



2017-2018 Research Plan

A COMPREHENSIVE GUIDE TO ELECTRICITY GENERATION OPTIONS IN CANADA

This project will define the different options available for the delivery of electricity service to consumers in Canada. The analysis will consider the economic cost of providing base load and peak electricity from non-renewable, renewable and nuclear generation. These costs will be compared in isolation and then as they impact the markets of the ten provinces. The objective of the report is to identify the least cost and lowest emissions option for each province. Also, the lowest emissions option will also allow for the calculation of the implied carbon price.

Study Released: February 2018

AN ECONOMIC AND ENVIRONMENTAL ASSESSMENT OF EASTERN CANADIAN CRUDE OIL IMPORTS

This project will analyze Eastern Canadian crude oil imports via domestically sourced oil supply and international imports. By implementing an Econo-environmental cost-benefit modelling, the research will estimate net costs and benefits of two options of feedstock for Eastern Canadian refineries: sourcing Western Canadian crude or importing crude from international sources. The cost-benefit analysis (CBA) will be conducted on a scenario-based approach. It will consider the trade implications, market opportunities and the transfer of payments within the Canadian federation.

Study Released: January 2018

ECONOMIC IMPACTS AND MARKET CHALLENGES FOR THE METHANE TO DERIVATIVES PETROCHEMICAL SUB-SECTOR

The Petrochemical sector in Canada has a significant economic impact. Aside from the cost competitiveness issue of the ethane to ethylene sub-sector, the industry is considering other aspects including the methane to derivatives groups, such as methanol and fertilizers. This project will assess the supply of and demand for methane to methanol derivatives as well as the non-cost elements that influence economic impacts of the sub-sector and will note how other jurisdictions address those issues. The analysis will also consider the economics of shallow versus deep cut liquids extraction.

Study Released: March 2018

ECONOMIC AND ENVIRONMENTAL IMPACTS OF TRANSITIONING TO RENEWABLE ELECTRICITY OR CLEANER ELECTRICITY GRIDS IN WESTERN CANADA

This project will consider alternative pathways transforming the electricity grid in the four western provinces: British Columbia, Alberta, Saskatchewan, and Manitoba. The project will build high resolution spatially and temporally explicit interconnected electric power systems of the four provinces. Using the model the project will assess different pathways to achieve deeper emissions reductions, impacts on the system reliability, value of trade, and impacts on electricity rates. The project will also provide insights into necessary attributes of technologies and system configurations that would facilitate the transition to cleaner electric power systems.

Study Released: July 2018

COMPETITIVE ANALYSIS OF CANADIAN LNG

This study focuses on examining Western and Eastern Canadian LNG supply costs and competitiveness factors in comparison with two other major producers US Gulf of Mexico and Australia. The study will review key elements of supply costs and competitiveness of projects in abovementioned four locations, including capital costs, operating costs, taxes and royalties including carbon tax regimes, upstream gas prices and transportation to LNG plants. In each location, a representative project will be taken into analysis or a generic one with a similar capacity. The study will also compare a) delivered costs of Western Canadian LNG, US Gulf of Mexico, Australian LNG with LNG prices at a representative Asia import location, and b) delivered costs of Eastern Canadian LNG, US Gulf of Mexico with LNG prices at a representative European and Latin American import location.

Study Released: July 2018

IMPACTS OF CARBON MANAGEMENT POLICIES OF CANADIAN ELECTRICITY

This project will consider the impacts of different carbon management policies on the retail price of electricity in different provinces. The objective of the study is to show how the design of a carbon management policy affects price and the economy in general. The study will also assess if these policies result in higher emissions from industrial activities moving to jurisdictions with lower carbon management costs.

Study Released: June 2018

CANADIAN OIL SANDS SUPPLY COSTS AND DEVELOPMENT PROJECTS (2018-2038)

As part of an annual update, a forecast of the production of oil sands bitumen and SCO will be conducted for 2018-2038. Also, to updating the production costs in oil sands and production forecast, economic impact analysis will be developed using CERI's Input/Output model for Canadian impacts and IMPLAN model for the US results. GHG emissions will also be forecast as will Canadian and US job impacts.

Study Released: May 2018

CANADIAN CRUDE OIL AND NATURAL GAS PRODUCTION, SUPPLY COSTS, ECONOMIC IMPACTS AND EMISSIONS (2018-203)

A forecast of the production of conventional oil and gas will be conducted for 2018-2038. Economic impact analysis will be developed using CERI's Input/Output model for Canadian results and IMPLAN model for the US results.

Study Released: July 2018

AN ECONOMIC ASSESSMENT OF THE INTERNATIONAL MARITIME ORGANIZATION SULPHUR REGULATIONS ON MARKETS FOR CANADIAN CRUDE OIL

The International Maritime Organization is enacting regulations to limit sulphur in bunker fuel to 0.5% by 2020. This will impact the demand for and price of heavy crude oil produced in Canada. The majority of this crude type is produced in Alberta. CERI will consider the following questions in assessing the impact of the IMO standard:

- How do the changes in the bunker fuel oil market affect crude oil differentials and valuations? (particularly LLS-Maya & WTI-WCS)
- Can enough low sulphur bunker fuel oil be produced in 2020? How will refineries meet the demand?
- Will there be excess high sulphur bunker fuel oil in 2020?
- How will the excess bunker fuel oil price into the market?
- Is the marine shipping industry investing in scrubber technology to allow continued use of high sulphur fuel oil?
- How aggressively is the marine industry pursuing scrubber technology?
- Are refiners investing in technology to manage the changes related to IMO spec change in 2020?
- Are there upstream technologies that heavy crude oil producers can invest in to reduce the sulphur content in their resid frac?
- Are these technologies commercially and economically feasible? Is there any wide spread adoption?
- If these technologies were adopted, would it be any restriction on pipeline specification or affect refinery demand of the product?

Anticipated Released: July 2018

Ongoing Research:

Maintenance of CERI Models and Programs - Ongoing maintenance and upgrading of CERI computer models and programs.

Maintenance of CERI Databases - Ongoing maintenance and upgrading of CERI databases.

Natural Gas Report - Research and updating of CERI's quarterly Natural Gas report, the results of which are used in other ongoing projects.

Oil Report - Research and updating of CERI's quarterly Oil report, the results of which are used in other ongoing projects.

Electricity Report - Research and updating of CERI's quarterly Electricity report, the results of which are used in other ongoing projects.

Geopolitics of Energy - a monthly journal on geopolitical developments affecting global energy markets. It provides analysis, information, perspectives and fresh ideas on the political and economic factors affecting energy and their impact on national energy policies, the international environment and prices.