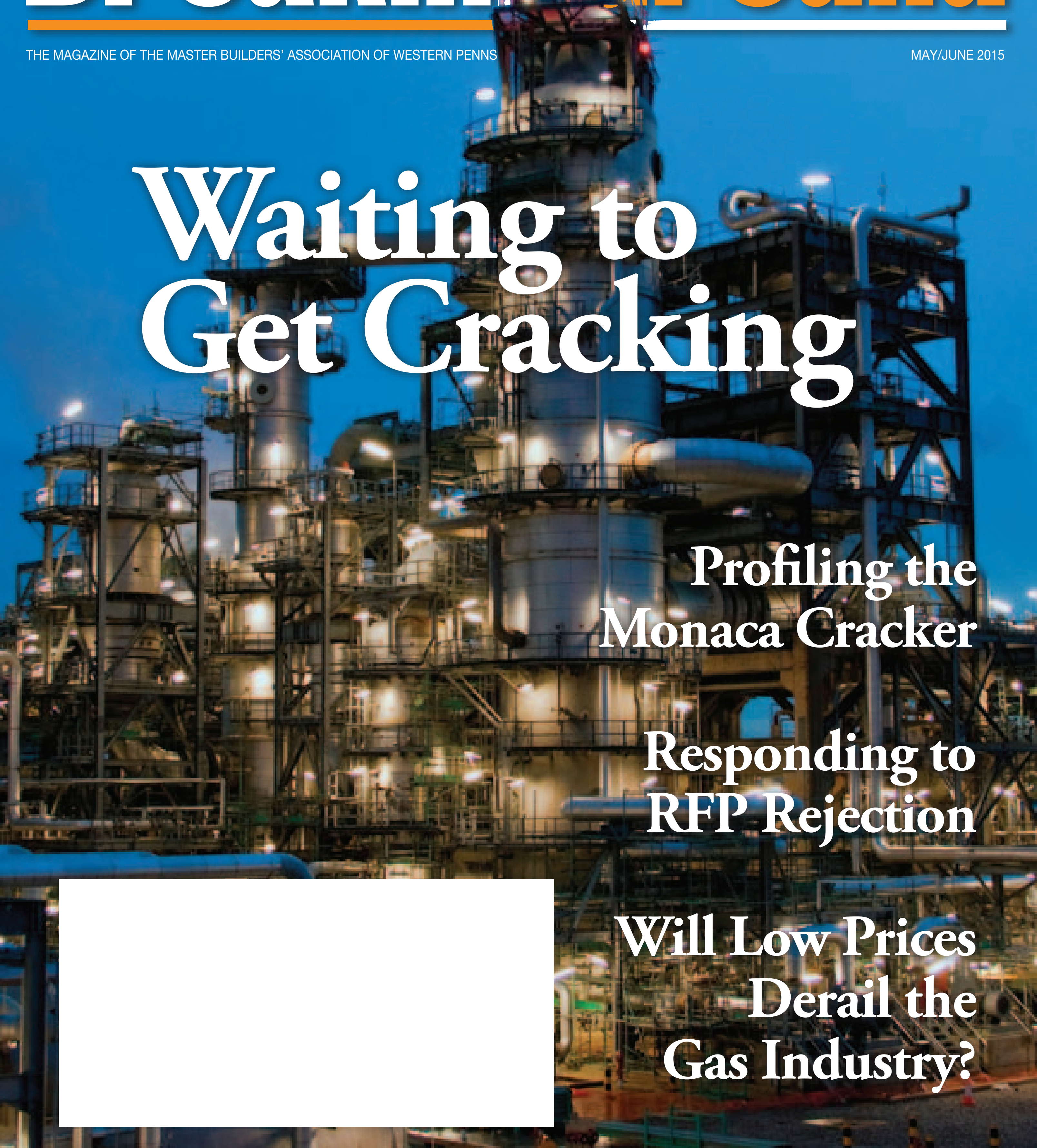
Breaking Ground

THE MAGAZINE OF THE MASTER BUILDERS' ASSOCIATION OF WESTERN PENNS

MAY/JUNE 2015



Waiting to Get Cracking

Profiling the Monaca Cracker

Responding to RFP Rejection

Will Low Prices Derail the Gas Industry?

PBX Expands to Eastern PA and the Mid-Atlantic

PITTSBURGH, PA - The Pennsylvania Builders Exchange is growing. Effective immediately, the Pennsylvania Builders Exchange, formerly known as the Pittsburgh Builders Exchange, will expand operations beyond Western Pennsylvania to serve Eastern Pennsylvania as well as some other Mid-Atlantic regions, including portions of Maryland and Delaware.

Committed to serving the construction industry in Eastern Pennsylvania, the Pennsylvania Builders Exchange recently opened new office space in Harrisburg and has hired an experienced and dedicated staff at this location to focus exclusively on members in this region.

Del Walker, Executive Director of the Pennsylvania Builders Exchange said, “The Builders Exchange has been a critical resource for those in the construction industry in Western Pennsylvania for over a century. Extending our footprint to other parts of Pennsylvania is a natural transition for our organization.” Specifically, the Pennsylvania Builders Exchange provides members with:

• Accurate and timely information on construction opportunities from the design phase through contract awards including bid details, bidders lists, apparent lows, contract awards, number of addenda issued, project status tracking, nightly email updates, and various search capabilities.

• An online plan room which allows for document distribution between construction managers,
subcontractors and suppliers.

• Networking events and opportunities to strengthen relationships between members.

The **Pennsylvania Builders Exchange** is a trade association that has served the commercial construction industry since 1886 and has provided services electronically since 1998. The organization currently has 1,100 members. To learn more about PBX, please visit **www.pbe.org**.

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On the cover:
Shell's Jurong Island plant, Singapore
Photo courtesy Shell Chemicals

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Publisher's Note

I may end up looking like a genius by the time this edition of BreakingGround hits your desk but I'm not counting on it.

Since March 15, 2012 there has been a growing anticipation of the final thumbs up from Shell to build the ethane cracker that it proposed at the former Horsehead Corporation's site in Monaca. It was my good fortune to have been moderating a NAIOP Pittsburgh Developing Leaders' panel that included Dennis Yablonsky on the evening Shell made its announcement. Dennis arrived at the discussion directly after leaving the option-signing in Beaver County and so the audience that night got to hear the news before many others did.

What the audience didn't pay close attention to that night was Dennis' telling us that the oil and gas company was going to take an extended time to evaluate the feasibility of the project. Some weeks later when a chemical executive was quoted as saying that the due diligence process was going to take at least two years, most of us dismissed it as posturing. We should have been so lucky.

This extended period of study Shell has undertaken has given time for a whole lot of talk about the project. The question of when or if the cracker will proceed is asked of me almost any time I speak about the regional economy or the construction market. What I discovered during these intervening three years – I believe – is that few of us in the industry or the community have a clear picture of what an ethane cracker will be. Certainly, we can't compare it to other crackers in the region and there is little in the way of a petrochemical industry in Western PA to gain an understanding of what will happen after the cracker is built.

So when we set up the 2015 editorial calendar last fall, I got this vague notion that we could take the time to really explain what the impact of the project – along with other crackers – would be on Western PA. I felt we had enough contacts who hadn't signed non-disclosure agreements to gain detailed insight into what kinds of industry would follow on the heels of an ethylene production facility like Shell proposed. Moreover, we could use the Monaca site as the Project Profile for this edition to give you some sense of the size and scope of the construction that would be undertaken. What kind of crafts would be needed? How many people would be employed to construct the facility? What would the thing look like?

It was also my hope that the timing of the publication would be fortuitous. As I write this, no final decision to proceed has been made, even though demolition and some early preparations have taken place. Perhaps the green light will be given before this reaches your desk but even if it doesn't, there has been some movement since we put the editorial calendar to rest. Shell did exercise the option to buy the land, along with a number of other adjoining parcels. Last November, contracts were let to begin the early work to prepare the site. Of course not all of the news since the fall has been positive.

Oil prices have collapsed to the point that companies like Shell are feeling the pinch. There was an election held in Pennsylvania and a new governor elected who has proposed putting a severance tax on the gas companies for extracting gas in PA. These aren't developments that have quickened Shell's decision-making.

The long-term play still looks favorable for the petrochemical industry to establish a manufacturing hub within the Marcellus Shale footprint. Demand for energy and the products made from the ethylene and polyethylene feedstock are growing steadily. I believe a decision to proceed is going to come, probably this year. With any luck you will be wondering how I knew Shell was going to pull the trigger in May.

A note about Shell: without its help, the articles on the cracker would have been pretty thin. Shell community relations people were helpful in explaining the project, at least to the extent that they could. Publicly-traded companies are understandably very cautious about any forward-looking statements that could be misinterpreted or cause some analyst to ask an embarrassing question at an earnings conference call. To the extent that Shell provided answers or graphics, the help does not in any way imply that the company has decided to proceed with the project in Monaca. Unless, of course, it has.

Jeff Burd

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REGIONAL MARKET UPDATE

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Pittsburgh's metropolitan construction market continued to follow a script towards a fairly robust recovery in the first quarter of 2015, especially in light of winter weather that was unfriendly towards construction. With indicators that developed in the first four months of the year, there exists the possibility for a dramatic increase in the amount of construction to come in the next three to five years.

Tall Timber's preliminary research of building permit offices showed approximately $705 million in commercial construction contracting during the first quarter, a robust start to the year. Following a $900 million fourth quarter of 2014, construction is heading for an upward trend in work.

The residential construction market in Pittsburgh was victim to a combination of bad weather and continued inventory shortage. Building permits issued during the first three months of the year were actually up compared to the same period last year, with the total number of units up 54.2 percent. The volume, however, was still relatively low and the increase – which was all in the multi-family and attached category – was inflated by the effects of even worse weather conditions in 2014. The difference between the two years was essentially one multi-family project, the South Side Works City Apartments.

From January through March there were 399 single-family detached starts in the six-county metropolitan area, compared with 409 in 2014. There were 583 attached units, versus 228 during the first quarter last year. Within the attached unit category, 408 units were multi-family apartments.

In contrast to the sluggish construction market, the housing market in Pittsburgh overall continued to be strong during the winter months. The number of homes sold jumped 6.2 percent in the first quarter and dollar volume of transactions spiked 14.2 percent, according to RealSTATs. A total of 5,402 homes were sold in Allegheny, Beaver, Butler, Washington and Westmoreland counties in the first quarter, an increase of 317 units from the 5,085 homes purchased in the first quarter of 2014.

The average home price in Pittsburgh increased 7.5 percent from $156,579 in the first quarter of 2014 to $168,259 in the same period of 2015. Washington County saw the largest increase, with the average home jumping from $169,916 to $204,334. Homebuilders sold 429 new homes in the first quarter, an increase of 10.9 percent compared to last year's volume of 387 new homes.

New residential construction prospects do not look particularly strong for the foreseeable future because of continued supply constraints. Land and development costs continue to push the economics of new construction away from the first-time home buyer, a critical component to a healthy housing market. Lending for new development is still constrained and lot inventories remain small. All of these factors are pushing the newly-formed household towards apartments, condos or other densely developed product. If job creation continues on the trajectory that has been forecasted, there will be more than enough demand for the apartments that are in the pipeline through this year and the two-to-three-year horizon.

Pittsburgh's office fundamentals stack up well among ten benchmark cities. Source CBRE Research.

Commercial construction remained the strongest category of the industry, with the possible exception of the gas infrastructure segment. While there has been some softening in the office sector, conditions overall for the commercial real estate market are healthy and an increase in speculative construction has occurred.

Both CBRE's and Newmark Grubb Knight Frank's (NGKF) report on first quarter office conditions showed a small increase in vacancy rate but also a small increase in average rent. NGKF, which removes the owner-occupied buildings from the inventory of commercial offices, reported an increase in vacancy from 15.0 percent to 15.4 percent and negative absorption of 85,100 square feet. CBRE reported an overall vacancy rate of 10.3 percent, with a Class A vacancy rate that rose slightly to 6.3 percent. According to CBRE, the average Class A asking rent rose to $24.77 per square foot. NGKF showed Class A rents at $24.57 per square foot, with overall office asking rent rising to $21.67 from $21.50 in the previous quarter.

Conditions in the industrial sector were even more robust, with more than 100,000 square feet of positive absorption and 695,000 square feet of new construction, according to NGKF. The vacancy rate rose to 7.9 percent compare to 7.2 percent in the fourth quarter, but vacancy was the same year-over-year.

Prospects for construction in the commercial sector were boosted by a number of projects for users with 100,000 square-foot-plus requirements. In the industrial market, SunCap Property Group is starting construction of the 125,000 square foot advanced manufacturing and research facility for General Electric at the Chapman Westport Commerce Park. Chapman Properties was preparing for the construction of a 250,000 square foot new plant for Ensinger Plastics on Racetrack Road in South Strabane Township. Massaro Corporation is construction manager for the $30 million project.

Philips Respironics was seeking a developer for a 260,000 square foot facility for its medical devices business in the Westmoreland Distribution Park behind the RIDC Westmoreland Center near New Stanton.
Whispers of near deals persist for one or more of the remaining sites that Horizon Properties controls at Southpointe II and for a new lead tenant for the 350 Fifth Avenue high-rise proposed by Oxford Development. As of May 1, no deals had been announced.

The education sector was a good news/bad news segment of the market. More difficulties may loom for the public education market if Gov. Wolf's budget goes through as proposed. In the private education sector, Carnegie Mellon University President Subra Suresh unveiled a new billion-dollar capital campaign and a vision for raising technology transfer to a new level of collaboration that would create an "innovation corridor" at the north end of CMU's campus.

On April 23, Dr. Suresh talked about his vision for what he called the Tepper Quadrangle north of Forbes Avenue behind Morewood. Like has happened at MIT, Suresh's plan is for multiple corporate research offices at the site of the new $100 million Tepper School of Business. He said that there was interest from a number of corporations to occupy these buildings, which would expedite innovation by giving industry co-location and access to CMU students and research. Suresh estimated that $500 million worth of construction could start within three years.

A day earlier, JLL announced that CMU had retained it to identify developer partners for an office/hotel/retail complex along Forbes Avenue between the Carnegie Museum and Junction Hollow. The complex would be developed in partnership with the university over the next few years, with an office capacity of up to 450,000 square feet.

Such an ambitious plan, if brought to fruition, would facilitate job growth arising from technology transfer that would stay within the region. The outlook for investment in K-12 educational facilities was not as bright.

Such an ambitious plan, if brought to fruition, would facilitate job growth arising from technology transfer that would stay within the region. The outlook for investment in K-12 educational facilities was not as bright.

Within Gov. Wolf's 2015-2016 fiscal year budget legislation is a provision that places another moratorium on PlanCon beginning July 1. The assumption is that a moratorium would only be for one year but that assumption in 2012 proved to be incorrect. The language of the bill specifies that projects in the process prior to July 1 will continue to progress. Gov. Wolf's proposed budget does include funding at the same level as the current budget, or just under $300 million.

Rep. Seth Grove from York had earlier proposed a reform of PlanCon that would streamline the

Housing Permits Jan-Mar 2015	SFD	SFA	Total
Total Pittsburgh MSA 2014:1	409	228	637
Total Pittsburgh MSA 2015:1	399	583	982
% Change	-2.4%	155.7%	54.2%

Housing starts in the first quarter were higher than 2014 but still sluggish. Source, Pittsburgh Homebuilding Report.

process and add another $30 million or so to increase deferred capital spending.

The lifting of the PlanCon moratorium in the summer of 2014 was a catalyst for school districts with pent-up needs to move their projects forward. It's clear that many districts did, in fact, move projects along to be prepared for the re-boot of PlanCon A, or whatever was going to take its place.

Among the projects in planning are Chartiers Valley's $60 million middle school, Canon-McMillan's $26 million K-4 Muse Elementary School, Allegheny Valley's $10-$17 million Colfax Upper Elementary and district-wide feasibility study, Hampton Township's $20 million district-wide improvement program, Ringgold's $26 million new middle school, $115 million State College High School.

In Westmoreland County, the DEP granted permits to Tenaska Resources for its planned $500 million, 950-megawatt combined-cycle plant proposed for South Huntingdon Township.

Dept. of Education Secretary Rivera did not directly address the question of a moratorium but said that "Governor Wolf is committed to ensuring his education investment reaches the classroom first," saying that, "once the funding gap has been restored local officials will ultimately be able to make decisions on where they want to invest, including construction projects."

With a Republican-controlled legislature in opposition to many of Gov. Wolf's proposals, his 2015-2016 budget is not expected to pass without extensive negotiation. According to the PA School Board Association staff, the proposed PlanCon moratorium is opposed on both sides of the aisle. It's likely that the budget is meant to get both parties to compromise and that such a moratorium will be killed in negotiations. Until that comes to pass, however, the construction industry will be anxiously watching to see if this vital sector is set back again.

Early May saw continued site preparation and bidding activity on the long-awaited ethane cracker that Shell has proposed in Monaca. The Department of Environmental Protection held a hearing on May 5 for citizens to comment on Shell's air pollution control permit. Despite some opposition the permit is expected to be approved as early as June 1. Real progress on the multi-billion dollar project would then await Shell's ultimate decision to invest in the project.

The gas industry's influence on the power generation market is turning into another large-scale opportunity for construction within the region. With regulatory pressures virtually pushing coal-fired plants into extinction and commodity prices at or below $2 per million BTU's, power companies are turning to combined-cycle generating plants to replace the existing stock of power plants. As many as a dozen combined-cycle plants are said to be on the drawing boards between Central Ohio and the Susquehanna River.

Combined-cycle plants use gas turbines that generate electricity. The exhaust heat that would normally be lost is capture to fire a heat-recovery steam generator. The use of the second generator driven by the exhaust of the first increases the efficiency of the plant, creating a cheaper energy source that is much less impactful on the environment.

Two such large plants have recently received state approvals. The West Virginia Public Service Commission approved in February plans by Moundsville Power LLC to build a 549-megawatt combined-cycle power plant in Marshall County, WV. The $300 million project is being designed and procured by Black & Veatch. In Westmoreland County, the DEP granted permits to Tenaska Resources for its planned $500 million, 950-megawatt combined-cycle plant proposed for South Huntingdon Township. No schedules for bidding packages have been announced for either project.

NATIONAL MARKET UPDATE

Data from the first months of 2015 paints a picture of an economy that continues to be healthy, albeit without the pace of expansion of the latter half of 2014. While the global economic slowdown may finally be impacting the U.S., there is also evidence that the slower pace of gross domestic product growth and hiring may have been due to a harsher-than-average winter. Whatever the macroeconomic reasons, construction results during the first few months of 2015 show a mixed and still cautious construction market.

The Census Bureau reported that construction spending in February totaled $967 billion, less than 0.1 percent lower than in January but 2.1 percent higher than in February 2014. Private residential spending in February declined 0.2 percent from January and 2.1 percent from last February. Private nonresidential spending increased 0.5 percent from January and 5.9 percent year-over-year and public construction spending decreased 0.8 percent from January and increased 3.1 percent from February 2014.

