Hydraulic Fracturing: A Review of Implications for Food Systems Planning

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Abstract

Food system and energy planners have given scant attention to the impacts on agrifood systems of a particular form of energy production—fracking—and its implications for planning and regulation. Impacts include those related to water availability and quality; land quality, use, and value; wildlife; labor costs; infrastructure and services; and the implications of boom and bust dynamics of these for the sustainability of agriculture and food systems. Planning is challenged by competing frames of economic and environmental benefits, lack of capacity, power imbalances, and sometimes state policy. This review maps research on these linkages, identifies elements of successful planning, and offers directions for future research.

Keywords

fracking, food systems, community planning

Since about the mid-1990s, food systems have received increasing attention by community and regional planners (Pothukuchi and Kaufman 1999, 2000; Kaufman, Pothukuchi, and Glosser 2007; Raja, Bom, and Russell 2008; Vitiello and Brinkley 2014). Accordingly, planners have noted the food system’s diverse links to the energy sector (Pothukuchi and Wallace 2009; Heller and Keoleian 2003; Pimentel et al. 2008). Such links include the food system’s dependence on fossil fuels, fuels derived from food and farm sources, and agricultural and food system practices that are less energy intensive and more sustainable. However, with rare exceptions (e.g., Food and Health Network of South Central New York 2012), food system planners have typically paid less attention to hydraulic fracturing, a form of unconventional oil and natural gas production.

On the flip side, energy planners focus on links to land use, transportation, environmental impacts, neighborhood design, conservation, renewable alternatives including biofuels, and equity with respect to localities (Kaza and Curtis 2014). For example, the American Planning Association (APA) has identified a framework for integrating energy issues into planning through development patterns, transportation, and economic development (Shuford, Rynne, and Mueller 2010). Although food system issues are not entirely absent in discussions of energy-related planning, they tend to have a low profile. For another example, APA’s (2011) policy guides on climate change, food systems (Kaufman, Pothukuchi, and Glosser 2007), and energy (APA 2012) all urge planners to support alternative food systems that are more sustainable and local, so as to reduce greenhouse gas emissions and mitigate the impact of climate change on communities. Planning and regulation related to fracking from the perspectives of healthy food access, food security, and food system sustainability, however, are missing in such policy guidance.

As hydraulic fracturing (referred to as fracking from here on) has become more widespread and operations are frequently located in rural areas where food production is a primary activity, the need to help local officials understand its food system implications becomes pressing. This article seeks to map the linkages between fracking and food systems and trace their implications especially for local regulation, planning, and policy. Planning can help anticipate and mitigate potential negative impacts of fracking on food system activities. It can also identify possible pathways for their coexistence and enhance food-related goals in fracking-impacted communities, among other objectives.

Tracing the food system–fracking connections and their implications for food system goals is no easy task, however. Both food systems and fracking are relatively new to the planning field. Although peer-reviewed scholarship is slowly emerging, few data exist on fracking’s causal links to known impacts and on impacts across space and time. For this and other reasons, there is a lack of consensus on the nature and extent of social and ecological risk involved with the activity. The low level of planning capacity in rural communities that are most affected by fracking is yet another challenge. Add to this the typically charged nature of local discourse, the reality of power differences between industry actors and local officials and residents, questions about the appropriate level of policy

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