

WHO WILL DO THE WORK?: NORTH AMERICAN UTILITY CONTRACTOR SUPPLY VS. DEMAND

By: Mark Bridgers and Daniel Groves

Abstract

Numerous industry surveys are reporting that an overwhelming majority of energy/utility construction firms and their utility customers are having a hard time finding qualified craft workers as the overall construction industry rebounds. In this article, Mark Bridgers of Continuum Advisory Group, and Daniel Groves of the Construction Labor Market Analyzer®, will explore projected supply versus demand of a combined utility contractor and utility internal workforce in North America in 2016. In addition, this topic will be covered at the CURT 2016 National Conference by a panel of owners in a session titled “Who Will Do the Work?: North American Utility Contractor Supply vs. Demand” on Wednesday, February 10, 2016 in Orlando, Florida.

2016 Energy/Utility Market Executive Summary

What energy and utility owners and contractors see for their future depends on where they stand, but one question is consistent... Who will do the work? Forward looking owners and contractors will see opportunity to build competitive advantage through collaboration. Backward looking firms will focus on the challenges; aging workforce, ineffective recruitment, and growing spend in trades and services they cannot offer.

Winston Churchill, an optimist and Oscar Wilde, ever the pessimist may epitomize this dichotomy.

“Pessimist: One who, when he has the choice of two evils, chooses both.”
— OSCAR WILDE

“A pessimist sees the difficulty in every opportunity; an optimist sees the opportunity in every difficulty.”
— WINSTON CHURCHILL

There are three power and energy market segments that behave differently with alternative sets of “opportunity in every difficulty.”

- Pipeline: The North American transmission market is beset by low oil prices and cancelled projects while distribution faces record demand. Long-term, this market may need 40,000 new field and supervisory entrants.
- Electric: The T&D market began an upswing in 2012 and will continue with large and routine transmission projects and distribution asset replacement or undergrounding. Long-term, this market may need 50,000 new field and supervisory entrants.
- Power Generation: The market is threatened and transforming which punishes and rewards industry participants through hard to predict capital construction spending patterns. With the oldest workforce, retirements will disrupt it while the transformation reduces the need for traditional trades (boilermakers, millwrights, ironworkers, etc.) in favor of less specialized electrical and mechanical trades.

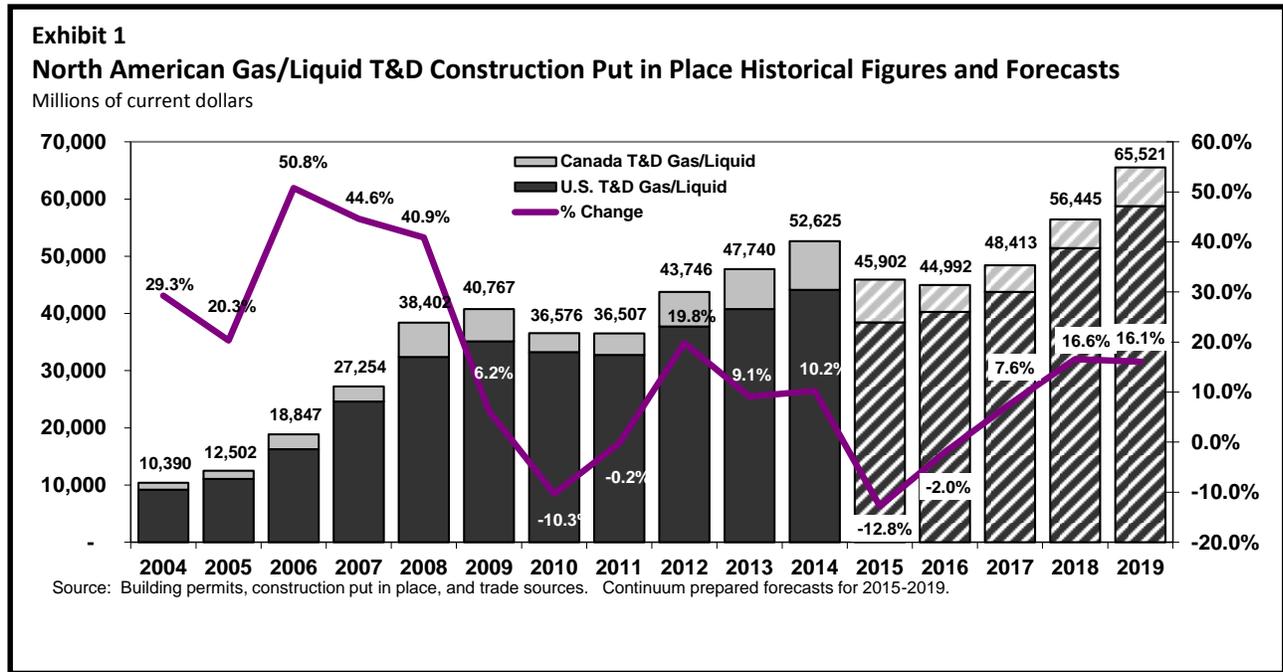
We explore each market and address supply vs. demand imbalances, answering the question, who will do the work?