Two-month totals for other major categories were mixed. Spending on private office construction spiked 19 percent; construction of commercial property types jumped 17 percent and new single-family housing increased 11 percent. Not surprisingly, the power segment, which includes oil and gas, fell 17 percent. The two largest categories of publicly-funded construction were flat. Construction of educational facilities slipped 0.7 percent and highway construction spending rose 1.5 percent.

"Private multifamily and nonresidential construction increased on both a monthly and year-over-year basis, while single-family and public construction spending retreated last month but still advanced from year-ago levels," said Ken Simonson, chief economist for the Associated General Contractors (AGC). "Similarly mixed results are likely to recur throughout 2015 as the economy continues to grow but potential homebuyers remain hesitant and governments face difficult trade-offs on spending priorities."

Industry consultant FMI sees demand for non-residential structures going much higher in 2015, with commercial construction put-in-place rising 15 percent over 2014. Within the non-residential categories, FMI predicts a 16 percent increase in lodging and an 11 percent increase in both office and manufacturing.

Analysis by Newmark Grubb Knight Frank (NGKF) indicates that developers of commercial real estate haven't completely overcome their hesitance as yet. The uptick in commercial construction has not been enough to reach the levels of the last cyclical high. NGKF forecasts that office space under construction at the end of the first quarter of 2015 will be 75.3 million square feet, which is 40 percent below the prior peak of 124.8 million square feet during the fourth quarter of 2007. As further evidence, NGKF noted that the 2003-2007 expansion cycle was 15 quarters, while it has taken 17 quarters in the current cycle to reach a point that is 40 percent lower.

National Association of Homesbuilders Housing and Interest Rate Forecast

	2010	2011	2012	2013	2014	2015	2016
Housing Activity (000's)							
Total Housing Starts	586	612	784	930	1,004	1,169	1,459
Single Family	471	434	537	621	647	803	1,100
Multifamily	114	178	247	309	357	365	359
New Single Family Sales	321	306	368	430	437	572	807
Existing Single-Family Home Sales	3,705	3,793	4,130	4,471	4,328	4,637	4,739
Interest Rates							
Federal Funds Rate	0.13%	0.13%	0.13%	0.13%	0.13%	0.69%	2.63%
90 day T Bill Rate	0.14%	0.05%	0.09%	0.06%	0.03%	0.51%	2.33%
Treasury Yields:							
One Year Maturity	0.32%	0.18%	0.18%	0.13%	0.12%	0.79%	2.63%
Ten Year Maturity	3.21%	2.79%	1.80%	2.35%	2.54%	2.23%	3.26%
Freddie Mac Commitment Rates:							
Fixed Rate Mortgages	4.69%	4.46%	3.66%	3.98%	4.17%	3.88%	4.91%
ARMs	3.79%	3.04%	2.69%	2.61%	2.44%	2.77%	3.91%
Prime Rate	3.25%	3.25%	3.25%	3.25%	3.25%	3.69%	5.63%

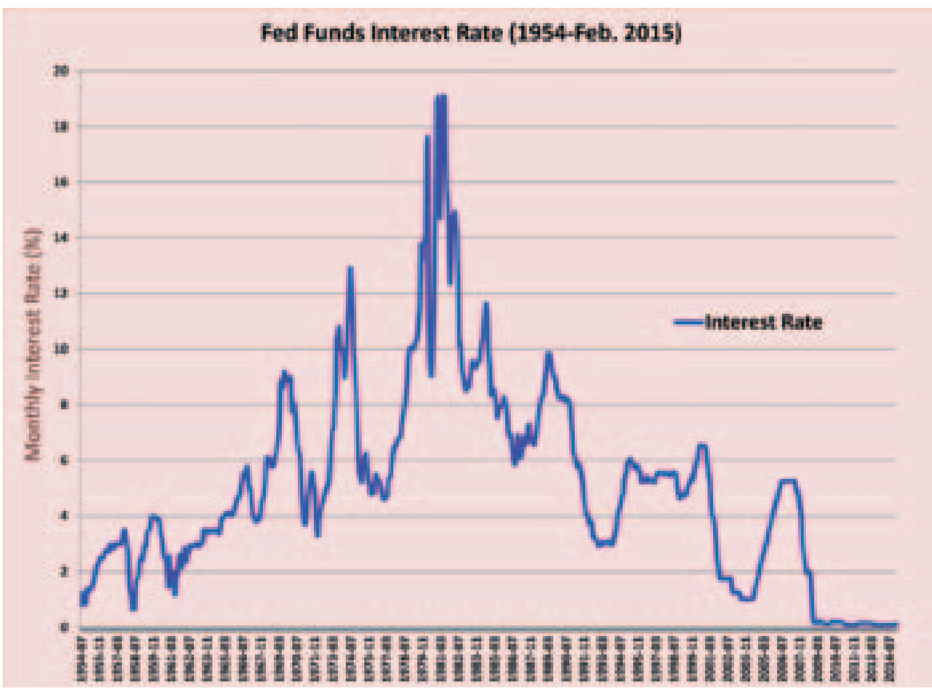
Data are averages of seasonally adjusted quarterly data.

The National Association of Homebuilders predicts continued growth for 2015-2016 but only back to levels that match 20-year averages. No rebound to catch up for the steep declines of the recession is expected.

A similar analysis of warehouse construction found 98.8 million square feet underway at the end of March, which is only 65 percent of the 2007 peak after 21 quarters of expansion. Retail construction totaled 31.5 million square feet after the first quarter, a mere 29.9 percent of the third quarter 2007 peak.

The escalating pace of growth for commercial construction has not been matched by expansion in the residential market. While the multi-family segment continues to experience higher-than-normal activity, the number of new apartment units being started has finally slowed. Single-family starts are also expected to show modest increases in 2015, with a bounce back finally occurring in 2016.

Construction of single-family units remains held back by muted growth in household formations, continued regulatory burdens that can slow first-time buyers and a slowed response to the economic recovery by residential developers. The Census Bureau estimates that the number of new households will increase by 1.1 million in 2015, a significant increase over the 2008-2013 period but some 400,000 fewer households than were formed annually between 2000 and 2007. Some of the variance can be attributed to more conservative attitudes about home ownership, as well as the disproportionate burden that the recession placed on college graduates. Data shows that Millennials were slower than previous generations to leave home and form independent households, a trend that is only now slowly changing.



The overhang of foreclosed properties and undervalued homes has only worked its way through the market in the past two years, leaving many move-up buyers in place for longer than planned. That trend shows up in the increase in the average years in a home since 2007, which jumped up to 15 years for homeowners who weren't in their first home. The National Association of Homebuilders (NAHB) 2013 survey found average number of years in a home jumped more than a year to over 13 years. NAHB forecasts that the lingering effects of this change in mobility won't leave the marketplace until 2016, when it predicts that 1.1 million new homes will be built and 4.74 million existing homes will be sold.

This uneven environment of demand across nearly all parts of the construction industry is a reflection of the uneven expectations of the economy's performance. For example, as the data became less rosy during the first quarter, consumer sentiment continued to rise. Because more people are working, less people are being laid off and there are a few more dollars in consumers' pockets after filling their gas tanks, most Americans are feeling good about their own economic prospects. Considering that consumers have been responsible for almost 70 percent of GDP growth over the past couple of decades, rising sentiment should be good news. Consumer spending hasn't necessarily followed sentiment, however. That's bad news for the economy, unless the reason for lower spending was that consumers didn't want to brave the winter weather.

There will need to be more than one or two month's data to judge whether or not it was the weather that slowed the economic momentum during the first quarter, but a couple of indicators suggest that the unusually cold winter had a major impact.

First is the concept of "unusually cold." You could certainly argue that it gets cold and snows every winter. For certain, economic activity slows in winter compared to warmer weather for fairly obvious reasons: consumers stay home instead of consuming; businesses have days when products can't be made or shipped. But, the economic information that is gathered is also seasonally adjusted, so that when comparing first quarter data the benchmark is cold-weather activity. February 2015 was recorded as "much below average" by the National Oceanic and Atmospheric Administration (NOAA) in every state east of the Mississippi and north of Florida. The average that NOAA used dated back to 1895.

More specific to economic activity was the significant loss of days worked because of the unusual number of heavy snowfalls in the major northeastern cities. The Chicago Federal Reserve Bank conducted a survey that found that the number of people who couldn't work in February increased by 13 percent this year, with a 37 percent increase in the number of people whose work hours were cut back to part-time.

The expectation – and hope – is that like last year, when the so-called Polar vortex squashed winter activity, the rebound in the final three quarters of the year will more than offset the weather-related malaise. Time will be the judge for that forecast.

In the meantime, measures of the employment market have also turned uneven.

At the end of the first quarter, filings for unemployment slowed to levels not seen since before the dot.com bubble. Only 268,000 people applied for unemployment benefits during the last full week of the quarter. The timing of Easter may have had some impact on the decline but it's worth noting that adjustments that follow should not move the applications above 300,000 and the current levels are almost 20 percent lower than this time in 2014. Slowing unemployment claims isn't necessarily indicating higher growth in new jobs.

The monthly announcement from the Labor Department on April 3 echoed the private payrolls report by ADP on March 31: hiring has slowed. Government data for March showed 126,000 new jobs, roughly half the number that was the consensus estimate of economists surveyed by the Wall Street Journal. Hiring for January and February were revised downward as well, leaving an average gain of 197,000 jobs/month during the first quarter.

The causes of the slowed pace of hiring aren't clear. Poor weather slashed demand for construction, hospitality, retail and other consumer businesses. Earnings growth has slowed, leaving less cash for growing payrolls, at least temporarily. There is also the tightening labor pool, which was reflected in the unexpected wage hikes for McDonald's and WalMart recently. If businesses can't attract workers, they won't be adding new jobs. With most macroeconomic data slowing in February and March the bigger surprise would have been another booming month of expanding payrolls. As with all monthly economic news, more time is needed to understand if we're in a slowing trend or a temporary adjustment.

Until such time as the employment picture reverses, it appears that the Federal Reserve is set on a course to normalize interest rates beginning in 2015. That will be especially true if the anecdotal evidence of pressure on wages continues to expand as the year proceeds. The Fed's Open Market Committee (FOMC) meetings in mid-March made a hike in overnight rates a foregone conclusion, probably occurring in June. At the same meetings, the FOMC also adjusted downward its estimate for the rate increases in 2015, backing down from 1.2 percent to 0.65 percent. That should soothe concerns that the change in Fed policy will lead to rapid increases in borrowing costs.

One possible response to modest rate hikes during 2015 could be an end to the indecision that has plagued business owners since the recession ended. Given the uneven economic picture of the first quarter, a catalyst for new construction would be welcome. BG

WHAT'S IT COST

Construction costs remained relatively stable through the first quarter of 2014, with prices for construction put in place rising at the same rate as consumer inflation and increasing significantly faster than the overall Producer Price Index (PPI). Depressed crude oil prices have more than offset any modest inflation in other products. The measures of price inflation are showing that the lingering after effect of the recession is putting upward pressure on prices.

There is also a divergence of opinion about prices between the government's data and the survey responses from industry professionals, particularly in forward-looking surveys.

Bureau of Labor Statistics (BLS) reported on April 14 that the PPI for overall final demand increased 0.4 percent in March but decreased 0.8 percent over 12 months. The PPI for final demand construction, not seasonally adjusted, was flat in March and rose 1.9 percent over 12 months. The overall PPI for new nonresidential building construction rose two percent year-over-year. In the major categories of building types the year-over-year increases ranged from 1.2 percent (for healthcare construction) to 2.6 percent (for offices).

Prices were slightly more volatile when compared to the previous month. The overall PPI for inputs to construction rose 0.4 percent from February to March, due to a 7.5 percent jump in the index for energy. The PPI for all goods used in construction declined 3.6 percent over 12 months. The most notable one-month price changes were for diesel, up 2.3 percent for the month; steel mill products, which declined 1.9 percent and lumber and plywood, which fell 1.2 percent.

Consultant Rider Levett Bucknall (RLB) reported on April 1 that its National Construction Cost Index increased 1.2 percent from October 2014 to January 2015 and 5.4 percent over 12 months. The index tracks the "true" bid cost of construction, which includes, in addition to costs of labor and materials, general contractor and subcontractor overhead costs and profit. RLB President Julie Anderson explained that the increase in non-residential construction is creating a squeeze on subcontractors in busier markets, putting upward pressure on bids. Consolidation and attrition as a result of the 2009-2012 extended downturn is exaggerating this imbalance of supply and demand.

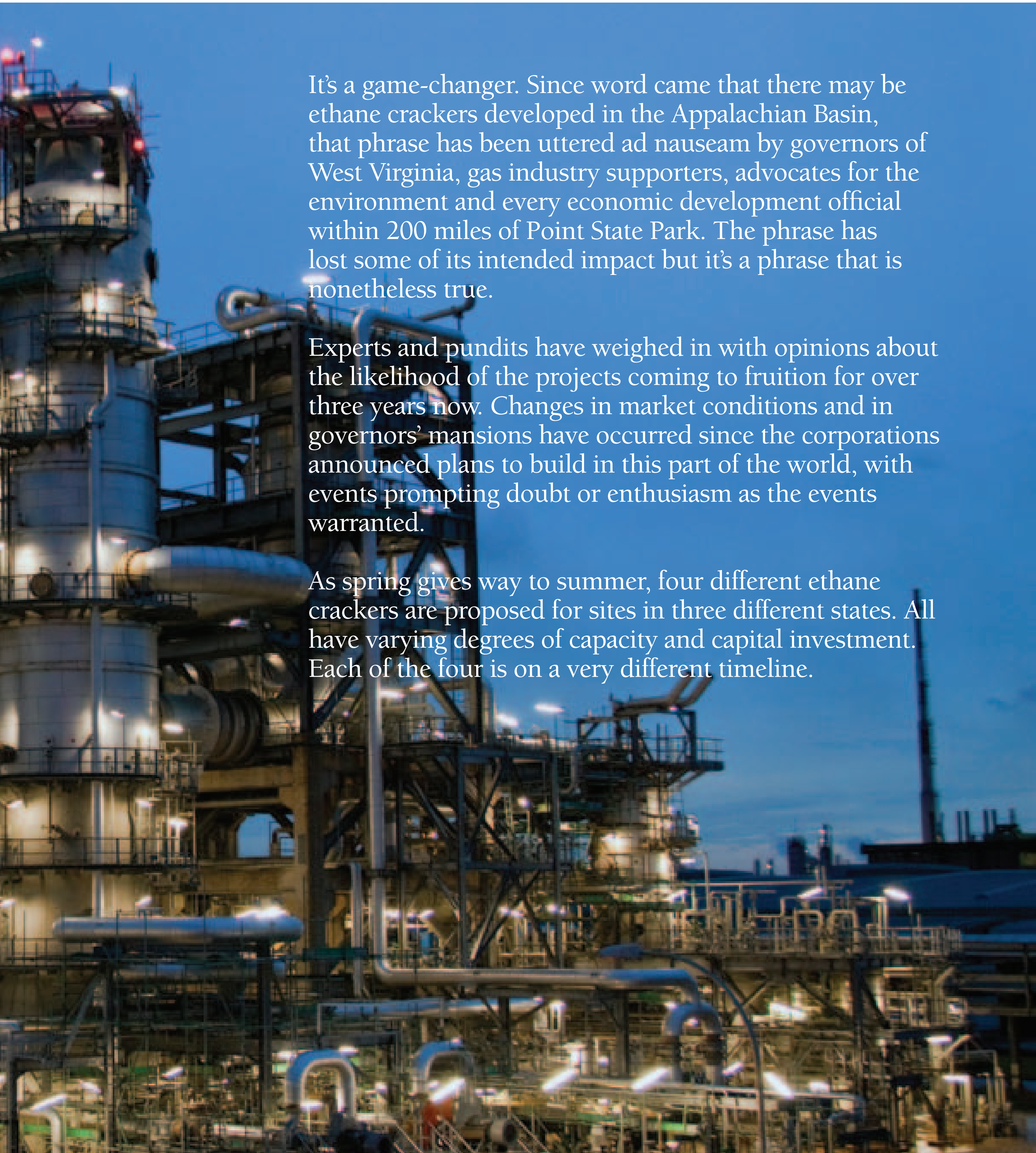
Another consultant, HIS, and the Procurement Executives Group (PEG) reported that downward market pressures – particularly from the energy sector – are keeping prices from rising. The HIS/PEG data is the result of a survey of procurement executives at leading construction and engineering firms. The survey's Engineering and Construction Index (ECCI) reached a record low of 39.6 in February (50 is price neutral) and rose only to 44.7 in March. The subcontractor labor index of the ECCI actually declined from February to March. The survey of six-month expectations showed that PEG respondents see prices falling even further.

The divergence of opinion between the RLB and HIS/PEG responses is dramatic, especially when you consider that the driving forces behind the current index levels are expected to go in even more opposing directions for the next six months. Because the ECCI results from surveying the largest firms, the index may be skewed by the greater purchasing power of those companies and the more limited sample of the market. Given the contraction of the engineering and specialty contracting firms following the recession, along with the continued rebound in work, upward pricing pressures should only increase as the summer approaches. BG

PERCENTAGE CHANGES IN COSTS	March 2015 compared to		
	1 mo.	3 mo.	1 yr.
Consumer, Producer & Construction Prices			
Consumer price index (CPI-U)	0.4	[illegible]	0.0
Producer price index (PPI) for finished goods	0.5	[illegible]	[illegible]
PPI for final demand construction	0.0	0.5	1.9
Costs by Construction Types/Subcontractors			
New warehouse construction	0.1	0.2	1.8
New school construction	0.0	0.2	1.6
New office construction	0.1	1.0	2.6
New industrial building construction	0.0	0.8	2.1
New health care building construction	0.4	0.5	1.2
Concrete contractors, nonresidential	[illegible]	0.6	2.3
Roofing contractors, nonresidential	[illegible]	0.4	2.9
Electrical contractors, nonresidential	0.2	0.2	1.1
Plumbing contractors, nonresidential	0.1	0.2	1.1
Construction wages and benefits	N/A	0.5	1.9
Architectural services	0.3	0.8	2.1
Costs for Specific Construction Inputs			
#2 diesel fuel	2.3	[illegible]	[illegible]
Asphalt paving mixtures and blocks	[illegible]	[illegible]	[illegible]
Cement	0.2	3.9	9.5
Concrete products	0.1	1.0	4.2
Brick and structural clay tile	0.5	1.2	2.3
Plastic construction products	0.9	1.8	1.1
Gypsum products	[illegible]	4.9	[illegible]
Lumber and plywood	(1.2)	[illegible]	[illegible]
Architectural coatings	(1.5)	[illegible]	[illegible]
Steel mill products	(1.9)	[illegible]	[illegible]
Copper and brass mill shapes	1.1	[illegible]	[illegible]
Aluminum mill shapes	0.0	[illegible]	4.8
Fabricated structural metal	0.2	1.6	0.2
Prefabricated metal buildings	1.1	0.2	3.7
Iron and steel scrap	[illegible]	[illegible]	[illegible]

Source Bureau of Labor Statistics, Updated April 15, 2015
Compiled by Ken Simonson, AGC Chief Economist

Waiting to Get CRACKING



It’s a game-changer. Since word came that there may be ethane crackers developed in the Appalachian Basin, that phrase has been uttered ad nauseam by governors of West Virginia, gas industry supporters, advocates for the environment and every economic development official within 200 miles of Point State Park. The phrase has lost some of its intended impact but it’s a phrase that is nonetheless true.

