

# The great wells-to-wheels hoax

## Take a closer look at oilsands lifecycle emissions.

Dateline: Tuesday, March 29, 2011

by *Mark Brownlie*

Many oil industry and Alberta government representatives are trumpeting studies done by two engineering firms saying that "wells to wheels" greenhouse gas intensity of oilsands-based gasoline is only 5-15 percent higher than that of many other crude oils. This is entirely true. But it's the wrong comparison to make.

Consistently communicating this message distracts attention from the significant issues at hand in the oilsands industry, and obfuscates the real environmental differences between oil sources.

Wells-to-wheels is a snappy term for the lifecycle of gasoline, from extraction through use in a vehicle. For conventional crude the term includes the intervening stages of transporting crude to a refinery, the actual refining, and distributing gas to stations. Gasoline derived from the oilsands requires the extra stage of upgrading.

Scientists have used lifecycle analysis since the 1960s to enable a more thorough look at environmental and other impacts of products or processes. Lifecycle analysis often leads to more efficiency and less environmental damage.

A wells-to-wheels analysis of greenhouse gas emissions is an appropriate comparison when looking at alternative fuels (eg, hydrogen) and vehicle technologies (eg, electrical), because emissions will differ throughout the lifecycle stages, including during vehicle use.

But when comparing gasoline derived from different oil sources, the relevant comparison is from wells to tanks (as in vehicle gas tanks). Greenhouse gas emissions from combustion of gasoline in a vehicle will be the same regardless of the source of crude oil.

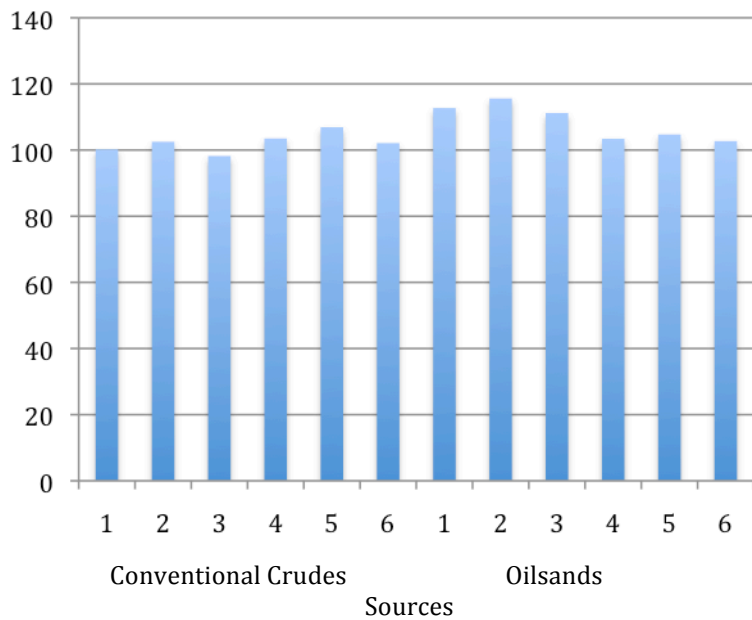
Most of the greenhouse gas emissions associated with a litre of gasoline occur when it's actually used in a vehicle. In the lifecycle analyses referred to above, approximately 78 percent of the greenhouse gases are emitted during combustion (ie, from tank to tailpipe). That leaves 22 percent of the emissions from the extraction, upgrading, refining and distribution stages of the lifecycle.

Because emissions from the combustion stage are the same for each oil source, including them in the lifecycle analysis only works to dilute the figures rather than differentiate between sources. When an additional stage that has no variability between oil sources (eg, combustion) is added to the lifecycle, the relative contribution of greenhouse gases from the stages that do have variability (eg, extraction, refining) are minimized.

