

Hydraulic Fracturing in Michigan

Technical Reports & Integrated Assessment Public Comments

Thank you for joining us – the webinar will start at 12:02PM

Before We Begin

- Sound check
- Submit questions or comments at any time
- Webinar will be recorded and available online

Agenda

12:02-12:10PM	Welcome, introductions, project overview and guidelines for submitting comments for the Integrated Assessment
12:10-12:30PM	Questions and discussion with project staff and researchers
12:30PM	Conclusion of webinar

Webinar Contributors

- **John Callewaert**, Graham Institute Integrated Assessment Program Director
- **Sara Gosman**, Lecturer, U-M Law School and faculty lead for the Technical Report on Policy and Law
- **Knute Nadelhoffer**, Professor of Ecology and Evolutionary Biology, Director of U-M Biological Station and co-author of the Technical Report on Env./Ecology
- **Kim Wolske**, Erb Institute Research Management Fellow and co-author of the Technical Report on Public Perceptions
- **Maggie Allan**, Graham Institute Integrated Assessment Program Specialist

Steering Committee

- Mark Barteau, Director, U-M Energy Institute
- Valerie Brader, Senior Strategy Officer, Office of Strategic Policy, State of Michigan
- John Callewaert, Integrated Assessment Progr. Dir., U-M Graham Sustainability Institute
- James Clift, Policy Director, Michigan Environmental Council
- John De Vries, Attorney, Mika Meyers Beckett & Jones; Michigan Oil and Gas Association
- Hal Fitch, Director of Oil, Gas, and Minerals, Michigan Dept. of Environmental Quality
- Gregory Fogle, Owner, Old Mission Energy; Michigan Oil and Gas Association
- James Goodheart, Senior Policy Advisor, Michigan Depart. of Environmental Quality
- Andy Hoffman, Director, U-M Erb Institute for Global Sustainable Enterprise
- Drew Horning, Deputy Director, U-M Graham Sustainability Institute
- Andrew Maynard, Director, U-M Risk Science Center
- Tammy Newcomb, Senior Water Policy Advisor, Michigan Depart. of Natural Resources
- Don Scavia, Director, U-M Graham Sustainability Institute
- Tracy Swinburn, Managing Director, U-M Risk Science Center
- Grenetta Thomassey, Program Director, Tip of the Mitt Watershed Council
- John Wilson, Consultant, U-M Energy Institute

