

**Comment on the
Presentation to Alberta Government Ministers
by
Canadian Natural Resources Ltd.
August, 2015**

The presentation by Canadian Natural Resources (CNRL) to Alberta Government Ministers may be misleading. The entire presentation is underpinned by repetitively stating that “investment is driven by return on capital employed” (ROCE). This statement is simply not factual. ROCE is useful only after the investment has been made.

Investment is in fact driven by project viability, typically measured by a similar sounding concept – internal rate of return (IRR), in conjunction with other economic decision-making criteria such as net cash flow (NCF), net present value (NPV), expected monetary value (EMV), and the value to risk index (VRI).

NCF	= Revenue less Costs.
NPV	= NCF discounted to account for alternative investment opportunities and time-related risk.
EMV	= NPV adjusted for the perceived likelihood that the project will be profitable.
VRI	= EMV divided by the standard deviation of the various probable EMV outcomes.
IRR	= the rate of return that is specifically related to a project’s NCF and NPV.

- IRR relates to a project, whereas ROCE is more typically related to a particular company.
- IRR takes into account that project investments and revenues occur over time. ROCE does not do this; instead ROCE measures a return at a specific point in time.
- While IRR includes all costs and revenue over time, ROCE can be modified to suit a given situation. For this reason the ROCE can be easily manipulated.
- ROCE can only be determined after the investment is made; therefore it does not drive investment decisions.
- Companies that use ROCE for investment decision-making, if there are any, can easily over estimate a project’s attractiveness and thereby end up realizing a lower overall return, or even a loss.

There are many descriptions of the uses and differences of IRR vs. ROCE, also sometimes defined as ROI – return on investment. The following YouTube video is useful: [YouTube Video: IRR vs. ROI](#)