Pipeline Transmission & Distribution – US and Canada

The North American transmission market grew on high oil prices and is shrinking on low ones. The Canadian pipeline and distribution construction market is heavily influenced by gathering and transmission activity while the U.S. market is dominated by distribution activity. The “high cotton” days when pipeline and distribution markets hit on all cylinders are over until 2017 when both will again wonder...who will do the work?

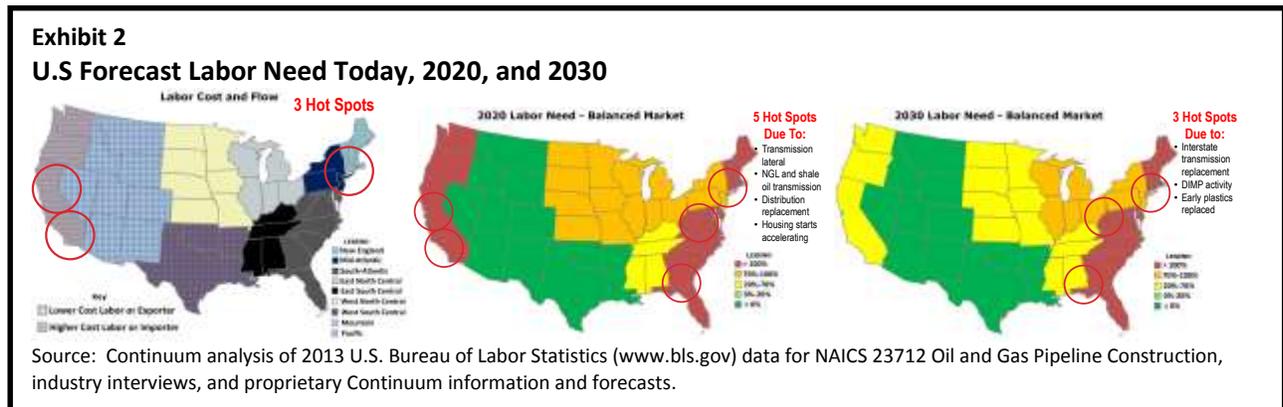
Continuum observes that transmission pipeline contractor revenues have fallen 40%-60% in 6-18 months. While painful, these severe swings are normal. Station contractors are less affected and distribution contractors are largely

unaffected. North American spending peaked in 2014 after which Canada will see a 50% reduction in spending over 2 years in transmission pipelines while the underlying distribution spending continues to grow. U.S. transmission pipeline spending reduced the overall market for 2015 and 2016 while distribution markets remain strong and growing. Beyond 2015, the pipeline market will exhibit periodic volatility and we are bullish, anticipating 15-20 years of increasing spending. (Exhibit 1)



Who Will Do The Pipeline Work?