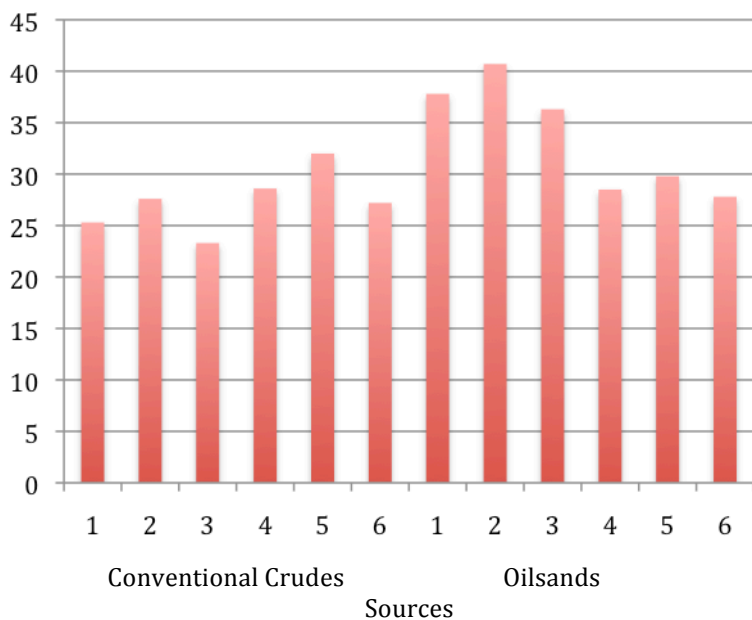
For example, if we were to add in the greenhouse gases emitted during manufacture and disposal of the car, we could further reduce the relative contribution of the oil extraction and refining stages. Sounds like a statistical sleight of hand, doesn't it?

Stripping out the unvarying greenhouse gas emissions from combustion, the comparison of oil sources in the referenced lifecycle analyses reveals a much more significant difference than just 5-15 percent. When conducting a wells to tanks analysis (ie, excluding the combustion stage), the production of gasoline from oilsands can generate up to 75 percent more greenhouse gas emissions than some conventional crudes.

**Wells to Wheels Greenhouse Gas Emissions (gCO<sub>2</sub>e/MJ gasoline)**



**Wells to Tanks Greenhouse Gas Emissions (gCO<sub>2</sub>e/MJ gasoline)**



The important stages to measure are those over which you have some control to make improvements. What the oil industry should focus on is not the full lifecycle emissions of gasoline. They can't do much about the fuel efficiency of cars. But they can help improve the efficiency of extraction, upgrading and refining.

This is not to suggest that we shut down the oilsands, nor that we live in caves wearing bearskins (because that's what a person really means when they suggest we get better at energy production). The point is that statistics can be manipulated to convey a message.

Oilsands are the fastest growing source of greenhouse gas emissions in Canada. We better get this one right. With all the talk about "ethical oil", it would be great if we could point to the oilsands as a world-class development and demonstrate to others how it's done. Better still, we could stop making excuses, and stop comparing ourselves to laggards like Nigeria and Venezuela.

In attempting to refute the "dirty oil" moniker, industry and government players have hung their hats on the wells-to-wheels analyses. But really, the dirty tag refers to more than just greenhouse gases. Hoped-for lifecycle studies on air and water pollutants, water use, and land disruption could further compare the differing environmental impacts among oil sources.

What the "not much worse than other oils" message essentially means is: "Don't target the oilsands industry. We're responsible for less than 25 percent of the lifecycle greenhouse gas emissions. There's not much we can do to make a difference. Target the auto industry."

True, the auto industry could use some improvement. And we could certainly get better at city planning and transit, and increased personal responsibility for greenhouse gas emissions.

In the meantime, the "deflect and obscure" communications strategy is not doing anyone any good. Until all parties communicate in an open, thoughtful and solutions-oriented manner, we'll continue to have study refuting study, and unfortunately, us vs. them.

The continued use of the wells to wheels comparison is disingenuous and misleading. In essence, it's greenwash.

*Mark Brownlie is Chief Executive of Responsibility Matters Inc., a Calgary-based advisory firm helping companies and non-profits with sustainability strategies and communications.*

## **References**

Life Cycle Assessment Comparison of North America and Imported Crudes; Prepared for Alberta Energy Research Institute; Jacobs Consultancy Inc.; July 2009.

Comparison of North American and Imported Crude Oil Lifecycle GHG Emissions; Prepared for Alberta Energy Research Institute; TIAX LLC; July 2009.

© ***Straight Goods News, 2000-11. All Rights Reserved.***

All text that appears here is protected by copyright and may not be reproduced for any purpose, including education, without the explicit permission of the author.