

A Study: Opportunities and Risks in Global Unconventional Resources



BUREAU OF
ECONOMIC
GEOLOGY

What We Propose:

The Bureau of Economic Geology at The University of Texas at Austin proposes a study of global unconventional resources, that draws on the capabilities from the Tight Oil Resource Assessment (TORA) program and the Center for Energy Economics (CEE). This objective is to establish a solution-based knowledge platform to help stakeholders investigate and overcome the major challenges by leveraging our multidisciplinary expertise and tradition of rigorous research.

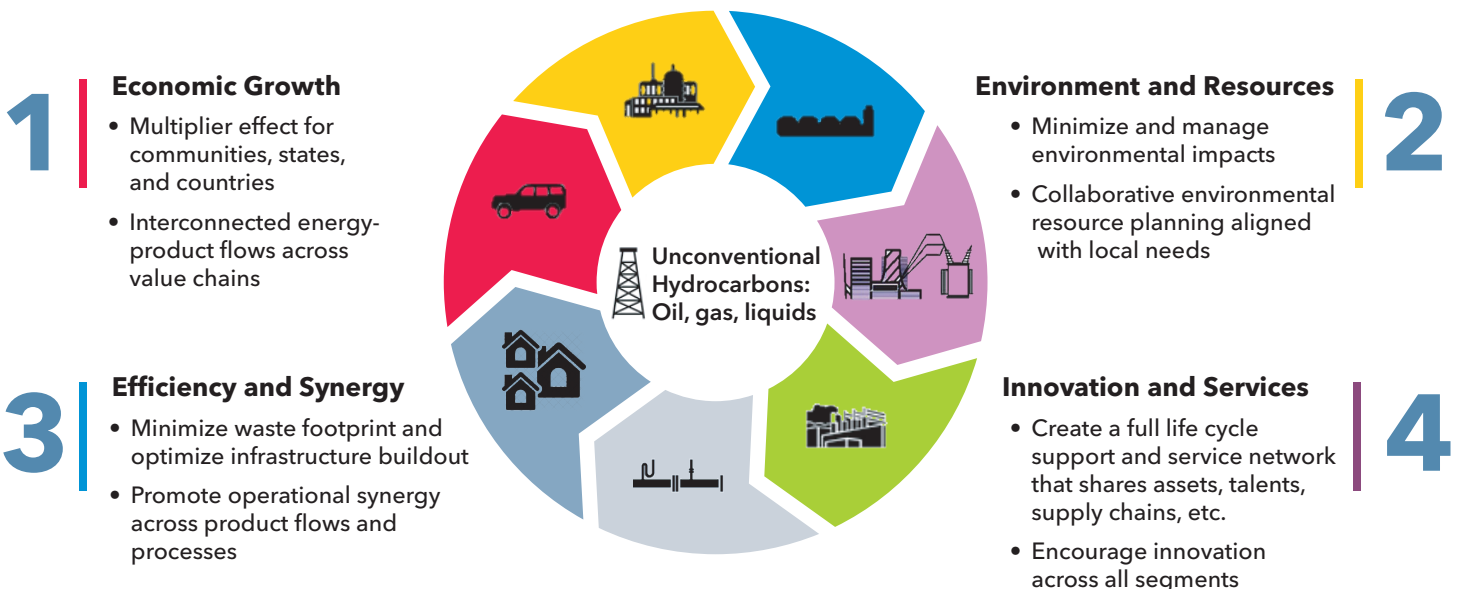
An eyes-wide-open feasibility assessment of opportunities and risks that accounts for energy and environmental resources, technology, infrastructure, policy, scale, and financial implications

An integrated decision-making framework that provides scenario-based and country-specific solutions emphasizing collaborative infrastructure and environmental resource planning with local communities

A pathfinder of value-creation options to develop a strategic ecosystem of connected energy products and processes that harness operational synergy and improve business resilience

We envision this study building a framework of unbiased knowledge and analyses to facilitate establishing shared point of views for all parties involved in international shale development: upstream operators, energy investors, industry service providers, and local industry and government decision-makers. The broad scope and complexity of unconventional exploration and production projects require a common platform that addresses shared challenges as a foundation for collaboration and value creation for business and society.

