

## ***How has the coal-to-gas transition impacted local residential prices?***

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There is growing evidence that the boom in unconventional oil and gas development has had significant economic (Brown, Fitzgerald, and Weber 2016) impacts. Most of this research has focused on those impacts that stem from active wells. This research is critical, as it provides policy-makers with information about how communities are impacted by drilling.

Yet, the effects of the oil and gas boom have not been limited to a small buffer around active wells. The boom has had effects stretch across the country, including falling energy prices (Wei 2014) to improving regional manufacturing economies (Arezki and Fetzer 2016). One effect of the boom that has been felt across the country is growing natural gas-fired electricity generation at the expense of coal-fired generation. Bituminous coal-fired generation decreased by 41% between 2001 to 2015; sub-bituminous coal and lignite coal-fired generation decreased by 10% over that same period. Figure 1 highlights county-level percent change in bituminous coal from 2001 to 2015. Although some scattered counties experienced increased coal-fired generation over time, the widespread trend is declining coal-fired generation. This has been met with large increase in natural gas-fired generation (U.S. Energy Information Administration 2016a).

Although the coal-to-gas transition may have negatively impacted coal mining-based economies (U.S. Energy Information Administration 2016b), the external environmental (e.g., Driscoll et al. 2007) and public health (Chen et al. 2013; Tanaka 2015) costs of coal-fired generation are large. Recent research has found some evidence of local air quality improvements due to coal displacement by natural gas (de Gouw et al. 2015). Yet, there has been limited research exploring how these environmental improvements have been valued in residential property transactions.

In this study, we explore how local residential property markets are impacted by coal-to-gas switching at power plants. We rely on EIA monthly generation data for the universe of power plants operating in the United States from 2000 to 2015. We link the monthly generation data to unique nationwide databases of individual residential property transactions<sup>1</sup>. We then estimate a series of statistical models exploring how changing fuel use at local power plants influences residential property sale prices.

Although these models are informative in terms of identifying generalized trends, ongoing research is using the real estate transaction data to better identify the impacts of the decline in bituminous coal use and the transition towards natural gas dominance.

Our analyses contribute to our understanding of how the transition in fuel use in electricity generation may lead to residential property price appreciation related to improving air quality. This research also contributes to growing research on how the effects of the recent oil and gas boom have been felt further afield, beyond the local communities that house drilling.

### **Works Cited**

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<sup>1</sup> Zillow's ZTRAX Database.

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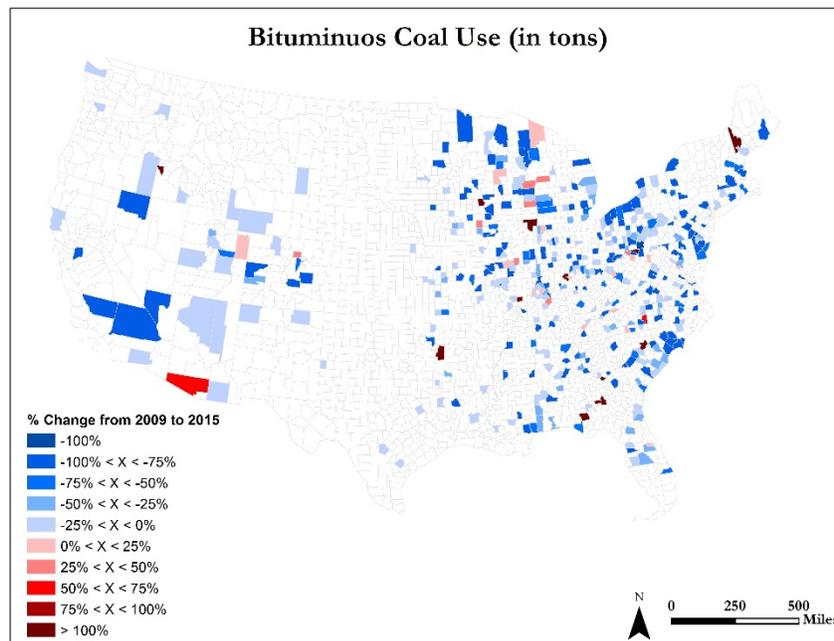
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## Tables & Figures

Table 1: Percent change in bituminous coal-fired generation between 2008 and 2015



Note: Data is from the United States Energy Information Administration (2016a).