A new way forward for shale development

The dramatic advance of shale development in the United States has increased calls for better communication and coordination among affected stakeholder groups, as well as within and across the states that are home to shale resources. That was the sentiment shared by many participants who met on July 11 at the Environmental Council of the States' (ECOS) 2013 State Environmental Protection Meeting, "The Path to New Energy: Hydraulic Fracturing in Focus."[1] The event brought together senior environmental regulators from 21 states with representatives of producers and affiliated industries, retail and industrial consumers, environmental groups, and other observers to discuss America's shale revolution.[2]

Participants voiced a common concern that attempts to date at balancing the benefits and costs of shale development have been hindered by a public perception problem that plagues industry, regulators, and non-governmental organizations (NGOs) alike. Public distrust can lead to political responses that threaten the prospects for an environmentally sound and economically feasible future for shale development in this country.

In response to requests made during the meeting by state regulatory groups, ECOS is considering the creation of a shale development coordinating group made up of state regulators to enable multistate collaboration on the challenges and opportunities of shale development. This brief white paper summarizes key perspectives shared at the recent ECOS meeting and considers the benefits of convening a multi-stakeholder forum to chart a path to safe and successful shale development more broadly.

The promise of shale development

Shale formations in the United States contain one of the world's largest sources of recoverable natural gas and crude oil.[3] Shale resources had been largely untouched until 2008, when improvements in horizontal drilling and well-stimulation technologies (primarily hydraulic fracturing) made shale development economically viable on a wide scale.[4] Among other things, advances in shale development have given the United States access to a one-hundred year supply of domestic natural gas.[5] The resulting oil and gas boom is forecast to contribute $417 billion in economic growth and 3 million US jobs by 2020.[6]

---

[1] The meeting was held on July 11, 2013 in Washington, DC. Richard Fields and Nicholas Gertler, two of Tapestry Networks' professionals, were featured panel moderators at the event.

[2] For a list of participating organizations, please see the Appendix.

[3] United States Energy Information Administration, Technically Recoverable Shale Oil and Shale Gas Resources: An Assessment of 137 Shale Formations in 41 Countries Outside the United States, June 10, 2013.

[4] Sarah Ladislaw, David Pumphrey, Frank Verrastro, Lisa Hyland, and Molly Walton, Realizing the Potential of U.S. Unconventional Natural Gas, April 30, 2013, 1.

[5] Based on current consumption rates. See American Petroleum Institute, "Facts About Shale Gas," last accessed July 18, 2013.

[6] United States Chamber of Commerce Institute for 21st Century Energy, America's New Energy Future: The Unconventional Oil and Gas Revolution and the US Economy last accessed July 24, 2013.

Meeting participants identified important benefits of shale development beyond economic growth alone. For example, a further decline in energy imports and a resurgence in domestic manufacturing could substantially alter trade balances and US foreign policy. *"Shale development is the biggest thing to happen to US manufacturing in the last 50 years, moving from an industry in decline to one growing as a result of new competitive advantage"* one participant said; such effects will be particularly noticeable in energy-intensive industries and chemicals. Shale development also opened the door to increased reliance on gas-fired plants in the overall electrical supply mix, which means reduced emissions profile wherever coal is the substituted fuel.

The challenges of development

Risk attends any resource extraction activity, and some opponents of hydraulic fracturing say that the method is riskier and inherently more damaging than traditional oil and gas production techniques. Fracturing consumes large quantities of fresh water, relies on a fluid that includes a variety of potentially harmful chemicals, and whose injection has been implicated as a potential cause of earthquakes. Methane, the principal component of natural gas, is a greenhouse gas up to 105 times stronger than carbon dioxide,[7] may leak during production, transportation, or storage, and may reduce the potential greenhouse emissions savings that natural gas otherwise enjoys when compared to coal and other energy sources.