An Ecosystem Assessing Interactive Value Creation of Unconventional Resources



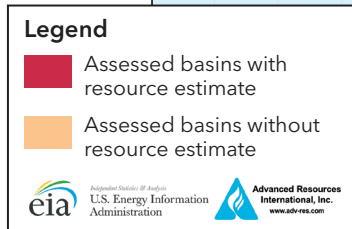
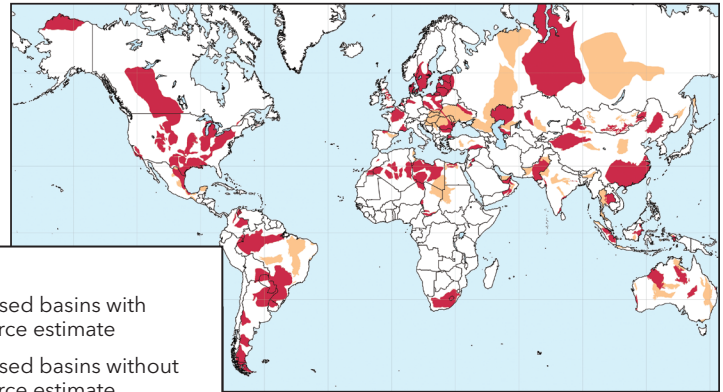
Why It's Important:

Despite the successful, rapid development of shale resources in North America, several challenges have hindered international shale resource development. Although much of the initial enthusiasm for racing into international shale development has eroded, continuing energy needs and opportunities to create value at local, national, and regional levels sustain great interest in development of these resources. Because environmental concerns ranging from greenhouse gases to water resources and land usage have impacted perceptions of shale development, holistic and integrated approaches to responsibly develop shale resources are necessary to secure agreement among all stakeholders.

The energy industry, investors, and stakeholders urgently need to develop a more integrated and solution-based assessment of global shale resources. We identify three critical hurdles for international shale development:

- Diversity of knowledge and expertise required hampers decision-making momentum
- Asymmetry of information and perspectives prevents alignment and collaboration
- Lack of optionality and resilience in facing diverse risk contexts averts action

We propose overcoming these challenges by building a common knowledge base and robust analytical approach to tackle the multidimensional task of facilitating international shale resource development, focusing on bridging the gaps between existing studies and seeking value-creation options. We draw on the TORA program's accumulated deep capability and experience in unconventional resource research and use U.S. experience as a reference to engage and frame critical thinking. This empowers the study to offer alternatives that overcome specific local challenges in international plays and empower stakeholders to level the playing field.



Why Should You Join?

- Your organization may benefit from investing in direct international unconventional resource development or harnessing the synergy of international unconventional development with other value chains and products.
- You want to contribute to shaping the future of international shale resource development.
- You want access to the superior-quality data, analyses, and tools this study will produce.

We at the Bureau of Economic Geology seek to engage a spectrum of entities including upstream operators, government organizations, energy investors, service companies, and nongovernmental organizations.

Next Steps:

We will host a meeting in fall 2019 to present the proposal in more detail, discuss a structure for conducting this work, and seek feedback. Dr. Ning Lin is the primary contact at the Bureau (ning.lin@beg.utexas.edu, 512-471-1235).

The Tight Oil Resource Assessment (TORA) program is an industry consortium created in 2016 to fund a multidisciplinary study of tight oil-producing horizons in the Midland and Delaware Basins. In 2018, other tight resource-reservoir evaluations and studies completed by the Bureau of Economic Geology were combined into the TORA consortium. TORA has built on a century of the Bureau's Permian research and the recently completed national shale play-resource and production-rate studies to analyze the complex gas- and oil-rich source-rock system.

The Center for Energy Economics (CEE) performs research and provides training and outreach on energy economics, markets, and frameworks for commercial and strategic investment. CEE is externally funded through research grants and contracts, corporate and government partnerships, and our training programs.

Global Shale Resource Scorecard				
	U.S.	China	Argentina	Colombia
Resource potential	●	●	●	●
Indicative costs	●	◐	◐	◐
Service availability	●	◐	◐	◐
Midstream and infrastructure	◐	◐	◐	◐
Access to skill and talent	●	◐	◐	◐
Regulatory framework	◐	◐	◐	◐
Local business environment	◐	◐	◐	◐
Political and public support	◐	◐	◐	◐
Investment synergy	●	◐	◐	◐
Ease of trade flows	●	◐	◐	◐
Capital resource and financial channels	●	◐	◐	◐

● Favorable ◐ Unfavorable Not an exclusive list of countries included in the project