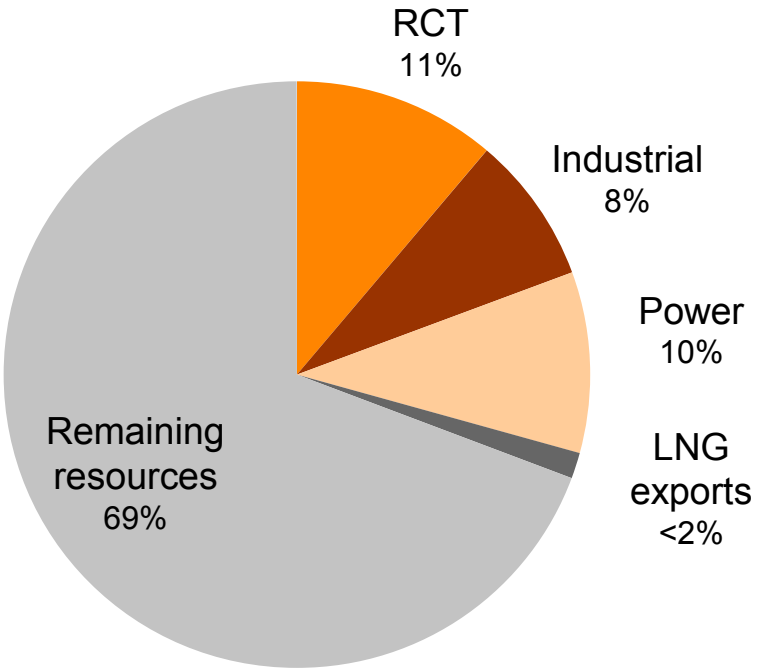
US gas demand and LNG exports

BG GROUP

Demand by sector



Total resource use by sector 2010-2030



RCT = Residential / Commercial / Transportation

L48 only. Assumes 6 bcf/d of exports. Technically recoverable resources total 2034 tcf as of January 2010.

Source: Wood Mackenzie, EIA

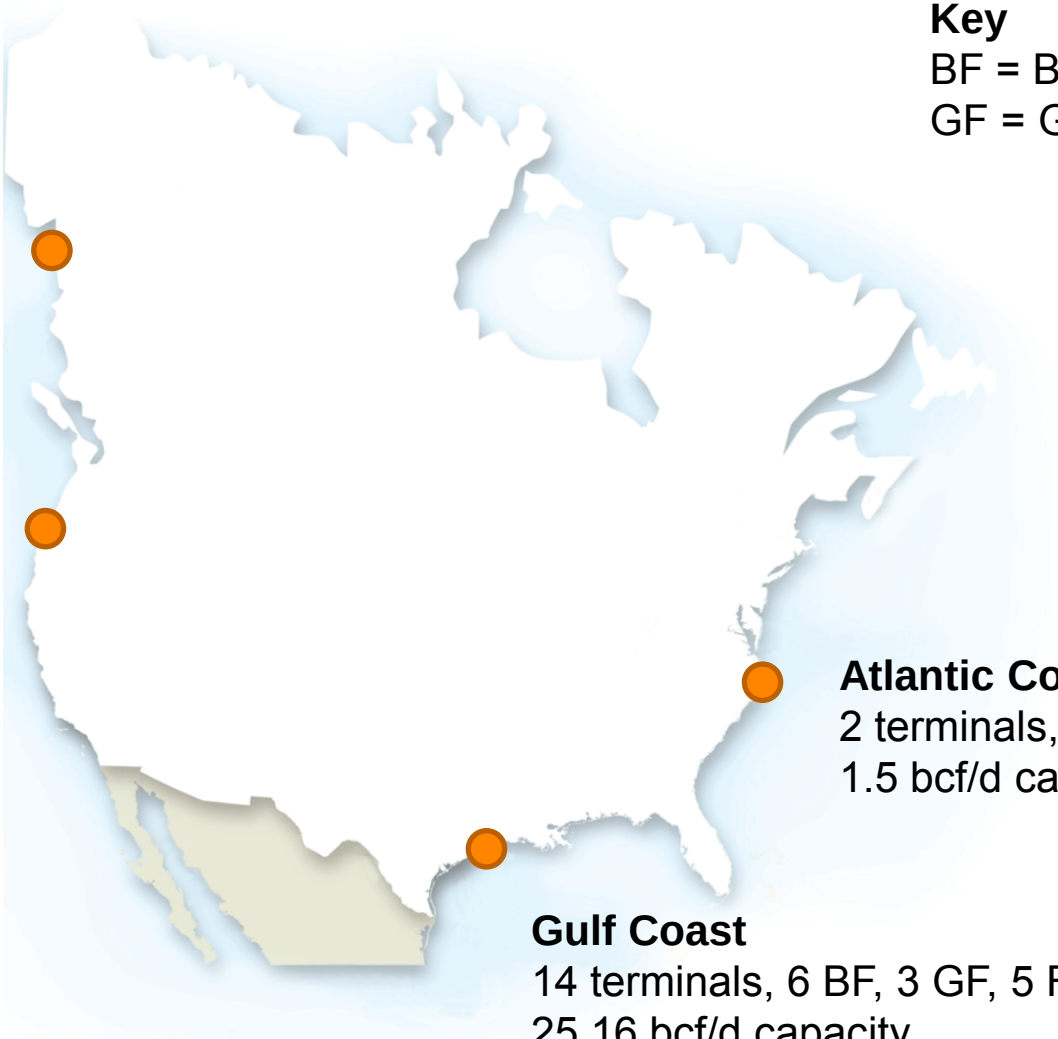
Potential export terminals

BG GROUP

Key
BF = Brownfield
GF = Greenfield

Canada
multiple terminals proposed

West Coast
2 terminals, 2 GF
2.45 bcf/d capacity



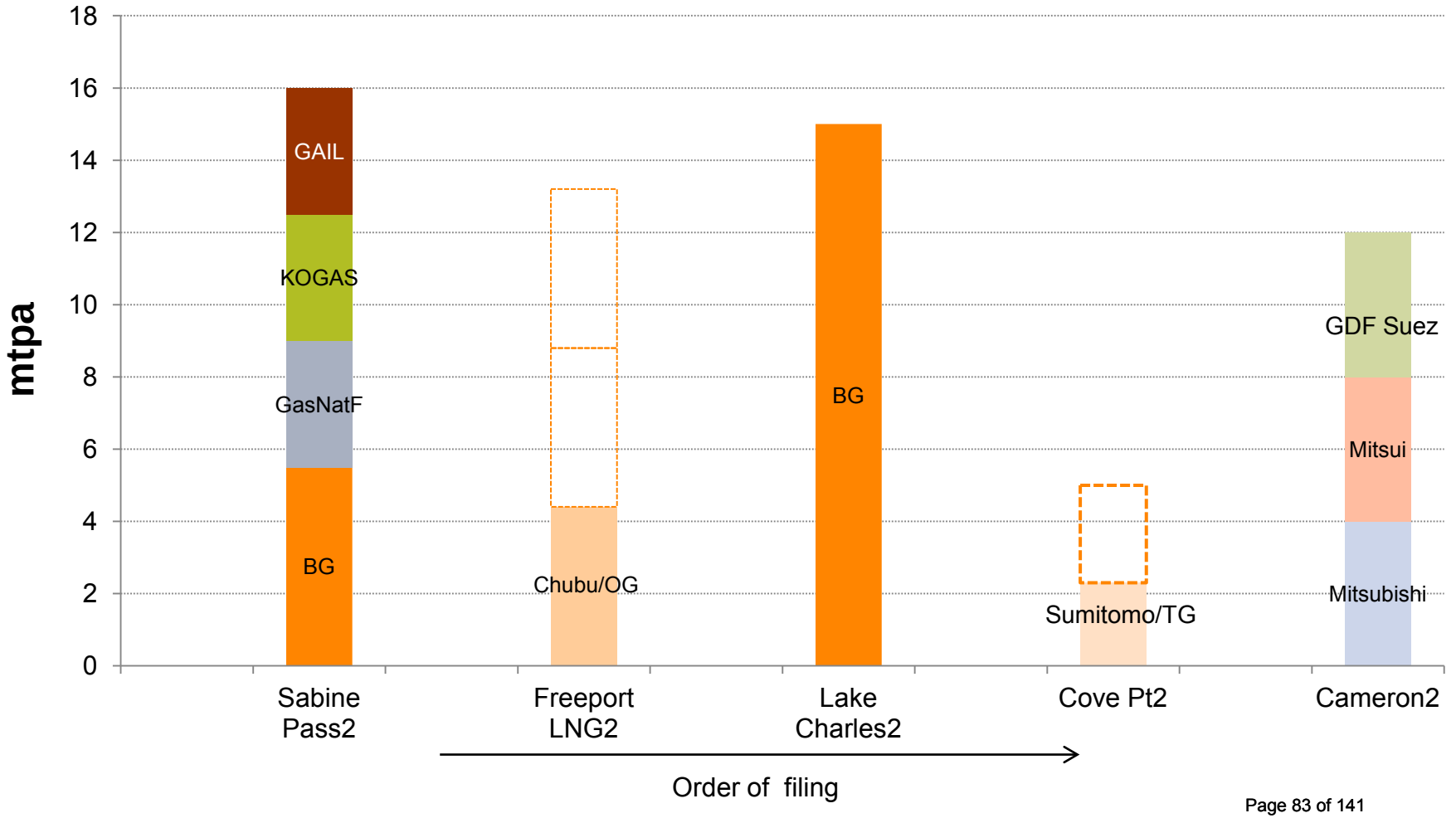
Atlantic Coast
2 terminals, 2 BF
1.5 bcf/d capacity

Gulf Coast
14 terminals, 6 BF, 3 GF, 5 FLNG
25.16 bcf/d capacity

Total US capacity filed with DOE = 29.11 bcf/d*

* Excludes applications for under 0.1 bcf/d

US export capacity holders



70 mtpa proposed - 50 mtpa 'contracted' - but only 16 mtpa authorized

US LNG export benefits

BG GROUP

- Export terminals will provide jobs
  - Construction and manufacturing
  - Upstream by increased production
- Export terminals will produce tax revenue
  - Local, state & federal taxes from terminals
  - Local, state & federal from increased natural gas production
- Exports will improve the US trade deficit – $7.1 Bn per terminal*
- Help stabilize natural gas prices – extremely low prices are not sustainable
- Free market principles should guide policy

*Source – ICF International

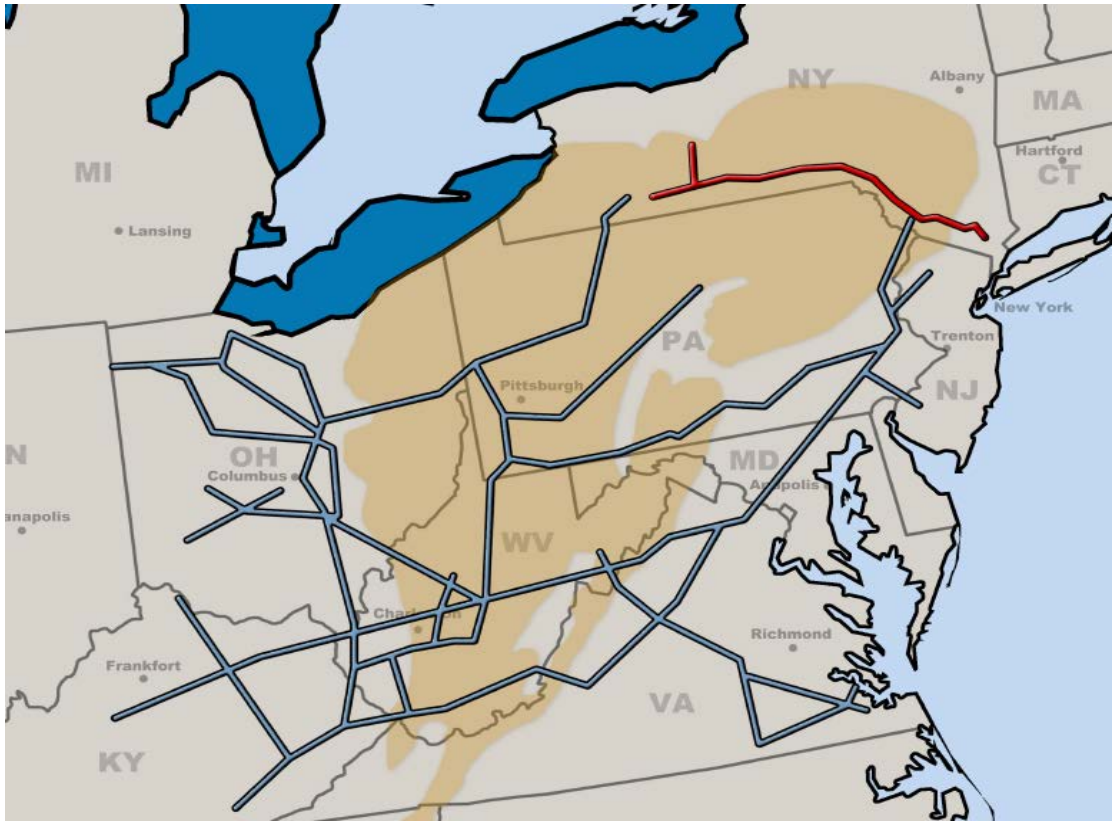

BG GROUP

Columbia Gas Transmission, LLC
Modernization Program

Brian K. Adams
Vice President, Regulatory – Modernization
February 21, 2013

Agenda

- Modernization Strategy
  - Key Drivers
  - Our Approach
- Settlement with Customers
  - Background
  - Settlement Framework
- Summary and Next Steps



