OCC EXHIBIT NO._____

BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO

In the Matter of the Application of The East Ohio Gas Company d/b/a Dominion East Ohio for Approval of an Alternative Form of Regulation	))))	Case No. 15-0362-GA-ALT

DIRECT TESTIMONY
OF
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On Behalf of the
Office of the Ohio Consumers' Counsel
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February 4, 2016

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I. INTRODUCTION

Q1. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND OCCUPATION.

A1. My name is Daniel E. O'Neill. I am the President of O'Neill Managing Consulting, LLC, a Georgia limited liability corporation founded by me in 2005 that specializes in providing management consulting services to the utility industry. The firm's address is 1820 Peachtree Road, Suite 709, Atlanta, GA 30309.

Q2. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A2. I am appearing on behalf of the Ohio Office of the Consumers' Counsel ("OCC") regarding Case Number 15-0362-GA-ALT before the Public Utilities Commission of Ohio in the matter of the Application of the East Ohio Gas Company d/b/a Dominion East Ohio ("Dominion" or "DEO") for Approval of an Alternative Form of Regulation. Dominion's application seeks an increase in the cost recovery caps (from $1.40 to $1.82[1] per customer per month) that determines charges to consumers for the Pipeline Infrastructure Program ("PIR"). However, this increase in caps is being requested because Dominion has experienced a significant increase in its replacement cost per foot of pipeline.[2] However, there

[1] In 2017, and to $1.85 by 2021. See the application, p. 7.

[2] Direct Testimony of Michael Reed at page 9, lines 1 – 7 (original cost range of approximately $75 to $80 per foot and the Utility has experienced prices increasing form $85 per foot in 2008 to $150 per foot in 2014).

are indications that Dominion is failing to properly manage cost increases. Dominion's PIR program has resulted in a desired reduction in leak rate, and the PUCO should take time to assess all aspects of the PIR program (e.g. Dominion's cost management procedures, the proper term of the program, proper caps on customer charges, and the appropriate way for returning O&M savings to Dominion customers).

Q3. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND.

A3. I earned a Bachelor of Arts degree in Economics from the Louisiana State University in New Orleans, now called the University of New Orleans, in 1971. From 1971 to 1975, I studied for a Ph.D. in Economics at the Massachusetts Institute of Technology (MIT), leaving there with the dissertation underway. I completed the MIT Ph.D. in 1977 while I was teaching at the Georgia Institute of Technology in Atlanta.

Q4. PLEASE DESCRIBE YOUR WORK EXPERIENCE.

A4. After leaving Georgia Tech in 1979, I served as Manager of Marketing Research for Equifax, and then became their Director of Financial Analysis. In 1982, I joined a telecommunications utility, Contel, as Director of Financial Analysis, and was later promoted to Assistant Controller of Financial Analysis. In 1987, I joined Deloitte, Haskins & Sells, now part of the firm Deloitte & Touche, in their utilities consulting practice, where I continued to focus on utility financial performance, especially activity-based accounting, budgeting and reporting

systems. Because Deloitte was the major auditor of electric and gas utilities in the United States, I focused on the electric and gas industries rather than the telecommunications industry.

In 1992, I joined Electronic Data Systems' newly acquired subsidiary, Energy Management Associates, and continued my utility consulting career, still focused on methods to improve financial performance with an increasing emphasis on the operational drivers of such performance, including work management, electric reliability, and gas system integrity. I began to publish some of the results of my work, often co-authoring with clients, and now have authored over 50 relevant articles and conference papers.

In 1997, I joined Metzler & Associates, a management consultancy dedicated to the utility industry, which has since become Navigant Consulting and now serves many industries. In 2005, I established my current firm, O'Neill Management Consulting, LLC, continuing to focus on utility asset management and reliability. At the same time I founded and chaired for six years a conference on Emergency Preparedness and Service Restoration for Utilities, which served the emergency management needs of the utility industry.

Q5. HAVE YOU PREPARED TESTIMONY OR COMMISSION-SPONSORED REPORTS ON ISSUES INVOLVING THE DISTRIBUTION COMPANIES REGULATED BY THE PUBLIC UTILITIES COMMISSION OF OHIO?

A5. Yes. In 2007, as a subcontractor to UMS Group, I was the lead reliability consultant in a Focused Reliability Assessment of Cleveland Electric Illuminating Company ("CEI"), a FirstEnergy Company. The assessment was the result of a previously agreed upon stipulation that if CEI failed to reach certain reliability metric targets a third-party assessment would be performed.

Q6. HAVE YOU PREPARED TESTIMONY OR COMMISSION-SPONSORED REPORTS IN OTHER JURISDICTIONS?

A6. Yes. In Pennsylvania and Massachusetts, regarding electric companies in some cases and gas companies in others.

Q7. COULD YOU DESCRIBE THE EXPERIENCE REGARDING TESTIMONY IN GAS COMPANY CASES?

A7. Yes. I have provided testimony on behalf of the Massachusetts Attorney General in the following dockets, most of which involved the funding of a Targeted Infrastructure Replacement Factor ("TIRF"), which is essentially a gas aging infrastructure rider like the alternative form of regulation being considered in the extant case:

- D.P.U. 11-01/11-02, Fitchburg Gas & Electric Company, d/b/a/ Unitil (electric and gas rate case);

- D.P.U. 11-36, Boston Gas Company and Colonial Gas Company, d/b/a National Grid (TIRF);
- D.P.U. 12-38 Boston Gas Company and Colonial Gas Company, d/b/a National Grid (TIRF, 2nd Year)
- D.P.U. 12-120 Department Investigation into Service Quality Guidelines (electric and gas);
- D.P.U. 13-78 Boston Gas Company and Colonial Gas Company, d/b/a National Grid (TIRF, 3rd Year).
- D.P.U. 14-76 Boston Gas Company and Colonial Gas Company, d/b/a National Grid (TIRF, 4th Year).
- D.P.U. 15-46 Boston Gas Company and Colonial Gas Company, d/b/a National Grid (TIRF, 5th Year).

Q8. PLEASE CONTINUE WITH YOUR OTHER GAS TESTIMONY EXPERIENCE, IN PENNSYLVANIA.

A8. In 1995, I prepared testimony that was filed and then heard before the Philadelphia Gas Commission, in the matter of Philadelphia Gas Works' ("PGW") proposed FY 1995-96 Capital and Operating Budget & Five-Year Forecasts and 1995 Debt Service Coverage Gap, June-July, 1995. At the time, I was the lead subject matter expert for EDS Management Consulting Services ("EDS"). I led an update in 1997 while I was still with EDS, and again in 2000, while I was with Navigant Consulting. Both updates (1997 and 2000) were filed before the Philadelphia Gas Commission and testified to by PGW staff alone; I

was available, but not required to testify. In all three instances, my recommendations were accepted by PGW and the Commission, which recommendations continue to guide Commission decision-making.

Q9. IN ADDITION TO WORK ASSOCIATED WITH REGULATORY ACTIVITY, HAVE YOU DONE WORK FOR GAS DISTRIBUTION CLIENTS RELATED TO THE REPLACEMENT OF CAST IRON AND BARE STEEL MAINS AND SERVICES?

A9. Yes. I have done work for a number of clients in which the assignment involved assessing the appropriate level of such programs, as well as other operational issues relating to pipeline integrity. My work with many of those companies is described in an article entitled, "A Decision-Analytic Approach to the Replacement of Gas Mains and Services," that was published in June 2007, in the American Gas Association's Distribution Pipe: Repair and Replacement Decision Manual. The clients included:

- Public Service Electric & Gas of New Jersey, which had (and still has) the largest inventory of cast iron main in the country;
- Consumers Power of Michigan, among the largest (top five by number of customers) gas distribution companies;
- Peoples Gas Light & Coke of Chicago, before it was acquired by Integrys Energy Group;
- Lone Star Gas of Texas, after it was acquired by TXU; and
- Entergy Gas in Louisiana.

In addition, I have worked with a number of combined gas and electric companies on issues of work management and operational efficiency.

Q10. IT APPEARS YOU HAVE ALSO DONE A SIGNIFICANT AMOUNT OF WORK IN ELECTRIC RELIABILITY AND ASSET MANAGEMENT, SOME OF WHICH HAS LED YOU TO TESTIFY BEFORE THE REGULATORY AGENCIES IN THE PAST. HOW IS THAT RELATED TO YOUR EXPERTISE IN GAS SYSTEM INTEGRITY?

A10. They are complementary fields. Many of the same principles that I have applied to electric system reliability and cost effectiveness have strong parallels in the methods used in optimizing investment in gas system integrity. Moreover, the work I have done in electric emergency management is equally relevant to the public safety issues in gas pipeline integrity.

II. SUMMARY AND RECOMMENDATION

Q11. WHAT ARE YOUR OBJECTIONS TO THE PUCO STAFF REPORT FILED IN THIS CASE?

A11. I agree with some aspects of the staff report and I disagree with others. I do not object to the extension of the Pipeline Infrastructure Replacement Program ("PIR") for another five years, i.e., 2017-2021, because I think it is indeed advisable that the Company should continue to be incented to replace aging gas infrastructure. I also agree with the Staff's recommendation that the previous

authorization for a five-year re-extension, granted in August of 2011 and with a switch from fiscal year to calendar year, should include all PIR program investment through the end of 2016; and that the mechanism for sharing by Dominion of Operation and Maintenance ("O&M") cost savings be discontinued and that all O&M cost savings should be passed along to customers via an adjustment to the PIR revenue requirement. I do, however, object to the Staff's recommendation that Dominion be granted an increase in the cap on the monthly bill increment that funds the PIR program, and instead I feel that the $1.40 per month rate cap should be retained.

Q12. WHAT ARE YOUR REASONS FOR YOUR OBJECTION TO THE STAFF'S RECOMMENDATION REGARDING RAISING THE RATE CAP?

A12. My reasons are three:

- The 25-year target for program completion is unnecessarily arbitrary;
- The pipe construction market is likely to see a reversal in recent cost increases; and
- Such a drastic increase in costs raises questions about the Dominion's ability to manage the program.

III. THE 25-YEAR TARGET FOR THE PROGRAM IS ARBITRARY

Q13. PLEASE ELABORATE ON YOUR OPINION WITH REGARD TO THE FIRST REASON THAT THE 25-YEAR TARGET FOR PROGRAM COMPLETION IS UNNECESSARILY ARBITRARY AND THEREBY INCONSISTENT WITH ESTABLISHED REGULATORY POLICY.

A13. The selection of a 25-year target should never have been construed as a strict deadline, but rather a reasonable goal that would lead to a sensible level of funding, i.e., replacement of approximately four percent per year (1/25). Given that the costs of achieving that goal have increased considerably (due, perhaps, in part from trying to achieve the goal in a labor market that was tight), the objective itself deserves reconsideration. Yet I saw no evidence from the Staff or Dominion that would demonstrate that the 25-year goal was definitely to be preferred over the goal that would be implied if the scale of construction were reduced to fit the cost implied by the $1.40 per month cap. I might have expected to see from DEO, for example, a model that shows what might be projected to happen to leaks (and therefore incidents) on the Dominion system under various replacement scenarios, e.g., four percent, three percent, five percent. I noted that the OCC asked for such a model in discovery and Dominion said it did not have one (RPD No. 10[3]). It is my opinion, based on models that I have developed for use elsewhere, and also those developed by others elsewhere, that even under a three percent replacement program, leaks in the 25th year would decrease substantially,

[3] Attachment 1.

and, assuming the prioritization of pipe replacement would be based mainly on the "worst first" criterion (and somewhat based on street openings, etc.), the pipe left in year 25 of such a program would be expected to be some of the best pipe of that type in the system, and waiting a few more years to replace the last 10-15 percent of the original inventory would not affect leak rates or risk appreciably.

Q14. HAVE YOU SEEN EXPERIENCE ELSEWHERE TO SUBSTANTIATE YOUR POSITION?

A14. Yes. In that regard, I would cite one of the original and successful gas infrastructure replacement programs, that of the Atlanta Gas Light Company.[4] The original target for the program was 10 years, but after various extra considerations, similar to those that changed the scope of the DEO program in 2011, the program was extended to 15 years. In my opinion, that 50 percent change in the targeted length of the program did not undermine its ultimate effectiveness because the worst pipe was replaced first.

Q15. IS THERE ANOTHER EXAMPLE WHICH YOU WISH TO CITE IN THAT REGARD?

A15. Yes. I would note that the comparable Accelerated Mains Replacement Program ("AMRP") for Duke Energy Ohio ("Duke") (formerly Cincinnati Gas & Electric)

[4] *In the Matter of Atlanta Gas Light Company*, GA PSC docket 8516-U, Order (July 21, 1998).

was originally established as a 10-year program,[5] yet the program eventually became a 15-year program.[6] The original goal of a 25-year program for Dominion was based on the Black and Veatch report,[7] which said that the average replacement rate in the nation was four percent (implying a 25-year program).[8] I believe it is useful to examine in some detail the language used in the Black and Veatch report for justifying the difference between the Duke program and the proposed Dominion program. For convenience, I have included the relevant page (27) from the Black and Veatch report as Attachment 2 to this testimony. Here are four key observations, supported by direct quotes from the Black and Veatch report, in which the choice of a 25-year horizon for the program was shown to be: (1) based on "manageability", (2) a judgment call based on "reasonableness with respect to a national average", (3) subject to re-adjustment based on initial program experience, and (4) subject to consideration of the impact on rates and resources:

1. The 25-year program proposed by Dominion was based on the "shortest manageable time frame,"[9] not that which might be optimal from a cost-effectiveness point of view. Apparently, the

[5] *In the Matter of the Application of the Cincinnati Gas & Electric Company, now known as Duke Energy Ohio, for an Increase in Its Rates in Its Service Territory*, Case No. 01-1228-GA-AIR, Opinion and Order (May 31, 2002).

[6] *In the Matter of the Application of Duke Energy Ohio, Inc. for Adjustment to Rider AMRP Rates to Recover Costs Incurred in 2010*, Case No. 10-2788-GA-RDR, Order at 8 (May 4, 2011).

[7] *In the matter of the Application of the East Ohio Gas Company d/b/a/ Dominion East Ohio for Authority to Increase Rates for its Gas Distribution Service*, Case No. 07-829-GA-AIR, Exhibits, Vol II, DEO Ex. 11, Black and Veatch Report at pages 4-47, (August 22, 2008).

