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KNOW YOUR OIL: CREATING A GLOBAL OIL-CLIMATE INDEX

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Oil is changing. Conventional oil resources are dwindling and technological advances mean that these unconventional hydrocarbon deposits in once-unreachable areas are now viable resources. As the quest for new oils continues, scientific evidence is mounting that climate change is occurring, but the climate impacts of these alternative 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) that ranks global oils by their estimated total greenhouse gas (GHG) emissions through the entire supply chain—oil extraction, crude transport, refining, marketing, and product combustion and end use.

All Oils Are Not Created Equal

- Thirty global test oils were modeled during Phase 1 of the index.
- There is an over 80 percent difference in total GHG emissions per barrel of the lowest GHG-emitting Phase 1 oil and the highest (see opposite side for details).
- 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 other 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 for market shares between new oils 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 needs to 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 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 oils, depleted oils, and extreme oils—merit special attention from investors, oilfield 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.

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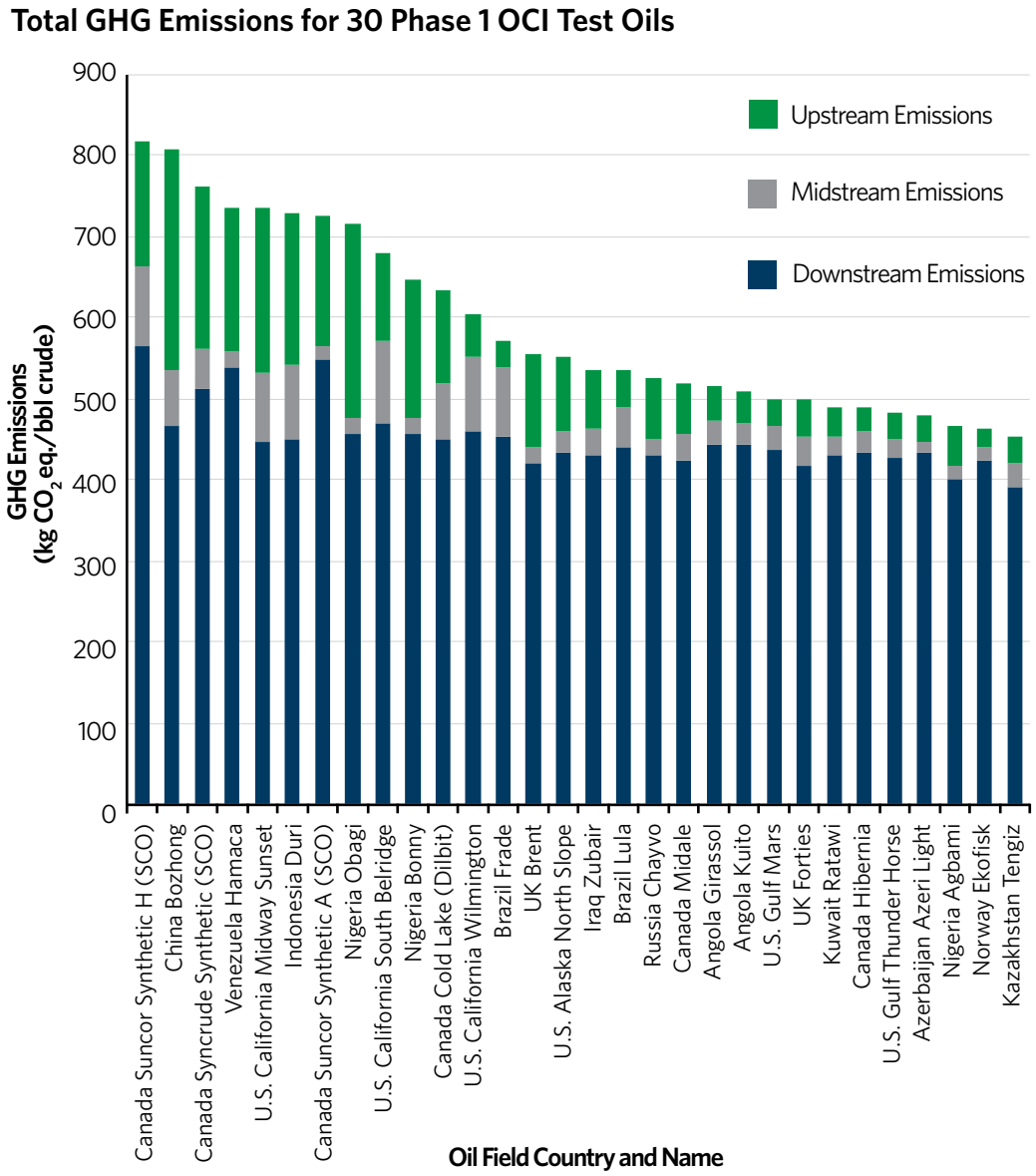
This figure details the estimated GHG footprints of the oils modeled in Phase 1 of the Oil-Climate Index, reported per barrel of crude input. While oil type, production specifications, and geography were considered when selecting oils for Phase 1, data availability was the most constraining factor. As a result, the full range of oils' emissions may be larger than this sample represents.



Source: authors' calculations

Note: Unlike the other OCI test oils, Cold Lake dilbit is not comprised of a full barrel of oil. It is about 75 percent bitumen mixed with diluent to allow it to flow.