

Managing the Risks of Shale Gas

THE LATEST RESULTS FROM RFF'S INITIATIVE

RFF has unveiled two tools to help policymakers, experts, and the public better understand the complex process of shale gas development as it unfolds across the country.

Kristin Hayes reports.

There's no hotter topic in US energy policy today than natural gas: how much technically recoverable gas is in the country, how risky it is to get that gas out of the ground, and—once unearthed, processed, and piped—how its price will trend (and affect the US energy mix) in the future. Experts in RFF's Center for Energy Economics and Policy (CEEP) are making a significant contribution to the risk part of these conversations with a major research initiative—Managing the Risks of Shale Gas: Identifying a Path toward Responsible Development. The project, scheduled for completion in December 2012, includes several key components:

- » a survey of experts to identify what they think are the priority risks involved in the shale gas development process;

- » a survey of the public in several states to understand public perception of risks;

- » statistically based analyses of surface water impacts in the Pennsylvania portion of the Marcellus play; and

- » an assessment of current state and federal shale gas regulations and nonregulatory initiatives.

Combined, the results and findings from each of these components will help the team identify the highest-priority risks and develop recommendations for how best to reduce them, whether through regulatory reform or voluntary industry action.

Risk Matrix for Shale Gas Development

One of the first tools released by the CEEP team was a catalog of plausible environ-

mental risks associated with the development of shale gas—an important starting place for understanding the ways that shale gas development could possibly impact environmental and human well-being. Developed at RFF with input from geologists, hydrologists, economists, risk assessors, and representatives from both industry and environmental groups, the tool—called the Risk Matrix for Shale Gas Development—is available online at www.rff.org/shalematrix.

The risk matrix highlights 264 *impact pathways* linking activities associated with shale gas exploration and development to possible effects on the environment and communities. This set of pathways forms the core of RFF's surveys of experts and the public.

A Review of Shale Gas Regulations by State

A second online tool demonstrates the results of CEEP's survey of state regulations for shale gas exploration and production. RFF's Nathan Richardson, Madeline Gottlieb, and Alan Krupnick examined regulations and surveyed regulators in the 31 states with current or near-future shale gas development to identify how 20 or so important regulatory elements are applied in each state. Although river basin commissions and localities also play important roles, at the moment, states are taking the lead on setting guidelines for shale gas development. The debate continues over how much the federal government should get involved.

The results of this survey are presented in a series of maps that show regulatory

patterns nationwide, available at www.rff.org/shalemats.

The states vary widely in their approaches to shale gas development, with some regulating with very specific standards, others being based more on performance, and others using a case-by-case permitting process. Even for those using specific standards, there is wide heterogeneity. This diversity is the subject of an RFF report that is expected in fall 2012. In the report, the RFF team will delve into the differences illustrated on the maps, examining whether they can generally be attributed to variance in the risk factors among the states (differences in geology or population density, for example), or whether they simply arise from institutional factors.

The team noted some important caveats when developing the maps. First, enforcement matters: two states with similar laws or regulations on the books may regulate very differently in practice.

Second, understanding permitting is important: the permits required for siting, drilling, fracking, and operating a well may actually impose conditions that are tighter than any regulation, but it can be hard to find out what these conditions are and whether they're uniformly applied. This is an area for future research at CEEP.

RFF's shale gas maps illustrate one of the fundamental truths about shale gas development in the United States: it is a complicated, varying process that is unfolding at a pace that is challenging to keep up with. The team at RFF will continue to delve into these issues in the context of this project and beyond. ●