[8] Id. at Exhibits, Vol II, DEO Ex. 11, Black & Veatch report at page 1, "national average replacement rate of 3.7%." See also page 35, finding 6 (August 22, 2008).

[9] Attachment 2, page 1, paragraph 2.

timeframe chosen was not truly 'manageable,' at least at first, as the costs have risen so dramatically, as noted above.

2. Black and Veatch felt a 25-year program was a "reasonable expectation and would bring Dominion in line with the current average rate of replacement." I note how a judgment call about reasonableness was made, with respect to a national average.

3. The driving reason was to reduce the total number of leaks. In fact, Black & Veatch recommended monitoring the leak rate during the 25-year period and potentially **changing** it based on the results:

> "However, if during the planned 25 year replacement program Dominion observes that the rate of corrosion leaks per mile is increasing and becomes unmanageable, it may need to increase the rate of replacement of its aging higher risk mains."[10]

Now, to the extent that an increased rate of corrosion leaks per mile was cited by Black and Veatch in the Duke Energy Ohio report as a basis to accelerate replacement of aging higher risk mains, then I would say that a decreased rate of corrosion leaks per mile, such as is the case with Dominion could be a basis to reduce, or at least not to increase, the rate of replacement of its aging higher risk mains. Since 2007, Dominion's leak rate has

[10] Attachment 2, page 1, paragraph 4.

responded quite favorably to the PIR with the rate declining from .87 leaks per mile in 2009, the first full year of the PIR program, to .51 leaks per mile in 2014[11]. Because of the declining leak rate, there is no reason to maintain the pace of accelerated replacement of the program, which would result in increased costs to customers.

4. Black and Veatch stated that the reason Dominion should not imitate Duke's 10-year timetable for replacement was that it was important to take into account the impact which the program might have on rates and resource availability (from the Black and Veatch report on Dominion's program):

> "While Duke Energy's 10-year replacement program may appear to be more aggressive than Dominion's 25 year plan, one must recognize that for the Company to replace its bare steel mains in 10 years, it would need to replace about 400 miles per year. This is over four times the amount of miles that Duke Energy replaced each year. **In my opinion it is not reasonable to plan for a replacement program of a higher magnitude than Dominion is instituting** so long as its corrosion leak levels remain under control. As it is, the Company is planning to

[11] Direct testimony, Michael C. Reed, page 25, lines 2-3.

replace approximately 162 miles per year, **which will be a resource challenge**."[12] (Emphasis added.)

Q16. ARE THERE OTHER EXAMPLES YOU WOULD CITE IN SUPPORT OF YOUR CONTENTION THAT THE 25-YEAR DEADLINE IS UNNECESSARILY ARBITRARY?

A16. Yes. Another comparison is the report that Black and Veatch did for Columbia Gas of Kentucky, a gas distribution company in Kentucky that was filed slightly later than the Dominion report, in mid-2009.[13] Many sections of both reports are clearly a matter of cutting and pasting the verbiage from one report into the other, changing only the name of the company and details like the number of customers and miles of main as is evident from a comparison of the excerpts I have included in Attachments 1 and 2. Of particular note is that in the section on Conclusions, the authors present the same two-scenario depiction (Status Quo versus Proactive Replacement), only in this case, the example given (and the proposed program for Columbia Gas of Kentucky) is a 30-year program, not a 25-year program. Yet the Black and Veatch consultants make the same assertion about its being a "reasonable expectation" without addressing the five-year difference (even though Dominion East Ohio Gas is a larger company, with more customers and more miles of main):

[12] Attachment 2, page 1, paragraph 5.

[13] *In The Matter of an Adjustment of Gas Rates of Columbia Gas of Kentucky, Inc.*, Kentucky Public Service Commission, Case No. 2009-00141, Volume 7, Direct testimony of Steven Vitale.

> Black & Veatch believes that this rate of replacement is a reasonable expectation and that it should provide a significant improvement in the safety and reliability of the Company's distribution system.[14]

And when Black and Veatch makes the same comparison to the "more aggressive" 10-year program adopted by Duke Energy in Ohio (and Kentucky), the consultants once again back off of the aggressive program out of a concern that it could be unmanageable and would strain resources:

> While Duke Energy is progressing under a 10-year bare steel and cast iron mains replacement program, if Columbia was to attempt to replace its higher risk mains in 10 years, it would mean that Columbia would need to increase its main replacements from its 10-year average of 9.7 miles per year to 52 miles per year. Based on discussions with Columbia, this level of increase would **likely severely strain Columbia's manpower, equipment, materials and financial resources**. (Emphasis added.)[15]

Clearly, these four observations, which are based on direct quotations from the Black and Veatch reports, demonstrate that the original logic for establishing the PIR program did not consider the 25-year timetable as the only and best goal, but

[14] *In the Matter of an Adjustment of Gas Rates of Columbia Gas of Kentucky, Inc.*, Case No. 2009-00141, Testimony at 70 (May 1, 2009).

[15] Attachment 3, page 2.

rather a compromise based on what could reasonably be managed in order to achieve a steady improvement in Dominion's leak rates over time.

Finally, it should also be noted that the current goal of replacing approximately 150 miles per year is approximately 4.5-6 times greater than the rate at which Dominion was replacing aging pipeline before the PIR program.[16] Even if Dominion only replaced 130 miles per year in the next five years (a 30-year rate), it would be over four times the rate prior to the PIR program.

Q17. AND THESE CONSIDERATIONS LEAD YOU TO CONCLUDE THAT THE 25-YEAR HORIZON FOR THE PROGRAM IS UNNECESSARILY ARBITRARY, PUSHING HIGHER COSTS TO CUSTOMERS UNNECESSARILY?

A17. Yes. I think there should not be a fixed deadline for the completion of the program, but rather that the program should proceed at a pace that is reasonably likely to be cost-effective and achieve the desired results in terms of reducing leaks. In addition with regard to this argument, the deadline of 25 years from the original inception of the program need not even be sacrificed at all if construction market conditions change favorably. Therefore, even if I were to allow that there is something magic about the year 2033 as the end of the PIR program, which I do

[16] *In the Matter of the Application of the East Ohio Gas Company d/b/a Dominion East Ohio for Authority to Increase Rates for its Gas Distribution Service*, Case No. 07-829-GA-AIR, Exhibits ,Vol. 2, DEO Ex. 11, Black & Veatch Report Exhibit 13A, indicates Dominion replaced 34 miles of targeted pipe in 2006 and 25 miles in 2007, and the presentation by Tim McNutt in Exhibit 13A, page 17 which noted that the total replacement for 2002-2006 which averages 42 miles including all replacement (Aug. 22, 2008).

not allow, nevertheless, keeping the current cap in place for the next five years need not jeopardize achieving the true goal of the program, which presumably is a safer gas delivery system.

IV. THE PIPE CONSTRUCTION MARKET IS LIKELY TO SEE A REVERSAL IN RECENT COST INCREASES

Q18. COULD YOU PLEASE ELABORATE ON YOUR SECOND REASON FOR DISAGREEING WITH THE STIPULATION THAT THE CAP BE RAISED, NAMELY, THAT THE PIPE CONSTRUCTION MARKET IS LIKELY TO SEE A REVERSAL IN RECENT COST INCREASES; THEREFORE, RAISING THE CAP AT THIS TIME IS NOT IN THE PUBLIC INTEREST?

A18. Yes. Dominion claims that a key reason for the cost increases it has experienced in the last few years is the increase in business activity among its contractors due to oil and gas exploration associated with shale deposits in Ohio and surrounding areas, e.g., using the fracking technology to exploit shale in the Marcellus and/or Utica formations.[17] In my opinion, labor rates may have previously been a major reason for cost increases, but this reason is likely to go away, and indeed the evidence is already here. Currently, the price of oil is approximately $30-$35 per barrel as compared to the over-$100 per barrel price that drove the recent boom in

[17] Direct Testimony of Michael Reed, page 5, line 24 through page 6, line 3. "The growth in shale development and other infrastructure programs also means that the contractors who do physical work are in much higher demand. Without an increase in investment, the pace of the program in terms of mileage of pipeline replaced will inevitably and continuously slow down."

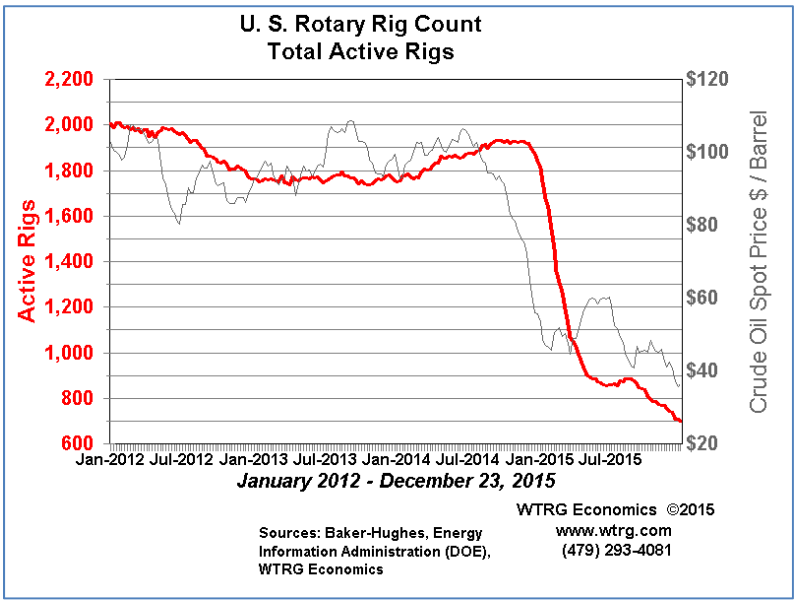
exploration through use of a technology, which is too expensive to use at lower prices.

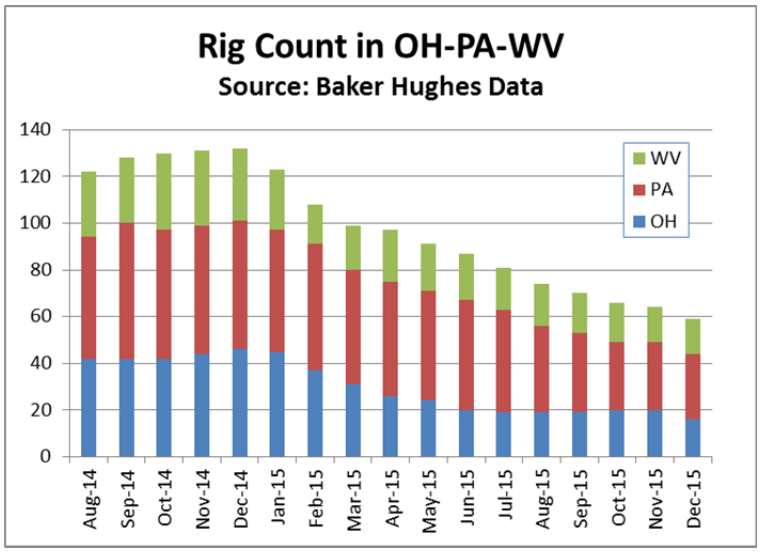
Q19. DO YOU HAVE EVIDENCE OF THE DECREASED OIL PRICE AND ITS IMPACT ON CONSTRUCTION RESOURCES RELEVANT TO DEO'S PROGRAM?

A19. Yes. The pace of oil and gas exploration in the Midwest (and elsewhere) has definitely diminished, as reported in the August 19, 2015 Wall Street Journal,[18] and as demonstrated in the graphs below[19] showing the dramatic reduction in rig count in the US in the last twelve months. This has resulted in a 65 percent reduction in the rig count in OH and a 55 percent reduction in the rig count in the OH-PA-WV area. The chart for the total US also shows the price of oil (the gray line on the chart), and how the rig count (the red line) directly reacts, with a lag of a few months, to the price of oil, and that even a rise of the price of oil to $60 per barrel from $40 per barrel was not a significant stimulus to the rig count. It would appear that it would take the return of near-$100 per barrel oil pricing to return the rig count to 2012-2014 levels.

18 Wall Street Journal, "Energy Slowdown Hits One Town Hard," August 19, 2015 about Waynesburg, PA, which cites a general slowdown through the area, viz., "The economic pain from lower oil and gas prices is spreading to small towns and businesses across Pennsylvania and parts of Ohio and West Virginia that had been riding a wave of prosperity from the natural-gas shale boom" http://www.wsj.com/articles/energy- slowdown-hits-one-town-hard-1440008970.

19 Data are from the Baker Hughes reports http://phx.corporate-ir.net/phoenix.zhtml?c=79687&p=irol-reportsother and http://www.energyeconomist.com/a6257783p/exploration/rotaryrigweekly.html.





A properly managed program should reap the benefits from this less-contested labor market. It could even happen that DEO could replace at a greater than four percent rate within the existing cap of $1.40 per month. If that were to happen, it would certainly be a better use of the customers' money to fund an increase in the jobs and economic activity from replacing leak-prone pipe, as opposed to merely

padding the pockets of contractors who might be profiteering from a temporary shortage of labor resources in recent years.

Q20. DO YOU REFUTE THE EVIDENCE PROVIDED BY DEO THAT GAS CONSTRUCTION RESOURCES WILL BE STRAINED IN THE NEXT FEW YEARS?

A20. Yes. In response to discovery (Inter. No. 98[20] and RPD No. 9[21]) DEO has offered the presentation by its consultant, Continuum Advisers Group, dated April 28, 2015, which was presented at the 2nd Annual Utility Contractor Workshop, which was co-sponsored by the Distribution Contractors Association and the American Gas Association. Although the presentation was made in late April of 2015, much of the data it contained is from a time before the crash in the price of oil. Note on page 10, for example, that the graph emphasizes the decoupling of gas and oil prices in the period of 2009 through 2014, but the chart ends in January of 2015, at a price of approximately $50 per barrel, only just showing the beginning of the crash, and not showing at all how the price went below $45 and stayed there for months, where it still resides as of this testimony. Moreover, the charts on page 12 and 13 of that report, which show the recent history and projected future construction spending for electric, gas, and liquid transmission and distribution for the next five years and for gas and liquid transmission and distribution for the next 20 years, respectively, are based on a forecast prepared

[20] Attachment 4.

