

# EMPIRICAL ANALYSIS OF PRODUCTIVITY TRENDS IN CANADIAN ELECTRICITY DISTRIBUTION



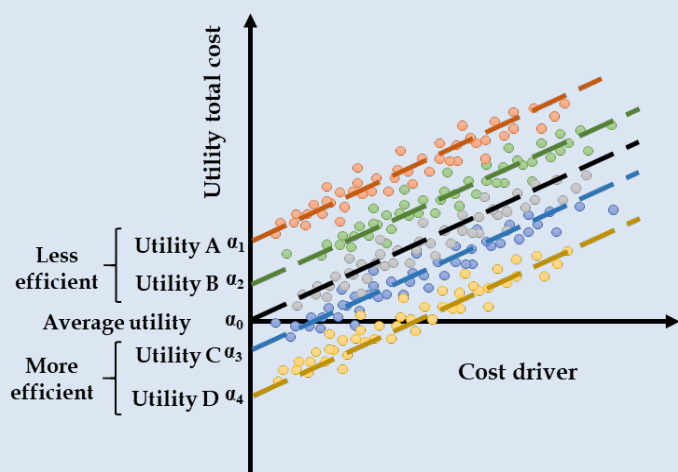
## A NEW MULTI-CLIENT STUDY BY LONDON ECONOMICS INTERNATIONAL LLC

In recent ratemaking cases in Canada, parties have questioned whether traditional total factor productivity (“TFP”) studies should continue to be relied upon to inform expectations of future productivity trends. This is driven by several concerns:

1. Recent proceedings have not included a thorough study of Canadian distribution utility productivity across provinces. Use of US data has been based largely on expediency, despite the fact that significant data is available for Canadian distribution companies.
2. TFP studies evaluate the utility sector against economy-wide productivity trends, and productivity in the US and Canadian economies has diverged substantially over the past two decades. In 2000, the Canadian workforce was 82% as productive as the US workforce (measured as output per hour worked); by 2020, this declined to 77%.
3. Previous TFP studies have been based on the index number approach. Such studies may be less relevant to setting parameters for performance-based ratemaking, because utilities may be producing more complex outputs than are measured in TFP index-number studies.



### UTILITY BENCHMARKING BASED ON TFP



### LEI'S MULTI-CLIENT STUDY WILL ADDRESS THE FOLLOWING QUESTIONS:

- What has been the historical trend in total factor productivity of Canadian electric distribution utilities?
- What drivers have impacted the trend?
- In provinces with a history of PBR, what has been the impact on electric distribution productivity?
- What do the results imply for Canadian regulators and utilities in terms of expectations for future productivity growth?

**LEI's study takes a pan-Canadian approach, based on data from utilities in all Canadian jurisdictions that are corporatized and report to a functionally independent regulator**

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LEI is a global economic, financial, and strategic advisory professional services firm specializing in energy, water, and infrastructure. The firm combines detailed understanding of specific network and commodity industries, such as electricity generation and distribution, with sophisticated analysis and a suite of proprietary quantitative models to produce reliable and comprehensible results.

The firm also has in-depth expertise in economic and financial issues related to the electricity, gas, and water sectors, such as asset valuation, procurement, regulatory economics, and market design and analysis. LEI has worked extensively in North America, Europe, Asia, Latin America, Africa, and the Middle East, and has a comprehensive understanding of the issues faced by the utilities and regulators alike.

## EXPERIENCE IN CANADA

LEI has extensive experience analyzing Canadian energy markets. We have worked across Canada, from Vancouver to St. John's. Our clients include both private sector companies and regulatory institutions, and both Canadian and foreign companies. We have performed a number of engagements related to the dynamic market environments such as those found in the provinces of Alberta and Ontario and are knowledgeable about developments in both electricity and natural gas trading. LEI has testified in a variety of matters across Canadian provinces and before Federal bodies.

## EXPERIENCE IN RATE DESIGN AND REGULATORY MATTERS

LEI has a comprehensive knowledge of performance-based ratemaking ("PBR") regimes around the world, having advised regulators on PBR design and on setting X-factors. LEI has performed a broad range of regulatory services for various utilities and regulators, including providing regulatory support pertaining to rate cases, TFP studies, benchmarking, and design of service quality indicators over the last two decades. Our comprehensive model of comparative network efficiency, including hundreds of international utilities, helps to benchmark efficiency levels for particular regions. LEI has in-depth experience with state and provincial regulatory issues across North America. LEI's engagements include rate filing support for cost of service and PBR matters, founded in LEI's expertise in productivity analysis and benchmarking studies. LEI has assisted state regulators with initiatives as broad as a contemplated overhaul of the electricity sector, to as specific as examining the pros and cons of municipalization of a local gas distribution company ("LDC"). LEI has provided expert testimony on behalf of both state agencies and private companies, in regulatory matters and before legislatures.

## SAMPLE OF RELEVANT ENGAGEMENTS

**Assistance in PBR filing:** LEI assisted ENMAX Energy with its third generation PBR filing, including advising on incentives, effectiveness of inflation factors, potential for special capital expenditure provisions responsive to government electrification policies, productivity factors, length of regulatory period, and other matters associated with PBR. LEI testimony provided expert advice related to TFP and cross-sectional benchmarking of the performance of electric and gas distribution utilities. [Alberta Utilities Commission, Proceeding 27388]

**Testimony on PBR:** LEI supported FortisAlberta Inc. in its filing of a PBR plan, including detailed data analysis (inflation and TFP trends), the economic theory underpinning PBR, and reviews of best practices in various North American and international jurisdictions. LEI's testimony addressed each of the various components of the PBR plan that was being proposed by FortisAlberta, Inc. [Alberta Utilities Commission, Proceeding 566]

**Analysis of productivity trends for hydroelectric generation:** LEI estimated TFP trends for the North American hydroelectric generation industry. LEI's TFP report was filed as part of Ontario Power Generation's application for orders approving payment amounts for its prescribed generating facilities. In the course of this engagement, LEI provided a review and critique of evidence submitted by Ontario Energy Board Staff and other intervenors. LEI testified before the OEB. [EB-2016-0152]

**TFP and benchmarking studies of natural gas distribution:** On behalf of NStar Gas (a subsidiary of Eversource Energy) LEI performed an analysis of total factor productivity of US natural gas distribution and benchmarked the company's performance compared to a set of over 80 gas utilities in the United States. LEI provided written and oral testimony in the Massachusetts rate case. [DPU 19-120 Exhibit ES-WJA/DPH-1]

