2016 DISCLOSING THE FACTS:

TRANSPARENCY AND RISK IN HYDRAULIC FRACTURING

A COLLABORATIVE PROJECT OF:

AS YOU SOW®

BOSTON COMMON ASSET MANAGEMENT

IEHN Investor Environmental Health Network
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EXECUTIVE SUMMARY

Disclosing the Facts 2016 is the fifth in a series of investor reports intended to promote improved operating practices among oil and gas companies engaged in horizontal drilling and hydraulic fracturing. Hydraulic fracturing is performed to release oil and gas from what is currently known as "unconventional resources"—shale and other geological formations from which oil and gas are difficult to retrieve without fracturing. From a production perspective, these formations are anything but unconventional; the U.S. Energy Information Administration reports that in 2015 "unconventional resources" yielded approximately two-thirds of the natural gas and roughly half of the oil produced in the United States.

These operations often use toxic chemicals and high volumes of water, release significant levels of greenhouse gases and other pollutants, and have the potential to adversely impact local communities when not properly managed. These issues, in turn, can translate into financial risk to companies and shareholders in the form of fines, regulations, lawsuits, and threats to companies' social license to operate.

Following the maxim of "what gets measured, gets managed", this report encourages oil and gas companies to increase disclosure about their use of current best practices to minimize the environmental risks and community impacts of their "fracking" activities. Review of disclosed management practices and associated key performance indicators is the primary means by which investors gauge how companies are managing the business risks associated with their environmental and community impacts.

This 2016 scorecard benchmarks the public disclosures of 28 companies on 43 key performance indicators. It distinguishes companies disclosing more information about practices and impacts from those disclosing less. The scorecard assesses five areas of environmental, social, and governance metrics, emphasizing, on a play-by-play basis, quantitative disclosures in: (1) toxic chemicals; (2) water and waste management; (3) air emissions; (4) community impacts; and (5) management accountability.[1] The scorecard relies solely on publicly available information that companies provide on their websites, in corporate SEC postings, or in other reports linked from their websites.

The report focuses on "play-by-play" disclosure, as distinct from reporting at an aggregate level such as company- or country-wide. "Play-by-play" is shorthand for localized reporting, which is appropriate since health and environmental impacts and social license controversies are usually localized. However, in addition to facilitating understanding of local stakeholder relations, localized reporting is important because it offers insight into how company systems for managing risks and impacts are functioning in practice.

This year, the report card has been compiled amidst a continuing dramatic contraction of well drilling and completion activities and enormous financial write-offs. As reported by Baker Hughes, the number of drilling rigs dropped to 476 in March 2016 from a peak of 1,931 in late 2014. Nearly 100,000 jobs linked to the oil and gas sector have been lost in the United States, bankruptcies have multiplied, and companies are now focusing on their most profitable areas rather than expanding into new frontiers.

Despite the sharp downturn from the pell-mell growth of the prior ten years, a core group of companies within the industry has maintained and enhanced disclosures of their practices for managing the environmental risks and community impacts of their operations. While the number of leading scorers has grown, the majority of the oil and gas sector is still leaving investors in the dark about their risk management practices.

KEY FINDINGS

1. **Many companies have substantially increased their disclosures on issues of core concern to both investors and local communities.** Tremendous media attention has been paid for many years to the adverse environmental and community impacts of hydraulic fracturing operations, including high-profile reports of spills, explosions, water contamination, and impacts on community health. Investors have too often had too little information about the concrete measures companies are taking to reduce and manage these risks. Pressed increasingly by investors for greater disclosure—via this and other investor scorecards, investor

dialogues, and shareholder resolutions, companies are responding. For example:

a. Companies are increasingly assessing and reducing the toxicity of the chemicals used for hydraulic fracturing, reducing the numbers of and amount of toxic chemicals used, and lowering the number of chemicals hidden from public disclosure by trade secrecy claims. Although quantitative disclosures are still made by only a few leading companies, a larger number of companies have increased narrative reporting on their progress. Lack of transparency around chemical issues has been a serious challenge for companies seeking to secure their "social license to operate" and has translated into investor uncertainty about company attention to chemical risks.