[21] Attachment 5.

by Continuum Advisory Group for 2014 and beyond, i.e., where the most recent actual data was for 2013. Given the recent crash demonstrated in the graphs I have presented above, such a forecast is clearly outdated and likely much too bullish for gas & liquid construction. This translates to an overly dire forecast for labor market resources, as explicitly shown on page 20, viz. "Future need based on Continuum Advisory Group's forecast of total gas/liquid spending growing from $44 billion in 2014 to $65 billion in 2020 and $80 billion in 2028." Note again that even the data for 2014 of $44 billion are clearly shown on page 13 as a forecast, not actual.

Moreover, it would appear that Dominion is fully aware that the scale of its program is a factor in driving up its costs and rates to consumers. It certainly makes no sense at all to accelerate a program that is already facing cost pressures because it employed scarce labor resources. Perhaps, given time to ramp up to the new scale, the resources would not be so strained. The program should be explicitly renewed for another five years, to provide some predictable volume that contractors can rely on, but **a solution to the problem caused by an accelerated program is not to accelerate it some more**.

V. THE DRASTIC INCREASE IN COSTS RAISES QUESTIONS ABOUT DOMINION'S ABILITY TO MANAGE THE PROGRAM

Q 21. COULD YOU PLEASE ELABORATE ON YOUR THIRD REASON FOR DISAGREEING WITH THE STIPULATION THAT THE CAP BE RAISED, NAMELY THAT SUCH A DRASTIC INCREASE IN COSTS RAISES QUESTIONS ABOUT THE DOMINION'S ABILITY TO MANAGE THE PROGRAM?

A21. Yes. The Utility's costs for the program have almost doubled since the beginning of the program.[22] Similar problems have occurred in certain other programs. A recent and very relevant example is the accelerated main replacement program ("AMRP") entered into by Peoples Gas Light & Coke of Chicago, Illinois. The explosion in costs there was judged by the Illinois Attorney General and the Illinois Commerce Commission (the utility regulatory body in IL) to be so alarming that they ordered a third-party audit be done by Liberty Consulting Group, which found that in that instance that the utility company was deficient in its cost management, having allowed contractors too much control over the program, as company whistleblowers had reported. As a result, the utility fired

[22] Direct Testimony of Michael Reed at page 9, lines 1 – 7 (original cost range of approximately $75 to $80 per foot and the Utility has experienced prices increasing form $85 per foot in 2008 to $150 per foot in 2014).

the main contractor it was using for the program, Jacobs Engineering Group, and was in the process of procuring a new one.[23]

Without an assurance that Dominion does not have the same problem as Peoples Gas Light & Coke, and without implementation of the corrective actions to which that company has agreed, I cannot recommend that the Ohio's customers be asked to fund the extraordinary increase in costs that Dominion has experienced.

Q22. DO YOU SEE FURTHER REASON FOR CONCERN IN DEO'S FILING?

A22. Yes. Dominion is not meeting its burden to show how it is managing costs and tracking costs on a project-by-project basis. Some of Dominion's responses to the Interrogatories and Document Production Requests of the PUCO Staff and the OCC indicate a potentially inadequate method for monitoring, analyzing, and controlling costs. In the case of Staff question 9, and similarly OCC's Interrogatory No. 95, requests the following information:

> From available records, can DEO readily prepare a spreadsheet that lists the annual PIR mainline replacement projects each year including each project's project/work order number, completion/in-service date, location (municipality, township, unincorporated area of a county, etc.), pipe material (bare steel,

[23] Crain's Chicago Business, "Fired! Peoples Gas Sacks Chief Pipe-Replacement Contractor as Cost Soars," July 27, 2015, http://www.chicagobusiness.com/article/20150727/NEWS11/150729827/peoples-gas-fires-chief-pipe-replacement-contractor-as-cost-soars; *See* also, of Liberty's Final Report on Phase One of An Investigation of Peoples Gas Light & Coke's AMRP, Executive Summary, Illinois Commerce Commission No. 22032146, http://www.icc.illinois.gov/naturalgas/ (August 14,2008).

cast iron, ineffectively coated steel, etc.) feet installed, feet retired, number of services replaced, and cost?[24]

Dominion's response began with: "All of the requested information is not available in a single source from which a report could be generated." The response went on to say that Dominion would provide a "sample" of an existing report that contains "thousands of lines of data." Similarly, Dominion answered the OCC's request with: (After an objection that the request was overly burdensome.) "DEO does not track all of the information requested on an ongoing basis." The response went on to provide some of the information requested, but notably the information provided did not include footage installed and replaced by type, nor the municipality. While I can understand that there are various ways of examining and managing costs of such a program, I am struck by the fact that both the PUCO Staff and the OCC each independently requested the information on footages installed and replaced by type on a project by project basis, such as could be matched with the cost on a project basis. In response, Dominion indicated it does not have such an analysis readily available and Dominion has the burden to demonstrate how the costs are being spent and tracked.

[24] OCC Interrogatory No. 95 at Attachment 6 and Staff Data Request 9 at Attachment 7.

Q23. ARE THERE OTHER EXAMPLES JUSTIFYING YOUR CONCERN?

A23. Yes. Just as worrisome to me is DEO's response to Staff question 2, "Of the various cost drivers described in the Application and Mike Reed's testimony, which ones have been the primary drivers behind the annual cost increases?" Dominion's response was:

> "The specific factors discussed in testimony were: general inflation; environmental compliance; working with municipalities; and increased demand for contractors. The nature of many of these costs renders them *impractical to track* or rank with precision. These cost-drivers are experienced primarily through contractor bid prices, and as such are not itemized. Contractor costs have the highest impact in terms of overall spend. Of direct costs to DEO, excluding contractor costs, DEO would estimate that environmental-compliance costs are greatest, and the costs associated with permit issuance are the least cost."[25]

Q24. WHAT DOES THAT RESPONSE SUGGEST TO YOU?

A24. This response does not suggest to me that Dominion has a firm handle on what is driving the explosion in unit costs, other than a list of possible explanations, and it appears that even that list was not ordered with respect to the most significant to least significant until the Staff asked for such a ranking (see last sentence of Dominion's response to question 2). This, along with other partial or unfulfilled

[25] Dominion Response to Staff Data Request 2, Attachment 8 (emphasis added).

responses to interrogatories, and the explosion in costs that remains not fully explained, causes me to recommend a full audit of Dominion's cost management process for the PIR program to protect customers before any change is made to the rate caps. Otherwise, the PUCO is sending a signal that cost increases will simply be passed along to consumers without being challenged for proof, instead of reinforcing the regulatory precedent that the burden of proof that investments are prudent and used and useful belongs squarely on the utility asking for the rate increase. In order to ensure utility vigilance in record keeping and sound decision making, a good rule of thumb might be: not proven, not granted.

VI. COMMENTS ON DOMINION'S TESTIMONY

Q25. WOULD YOU LIKE TO COMMENT ON DOMINION WITNESS FRISCIS'S TESTIMONY, FILED JANUARY 21, 2016, TO THE OCC'S OBJECTIONS TO THE STAFF REPORT?

A25. Yes. First, Ms. Friscic's response simply re-asserts some of the arguments in the original filing. Specifically, in response to the OCC's argument that Dominion's declining leak rate since the beginning of the program implies that there is no need to accelerate replacement at a faster rate, necessitating higher costs, she simply re-asserts that the program's objective was warranted in the first place because of the potential for leaks to grow exponentially if not addressed. I agree that without any program at all, leak rates would accelerate. However, the current

rate of replacement appears to be more than adequate to put leaks on a declining trend, and more than offsets any potential for exponential growth.

With regard to the OCC's argument that the 25-year target for the program is unnecessarily arbitrary, Ms. Friscic again offers no new insight, and actually admits that, "it is possible that changed circumstances could warrant modification of the 25-year target" yet then simply asserts that she is "not aware of any circumstances that would justify a lengthening of the program here." Apparently, a near doubling of the rate does not seem to her to be a significant circumstance regardless of its impact on customers. I disagree.

In the same vein, Dominion Witness Friscic sees no reason why the selection of a 30-year target by a Kentucky LDC (which used the same consultant, Black and Veatch, who obviously used a very similar analysis and resulting report) should be relevant to Dominion's insistence on the 25-year target. Witness Friscic acknowledges that differences between companies with respect to such factors as contractor resources and current rate levels could be expected to affect such decisions in each company, yet she apparently fails to see that differences in those same factors over time for one company could and should also lead to a different target. Again, I disagree.

Finally for Ms. Friscic's response, she reiterates Dominion's case that the low commodity costs make this the right time to hit the consumer with higher costs for the program. I find this argument not only odious but also misguided. The timing

of asset renewal should be based on the need, and accelerating the renewal just wastes money by spending it before it is needed. With the declining leak rates under the current program, it is clear that there is no need to 'double down' now in the hopes that consumers will not notice the upcharge in the face of lower commodity costs.

Q26. DO YOU ALSO HAVE COMMENTS WITH RESPECT TO MR. REED'S RESPONSE?

A26. Yes. Mr. Reed's response re-iterates Dominion's argument that its cost management is adequate because of its bidding process for awarding the work to contractors. This in itself shows Dominion's poor understanding of cost management. I would agree that good procurement is an important aspect of cost management, and the procurement process that Mr. Reed and Dominion have described, and which the PUCO Staff observed, is one with which I find no obvious fault. However, that argument substitutes good procurement for good cost management. Mr. Reed goes on to abdicate further responsibility for cost management, citing factors beyond his control that contractors have "baked into" their bids. He goes on to say that "Given the volume of PIR work, individual cost elements cannot be broken out and precisely quantified." I find this surprising admission of lack of proper documentation at least, and likely symptomatic of poor control. It appears that Dominion is not sufficiently concerned about the increased costs and rate increases to customers, presumably because it expects to pass those along to customers while commodity rates are low. I encourage the

PUCO to reject that approach and force Dominion to do its job of managing the costs of this program.

Q27. CAN YOU SUMMARIZE YOUR FINDINGS AND RECOMMENDATIONS?

A27. Yes. For the three reasons I cited above, I find that there is no reason to raise the rate cap from $1.40 to $1.82 in 2017 and to $1.85 by 2021. I further recommend that the PUCO order that a third-party audit be done of Dominion's cost management process, especially related to the PIR program, with potential implications for future regulatory decisions regarding the prudence of spending on that program.

VII. CONCLUSION

Q28. DOES THIS CONCLUDE YOUR TESTIMONY?

A28. Yes, However, I reserve the right to incorporate new information that may subsequently become available. I also reserve the right to supplement my testimony in the event that the Utilities, the PUCO staff, or other parties submit new or corrected information in connection with this proceeding.

CERTIFICATE OF SERVICE

It is hereby certified that a true copy of the foregoing *Direct Testimony of Daniel E. O'Neill on Behalf of the Office of the Ohio Consumers' Counsel* was served via electronic transmission to the persons listed below this 4th day of February, 2016.

/s/ Jodi J. Bair
Jodi J. Bair
Assistant Consumers' Counsel

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RPD No. 10. Please provide a copy of any analysis done by Dominion or its consultants that models the combination of exponentially increasing leak rates by vintage (or some other tiers) and a fixed rate of pipe replacement (such as the proposed number of miles per year), assuming prioritization that most targets the "worst first" and shows the resulting rate of decline of leaks over time for the system for the next 25 years. Please include results from running different levels of total miles replaced per year.

RESPONSE: There are no documents responsive to this request.

Attachment 2 – excerpt from the Black and Veatch report for DEO, page 27

Scenario 2 – Proactive

In this scenario, Dominion would replace its bare steel mains at a rate significantly greater than today, while remaining manageable beginning with the mains that are in the worst condition, as identified by Dominion management, using all of its decision making support tools.

Dominion's management has stated that it has determined the shortest manageable time frame to complete the necessary main replacements is 25 years. Under this scenario Dominion would strive to replace or retire five and a half times the amount it replaced in 2007[5] or approximately 162 miles per year[6]. Black & Veatch believes that this rate of replacement is a reasonable expectation and would bring Dominion in line with the current nationwide average rate of replacement.

This proactive approach would provide a planned mechanism to replace or retire Dominion's entire aging higher risk pipe with mostly plastic, and in some instances, with cathodically protected coated steel pipe. In Black and Veatch's opinion, this is the most prudent scenario because it helps protect the safety of the Company's customers while avoiding numerous repairs of the piping before its eventual replacement.

However, if during the planned 25 year replacement program Dominion observes that the rate of corrosion leaks per mile is increasing and becomes unmanageable, it may need to increase the rate of replacement of its aging higher risk mains.

It should be noted that other companies in the same region as Dominion have also realized the need to replace their bare steel, cast and wrought iron mains. Duke Energy Ohio had presented its case for the replacement of its bare steel to the PUCO and requested rate relief and the authorization to institute an Accelerated Mains Replacement Program ("AMRP") tracker. The PUCO approved the program and the tracker. The request by Duke Energy was for the replacement of all the bare steel and cast iron main over a 10 year period. According to Gary Hebbeler's recent testimony on behalf of Duke Energy, in Case No. 07-589-GA-AIR, it had replaced 559 miles of cast iron and bare steel during the period 2001-2006. This equates to 93 miles per year compared to Dominion's plan to replace approximately 162 miles per year for the next 25 years. While Duke Energy's 10-year replacement program may appear to be more aggressive than Dominion's 25 year plan, one must recognize that for the Company to replace its bare steel mains in 10 years, it would need to replace about 400 miles per year. This is over four times the amount of miles that Duke Energy replaced each year. In our opinion it is not reasonable to plan for a replacement program of a higher magnitude than Dominion is instituting as long as its corrosion leak levels remain under control. As it is, the Company is planning to replace approximately 162 miles per year which will be a resource challenge. Duke Energy's replacement program, as testified by Mr. Hebbeler, has resulted in a significant reduction of leaks from 6,223 leaks in 2002 to 4,196 leaks in 2006 when

the replacement program was only 48% complete. Black and Veatch would expect similar results for Dominion as its program is implemented.

[5] 2007 replacements equaled 29 miles based on 25 miles of bare steel distribution main, 3 miles of cast iron and 1 mile of transmission bare steel.

[6] Assumes 4,055 miles to be retired or replaced: (3,907 miles of bare steel, 112 miles cast and wrought iron and 1 mile of copper mains and 35 miles of bare steel transmission piping

Attachment 3 – excerpt from the Black and Veatch report for Columbia Gas of Kentucky, pages 34-35

Scenario 2 - Proactive

In this scenario, Columbia would replace its unprotected bare steel mains at an annual rate significantly greater than today. It would begin with the mains that have been identified as potentially having the highest risk conditions, as identified by Columbia's management, using all of its decision making support tools.

