

The Right Measure

A landmark collaboration with O&G producers and financial institutions to develop a trusted methodology and GHG emissions estimates over the life-cycle of crude oil

What this Multi-Client Study Will Achieve

- Bring key oil companies together with leading financial institutions via a multi-client study (MCS) format.
- Identify the key sources of where and why estimates of GHG emissions of various crude oils diverge (by crude properties and methodology).
- Develop a shared understanding of industry 'best practices' for the estimation of the GHG emissions from crude oil production to end-use.
- Make public key findings and 'best practices', to improve transparency and encourage greater comparability between estimates.
- Produce GHG emissions estimates for 50+ crude streams globally using a transparent method – with detail on each segment of the life-cycle and uncertainty factors.
- After the conclusion of the MCS, continue to update the emissions estimates over time to ensure they remain current and accurate.





Addressing Key Needs of Producers and Investors

The methodology and estimates provided by this MCS – as well as the ongoing estimates that IHS Markit will produce following the conclusion of the study - will form the basis for producers and investors to develop applied solutions to tackle key needs:



- Evaluate the GHG intensity of a portfolio of assets and compare to peers
- Support the development of independent GHG emissions estimates based on a transparent method and robust data
- Weigh in on best methods and practices, as well as limitations on crude oil GHG estimation
- Address GHG estimates from other sources that may not present an accurate picture of your company's emissions profile



- Gain an understanding of the factors that influence the GHG intensity of crude oil
- Compare and contrast GHG emissions intensity of key sources of supply globally
- Respond to external inquiries about the emissions profile of your investments with robust estimates
- Avoid making buy/sell decisions based on inaccurate and arbitrary assessments of emissions

The Challenge: At Present, More Questions Than Answers

- There is increasing interest in estimates of GHG emissions intensity and life-cycle GHG emissions of crude oil
- There is no prescribed estimation method and inconsistencies are occurring and reliability is an issue
- Reasons for divergent findings aren't always clear or discoverable
- There is increasing risk that opinions and decisions may be made on incomplete or inaccurate information



Understanding GHG emissions

Understanding energy transition for oil and gas companies requires understanding GHG emissions over entire life-cycle of the fuel.

This includes from extraction, through to refining and processing, transportation to market, and ultimately combustion. This is known as cradle to grave or life-cycle analysis. This comprehensive approach to emissions is important because emissions associated with crude oil can vary at each point over the life of the crude. Decisions made upstream can impact GHG emissions associated with downstream refining.



Life-cycle of petroleum fuels

Share of emissions

Arriving at The Right Measure

Life-cycle analysis is an art as much as it is a science.

There is a proliferation of estimates being generated and often different estimates of the same crude can vary substantially. Differences arise over which emissions are included, how products are treated, and data quality. Working with study participants, IHS Markit will publish a shared understanding of 'best practices' for crude oil life-cycle analysis. Key sources of uncertainty in estimation processes will be identified and metrics will be devised to improve transparency and comparability between estimates.

A Critical Differentiator: Input Data

In the absence of high-quality data, more assumptions must be made – reducing reliability. IHS Markit will leverage market-leading data resources across the entirely of the hydrocarbons value chain as well as our human capital to arrive as robust, transparent estimates. Examples of data required for life-cycle GHG estimates :

Upstream

Extraction, Production and initial processing

- Drill depth and lateral length
- Proppant intensity and/or any enhanced recovery technology
- Fuel source, consumption and composition
- Combustion efficiency

- Fugitives, flaring and venting
- Imported energy and chemicals
- Primary separation and processing fuel
- Well productivity and composition
- Waste treatment and disposal



Midstream

Crude oil and refined product transport

- Geography and distance
- Mode(s) of transport
- Fuel Source, consumption and composition
- Fugitives and venting



Downstream

Refining

- Crude oil composition (assays)
- Required process units
- Fuel source, consumption and composition
- Fugitives, flaring and venting
- Combustion efficiency



End Use

Refined product end use

- Nature of end use
- Geographic location
- Refined product composition
- Combustion efficiency

Extensive Experience and Market Acceptance

IHS Markit is an established thought leader in GHG estimation and is in a position to help ensure what is done is fair, transparent and non-discriminatory.

IHS Markit has completed 5+ public reports of GHG intensity of key global plays/technologies, going back to 2009. Our research has been used in the past to respond to shareholder inquiries, communicate facts and understanding differences between crude oil, and to enhance public understanding around benefits and limitations of GHG estimation.



Well-to-wheels GHG emissions of historical crude slate consumed in the US



The Process: Critical to Achieving The Right Measure

From the time the process kicks off with the scoping phase, we estimate the approximate time to report delivery will be 6 months.



Scoping

- Assemble industry advisory group
 - Consortium of major oil companies and financial institutions

Consultation Workshop

- Synopsis and review of current issue and pressures
- Comprehensive review of available data, models, treatment of co-products, system boundaries
- Identification of best practices and metrics to capture uncertainty

Development

- Modelling, accounting and technical analysis
- Play-level GHG life-cycle estimates
- Assessment of uncertainty

Final Workshop

- Present and discussion of results
 - Implications of approach taken
 - Crude stream level GHG intensity estimates over the life-cycle
 - Comparison of uncertainty across plays
 - Comparision of IHS Markit to other estimates

Report Delivery

- Revision based on workshop discussion
- Publication of a white paper summarizing methodology, boundary conditions and best practices
- Access to inventory of 50+ crudes and IHS Markit experts for following calendar year as part of ongoing service



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About IHS Markit

IHS Markit (NYSE: INFO) is a world leader in critical information, analytics and expertise to forge solutions for the major industries and markets that drive economies worldwide. The company delivers nextgeneration information, analytics and solutions to customers in business, finance and government, improving their operational efficiency and providing deep insights that lead to well-informed, confident decisions. IHS Markit has more than 50,000 business and government customers, including 80 percent of the Fortune Global 500 and the world's leading financial institutions. Headquartered in London, IHS Markit is committed to sustainable, profitable growth.

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