Shale development also presents substantial challenges to the local communities where production occurs. Residents in shale development areas may complain about noise, odor, and heavy truck traffic, among other impacts. One participant isolated one element of the horizontal drilling process in order to put the local effects in perspective: *"Let's focus just on the water needed to frack a single well. Without a dedicated pipeline, each well requires 800 to 1,000 water tanker trips."* A sizable workforce is often required during the exploration and drilling phases of development. As a result, an active shale play can strain transportation, education, health, and government enforcement resources, particularly in smaller, rural communities. *"There are the classic challenges associated with development, but some I'd never expect,"* one regulator said. *"There's been a clash of cultures with 60,000 workers going into rural communities. We've gone from a rural agricultural society to a rural industrial society."*

Responses to these very real difficulties are often complicated by overlapping legal and regulatory interests. Shale development activities often fall within the jurisdiction of multiple layers of federal, state, and local government agencies, and often across multiple agencies within each layer (for example, states often have departments of environmental protection, public health, and natural resources). As producers, environmental groups, and community organizations seek to advance their competing interests within and among these bureaucracies, they only add to the existing coordination problems that shale development presents.

[7] See Tom Zeller, "Methane Losses Stir Debate on Natural Gas," *New York Times*; Green, April 12, 2011.

The public trust deficit

Some observers regard shale development enterprises as guilty until proven innocent and are quick to condemn them for environmental contamination and adverse health effects that they predict as inevitable consequences of shale development. This animosity is directed not only at industry developers, but also at regulators and other industry watchdogs. *"Communities sometimes feel as if no one is listening,"* one environmental NGO representative said. Some regulators noted that the public is *"increasingly skeptical"* and *"not convinced that we are protecting their health,"* despite concerted efforts to communicate more effectively with community groups and other stakeholders. Meanwhile, activists claim that regulators are biased or ineffective, or, as one put it, *"either incompetent or corrupt."*

Skepticism about shale development and distrust of its proponents has been widely publicized, even celebrated, in the media. Since the release of the feature film *Gasland*, opponents of shale development have enjoyed prominent national and local media coverage, and increased attention in the all-important social media arena that influences the political and consumer attitudes of more and more Americans.

Shale development stakeholders have been challenged to respond to these criticisms in a way that promotes public trust. Several meeting participants said that the "trust deficit" could be traced to a lack of available, user-friendly data in support of the argument that shale development is safe. Existing studies do not assuage these concerns: they are often viewed as biased, or at best incomplete. Several participants noted the importance of rigorous study design, data collection, and peer-reviewed research, particularly on issues surrounding water and air quality. For others, it is not the data itself but its interpretation that is the primary concern. *"In all areas of our work, we make policy decisions based on the best available data,"* one regulator said. The real challenge is being able to analyze the data effectively and explain what it means. *"We are having a hard time responding when a resident asks, 'Can you promise me that in 50 years, my family will be unharmed?'"*

The cost of distrust

Lack of trust adds a strong emotional element to shale development challenges that are already difficult from a technical and regulatory standpoint. Some producers have attempted to influence public opinion through efforts to highlight positive arguments for shale development, engage with key stakeholder groups more thoughtfully, and offer to go beyond minimum regulatory requirements in the direction of a voluntarily imposed set of best practices subject to iterative review and modification. For their part, many state regulators have sought out new, more effective ways to engage with local communities and environmental groups.

Despite all this hard work, many ECOS meeting participants suggested that existing efforts to regain public trust have proven unsuccessful so far. *"This shale development boom has changed the public's trust in government,"* one state regulator said. *"Communities now feel that we are in bed with industry."*

The public trust deficit has led a wide variety of state and local governments, including New York State; Pittsburgh, Pennsylvania; Longmont, Colorado; and Mora County, New Mexico, to severely restrict or ban shale development. Mistrust of producers, regulators, NGOs, and the system itself has eroded the social license to operate and jeopardized the future development of certain shale resources.

A new way forward

In response to the compelling case made by meeting participants for greater coordination, ECOS is considering establishing a forum in which state regulators could both learn from each other and coordinate their activities in the shale development space.

Many meeting participants called for going outside the regulatory box in order to set up new forums where a broad range of stakeholders could address critical shale development issues. As one state regulator concluded, *"If you don't work with all relevant stakeholders, you miss essential facts."* In this highly charged and technically complex area, properly balancing benefits and risks – and perhaps as importantly, communicating to the public how that balance is struck – requires a steep rise in the current level of trust and collaboration among stakeholders.