For example if Columbia was to determine that the shortest manageable time frame to complete the necessary main replacements is 30 years, under this scenario Columbia would strive to replace 1.75 times the amount it replaced on average from 1998 through 2007 or approximately 16 miles of unprotected bare steel main per year.

When one includes the replacement of 25 miles of Columbia's cast iron mains over the same 30 year period, it increases the number of replacement miles to approximately 17 miles per year.

Black & Veatch believes that this rate of replacement is a reasonable expectation and that it should provide a significant improvement in the safety and reliability of the Company's distribution system.

This proactive approach would provide a planned mechanism to replace Columbia's aging, high risk pipe with mostly plastic, and in some instances, with cathodically protected coated steel pipe. In Black and Veatch's opinion, this is the most prudent scenario because it preserves the safety of the Company's system while avoiding numerous repairs of the piping before its eventual replacement.

However, if during its planned accelerated mains and services replacement program Columbia observes that the rate of corrosion leaks per mile is increasing and becomes unmanageable, it may need to increase the rate of replacement of its aging higher risk mains.

We have been advised by Columbia that it has begun to accelerate the replacement of its higher risk mains and services. We believe that this is an appropriate step towards enhancing the safety and reliability of their distribution system.

Accelerated Mains Replacement Activities by Other Utilities

It should also be noted that other companies in the same region as Columbia have also recognized the need to replace their bare steel mains. Such companies include: Duke Energy (Kentucky and Ohio utilities), Dominion East Ohio, Vectren Energy Delivery (Ohio) and Columbia Gas of Ohio. A number of other natural gas utilities have also concluded that such accelerated higher risk piping replacement programs are in the best interest of their customers and they have implemented accelerated replacement programs.

In the case of Duke Energy - Ohio, it had presented its case for the replacement of its bare steel to the PUCO and requested rate relief and the authorization to institute an

Accelerated Mains Replacement Program ("AMRP'') tracker. The PUCO approved the program and the tracker. The request by Duke Energy was for the replacement of all the bare steel and cast iron main over a 10 year period. According to Gary Hebbeler's 2007 testimony on behalf of Duke Energy, in Case No. 07-589-GA-AIR, it has replaced 559 miles of cast iron and bare steel during the period 2001 -2006.

Duke Energy's replacement program, as testified by Mr. Hebbeler, has resulted in a significant reduction of leaks repaired from 6,223 leaks in 2002 to 4,193 leaks in 2006 when the replacement program was 48% complete. Black and Veatch would expect similar results for Columbia as its unprotected bare steel and cast iron mains replacement program is implemented.

According to Duke Energy - Kentucky's web site, the goal of its accelerated mains replacement program, approved by the Kentucky PSC in 2001 is to replace all 12" and smaller cast iron and bare steel gas mains over a 10-year period. The web site also states that "As of January 1, 2005, there are approximately 111 miles of cast iron and bare steel gas mains in our Kentucky service territory that are scheduled to be replaced. Approximately 18 miles will be replaced each year, with the expected completion date in the year 2011."

While Duke Energy is progressing under a 10-year bare steel and cast iron mains replacement program, if Columbia was to attempt to replace its higher risk mains in 10 years, it would mean that Columbia would need to increase its main replacements from its ten year average of 9.7 miles[5] per year to 52 miles per year. Based on discussions with Columbia, this level of increase would likely severely strain Columbia's manpower, equipment, materials and financial resources.

In Dominion East Ohio's recent rate case, the Public Utility Commission of Ohio (PUCO) approved accelerated mains replacement cost tracker for its mains and service replacement program. Dominion plans to replace its bare steel and cast iron mains over a 25-year period.

In both the Vectren Energy Delivery and Columbia Gas of Ohio recent rate cases, settlement agreements that include the approval of accelerated mains replacement cost trackers, have recently been submitted to the PUCO and the utilities are awaiting the final PUCO Order. Vectren plans to replace its bare steel and cast iron mains over a 20-year period. Columbia Gas of Ohio plans to replace its bare steel and cast iron mains over a 25-year period.

In addition, the American Gas Association in its December 2007 report titled ''Infrastructure Cost Recovery Mechanisms" reports that utilities in 11 states have implemented infrastructure cost recovery mechanisms. It also reports that requests for approval of such mechanisms are pending in another 3 states.

[5] 1998 through 2007 average bare steel replacement rate of 9.4 miles per year plus 1998 through 2007 average cast iron replacement rate of 0.3 miles per year.

Inter. No. 98. Referring to Reed's testimony on page 20, lines 11 – 23, please describe what strategy and process improvements are in place or planned to address the influence of contractor resources.

RESPONSE: DEO objects that the phrases "strategy and process improvements" and "influence of contractor resources" are vague and undefined. Subject to and without waiving this objection, DEO answers as follows: DEO's strategy to address increased demand for contractors is focused on increasing the supply of qualified contractors, increasing the project opportunities for contractors, and addressing contractor capacity from a long-term perspective:

Increasing Contractor Supply:

- Beginning in July 2013, DEO began a program to mentor and develop pipeline contractors with diverse ownership. Known as the Greater Opportunity Program (GO), two diverse pipeline construction contractors have been added to the DEO approved bid list since the inception of the program.

- DEO continually seeks qualified and experienced pipeline contractors. These efforts include the further development of local contractors along with continued outreach to other major contractors from other regions. These outreach efforts include serving as panel members on joint AGA-DCM panels, AGA meetings, and follow-up with Supply Chain efforts on inquiries from such contractors. In 2015, four new contractors were added to DEO's approved bid list. These contractors have provided and will continue to provide additional construction capacity for the PIR Program.

Increasing Contractor Opportunities:

- For 2016, DEO has reduced the maximum footage per project on our standard pipeline blanket (i.e., unit-cost) contracts. Doing so creates additional spot bid opportunities for contractors without blanket contracts. This change will create additional work outside of standard blanket contracts and planned major projects and is intended to increase capacity by engaging more contractors.

Addressing Capacity:

- Due to concerns about contractor capacity, beginning in 2016, DEO will increase the length of blanket contracts from three to five years. This change will ensure that contractor resources are committed to DEO through 2020. Longer-term contracts are expected to provide contractors with greater stability and allow them to more fully address workforce-development issues. DEO's goal is to enable a well-developed, highly skilled work force that in turn leads to greater productivity.
- In line with the foregoing change, DEO is considering placing a number of larger projects under blanket contracts that would previously have been awarded via spot bids. This strategy is designed to commit contractor capacity for up to five years with more predictable blanket pricing.

Based on consultation with the Continuum Advisory Group, DEO's goal is that the combination of longer-term contracts and engagement of more contractors will result in lower Program costs. It is hoped that longer-term predictability will reduce risk, which in turn will enable the development of more productive crews, thereby controlling and reducing variable costs.

Responsible witness: Mike Reed

RPD No. 9. Referring to the pre-filed testimony of Michael Reed filed on March 31, 2015, at page 20, lines 11 - 23:

A. Please provide any internal analysis that details the influence of "...Demand for qualified contractors; the massive increase in investment in the Utica Shale, and the implementation of infrastructure replacement programs by other LDCs in the region"; and

B. For the each of the years 2009-2014, (segmented by PIR eligible distribution main replacement works and non PIR related distribution pipe) please provide the supporting calculations for the annual cost per foot of distribution pipe replaced or installed by contractors.

RESPONSE: DEO objects that this request seeks information that is neither relevant to the subject matter of this proceeding nor reasonably calculated to lead to the discovery of admissible evidence. Subject to and without waiving this objection, DEO answers as follows:

A. Please see the accompanying presentation, which provides statistics and forecasts prepared by the Continuum Advisory Group. This presentation contains relevant slides that corroborate the expectation that the current environment will continue to produce increasing contractor costs. DEO has not prepared any written internal analyses regarding investment associated with Utica Shale or infrastructure programs of other LDCs.

B. There are no documents providing the information segmented as requested by OCC. Please see “Mainline Costs and Footage Summary.xlsx,” identified in response to Inter. No. 94.A, for available information.

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DCA

Utility Contractor Workshop

AGA

Nimble by Nature: 2015-2016 Strategies for Success

Mark Bridgers
Continuum Advisory Group
Chicago, IL
April 28, 2015

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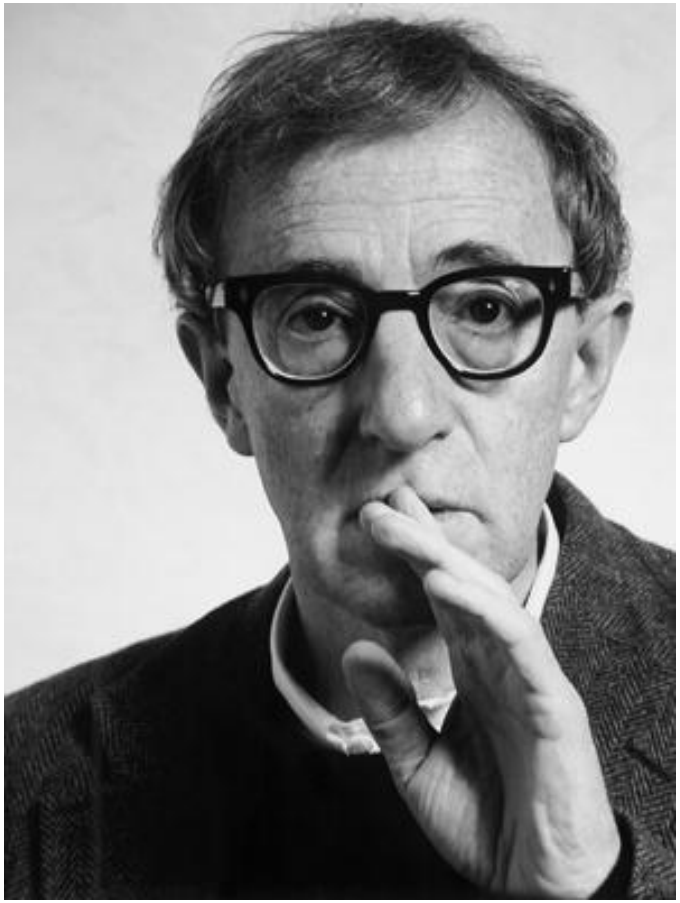
Confidence is what you have…

before you understand …

the problem.



-Woody Allen
1935-

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Objective & Agenda

- Objectives
  - Introduce the audience to the likely landscape they will face over the next decade where volatility and change will stress the financial, leadership, and people resources of firms in the construction industry.
- Agenda
  - Economic Overview
  - Distribution & Pipeline Construction Demand Factors
  - Distribution & Pipeline Construction Supply Factor
  - Implications
  - Equipment Supplier Strategies: How equipment suppliers & manufacturers can best support their customers
  - Utility & Pipeline Operator Strategies: Define what capital asset owners or facility operators should do in 2015 and 2016 to successfully finance and build capital assets
  - Service Provider Strategies: Describe what design, engineering, and construction service providers should do in 2015 and 2016 to be “Nimble by Nature”

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Agenda

- Economic Overview
- Distribution & Pipeline Construction Demand Factors
- Distribution & Pipeline Construction Supply Factor
- Implications
- “Nimble by Nature” 2015-2016 Strategies for Success

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Economic Overview

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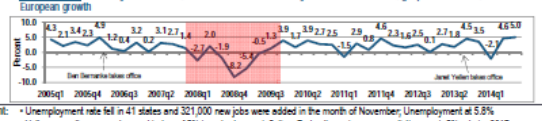
January 2015 Economic Overview

Utility Industry Summary: 2014 closed on a high domestic note with falling oil prices, falling gasoline prices, falling unemployment, and rising consumer confidence. Geopolitical issues are much more problematic and are rising to the point where they are impacting the U.S. Economic performance is still substandard in comparison to previous recoveries. Construction markets are still unbalanced and growth is concentrated in few markets. November '14 elections, while delivering the Senate to the GOP have not resulted in improved legislative prospects. The residential housing market continues to slowly improve. All in all, risks are increasing and with the exception of geopolitical risks are modest and economic progress is positive, slow and steady for 2015.

General Economy:
- 3Q'14 GDP highest since 2008 recession; rate partially due to dismal growth from hard winter; 4Q forecast slowing to 2.0-2.5%
- Falling oil prices and unexpected falling mortgage rates spurring growth and consumer confidence which is peaking

2015 Forecast: 2014 full year GDP 2.5%; 2015 3.2% max with volatility from Federal Reserve, geopolitical issues, and slow European growth



Unemployment:
- Unemployment rate fell in 41 states and 321,000 new jobs were added in the month of November; Unemployment at 5.8%
- Yellen may allow unemployment below of 5% in order to spur inflation; Fed policymakers are predicting a sub 5% rate by 2017
- June construction unemployment is down to 7.5%, yet only ND, LA, and OK have exceeded their pre-recession employment peaks
- Total employment in Residential Construction (not including trade contractors) is at 678,000, still 300,000 short of 2007 levels

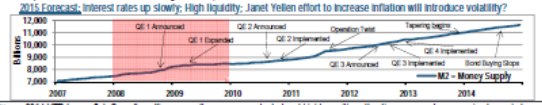
2015 Forecast: Rate will bottom out at 5% as companies ramp up growth amidst positive economic signs

Political Environment:
- Post election honeymoon is over...not unexpectedly; Parties are positioning for adversarial relationship...look for State of the Union to set the tone in 2015-2016 until Presidential election

2015 Forecast: Harsh environment, little compromise, adversarial for remainder of Obama term

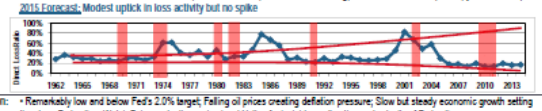
Finance & Banking:
- Fed bond buying over in Oct. '14; When will unwinding of System Open Market Account (SOMA) bond portfolio of $4.2 billion begin?
- Equities will make reasonable annual gains on top of fantastic returns in 2013.

2015 Forecast: Interest rates up slowly; High liquidity; Janet Yellen effort to increase inflation will introduce volatility?