This bullishness demands more staff. Continuum’s research and data from Construction Labor Market Analyzer® (CLMA) compare today, 2020, and 2030 showing that an additional 40,000 field staff may be needed. Exhibit 2 highlights three known hot spots where today, demand already exceeds supply of available construction staff. In 2020, two new hot spots develop in the Southeast and Mid-Atlantic. By 2030, three hot spots remain in New England, the Marcellus/Utica shale basin, and the Southeast.

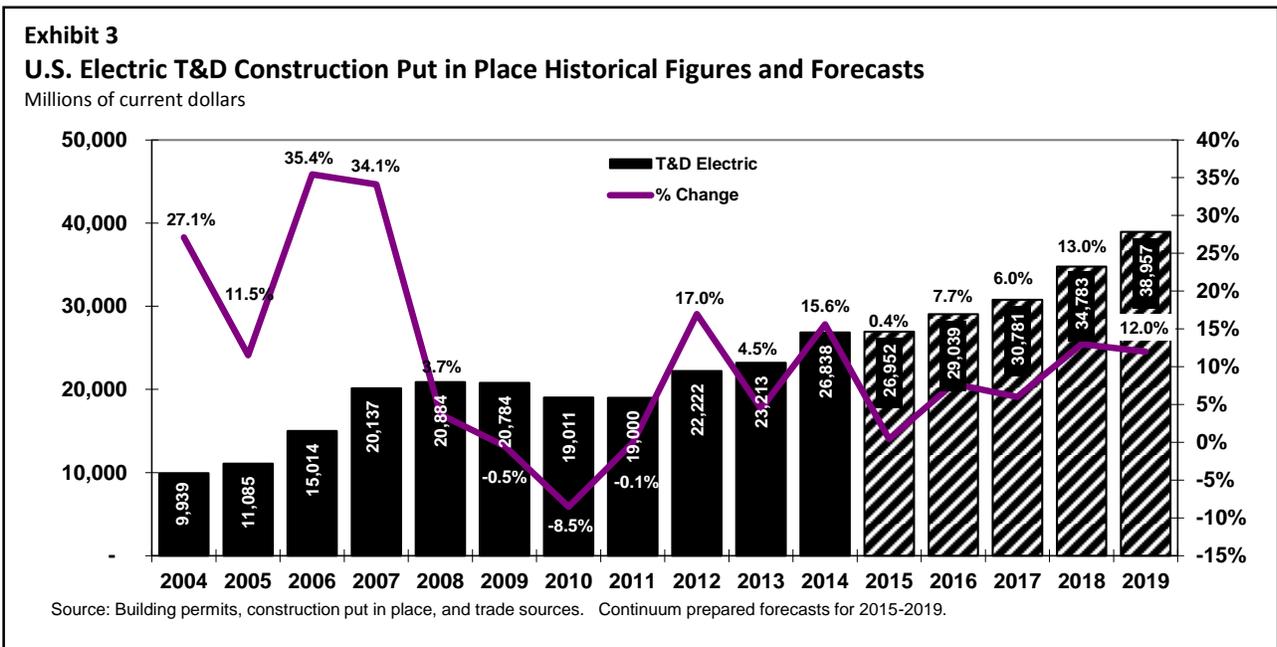


Recognizing that their membership wants answers to the question of who will do the work; the Distribution Contractors Association (DCA - www.dcaweb.org) initiated an effort to attack this challenge. Recognizing the long-

term nature of the demographic issues and inaccurate perceptions of this industry, a leadership team was formed to build an industry coalition that will pool resources and attract, train, and employ the future workforce over the decade of 2015 to 2025. The leadership team includes executives from DCA, NiSource, Atmos Energy, Miller Pipeline, Michels Pipeline, Vermeer, and an industry lobbyist. (You Can Join! Continuum Advisory Group is providing guidance to the leadership team and you can join this effort. If you want to learn more, participate, or help lead this effort, please contact Rob Darden at 972.680.0261 or rdarden@dcaweb.org; Mark Bridgers at (919) 345-0403 or MBridgers@ContinuumAG.com; or Eben Wyman at 703-750-1326 or eben@wymanassociates.net) These efforts will accelerate in 2016 through the implementation of local strategies to support workforce attraction, retention, training, and skill development.

