

KNOW YOUR OIL: CREATING A GLOBAL OIL-CLIMATE INDEX

**DEBORAH GORDON, ADAM BRANDT,
JOULE BERGERSON, AND JONATHAN KOOMEY**

Oil is changing. Conventional oil resources are dwindling as tight oil, oil sands, heavy oils, and others emerge. Technological advances mean that these unconventional hydrocarbon deposits in once-unreachable areas are now viable resources. Meanwhile, scientific evidence is mounting that climate change is occurring, but the climate impacts of these new oils are not well understood. The Carnegie Endowment's Energy and Climate Program, Stanford University, and the University of Calgary have developed a first-of-its-kind Oil-Climate Index (OCI) to compare these resources.

All Oils Are Not Created Equal

- Thirty global test oils were modeled during Phase 1 of the index.
- Greenhouse gas (GHG) emissions were analyzed throughout the entire oil supply chain—oil extraction, crude transport, refining, marketing, and product combustion and end use.
- There is an over 80 percent difference in total GHG emissions per barrel of the lowest GHG-emitting Phase 1 oil and the highest.
- Climate impacts vary whether crudes are measured based on their volumes, their products' monetary values, or their products' energy delivered.
- The GHG emission spread between oils is expected to grow as new, unconventional oils are identified.
- Each barrel of oil produces a variety of marketable products. Some are used to fuel cars and trucks, while others—such as petcoke and fuel oils—flow to different sectors. Developing policies that account for leakage of GHG emissions into all sectors is critical.
- The variations in oils' climate impacts are not sufficiently factored into policymaking or priced into the market value of crudes or their petroleum products.
- As competition among new oils for market share mounts, it will be increasingly important to consider climate risks in prioritizing their development.

Next Steps for the OCI

- In order to guide energy and climate decisionmaking, investors need to make realistic asset valuations and industry must make sound infrastructure plans. Policymakers need to condition permits, set standards, and price carbon. And the public needs information and incentives to make wise energy choices.
- The OCI can shape how these stakeholders address the climate impacts of oil, and the use of the index can foster critical public-private discussions about these issues.
- The most GHG-intensive oils currently identified—gassy oils, heavy oils, watery and depleted oils, and extreme oils—merit special attention from investors, oil-field operators, and policymakers.
- To increase transparency on a greater volume and variety of global oil resources, it will be necessary to expand the OCI. This will require more high-quality, consistent, open-source oil data. This information will facilitate the restructuring of oil development in line with climate realities.

ABOUT THE AUTHORS

Deborah Gordon
Carnegie Endowment for
International Peace

Adam Brandt
Stanford University

Joule Bergerson
University of Calgary

Jonathan Koomey
Stanford University

CONTACT

Christopher Dockrey
Government Affairs Manager
+1 202 939-2307
cdockrey@ceip.org

Clara Hogan
Media Manager
+1 202 939-2241
chogan@ceip.org

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