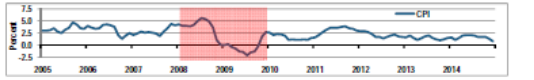
Surety:
- 2014 YTD losses flat; Overall, multi-year results are unprecedented and highly positive attracting new surety companies to market
- Reminiscent of 90's? Hard market & results, attracts entrants, weakens underwriting, causes market share pursuit, yields a loss spike

2015 Forecast: Modest uptick in loss activity but no spike



Inflation:
- Remarkably low and below Fed's 2.0% target; Falling oil prices creating deflation pressure; Slow but steady economic growth setting the stage Fed action; Watch February testimony by Janet Yellen for insights on direction and velocity of Fed action
- Is Walmart's move to raise wages a sign of wage inflation or simply an effort to stem unionization pressure and bad press?
- European deflation fears and double digit unemployment driving talk of "Quantitative Easing" program to spur growth

2015 Forecast: 1% in 2015; Higher inflation through wage pressure post 2015



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Page 2 (Continued)

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...country of the future...and always will be"

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...se in 11 months; annual spending in '14

...g the highest annual rate since April and

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...ural Gas favored in nearly every instance

...legislatures (IN, IL, MA, etc.) funding

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...cture build out

...ed geographies

...ction; Net neutrality ruling expected in

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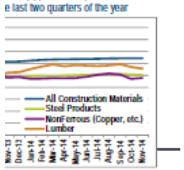

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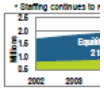
April 2015 Economic Ov...

Residential Building:
- Public and private bui...
- Starts fell 3% in Janu...
- Staffing continues to ...



Construction Economy:
- 2014 construction spe...
- sectors include: Lodgi...
- Labor availability, wag...

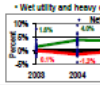
Utility Construction M&A:
- Low energy prices an...
- Independent oil & gas ...
- Improved vertical E&C ...

Power Construction:
- Power construction m...
- Power Gen market re...
- underground...

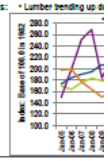
Telecom Construction:
- Net neutrality and FCC ...
- structure will result in i...
- geographically...regard...
- Google's announcem...
- higher speed infrastruc...

Water & Sewer Construction:
- High profile system pa...
- verified at least one line...
- Federal funding throug...
- won't improve until 201...

Utility Contractor Financial Performance:
- Energy and utility com...
- achievement...as an ea...
- down by productivity, s...
- Resurgence of local e...
- Wet utility and heavy ...



Construction Raw Materials:
- Overall construction m...
- Lumber trending up d...



Mark Bridgers is a consultant, lecturer, speake... investment banking services to th... MBridgers@ContinuumAG.com and followed on Twitter @MarkBridgers. For more information on Continuum, visit www.ContinuumAG.com.

The Quarterly Economic Overview is free in 2015 for qualified subscribers. Paid subscriptions are $20.00 annually.

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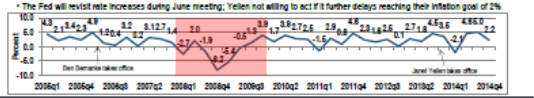
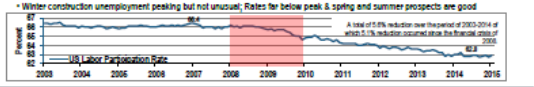
April 2015 Economic Overview

Utility Industry Summary: It's official, "Punxsutawney Phil" saw his shadow, we had 6 more weeks of winter, and Boston set an all time snow record. While the US winter was not as devastating as the 2014 version, economic growth was slowed to 2.1%. Like the piles of ice and snow in Boston, the political climate is in ice age mode and consists almost entirely of conflict between the Congress and President...the list of complaints is long and growing with no thawing until the 2016 election. Global issues include ISIS, Syria, Iraq, Iran, Russia, Ebola, Yemen, etc. and have now risen to the point that they can negatively impact the US economy. It is not all doom and gloom however...GDP continues to slowly grow, unemployment continues to fall, state and municipal finances are in better shape, inflation is very low, gas prices are low, consumer confidence is high and the construction economy continues to improve. The time to make hay is when the sun shines and Continuum anticipates 2015 and 2016 will be that time. In late 2016 or early 2017 a short and shallow recession is forecast followed by faster economic growth than we experienced since 2010.

General Economy:
- 4Q'14 GDP revised down to 2.2% yielding 2.4% for full year; Still below 3+% which is need for healthy growth post recession
- Consumer confidence highest since '08-'09 recession; Mortgage rates down; Car sales up; Oil & gas prices down; Employment up
- The Fed will revisit rate increases during June meeting; Yellen not willing to act if it further delays reaching their inflation goal of 2%



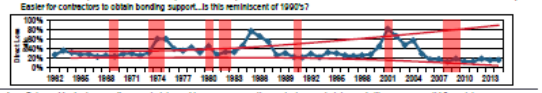
Unemployment:
- 257K January, 295K February new jobs; 5.7% unemployment, new low since '08; Labor participation rate falling, low, and problematic
- 2.8 million long-term unemployed (> 27 weeks) peaked in mid 2014 and is falling with unemployment rate
- Winter construction unemployment peaking but not unusual; Rates far below peak & spring and summer prospects are good



Political Environment:
- Conflict...The list of disagreements is long and growing, voter satisfaction at all time lows...Issues include: Keystone veto, Benjamin Netanyahu speech/election, Iran negotiations, ISIS response, Homeland Security funding, immigration executive order...the list goes on
- Anticipate no change in status until 2016 Presidential election

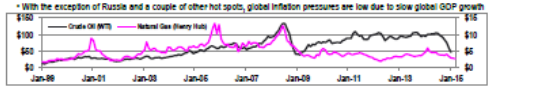
Finance & Banking:
- Feb. 24 testimony and March press release from Janet Yellen anticipates rising rates in back half of 2015
- US QE policy concluded in Oct. 2014; EU starts QE with hope to spur growth & reduce deflation...impact of EU policy on US markets?
- Surging US dollar (+20% since Sept. '14.) hurts US exports, helps US imports, drives oil price down, and supports faster global growth

Surety:
- 2014 losses flat; Overall, multi-year results are unprecedented and highly positive attracting new surety companies to market
- Market softening, underwriting loosening, higher capacity, and competition on indemnity or terms are accelerating for surety providers; Easier for contractors to obtain bonding support...Is this reminiscent of 1990's?



State & Municipal Agencies:
- Balanced budgets, spending constraints, and tax revenue growth are placing most states and cities on more solid financial footing...spending growth accelerating in 2016
- High profiles budget gaps in NJ and IL may influence market in back half of 2015

Inflation:
- Falling oil and gas prices are deflationary but will add 1% to 2015 GDP; Inflation still well below Fed target of 2.0%
- Are Walmart and Target moves to raise wages a sign of wage inflation or simply an effort to stem unionization pressure and bad press?
- Canadian and European Central Banks face deflation and/or unemployment...they will use QE in late 2015 and hope for GDP growth
- With the exception of Russia and a couple of other hot spots, global inflation pressures are low due to slow global GDP growth



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Gathering, Pipeline, and Distribution Construction Market Drivers

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Driving Factor	Gathering	Pipeline	Distribution
Replacement Funding	⇔	⇔	↑
Integrity Requirements	⇔	↑	↑
Falling Oil Price	↓	↓	⇔
New Housing	⇔	⇔	↑
Pipeline Capacity	⇔	↑	↑
Hydraulic Fracking	↑	↑	↑
Legislative Action	⇔	⇔	↑

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Pennsylvania Case Study

	CPA	Equitable	PECO	Peoples	PGW	UGI
Customers	400,000	275,000	475,000	350,000	500,000	475,000
Miles Main	7,000	3,500	6,500	6,500	2,500	5,000
Replacement	Mature	New	New	New	New	New

Source: Proprietary Continuum analysis of Pipeline and Hazardous Materials Safety Administration (PHMSA) data, Federal Energy Regulatory Commission (FERC) Form 2 filings, company websites, and other public sources. All figures are rounded and approximate.

- Who will do the work?
  - There are six large utilities that have roughly the same size system
  - Columbia Gas of Pennsylvania (CPA) has a mature main and service replacement program in existence that will likely continue for another 5-10 years
  - The additional five are only just beginning their replacement programs
  - Using CPA as a guide, it is possible that in 3-5 years, Pennsylvania exhibits 5-10 times the current amount of distribution pipeline related capital construction and maintenance activity
  - Ohio, New York, Maryland, Virginia, and New Jersey, traditionally states that Pennsylvania might have pulled staff from in order to execute pipeline work, are all undertaking similar types of replacement programs

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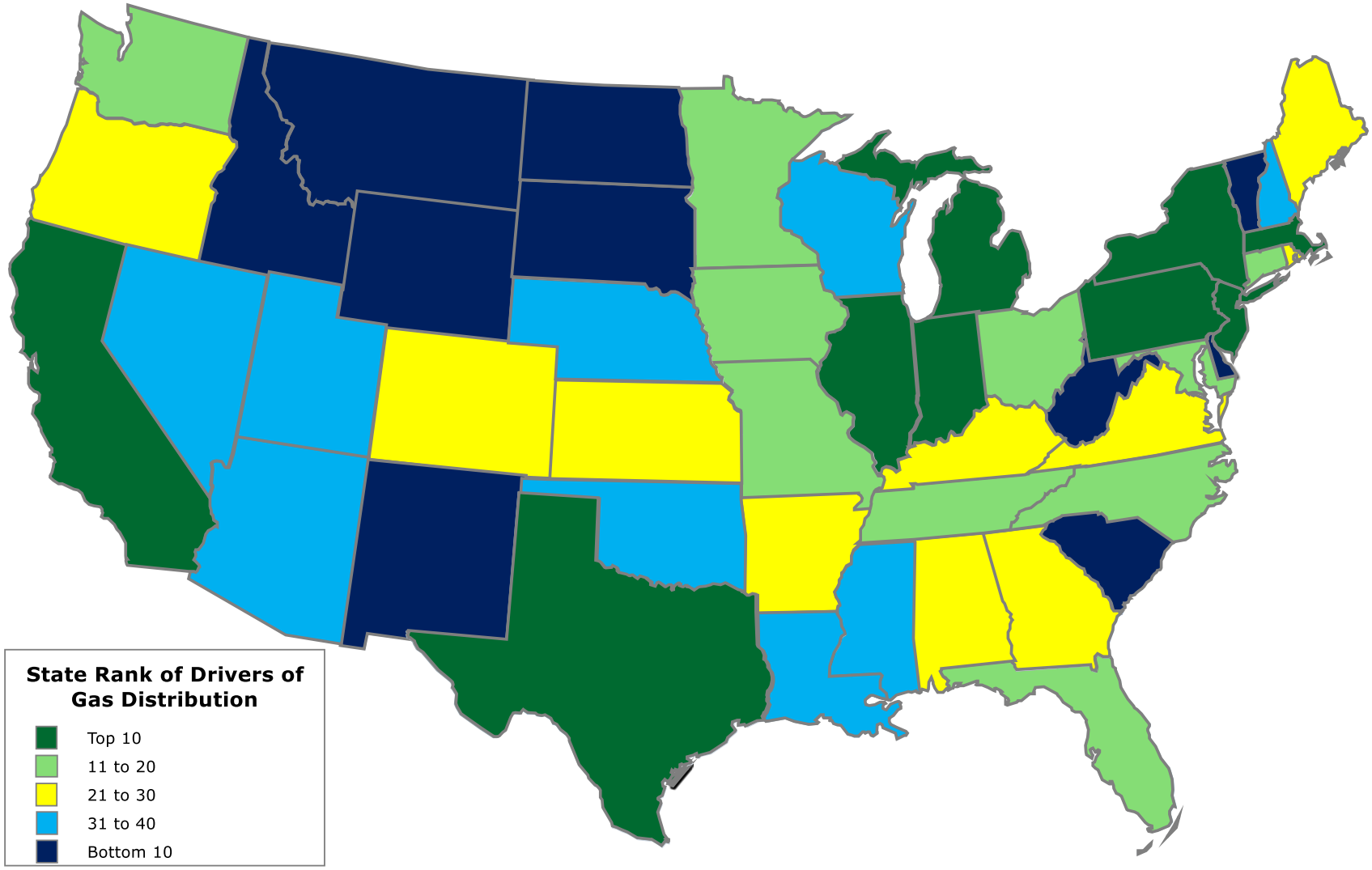
Location of Pipeline Spending



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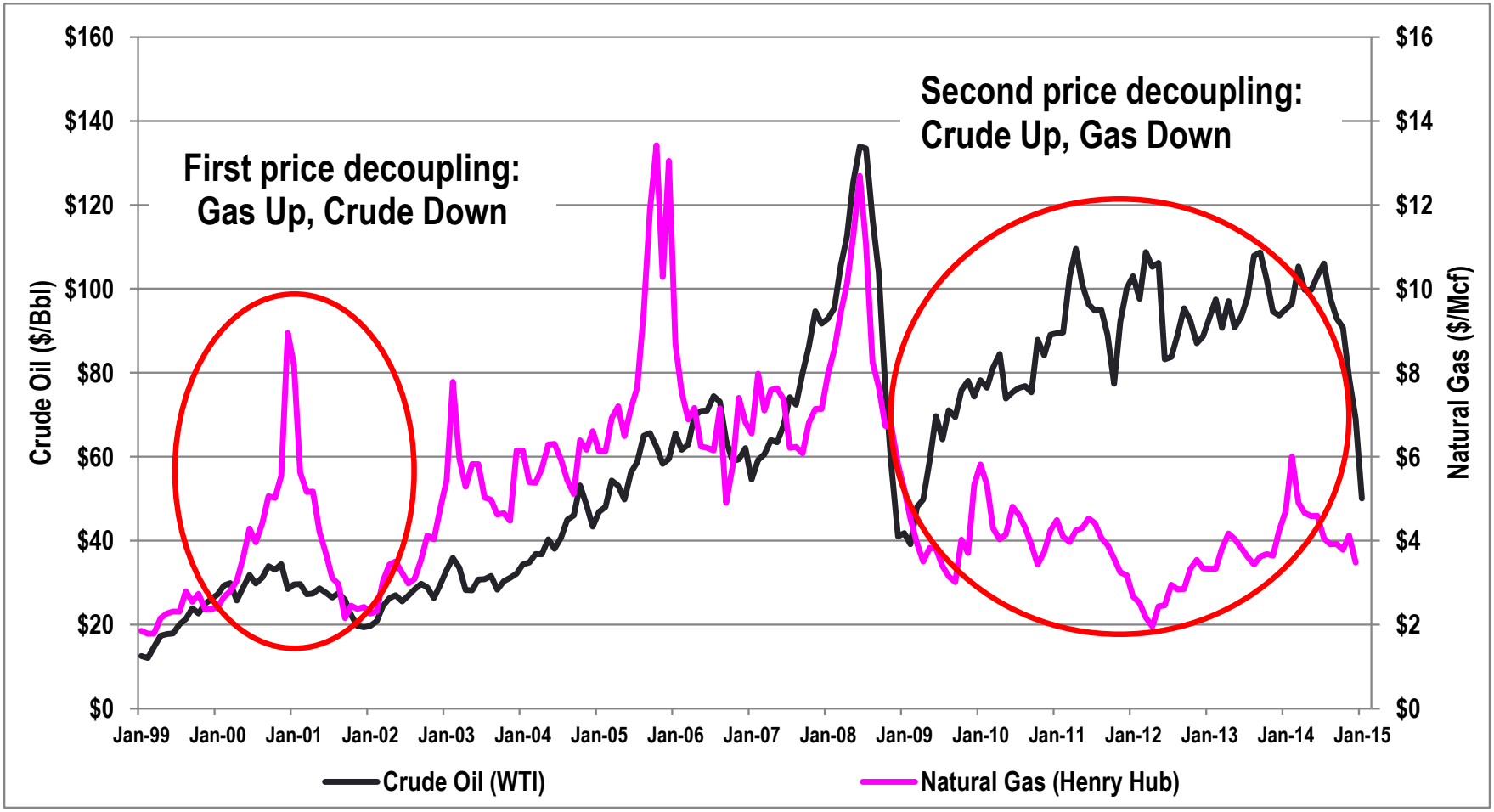
Falling Oil Prices