Experts and pundits have weighed in with opinions about the likelihood of the projects coming to fruition for over three years now. Changes in market conditions and in governors’ mansions have occurred since the corporations announced plans to build in this part of the world, with events prompting doubt or enthusiasm as the events warranted.

As spring gives way to summer, four different ethane crackers are proposed for sites in three different states. All have varying degrees of capacity and capital investment. Each of the four is on a very different timeline.

The largest of the projects, Shell Chemical's proposed petrochemical facility at the former Horsehead site near Monaca, PA has been under evaluation for more than three years and has passed most of its feasibility tests. A decision on whether or not to invest by Shell could come relatively soon.

At the same time Shell's project is advancing, an ethane cracking facility proposed for Parkersburg, WV by one of its competitors has hit the brakes. Brazilian chemical manufacturer Odebrecht had moved relatively rapidly on its Appalachian Shale Cracker Enterprise, or ASCENT, since announcing the project in Fall 2013. On April 21, 2015, however, Odebrecht admitted that it was reevaluating the project in light of the significant changes in the price of oil.

The following day, Ohio Gov. John Kasich and JobsOhio officials announced that a joint venture of PTT Global Chemical of Thailand and Japanese trading and investment house Marubeni Corp. had selected a site in Belmont County for a proposed cracker on the Ohio River. The site is a former First Energy plant that would put the PTT/Marubeni facility in closer proximity to the center of the Utica Shale exploration. PTT/Marubeni chose the eastern Ohio site over the former Wheeling Pittsburgh site in Allenport, raising additional concerns about Pennsylvania's competitiveness compared to its neighboring state.

PTT/Marubeni's plans have not dimmed the proposal from Appalachian Resins Inc. from Houston to build a smaller ethane cracker further south on the Ohio in neighboring Monroe County, OH. That project, which would produce about half the ethylene of a full-scale cracker, is in the environmental assessment stage while Appalachian Resins tries to raise $1.3 billion to develop the plant.

While the plants in adjacent counties could become too much capacity in one place, the economics of the ethylene-to-polyethylene industry wouldn't necessarily create a problem for multiple crackers within the Appalachian footprint. In fact, since the gas industry unfolded in the Marcellus and Utica regions, the estimates have been that anywhere from four to six crackers would be built in order to fully develop the potential for the shale gas in the Tri-State area.

Anticipation for the first of these proposed petrochemical facilities to go full speed ahead is growing. Shell's project is far and away the closest to being a reality but obstacles do remain to an investment decision. When or if any or all of these

The cracker units at the Pulau Bukam facility in Indonesia. Photo courtesy Shell Chemicals.

crackers go ahead is still unknown. What is known is the role any would play in the chemical industry and how the investment in such facilities can spawn a new era of manufacturing.

What is a Cracker?

One of the oil industry's business development strategies has been to take apart the molecular structure of the product to create multiple byproducts that can enhance the profits earned from extracting the commodity. Oil and natural gas are hydrocarbons – a compound of hydrogen and carbon molecules – and hydrocarbons can be transformed into various useful products for energy and lubrication through thermal or chemical processes.

At the risk of digging up traumatic flashbacks from tenth grade chemistry class, understand that crude oil contains a lot of molecular building blocks that the developed world finds very helpful.

"Oil is not homogenous but is a blend of molecules that boil at different temperatures," explains Mark Winland, commercial manager for Haverhill Chemicals LLC. "You can separate oil by heating it. The first things you get off are the ones that boil at the lowest temperatures – butane, propane and ethane. Then you get the higher carbons as temperatures increase. That would be gasoline, heating oil and diesel. At the end you get the heaviest materials, like asphalt."

That process of boiling hydrocarbons is called cracking. Thermal cracking was invented and patented first in Russia by an engineer named Vladimir Shukov in 1891. Shukov did not seek to expand the use of his technology and in 1908 Americans William Burton and Robert Humphreys patented a similar process with certain technological advancements. Those patents were used by Standard Oil to develop products for other industries. After World War II, the industrial expansion in the U.S. led to the development of alternative materials to meet the demands of an exploding consumer class. The material that rose to the top was plastic.

Cracking can also be used on these original byproducts to create further byproducts. Ethane from oil has been cracked to create the building blocks for most of the plastics that have been used in the world because until the last decade oil was accessible and cheap enough that alternative sources of ethane weren't widely sought. Oil's price spiked at roughly the same time shale gas exploration took off, giving manufacturers an incentive to explore and improve the technology for cracking ethane sourced from fracked natural gas. What producers found was that they could make ethylene for almost a billion dollars less annually at a full scale gas-fed ethane cracker than at one fed by oil.

A cracker is comprised of a number of complex operations on one site. Located on a site accessible to intermodal transportation, a cracker plant will take in materials by pipeline and barge, so docks and a rail yard are key components to the logistics setup. The cracker itself is a large complex of furnaces, piping and tanks, much of which are under pressure. If the facility is just cracking ethane, the cracker will distribute the ethylene to cooling facilities and then to transportation to its customers. In the process of cracking, other hydrocarbon byproducts will be separated and those will also be distributed. A methane-rich gas, called "tail gas," will be recycled to heat in furnaces or be flared to eliminate it. The water used that isn't evaporated in the process will exit to a wastewater treatment facility before discharge.

Full scale petrochemical facilities, like those proposed by Shell, Odebrecht and PTT/Marubeni, also will have large manufacturing plants for making polyethylene, polystyrene or polypropylene from the ethane. This adds value to the process and moves the byproducts several steps closer to the consumer. That is where the value lies for the region's economy.

"I don't think any of us realize how big this can be. It's not just the cracker. It's the fact that we've written Pennsylvania's obituary for three decades now on manufacturing and now affordable energy, abundant energy is the catalyst for us to regenerate manufacturing jobs across the region and I think that's a bigger story than even the cracker," asserts Dave Spigelmyer, executive director for the Marcellus Shale Coalition.

The Cracker Products

A world-class petrochemical complex will produce a number of the intermediate products that are a result of cracking ethane into ethylene and then further processing to separate the byproduct chemicals. That's the scale of production that is being proposed by Shell and, to a degree, by Odebrecht and PTT/Marubeni.

Those intermediate products are the feedstock for the plethora of products, both consumer and industrial, that will move further downstream to the manufacturers that already exist in those segments.

The major intermediate chemical products are vinyl chloride and polyvinyl chloride (PVC), ethylene glycol, styrene and polystyrene and, of course, polyethylene. These feedstock products go to making paints, detergents, sealants, tires, insulation, adhesives, trash bags, plastic film, pipes, toys, food containers and packaging, bottles, flooring, diapers, stockings and footware, antifreeze, textiles, houseware, crates, and on and on. There are several thousand manufacturers in the U.S. that currently get these same feedstocks from the oil and gas that is gathered from wells all over the country and Canada. Currently, most of that raw material is piped or shipped to the Gulf Coast for cracking and processing. That transportation is very expensive, especially since at least half the customers (and some estimates are as high as 60 percent) for the intermediate products are within 500 miles of Pittsburgh.

It's here that the discussion about the downstream potential gets a little murky. At first blush, and certainly during the early explanations about the Marcellus play, it seemed rather obvious that putting a plant that could multiply the products from natural gas right in the midst of the world's second-largest gas deposit would attract manufacturers from around the world. With a deeper understanding of the industries that rely on natural gas feedstock, it becomes less certain.

Products that come out of the crackers and petrochemical facilities will be in their easiest form to transport. When value is added to those intermediate chemicals to make the useful things listed above, those things become much more difficult to transport.

"The cheapest way to transport to the plastic processors is pellets. That's easier to do than to process them into finished products like bottles, lids or plastic sheets," says Winland,

The primary product produced at a petrochemical facility is polyethylene in the form of pellets that are shipped to basic plastics manufacturing.

who isn't convinced that manufacturers of finished goods will relocate to the region. "There may be plants that polymerize chemicals after the first step – a polypropylene plant or plastic film plant – but you'll still have transportation issues with sheets or extruded materials. There are three or four steps between the cracker and the consumer. It needs to keep moving towards the consumer."

Jim Palmer, president of the Beaver County Corporation for Economic Development, also sees wholesale relocation

"There's certainly a push right now to generate manufacturing. Two years ago gas was twice the price, at least from the utility perspective delivered to homes and businesses" he stresses.

of manufacturers as overly optimistic. He's more confident about the full potential of processing gas into chemicals for downstream use.

"I don't think manufacturers will be moving their plants here but to the extent that there is expansion in the industry, I think there will be new plants built in this region," Palmer says. "We're seeing developers looking to position themselves with industries that support the activity around a cracker. The conversations have accelerated from talking about if that happens to when that happens."

Dave Spigelmyer is understandably more optimistic about the prospects of attracting manufacturers to the region, although his argument goes beyond just the proximity to the chemicals. He's seen heightened interest in relocating manufacturing of all types to the U.S. because the shale gas exploration has created a significant energy advantage for America. Within the chemical manufacturing industry, those conversations have been very public for several years.

"There's certainly a push right now to generate manufacturing. Two years ago gas was twice the price, at least from the utility perspective delivered to homes and businesses" he stresses. "There has been a lot of interest from companies taking a look at the region. They know we have a qualified and highly skilled workforce and an energized workforce willing to do the work. I think if we put the right policies in place we can grow manufacturing broadly across the region."

Whether it is because of cheap energy or because there will be petrochemical processing that is done in the Marcellus and Utica footprint in a massive scale, it is the manufacturing of things within the region that has been the ultimate proof of concept to justify the shale gas play. Keeping more of what comes out of the ground here as an economic multiplier is the ultimate aim of the economic development community.

"Keep in mind that natural gas is a commodity. Is there potential for companies to relocate here? I'm not sure," responds Jeff Kotula, president of the Washington County Chamber of Commerce. "What I am sure of is that if there is any way to take the commodity to new and different markets it benefits the whole region."

The Case for the Appalachian Basin

One of Pittsburgh's economic trump cards is its proximity to markets. The city is within 500 miles of the majority of the population centers in North America and has the same proximity to North America's manufacturers. The same cannot be said of its proximity to the heart of the petrochemical industry. Creating a major new center for processing hydrocarbons into the many valuable byproducts is part of a transformation of the petrochemical industry as a whole.

"There is a geographic realignment taking place as a result of the whole fracking phenomenon," notes Winland. "It used to be that the known deposits were in Texas, Louisiana, Oklahoma and the Gulf of Mexico. The plants that sprung up to process oil and gas were primarily in the Gulf Coast, not only refineries but plants that were the first step in separating oil and gas into fractions."

What has corporate accountants and business development executives scratching their heads is the estimate of the long-term potential of the deposits in the Appalachian Basin, because the investment in new capacity is enormously expensive, as is the potential payback. To some degree it is a chicken-or-the-egg argument.

"You have this geographic upheaval because the new deposits are a long way from the facilities where it should processed," says Winland. "You have to transport the gas to where the processing is or move the processing to the deposits."

Construction of processing facilities, which would start with ethane crackers, is also something of a game of who's going first. Like kids standing on the edge of the swimming pool, the producers have been trying to figure out when or if the temperature is right to jump into the water. Having multiple companies looking at the Appalachian helps validate the potential but having a couple projects in the water would help even more. That goes for the potential for downstream expansion as well.

"The key to the development is multiple crackers," explains Palmer. "On one hand it's great that there is one located here but will people come here for just one source?"

Palmer is comforted by the fact that several producers are moving ahead in the larger region but like most economic leaders, he would like to see a decision. The steep decline in the price of oil has raised concerns about the viability of the development of crackers in the Appalachian shale region, especially since gas prices have also fallen to cyclical low levels.

> **"You have to transport the gas to where the processing is or move the processing to the deposits."**

One market factor that has influenced the interest in locating crackers in the Appalachian has been the difference in cost between making polyethylene (and other byproducts) from oil and from natural gas. Cracking naptha – the feedstock derived from oil – was running about $600 per metric ton higher for polyethylene than the cost of cracking ethane. Now that oil has fallen $50 per barrel or so that advantage has shrunk to between $150 and $200 per metric ton. Using the expected 1.6 million metric tons annually from Monaca as a benchmark, the cost savings fell from around $960 million to $250 million per year.

That's a significant decline, one that could make any manufacturer pause. At the same time, however, even today's market prices still result in a quarter billion annual savings, a savings that would increase with each dollar that the oil price increases. And the cracking cost is not the only advantage to locating in this part of the country.

Aside from proximity, the sheer potential output of the Marcellus and Utica (and now Point Pleasant) formations is hard to ignore. In just seven years, the shale gas revolution has gone from prospect to workhorse for energy. Even with price pressure limiting the output, gas from the Marcellus is starting to dominate the energy markets. That should ease the minds of those thinking about the length of the play.

Global Polyethylene Demand	2013	2018f
North America	16,025	18,130
Western Europe	12,900	13,780
Asia/Pacific	36,575	47,530
Other Regions	16,285	20,160
Total Global Demand	**81,785**	**99,600**

Demand estimates are in thousands of metric tons. Demand for polyethylene is expected to climb annually by nearly four percent. Nearly half the world's demand is from Asia and the Pacific. Source, The Freedonia Group.

"In 2008, the Marcellus produced 180 billion cubic feet (BCF). Now that's the production in two weeks," notes Spigelmyer. "We're going to produce 16 BCF per day thru Pennsylvania. We've gone from producing a quarter of the state's supply to producing more than 20 percent of the country's supply of energy out of Pennsylvania and 27 percent out of the Basin."

Those concerned about the impact of current market conditions on a decision to invest billions in Western PA or elsewhere in the Appalachian Basin have good reason for pessimism. On the merits of the short-term return on investment, building petrochemical processing capacity probably doesn't pass muster. But bear in mind that the market that these facilities would be serving will be a 2020 market. How different is the 2015 oil and gas market from the conditions of 2010? Uncertainty about the investment is understandable. But there are some strong factors that drive optimism about the investment too.

The gas industry is not disinvesting in shale gas as a result of the protracted low-price environment. Gas companies continue to push exploration to test deeper shale formations and, while drilling in the Western and Southwestern U.S. shale formations is off considerably, many of those assets are being shifted to the Marcellus and Utica basins. Moreover, the well-positioned producers are also taking advantage of the market conditions to consider acquisitions, like Shell's purchase of BG Group LLC, to expand share in the natural gas market.

Ultimately, the investment in a petrochemical processing facility like an ethane cracker is addressing a market that is not in the energy sector. The focus should be on plastics and chemicals, not oil and gas. From that perspective, a lower gas price makes the feedstock for the ethane cracker more competitive. Energy company executives universally characterize their industry as underinvested for the future. Building capacity for ethylene and polyethylene makes sense if the demand for those downstream products is expected to grow. And it is.

The world's middle class is expected to grow by another three billion people during the next decade. Because plastic is a much cheaper and more versatile material for consumer products than metals, a growing middle class means growing consumption of plastics. Industry forecasters see global demand for polyethylene-based products growing by roughly four percent between now and the end of the decade, exceeding 100 million metric tons before then. That equates to $164 billion in sales in U.S. dollars. Polypropylene demand is expected to grow slightly faster during that same period, reaching 130 million metric tons by 2023.

At the end of the day, there seems to be little dispute about the importance of the gas deposits of the Appalachian Basin to the petrochemical industry. Abundant gas can fuel a manufacturing renaissance. The size of the opportunity isn't in doubt. So the question remains: when will the investment decision happen?

Shell Chemical is clearly closest to that decision point. Assuming that the project obtains the necessary permits within the next month or so, a thumbs up or down should be imminent. Those who have worked with the company say that Shell hasn't given them anything close to an ultimatum for making a positive decision. But that doesn't mean there aren't conditions that would make the chemical giant happier about a decision to proceed.

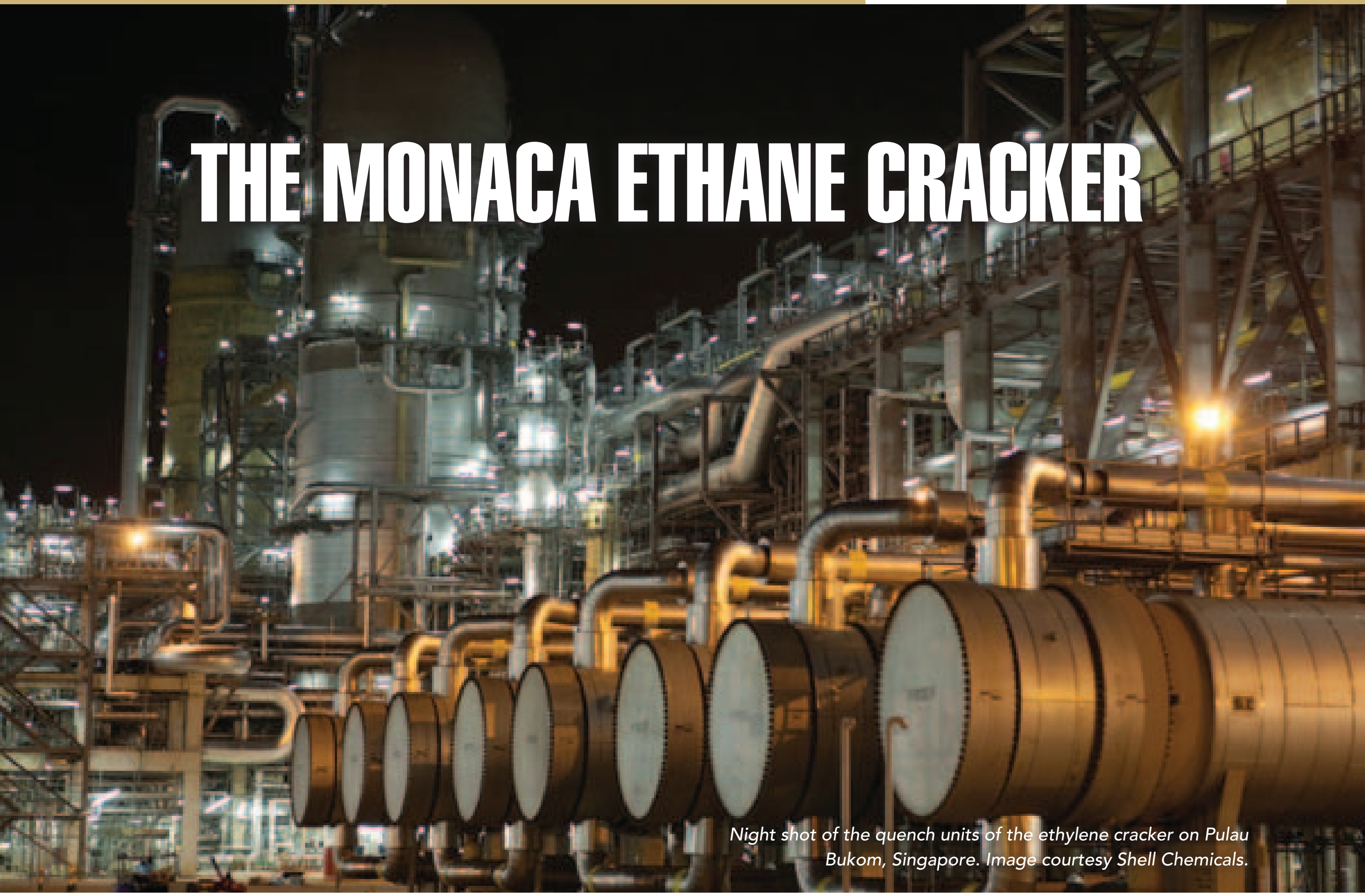
"I think you have to have a climate for investment and that's a big deal. Maintaining a climate for investment in PA is probably the answer to that. To maintain a climate here for continued investment by the industry is absolutely critical," claims Spigelmyer. "We should support the growth of manufacturing and help to support the growth of infrastructure so producers can move the gas to the market."