Electric Transmission & Distribution

The T&D market spending varies dramatically due to major transmission and substation construction activity. The dramatic 2000's spending increase was due to a series of very large transmission projects. The 2011 market trough was followed by rapid growth from large and routine transmission projects and asset replacement or undergrounding. (Exhibit 3)



Who Will Do The Electric Work?

The Bureau of Labor and Statistics (BLS) forecasts a decline in the internal utility T&D workforce, specifically electricians, equipment operators and foreman through 2022 while the number of line-installers is expected to remain stable. The spending increases and internal utility workforce retirements, contractors must increase their workforce in key trades by one-third over this time period. Continuum forecasts that an additional 50,000 field staff, 7,500 foreman and 2,500 construction managers will be needed by 2025.

CLMA® proprietary database of currently permitted and planned Electric T&D projects predicts scattered shortages both today and in the future. (Exhibit 4)

Exhibit 4

Electric Power Transmission & Distribution Demand as a Percentage of Supply

Supply / Demand Imbalance: Electric Power Transmission 2014



Supply / Demand Imbalance: Electric Power Transmission 2018



Power Generation

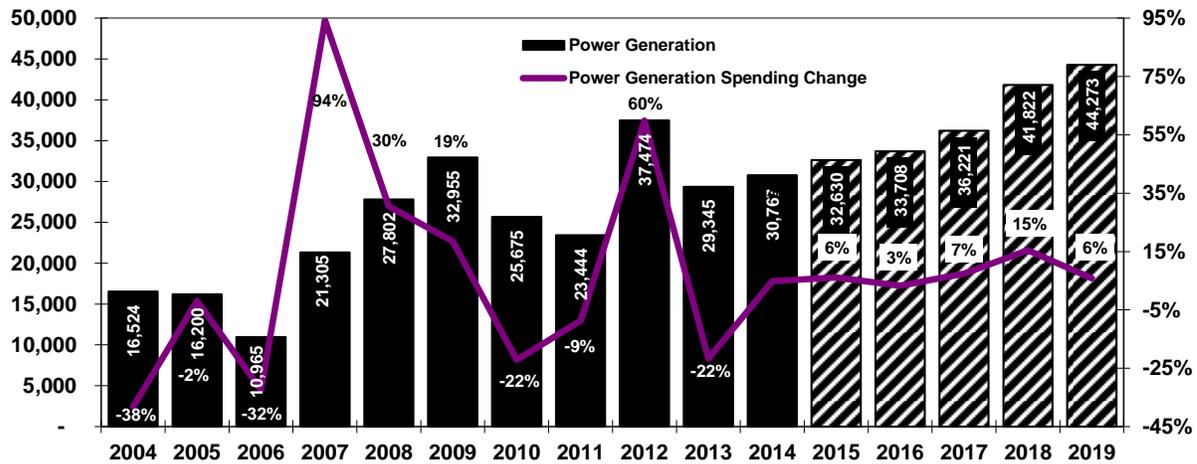
The power generation market is under threat and transforming. High efficiency gas and renewables are replacing coal resulting in hard to predict capital construction spending patterns. The shift dramatically impacts which trades observe a growing versus shrinking market.

Regulation drove the 2006 spending trough and the response saw spending accelerate with the installation of environmental controls at coal fired sites and new wind power fueled by production and investment tax credits. (Exhibit 5) Beyond 2015, a second wave of power generation infrastructure spending will occur until an industry restructuring due to distributed generation and storage technologies. The traditional, centrally-managed, and base-load power generation market will no longer exist as we understand it today. This shift removes spending from the power generation category and places it in residential, multi-family, commercial, industrial, etc. where these market segments are installing distributed generation and storage technologies at their sites. The fall off of spending beyond 2036 is a shifting of the type and nature of spending rather than an elimination of it.

