

Fact-Based Regulation for Environmental Protection in Shale Gas Resource Development

An Initiative of the Energy Institute
The University of Texas at Austin

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Why Shale Gas?

Why Regulation?

Why “Fact Based”

- Shale gas increasingly important as energy source worldwide – now 1/3 of gas resource in U.S.
- Concerns for environmental effects (hydraulic fracturing) must be addressed with effective controls.
- Some of the claims about shale gas effects attributed to hydraulic fracturing may be overstated, not based on good science, or related to processes other than hydraulic fracturing

UT Energy Institute Initiative Goals

- Provide an objective assessment of environmental issues through self-funded study
- Promote policies and regulations that are grounded in science
- Achieve effective communication leading to fact-based regulation and policies

Focus of the Energy Institute Initiative

- Marcellus Shale (Northeast U.S.)
- Barnett Shale (Texas)
- Haynesville Shale (Louisiana)

Environmental Issues Being Addressed

- Water Quality Impacts – majority of effort
- Seismic Impacts
- Air Quality Impacts

The University of Texas at Austin: Campus-wide Participation

- Jackson School of Geosciences
- UT Bureau of Economic Geology
- UT and University of Tulsa Law Schools
- UT School of Communication
- Environmental Defense Fund, Texas Office

Investigation Team

- Leadership
 - Charles G Groat
 - EI Associate Director
 - Thomas W Grimshaw
 - EI Research Fellow
- Primary Contributors
 - Scott Anderson
 - Environmental Defense Fund (Austin)
- Primary Contributors
 - Ian Duncan
 - UT Bureau of Economic Geology
 - Matt Eastin
 - UT School of Communications
 - Suzanne Pierce
 - Jackson School of Geosciences
 - Hannah Wiseman
 - University of Tulsa School of Law

Who Will Benefit?

- Energy regulators and policymakers
- Government elected officials and agency heads
- Private sector energy executives and planners
- Non-governmental organizations (NGOs)
- The public

Scope and Methods

1. Review technical literature on shale gas impacts
2. Review current regulations and records of violations
3. Review claims in media
4. Conduct interviews of selected policymakers and regulatory authorities
5. Evaluate results of review geographically (Informatics)
6. Develop guidance for fact-based policy and regulation development
7. Communicate results and guidance to promote fact-based regulations

Review Claims in Media

Phase 1. Media Content Analysis

- National and local media
- Based on keyword selection and searches
- Three shale areas: Barnett, Marcellus, Haynesville
- Compare media content with research publications

Phase 2. Community Assessment

- Barnett Shale area, Texas
- Online survey method
- Assessment of local resident knowledge
- Also, general attitudes and information sources

Scientific Literature

- Identify scientific papers and presentations on shale gas environmental issues
 - Cornell - methane emissions
 - Duke – methane in groundwater
- Review the papers for data integrity and analytical rigor
- Assess role of science in examining claims and underpinning regulations

Review Regulations and Violations

- Regulation Review & Documentation
 - Describe applicable state and federal regulations
 - Identify those designed specifically to apply to hydraulic fracturing
- Shale Gas Environmental Enforcement, 2008-11
 - What specifically have violations been – what was the problem?
 - Relate to conventional natural gas operations

