

## Life Cycle Analysis of North American and Imported Crude Oils

*The Alberta Energy Research Institute has released two reports on the Life Cycle Analysis of North American and Imported Crude Oils.*

### About the Reports

- A Life Cycle Analysis (LCA) is a technique for evaluating the greenhouse gas (GHG) emissions of a given product.
- These reports assessed the “Well-to Wheel” impact of crude oils, which is the evaluation of greenhouse gas emissions from production (i.e. the "well") to the use of the fuel in a vehicle (i.e. the "wheels").
- The LCA project expert advisory group made a unique decision to conduct two independent research studies to establish the true impact of crudes processed in U.S. refineries.
- The expert advisory group selected two US-based firms, Jacobs Consultancy and TIAX LLC to conduct the studies.
- Research began in fall 2008 and was completed in June 2009.
- This is the first comprehensive comparison of domestic, imported and oil sands oils processed in U.S. refineries.
- Both reports focused on direct emissions only. Direct emissions include emissions released during production and indirect emissions are emissions released outside of production.
- The two reports compared Alberta’s oil sands with other oil-producing regions to provide a baseline for emerging and new technologies and their potential to reduce greenhouse gas emissions (GHG).
- The reports were opened up for scientific review and critique at various stages.

### Key Findings of the Life Cycle Analysis Reports

- Both the TIAX and Jacobs reports showed that there is a spectrum of direct GHG emissions determined by geological, reservoir, transportation and refining factors.

- There is overlap between the direct GHG emissions of oil sands crudes pathways and other crudes in United States refineries.
- When oil sands production pathways are given credit for electricity co-generation, the emissions from oil sands can be comparable to emissions from conventional crudes entering the United States market. (Cogeneration is the simultaneous generation of both electricity and heat).

### Looking Ahead

- These reports have developed a model that can now be used to provide an objective and consistent basis for examining new scenarios and lead to best practices.
- Emissions from oil sands will continue to decline as new technologies are field tested and commercialized.
- Further lifecycle analysis work will address best practices and examine technologies that reduce GHG emissions.

### Alberta Energy Research Institute

- Aims to enhance the development of clean energy resources through research, technology and innovation.
- Invests in technology development projects with industry.
- Releases all non-proprietary data on various studies for use by experts and policy-makers in jurisdictions around the world.

### For more information on the Life Cycle Analysis Reports

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