Columbia Pipeline Group

Key Drivers

- Aging Infrastructure
- Increased Legislation and Regulation
  - New Pipeline Legislation signed January 2012
  - PHMSA currently drafting regulations
- Ensuring Public Safety and Customer Reliability
- Presidential Executive Order on Infrastructure Development and Jobs Creation

Our Approach

- Inventory and Prioritize Scope of Comprehensive Modernization Program
- Continue Ongoing Capital Maintenance Level Program
- 5-Year Modernization Strategy:
  - Replace Aging Infrastructure (~400 out of ~1000 miles of existing bare steel pipe)
  - Upgrade Compression (~55 out of ~100 critical units; install modern control systems)
  - Increase System Reliability -- uprate and loop system where needed
  - Expand In-Line Inspection Capabilities

Settlement Benefits

- Immediate Rate Reduction
- Predictable Rates
- Enables Columbia Gas to Proceed with Significant Investments
- Enhanced Safety and Reliability on Columbia Gas System
- Defines Modernization Program Parameters
  - Project scope identified – but enables flexibility
- Predictable Funding Level Established
- Avoids Costs of Multiple Rate Cases
- Environmental Benefits
  - Significant emission reductions

Settlement Framework

- Initial Period Refunds, Base Rate Relief and Revenue Sharing Mechanism
  - $60 million revenue decrease, equivalent to 10% Base Rate reduction starting in 2012
  - Revenue sharing with customers beyond set threshold
- Modernization Cost Recovery Mechanism
  - 5 year plan with annual updates and customer input
  - Annual rate adjustment via Limited Section 4(e) filings starting in 2014
  - Specific Modernization investments and returns
  - Annual and 5-year caps on expenditures
- Rate Moratorium and Rate Case Commitment
  - Moratorium until January 1, 2018
  - Commitment to file rate case to be effective by January 1, 2019

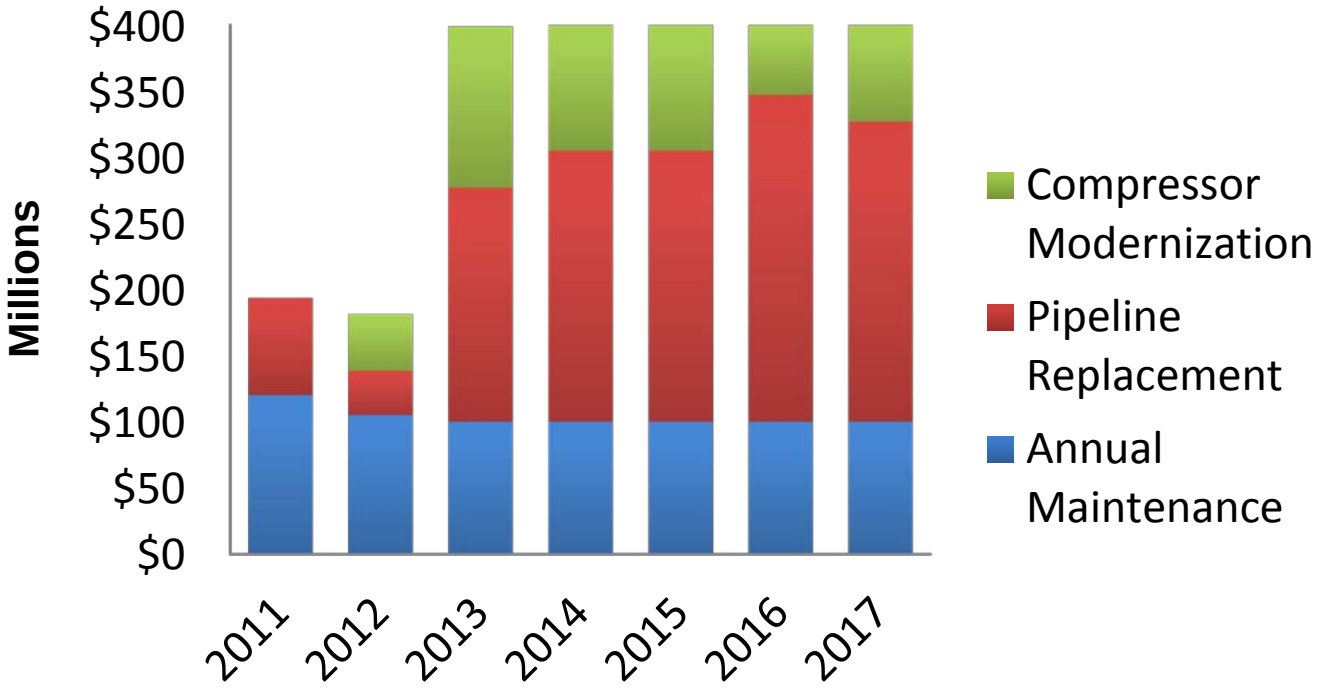
Columbia Pipeline Group

Timeline

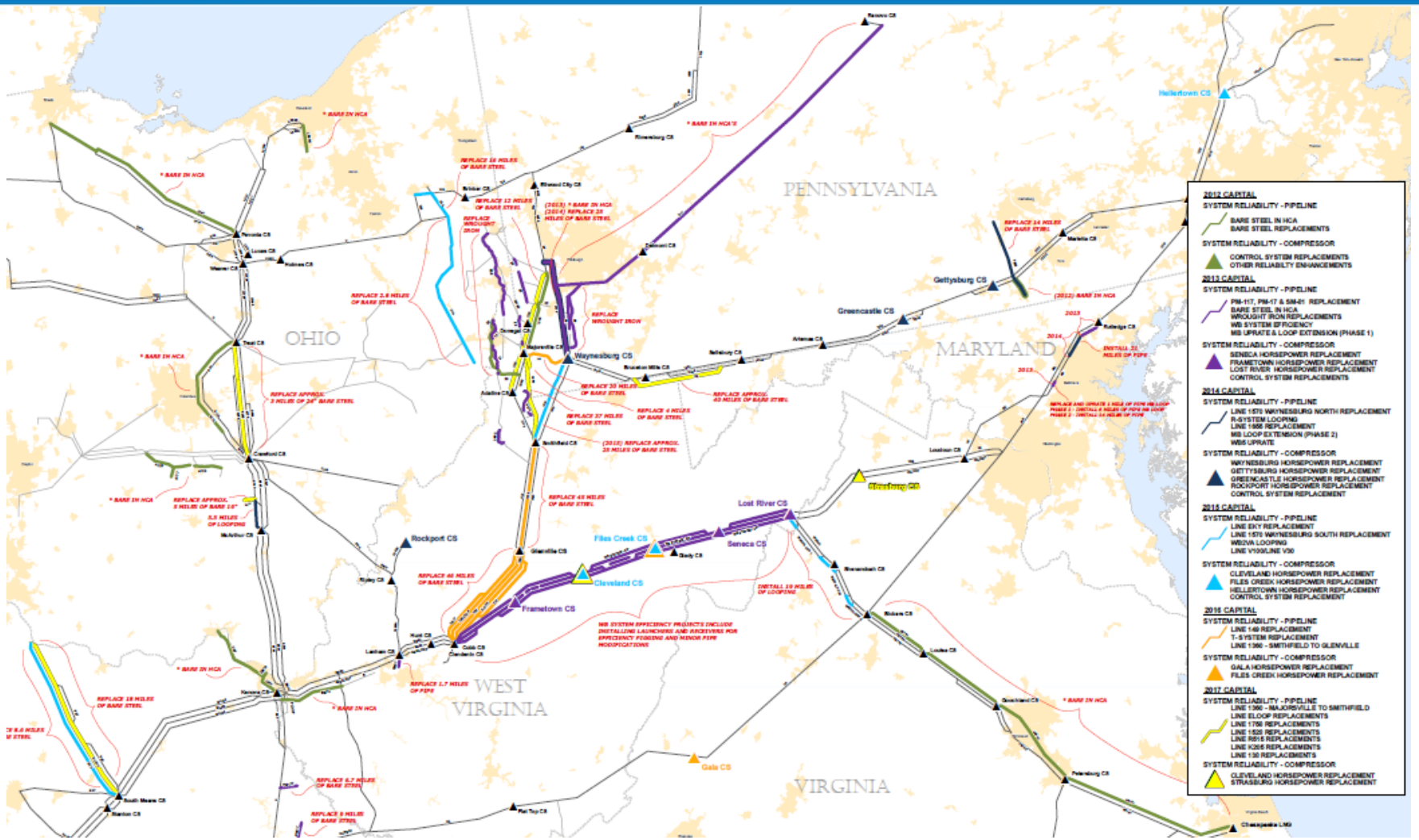
- December 2011: Began Working With Customers
  - Explored concepts with initial customer group; Collaborated on recovery mechanism; developed settlement framework
- Spring 2012: Broader Discussion With All Firm Shippers
  - Extensive data review/exchanges with all firm shippers -- discussions around cost of service, rate refreshments, revenues; information analyzed by shipper consultants
- Summer 2012: Settlement Framework Established
  - September 4, 2012
- September 2012: Stipulation Filed With FERC
- January 2013: Settlement Approved
  - January 24, 2013

Columbia Pipeline Group

Capital Investment Plan



2012-2017 Projects



2012-2017 Projects

Over 400 miles of Pipeline Replacement

Installation of over 100,000 Horsepower, Replace 48 older Compressors

2012 Capital ($76 million)	2013 Capital ($300 million)	2014 Capital ($300 million)
System Reliability – Pipeline	**System Reliability – Pipeline**	**System Reliability – Pipeline**
Bare Steel in HCA	Bare Steel in HCA	Line 1570 - Waynesburg North
	Wrought Iron Replacements	R-System looping
	WB System Efficiency	MB Loop Extension (phase 2)
	MB Uprate, MP Loop Extension (phase 1)	Line 1655
Bare Steel Replacements	Lines PM-117, PM-17 & SM-81	WB5 Uprate
System Reliability – Compressor	**System Reliability – Compressor**	**System Reliability – Compressor**
Control System Replacements	Seneca Horsepower Replacement	Waynesburg Horsepower Replacement
Other Reliability Enhancements	Frametown Horsepower Replacement	Gettysburg Horsepower Replacement
	Lost River Horsepower Replacement	Greencastle Horsepower Replacement
	Control System Replacements	Rockport Horsepower Replacement
		Control System Replacements

