

By Joseph Sullivan & Michael Fischette
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The unexpected energy revolution has the potential to make lasting changes in our economy.

The fact that households are paying less for natural gas, less for electricity and much less for gasoline drives consumer confidence and puts more disposable income in peoples' pockets. This coupled with low interest rates increases spending in an economy, which depends on it for growth. Increased consumer spending and lower energy costs have the same effect on business and industry.

The big picture

Ten years ago, we wouldn't have foreseen that the United States – led by Pennsylvania and other shale gas producing regions – would actually make energy independence possible. This revolution is affecting utilities, manufacturing, consumers, business and industry. One of the unexpected benefits is that the United States is now the world leader in reducing greenhouse gas (GHG) emissions. This large reduction hasn't been achieved by renewable energy (i.e. wind and solar), but from the much lower carbon content of natural gas as opposed to coal and oil.

Long-term, we still need to develop and use renewable energy resources that do not have any direct emissions. However, short-term utilization of the cleanest burning fuel at the highest efficiency possible makes both economic and environmental sense. Not only does natural gas have low carbon content, but many of the technologies that use natural gas as a fuel operate at much higher efficiencies compared with traditional energy technology. The historic availability of natural gas and oil made the Gulf Coast region, Texas in particular, the heart of the energy industry in the United States. There is no reason that Philadelphia and the surrounding region cannot similarly become an energy and technology center.

Areas that are directly impacted by the changes in the natural gas supply include the intrastate and interstate natural gas pipelines. New pipelines or existing pipeline expansions happen regularly. The interstate system was largely designed to move natural gas from the Gulf of Mexico and neighboring states to markets in the Mid-Atlantic and Northeast. New construction is improving that system and adding west-to-east capacity to move new supplies to market. We are now seeing prices decoupling from the traditional Gulf Coast transportation index as supplies much closer to population centers become available. The result is stable and historically low cost natural gas.

Piece by piece

The first wave of change in the Delaware Valley has been the revitalization of petroleum refining with closed plants reopening with new owners, and retention or creation of thousands of quality, good-paying jobs. Industries that use hydrocarbons as a basic raw material or feedstock also benefit from the revolution in the natural gas market. The plastics, fertilizer, industrial chemical and eventually energy-intensive manufacturing industries benefit directly and become more competitive in regional and international markets.

In order to see a vibrant economy that includes manufacturing and commercial businesses, we also need to have competitive and reliable supplies of electric power. As a result of the cost and reliability of natural gas, it has become the fuel of choice for new electric generation. Due to deregulation of the electric generation market, there is a competitive market for electric generation. Utilities continue to own and operate the electric transmission and distribution systems as regulated businesses, however the generation of electric power has become competitive in the private sector.

Due to environmental regulations and basic operating economics, natural gas combined cycle combustion turbine power plants dominate new construction activity and are steadily increasing their share of the generating market. Not only do these power plants use a lower carbon fuel, they operate at efficiencies nearly double that of old boiler steam plants. As a result, private companies are investing billions in new state of the art generating plants.

We also are seeing smaller distributed generation resources gaining momentum operating on the customer side of the meter and providing local onsite and resilient alternatives to traditional power grid supplies.

As development of these alternatives occurs, we need to be mindful that traditional utilities still have critical and essential roles. These changes must also be accompanied by evolution of the regulations under which utilities currently operate. The electric power industry in our region is regulated at the state level. The large multi-state region it is managed by PJM, a regional transmission organization (RTO) that coordinates the movement of wholesale electricity in 13 states and the District of Columbia, serving 61 million people. This is a large complex and historically reliable system.

Meeting demand

Recently, a major manufacturing and technology company, Holtec International, began development of its new campus and world headquarters in Camden, NJ. Philadelphia is renowned for its universities, medical schools and hospitals. Young people are moving back to the City to live in close proximity to the arts, music and entertainment. The development of Drexel's Innovation Neighborhood, Comcast and FMC Towers continue the trend in supporting industry, business and job growth. A cornerstone of business and industry's ability to be competitive is reliable, low cost energy. These factors make this a moment of opportunity for the region's economy.



Joseph Sullivan serves as Vice President of Energy Policy & Development. Michael Fischette is CEO of Concord Engineering.