Moving the gas to the market is what the civic leaders hope will be the deciding factor in an investment decision by cracker developers. Roughly 75 percent of the gas produced in the Marcellus and Utica is being shipped to markets outside the region. That's a staggering amount of untapped potential, especially if the estimates of a 30-50 year play are accurate.

"I think [the cracker] is really the next step in the process that started with drilling," says Kotula. "This gets the gas to the market. It shows the potential of the whole play."

"Attracting one or more ethane crackers to the greater Pittsburgh region is the first step in keeping the supply of ethane here and making downstream manufacturing possible. Once the crackers are in place, we expect that, over time, manufacturers of products such as plastics, resins and adhesives will set up facilities in the greater Pittsburgh region to be close to an ample and accessible supply of ethylene," says Allegheny Conference on Community Development CEO Dennis Yablonsky. "It's a great opportunity for our part of the country – historically a manufacturing leader – to help revitalize 'made in America' manufacturing." BG

THE MONACA ETHANE CRACKER



Night shot of the quench units of the ethylene cracker on Pulau Bukom, Singapore. Image courtesy Shell Chemicals.

What is arguably the largest and most influential construction project of the past three decades is now well underway and yet may not happen. The project's owner has invested hundreds of millions of dollars and yet has not made a commitment beyond the due diligence and entitlement phases of development. Roughly 100 workers are working on the site at the moment but the contractors that employ them don't have a final notice to proceed. It's the Shell Chemical petrochemical facility: the project everyone is talking about but few understand.

March 15, 2012 may come to be viewed through the prism of history as a date that changed the economic fortune of Western PA. That day representatives of Royal Dutch Shell's chemical business signed an agreement that signified that the Horsehead Corporation's Monaca plant was its preferred site for an ethane cracker it proposed building in the Appalachian Basin. After several years of rapidly accelerating exploration, Shell's site selection was the first step in making good the industry's assurance that the real economic benefit of the Marcellus Shale play was in the manufacturing that would result downstream.

Along the way during this lengthy due diligence process, there have been several key milestones that have indicated progress towards a positive investment decision by Shell. Demolition of the shuttered Horsehead plant occurred in 2014. Design engineers and engineering/procurement/construction (EPC) firms were engaged in 2013. Shell took proposals for the supply of natural gas in fall of 2013 and proved the capacity of feedstock was sufficient. The option to purchase the plant site was exercised in November 2014 and individual adjoining parcels of land were purchased – and are still being accumulated – over the past 18 months. Shortly after that option was exercised, a joint venture of Mascaro/Trumbull Energy Services was hired to do the site work to prepare for the complex.

Even as these progressive steps developed, Shell has made few public announcements about timeline but indicated early on what some of its key milestones would be and nearly all had been accomplished by the end of April 2015. What is essentially the final stepping stone between the site selection and the decision to invest was held on May 5, when the Department of Environmental Protection (DEP) held its public hearing on the Air Pollution Control permit.

That hearing, which most astute industry observers saw as a formality after a seven-month review, was important because it limited the barriers to the green light for the plant to Shell

Image courtesy Shell Chemicals.

Chemicals' own final economic assessment of the viability of the complex.

Those who have met with Shell Chemicals or its EPC team in recent months are still quoting 50/50 odds on the decision to invest in the site. But the level of activity occurring behind the scenes is extensive. Between engineering costs and the work that is already committed, the Monaca project would likely be the region's largest construction project in 2015 even if all other activity on the plant stopped dead. The investment heretofore has been in the hundreds of millions, and while legend has it that oil companies will walk away from projects after spending a billion dollars, the truth is that neither Shell nor any of its competitors treats hundreds of millions of dollars as if the money were pocket change. The Monaca facility could certainly go on the shelf but such a decision would be a difficult one.

"The Site is Enormous"

That comment came from Tim O'Brien, president of Trumbull Energy Services. Because of a non-disclosure agreement, O'Brien declined to comment about Trumbull's involvement or the project itself, other than to offer his assessment of the site.

For all of the news accounts and public discourse about the Monaca petrochemical complex, little in the way of specifics about the construction project itself has been reported. The sheer size of the complex has made the most lasting impression on those involved with the project, more than any of the details of the scope of the plant. Several of those involved in the project have referenced with awe the time-lapse BIM model of the construction, which is rendered as a flyover. Shell spokesman Michael Marr expects that the video will eventually be made public but for now says that its use is limited to orientation of new workers to the site.

At the risk of being redundant, it is noteworthy that the effort to prepare the site – which will total approximately 780 acres – will involve an investment of capital and human resources that will make it one of the largest projects in a decade.

According to Shell, the completed petrochemical facility will process ethane from a handful of sources in the Marcellus and Utica Shale footprints. Using furnaces that heat the ethane to 1,500°F to remove part of the hydrogen molecules, the plant will manufacture 1,500,000 metric tons of ethylene per year. That ethylene will feed three polyethylene manufacturing units with combined annual production of approximately 1,600,000 metric tons.

The polyethylene that results will be either low-density polyethylene (LDPE) and linear low density polyethylene (LLDPE) – which is used to make plastic film for food packaging, trash bags or other flexible products – and high density polyethylene (HDPE), which is used for containers, bottles, drums and other stiff products. The polyethylene will be in the form of small pellets that will then be shipped by barge or rail to customers who make those products. It's the hope of Western Pennsylvania's civic and political leaders that some of those manufacturers

will chose to locate within close proximity to the cracker (or additional crackers that may be developed).

What is being planned is a relatively self-sufficient micro-economy that will be capable of providing the power, heat and water for the manufacturing process, as well as waste and water treatment, warehousing, administration and logistics for the facility. To accomplish this goal, natural gas-fired combined cycle cogeneration units will be built that are able to supply the plants' power. Excess electricity produced will be sold to the PJM electric grid for regional use. Other ancillary equipment will include four emergency diesel generators and three diesel-driven firewater pumps, two cooling towers, numerous storage tanks and pressure vessels for raw materials and by-products, and a wastewater treatment facility.

The seven cracking furnaces themselves will produce a byproduct gas – called "tail gas" – that has methane and a high percentage of hydrogen. The tail gas will be recycled to be used as supplemental fuel for the cracking process.

What all these chemical and thermal processes mean in terms of construction is an enormous and varied site. The cracker unit itself will be located on perhaps ten percent of the property. It will be primarily made up of mechanical equipment, massive amounts of piping and storage facilities, along with small control buildings.

Water used in the process will be cooled in a large tower adjacent to the cracker unit, with both near the river. The cracking process will produce four million gallons of wastewater daily (another 16 million gallons will evaporate as steam each day), which will be cleaned at a large wastewater treatment plant just west of the cracker unit before discharging back into the Ohio River. The completed complex will include groundwater monitoring wells to test for infiltration from the plant or to check stormwater.

There will be 12 major building structures when the petrochemical plant is operational, including two wastewater treatment plant buildings and several smaller buildings related to the separate major facilities. The largest of the facilities will be the cogeneration plant building. Three separate structures will house the polyethylene manufacturing processes. A set of six smaller buildings will house the plant's administration, which will be located along the relocated Route 18 (also known as Frankfort Road) at the main entrance to the site.

At the far eastern end of the complex will be the main areas for distribution. These include a truck-loading area between the polyethylene units and Route 18, and a rail yard connecting the petrochemical complex to CSX.

What It Will Take to Build

Shell's timeline for construction calls for the multi-billion dollar project to be completed in 44 months. To accomplish such an aggressive schedule will require unprecedented numbers of workers and equipment. Shell addressed the available general workforce issue with regional leaders at the time of the site selection and for months thereafter. As the project has developed in greater detail, the lead EPC, Bechtel, has met with labor representatives from the critical trades to refine their estimates of the workforce needs.

To start, the "ready" work that is being handled by Jacobs Engineering involves moving upwards of eight million yards of dirt, construction of two bridges, pouring roughly 300,000 yards of concrete and relocating Route 18. Jim Kunz, business manager for the International Union of Operating Engineers Local #66, is expecting that the work will require 530 operating engineers and 283 crane operators. The Keystone+Mountains+Lakes Regional Council of Carpenters is estimating that the project will require 910 carpenters, with some 450-500 specialty scaffold builders needed to assemble some very irregular configurations of scaffolding.

During the past fall, Bechtel solicited crane suppliers to check on price and availability of 38 cranes during the construction. Suppliers estimate that beyond any cranes purchased for the project, there would also be more than $100 million in crane rentals required.

These kinds of extraordinary resources will be needed throughout the project. Shell estimates that construction will require a total of 10,000 workers to complete. At the project's peak the expectation is that 6,000 construction workers will be on the site, a crush of workers that will present a logistical nightmare for the project managers. Some of the land that Shell has been securing is going to be used to handle the massive needs for material storage, lay down and something as imponderable as where you park the vehicles of 6,000 workers during any given 24-hour period. The solution to the latter problem may well be a temporary parking garage.

The craft that will feel the pinch the most during the construction of the Monaca project will be the steamfitters. Ken Broadbent, business manager for Steamfitters Local #449, says that representatives from Bechtel told him at recent meetings that the Steamfitters would work 11 million of the 30 million total labor hours that will ultimately be required to complete the project. That equates to 2,200 fitters at the project's peak. To put the steamfitter demand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in perspective, Broadbent notes that the recently-opened $1.2 billion Allegheny Ludlum rolling mill in Brackenridge required "only" 500 fitters at the peak of its construction.

"We have 1,600 fitters active right now, with only 200 or 300 on the bench," says Broadbent. "We'll have to bring in travelers for the cracker. We have already sent questionnaires out as far as Detroit and Philadelphia."

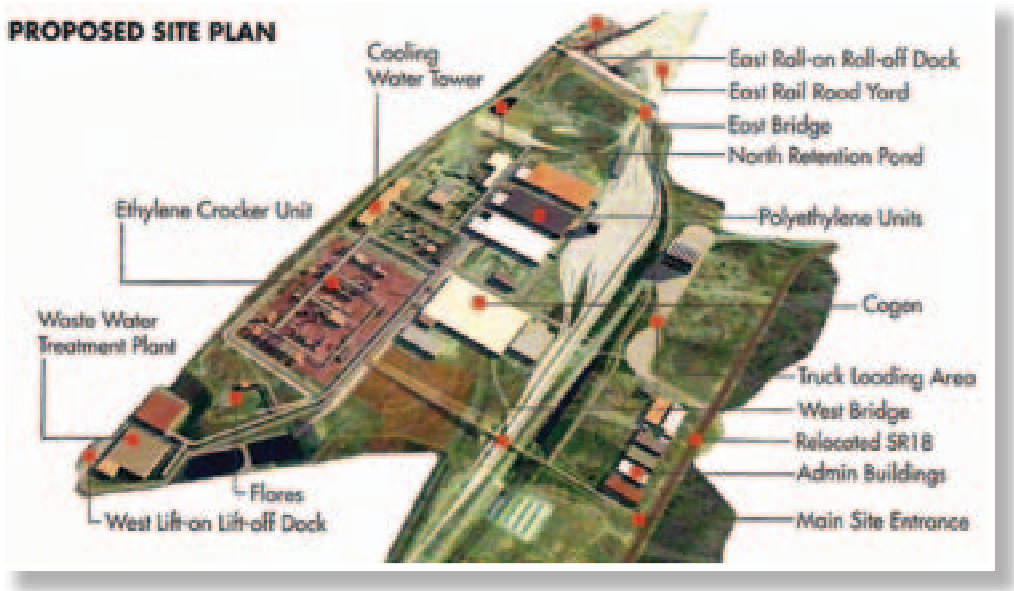

Image courtesy Shell Chemicals.

Representatives from all trades that expect to see heavy worker demand agree that the cracker project – which will run concurrently with at least a few other major construction projects – presents an extraordinary challenge. Comparing another project to the Monaca petrochemical facility has stretched the memories of even the most senior industry veterans, drawing comparisons to the Bruce Mansfield power plant built in the 1970s. Meeting the needs of the Monaca project will almost certainly require nationwide recruitment. That effort will bring long-term benefits too, as an industry that will struggle with workforce over the next decade or so would get a boost from a marquis project.

What's Going On Now?

A comparison of Shell's language in its public responses to inquiries shows that progress is occurring. When questioned about the decision-making process in March 2012, Shell spokespersons listed a litany of tasks to be accomplished prior to a green light. Those tasks included confirming the suitability of the site, securing ethane feedstock supply, completing the engineering and design work, confirming the support of customers for its products, receiving all the necessary permits and verifying that the project is economically robust and competitive.

More than three years later, several of those tasks have been checked off the list. Shell's Michael Marr points out that site suitability and customer support have been proven. Shell's focus on ethane supply has shifted to strengthening its long-term feedstock portfolio.

"At the same time, the following factors remain in the evaluation mix: securing permits, completing engineering and design work including some preliminary work at the site and confirmation that the project is competitive across Shell's global portfolio of options," Marr concluded.

Assuming that the DEP grants the Air Pollution Control permit as expected, there is every reason to believe that Shell will want to make the investment decision shortly thereafter, perhaps no later than June, in order to keep the professionals and contractors moving without disruption and to meet its schedule to get to market. Although Shell reported that construction activities on the new facility would begin in late 2015 with operations beginning in 2018 in its application to DEP, the duration of the construction will be closer to four years.

Brandenburg, which handled the demolition of the Horsehead zinc plant, is completing the underground demolition on the site. Sargent Electric has been involved in providing temporary power to the site during the demolition and preparation phases. Workers from Mascaro and the Mascaro/Trumbull joint venture are at the site, although full mobilization has not begun. Joseph B. Fay Co. has been awarded the construction of the river facilities, docks and marina to be built. Docks will be constructed for lifting materials to the west of the complex and for rolling materials on and off to the east. McCarl's Inc. is involved with constructing the underground utilities.

The face of Western Pennsylvania's economy has been transformed over the past ten years from one dominated by manufacturing to one that is balanced. Beginning with the heightened exploration of the Marcellus Shale formation in 2009, however, the potential has existed for a manufacturing renaissance. Other cracker facilities are in the pipeline but a decision to invest by Shell Chemicals will be the catalyst for a shift to a higher economic gear. BG

Foresight Construction Services LLC

Maggie Moore had a plan for how her business would develop when she started Foresight Construction Services in November 2012. Unlike many startup owners, Moore had patience built into that plan, knowing that the flow of procurement for her services was going to take a year or so. Like many entrepreneurs, Moore found that much of her plan was turned upside down during those early years but she's also found that persistence – particularly in doing the tasks she least enjoys – is paying off in ways she didn't expect.

Maggie Moore

"There's the fun fast times and then there's the slower times. Just as you get desperate, in my experience, something good always happens just before you lose it," Moore chuckles. "Then the next thing comes along and that's amazing, and surprising."

Foresight Construction Services focuses on highway and bridge construction inspection and third-party construction management. The latter generally involves contract administration for large public agencies like PennDOT, or for municipalities with inadequate staffing to oversee all the work going on during the construction season. About half of Foresight's business is on PennDOT projects, working as a sub-consultant to civil engineers with in-house construction inspectors. The balance of the work is with municipalities. Foresight's biggest municipal client is the City of Pittsburgh, which has only two lead engineers to serve as project managers due to staff cuts. During Pittsburgh's busy construction and maintenance season, Moore says there can literally be thousands of submittals to review and approve, a task that is too much for permanent staff.

The 2007 University of Pittsburgh graduate went to work after getting her civil engineering degree (in the construction management program) for heavy and highway contractor Trumbull Corporation as a project engineer. The assignment validated her choice of construction as a career and began a five-year journey that prepared her for self-employment.

"I loved construction but I didn't necessarily like working for the contractor. I switched over to work for Michael Baker as a construction inspector so I spent the time in the field as an engineer and an inspector," recalls Moore. She sees construction inspection as a niche within the industry. "It's truly a niche but it's the niche I found and liked and what I was looking for. You're in the field, doing that kind of work. You're helping out the project in a different way."

Moore decided that she should get some design engineering experience but quickly discovered that she disliked the confinement of the office. To get back into the field, Moore accepted a position at HRV Inc. managing inspectors. HRV Inc. is a Woman-owned Business Enterprise run by CEO Rochelle Stachel. At HRV, Moore deepened her experience in construction inspection and also gained critical insight into the Disadvantaged Business Enterprise (DBE) program.

"There I was introduced to the different angle that we DBE's take to approach the business. How we get work, where we get work and our role, and that it can be done. You know the American dream," she explains. "That just fascinated me. The owners of the company started it one day and it just fascinated me that one day you start something and if you keep working at it, you can make a living at it if you work hard. That's what I try to do."

When she considered self-employment, Moore was also encouraged by the example of another woman-owned business. One of the more successful niche DBE businesses, the firm Moore wanted to emulate concentrated on a narrow segment of the industry and operated in a lean fashion. While there are plenty of inspection firms in Pennsylvania, Moore viewed the market as open to another inspector following this model.

"I did have a model I liked. I knew it was possible. [The model] is very little overhead – the inspectors are employees but essentially you don't hire them unless there is work for them – and I just thought that was perfect. I thought that opportunity was there," she says.