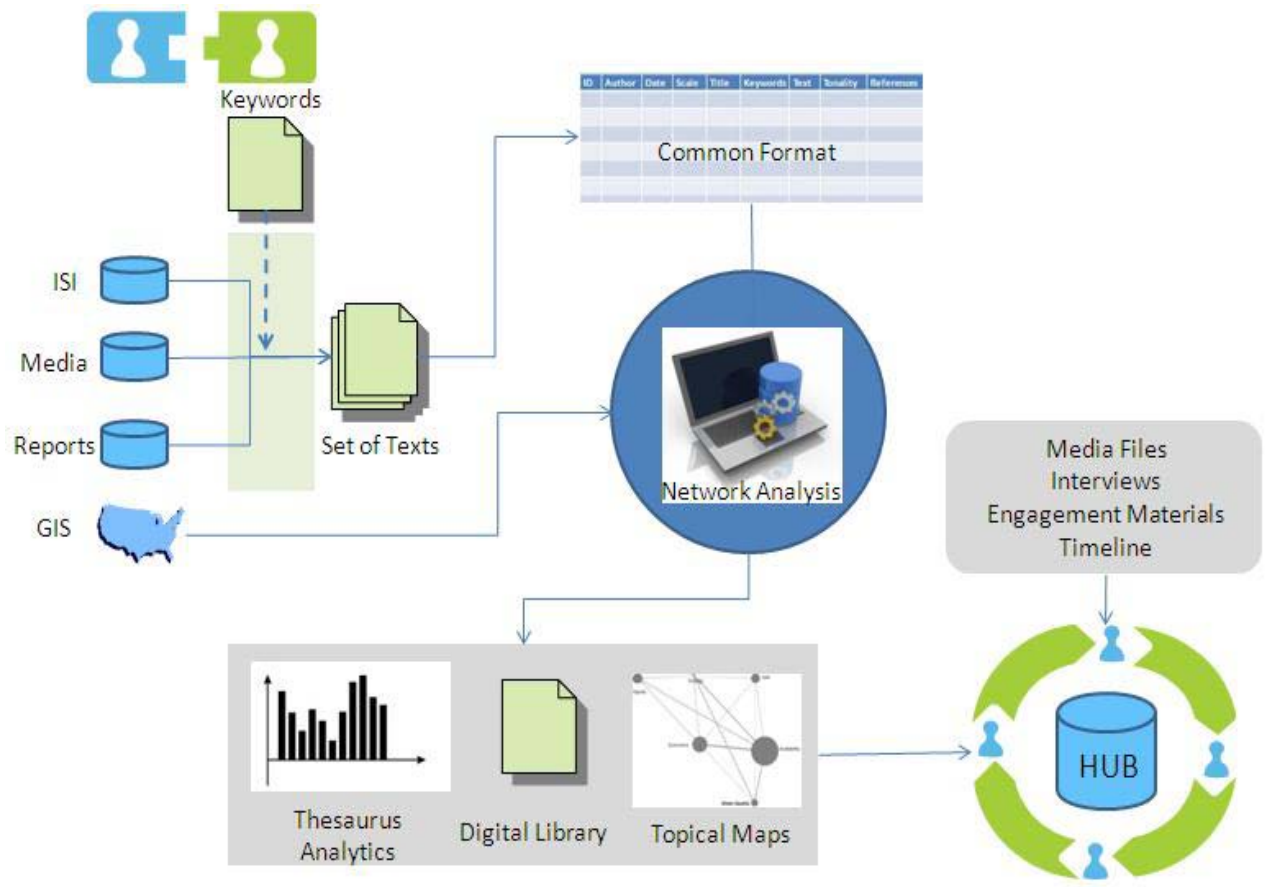
Shale Gas Environmental Enforcement

- All operational phases
 - Access road and well pad construction
 - Drilling and casing (well construction)
 - Perforating and hydraulic fracturing (development)
 - Disposing of flowback and produced water
 - Production

Informatics: Topical Network Analysis

- Input Sources
 - Media Content Analysis (keyword search)
 - Reports from Technical Literature Review
 - ISI Web of Knowledge
 - Catalog of US Government Publications
- Common Format for Inputs
- Output Media
 - Thesaurus
 - Digital library
 - Topical maps
- Information Hub

Informatics Analysis Flowchart



Schedule

- Project Plan preparation 4/14
- Kickoff meeting 4/18
- Press release 5/9
- Status meeting/telecon 6/2
- Preliminary reports 8/26
- Report feedback, coordination 9/15
- Draft white papers 10/17
- Draft final report 12/19
- Release final report 1/2012

Anticipated Products

- Effective communication of facts to governments and the public
- Policy and regulatory alternatives in concise document for energy regulators and policymakers
- Subsequent briefings of policymakers (e.g., members of Congress and staff) and state regulators