b. Companies are developing systems to better track community concerns and complaints, which may encompass issues such as traffic safety, noise, light and dust pollution, and road damage. These systems, which also track company responses, promote accountability inside and outside the company, facilitate analysis of these issues at management and board level, and enable reporting to investors and communities on performance.

c. Companies are disclosing numerous operational and technological innovations that reduce their environmental footprint, yield bottom-line benefits, and reduce social conflicts. Companies are sourcing water for hydraulic fracturing operations from treated municipal wastewater, drawing water from deep saline aquifers for which there is no current competition from other users, and treating their own wastewater. Companies are deploying moveable, flexible hoses as substitutes for trucks to move water and wastewater, reducing road hazards, lowering emissions, and saving money. Companies are increasingly using drilling rigs and engines powered by the natural gas they produce, reducing diesel emissions and saving money. Many companies also are taking voluntary actions to reduce emissions beyond regulatory requirements.

SCORECARD

(Out Of 43 Possible Points*)

COMPANY	2016 SCORE	2015 SCORE
BHP Billiton, Ltd. (BHP)	40	32
Noble Energy, Inc. (NBL)	35	19
Apache Corp. (APA)	29	20
Hess Corp. (HES)	27	21
Range Resources Corp. (RRC)	27	11
Southwestern Energy Co. (SWN)	27	16
Carrizo Oil & Gas, Inc. (CRZO)	23	0
CONSOL Energy, Inc. (CNX)	22	19
EQT Corp. (EQT)	21	14
Anadarko Petroleum Corp. (APC)	20	15
Newfield Exploration Co. (NFX)	20	6
ConocoPhillips Corp. (COP)	15	11
Royal Dutch Shell plc (RDS)	15	11
Chesapeake Energy Corp. (CHK)	12	4
Occidental Petroleum Corp. (OXY)	12	10
QEP Resources, Inc. (QEP)	12	15
Encana Corp. (ECA)	10	8
EOG Resources, Inc. (EOG)	8	8
Antero Resources (AR)	7	–
Chevron Corp. (CVX)	7	4
Pioneer Natural Resources (PXD)	7	3
BP plc (BP)	6	8
Exxon Mobil Corp. (XOM)	6	4
Cabot Oil & Gas Corp. (COG)	5	8
WPX Energy, Inc. (WPX)	4	3
Devon Energy Corp. (DVN)	3	7
Continental Resources, Inc. (CLR)	2	2
Whiting Petroleum Corp. (WLL)	2	2

* 2015 had a total of 39 possible points.

2. **Despite these signs of progress, companies are still seriously lagging in taking and disclosing actions to address community and investor concerns.** Three important examples include:

a. *Reducing methane emissions.* Methane, which has more than 84 times the global warming impact of carbon dioxide over a 20-year period, remains a critical environmental challenge. Sound management of these emissions, especially through leak reduction, can yield sizeable business benefits. To lower the climate change hazard from methane emissions, much greater effort is needed to identify methane emission sources in the natural gas value chain (production through distribution). Recent research indicates that a relatively small proportion of sources, labeled "super-emitters", are responsible for the majority of methane emissions. Companies must do a better job of demonstrating to investors voluntary commitments to measuring and reducing methane emissions beyond regulatory requirements. In particular, much more information should be provided on companies' leak detection and repair (LDAR) programs. Only a very small number of companies report with any detail on this critical issue, have committed to reducing emissions as a percentage of production, or support development of innovative, lower-cost methane detection technologies; more companies should join them.

b. *Addressing Seismicity.* Seismicity has increased dramatically in certain locations, correlated with the location of fracturing or waste injection operations. A significant number of these earthquakes have been of magnitude 3.0 and greater, causing property damage and growing concern. Companies must be vigilant in better understanding this issue, improving their own actions, and assuring oversight and due diligence of contractors.