In the fall of 2012, however, the industry that Moore intended Foresight Construction Services to serve may have been open to her new business but the timing was anything but perfect. The Great Recession and deficits from the Rendell administration had left PennDOT – and most municipalities – short of funds with which to do infrastructure work. The last vestiges of the stimulus package of 2009 had been completed almost two years earlier. Moore and her husband had been discussing her launching a business for a couple of years and had saved to bankroll the operation for at least the first year, a necessity given the business cycle of highway work. Many of her friends and business colleagues weren't as supportive of her idea at the time.

Construction inspection as a category of business has a couple of inherent obstacles to immediate success.

One major challenge is getting and maintaining skilled inspectors because of the cyclical nature of the construction season and because of the artificial ceiling that can be applied by Foresight's clients when they reach the target for DBE hours of participation on a project. While many contractors and engineers will contract with the DBE business for the duration of the project, it is at the discretion of the client to end the inspection once the goal for participation is reached. Foresight's inspectors are usually the last to mobilize on a project and can be the first to be dismissed.

Complicating the staffing challenge is the fact that the inspectors are free agents but PennDOT and other owners prefer inspectors have tenure at a firm. The big firms can afford to use their inspectors in other capacities during the winter but the majority of the firms, which cannot maintain non-working inspectors on staff, are forced to scramble to find inspectors from the pool of those looking for work as the construction season approaches. Moore likens it to the draft, with the more seasoned inspectors getting snapped up first.

"I did have a model I liked. I knew it was possible. [The model] is very little overhead – the inspectors are employees but essentially you don't hire them unless there is work for them – and I just thought that was perfect. I thought that opportunity was there," she says.

"It was quite a bad time for the market when I started, which didn't go into my consideration at all, but everyone kept saying you're crazy, it's such a bad time to start a business," she recalls. "But my response was: when is a good time?

"It was a team decision with my husband. It was something that we had been discussing for a couple of years, especially my being a female engineer with construction experience. Things just kind of fell into place in both of our personal lives that we decided we should go ahead and try this. We should jump off and don't look back. You have to make that decision; you do it one day. In one day everything changes."

Although Moore was prepared for the fact that business wouldn't be rolling in the door for a while, the reality still produced anxiety. She says that six months into the business she realized that the decision to jump off on her own was the easy part. During that first year Moore did the things necessary to lay the ground work for the years to come and plugged away at developing business. She says the way the industry works was often surprising to friends who would inquire about how Foresight was faring.

"When I opened up shop and I'd see someone they would want to know if I had any work yet," Moore laughs. "Even if I had a shoo-in project – and I didn't have any shoo-ins – it would take a year from that advertisement for proposals until the work hit the ground."

The problem is exacerbated by the fact that inspection consultants must name their team on proposals that almost always go in a year before the construction will occur. Trying to predict which inspectors will be available one year hence, given all the unpredictability involved – including the potential for retirement or death – makes Moore think strategically about which resumes go on Foresight's proposals.

Perhaps the biggest challenge or surprise Moore has faced has been marketing those proposals, partly because she feels that sales is not one of her strengths, but also because the rules limit the way she can compete for work.

The transportation departments have fixed wage rates for the inspectors and essentially fix the overhead and profit that can be earned on a project. While Moore's lean business model would help with Foresight's ongoing survival, there was little advantage in gaining work from being more efficient. In fact, mentioning of rates in certain government proposals is grounds for disqualification. That leaves fewer ways to differentiate one competitor from another.

"I just have to sell myself. There's nothing else I can do. There's no number I can give them," she says.

Moore thought that she would have an advantage from her previous working relationships and former employers that would be excellent prospects for her new business. The reality has unfolded somewhat differently.

"The most interesting thing I think is that I had people and companies that I thought would be my first clients. None of them were and still aren't. That was completely surprising and that was a scary moment," she says. "My husband is in sales and he had to help me because it's my worst [skill]. He was teaching me how to do cold calls. My first three clients were all from cold calls. It was 180 degrees from my vision." When asked why those companies gave her the business, Moore laughs. "I still don't know. I think they just decided to give me a chance."

Maggie Moore knows that gaining the confidence of her clients will be the key to getting more first chances and to growing her business. While she may never enjoy sales and marketing, she seems confident of how Foresight Construction Services will succeed.

"It's the oversight I provide the inspectors, going in the field and actually helping on the job. Helping with the paperwork. Being present," says Moore. "[It helps] being a professional engineer and an inspector. Not all minority firms are owned and operated by engineers or construction inspectors. I feel that differentiates me." BG

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Financial Perspective

Can the Multi-Employer Pension Reform Act of 2014 Help Your Plan?

By Linda Baker, Bob Hamilton and Joan Vines

On December 16, 2014, the President signed into law the Multiemployer Pension Reform Act of 2014 (MPRA) [1] which reflects many of the recommendations of business leaders via the National Coordinating Committee for Multiemployer Plans (NCCMP). Its aim is to save underfunded, private-sector, multiemployer pensions in which several unrelated companies pay into a single pension fund. An important undertaking since according to CNN Money, multiemployer pension plans cover more than 10 million workers and retirees in the construction industry, among other industrial sectors.

The MPRA makes sweeping changes to current law governing multiemployer pension plans. There are a number of provisions that are of particular interest for plan years beginning after December 31, 2014, including:

- Pension Benefit Guaranty Corporation (PBGC) premium increased from $12 per capita in 2014 to $26 per capita in 2015, indexed thereafter.
- Permanent extension of certain Pension Protection Act of 2006 (PPA) provisions and some technical modifications.
- Additional assistance allowing deeply troubled plans to suspend benefits if meeting a new funding category of "critical and declining" status.
- Authority of PBGC increased to approve plan partitions and to facilitate plan mergers.

Amendments to Assist Deeply Troubled Plan

A new funding status called "critical and declining status", has been created. A critical and declining status plan is defined as a plan that is projected to become insolvent within 15 years, or is projected to become insolvent within 20 years if either the plan's ratio of inactive to active participants is greater than 2-to-1 or the plan is less than 80 percent funded.[2] Trustees of plans with critical and declining status are given wide latitude to implement changes to avoid insolvency, including the suspension of benefits.

Benefit Suspensions

Plans that are in critical and declining status can voluntarily apply to the Treasury to temporarily or permanently suspend benefit accruals for or payments to participants or beneficiaries[3]. For plans with 10,000 or more participants, a retiree representative is required to be selected by the plan sponsors no later than 60 days from the plan's application to suspend benefits is submitted to Treasury to be an advocate for the interests of the participants.

The plan sponsor must determine that even though all reasonable measures to avoid insolvency have been taken, the plan is still projected to become insolvent in the above mentioned timeframe unless the proposed benefits are suspended. The plan's actuary must certify that the requested suspension will avoid the plan's insolvency.

Benefits can only be suspended within limitations:

- A monthly benefit cannot be reduced below 110 percent of the PBGC guarantee.
- If the participant or beneficiary is age 75, or older the suspension will be limited.
- If the participant or beneficiary is age 80, or older the benefit cannot be suspended.
- Disability pensions cannot be suspended.
- A list of factors must be considered to ensure that the suspense is equitable, including age, number of years to retirement, etc.

Mergers and Partitions

The MPRA provides new rules for mergers with the assistance of the PBGC. Once requested by the plan sponsor, the PBGC will take appropriate action to promote and facilitate a merger if it determines that the merger is in the best interests of participants in at least one of the plans and not adverse to participants of any plan. Financial assistance can be given by the PBGC to plans in critical and declining status if the merger enables the plan to avoid or postpone insolvency. The agency must reasonably expect the assistance given will reduce the PBGC's expected long-term loss for the plans involved.

ERISA currently allows a plan to be partitioned only where there are "orphan" beneficiaries attributable to a bankrupt employer. The MPRA dramatically expands the PBGC's power to partition plans if:

1. The plan is in critical and declining status;
2. The plan has taken all reasonable measure to avoid insolvency, including the maximum benefit suspensions discussed above;
3. It is reasonably expected that the partition will reduce the PBGC's expected long-term loss with respect to the plan and the partition is necessary for the plan to remain solvent; and
4. The portioning of the plan does not undermine the PBGC's ability to meet existing financial assistance obligations to other plans and that the costs can be paid exclusively from the PBGC's fund for basic benefits guaranteed for multiemployer plans.

Once approved for partitioning, the original plan must transfer just enough of its liabilities to a successor plan to keep the partitioned plan solvent. The sponsors of the successor plan must remain the same as the original plan and the successor plan becomes responsible for paying PBGC-guaranteed benefits. The partitioned plan must pay a monthly benefit to each partitioned participant and beneficiary for each month that the benefit is in pay status in the amount by which the benefit would be paid under the plan terms exceed the PBGS's guaranteed benefit amount for that person. Additional rules apply to the plans for a 10-year period following the partition date.

While immediately it remains unknown as to what future ramifications will result from the MPRA, in the short-term it will help some employers in the construction industry restructure retirement benefits. Hopefully, this restructuring will bring the pension cost back in line with industry norms, not unfairly burden remaining employers with liabilities attributable to withdrawn employers and give plans the opportunity to return to a healthy funding level. It is also clear that a greater understanding is needed of the far reaching effects surrounding this complex piece of legislation as some plan participants could suffer reductions in benefits as a part of the plan restructuring.

[1] The MPRA was part of the Consolidated and Further Continuing Appropriations Act of 2015.
[2] This is the definition of a critical status plan under the PPA rules (a red zone plan).
[3] Hereafter, the term participant includes beneficiaries as well.

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Multi-Employer Pension Reforms: Another Victory for AGC

By James Young

AGC of America scored an important victory for many members last year when Congress enacted the Multiemployer Pension Reform Act of 2014, a series of reforms designed to protect and improve multi-employer retirement programs that were included in the federal government's fiscal year 2015 funding bill. The new reform measures, which track closely with a reform proposal we helped craft in 2013, should go a long way in helping protect the investments of member firms that contribute to multi-employer retirement plans.

Indeed, the new measures will protect retiree benefits, help keep thousands of employers competitive and ensure that the broader economy continues to benefit from the billions of dollars that pension funds invest each year. Among the most important changes in the law include making the Pension Protection Act permanent. The law also included a number of technical changes to the multi-employer system that were badly needed. One of the most significant being the ability for plans to elect to be in critical status early, allowing them to significantly reduce liabilities to recover sooner. The law also provides employers and employees with the flexibility to voluntarily act to shore up multi-employer retirement plans. Without these new measures, thousands of retirees would likely have been forced to accept the savage cuts to their retirement benefits that come when the Pension Benefit Guarantee Corporation is forced to step in.

While the measures were desperately needed, getting Congress to pass them wasn't easy. Last December's successful vote was the culmination of three years of work involving AGC of America, other employer groups and most major labor organizations. The effort first required getting all those groups to agree on a series of multi-employer retirement plan reform proposals. This was far from easy, but the final proposals, which we called "Solutions, Not Bailouts" included key reforms that only a few years ago would have been unthinkable for most labor groups. In particular, the groups all agreed to give plan trustees the ability to voluntarily, and temporarily, reduce benefits for some plans in order to save them for the long-term.

Once we got everyone to agree on the specific reform proposals, the next step was getting Congress to act. And while our plan didn't call for any federal funding, getting Congress to enact measures that allow plans to cut – albeit voluntarily – benefits took a lot of convincing. That is why we spent much of 2014 visiting with hundreds of members of Congress to explain how our reform plan would actually protect retirees from the far more severe cuts they would face if their plans were actually allowed to default.

We also benefit from the hundreds of letters, phone calls and visits many of our members made during the past year with their Congressional delegations. They were able to explain how these reforms would protect many local businesses and the jobs they offer in communities across the country. And they helped members of Congress understand that they would have support in their home districts for backing these needed reforms.

Thanks to a lot of work, and a little luck, we got Congress to act on pension reforms. But now that we have the law in place, we still need to make sure that the administration implements the new measures in a way that is truly helpful for employers and employees. That is why we continue to work closely with officials from the Labor and Treasury departments and the Pension Benefit Guarantee Corporation to make sure they get the details right as they craft the new rules required by the new law.

We also need to continue to push Congress to act on legislation that will give employers and employees the option to select new, more pragmatic retirement plans for the future. In particular, we think Congress should allow participants in multi-employer retirement plans the ability to consider hybrid plans that more equally distribute some of the risks associated with retirement plans so employers don't have to shoulder the entire burden.

In other words, stay tuned. We scored a big victory on behalf of many AGC of America members. But we still have a lot of work ahead of us to make sure the industry truly benefits.

James Young is Director of Congressional Relations, Labor, Human Relations and Management for the Associated General Contractors of America. BG

Managing Rejection

It's the phone call you knew you might get when you interviewed for the project. Even if you are the most confident business person alive, the odds were that another company was going to get the work, at least from a probability standpoint. Your client – maybe your long-time friend – is on the line to tell you that your proposal wasn't the winning one. What you do next may be as important to your future success with that client as anything you did in the proposal process.

"I think that's the beginning of interviewing for the next job that comes out and what are you going to be like to deal with. If on the next job I have something to tell you that you're not going to like, are you going to argue with me and defend why you did things the way you did?" says David Heaton, assistant vice president of development for Oxford Development Co. "Nobody likes getting those kinds of calls but somebody has to get them. Deal with it; try to understand what's behind it; and don't be defensive about it. The decision's done. Nothing is going to change from that call."

"It totally mystifies me when you call someone up, tell them they didn't get the job and then they want to argue with us that we made the wrong decision," laughs Andrew Reilly, director of construction for Carnegie Mellon University.

The reaction Reilly describes is certainly understandable. Architects, engineers and contractors put many hours into even the most pedestrian request for proposal (RFP). Larger firms have full-time proposal coordinators. For contractors, proposals may include budget estimates; for designers, it's not uncommon for the RFP to seek some preliminary design interpretation. On most projects there are interviews that follow the RFP submission. A lot of time is put into each proposal before the final decision is made and that means a lot of expense. Not all owners have (or share) an appreciation for the cost of responding to their request. So when that rejection call comes, there can be emotions invested in the process. Emotions can get you in trouble.

"I have a son who handles the finances for our firm. He grew up with me being in this business for 40 years. He told his mother recently that until he worked here he had no idea how much rejection there was," chuckles Dennis Astorino, founder of DLA+ Architecture & Interior Design. "When you get rejection you have to give yourself time. I give myself 24 hours to wallow and whine but then you have to get back and get your eye on the ball for the next one. You can't let negative energy impact the job you're going after next week."

Steve Massaro is the senior vice president for Massaro CM Services. He led the company's sales and business development efforts for more than 27 years and has taken many of those calls. His best advice is to discipline yourself to listen rather than respond.

"The best thing you can do is listen to what they have to say and then get off the phone as quickly as possible," Massaro advises. "If the emotions are still high, nothing good can come of it."

One thing worth bearing in mind is that the phone call (or email or letter) is a courtesy. The contractor or designer that pursued the business opportunity isn't owed a response other than congratulations. When the owner is courteous enough to contact all the participants, the best course of action is to be grateful for the opportunity and to use the call to gain whatever information can be tactfully gained.

"Usually they ask who won and we're happy to share that. Most of the time they ask but if they don't we want to tell them why they weren't selected," notes Eric Cartwright, vice president of corporate real estate for UPMC. "Generally we don't send an RFP unless we're going to be happy if they get the job. What makes [the choice] difficult is figuring what it is about this RFP that makes them the right fit or not the right fit for this project."

Cartwright is one of the decision-makers on most of his projects but often the "Dear John" call or email may come from someone who didn't make the selection. In that scenario, you may not be given the actual reason your competitor prevailed. Be prepared to hear something that you'll want to argue, but resist the temptation.

Massaro recalls being told his company didn't have enough dormitory experience at a time when Massaro Corporation was building five dorms – and none of his competitors had more than one under construction. He says the one that sticks out most in his mind was being told that the owner felt Massaro would be too busy with Heinz Field to give its best effort on the owner's project.

"Obviously, he confused Massaro and Mascaro but at that point it does no good to say that isn't us," he says.

Construction owners would unanimously agree with Massaro on that last point. By the time that the RFP is issued, the respondents are all generally qualified to perform the work. In the private sector this should be universally true, since owners have the discretion to eliminate anyone from the process. Regardless of the funding source, RFP's often follow a request for qualification. By the time interviews are conducted the selection is a matter of splitting hairs between firms that could all handle the project. Nearly all owners agree that the decision usually turns on the comfort level they get from the team that is presented.

"It is a difficult matter to have to make the call to a consultant who is not chosen to go forward with us on a project. Granted, it's not as hard as taking the call, but it's still difficult for one reason: If you didn't like the firms you solicited, you wouldn't have had them in the mix to begin," says Ralph Horgan, CMU's associate vice president of Campus Design and Facility Development. "Nobody has time to waste. But it's difficult to tell people whom you like, and who have often submitted a very good proposal, that someone else submitted an excellent proposal and that you're going with them."

"It usually is a very, very hard decision. Pittsburgh is blessed with a very good contracting community," notes Reilly. "[The contractors] are often all good enough but it's just that there are fine points that decide which one it is for this project."

Interviews give owners the opportunity to meet the people who will be responsible for delivering their project. Most important is the opportunity to meet the project architect or construction superintendent who will be the person that the owner and his or her staff will interact with daily. This is the person who will solve the problems of the project. The successful firm will have to have demonstrated competence and experience that is equal to or better than the competition to win; but no competent and experienced firm will be successful if the project team it presents leaves the owner feeling uncomfortable that he or she can't work with a member of the team.

While "comfort level" is an entirely subjective judgment, it is possible for most owners to give you an assessment of where your proposal or interview went wrong, or where the winner's went right. Not everything you'll hear will be actionable but there will likely be some of those "fine points" Andrew Reilly speaks of that you can work to improve.

Getting that information is also something of an art form. While most owners will share their response to your proposal, the timing of that feedback should reflect an understanding of their processes. For one thing, the owner will be busy immediately following the selection process with negotiating a contract with the winner and initiating the work for which the architect or contractor was hired. On the other hand, the details of the selection process will begin to fade within a few weeks, so requesting a debriefing is a balancing act.

"In general I think a little bit later is better, just because you have a lot of things to do to get started with the winner but six months would be too long," offers Heaton. "So I think maybe within a month it would still be relatively fresh but it would be after I did the things I needed to get done."

"I prefer not to get into the details at that point about why you didn't get the job. I would rather do it – whether you call it an exit interview or debriefing – at another time," says Reilly. "Let it be the next step towards the next job. I'd rather it be part of that relationship I have with you so that the next time we have lunch or coffee we can talk about it. It doesn't have to be an interview per se, just talk about it."

Like with other parts of the post-proposal process, your posture during whatever form of debriefing you have should be gracious and open to learning something about your firm's performance. It can be humbling to take in such feedback but the client will be more forthcoming if he or she isn't being challenged about the decision or made uncomfortable. And it's possible that your response can pay more immediate dividends.

Chic Noll is director of business development for Desmone Architects. He tells a story of just such a reward during a time selling office furniture systems for a previous employer.