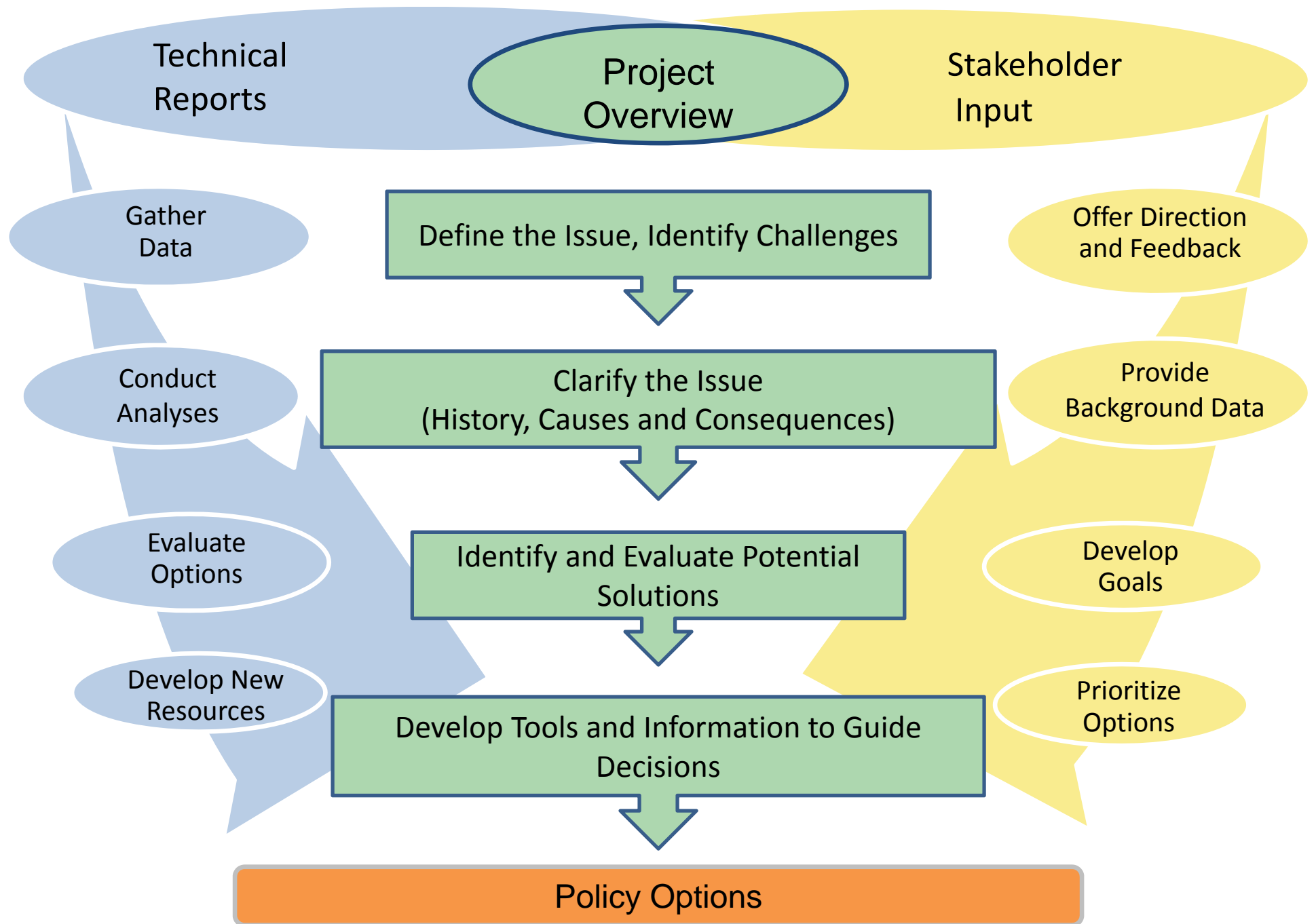
Technical Report Leads

- **Technology:** Johannes Schwank, Chemical Engineering; John Wilson, Energy Institute
- **Geology/hydrogeology:** Brian Ellis, Civil and Environmental Engineering
- **Environment/ecology:** Allen Burton, School of Natural Resources & Environment; Knute Nadelhoffer, Dept. of Ecology and Evolutionary Biology
- **Human health:** Nil Basu, School of Public Health (now at McGill University)
- **Policy/law:** Sara Gosman, Law School
- **Economics:** Roland Zullo, Institute for Research on Labor, Employment, & the Economy
- **Social/public perception:** Andy Hoffman and Kim Wolske, Erb Institute for Global Sustainable Enterprise

Integrated Assessment Program Objective

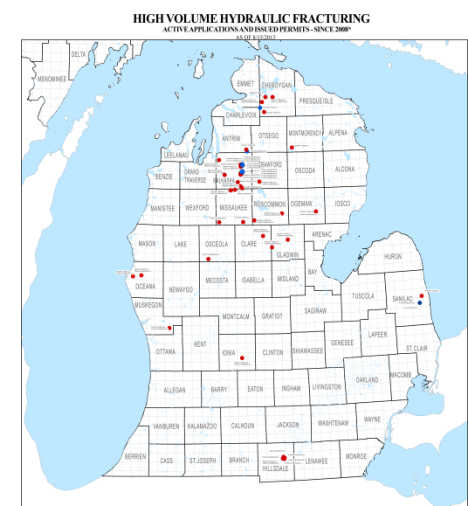
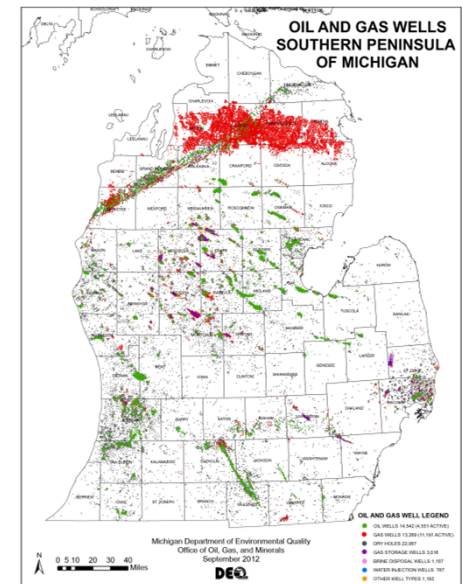


To carry out the Institute's mission of sustainability problem solving by using Integrated Assessment as a methodology for connecting academics, decision makers, and stakeholders.



Hydraulic Fracturing in Michigan

- Hydraulic Fracturing (HF) has been used in thousands of wells in Michigan for decades
- 2003 State Review of Oil and Natural Gas Environmental Regulations (not HF specific) – *“MDEQ has a well-managed oil and gas environmental regulatory program”*
- Integrated Assessment developed to focus on High Volume Hydraulic Fracturing (HVHF) but data and analyses may cover a range of activity depending on topic or issue
- Limited HVHF activity in Michigan at present
- Broad range of perspectives on benefits/problems of expanded natural gas use



Guiding Question

What are the best environmental, economic, social, and technological approaches for managing hydraulic fracturing in the State of Michigan?

Technical Reports

Technical Reports - The first phase of the project has involved the preparation of technical reports on key topics related to hydraulic fracturing.

- Technology
- Geology/hydrogeology
- Human Health
- Environment/ecology
- Policy/law
- Economics
- Social/public perceptions

Objective: To provide a foundation of information for decision makers and stakeholders, and later policy analysis.

Integrated Assessment

Integrated Assessment - The IA will build from the technical reports, focusing on an analysis of strategic policy options regarding hydraulic fracturing in Michigan.