c. *Addressing health and environmental impacts.* The impact of oil and gas operations on human health and the environment is an enduring, insufficiently researched concern. The potential for significant public health impacts led to New York State's complete ban on hydraulic fracturing and contributes to bans and moratoria around the globe. Scientific studies and incident reports, some more rigorous than others, document adverse health effects associated with oil and gas development; however, little systematic research has been conducted to more firmly establish the likelihood and magnitude of adverse health impacts. Companies should consider contributing to an independent research endeavor co-funded by government and philanthropic foundations concerned about public health (a funding structure likely to reduce arguments over "our science vs. yours") that would enable industry, investors, and communities to better understand the magnitude of health risks and develop precautionary measures to address them.

3. **These disparate trends are reflected in company scores.** This year, *BHP Billiton* retained its #1 position, disclosing on 40 of 43 indicators (93 percent). BHP's comprehensive reporting demonstrates companies' ability to rise to the *Disclosing the Facts* challenge. *Noble Energy*, ranked #2, nearly doubled its score to report on 81 percent of indicators. Other strong and improving performers included *Apache*, which rose to 67 percent, and *Range Resources*, which moved from 28 to 63 percent. *Hess* and *Southwestern Energy* rose to 63 percent. *Southwestern Energy* increased its score despite the company's 40 percent staff reduction announced in early 2016. *Carrizo*, soaring from reporting on 0 to 53 percent of indicators, and *Newfield Resources*, rising from 15 to 47 percent, also were major movers. These scores are a stunning improvement from the inaugural 2013 scorecard, when no company scored above 43 percent. Many of these companies either improved their practices or began reporting on leading practices they previously failed to disclose, or some combination of the two. Nevertheless, 15 of the 28 companies evaluated disclosed on fewer than 33 percent of indicators, preventing investors from gauging how well these companies are addressing environmental and community impact risks. Just as certain companies have made substantial improvements in their disclosures, others have remained intractable in failing to disclose on the majority of indicators. The companies that lag far behind the average include *Whiting* and *Continental*, the lowest scoring companies, which provided information on only 2 indicators each. Devon responded to 3 (notably disclosing on fewer indicators than in 2015 when the company reported on 7 indicators). WPX provided information on 4 indicators and Cabot on 5. Exxon and Chevron still greatly lag their peers; Exxon responded to a mere 6 indicators and Chevron to only 7. Both companies tend to provide worldwide statistics and general practices, for the most part failing to report location-specific practices in all of their U.S. plays, which is critical to understanding localized impacts. Antero and Pioneer also fall in with the bottom scorers by responding to 7 indicators each.

4. **Some companies are mainstreaming *Disclosing the Facts* and developing model disclosure formats.** *Southwestern Energy* and *Apache* have integrated *Disclosing the Facts* indicators into the indices of their corporate sustainability reports. BHP Billiton produces an annual hydraulic fracturing case study that adopts the *Disclosing the Facts* outline. *Noble Energy* produces a stand-alone document addressing hydraulic fracturing indicators that had not been addressed in its prior sustainability reports.

RECOMMENDATIONS

1. **Companies.** All companies that engage in hydraulic fracturing should join in the mainstreaming of risk disclosure. Contamination incidents and community opposition have been associated with companies both large and small. Laggards may be at risk of exclusion from investor portfolios, especially as investors shift resources from increasingly risky fossil fuels to opportunities in renewables and energy efficiency.

2. **Investors.** Investors should continue to press companies, particularly laggards, on disclosure across the five key areas addressed in *Disclosing the Facts 16* to ensure that companies are managing risk and implementing best management practices. Many of the quantitative, locally focused scorecard indicators reflect recommendations made by the International Energy Agency in its 2012 report, *Golden Rules for the Golden Age of Gas*. These indicators are also increasingly being used in investor engagements by a large number of PRI member companies.

3. **Communities.** Officials and concerned citizens at state and local levels should use the leading practice examples highlighted in this and earlier scorecards to query companies seeking to obtain or maintain their social license to operate.