Noll had helped an architect design the layout of the work stations and the office furniture for a large Downtown office. After the order for two full floors of work stations, Noll followed up to check on the progress of the second half of the project, only to be informed by the client's managing partner that the rest of the order would go to a competitor that was a customer of Noll's client. Rather than betray his disappointment, Noll expressed understanding for the client's position, which drew relief from the managing partner. Within a few weeks, Noll received an urgent email from the managing partner asking for a meeting. Assuming the worst, he was surprised to find that his competitor had bungled their portion of the project and that the managing partner was hopeful that Noll could pick up the remaining order for seating.

Noll's client specifically cited the way he had handled losing part of the project as something that impressed him. Noll says he saw handling that news as part of the service he was providing.

"If we stop and consider, as service providers, why we even have a career, we would realize that our response to rejection is still part of the unwritten "service" agreement we all have with potential and existing clients," he explains. "If I had reacted in an overly negative way to the client's rejection and made it uncomfortable for my client to conduct business, he would have needed to find a third furniture vendor to order his seating; or settle for poor service."

Sometimes the best course of action is to remove yourself from consideration before rejection can happen.

"The best way to gain an owner's respect is to say no when the project is not a good fit for your company says Reilly. "You don't always have to say yes to the owner."

Analyzing RFP's is, in the end, a hopelessly human undertaking. The final choice can come down to small subjective judgments. Many times, there was a favorite or incumbent with an advantage that the competition didn't overcome. There is little reason to complain about such an edge, since chances are that you have just such an advantage with some of your clients and prospects. In the final analysis, if you have put your firm's best foot forward there isn't much you would change even with the knowledge obtained during a debriefing.

"It can be such a small thing that makes the difference. It's impossible to predict," says Steve Massaro.

The reality is that the more proactive you are in marketing your company, the more opportunities you will get to fail. If you want to avoid a situation where a competitor has a ringer on the board of directors or where the client's CEO was your competitor's college roommate, then don't respond to the request for proposal. If you feel like you're fighting an uphill battle, either walk away or remember that it's an uphill battle. On the other hand, you could view the RFP through a more long-term prism and see it for the opportunity it is.

"When responding to opportunities, our architects might feel like we've lost when we don't get chosen for a project or make a short list but I see it differently," explains Chic Noll. "We've had the opportunity to interact with a potential client, to have a face-to-face meeting with someone who I may not have been able to get on the phone. That's a chance to build a relationship, not a lost opportunity, with relationship being the key word. People who do what I do would kill for that kind of opportunity." BG

Uncharted Waters: Breaking Ground on Pennsylvania's Rapid Bridge Replacement Project

By Patrick G. Lutz, Esq.

Throughout its history, the Commonwealth of Pennsylvania has led the nation in numerous ways. This spring, the Keystone State will again be a leader in innovation by breaking ground on the first-of-its-kind Rapid Bridge Replacement Project (the "RBR Project").

The United States' Deteriorating Infrastructure

According to an April 2015 analysis by the American Road & Transportation Builders Association, there are more than 61,000 bridges in the United States that are structurally deficient. Faced with ever shrinking transportation budgets and the dire condition of the nation's infrastructure, public transportation agencies from across the nation are searching for solutions.

All eyes from the collective investment, construction and public procurement communities will therefore be sharply focused on Pennsylvania's RBR Project. With construction slated to begin in May 2015, the RBR Project is the first public-private partnership ("P3") in the United States to bundle the replacement of multiple bridges in a single contract procurement vehicle.

If the RBR Project is perceived as "successful," it may be used as a model by other states to finance and replace some of the country's rapidly aging bridge infrastructure.

Origin of Pennsylvania's RBR Project

Out of all 50 states, Pennsylvania's bridge infrastructure is in the worse condition. According to the American Society of Civil Engineers, 23 percent of the state's more than 22,660 bridges are considered structurally deficient.

Pennsylvania recently set out to address its aging bridge problem by undertaking the following actions, which were critical to the creation of the RBR Project:

In 2012, Governor Corbett signed into law the Public and Private Partnerships for Transportation Act (74 Pa.C.S.A. §§ 9101, et seq.), which was the enabling legislation that authorized P3 projects in Pennsylvania. This law allows PennDOT and other state agencies and transportation authorities to partner with a private development entity in order to develop, operate, maintain and/or finance transportation related projects.

On January 9, 2013, the Commonwealth's Public Private Transportation Partnership Board ("P3 Board") approved the Implementation Manual & Guidelines for P3 projects, providing guidance on the development and implementation of solicited and unsolicited P3 projects.

On September 27, 2013, the P3 Board approved the RBR Project, enabling PennDOT to contract with a private development entity and bundle the design, construction,

financing, and routine and life cycle maintenance of hundreds of similarly designed bridges through one contract vehicle.

In 2013, Pennsylvania's Transportation Funding Act of 2013 ("Act 89") was passed and helped finance the RBR Project and expanded the project from 200-300 bridges to the current program of 558 bridges.

On October 24, 2014, PennDOT selected Plenary Walsh Keystone Partners' $899 million proposal for the RBR Project. The consortium's members include the Plenary Group, the Walsh Group, HDR Engineering and Granite Construction Company. Eleven Pennsylvania subcontractors have been identified in the team's winning proposal.

In March of 2015, Plenary Walsh Keystone Partners successfully concluded the issuance of approximately $800 million of tax-exempt Private Activity Bonds (PABs) for the financing of the RBR Project. This is significant because a similar bridge replacement project initiated by the State of Missouri in 2008 could not obtain adequate debt financing and had to be repackaged under traditional design-bid-build and design-build project delivery systems.

Significant Characteristics of the RBR Project

RBR Project Scope. The Plenary Walsh Keystone Partners will replace 558 geographically disbursed, structurally deficient bridges for a cost of $899 million. All 558 bridges must be completed within 36 months. The contract term is for a period of 28 years, which includes a 25-year term for maintenance for each bridge.

Types of Bridges in the RBR Project. PennDOT astutely selected only small bridges with similar characteristics, which can be designed and constructed to standard sizes. The similarity of the bridge types will allow Plenary Walsh Keystone Partners to utilize accelerated bridge construction techniques allowing for reduced onsite construction times, rapid delivery and enhanced work site safety. This will likely include the use of prefabricated bridge elements and systems, which are structural components of bridges that are built offsite and in some cases, are comprised of high-performance materials. These prefabricated components include features that reduce construction and mobility impact time. Additionally, because the RBR Project only includes the complete replacement of bridges as opposed to bridge refurbishments, PennDOT has significantly reduced the potential for claims related to unforeseen preexisting bridge conditions and/or differing site conditions. PennDOT has also aptly decided that larger bridge construction projects would be better procured on an individual basis through the more traditional design-bid-build competitive bid process. Finally, PennDOT has attempted to limit any site access claims or permitting issues by pre-selecting batches of "early completion bridges" for initial construction. In doing so, PennDOT secured right of way and permitting approvals for these "early completion bridges" in an effort to accelerate the RBR Project.

RBR Project Awarded on a "Best Value" Basis. The Plenary Walsh Keystone Partners' proposal was selected utilizing a best value procurement method. Best Value is a unique procurement technique because it considers both the technical/management criterion as well as price in the evaluation process. According to PennDOT, Plenary Walsh Keystone Partners was selected because of its commitment to completing the project eight months earlier than what was required and because it best minimized the impact to the traveling public through its traffic management plan and quality control plan. Under this type of best value procurement evaluation, it takes more than just having the cheapest price to win. Subjective and qualitative factors such as innovative design, schedule, speed to market, management and financial capabilities and qualifications, and traffic management plans all help determine the winner.

Design, Build, Finance & Maintain (DBFM) Project Delivery System. Not all P3s are created equal. In certain types of P3s, the private development entity operates a public asset and will collect tolls or other fees/revenue streams from the public utilizing that asset in order to pay down the development entity's debt. This type of arrangement transfers significant control of the public asset to the private entity. The RBR Project is not structured in this way. Instead, the RBR Project utilizes a

Design, Build, Finance & Maintain (DBFM) model. Under this type of contractual structure, Plenary Walsh Keystone Partners is obligated to finance, design and construct the bridges within the contractually agreed upon time periods, as well as maintain the bridges for a period of 25 years. PennDOT will own the bridges throughout the entire contractual period and the private development entity will not be allowed to collect tolls. Plenary Walsh Keystone Partners will instead be compensated via a series of periodic milestone and performance based payments ("Availability Payments") from PennDOT's current and future revenue streams. Availability Payments are an alternative method of compensation whereby the private development entity is compensated for the design, construction and maintenance of the bridges based upon the private entity's performance over the entire length of the contract. The development entity is paid a set amount if the bridge is completed on schedule and is maintained properly. Payments are reduced if the private entity does not meet the contractually prescribed standards. Under the RBR Project, the Availability Payments will begin in 2016 based on the proposed schedule and the completion of more than 50 bridges. The Availability Payments are slated to average approximately $65 million annually over the entire life of the 28-year term of the contract, which is roughly equal to 2.5% of PennDOT's overall capital program.

Time Will Be the Judge As to Whether the RBR Project Is a "Success"

While certainly not a cure-all for all of Pennsylvania's infrastructure woes, the RBR Project is an innovative and ambitious first step to address the Commonwealth's aging bridge infrastructure. PennDOT's diligent selection of structurally similar bridges, well-thought-out project delivery system, and its proactive approach to right of way and permitting issues are all good indications that PennDOT is truly invested in the success of the RBR Project. Moreover, there are certainly examples across the country where the P3 delivery structure has proven successful on transportation infrastructure projects. However, only time will tell whether the RBR Project will realize the speed of construction and significant cost savings per bridge that is currently being projected by PennDOT. What is certain is that the nation's collective public-private partnership community will be looking on with great anticipation to see if the RBR Project can serve as a model to be replicated throughout the country.

Patrick G. Lutz is a construction attorney with DFL Legal LLP and can be reached by phone at 412-926-1815 or by email at plutz@dfllegal.com. BG

MBE/WBE Company Spotlight

LUCA CONSTRUCTION & DESIGN

By Jon O'Brien

Mali Torriero established Luca Construction & Design, Inc. in 2011 with the long-term goal of being a design-build firm. For now the construction arm of the company handles some concrete flatwork, not enough to sustain a company. The design side, on the other hand, is another story.

"I stay busy, that's for sure," said Mali Torriero, as she drops off her youngest son at kindergarten, knowing that she'll have a few hours to get some work done before she coaches the oldest son's soccer team. "Time management is extremely important, juggling clients, kids and the family life can be challenging. You have to stay organized and set aside time even if it means late nights when the kids are sleeping. It's exciting to own a business, but you have to stay on top of things."

Mali Torriero

"We came to her with a vision and she put our vision on paper," said Brandan Breen. "She's wonderful to work with. She goes much further into details than I anticipated and as a details guy, it was very welcome. She clearly exceeded our expectations."

A current design client of Luca is the Breen family, who hired Luca to design a new home in Peters Township. "We came to her with a vision and she put our vision on paper," said Brandan Breen. "She's wonderful to work with. She goes much further into details than I anticipated and as a details guy, it was very welcome. She clearly exceeded our expectations."

Another current client of Luca is the Smallman Galley. Located in the Strip District, the Smallman

Galley project is a 6,000 square-foot space that will serve as an incubator for four restaurant concepts for 18 months. The selected restaurant entrepreneurs will receive a start-up investment, rent-free space and a mentoring curriculum that covers operations, credit building, marketing, business plan drafting and financing. The four separate spaces within the Smallman Galley will each have a separate look and feel that Luca will design. "It's going to be a fantastic space using as much of the remaining original materials as we can,"

said Torriero. "The clients care very much about using regional foods for the restaurant end of the business and that extends into their desire to use regional materials for the physical space."

Two other projects that perhaps received more acclaim was the work she did in designing its family's residences. The first family home design was built in 2008 and it housed the Torriero family of four (Gino, Mali, Luca, and Nello) for three years until it was purchased by Wiz Khalifa. After the famous rapper purchased the Canonsburg home, it was featured on MTV, TMZ and other media outlets where popular hip-hop stars are shown. The second family home designed by Luca was named the Pittsburgh Magazine Home of the Year for 2014. "Both projects were enjoyable to work on. [On the second home] I really like the mix of materials and how they played together." The Pittsburgh Magazine awards jury was also impressed by the materials and the green elements of the home, with the excellent use of daylight.

The two homes turned out to teach Torriero a valuable life lesson: "I learned I need to relax more. If you start up front on a project with a great team and everyone states their expectations right at the start, everything works much better. Communication is so important in construction. You still need to stay very focused, but it's much easier if expectations are communicated at the beginning."

Her path to company owner started at Virginia Tech. During her freshman year, she met Gino Torriero. She was studying architecture and Gino, the heir apparent to run Nello Construction, was studying construction management. On summer breaks, she would intern with the Canonsburg-based general contractor. Upon graduation, Mali went to work for Dunn & Associates, an architectural firm that designed in the commercial and residential sectors. After a few years there she left and worked for Bob McDunn at his firm and then she went to work for IDC. At IDC, she received invaluable on-the-job training working on the Medrad corporate headquarters and Lockheed Martin.

The valuable career experiences were enough for Mali Torriero to feel confident about launching her own woman-owned business. Luca's first client was New Life Christian Ministries. She was hired to design the entire facility for the Saxonburg church. It is a 13,335 square-foot facility that features a multipurpose room as well as classrooms. For other entrepreneurs looking to start a business, Mali's advice is to enjoy life: "Don't be afraid of mistakes – they happen. Learn from them. Most importantly, have fun."

Jon O'Brien is Director of Industry Relations for the Master Builders' Association. BG

Company Facts

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Trend to Watch

Will Cheap Prices Derail the Shale Gas Boom?

Consumers were taken by surprise when the price of gasoline and oil-related products more than doubled between January and July 2008. Oil producers also found themselves surprised when prices plunged from above $100 per barrel last July to nearly $45 per barrel in March. The steep decline sparked higher spending from consumers with more money in their pockets but the low prices had the opposite effect on the oil and gas industry, which had grown accustomed to prices above $100 for nearly four years.

The positive impact that the exploration of the Marcellus and Utica Shale formations had on the economy in Western PA seemed ready to be multiplied again by the next phase of development for shale gas when the oil price fell. Lower oil prices have put a big dent in the pocketbooks of those involved in the energy sector and have changed the equations that were being used to evaluate the downstream development from shale gas.

Why did the price plunge? From a supply-and-demand perspective, slowing global economic activity in 2014 was married with growing exploration to create a glut of both oil and natural gas. One of the big factors in that glut was the success of America's renewed exploration efforts, especially in shale exploration.

As oil prices have bounced back up some 20 percent or so since the bottom, the question being asked is: what does it mean for Western PA?

Answering that question requires looking at the status from the perspective of both producers and users, some of which are the same companies. Lower prices have helped as many companies as have been hurt. Unless the oil price bounces back another $30 or $40 per barrel soon – something no one is willing to forecast at this point – the playbook for the energy industry will be rewritten and Western PA will be affected.

Why did the price plunge? From a supply-and-demand perspective, slowing global economic activity in 2014 was married with growing exploration to create a glut of both oil and natural gas. One of the big factors in that glut was the success of America's renewed exploration efforts, especially in shale exploration. American imports declined. Surpluses grew and when the Saudi Arabians declined to curb drilling to pinch supply, producers began cutting prices in order to move oil. Even though geopolitical conditions in the Middle East remain contentious, the flow of oil has not been disrupted. Most observers expect downward pressure to keep prices below the level of $60 to $70 through 2015.

It's the nature of oil and gas prices to rise and fall in cycles. While the price of the commodities is unpredictable, the effects of falling prices are not. Thus far, the ripple effect has gone pretty much by the book.

Declining oil prices will hit exploration and production (E & P) first, with pressure on midstream and oilfield services to follow if the prices remain low for an extended period. The simplest measure of E&P activity is the drill count, which has fallen in the U.S. since July of 2014. After weekly rig counts of roughly 1,600 in July 2014 – a level that had been reached several times in the decade – rig counts in March 2015 had fallen below 800.

The supply chain that benefitted from the frenetic pace of drilling and processing shale gas has seen its pricing slashed at the demand of the E & P sector. While that can have a salutary effect on some aspects of the energy business (more about that below), the declining activity has hurt the bottom lines of the entire industry. That shows up first in declining capital expenditures (capex)


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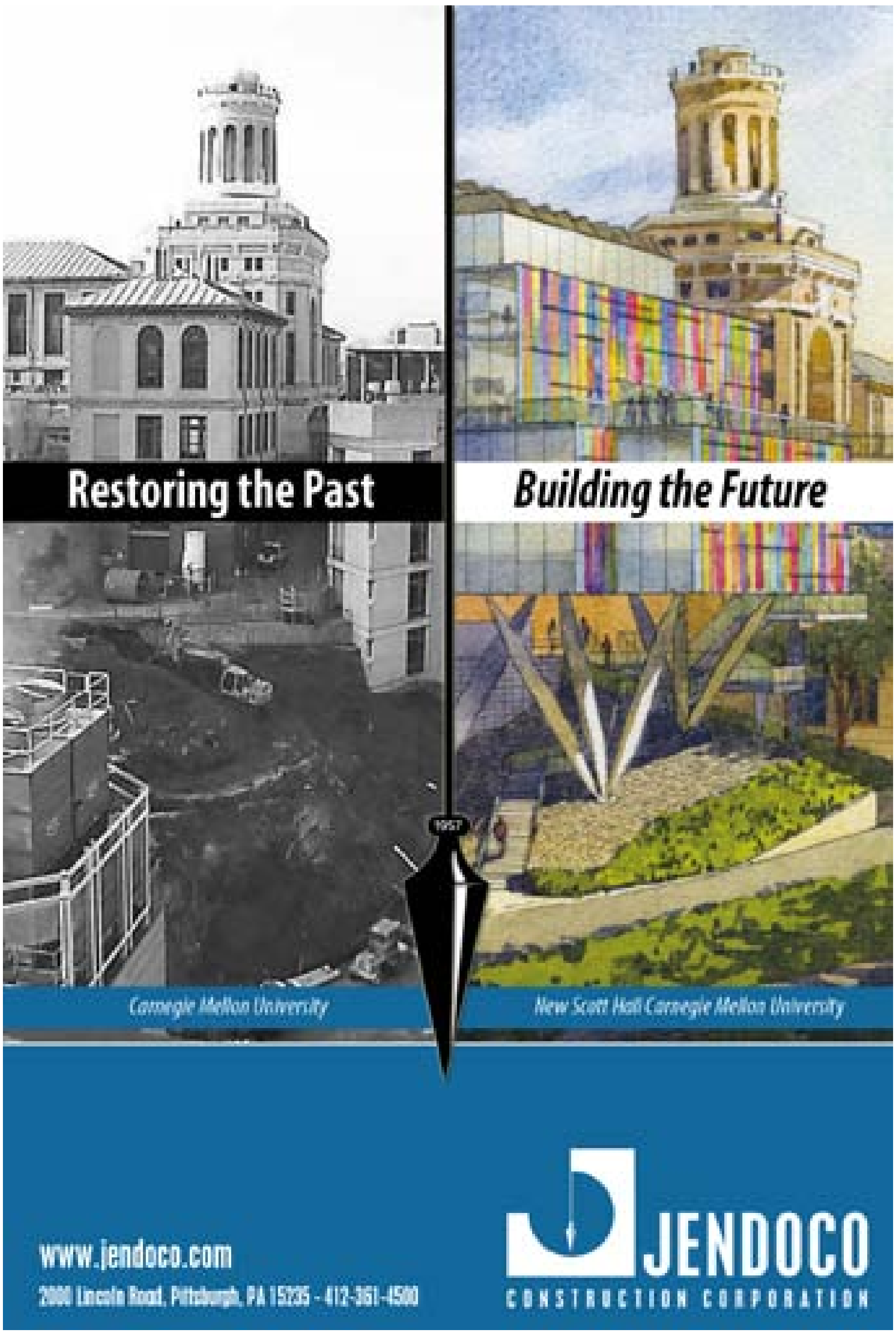
and as might be expected, oil producers are forecasting a 31 percent decline in capex for 2015.