Because regulators will be the ultimate arbiter of standards, practice, and penalties, a path toward the right set of regulations and other accepted practices may offer a glimpse of the way forward. Multi-stakeholder forums that include representatives from industry, regulatory bodies, and relevant NGOs could develop a working set of model regulations that could be tailored to local needs, identify additional voluntary standards where model regulation is not appropriate or desirable, determine areas where more research is needed, and pilot studies of scalable solutions to discrete challenges. Tapestry Networks will continue to work on designing an action-oriented multi-stakeholder forum to address the challenges of shale development.[8]

[8] To learn more about Tapestry's progress in this area, please visit our website, Shale Development

About Tapestry Networks

Tapestry Networks specializes in forming working partnerships that embrace the public and private sector with the aim of improving civil society as a whole. The participants in these networks are respected leaders drawn from key stakeholder organizations who realize the status quo is neither desirable nor sustainable. Tapestry is built on the premise that relatively small groups of well-positioned leaders, seeking a goal that transcends their own parochial interests and which benefits everyone, can make progress toward that goal through the collaborative network-based approaches that Tapestry designs and leads.

Tapestry has used this network approach to address critical and complex challenges in healthcare, corporate governance, and financial services – arenas in which private and public interests intersect and interact. Over 200 non-executive directors from over 50 of the Fortune Global 100 companies participate in our corporate governance networks. Non-executive directors, CEOs, and top management from over 35 of the largest financial institutions participate in our financial services work. In healthcare, we have a track record of moving from diverse and divergent perspectives amongst senior decision makers across EU member states to shared strategies, specific recommendations, and real-world pilots of therapeutic medicines. In all our work, we bring our deep experience of partnering effectively across public-private boundaries as a catalyst of progress, our credibility as a trusted neutral agent in pursuit of change, and our close connection to market forces through work with senior executives across all our sector initiatives.

Appendix: Participating organizations

The following organizations participated in the July 11, 2013 ECOS meeting:

- Access Midstream Partners
- American Chemistry Council
- American Gas Association
- American Geophysical Union
- American Petroleum Institute
- America's Natural Gas Alliance
- Arkansas Department of Environmental Quality
- Association of Clean Water Administrators
- Association of State Drinking Water Administrators
- BHP Billiton Petroleum
- BP America
- Center for Sustainable Shale Development
- CGI
- Chesapeake Energy Corporation
- Clean Energy Report
- Colorado Department of Public Health and Environment
- Connecticut Department of Energy & Environmental Protection
- Delaware Department of Natural Resources and Environmental Control
- Eastern Research Group
- EcoReg Matters Ltd
- Edison Electric Institute
- Energi Insurance Services
- EnergyWire
- Environmental Council of the States
- Environmental Defense Fund
- GE Power & Water
- HDR Engineering, Inc.

- Herbert W. Hoover Foundation
- Hess Corporation
- Inside EPA
- Joe Tanner & Associates
- Kansas Department of Health and Environment
- KG Strategies, LLC
- Koch Companies Public Sector
- LI-COR Biosciences
- Maryland Department of the Environment
- Michigan Department of Environmental Quality
- Minnesota Pollution Control Agency
- Montana Department of Environmental Quality
- National Governors Association
- National Strategies LLC
- Natural Resources Defense Council
- Nebraska Department of Environmental Quality
- Nevada Division of Environmental Protection
- New Hampshire Department of Environmental Services
- NGA Center for Best Practices
- North Dakota Department of Health
- Occidental Petroleum Corporation
- Ohio Environmental Protection Agency
- Oregon Department of Environmental Quality
- Pennsylvania Department of Environmental Protection
- Pennsylvania Environmental Council
- Picarro
- Schiff Hardin LLP
- Southwestern Energy Company
- Stateside Associates

- Tennessee Department of Environment and Conservation
- Texas Commission on Environmental Quality
- The Cadmus Group, Inc.
- TLI Solutions, Inc.
- US EPA Office of Atmospheric Programs
- US Environmental Protection Agency
- US EPA Office of Research and Development
- US Water Alliance
- United Water
- Vermont Agency of Natural Resources
- Waste Management
- West Virginia Department of Environmental Protection
- Wyoming Department of Environmental Quality