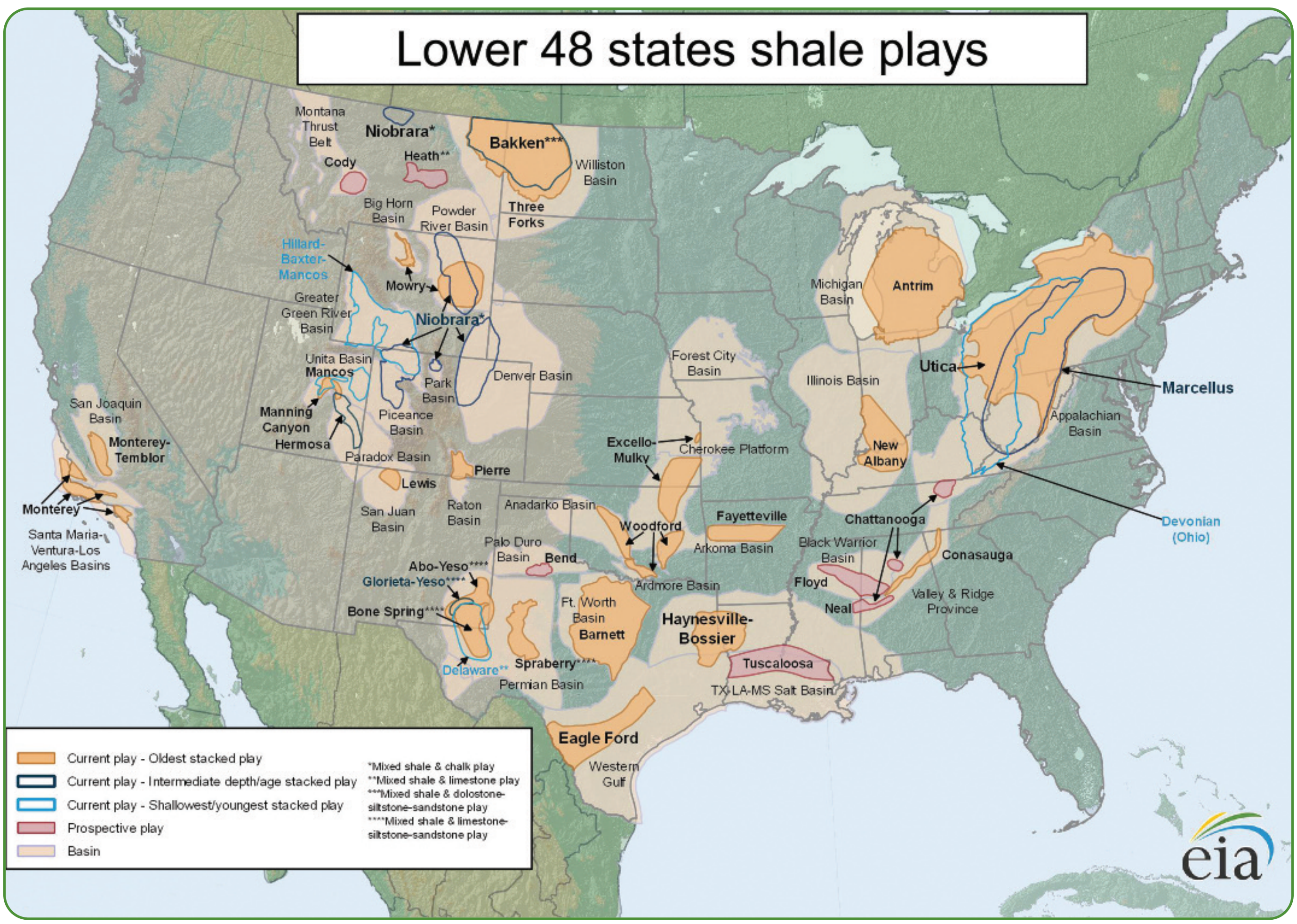

IMAGE: U.S. Energy Information Administration

Source: U.S. Energy Information Administration based on data from various published studies.
Updated: April 13, 2015