While the declining capex has been bad news for the industry, the conditions have not been as damaging in the Marcellus. Output in the Marcellus is more than 120 percent higher than in any other shale gas play. The E&P's in the best positions – Range Resources, Antero Resources and Cabot Oil & Gas – are all active in the Marcellus, which has become something of a fallback position for producers. Evidence of the industry's shifting of assets from shale basins in other parts of the country to Southwestern PA are noticeable. As it was in 2008, when Texas and Oklahoma license plates started to show up on Interstate 79, there are now fresh plates and names from the Southwest and places like North Dakota, where the Bakken formation is slowing because of the poor economics of the oil market.



Under the heading of "one man's trash is another man's treasure," the pressure on the supply chain has had one salutary effect: drilling is as much as 30 percent cheaper than it was just a year ago. That has given the well-positioned companies – like Range, Consol and Rice Energy – an incentive to punch deeper into the Utica and Point Pleasant formations that lie below their Marcellus holdings. Thus far, the output from the limited drilling of the Utica and Point Pleasant has been outstanding. Range Resources has reported a Utica well located in Claysville producing 59 million cubic feet/day, for example.

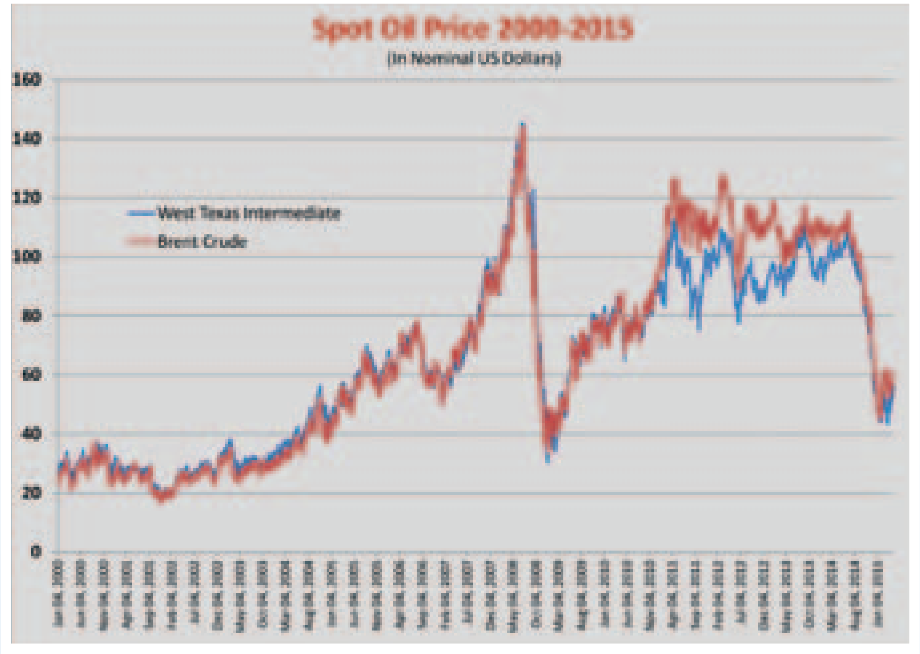
Utica and Point Pleasant shale layers offer higher pressure and more liquids, which make those holdings more profitable, especially if going 2,000 to 6,000 feet deeper isn't as costly. With more liquids to sell, producers can boost profits and offer a better return to attract investors.

Since the oil price plunged, concerns have grown for the health of the gas industry in Western PA. There are understandable and well-founded fears that the industry could pull back or dry up before it gets established. There are also misconceptions about how the low price environment is impacting development.

One misconception that has arisen in the current low-price environment, especially since the governor's severance tax proposal was announced, is that the energy industry is pulling back on its investments in the Marcellus and Utica Shale plays. There have been reductions in capital budgets and in drilling (DEP recently announced permits for 601 wells in the first quarter of 2015 compared to 863 in 2014), the pullback is a matter of degree. The output from the Marcellus production still outstrips the capacity to process and distribute the natural gas. Wet gases from the Southwestern PA portion of the gas plays still offer much better return on investment than those wells that simply put out dry methane.

Even as capex for exploration has screeched to a halt, expenditures for midstream activities have continued. The development of the gas business in the Appalachian Basin is in its infancy and the balance of the assets are still predominantly in the upstream, or exploratory, stage. Extracting gas from the shale formations only starts the ball rolling in the commercialization of the commodity. Midstream facilities are needed to separate the wet and dry gases, compress the gas and distribute it via pipeline for consumption or further processing into byproducts. Construction of those midstream facilities has been going on for five years or so but even after billions of dollars have been spent, midstream investment still lags the capacity that already exists. Capital for expansion has been pared back for midstream too, but it's a matter of curtailing the rate of future growth rather than steep cuts.

As an example of the investment reduction, you can look at MarkWest Energy Partners public earnings reports. The midstream giant is adding 1.6 billion cubic feet per day to its processing capacity in the Marcellus and Utica footprint in 2015. The planned capital expenditures for MarkWest in 2015 are roughly $2.3 billion, or about the same as 2014. It expects a decline in 2016 capital investment, but only to $2 billion. Of the amount budgeted for 2015, only eight percent is planned for the Southwest U.S. and 72 percent is slotted for the Marcellus.



a reevaluation of the cracker it planned for Parkersburg, WV. Shell plans to use cash flow to fund the plant it proposes in Beaver County. Current prices have eroded earnings and cash flow. But Shell reported $25 billion in free cash flow at the end of 2014 and its CEO, Ben van Beurden, reminded analysts that failing to invest now ignores the cyclicality of the business. Van Beurden acknowledged that Shell reacted to the steep decline by cutting capital expenditures in 2014 and said that further cuts will be needed in 2015. But he cautioned against the urge to sit on the sidelines completely.

Pipeline infrastructure is equally inadequate for the demand. The Marcellus Shale Coalition estimates that some 1,750 drilled wells are not connected to pipelines at present. Several major pipeline projects are in the various stages of design with completion of all pointed towards the 2018-2019 timeframe.

Lower prices have also fostered the perception – perhaps misconception – that the proposed ethane crackers would be shelved or cancelled outright. It's obvious that high prices would put less pressure on the oil companies to conserve capital but as with drilling, it's not clear that low commodity prices alone will keep producers from investing for the longer term.

Current price conditions hurt the case for locating crackers in the Appalachian in two ways.

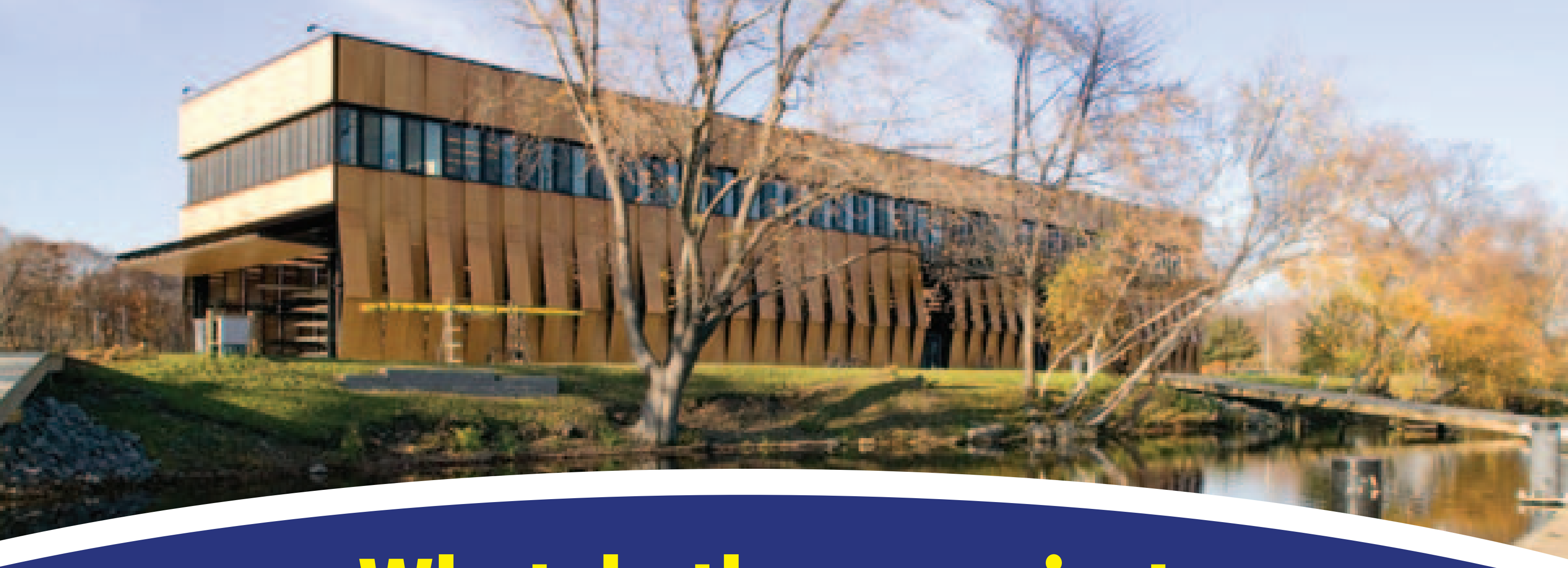
The plastics industry relies on both oil and gas as an original feedstock. Byproducts from both fuels are broken down or "cracked" into more basic elements to get to the ethylene from which the downstream production emanates. Over the past few years, as oil hovered near $100 per barrel and the rich Marcellus and Utica Shale gas remained below $4 for the most part, there was a major cost benefit to developing crackers for natural gas. That advantage is less pronounced since the price of oil plunged, making the case for expanding capacity to crack ethane less compelling.

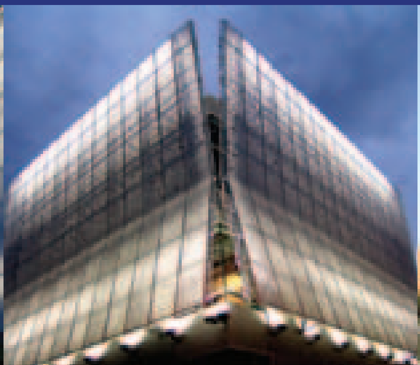
As influential as that shrinking variance between oil and gas as feedstock is, the impact lower prices have had on producer profits has slowed decision-making. Odebrecht recently acknowledged that conditions were forcing

"Our volatility is a fact of life. It is what it is, and we have to manage through it," said van Beurden during the company's January 29 earnings release and conference call. "And there are some very important lessons to learn from history here." Van Beurden said Shell has not changed its long-term oil price assumptions and warned that "under-investment today simply leads to more upside risk in oil prices in the future."

Cyclicality is one constant in the oil and gas industry. Pennsylvanians will need to understand the employment and investment cycles of the industry, in the same way that residents of Texas or Oklahoma have. Pennsylvanians will also have to adjust their horizon when assessing how investments will be made by energy companies. The duration of the shale gas plays are multi-generational and one or two year delays in decisions are deal-breakers for this industry.

Past energy business cycles can teach us that the trend will lose momentum and reverse itself. The trend is not a friend to Western PA's energy cluster at the moment but demand for energy and the byproducts of its exploration is not diminishing. In time a more supportive price environment will return. With any good luck, energy companies will have invested ahead of the recovery. BG






UNO

INDUSTRY & COMMUNITY NEWS

Michael Mascaro Receives Buzzelli Champion of Spirit Award

On Wednesday, March 11, Michael Mascaro received the 2015 Guy Buzzelli, Jr. Champion of Spirit Award at the MDA Muscle Team event. The Muscular Dystrophy Association (MDA) bestows this award to "high achieving individuals who have helped further MDA's mission and have benefited the community at large through philanthropic giving."

The Muscular Dystrophy Association is the world's leading nonprofit health agency dedicated to finding treatments and cures for muscular dystrophy, amyotrophic lateral sclerosis (ALS) and other neuromuscular diseases. It does so by funding worldwide research; by providing comprehensive health care services and support to MDA families nationwide; and by rallying communities to fight back through advocacy, fundraising and local engagement.

(mascaro mda muscle team) (From left) Jeffrey, Michael and John Mascaro Jr. at the MDA Muscle Team event.

(From left) Bill Waterkotte form the Carpenters, PJ Dick's Cliff Rowe, PNC's Gary Saulson and Walt Czekaj, project executive for PJ Dick at the CCAC Labor Management Institute's presentation on the Tower at PNC Plaza.

Landau CEO Jeffrey Landau with United Hospital Center's COO Michael Tillman at the ribbon cutting for United's new Orthopaedic and Spine Center in Bridgeport WV.

Lou Lannutti from CM Solutions (left) with the Penguins' Kimberly Slater-Wood and Craig Bingham from All Systems Fire Protection.

Jim Frantz (left), Dan Bell and Jennifer Baxter represent TEDCO at the Meet the MBA event.

Overhead Door Company's Jason Henze (left) and Jeff Muenk (right) flank Drew Kerr from Turner Construction.

Russ Heyz (left) and Randy Sucky from RB VetCo meet with Richard Taylor from ImbuTec.

Washington County Commissioner Larry Maggi (left) with John Artuso of Construction Engineering Consultants and Massaro's Dan Farinelli. Photo by Yasmina Conti.

Jennifer Pavlik from DLA+ with Allen & Shariff's Greg Torcha and Jeff Zacherl from Johnson Controls. Photo by Yasmina Conti.

Wesbanco's Mike Mooney (left) with Tim Goetz of Grant Street Associates/CWA. Photo by Yasmina Conti.

Jendoco's Chris Klehm (left) and Domenic Dozzi (right) with Huntington Bank's Bill Leemhuis. Photo by Yasmina Conti.

(From left) PJ Dick's Jason Day, Luis Guerrero and Frank Babik, Walnut Capital partner Greg Perelman, Jake Ploeger from PJ Dick, Walnut's Todd Reidbord and Oxford Development's Grant Mason at the NAIOP Pittsburgh annual banquet. Photo by Yasmina Conti.

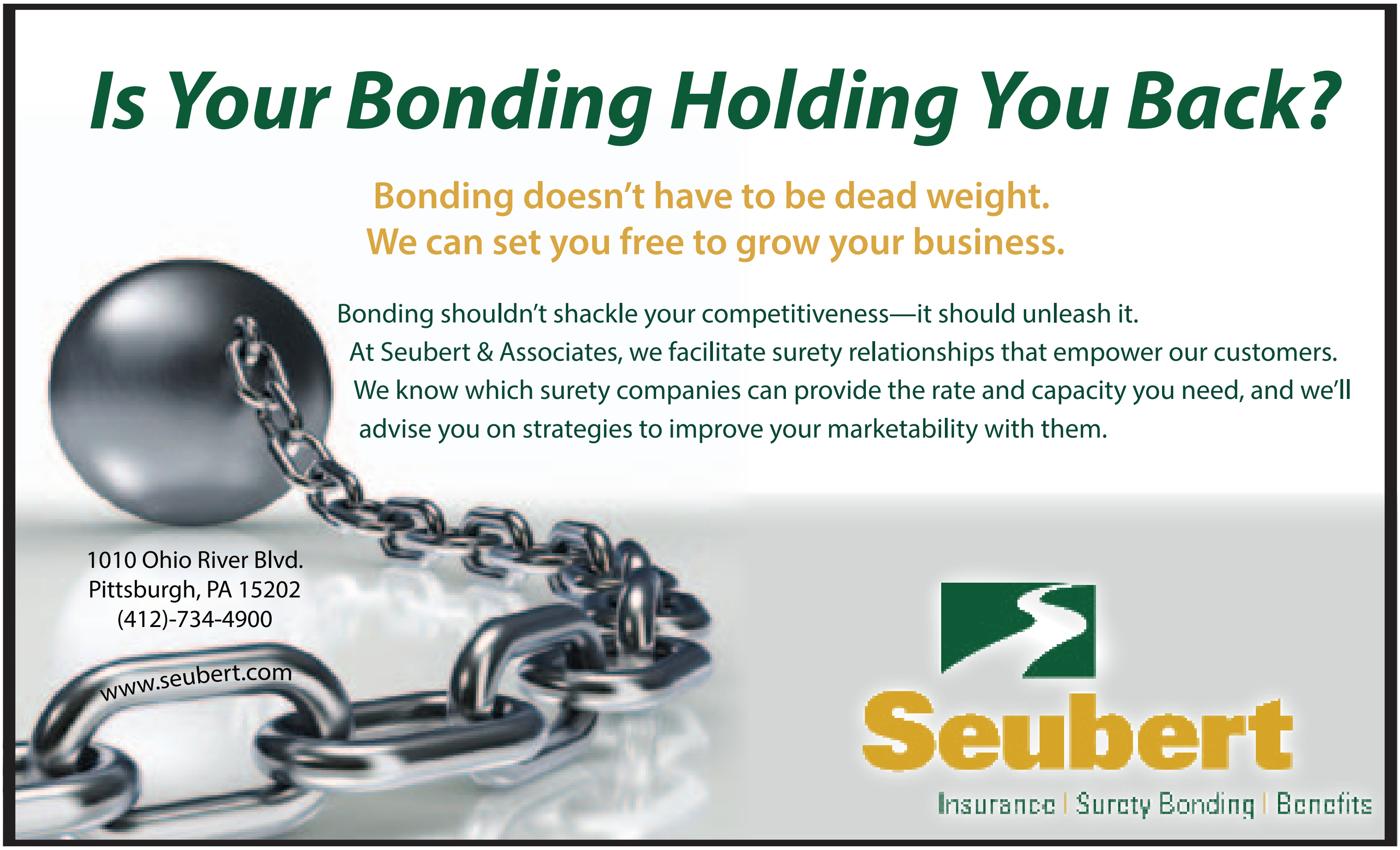
(From left) Rebecca Davidson from S & T Bank with Jeffrey and Sharon Landau from Landau Building Co. and Dave Lowery from Moody & Associates. Photo by Yasmina Conti.

