



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

### California ISO

*1st Quarter 2021*

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

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

[www.londoneconomicspress.com](http://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 his/her 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

<b>1</b>	<b>MARKET OVERVIEW AND RECENT DEVELOPMENTS.....</b>	<b>1</b>
1.1	MARKET OVERVIEW.....	1
1.2	RECENT DEVELOPMENTS .....	2
<b>2</b>	<b>MODELING ASSUMPTIONS.....</b>	<b>8</b>
2.1	MARKET TOPOLOGY .....	8
2.2	GAS PRICE PROJECTIONS.....	9
2.3	EMISSIONS COSTS .....	10
2.4	COST OF GENERIC NEW ENTRY .....	11
2.5	IMPORT, EXPORTS AND HYDROLOGY.....	12
2.6	DEMAND AND SUPPLY.....	15
2.6.1	<i>Demand .....</i>	15
2.6.2	<i>Note on impact of COVID-19 .....</i>	16
2.6.3	<i>New entry and retirements.....</i>	16
<b>3</b>	<b>10-YEAR PRICE FORECAST.....</b>	<b>21</b>
3.1	ENERGY MARKET PRICES.....	21
3.2	IMPLIED MARKET HEAT RATE .....	21
3.3	CAPACITY MARKET PRICES .....	22
<b>4</b>	<b>APPENDIX A: OVERVIEW OF FORECASTING METHODOLOGY.....</b>	<b>24</b>
<b>5</b>	<b>APPENDIX B: ABOUT LEI AND ITS CALIFORNIA EXPERIENCE .....</b>	<b>25</b>

## List of figures

FIGURE 1. INSTALLED CAPACITY AND GENERATION BY TECHNOLOGY TYPE, 2020.....	2
FIGURE 2. MAP OF THE WESTERN EIM AS OF 2020 .....	4
FIGURE 3. EIM ANNUAL PERFORMANCE RESULTS .....	5
FIGURE 4. EIM BENEFIT FORMULA FOR EACH 5-MINUTE INTERVAL.....	5
FIGURE 5. REGIONAL TRANSMISSION INTERFACE LIMITS (MW).....	8
FIGURE 6. FOSSIL FUEL PRICE PROJECTIONS (NOMINAL \$/MMBTU) .....	9
FIGURE 7. EMISSIONS COST PROJECTIONS.....	11
FIGURE 8. COST OF GENERIC NEW ENTRY ASSUMPTIONS, 2020 .....	12
FIGURE 9. AVERAGE IMPORTS AND EXPORTS TO AND FROM CALIFORNIA .....	13
FIGURE 10. MONTHLY HYDROELECTRIC PRODUCTION IN CALIFORNIA (2010-2019).....	14
FIGURE 11. AVERAGE YEARLY HYDROELECTRIC PRODUCTION (2010-2019) .....	14
FIGURE 12. FORECAST DEMAND .....	15
FIGURE 13. CUMULATIVE NET ADDITIONS ACROSS THE MODELED CALIFORNIA REGION, 2021-2030 .....	17
FIGURE 14. CUMULATIVE NET RETIREMENTS ACROSS THE MODELED CALIFORNIA REGION, 2020-2030 .....	18
FIGURE 15. REGION-WIDE DEMAND-SUPPLY BALANCE FOR CALIFORNIA .....	19
FIGURE 16. INTERNAL SUPPLY CURVE FOR MODELED CALIFORNIA MARKET (2024).....	20
FIGURE 17. FORECAST ENERGY MARKET PRICES [NOMINAL \$/MWH] .....	21
FIGURE 18. ESTIMATED IMPLIED MARKET HEAT RATES, 2021 THROUGH 2030.....	22

FIGURE 19. CALIFORNIA RA CAPACITY PRICES, 2021 THROUGH 2030.....	23
FIGURE 20. POOLMod's TWO-STAGE PROCESS .....	24