Energy Pricing



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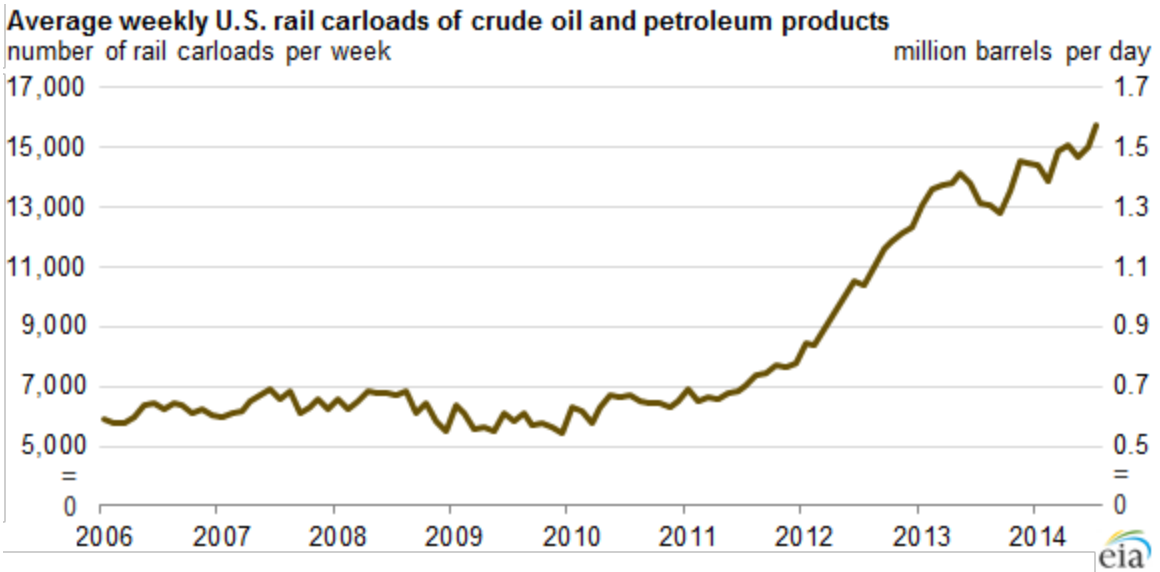
Pipeline vs. Rail Transportation

- 7/2013 – Crude Oil, Lac-Mégantic, Quebec, 47 killed
- 11/2013 – Crude Oil Alabama
- 12/2013 – Crude Oil North Dakota
- 1/2014 – Crude Oil/Propane New Brunswick, Canada
- 2/2014 – Crude Oil Western PA
- 2/2015 – Crude Oil West Virginia



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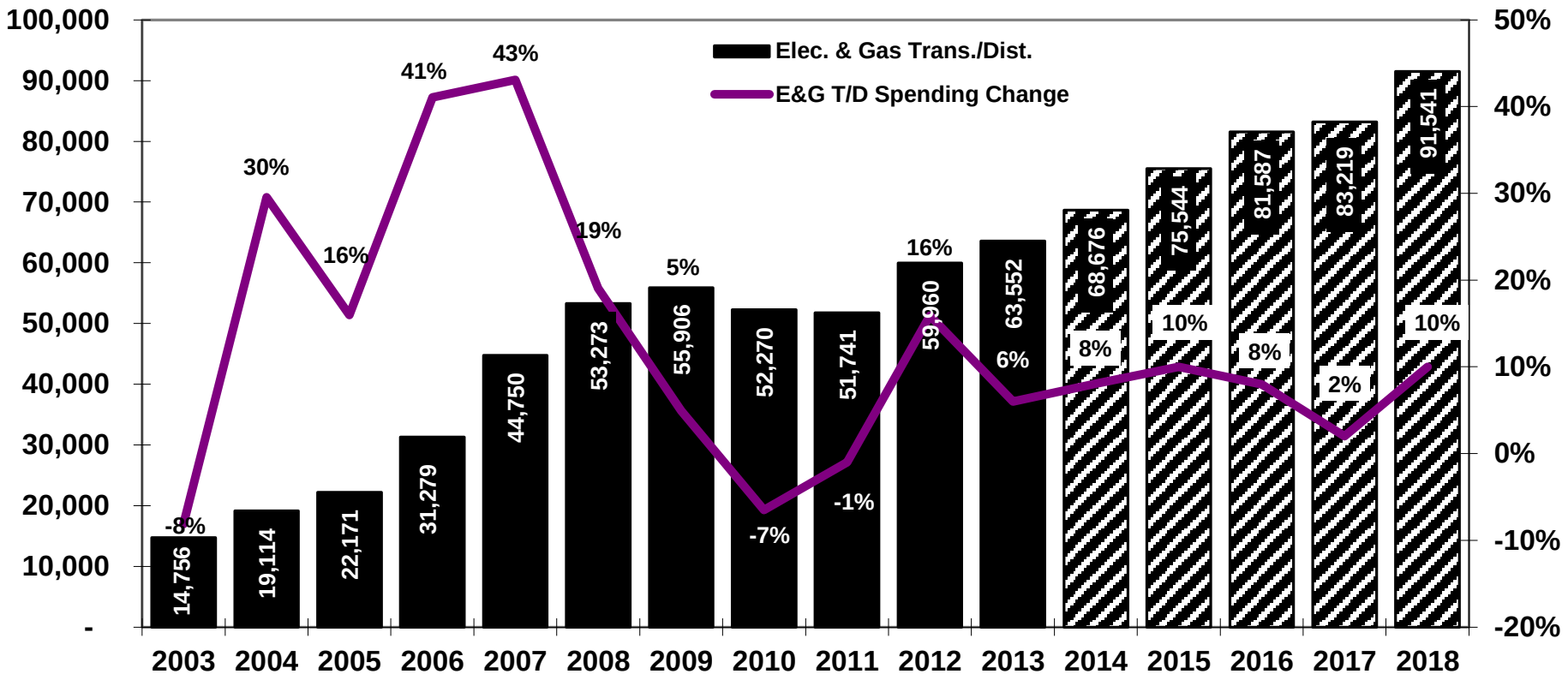
Construction Spending Overview *(1 of 2)*

- Electric, Gas & Liquid, Transmission & Distribution



Source: Building permits, construction put in place, and trade sources. Continuum prepared forecasts for 2014-2018.

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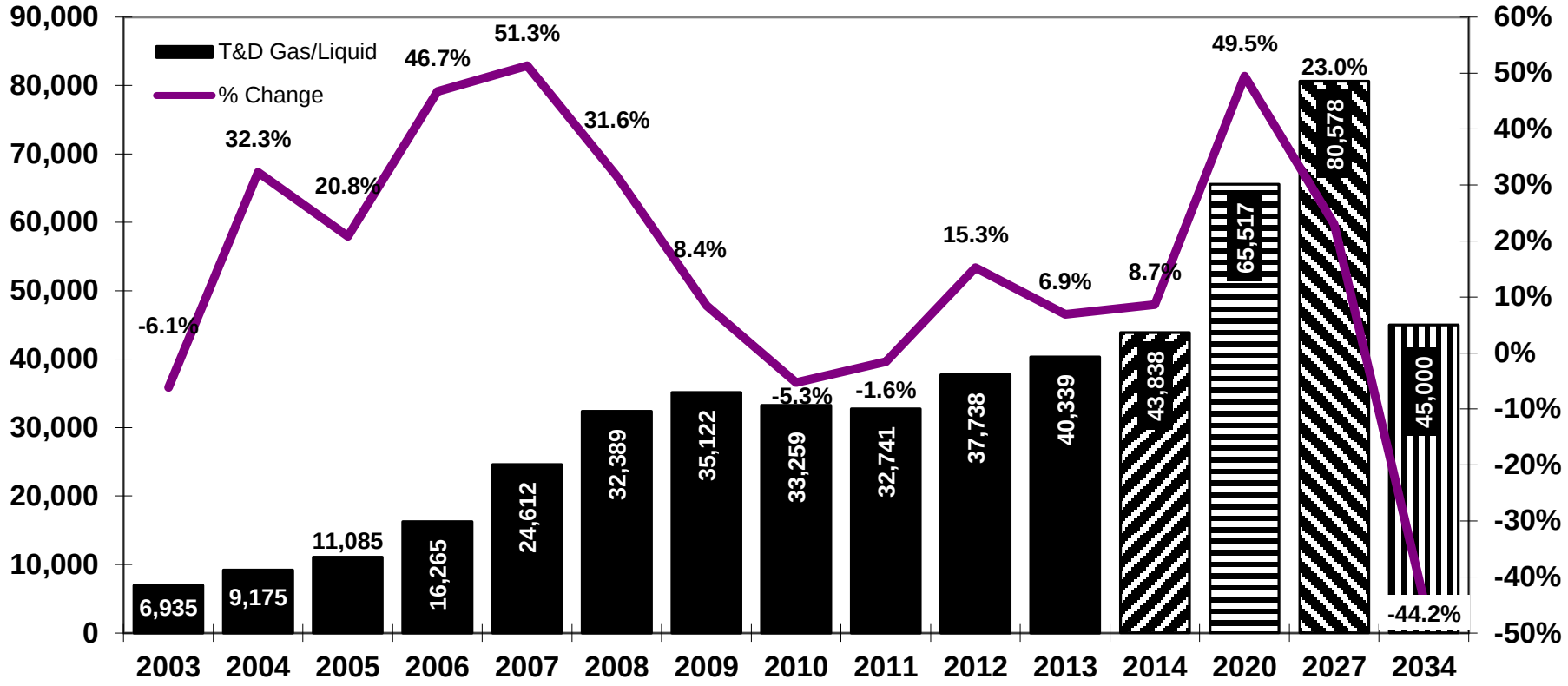
Pipeline Spending Overview *(2 of 2)*

- Gas & Liquid, Transmission & Distribution
  - Waves of spending through 2034



Source: Building permits, construction put in place, and trade sources. Continuum prepared forecasts for 2014, 2020, 2027, and 2034.

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Gas& Oil Pipeline Wave 1, 2, 3, & 4 Drivers

Wave 1 2008-2013	Wave 2 2016-2021	Wave 3 2025-2030	Wave 4 Beyond 2031
Trans. Integrity & Dist. Replacement	**Industrial & Power Gen Renaissance**	**Trans. Replacement & Dist. Integrity**	**The Cliff**
• $31 to $43 billion (+38%)	• $43 to $65 billion (+51%)	• $65 to $80 billion (+23%)	• $80 to $45 billion (-44%)
• Shale gas and oil exploration expansion • Interstate transmission network expansion • TIMP acceleration of activity • Distribution replacement programs start • DIMP plan preparation	• Transmission and high pressure distribution lateral construction • NGL and shale oil transmission system build out – Replacement for rail transport • Distribution replacement programs accelerating • Housing starts accelerating	• Interstate transmission replacement programs accelerating • DIMP acceleration of activity • Early distribution plastics replaced • Rising natural gas prices increase domestic gas production	• Transmission replacement activity slows • 100 years of distribution infrastructure replaced in 20 years • Industrial/Power/Export infrastructure complete – modest to no growth • Housing starts tempered by low population growth

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Preliminary Research Opportunity

- Who Will Do The Work?
  - Thesis: That growth in spending on pipeline construction activity from $31 billion in 2008 to $45 billion in 2014 has stretched resources in a way that makes continued expansion problematic for contractors and the utilities they serve.
  - We have selected 50 firms from across the US based on where they work, the type of work they undertake and the nature of their firm. We anticipate completing 30 interviews from this group.
    - We are seeking additional contractor, utility, and other participation
  - Final results will be presented at the AGA Operations Conference May 19-22, 2015
  - All participants will get a copy of the final results at the time of the AGA Conference

