



As the Mercury and Air Toxics Standard regulations (MATS) are finally implemented in 2015, the long anticipated wave of coal generation retirements is upon the United States. As reported in SNL News, 2015 is expected to be the peak year for coal plant retirements with more than 12,000 MW being retired to comply with the MATS standards. Ohio alone is expected to see approximately 6,000 MW of coal fired generation retire in 2015. For perspective, at least one analysis found that these coal retirements represent one third of all power generation retirements between 2010 and 2015. An often repeated point of reference: Plants under 400 MW and over 40 years old were the most likely to be retired as the cost of retrofits for environmental compliance far exceeded the returns likely to be generated from older, less efficient plants.

Not surprisingly, natural gas generation has increased substantially since 2012. The low cost of natural gas has been a principal driver, but also the increased reliance on natural gas fired units to provide base load power generation has steadily increased. The five largest power generators in the United States burned 66 percent more gas in 2014 than in 2010, according to an analysis done by SNL Energy. This increase in usage amounted to approximately 869 million MMBtu. It is no coincidence that the low price of gas, thanks to the dramatic increase in supply resulting from shale development in the Marcellus, Utica, Eagle Ford, and other formations have made gas fired generation the low cost option for power generators. The same low price that has impacted coal units also has impacts on nuclear units and even renewable deployment.

Layered on top of significant coal retirements, dramatic increases in gas fired generation, changing market fundamentals, and operational challenges (e.g. sufficient pipeline capacity to secure low cost gas to generation sites) there is a definite focus on investment in the transmission system as well as generation deployment. 2015 is projected to be an all-time high year for capital investment in power and gas infrastructure at more than \$100 billion. Regulatory Research Associates breaks down the investment at nearly half being for transmission and distribution of the electric grid, 25 percent for electric generation, and the balance to pipeline, storage, environmental, and renewables projects. Nearly half of capital investment is allotted to transmission and distribution because of the need to update aging infrastructure and compliance with physical safety standards. It is often said the FERC rate of return that comes with transmission system investments, which is often higher than state authorized rates of return, also contributes to the need for high investment. The effect is to secure much needed upgrades and improvements to the transmission grid and ensure sufficient return to make those investments attractive.

In organized markets, even with the substantial amount of retirements, the regional transmission operators (RTOs) or grid managers continue to report reserve margins – or the total capacity needed to meet peak demand plus additional reserves to offset an unforeseen outage – well above the threshold required by the Federal Energy Regulatory Commission. This can be accounted for in the construction of new generation that replaces the retiring units to some degree, but also demonstrates that the system had surplus capacity. That extra capacity is now being squeezed from the system without impairing reliability. This performance by the regional transmission operator to manage power across a wide geographic area and providing the lowest cost power is one of the inherent benefits to consumers of utilities belonging to the RTO.

As noted across the industry, and as Bob Dylan said, "the times they are a changing." Massive amounts of generation capacity is retiring and leaving the grid. Additional environmental rules are due to be released this summer which will add further complication to the evolving picture of generation retirement. New generation, mostly natural gas and renewables, is being constructed and connected to the grid. Transmission system upgrades are and will be needed to connect and ensure reliable delivery of power. Additions to the transmission system are also required to move generation from remote areas to load centers. Hardening the grid against electromagnetic pulse damage and other natural and man-made events are also a part of the equation.

Regardless of the mechanism – be it ratepayer funded or shareholder risk – substantial investments are already being made, and will continue to be made, to ensure that the lights stay on and the system remains reliable. State and federal utility regulators are actively working to ensure that reliability is not compromised during this period of rapid transformation. State and federal policy makers continue to debate issues that impact the industry throughout the supply chain – from energy extraction, drilling and waste disposal regulations, to generation resources mix, tax policy, energy exports, and environmental impacts. In the end, consumers continue to seek low cost, highly reliable power for their businesses and for their families. The leaders who are behind the policy and regulatory changes that are underway should keep those groups in mind as issues are debated in governmental circles and decisions are made in company board rooms across industries.