2015 Capital ($300 million)	2016 Capital ($300 million)	2017 Capital ($300 million)
System Reliability – Pipeline	**System Reliability – Pipeline**	**System Reliability – Pipeline**
Line EKY, Line 1570-Waynesburg South	Line 149	Line 1360 - Majorsville to Smithfield
WB2VA Looping	T-System	Line E-Loop, Line 1758, Line 1528
Line V100/V30	Line 1360 - Smithfield to Glenville	Line R515, Line K205, Line 138
System Reliability – Compressor	**System Reliability – Compressor**	**System Reliability – Compressor**
Cleveland Horsepower Replacement	Gala Horsepower Replacement	Cleveland Horsepower Replacement
Files Creek Horsepower Replacement	Files Creek Horsepower Replacement	Strasburg Horsepower Replacement
Hellertown Horsepower Replacement		
Control System Replacements		

Columbia Pipeline Group℠

Summary

- Unprecedented and Collaborative Settlement Framework Benefits Customers and Columbia Transmission
- Recovery Mechanism Ensures Long Term, Predictable Rates; Reduces Inefficiencies of Multiple Rate Cases
- Renewed Focus on Execution – Flawless Project Management and Capital Budgeting
- Continued Coordination and Accountability With Customers Crucial to Success

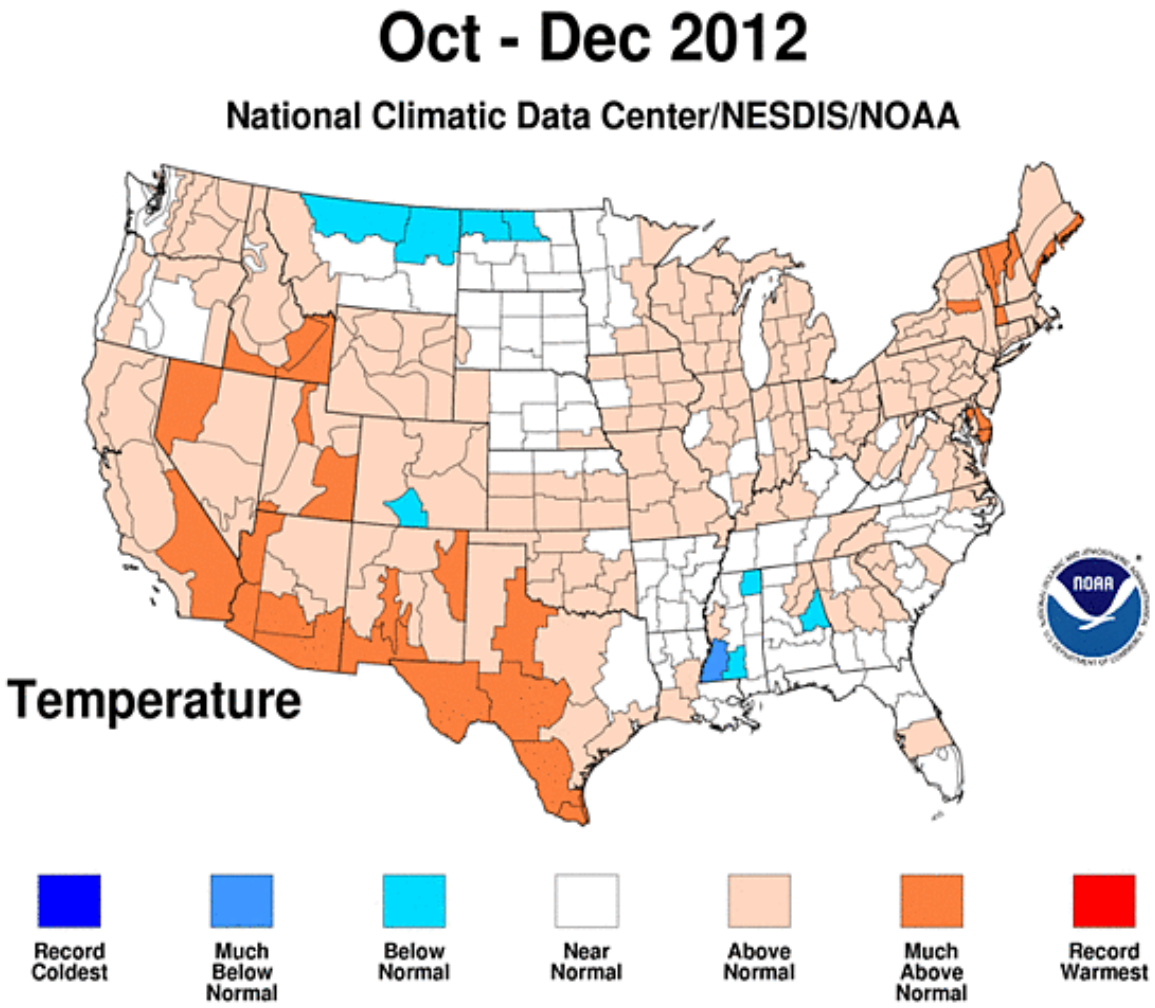
Natural Gas Update
OMA Energy Committee

Scott Phelps & Richard Ricks
NiSource
February 21, 2013

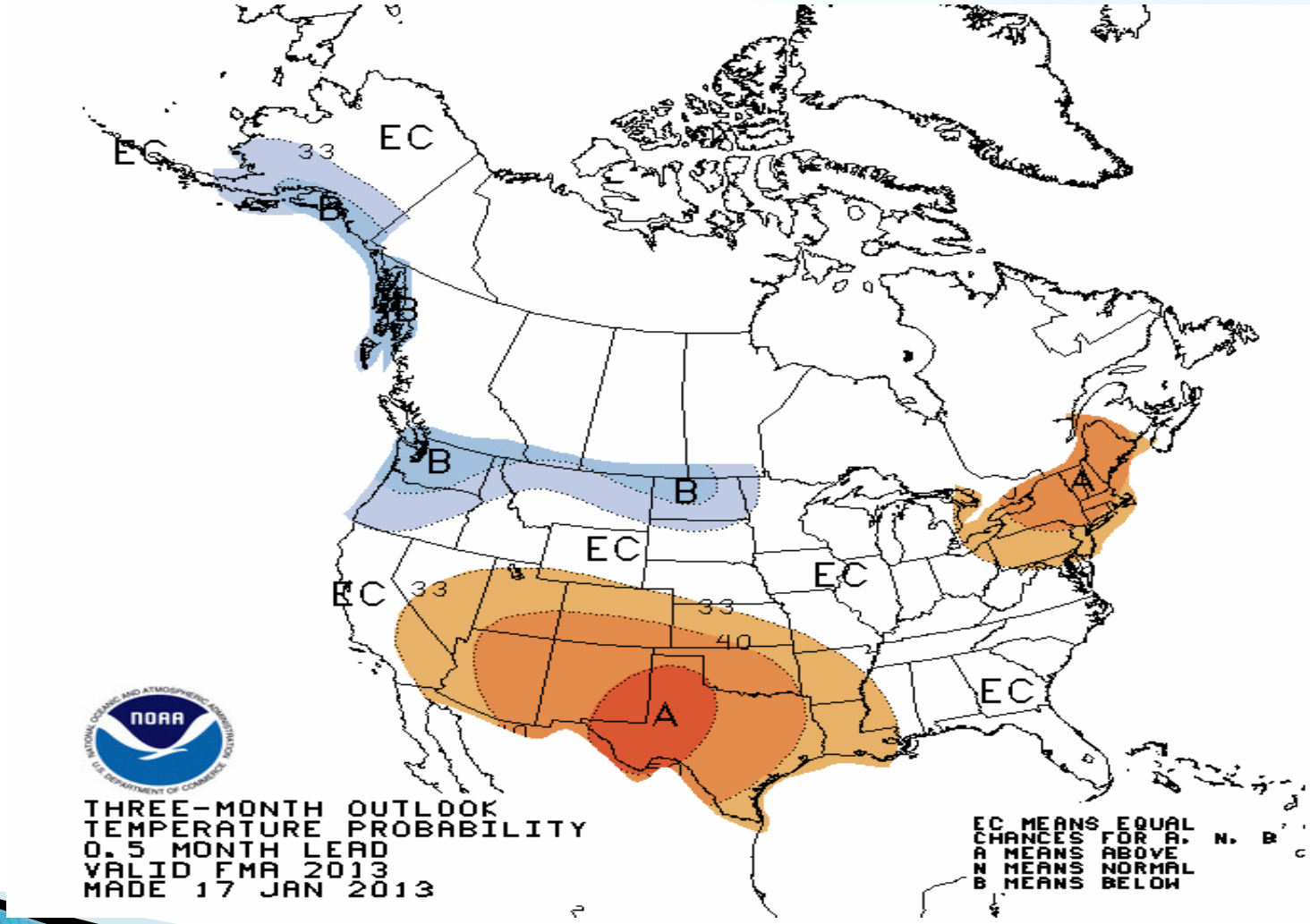
Agenda

- Weather
  - National
  - Winter
  - Degree Days
- National Storage
- Gas Prices
  - NYMEX Prompt Month History
  - NYMEX Futures
- Drilling Rig Count
- Production
- Future Drivers

Eastern Third of US Above Normal



Feb, March, & April 13 Temperature Outlook



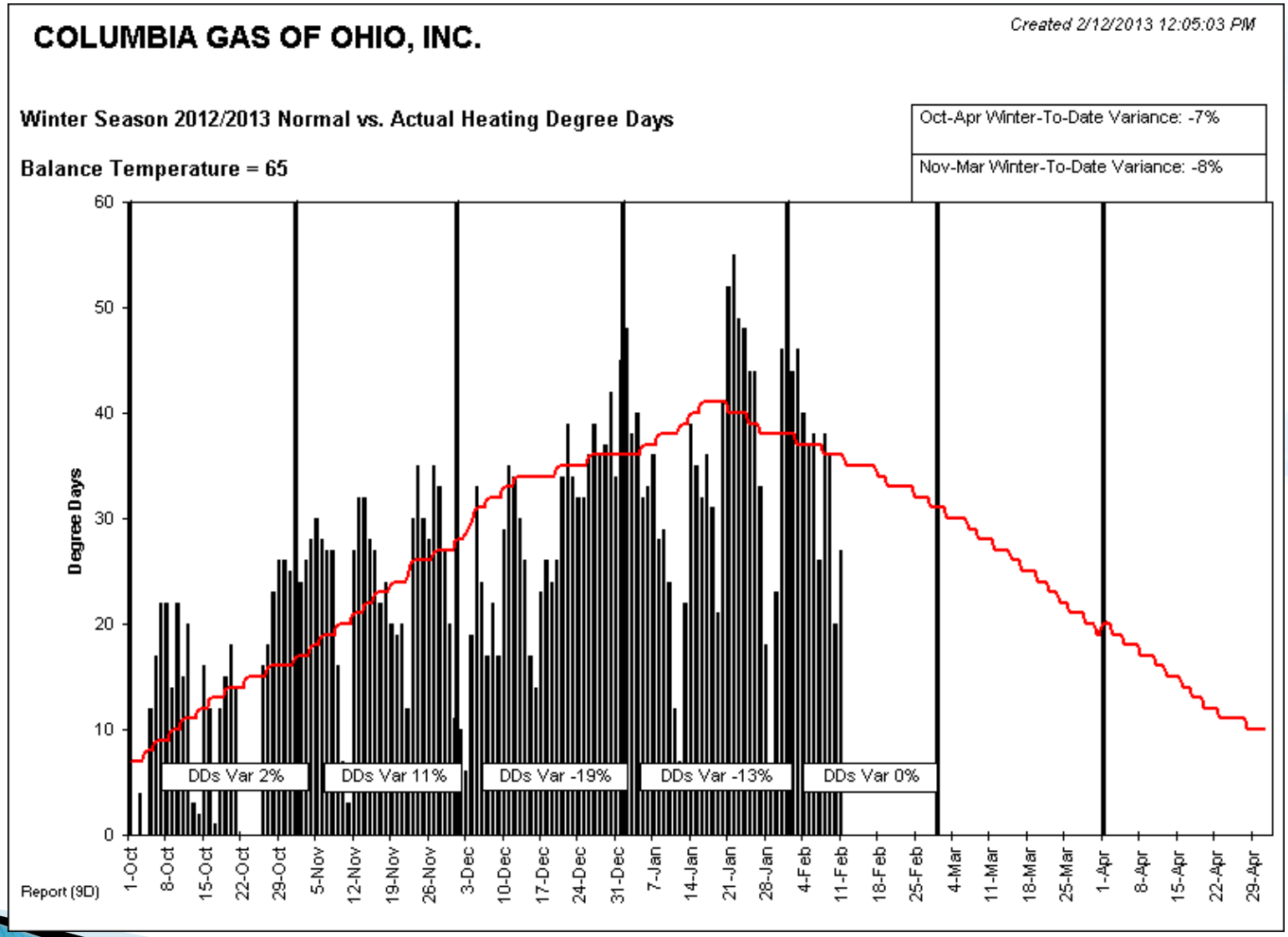
NiSource LDC Degree Days

Columbia Distribution Companies of NiSource LDC
Degree Day Comparison by Company
From November 1 Through February 13 (1949 - 2013)
Basis for Degree Days is 65° F