Exhibit 5

U.S. Power Generation Construction Put in Place Historical Figures and Forecasts

Millions of current dollars



Source: Building permits, construction put in place, and trade sources. Continuum prepared forecasts for 2015-2019.

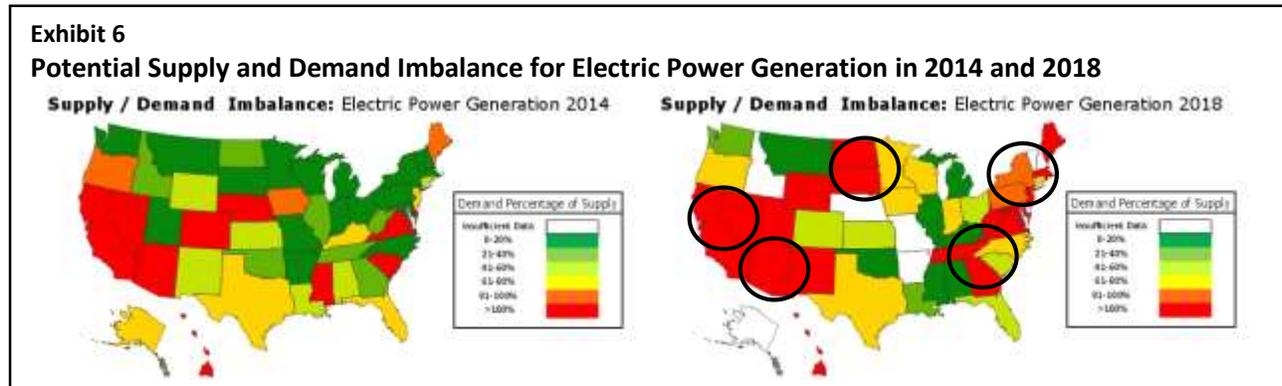
Wave 1 2002-2012	Wave 2 2015-2030	Wave 3 2030-2045	Wave 4 Beyond 2036
Peaking Gas & Wind Power Driven	Coal Retirements & Gas/Renewable Driven	Distributed Generation & Storage Driven	The place of traditional power gen utility?
<ul style="list-style-type: none"> • \$20 to \$37 billion (+85%) 	<ul style="list-style-type: none"> • \$33 to \$50 billion (+52%) 	<ul style="list-style-type: none"> • \$50 to \$35 billion (-30%) 	<ul style="list-style-type: none"> • Shrinking Spending
<ul style="list-style-type: none"> • Production/investment tax credit fuels wind power construction • Low natural gas prices and energy demand fuel merchant and utility gas fired power generation construction 	<ul style="list-style-type: none"> • Coal retirements from age and regulation accelerate • Replacement of coal is four faceted: <ol style="list-style-type: none"> 1) stand alone natural gas; 2) renewable augmented by natural gas; 3) energy efficiency; 4) distributed generation 	<ul style="list-style-type: none"> • Nuclear licensing not renewed • Coal retirements continue • Wide spread distributed generation is a reality • Utility scale storage invented and widespread augmenting both renewables and distributed generation • Spending has peaked early in this cycle 	<ul style="list-style-type: none"> • Power generation spending fragmented at residential, commercial, and industrial sites in addition to traditional merchant or utility sites • Traditional power generators punished and atrophying • Utility industry transitions to "Insurance" model and focuses on grid management

Who Will Do The Power Generation Work?

The combined merchant, utility, and contractor power generation workforce includes approximately 64,000 field, 8,000 supervisory, and 5,800 construction/project management staff. Approximately 18% of the total workforce is employed directly by utility and merchant power generators, primarily performing maintenance and small capital construction projects.