Oil & Gas Pipeline Construction – Workforce Distribution

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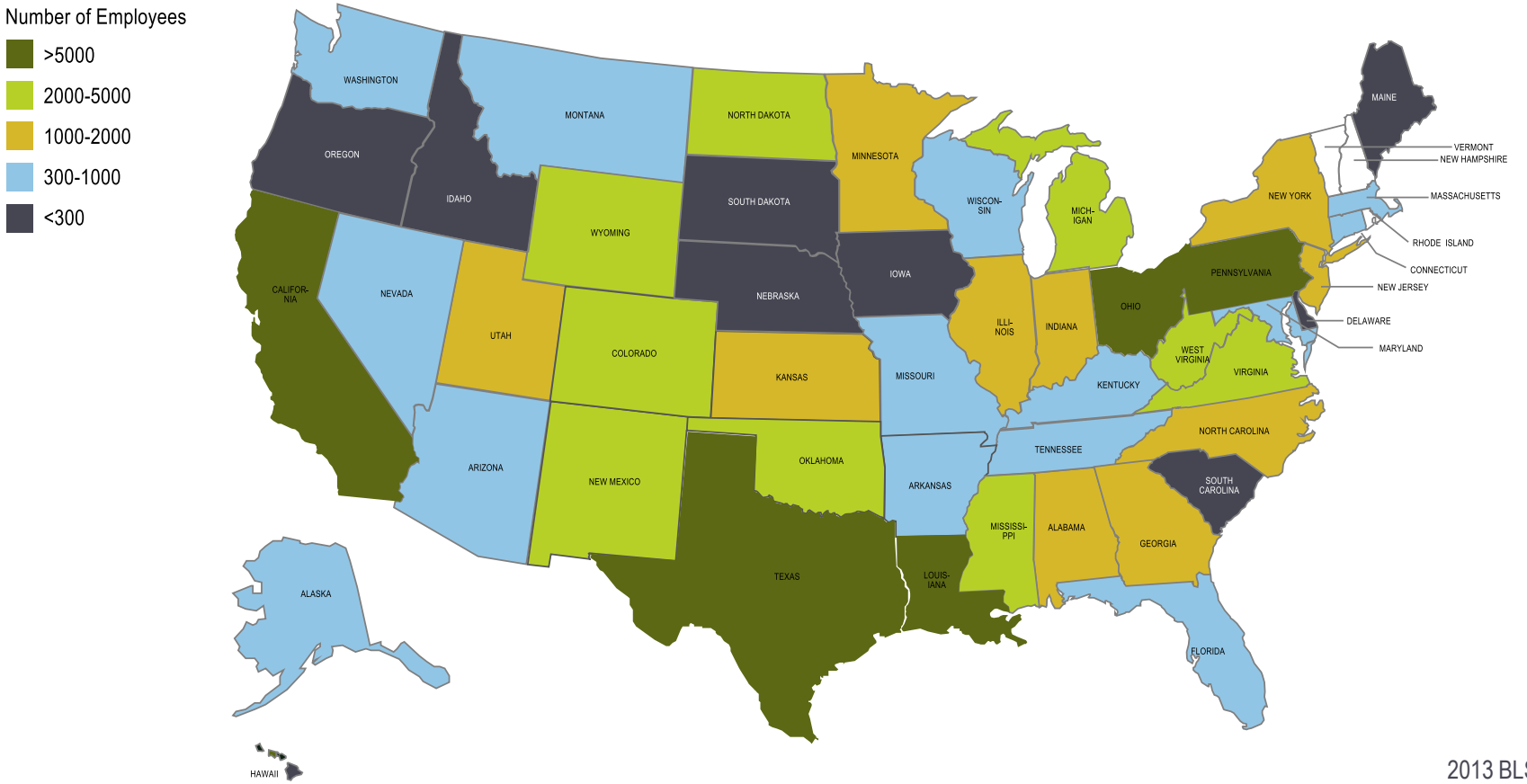
- The map shows the total number of employees by state for NAICS 23712 Oil and Gas Pipeline Construction. This includes all employees working for transmission and distribution contractors; construction employees working directly for utilities or pipeline owner/operators are not included.



2013 BLS Data

Oil & Gas Pipeline Contractor Workforce Composition – 15,000 Crews

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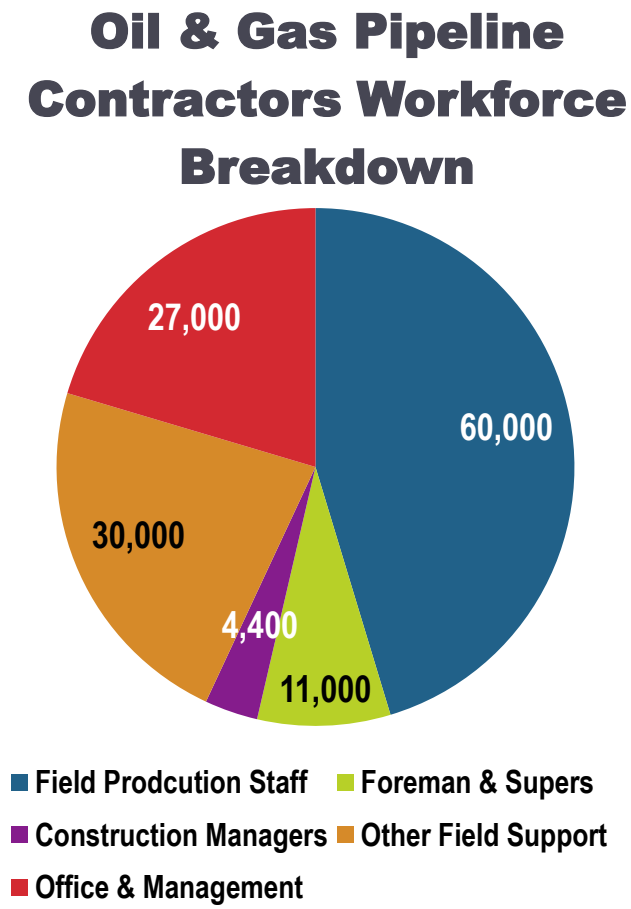

- Field production staff consist of the following
  - Construction Laborers
  - Operating Engineers and Other Construction Equipment Operators
  - Plumbers Pipefitters and Steamfitters
  - Helpers--Pipelayers Plumbers Pipefitters and Steamfitters
  - Welders Cutters Solderers and Brazers
- Foreman & Superintendents are classified as first-line supervisors of construction trades and extraction workers
- Other field support contains a number of occupations including truck drivers, inspectors, mechanics, pavers, landscapers, etc.
- If we assume that the field production staff makes up the bulk of the production crews, with 4 staff per crew on average, this would indicated 15,000 crews active in the United States currently

2013 BLS Data

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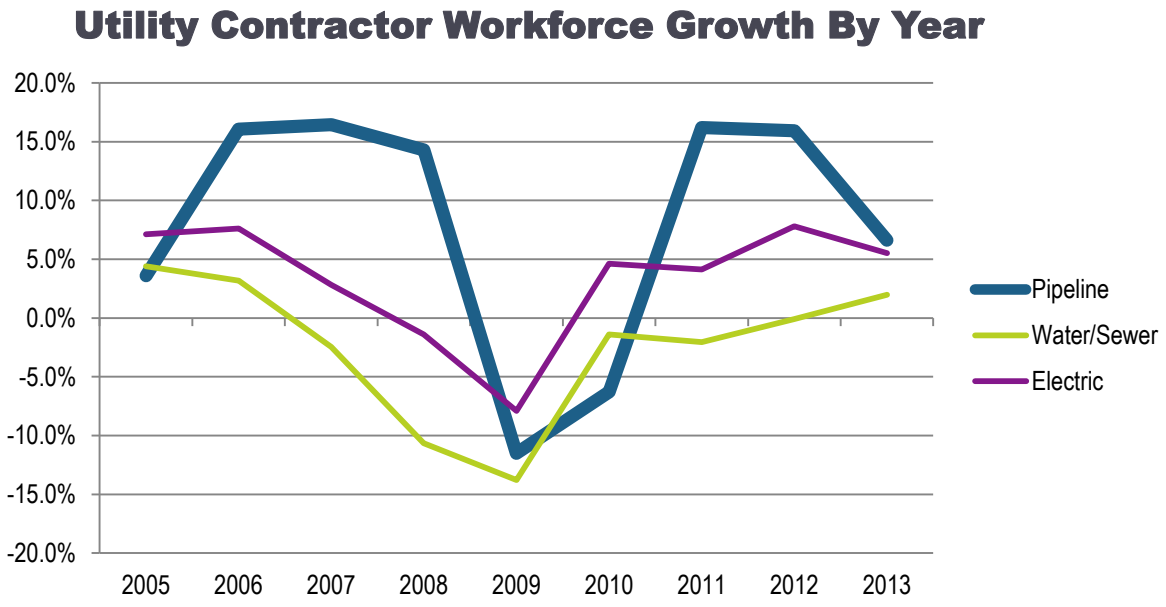
Past Growth Trends and Future Needs



- The Oil & Gas Pipeline workforce will need to grow by **8.6% annually through 2020** and 6% annually through 2028 to meet forecasted demand
- The Bureau of Labor Statistics projects that the total US workforce will grow by 0.5% annually through 2022. The workforce aged 25 to 54 will grow by only **0.2% annually though 2022**.

- Growth in the gas/oil pipeline contractor workforce had significantly outpaced growth in the broader utility contractor workforce for the last decade. In 2004 oil & gas pipeline workers accounted for 18% of the total utility contractor workforce. By 2013 this group accounted for 30% of this utility contractor workforce.
- Average annual growth (2005-2013) by utility contractor workforce segment
  - Oil & Gas Pipeline = +7.9%
  - Water/Sewer = -2.3%
  - Electric = +3.4%

2013 BLS Data

Future Need – 7,750 Additional Crews by 2020 and 13,000 Additional Crews by 2028

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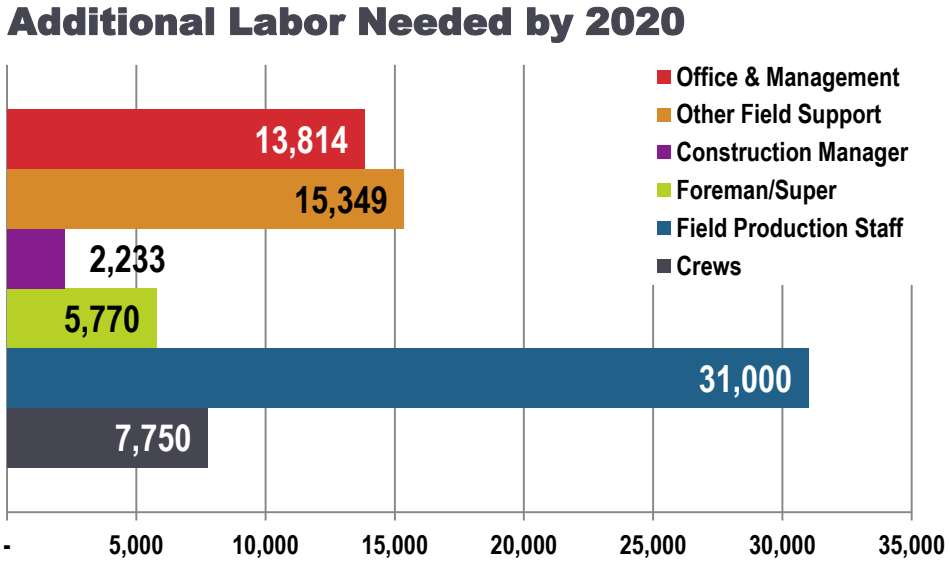
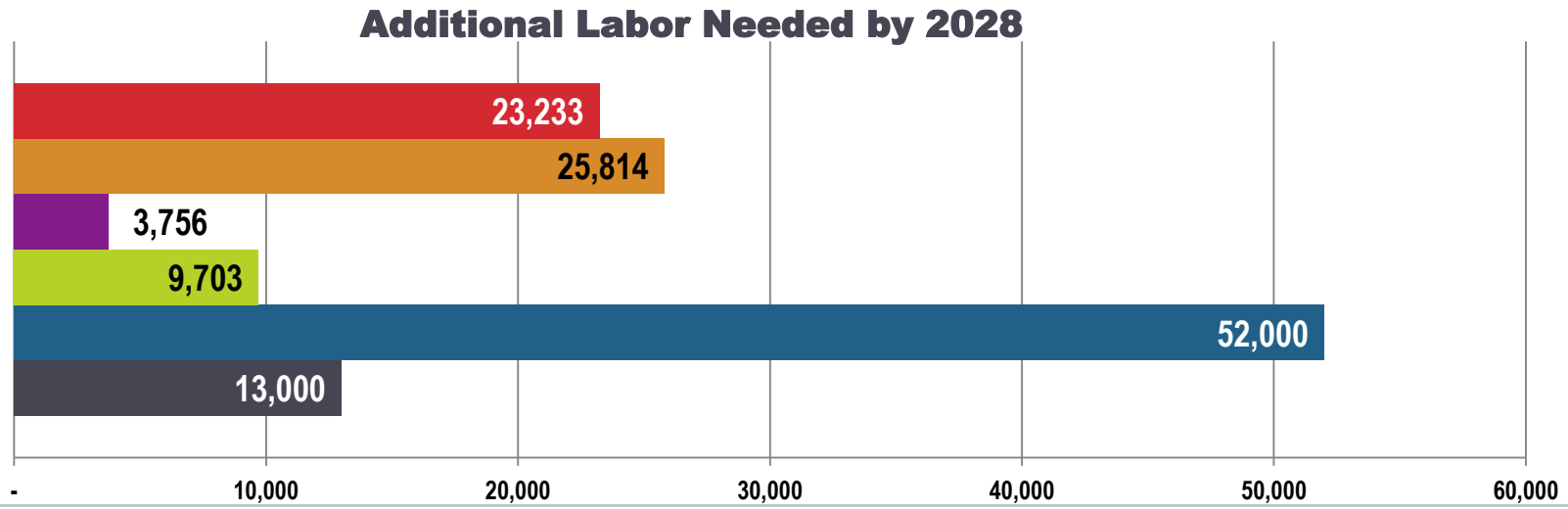


- Future need based on Continuum Advisory Group's forecast of total gas/liquid T&D spending growing from $44 billion in 2014 to $65 billion in 2020 and $80 billion in 2028
- Note that Gas Distribution utilities currently have approximately 2,200 internal construction crews and pipeline companies have approximately 400 internal construction crews