	CKY	CMD	COH	CPA	CGV	CMA
Degree Day Comparison						
Number of Winters in history	64	64	64	64	64	52
Degree Day Rank (High to Low)	49 of 64	47 of 64	53 of 64	46 of 64	48 of 64	38 of 53
Actual Degree Days	2,656	2,850	3,094	3,075	2,331	3,208
Normal Degree Days	2,906	3,024	3,378	3,248	2,508	3,412
Variance From Normal (1)	-250	-174	-284	-173	-177	-204
Percent from Normal (1)	-9%	-6%	-8%	-5%	-7%	-6%
Percent from 2011/12	10%	12%	10%	11%	16%	13%

(1) **Normal based on the 30 year period 1976 through 2005**

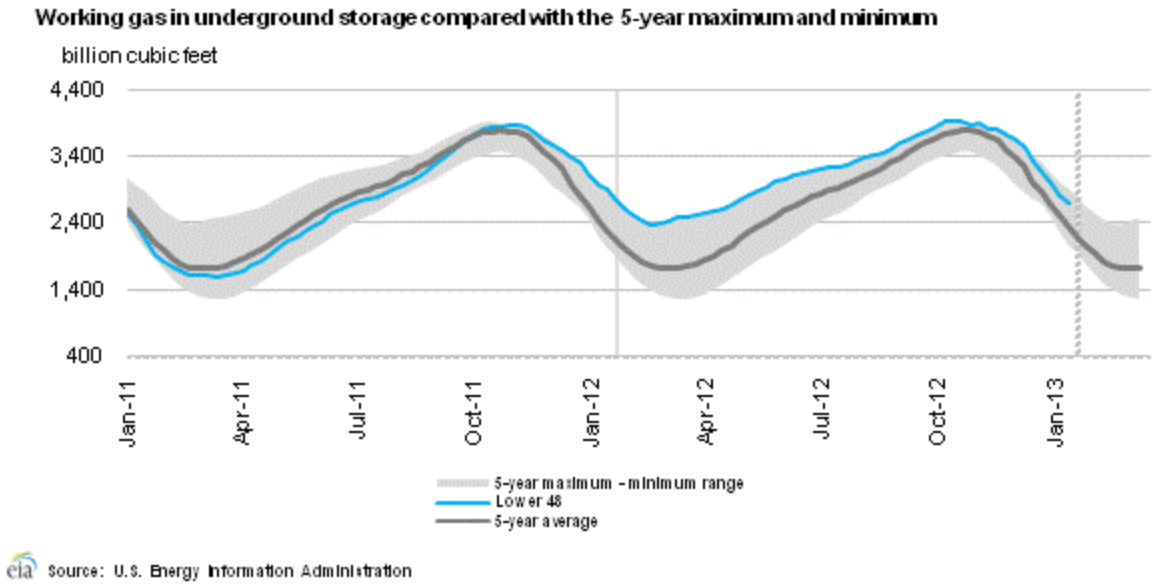
Degree Day Comparison



Summary

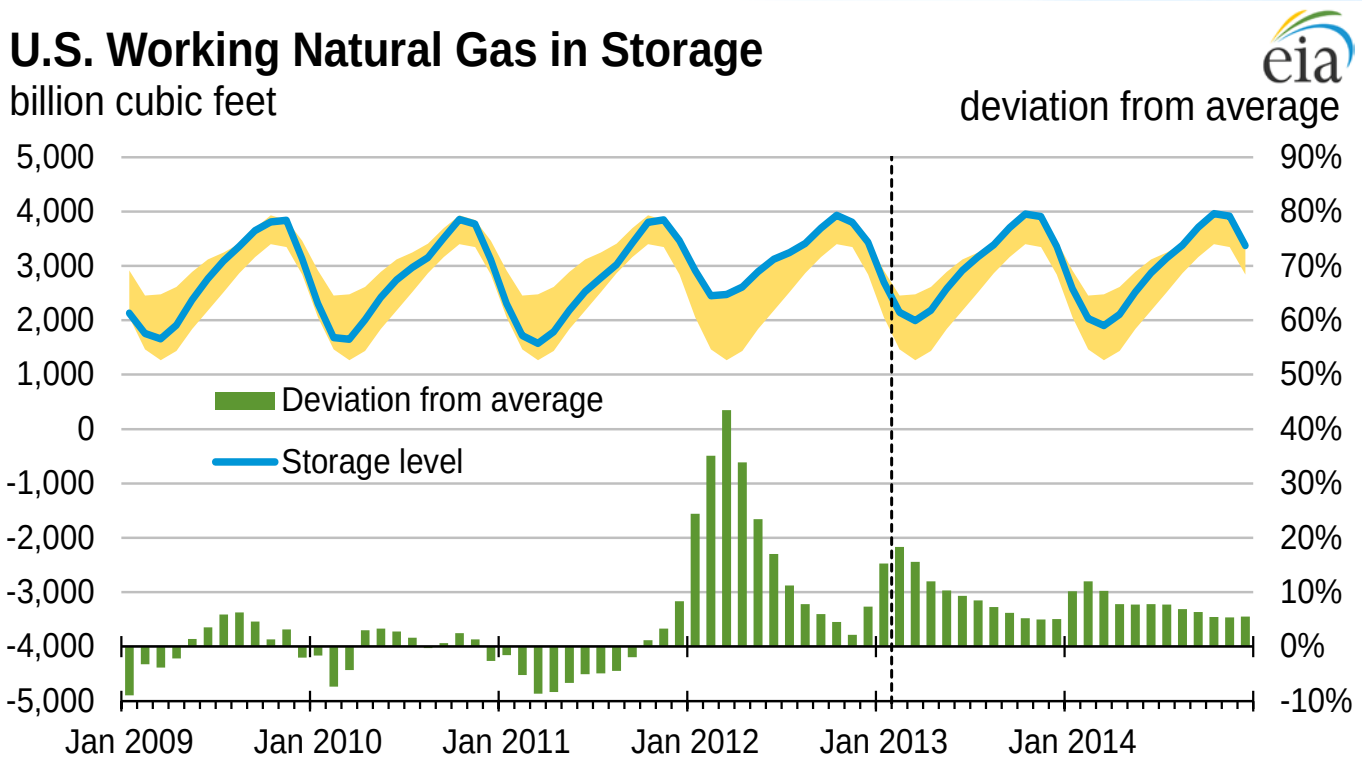
Summary

Working gas in storage was 2,684 BCF as of Friday, February 1, 2013, according to EIA estimates. This represents a net decline of 118 BCF from the previous week. Stocks were 226 BCF less than last year at this time and 351 BCF above the 5-year average of 2,333 BCF. In the East Region, stocks were 118 BCF above the 5-year average following net withdrawals of 88 BCF. Stocks in the Producing Region were 174 BCF above the 5-year average of 819 BCF after a net withdrawal of 20 BCF. Stocks in the West Region were 59 BCF above the 5-year average after a net drawdown of 10 BCF. At 2,684 BCF, total working gas is within the 5-year historical range.



Note: The shaded area indicates the range between the historical minimum and maximum values for the weekly series from 2008 through 2012.
Source: Form EIA-912, "Weekly Underground Natural Gas Storage Report." The dashed vertical lines indicate current and year-ago weekly periods.