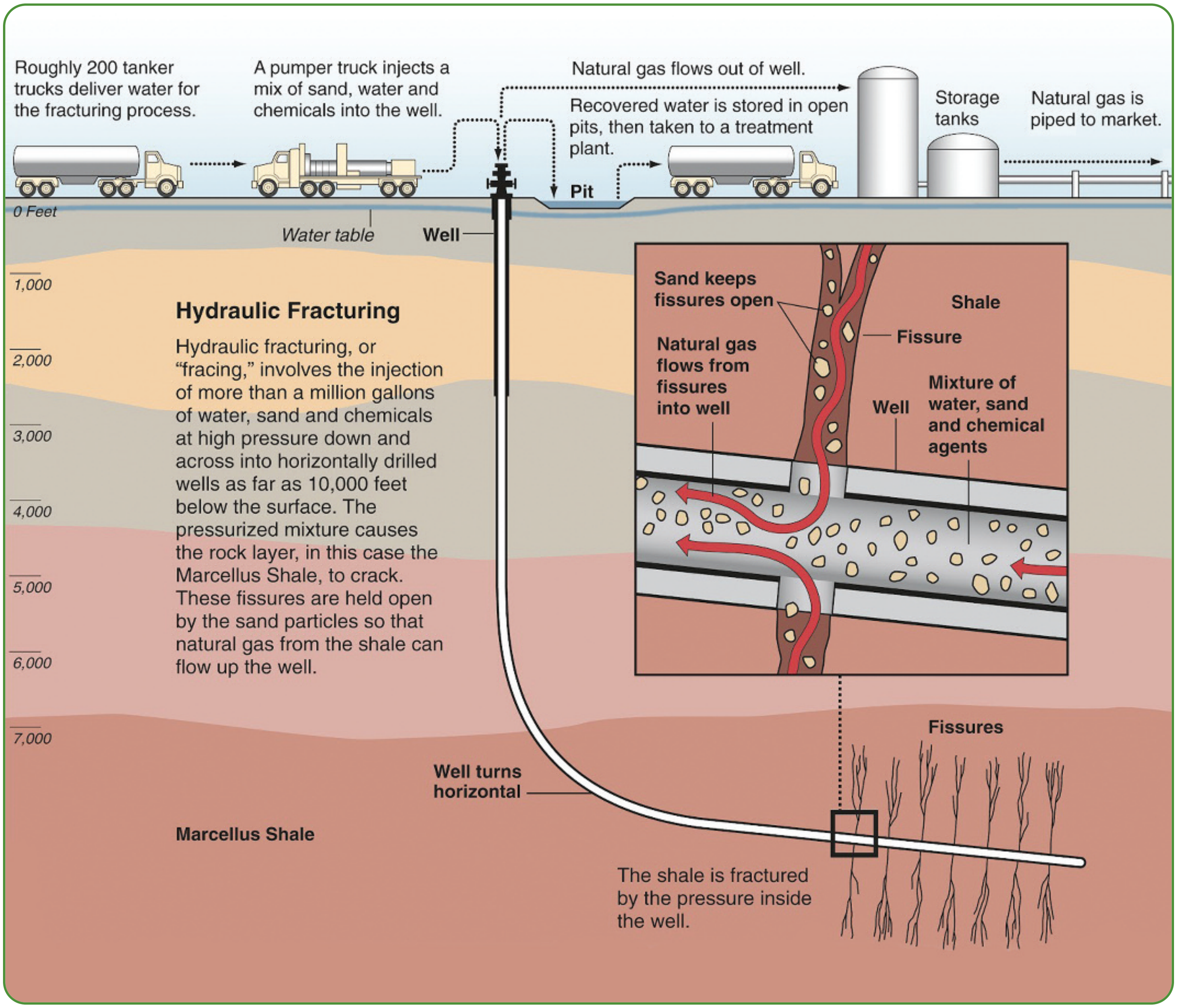

IMAGE: Al Granberg / Propublica.org

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