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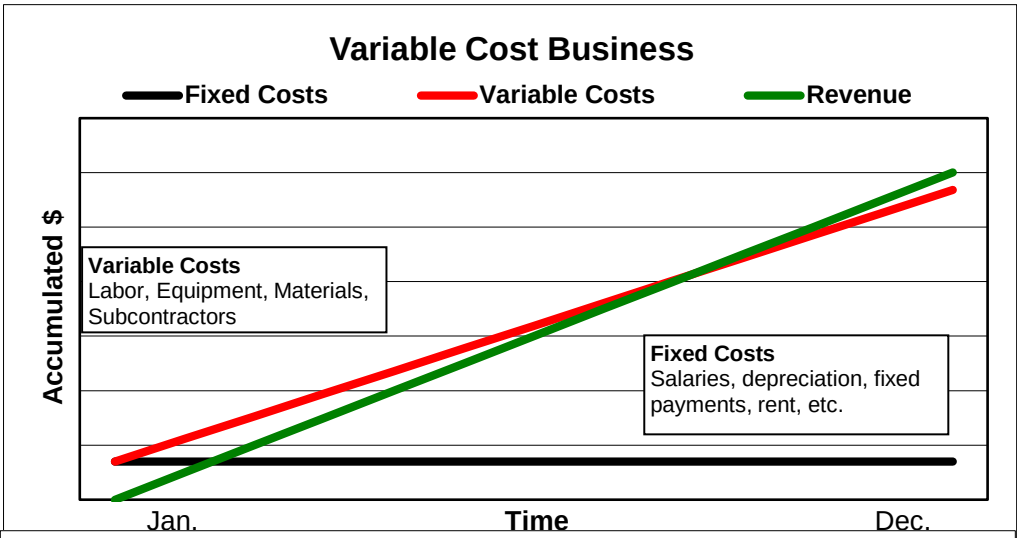
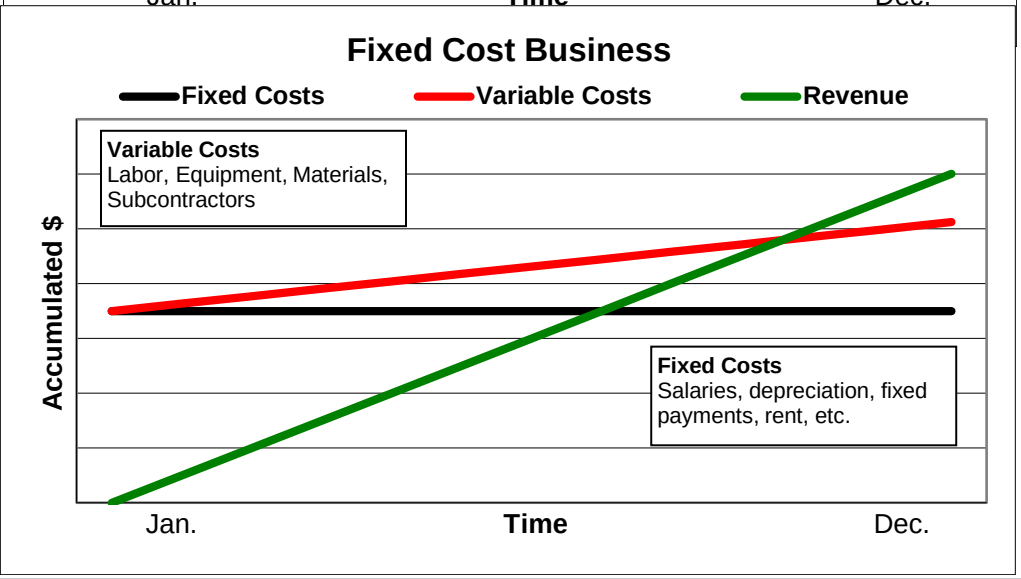
Contractor vs. Utility Cost Model





- Contractors have a highly variable cost model and are not able to reduce prices easily, through volume increases.
- Lower costs can come from two approaches
  - Risk reduction through longer term predictability
  - Well managed and highly productive crews that aggressively control and reduce variable costs
- In contrast, utilities have a fixed cost model and can gain greater savings from managing salaries, fixed payments etc.

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Profit vs. Price

? vs. ?

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Labor Availability Implications

- **Growth Faster Then Demographics**
  - The overall workforce of pipeline construction workers must continue to grow at rates well above the overall US workforce, as well as above the rate of growth observed in 2013 of 6.6%. From 2007 to 2011 the overall construction workforce shrank annually. Since 2011 this workforce has grown by 3.4% annually increasing the difficulty of growing the pipeline workforce.
- **Faster Development of Leaders**
  - Given the timeline to develop foreman and superintendents the nearly 6,000 additional employees needed in these positions must already be working in the industry and be beginning to develop the skills and knowledge needed to assume these roles in the next 5 years.
- **Unbalanced Challenge & Opportunity**
  - The Northeast, Middle Mississippi Valley and parts of the Mid-Atlantic appear to have a limited number of existing workers in place to support the significant growth in gas infrastructure replacement programs occurring in these areas.

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Key Takeaways

- **Utility Customer of Choice:** To maintain the capacity to implement replacement programs utilities must be the "purchaser of choice"

- **Collaborate to Win:** Utilities and contractors face the same set of problems…big demographic, age, and cultural issues

- **Align Contract Duration with Program:** Utilities are moving from three year contracts to extended contracts of five-to-seven years to lock in resources and match contract with program duration

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Labor Availability

- The Solution?

Source: YouTube Download; "Last Week Tonight with John Oliver: Infrastructure (HBO)", http://youtube.medjed.org/video/last-week-tonight-with-john-oliver-infrastructure-hbo--Wpzvaqypav8.html.

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What Should You Do Today?

Think differently about our challenges & opportunities

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Equipment Suppliers & Dealers

- 2015/2016 Strategies & Tactics
  - Think Strategically!
  - Understand the forces impacting your customer & your customer's markets
  - Understand your customer
  - Now you can better meet their needs
    - Partner with employees
    - Create opportunities
    - Play to win (Crush your competition!)
    - Build customers for life

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Pipeline Operators & Utilities

- Wave 2 - 2016-2021 – Industrial & Power Generation Renaissance
  - Upgrade Service Providers: Lock in effective and efficient service provider resources with 5-7 year contracts
  - Project Delivery: Develop a structured project delivery system selection for type, geography, and pace of work
  - Upgrade Skills: Improve talent acquisition and retention for the replacement of baby boom generation
  - LEAN Construction: Develop partnering, collaboration, and integration skills with service providers to drive out waste
  - Distribution Integrity: Design strategy to secure distribution integrity resources ahead of industry peers
  - Transmission Replacement: Begin long-term planning for accelerated transmission system replacement

- Wave 3 - 2025-2030 – Transmission Replacement & Distribution Integrity
  - Distribution Integrity: Implement a strategy to execute distribution integrity ahead of industry peers
    - Sourcing firms that can perform multiple scopes of work successfully
  - Transmission Replacement: Implement plan for accelerated transmission system replacement
  - Scarcity Environment: Identify strategies, processes, & technologies to operate in a "scarcity" environment - labor constraints, equipment constraints, etc.

- Wave 4 - Beyond 2031 – The Cliff
  - LEAN Operations: Improve operational efficiency to perform in a period of low capital spending growth
  - Asset Management: Mitigate long-term economic, regulatory and technological developments with the potential to lower demand and strand long lived assets

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Contractors, Engineers & Service Providers

- Wave 2 - 2016-2021 – Industrial & Power Generation Renaissance
  - Differentiate: Increase business development and differentiation capabilities versus competitors to secure more numerous, diverse, one off, and potentially smaller projects across a range of industries
  - Integrated Project Delivery: Build capability to delivery under multiple sourcing strategies and among various project delivery systems
  - Invest in Training: 1) Technical – To sharpen skills and meet quality specifications; 2) Management – To drive production improvement and waste elimination; 3) Cross Functional – To thrive in an environment that demands more than simply construction
  - Language of LEAN: Learn the language of LEAN construction and apply the concepts through partnering, collaboration, and integration with customers to drive out waste
  - Embrace Innovation, Disruption, and Scarcity: Focus on thriving with change in regulation, resource scarcity, etc.

- Wave 3 - 2025-2030 – Transmission Replacement & Distribution Integrity
  - Apply Technology: Become expert in the application of technology to control or mitigate risk, drive out labor content in the work and adapt to an environment where simply constructing is not enough for success
    - Smart Infrastructure: Communication and asset management tools integrated into the capital asset during design and construction
  - Forest for the Trees: Invest the wave 2 profits into the future; Think strategically about adjacent and/or related market sectors to pipeline that offer faster and higher growth prospects

- Wave 4 - Beyond 2031 – The Cliff
  - Diversify: Balance exposure to pipeline market with other markets offering faster and higher growth prospects

Thank You

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Mark Bridgers

Mark founded and leads a Utility Vertical Market team team at Continuum Advisory Group. He works with gas/electric utilities, power generators, pipeline companies, and energy companies. As a recognized expert in capital construction and operational challenges, Mark was recently honored with membership in the Society of Gas Operators (SOGO).

Mark helps firms prepare for and successfully navigate “strategic transitions.” His passion is helping organizations achieve breakthrough innovations through collaborative or integrated relationships. He is the architect of an approach for integrated service provider management referred to as the “Extended Enterprise” among construction industry participants.

Mark is an avid educator, trainer, and writer with more than 20 years of industry expertise including financial performance analysis; development and implementation of tools to reduce construction cost, life-cycle cost, and operational friction; restructuring of processes and procedures - often times using LEAN Construction techniques; and leader development.. He is a recognized expert in capital construction and operational challenges . Mark is also author of over 150 articles and research papers published internationally in industry journals, including ENR, PE – The Magazine for Professional Engineers, Pipeline & Gas Journal, Utility Contractor (NUCA), Underground Contractor, Electric Energy (RMEL) and Electric Perspectives (EEI).

Mark holds a master’s degree in business administration from the University of Virginia’s Darden school of Business and a bachelor’s degree in financial management from Clemson University. In addition, he earned the designation of Chartered Property and Casualty Underwriter (CPCU) and Associate in Reinsurance (ARe).

About Continuum

Founded in 2010, Continuum Advisory Group provides management consulting, training, and capital services to the residential, institutional, and energy industries supporting development and capital asset construction.

Continuum delivers innovative, customized solutions to production homebuilders and developers, institutional facility owners, and energy or utility owners who want to transform their development and capital asset construction processes. Service providers to these firms, including building products manufacturers, contractors, architects and engineers, are integrated into the transformation process, frequently forming what Continuum refers to as an “Extended Enterprise.”

Continuum’s experienced consultants can assist your business with Capital Construction/O&M Unit Effectiveness, Program Management Office Transformation, Risk Management/Mitigation for Capital Asset Construction, Project Management/Controls Installation, Process Analysis & Improvement, Management of RFI/RFQ/RFP/Procurement, Extended Enterprise/Alliance Formation, and Field Productivity Assessment & Improvement. Additional and specialized services include, Direct Cost Savings, New Product Development, New Product Commercialization, Market Strategy, Market Research, Cost Analysis & Savings, Cost to Complete Analysis, Cost to Convert to Best Purpose, and Cost to Restore Asset.

Let Continuum Advisory Group transform your business!

Inter. No. 95. Please provide the following information for each of the PIR eligible distribution main replacement works closed to plant in CY 2014 as columns in an executable Excel spreadsheet with a row for each project:

A. Project number;

B. Work type, e.g., (e.g. bare steel main replacement, small diameter (<8") cast iron main replacement, main retirement, etc.);

C. City/town work was predominately located;

D. Project start date;

E. Project completion date;

F. Project Construction Estimate;

G. Total project costs through 2014;

H. Material type of main used as replacement (e.g., plastic);

I. Diameter(s) of main replaced, in inches (Do not include text like 'inches' or ");

J. Footage of main installed, in feet;

K. Footage of main abandoned, in feet;

L. Number of services attached to the replaced segment(s) of main for this project; and

M. Number of services replaced in conjunction with this project

RESPONSE: DEO objects that this interrogatory is overbroad and unduly burdensome to answer. Subject to and without waiving this objection, DEO answers as follows: DEO does not track all of the information requested on an ongoing basis. Additionally, the categories of information that DEO does track are not entirely housed within a single system, and thus cannot be reported in the manner requested by OCC. DEO is submitting files that contain some of the information requested by OCC. The file "2014 Final PIR

Capital Report.xlsx" contains the information specified in items A, B, E, and G. The file "2013 Effective Rate Calc.xlsx" identifies costs by tax district, which supports item C. The file "Mainline Costs and Footage Summary.xlsx" contains the information specified in item J. Information regarding item M is provided in the file "Service Line Replacements-Costs.xlsx."

DEO has also identified a summary of major projects for 2008 to 2014 that provides a number of the items of information requested by OCC. This document was identified but not provided in DEO's supplemental discovery response provided on August 14, 2015, with the explanation that explanation that it included information that DEO considers confidential.

Responsible witness: Mike Reed.

9. From available records, can DEO readily prepare a spreadsheet that lists the annual PIR mainline replacement projects each year including each project's project/work order number, completion/in-service date, location (municipality, township, unincorporated area of a county, etc.), pipe material (bare steel, cast iron, ineffectively coated steel, etc.) feet installed, feet retired, number of services replaced, and cost?

   DEO Response: All of the requested information is not available in a single source from which a report could be generated. Such project details may be maintained in SAP, a data repository called "Business Warehouse," or in the GIS system. In order to prepare DEO's annual filings, the Design & Construction Project Support team prepares a detailed report that identifies each project by project number, completion/in-service date, general location, and costs by month, among other things. Each year's file comprises thousands of lines of data. Accordingly, it would be difficult to pull this information together into one spreadsheet. Nevertheless, in lieu of the spreadsheet identified by Staff, DEO will provide a sample of this report.

2. Of the various cost drivers described in the Application and Mike Reed's testimony, which ones have been the primary drivers behind the annual cost increases? Can you provide a generalized ranking of cost drivers from greatest to least in terms of percentage impact?

   DEO Response: The specific factors discussed in testimony were: general inflation; environmental compliance; working with municipalities; and increased demand for contractors. The nature of many of these costs renders them impractical to track or rank with precision. These cost-drivers are experienced primarily through contractor bid prices, and as such are not itemized. Contractor costs have the highest impact in terms of overall spend. Of direct costs to DEO, excluding contractor costs, DEO would estimate that environmental-compliance costs are greatest, and the costs associated with permit issuance are the least cost.

   In its application and testimony, DEO attempted to convey that there are a variety of factors that have caused overall costs of the program to increase. Some of these increases were anticipated, and others were not, when the program was initially approved. Both inflation and the cost increases experienced to date will continue into the future and will continue to erode the amount of pipe DEO can replace without an increase in the level of investment permitted and associated increases in the rate increase caps.

Summary: Testimony Direct Testimony of Daniel E. O'Neill on Behalf of the Office of the Ohio Consumers' Counsel electronically filed by Ms. Jamie Williams on behalf of Mrs. Jodi Bair