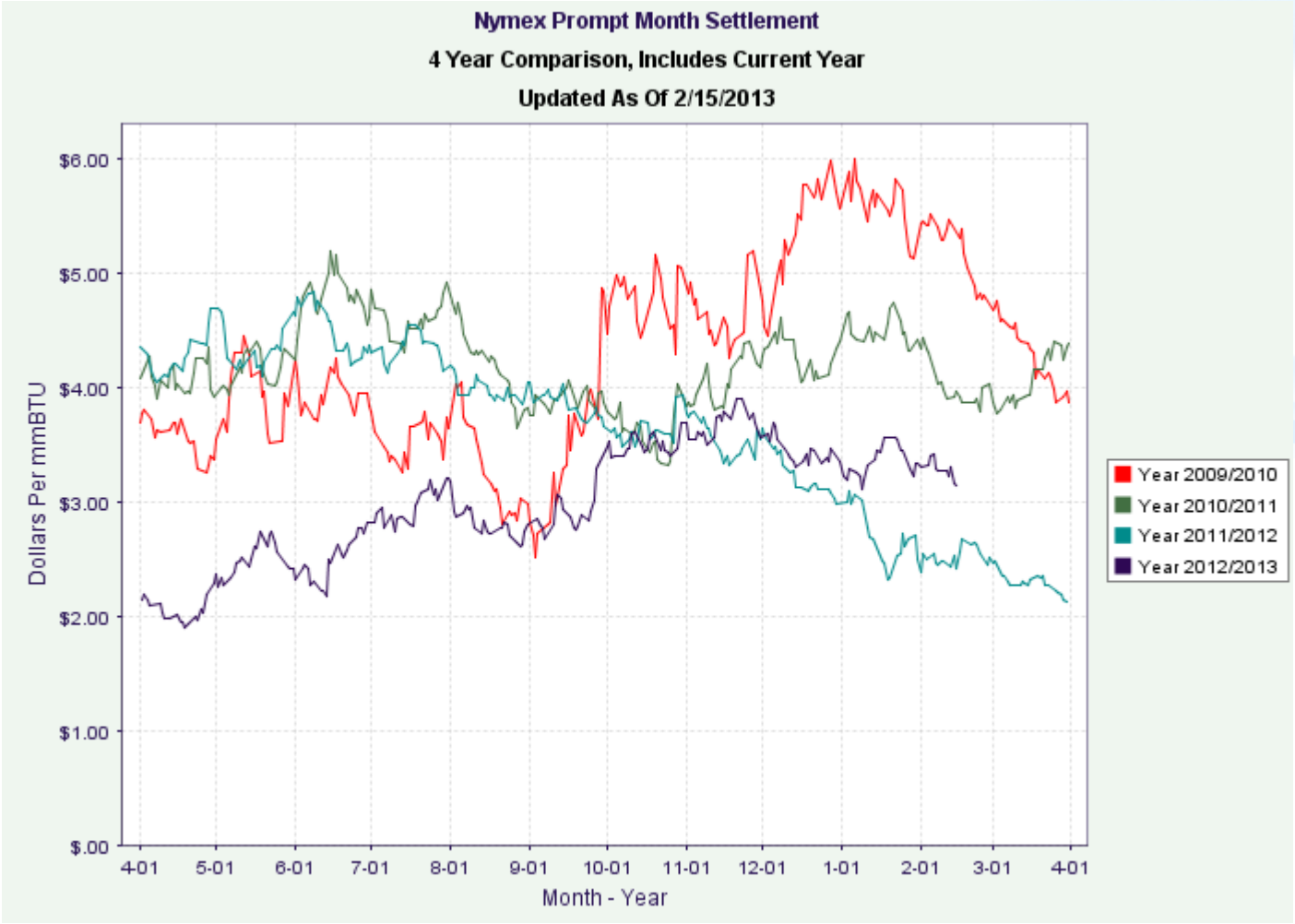
Storage Deviation from Normal



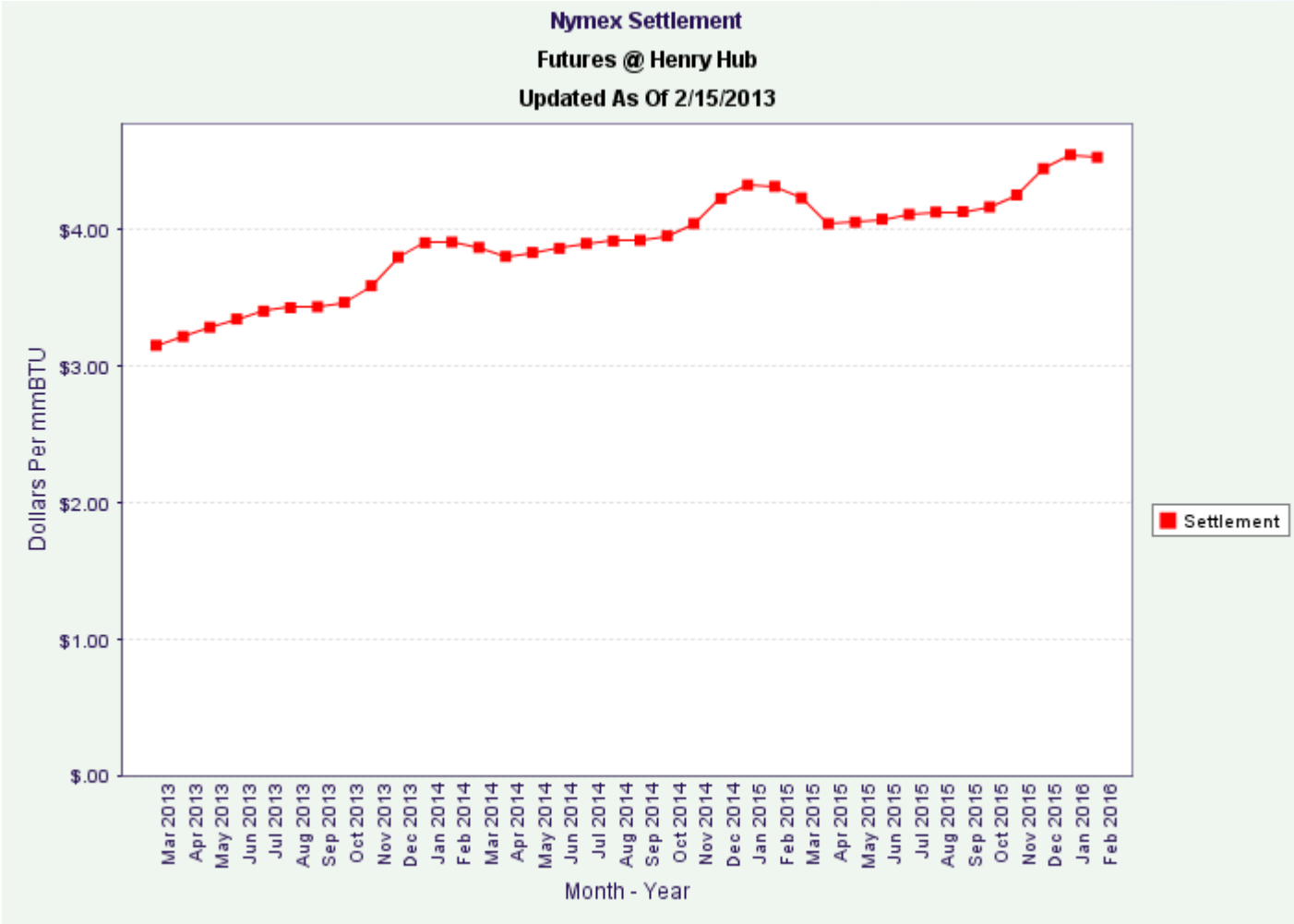
Note: Colored band around storage levels represents the range between the minimum and maximum from Jan. 2008 - Dec. 2012.

