



LEI Semi-Annual Regional Market Update and 10-year Energy Price Forecast

Ontario

3rd Quarter 2023

390 Bay Street, Suite 1702
Toronto, Ontario M5H 2Y2
Tel: (416) 643-6610
Fax: (416) 643-6611

717 Atlantic Avenue, Suite 1A
Boston, Massachusetts 02111
Tel: (617) 933-7200
Fax: (617) 933-7201

www.londoneconomicspress.com

Description of Report

London Economics International LLC ("LEI") provides semi-annual regional market updates and 10-year energy price forecasts for major markets in North America and around the world. In addition to providing price projections, the reports highlight major developments in each of the regions as well as the underlying structural dynamics. LEI also provides more detailed regional market price forecasts tailored to a client's individual needs, including longer time horizons and forecasting of plant-specific revenues or the impact of structural or market design changes.

Disclaimer

The contents of this report do not constitute investment advice. The provision of analysis by LEI does not obviate the need for an investor to make further appropriate inquiries as to the accuracy of the information included therein, and to undertake their own analysis and due diligence. This report is not intended to be a complete and exhaustive analysis of all the factors impacting the regional market. LEI, its officers, employees, and affiliates make no representations, warranties, or recommendations.

Table of contents

1	EXECUTIVE SUMMARY	1
2	MARKET OVERVIEW AND RECENT DEVELOPMENTS	5
2.1	MARKET OVERVIEW	5
2.2	RECENT DEVELOPMENTS	6
2.2.1	<i>Carbon pricing</i>	6
2.2.2	<i>Nuclear refurbishments and retirements</i>	8
2.2.3	<i>IESO's 2022 Annual Planning Outlook</i>	10
2.2.4	<i>Federal Clean Electricity Regulations</i>	10
2.2.5	<i>Market Renewal</i>	11
2.2.6	<i>IESO's Resource Adequacy Engagement</i>	12
2.2.7	<i>Provincial policy and directives</i>	13
3	MODELING ASSUMPTIONS	14
3.1	MARKET TOPOLOGY.....	14
3.2	NATURAL GAS PRICE PROJECTIONS	15
3.3	EMISSIONS COSTS	16
3.4	HYDROLOGY	17
3.5	DEMAND	17
3.6	SUPPLY	18
3.6.1	<i>Nuclear supply</i>	18
3.6.2	<i>New entry</i>	18
3.7	SUPPLY-DEMAND BALANCE AND INTERNAL RESERVE MARGINS.....	19
3.8	IMPORT AND EXPORT FLOWS	20
4	10-YEAR PRICE FORECAST	22
4.1	ENERGY MARKET PRICES.....	22
4.2	IMPLIED MARKET HEAT RATE	23
5	GLOBAL ADJUSTMENT	24
5.1	GLOBAL ADJUSTMENT OVERVIEW.....	24
5.2	LEI PROPRIETARY GLOBAL ADJUSTMENT SIMULATION MODEL.....	25
5.3	CONSUMER PRICE 10-YEAR FORECASTING RESULTS.....	26
6	APPENDIX A: OVERVIEW OF FORECASTING METHODOLOGY	27
7	APPENDIX B: ABOUT LEI AND ITS ONTARIO EXPERIENCE	28

Table of figures

FIGURE 1. LIST OF ACRONYMS	4
FIGURE 2. INSTALLED CAPACITY AND GENERATION BY FUEL TYPE FOR TRANSMISSION-CONNECTED RESOURCES ...	5
FIGURE 3. INSTALLED CAPACITY AND GENERATION BY MARKET PARTICIPANT (2023)	6
FIGURE 4. SUMMARY OF RECENT DEVELOPMENTS AND POTENTIAL PRICE IMPACTS.....	6
FIGURE 5. ANNOUNCED NUCLEAR REFURBISHMENT AND RETIREMENT SCHEDULE	9
FIGURE 6. IESO OUTLOOK FOR CAPACITY SURPLUS/DEFICIT AT SUMMER PEAK (MW)	10
FIGURE 7. REGIONAL TRANSMISSION INTERFACE LIMITS.....	14
FIGURE 8. GAS PRICE PROJECTIONS FOR DAWN HUB (NOMINAL \$/MMBTU)	15
FIGURE 9. CARBON PRICE OUTLOOK (NOMINAL \$/TONNE)	16
FIGURE 10. ASSUMED PERFORMANCE STANDARD FOR EXISTING GAS-FIRED GENERATION (TONNES/GWH)	17
FIGURE 11. AVERAGE MONTHLY HYDRO OUTPUT FOR TRANSMISSION-CONNECTED FACILITIES (GWH, 2015-2023)	17

FIGURE 12: ANNUAL NET PEAK DEMAND AND ENERGY CONSUMPTION PROJECTIONS	18
FIGURE 13. MODELED OFFLINE NUCLEAR CAPACITY FOR MONTH OF SEPTEMBER (MW, 2024 – 2033)	18
FIGURE 14. NEW ENTRY (NAMEPLATE CAPACITY) ASSUMED IN THE ONTARIO MODELING (CASE 1)	19
FIGURE 15. REGION-WIDE SUPPLY-DEMAND BALANCE (DERATED SUPPLY)	20
FIGURE 16. INDICATIVE INTERNAL SUPPLY CURVE FOR ONTARIO (MARCH 2024)	20
FIGURE 17. PROJECTED NET EXPORTS	21
FIGURE 18. 10-YEAR FORECASTED HOURLY ONTARIO ENERGY PRICES (\$/MWH).....	22
FIGURE 19. IMPLIED MARKET HEAT RATES (MMBTU/MWH).....	23
FIGURE 20. GA COMPOSITION BY RESOURCE/ CONTRACT TYPE (2023)	24
FIGURE 21. HISTORICAL HOEP AND GLOBAL ADJUSTMENT, JANUARY 2007 – APRIL 2022 (\$/MWH)	25
FIGURE 22. FORECASTED CONSUMER PRICE (HOEP PLUS GA) FOR CASE 1, \$/MWH.....	26
FIGURE 23. POOLMOD’S TWO-STAGE PROCESS.....	27
FIGURE 24. LEI ECONOMIC, FINANCIAL AND STRATEGIC MANAGEMENT ADVISORY EXPERTISE.....	28