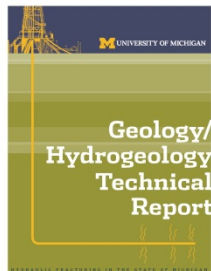
The IA will likely be formed around topics identified in the technical reports. Key aspects of the IA that will distinguish it from the technical reports include:

- Focus on the identification of key strategies and policy options,
- Collaboration and coordination among researchers to identify common themes and strategies,
- Regular engagement with decision makers, and
- Robust stakeholder engagement process to inform the IA.

Some Key Points from the Technical Reports



Technology. Considerable reserves of natural gas are believed to exist in deep shale formations such as the Utica-Collingwood. In view of the current low price of natural gas and the high cost of drilling deep shale formations it is not clear how much growth will occur in the gas industry in Michigan in the near-term future.



Geology/hydrogeology. A recent flurry of mineral rights acquisitions in the state associated with exploratory drilling suggests the potential for growth in natural gas production through high-volume hydraulic fracturing, though only a handful of such wells have been drilled to date.



Environment/ecology. Potential impacts of hydraulic fracturing on the environment are significant and include increased erosion and sedimentation, increased risk of aquatic contamination from chemical spills or equipment runoff, habitat fragmentation and resulting impacts on aquatic and terrestrial organisms, loss of stream riparian zones, and reduction of surface waters available to plants and animals due to the lowering of groundwater levels.

Some Key Points from the Technical Reports



Public health. Possible hazards in the surrounding environment include impaired local and regional air quality, water pollution and degradation of ecosystems. Possible hazards in nearby communities include increased traffic and motor vehicle accidents, stress related to risk perception among residents, and boomtown-associated effects such as a strained healthcare system and road degradation.



Policy/law. The state is the primary source of law and policy governing hydraulic fracturing in Michigan. The operator of a high-volume hydraulically fractured well must disclose the hazardous constituents of chemical additives to the state Department of Environmental Quality for each additive within 60 days of well completion. Unlike some other states, DEQ does not require operators to report to FracFocus.org, a nationwide chemical disclosure registry.

Some Key Points from the Technical Reports



Economics. The gas extraction industry creates employment and income for Michigan, but the employment effects are modest compared with other industries and not large enough to “make or break” the state’s economy. In the future, the number of technical jobs in the industry will likely increase, while less-skilled laborer positions will decline.



Public perceptions. A slight majority of Michigan residents believe the benefits of fracking outweigh the risks, but significant concerns remain about the potential impacts to human health and the environment and the social costs to communities. Differences in how the public, industry, and regulatory agencies view the word “fracking” – as either the entirety of the natural gas development process or only the injection of hydraulic fracturing fluids – can lead to miscommunications that increase mistrust among stakeholders.

Technical Reports

Hydraulic Fracturing - Technical Reports and Integrated Assessment Comments

The technical reports on hydraulic fracturing in Michigan are now available. These technical reports were prepared to provide a solid foundation of information for decision makers and stakeholders and to help inform the next stage of the project - the Integrated Assessment - which will focus on the analysis of policy options.

Because a critical aspect of the process involves engagement with a wide range of decision makers and stakeholders, we are inviting you to review the technical reports and to provide input – questions, ideas, and suggestions - for the focus of the Integrated Assessment, which will be completed during the next phase of the project.

To view and download the technical reports, please click the button below. If you would like to provide input for the Integrated Assessment, comments may be submitted using the form below until 11:59 p.m. Eastern time on October 7, 2013.

For additional information regarding the Integrated Assessment, refer to the [Hydraulic Fracturing in Michigan Integrated Assessment webpage](#) and the Overview document available for download with the technical reports.

[View/download Technical Reports](#)

<http://graham.umich.edu/knowledge/ia/hydraulic-fracturing/technical-reports>

Integrated Assessment Comments

Integrated Assessment Public Comment Submittal

Please note that submitted comments will not be used to revise the technical reports, which are not final products of the Integrated Assessment. Rather, submitted comments will be used along with the technical reports to help identify and evaluate policy options for Michigan, which is the focus of the Integrated Assessment scheduled to be completed by mid-2014. **Public comments will be accepted until 11:59 p.m. Eastern time on October 7, 2013.**

Before you get started:

1. You will need to register with your name and email address. **Please note that your information will not be published but will help us maintain an up-to-date contact list for this project. Comments may be published (without names) and will become a matter of public record.**
2. If you prefer, you can prepare your comments in a separate application (e.g., Microsoft Word) and copy/paste the text into the comment window.

Comment Form

*denotes a mandatory field

First Name *

Last Name *

Email Address *

Michigan County *

Position

Please enter your title or position, if applicable.

Institution

Please enter the institution or organization with which you are affiliated, if applicable.

Comments

Please provide input — questions, ideas, and suggestions — for the focus of the Integrated Assessment.

Comment *

Submit Comment

Questions & Discussion

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grahaminstitute-ia@umich.edu