Source: Short-Term Energy Outlook, February 2013

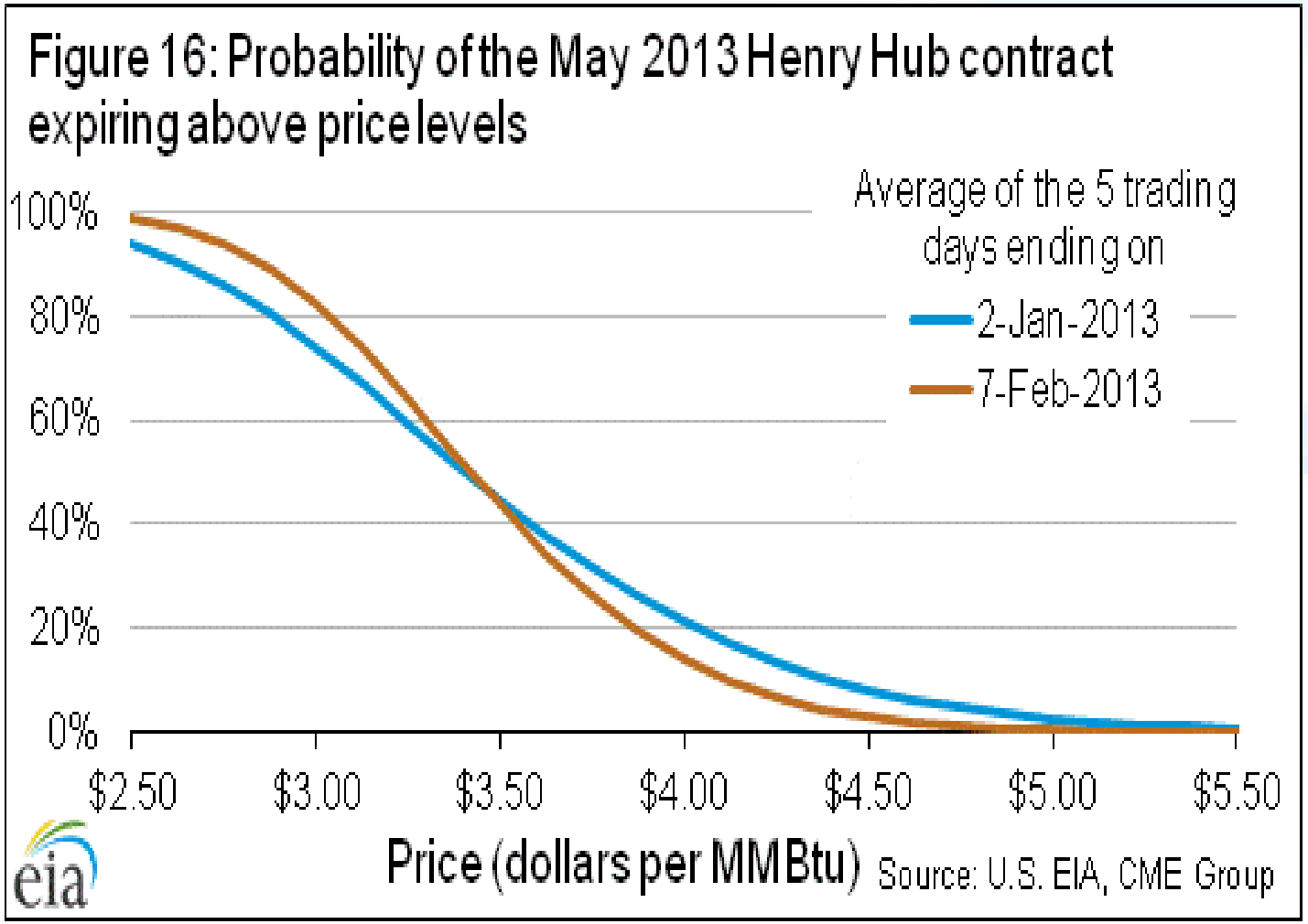
NYMEX Prompt Month Settlement



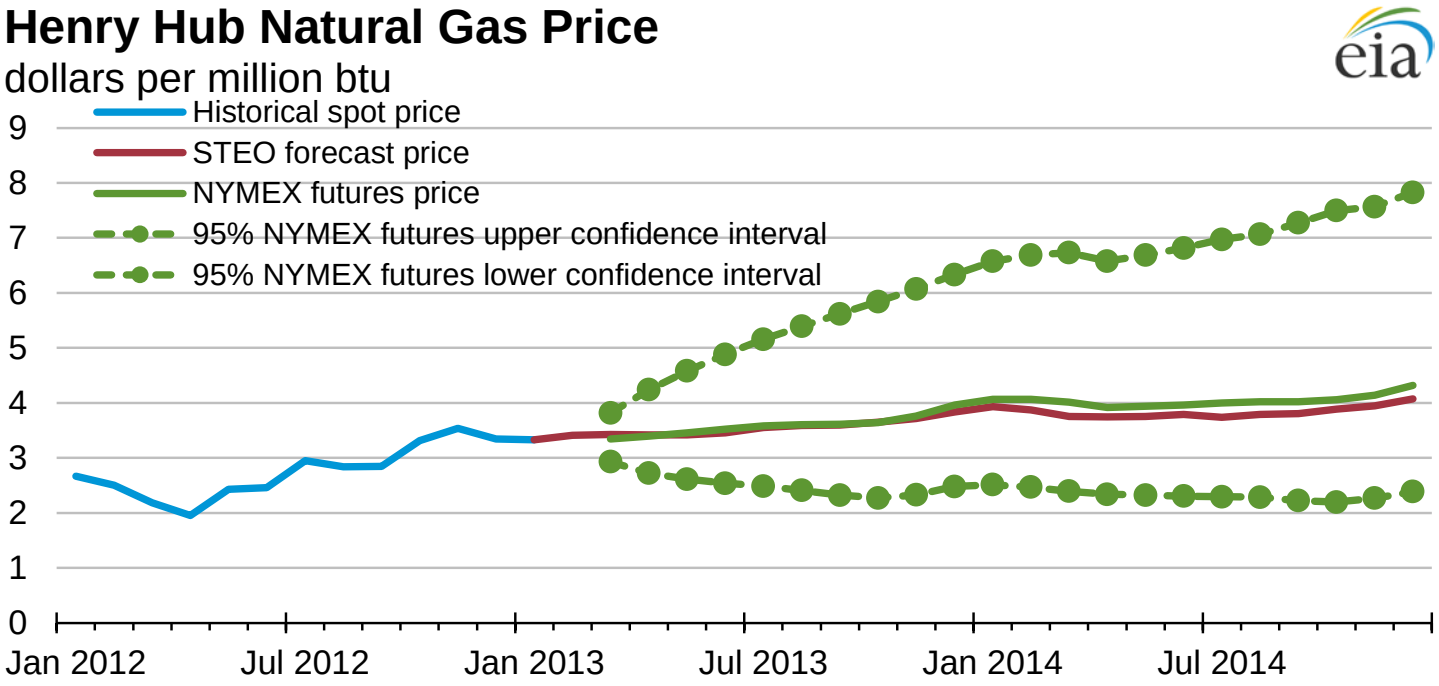
NYMEX Futures thru 2015



Short Term Price Volatility



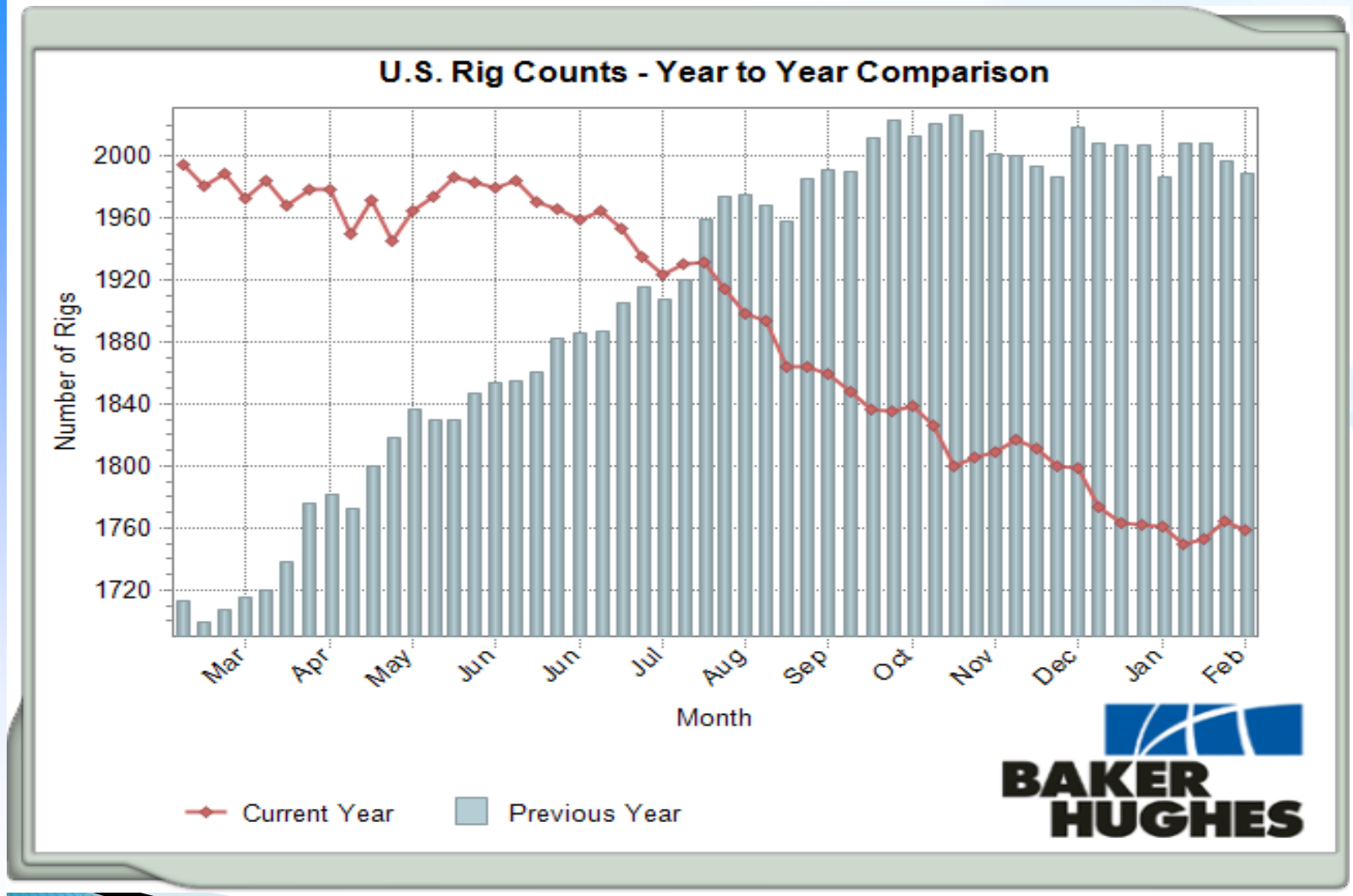
EIA Gas Price Predictions – High/Low



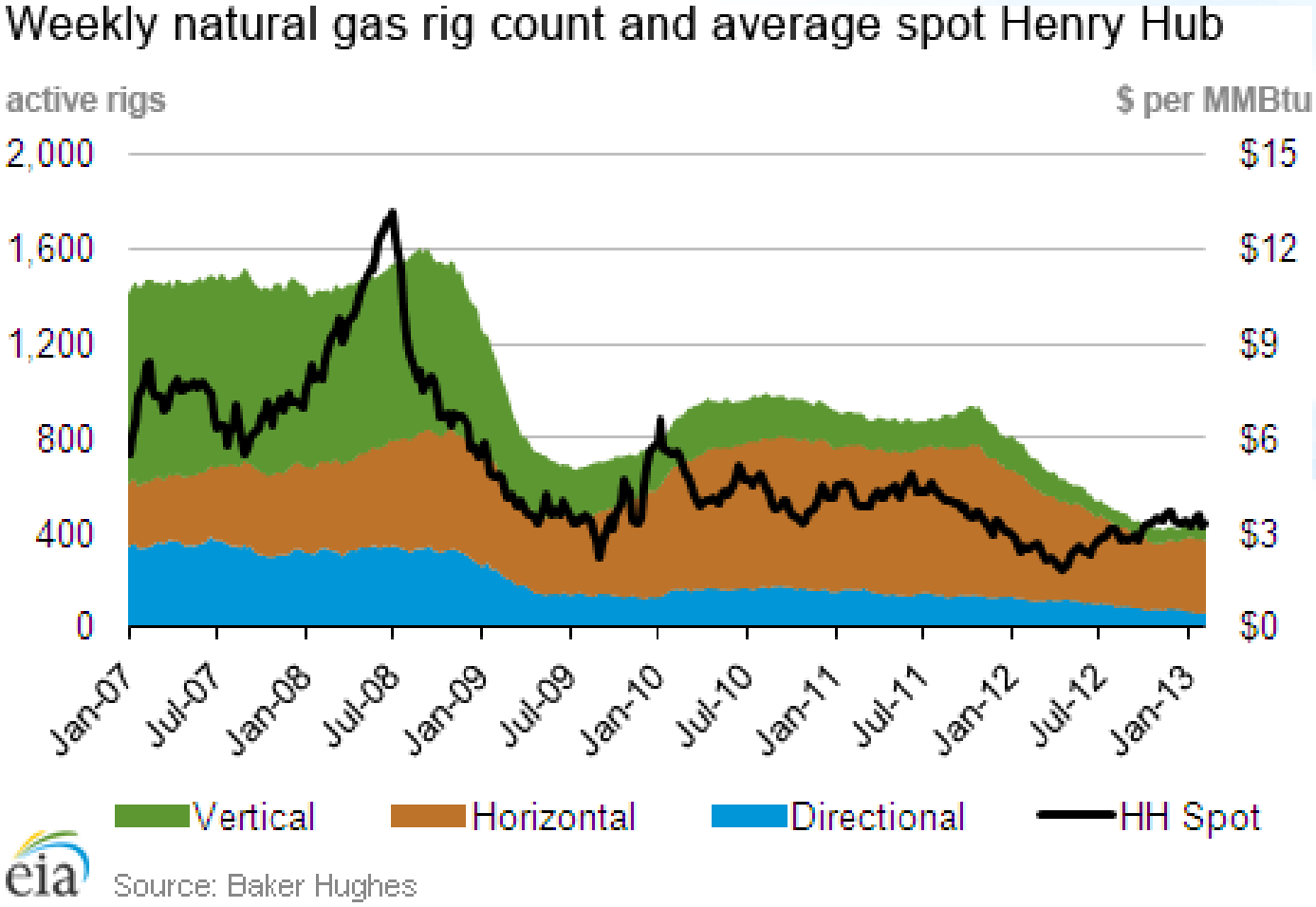
Note: Confidence interval derived from options market information for the 5 trading days ending February 7, 2013. Intervals not calculated for months with sparse trading in near-the-money options