(From left) A. J. Pantoni from Colliers International, Jim Kunz from Operating Engineers Local #66, Meyer Unkovic's Andrea Geraghty and Jim Futrell from the Allegheny Conference were presenters at the CREW Pittsburgh luncheon on the energy economy.

Blumling & Gusky's David Levine (left) and Maureen Sweeney with Jay Black from Seubert at the Blue Book Network Showcase.

(From left) Madison Clinton from CEC, Kathryn Jolley from DRS Architects, Mt. Lebanon Office Furniture's Debra Krumenacker and Lynne Hyatt from Intrepid Exploration at the April 28 CREW luncheon.

(From left) Beth Kocur and Kelly Thomas from EDMC with Integrity Design's Heather Knuth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Awards & Contracts

Yarborough Development & Construction was the successful general contractor on the new $15 million Valley Elementary/West Preston Middle School in Kingwood, WV. Preston County Board of Education awarded Yarborough an $8.8 million contract for the building package. Architectural Vision Group is the architect for the project.

Gurtner Construction was awarded a $5.1 million general construction contract for the new Ross Township public works and salt storage facility. McLean Architects designed the $7.16 million facility.

North Allegheny School District awarded Gurtner Construction a contract for the general construction portion of the $2.6 million Marshall Elementary School renovation. The architect is WTW Architects.

Turner Construction was awarded a contract from Faros Properties for renovations to the first floor at Allegheny Center. The project is part of a $100 million renovation of the former mall and office space. The architect is Strada Architecture.

Massaro Corporation negotiated with Castlebrook Development Company for the construction of the 74 unit, seven-story Flats on Fifth multi-family housing development. The new apartment building will be located at 1655 Fifth Avenue in the Uptown section of Pittsburgh, and includes integral parking. Construction will commence in May of 2015 with a 12-month construction schedule. LGA is the architect of record.

Massaro Corporation was the low bidder for the Fairmont State University – University Terrace Apartments. The 110,000 square foot complex consists of two four-story and one three-story buildings. Mobilization began in April of 2015 with a slated completion date of August 2016. The architect is McKinley & Associates.

Moon Area School District awarded Nello Construction the general trades contracts worth $9.6 million for the renovations to its Brooks Elementary School and Allard Elementary School. The architect for the $20.8 million project is Marotta/Main Architects.

Howard Hanna Real Estate Services selected Dick Building Co. as contractor for its new 4,500 square foot sales office building in Sewickley. The building was designed by Stephen Casey Architects.

Marks-Landau Construction, a subsidiary of Landau Building Company, will begin interior renovations to the fourth floor of United Hospital Center's Physician's Office Building in Bridgeport, West Virginia. The space, which was formerly the Orthopaedics and Neurosurgery Department, will be fit out for new users, including clinical and office functions for ENT, Audiology, and Gastroenterology. This 16,000 square foot project will begin April 20, 2015 and is expected to finish by September 2015. The architect for this project is WYK Associates, Inc.

Marks-Landau Construction recently completed construction of the new 57,000 square foot Orthopaedic and Spine Center for United Hospital Center in Bridgeport, West Virginia. The project was designed by Gresham Smith & Partners, and it was completed in less than twelve months.

Facility Support Services was recently awarded a contract for the Advanced Training Systems Development and Testing Laboratory at the Bechtel Marine Propulsion Corporation Site in West Mifflin, PA. The project engineer is Hatch Mott McDonald.

Dick's Sporting Goods selected Rycon Construction Inc. to build yet another new Dick's Sporting Goods in Wooster, OH. At a cost of $2.7 million, this new 33,000 sq. ft. store will be complete by late summer.

Rycon continues work on the revitalization of Northway Mall on McKnight Road in Pittsburgh's North Hills. Currently Rycon is building a new 14,000 sq.ft. Petsmart designed by Cupkovic Architecture and scheduled for completion midsummer.

Production progresses on the redevelopment of the Shoppes at Parma in Parma, OH. Currently Rycon is completing renovations to the 153,000 sq.ft. JCPenney Store.

Rycon's Special Projects Group was the low bidder on Grove City College's 37,000 sq. ft. dorm renovation project. Designed by RCI Architects, this million dollar project is scheduled for completion end of July.

Jones Lang LaSalle selected Rycon's Special Projects Group for the 5,300 s.f. renovation of the 4th floor at 20 Stanwix Street for First Niagara Bank. DLA+ is the designer.

Rycon's Special Projects was chosen by Cresa Partners LLC for the relocation of Philips Electronics. Philips is occupying 31,000 sq. ft. in New Kensington and 4,500 sq. ft. on Golden Mile Highway in Monroeville. Designed by Structura Architects, these projects are scheduled for completion late summer.

Renaissance 3 Architects picked Rycon's Special Projects Group for the demo and fit-out of the 28th and 29th floors at 625 Liberty Avenue for EQT Corporation.

A $1.7 million contract was awarded to Rycon's Special Projects Group for the two-story addition to Hillcrest Christian Academy in Bethel Park. Designed by Rios Williams Architects, this project is to be complete by late fall.

dck worldwide has been awarded a contract to build another Jimmy John's restaurant. This project involves a 1700 SF interior fit-out of new retail space off of William Penn Highway in Murrysville, Pennsylvania.

dck worldwide is scheduled to begin Phase 2 of the multifamily Katella Grand project for the Wolff Company. Situated on a nine-acre site in Anaheim, California, this $59.5M Phase 2 project includes a five-story building with 386 units wrapped around a seven-level parking garage. Amenities include a rooftop deck, fitness room, yoga lawn, sports court, and urban garden. dck is currently completing the 399-unit Phase 1 of this project.

Two dck worldwide projects were recognized at the General Contractor Association's Build Hawaii Awards on April 18. The $32.5 million Queens Medical Center West Oahu Renovation project took the Excellence Award in the Renovation/Remodeling category; and the $46.9 million Marine Corps Air Station Kaneohe Terminal Operations Complex received the Merit Award in the Design-Build $30M+ category.

RB VetCo was awarded a contract for water damage repairs in two buildings at the Heinz Villas at the VA , as part of its MATOC agreement with the Veterans Administration.

The Energy Innovation Center selected James Construction as the contractor for its Pittsburgh Green Innovators project. The architect is Graves Design Group, LLC.

The University of Pittsburgh awarded Mascaro a preconstruction contract for upgrades and renovations of the Schenley Quadrangle. The scope of the work involves structural repair and a new plaza.

Mascaro is completing the preconstruction phase and will begin construction work in May at the St. Paul of the Cross Church and Retreat Center. The work focuses on upgrading the mechanical, electrical, and plumbing systems.

Mascaro's Client Services group received several contracts for 70,000 square feet of work at Allegheny Center Building 4. For Highmark, Mascaro is providing demolition and construction for Floors 5 and 6; and demoliti on work on Floors 2 and 4 for Allegheny Health Network (AHN). Another project for AHN is renovation of a doctor's office at 4747 Liberty Avenue.

Mascaro is providing preconstruction and construction services for the renovation of the University of Pittsburgh football facilities at the UPMC Sports Performance Center. The work will upgrade the locker room and team meeting rooms.

Mascaro is constructing the foundations for the Rex Booster Station. The work consists of compressor building and compressor foundations; outside equipment foundations; grounds, roads, and outdoor lighting; mechanical excavation for pipe; pipe supports; auxiliary building foundation; and ductbanks and ground trenching. Mascaro is a subcontractor to McCarls.

Mascaro received an additional contract for work at the Penn State West Campus Steam Plant. The scope involved concrete and structural demolition of the existing turbine foundations and installation of structural concrete for the new foundations. Mascaro is a subcontractor for Frank Lill & Son, Inc.

Allegheny Construction Group was the successful general construction bidder on the West Hall Renovation and Student Center for the Community College of Allegheny County's Ridge Avenue Campus. Perkins Eastman Architects PC is the architect for the $9.7 million renovation.

The University of Pittsburgh selected Allegheny Construction Group to build an emergency exterior staircase at its Peterson Events Center. The architect for the project is Indovina & Associates.

Allegheny Construction Group was the successful contractor for the $2.8 million South Matrix Baggage Handling System Make-up Unit Replacement and Outbound Curbside Baggage Access Door Replacement at the Pittsburgh International Airport. The project designer is AECOM. The baggage system design was done by BNP Systems.

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MBA

Safety First!

Safety is a top priority at the
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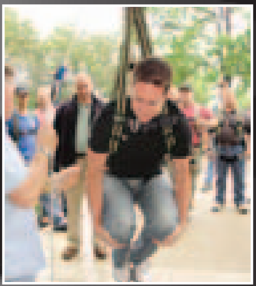
of Western Pennsylvania!

The health, safety, and well-being of every individual in our industry is the cornerstone upon which MBA members build. Construction safety and health is vital for the success of the industry. Join industry professionals from across the country as the MBA teams with the Constructors Association of Western PA to host the 2015 Associated General Contractors of America Safety & Health Committee Conference. This is your opportunity to participate in the development of regulatory and legislative activity on both a national and local level, assist in the development and creation of new safety training programs and products, and hear the latest initiatives from OSHA and other industry experts.

Get the latest updates on congressional activity that directly affects construction safety and health. Hear from key OSHA representatives on the latest updates to regulations and OSHA activities. Attendees can participate on subcommittee and taskforce meetings to take an active role in improving safety and health in the construction industry. The AGC Safety & Health Committee Conference is open to AGC, MBA and CAWP members as well as nonmembers.



The MBA Risk Management Committee does an excellent job maintaining current and useful safety information on the MBA website. As a reminder of the helpful information, you can request to be added to the MBA's monthly safety e-newsletter. This communication highlights safety updates, services, and training available. To become a recipient of the MBA Safety News, contact the MBA at 412-922-3912 or info@mbawpa.org.

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Faces & New Places

Massaro Construction Management Services, LLC opened a new office located in Bellefonte, Pennsylvania. The Central PA Massaro team is led by Kevin Nestor, senior project manager. The new office is located directly across from the Centre County Courthouse at 117 E. High Street and will provide a customer resource center in central Pennsylvania.

Katie Brinkhoff joined Rycon's Building Group as the newest project engineer. A graduate of Lehigh University with a bachelor's degree in civil engineering, Katie has two years experience and will be a part of Rycon's Northway Mall renovation and WVU's Law School Renovation.

Erin Dunbar joined Mascaro on March 9 as a project engineer and is working at Penn State on the Steidle project. Erin is a 2011 graduate of the University of Pittsburgh and a LEED® Green Associate.

Justin Lamb joined Mascaro on March 16 as a project engineer and will be working at the Shell Franklin site. Justin brings 15 years of construction experience; including time spent serving his country as a United States Marine Corps Combat Engineer.

Scott Zubik also joined Mascaro on March 16 as a project engineer and will be working on the Courtyard Waterfront Hotel in Erie. Scott brings five years of construction experience.

Dave Lochrane joined Mascaro on March 23 as an MEP coordinator and will be working at the Union Trust project. Dave's background includes being a lead system specialist.

Glenn Gmitter, also joined Mascaro on March 23 as a senior estimator bringing 21 years of construction experience to the H/I department. Glenn and his family are in the process of relocating back to Pittsburgh from Fort Wayne, Indiana.

Matt Barnett joined Mascaro on March 24 as a project manager and will be working on Chevron's tenant fitout project. Matt, originally from New Zealand, brings 21 years of construction experience.

Christian Fraser joined Mascaro on April 13 as a project manager. Residing in Baltimore, Maryland, Christian will be part of the project team on the John Hopkins Meyer Building renovation. Christian brings over 18 years of construction experience in estimating, project management, and business development.

PJ Dick hired Natasha Smith as assistant project manager; Mike McCardle as a project superintendent; Brad Lomago as an estimator for its industrial group; and Pam Daniels as a payroll administrator. PJ Dick also hired Nick Holz as a project manager and Karen Ofchinick as a project engineer in its Exton office.

Bob Fittipaldo has joined Burns & Scalo Real Estate Services, Inc. as Director of Facility Management. Previously, Mr. Fittipaldo was responsible for real estate, facilities and construction management at Giant Eagle, Inc. He is a graduate of Washington & Jefferson College with a bachelor of arts in Business Administration, as well as a masters in Business Administration from Robert Morris University.

Luca Barison has been promoted to Executive Vice President of Special Projects for Nicholson Construction Company. In this new role, he will oversee all operations and estimating of complicated, multi-technique projects in Nicholson's Special Projects Group. Barison has been with the company since 2000, starting as a Project Manager and then working his way up to Project Executive, Operations Manager, and most recently, Vice President of Special Projects.

Dan Thome has been promoted to Vice President at Nicholson. In his new role, he will oversee operations for the company's Central Region, made up of its offices in Kalamazoo, Pittsburgh and Chicago.

Thome, who also started his career with the company in 2000, most recently served as the Regional Manager for Nicholson's Midwest area. He began his tenure at Nicholson as a Field/Staff Engineer, and later held the positions of Design Engineer and Project Manager.

Massaro Corporation hired Michelle Johnson as a project engineer. Michelle has a degree from the University of Pittsburgh and has been in the industry for more than 15 years. In addition to her PE experience she has comes to Massaro with a background in concrete project management.

Jason Hettich was hired by Massaro Design Build, LLP as a lead estimator. Jason graduated from St. Vincent College and has been in estimating since 2002. Jason's primary role is to provide the owner with cost certainty. He does this by providing real time feedback to the owner and design team throughout the design process.

Catherin Stock was hired by Massaro CM Services, LLC as a project manager earlier this year. She graduated from Michigan State University with a Bachelor of Science degree in Construction Management and has been in the industry for more than 15 years. Catherin brings with her a wealth of knowledge in both the public and private sectors.

Mark Dietrick, AIA, has been appointed to the position of Co-Chairman for the AIA-MBA Joint Committee representing AIA Pittsburgh. Mr. Dietrick is an executive at Case Technologies, a consulting firm that specializes in integrating technologies into design and construction. The AIA-MBA Joint Committee was launched in 1965 to provide a unique forum that promotes the exchange of ideas between architects, contractors and owners; these activities have advanced the cooperative working relationship enjoyed by the region's construction industry. BG

AWARDS & CONTRACTS

continued from page 69

Volpatt Construction has started work on the $3 million fourth phase of renovations at Stewart Science Center for Waynesburg University. VEBH Architects is the architect.

PJ Dick Inc. was selected to manage $4 million renovations of an existing four-story building for the Philadelphia School District into a multi-tenant James Alcorn Health and Wellness Center.

PJ Dick was selected to manage the construction of the $14 million Penn Highland, a six-story mixed use building featuring five stories of 78 apartments and one story of ground floor retail for Walnut Capital. Demolition is underway. The terracotta facade of the existing building will be incorporated into the new building. Strada Architecture LLC is the architect.

Duquesne University selected TEDCO Construction for its Admissions Building First Floor, Phases 1-4 Admissions Renovation project. IKM Inc. is the architect for the project, which involves renovation of 4,647 square feet of space.

TEDCO Construction was awarded a contract for the new Eat 'n Park #18, to be built on Library Road in Bethel Park. The architect for the project is Axis Architecture. BG


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Closing Out

Just One Word: Plastics

By David Ruppersberger

David Ruppersberger

Who would have thought a career change – becoming the president of the Pittsburgh Regional Alliance (PRA) – could open the door for me to use one of the most memorable lines in film history: "I just want to say one word to you – just one word. Plastics."

The film is The Graduate, and the set-up for this famous line is a family friend, Mr. McGuire, giving career advice to Dustin Hoffman's character, Ben Braddock. McGuire goes on to advise young Braddock, uncertain about his prospects after college graduation, "there's a great future in plastics. Think about it."

Thinking about plastics and what could be a great future for the greater Pittsburgh region linked to our abundant supply of wet gas found in the Marcellus and Utica Shale plays is what I encourage. From the wet gas supplies in the Pittsburgh region and in neighboring states comes ethylene, via fractionation at ethane cracker plants. Ethylene is the most commonly produced petrochemical and the root chemical for making all sorts of plastics products that touch nearly every aspect of modern life.

Our region is on the radar for cracker plant investments in Pennsylvania, Ohio and West Virginia. Sites in all three states – including Beaver County – under consideration for cracker investment have a trifecta of real estate assets: significant acreage, rail service and river access. Regardless of where the cracker plants eventually end up, the workforce opportunities and economic impact will cross state borders.

Plus, two crackers are better than one and three crackers are better than two. In other words, more crackers will accelerate the investment in infrastructure and supply chain companies needed to make even more manufacturers successful.

We are assessing key competitiveness issues – both capital and human –to make the greater region ready for multiple cracker investments. On the short list are pipeline infrastructure and storage needs for natural gas liquids (NGL). Currently underway is an assessment of the sufficiency of midstream infrastructure for the entire NGL footprint. We're also working on creating a roadmap of the potential development of the midstream infrastructure to demonstrate the opportunity for the petrochemical and chemical industries to expand across geography and time. And we're exploring the critical factors of pipeline redundancy and storage facility construction for the petrochemical industry, given the proposed concentration of ethane crackers.

A cracker plant is a multi-billion dollar investment in state-of-the-art petrochemical processing and would be the largest industrial investment we've seen in this region in a long time. While each project has its own requirements and timelines, we can expect that thousands of construction workers, many with specialized skills, will be needed. Once the plant is up and running, there will be hundreds of employees needed to keep it operating day-to-day.

Many of these day-to-day workers will be process technicians, a common occupation in petrochemical facilities. We've developed a way to train process technicians through ShaleNET, a program that has already identified, recruited, trained and placed more than 3,600 people in natural gas-related occupations. We can take the lessons we've learned in training people for these upstream occupations and use them to prepare our downstream workforce. Military veterans are among the people who have been most successful in the ShaleNET program, and we know that more veterans will be returning to our region in the coming years as military activity overseas winds down.

Lastly, operating with the expectation that one or more crackers will be built in the greater region, the PRA and its partners are working to ensure the development of a robust network of chemical feedstock producers and end-user manufacturers to make use of the products produced at petrochemical facilities. We are in the process of identifying opportunities for attraction and expansion of downstream end-user manufacturers that could use polyethylene (PE) as a feedstock. These could include producers of rigid packaging, flexible packaging and film. The start-up of PE plants should provide the prospect for logistics or distribution companies, a critical part of the PE supply chain, to expand in the region.

When considering its pooled resources, the greater region has a more-than-ample supply of assets – below and above ground – that can tip the scales of business investment in favor of multi-ethane cracker investments in Pennsylvania, Ohio and West Virginia, as well as the attraction of PE manufacturers to set up facilities here. By continuing to work in partnership to maximize what could be a golden opportunity for the greater region, we will all be winners.

"There's a great future in plastics."

Dave Ruppersberger is president of the Pittsburgh Regional Alliance.

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