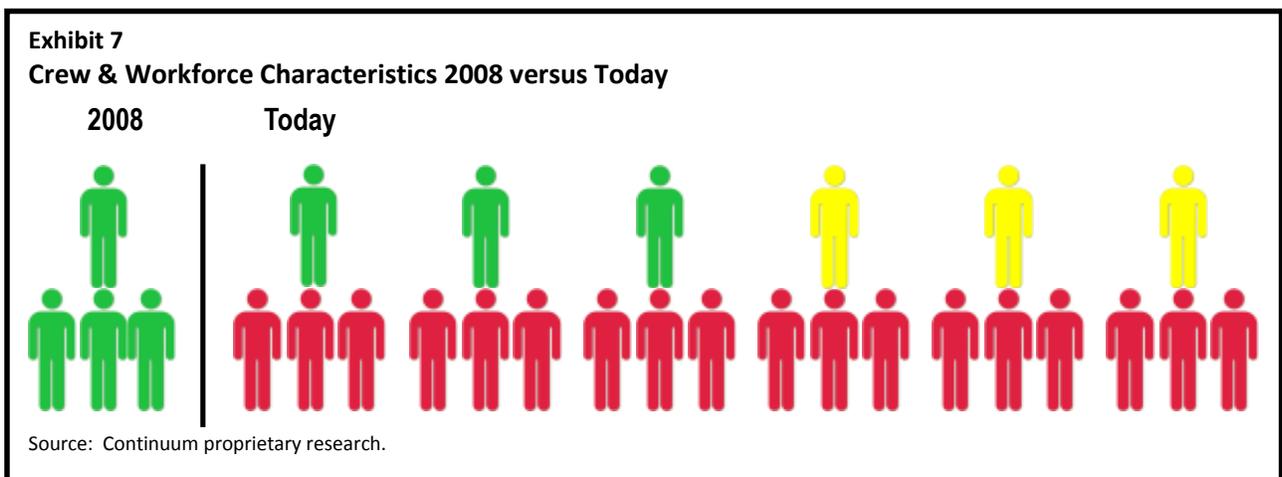
Continuum and CLMA® forecasts in Exhibit 6, the demand for Boilermakers, Millwrights, etc., the primary power generation skilled craft needed was compared to an adjusted supply from the Bureau of Labor Statistics for the overall demand from other industries. This supply verses demand comparison demonstrates a dramatic increase in critical region including five hot spots. If anticipated retirements of 11-20% for those crafts over the next 5 years, are

included, the critical areas only worsen. Imagine a 2020-2025 workforce populated by recently hired field staff with far less accumulated experience who are not prepared to lead. This lack of experience to lead, results in lower productivity, quality, and safety performance due to supervisory shortage and labor experience.



Overall Conclusions

Who will do the work? In 2008, a generic utility or contractor crew consisted of four staff led by a foreman with 20 plus years of experience (Exhibit 7). Under this foreman was a laborer, specialty tradesman (boilermaker, welder, electrician, etc.), operator, and/or helper, each with 10-15 years of experience. Since then, spending increases, retirements, and attrition have split the crew 6 times with one original crew member retiring. The remaining three now lead a crew as foreman and three staff hired since 2008 also leading crews. Under each of these six foreman are three additional crew members, likely hired since 2008 and not yet ready to lead a crew. The implication...it is not practical or possible to further subdivide these crews and productively, safely and in compliance build utility capital assets.



Who will do the work? The North American utility construction market will continue to grow and transform, proving either a hobbling constraint or competitive advantage. Forward looking owners and contractors will see an opportunity to build competitive advantage through collaboration and control a scarce resource: competent and capable labor, supervisory and project management staff that can productively, safely and in compliance build utility capital assets. There is an opportunity to thrash your competition over the coming decade; be the firm that “sees the opportunity in every difficulty.”

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Daniel Groves is CEO of Construction Industry Resources, LLC, which owns the Construction Labor Market Analyzer® tool and database. The firm provides market risk data and analysis to owners, contractors, labor providers and the construction industry overall to help stakeholders understand the skilled labor market, project craft compensation escalation and manage project labor risk. He can be reached at 859.339.5071 or dgroves@myCLMA.com. For more information on Construction Labor Market Analyzer® tool and database, visit www.myCLMA.com.