Source: Short-Term Energy Outlook, February 2013

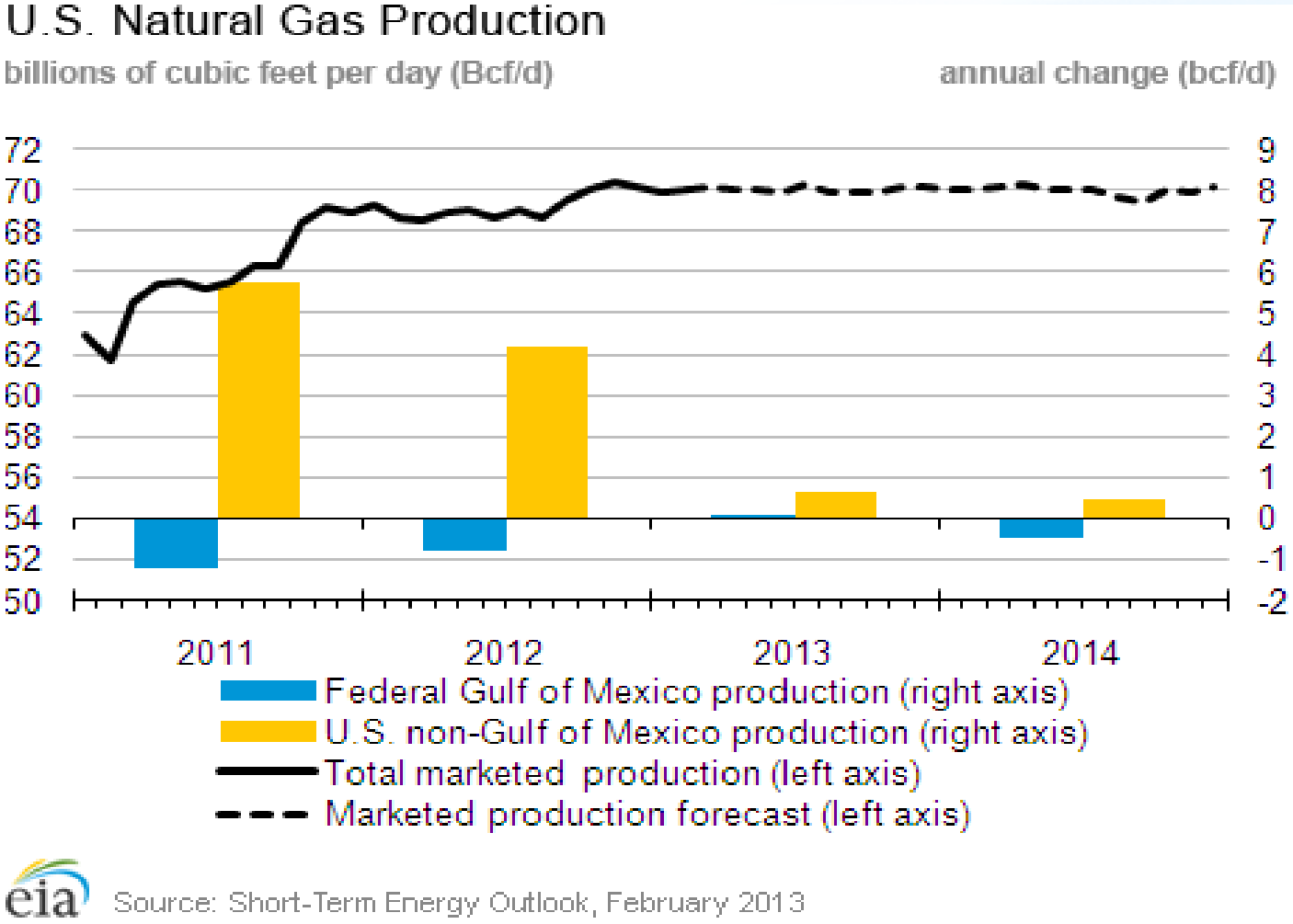
Rig Counts Declining Slightly



Nat Gas Rig & Gas Pricing



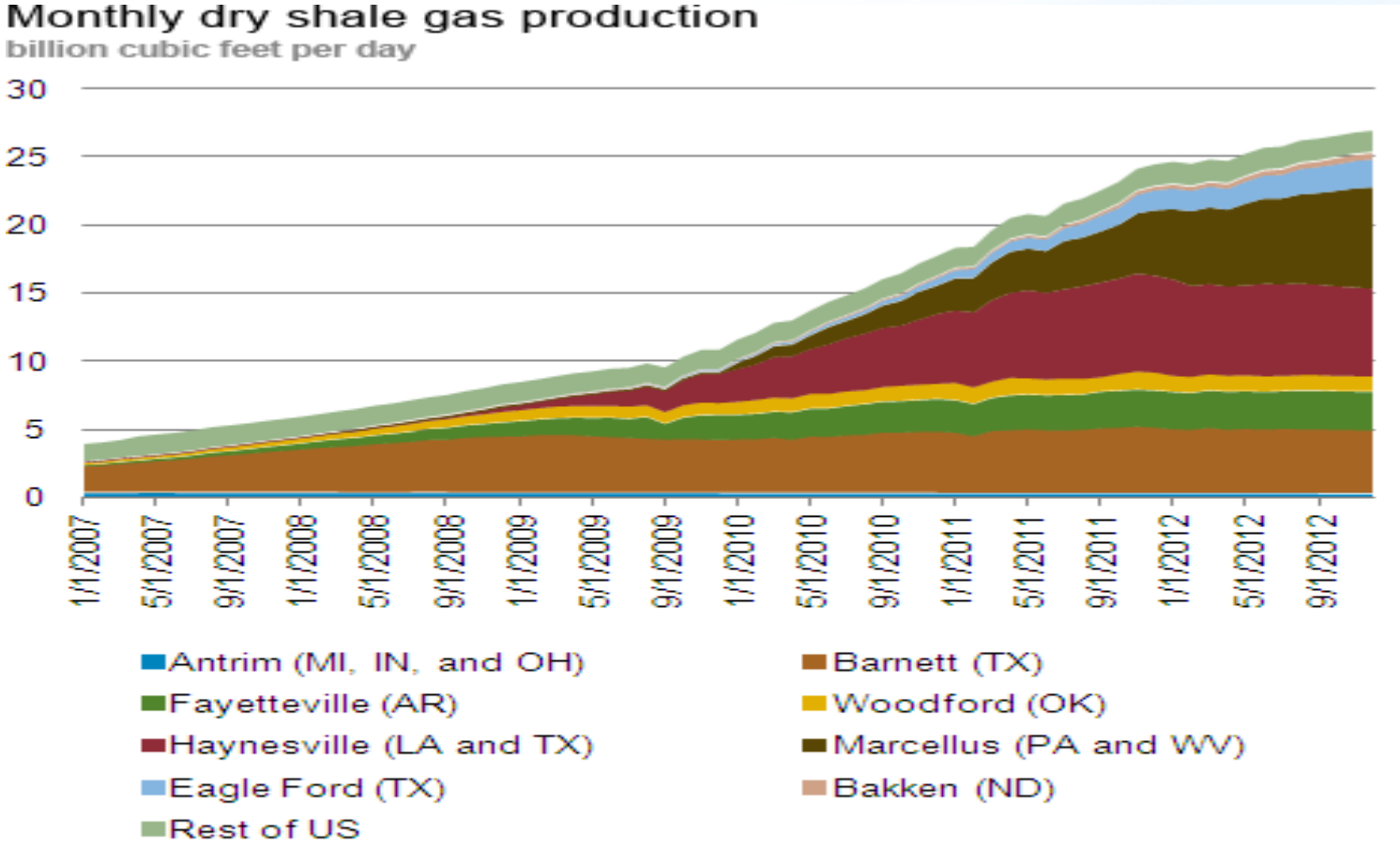
U.S. Natural Gas Production – 70 BCF/Day



eia Source: Short-Term Energy Outlook, February 2013

Shale Gas Production – Still Growing

Download figure data



eia

Source: Lippman Consulting, Inc. Gross withdrawal estimates are as of December 2012 and converted to dry production estimates with EIA-calculated average.
Note: The 'Rest of US' data series has been revised up due to the Wolfcamp play being classified as a shale play.

Future Natural Gas Drivers?

- Legislative
  - EPA
  - MACT
  - Energy Development
  - Energy Infrastructure
- Power Generation
- Industrial/Chemical Resurgence
- Energy Exporting
- The Usual – Weather

Maxine Goodman Levin College of Urban Affairs
CLEVELAND STATE UNIVERSITY

REVIEW OF RESEARCH STUDIES

conducted for

The Ohio Manufacturers' Association

February 21, 2013

Presentation

- Completed studies:
  - Moving Ohio Manufacturing Forward: Competitive Electricity Pricing
  - Distributed Generation as a Response to Rising Electricity Costs in Ohio
- Prospective studies:
  - Typology of Ohio Electricity Markets for Manufacturing Users
  - Mapping the Demand of the Natural Gas Use in Ohio Transportation

Moving Ohio Manufacturing Forward: Competitive Electricity Pricing

Center for Economic Development

Goal

- To research a group of electricity-intensive manufacturing economic base (export) industries and their prospective eligibility for special electricity rates
- Tasks:
  - Define the list of electricity-intensive industries
  - Analyze the distribution and concentration of electricity-intensive industries across the state of Ohio
  - Model the sensitivity of manufacturing productivity to industrial electricity prices in Ohio and benchmark states

Levin
Urban.csuohio.edu

Methodology: Analysis of Ohio Electricity-Intensive Manufacturing Industries

Defining Electricity-Intensive Industries

Obtain IMPLAN's input-output technical coefficients of detailed sectors: *Electric Power Generation, Transmission and Distribution* (Sector 31)

Identify electricity-intensive industries based on two criteria: Criteria: (1) share of electricity cost in $1 cost of output and (2) total expenditures on electricity

Defining Electricity-Intensive Manufacturing Export Industries

Define a common group of industries that are:

Electricity-intensive manufacturing industries

Export and high-growth Industries

Mapping the Geographic Distribution of Electricity-Intensive Manufacturing

Determine the distribution of Ohio's electricity-intensive manufacturing export industries' employment and GDP

Modeling Sensitivity of Manufacturing Productivity to Industrial Electricity Prices

Regression analysis of manufacturing productivity on industrial electricity pries and control factors

Methodology: Defining Electricity-Intensive Industries

- In order to identify electricity-intensive industries, IMPLAN's technical input-output coefficients were used
- IMPLAN is a proprietary input-output economic model that provides information on supply relationships (backward linkages) between industries
- Two indicators signify electricity-intensive industries:
  1. Industry's total expenditure on electricity (electricity generation, transmission, and distribution industry), measured in dollars
  2. The ratio of an industry's expenditure on electricity to the industry's total expenditures, measured as a per unit expense on electricity

Three Groups of Electricity Users: High, Moderate, and Low Electricity-Intensive Industries

- Ohio's manufacturing industries were classified into three groups of electricity users: high, moderate, and low electricity-intensive industries

- Our definition of High and Moderate Electricity-Intensive industries came consistent with the Energy-Intensive and Non-Energy-Intensive Manufacturing groups defined for Industrial Demand Module of the National Energy Modeling System

Source: Office of Energy Analysis, U.S. Energy Information Administration, 2011

High-Electricity-Intensive Manufacturing Industries Identified by Unit Expenditures on Electricity

- The High Electricity-Intensive Manufacturing group includes 10 manufacturing industries that annually spend 2% or more of their total expenditures on electricity
  - The *Alumina and Aluminum Production and Processing* Industry (NAICS 3313) alone spends 5.7% of annual expenditures on electricity; this is almost twice as much as the next High Electricity-Intensive Manufacturing Industry, *Pulp, Paper, and Paperboard Mills* (NAICS 3221), which spends 3.5% of annual expenditures on electricity
- The top 10 electricity-intensive manufacturing industries include three groups of industries:
  - metal product manufacturing
  - chemical manufacturing
  - paper producing industries

Moderate-Electricity-Intensive Manufacturing Industries

- The Moderate Electricity-Intensive Manufacturing group includes 17 manufacturing industries that annually spend at least 1% of their total expenditures on electricity
- This group represents industries related to:
  - metal and equipment manufacturing
  - food manufacturing
  - resin and rubber industry
  - cement and concrete manufacturing

Large Manufacturing Consumer Industries Identified by Total Expenditures on Electricity in Ohio

- Twenty (20) manufacturing industries were identified as the largest consumers of electricity in Ohio
- Each of these manufacturing industries spends over $40 million per year on electricity supplies.
- Of those 20 industries, 11 were considered high electricity-consuming manufacturing industries
- Each industry in this group spends over $67 million annually on electricity supplies.
  - This group is led by the industry *Basic Chemical Manufacturing* (NAICS 3251), which spends over $358 million annually on electricity supplies, followed by *Iron and Steel Mills and Ferroalloy Manufacturing* (NAICS 3311), which spends over $305 million annually.
  - The other largest consumers of electricity in Ohio are industries producing such products as aluminum; petroleum and coal, plastic products, motor vehicle parts, paper, raisins, pesticides and fertilizers, dairy products, and general foundry products.

Moderate Electricity-Consuming Manufacturing Identified by Total Expenditures on Electricity in Ohio

- The Moderate Electricity-Consuming Manufacturing group includes nine (9) industries that spend between $41 and $56 million annually on their electricity supply
  - The largest electricity consumer in this group was *Other Fabricated Metal Product Manufacturing* (NAICS 3329), which pays about $56 million per year for the supply of electricity in Ohio
  - Other industries in this group include those that manufacture steel products, converted paper products, glass, nonmetallic minerals, motor vehicles, and specialty food
- A cross section of unit electricity-intensive industries and large consumers of electricity in Ohio identified 14 manufacturing industries

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Ohio Manufacturing Industries: Electricity-Intensive and Large Consumers of Electricity

	NAICS	Industry Name
High Electricity-Intensive and Consuming Manufacturing	3313	Alumina and Aluminum Production and Processing
	3221	Pulp, Paper, and Paperboard Mills
	3311	Iron and Steel Mills and Ferroalloy Manufacturing
	3251	Basic Chemical Manufacturing
	3272	Glass and Glass Product Manufacturing
	3315	Foundries
	3279	Other Nonmetallic Mineral Product Manufacturing
	3253	Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing
Moderate Electricity-Intensive and Consuming Manufacturing	3112	Grain and Oilseed Milling
	3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments
	3312	Steel Product Manufacturing from Purchased Steel
	3115	Dairy Product Manufacturing
	3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing
	3314	Nonferrous Metal (except Aluminum) Production and Processing

Note: Ranked by unit expenses on electricity

Ohio Manufacturing Industries: Large, Electricity-Intensive Consumers of Electricity

- Industries that fit both criteria are large, intensive consumers of electricity. This group creates electricity-intensive products and purchases large volumes of electricity due to its size (relative to Ohio).
- Fourteen (14) Ohio manufacturing industries are among both the 27 unit electricity-intensive industries and the 21 industries that are large consumers of electricity.
- All industries in primary metal manufacturing sector (NAICS 331) are defined as large, electricity-intensive consumers of electricity (NAICS 3311, 3312, 3313, 3314, 3315).
- The rest of the group includes three chemical manufacturing industries (NAICS 3251, 3252, 3253); three food manufacturing industries (NAICS 3112, 3114, 3115); and three paper, glass, and nonmetallic mineral product manufacturing industries (NAICS 3221, 3272, 3279).

Ohio's Economic Base

Ohio's economic base is heavily represented by the following manufacturing industries:

- Food manufacturing (NAICS 311)
- Chemical manufacturing (NAICS 325)
- Nonmetallic mineral product manufacturing (NAICS 327)
- Primary metal manufacturing (NAICS 331)
- Fabricated metal product manufacturing (NAICS 332)
- Machinery manufacturing (NAICS 333)
- Electrical equipment, appliance, and component manufacturing (NAICS 335)
- Transportation equipment manufacturing (NAICS 336)

Ohio's Electricity-Intensive Base Manufacturing Industries

NAICS	Definition	Electricity Intensity (per $, total $)	GSP LQ, 2010
3313	Alumina and Aluminum Production and Processing	H, H	1.397
3311	Iron and Steel Mills and Ferroalloy Manufacturing	H, H	2.441
3251	Basic Chemical Manufacturing	H, H	1.941
3272	Glass and Glass Product Manufacturing	H, M	2.518
3315	Foundries	H, H	2.449
3279	Other Nonmetallic Mineral Product Manufacturing	H, M	2.931
3253	Pesticide, Fertilizer, and Other Agricultural Chemical Manuf	H, H	1.825
3252	Resin, Synthetic Rubber,& Artificial Synthetic Fibers & Filaments	M, H	1.775
3312	Steel Product Manufacturing from Purchased Steel	M, M	3.198
3115	Dairy Product Manufacturing	M, H	2.085
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	M, M	2.490
3314	Nonferrous Metal (except Aluminum) Production and Processing	M, M	1.671

Note: Ranked by per dollar expense on electricity
The first letter in the Electricity Intensity column indicates the group of the electricity-intense industries (High (H) or Moderate (M)); the second letter indicates the group of the high(H) or Moderate (M) consumer of electricity in Ohio.

Conclusions

- Twelve Ohio industries manufacture highly electricity-intensive products and, at the same time, are part of the economic base of the state economy.
- These industries belong to 4 broader sectors:
  - NAICS 311: Two industries in *Food Manufacturing* had total employment over 20,000 and were growing since 2000.[1] Average GSP growth of these industries in 2009-2010 was 10%.
  - NAICS 325: Three industries in *Chemical Manufacturing* experienced GSP growth since 2000.[1] Two of these three industries (NAICS 3251 & 3252) were also among the industries with the highest productivity in Ohio. Together, these three industries employed almost 15,000 people in Ohio in 2010.
  - NAICS 327: Two industries in *Nonmetallic Mineral Product Manufacturing* experienced GSP growth since 2007.[2] These two industries employed almost 14,000 people in Ohio in 2010.
  - NAICS 331: Five industries in *Primary Metal Manufacturing* sector were not among those with GSP growth or high productivity. However, this industry sector employed 37,297 people in Ohio in 2010.

[1] This statement implies that the industry was growing from 2000 to 2010, from 2007 to 2010, and from 2009 to 2010.

[2] This statement implies that the industry was growing from 2007 to 2010 and from 2009 to 2010.

Mapping the Geographic Distribution of Electricity-Intensive Manufacturing Industries in Ohio

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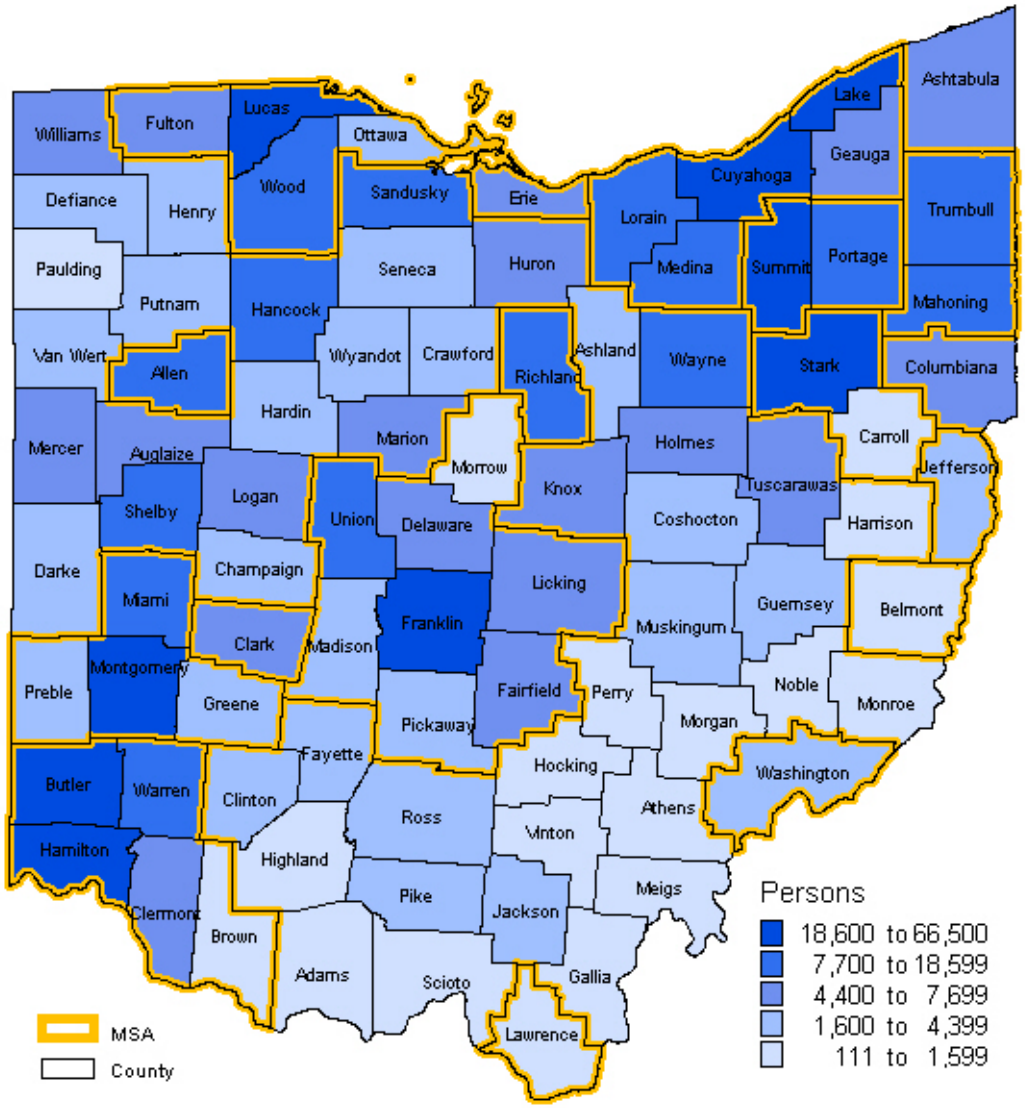
Map 1: Total Manufacturing Employment



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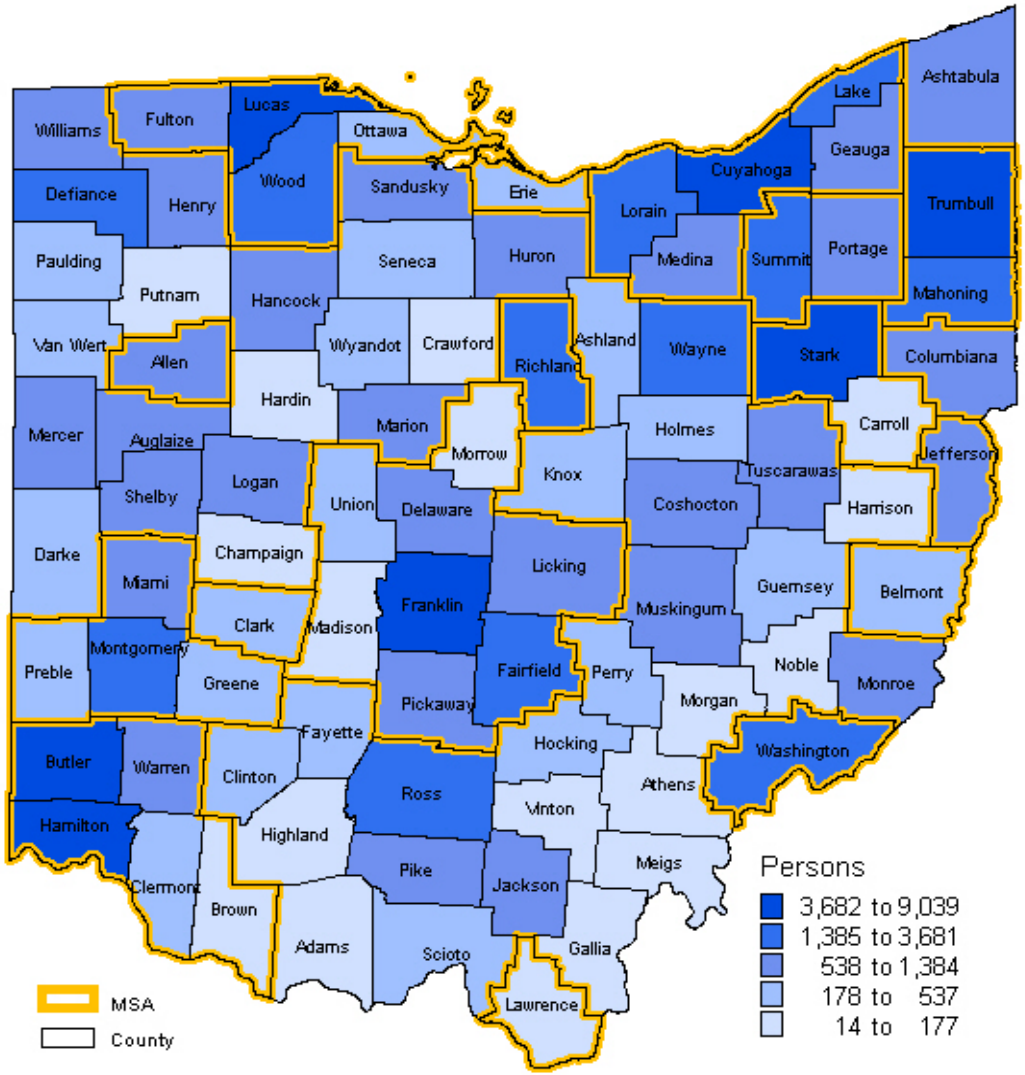
Map 3: Employment in Electricity-Intensive Manufacturing Industries



Influence of Industrial Electricity Price on Manufacturing Productivity

- The model is based on 105 observations:

  Manufacturing Productivity as a function of

  - Industrial electricity price
  - Manufacturing employment
  - Presence of large manufacturing establishments
  - Size of power generation industry
  - Deregulation
  - Recession

- Time period: 1990-2010
- Benchmark states: IN, KA, MI, PA

Industrial Electricity Prices Affect Manufacturing Productivity

- An increase in the industrial electricity price by 1 cent per kilowatt-hour (16.3% change in price) is likely, in 99% of cases, to decrease average manufacturing productivity in the five selected states by $2,527 of annual GSP per employee (2.2% change in productivity).
- The productivity change resulting from industrial electricity price change has low elasticity: 2.2%/16.3%=0.13.
- This means that for a 1% increase of industrial electricity prices, manufacturing productivity drops by 0.13%.

Other Findings from the Model

- Percentage change of employment in the manufacturing sector of the state (controls for changes in demand for electricity) is negatively related to manufacturing productivity.
- The presence of large manufacturing establishments in the state is positively associated with productivity (at 99%). Reflects the economy of scale and ability of large electricity consumers to negotiate individual contacts.
- Size of the *Electric Power Generation, Transmission, and Distribution Industry* (NAICS 2211) approximated by GSP, controls for the supply size of the state's electricity market. It is positively related to manufacturing productivity (at 95%).
- Control variables: deregulation is positively related to productivity growth (95%); recession negatively influences productivity (95%).

Conclusions

- Ohio's economic base includes 12 large electricity consumer manufacturing industries in the sectors of primary metal manufacturing, chemical manufacturing, food manufacturing, and paper, glass, and nonmetallic mineral product manufacturing.
- Industrial electricity price increases had a negative effect on manufacturing productivity in Ohio and 4 benchmark states: Indiana, Kentucky, Michigan, and Pennsylvania.
- An increase in the industrial electricity price by 1 cent per kilowatt-hour (16.3%) is likely to decrease average manufacturing productivity, on average, by $2,527 of annual gross state product per employee (2.2%). For 1% increase of industrial electricity prices manufacturing productivity drops by 0.13%.

Distributed Generation as a Response to Rising Electricity Cost in Ohio

- Manufacturing is facing rising electricity costs due to rapidly increasing Regional Transmission Organization capacity charges and new EPA requirements for electricity, steam and heat generation.
- One answer to these threats is the adoption of distributed generation, especially in the form of combined heat and power.
- Before CHP can be adopted in Ohio, high standby charges and impediments to the marketing of surplus power must be addressed.
- Senate Bill 315 makes CHP eligible for energy efficiency credits, however the value is diminished by tying it the energy efficiency rider waiver (DSE-2), which is dependent upon grid sales.
- There is an array of enabling strategies for manufacturers to justify the long-term investment in CHP. These include, among other things, federal and state incentives, use of micro-grids and regional planning.

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Typology of Electricity Markets in Ohio: Mapping Technology Mix, Generation, Distribution and Consumption

- Research how electricity markets are structured in Ohio. What are the results of deregulation on setting wholesale prices and capacity charges, and effects on developing capacity build out and throughput constraints on transmission? Assess the effectiveness of open access to transmission, and the supply side of electricity markets.
- Assessments of the demand side of electricity markets. Research effects of demand side programs such as energy efficiency on deregulated and regulated markets.
- Research retail markets, and the role of deregulation on setting retail pricing, including the impediments to creating retail competition, and the effects these impediments have had on determining total cost of electricity.
- Map the contours of the electricity market, both in terms of submarkets and geography. Create a visual general framework how the electricity markets work and where the value and the cost of market transitions are born. Explain different segments of the market, main players in each segment, and the balance sheet interests of the players in each market segments.

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Mapping the Demand of the Natural Gas Use in Ohio Transportation

- The purpose of the study is to assess the distribution of natural gas demand as a fuel to better address the response in building necessary infrastructure.
- Research the types and volumes of demand for natural as a fuel for likely early adopters: delivery services and supplies by trucking. What are the pick demand factors?
- Overlay the distribution of the natural gas demand with the map of natural gas pipelines.
- Project the stages of transportation infrastructure development: distribution and capacity of fueling stations, storage, and relation to the natural gas midstream infrastructure.

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