North American 10-year wholesale and capacity market forecasts and regional market updates

Available markets:

- Alberta;
- California (CAISO);
- Midwest (MISO);
- New England (ISO-NE);
- New York (NYISO);
- Pennsylvania-New Jersey-Maryland Interconnection (PJM);
- Ontario;
- Southeast Reliability Council (SERC);
- Southwest Power Pool (SPP);
- Texas (ERCOT); and
- Western Electric Coordinating Council (WECC)

London Economics International (LEI) performs a "multi-client" forecasts for eleven regional wholesale markets across North America. The energy, and where applicable, capacity market price outlooks are updated every six months.

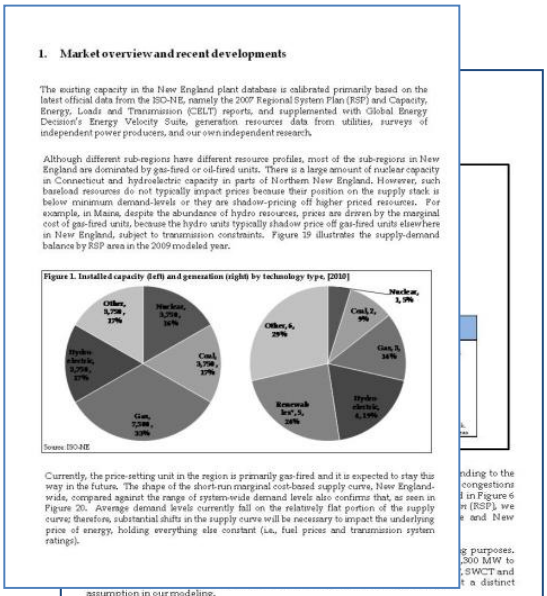
These forecasts include an examination of recent market developments, key assumptions used in the modeling, and a 10-year wholesale electricity price and, where relevant, capacity price forecast.

These forecasts are available for individual purchase or as a subscription service. Other global markets are available on request, as are customized modeling services.

The modeling analysis- presented in the form of a 10-12 page report - is designed to provide clients with a concise update on trends, developments, key drivers, and price projections. It also provides a rigorous introduction to market conditions – ideal for policymakers, lenders, and investors. Each report consists of easy to understand charts, tables, and market descriptions.

An overview of the market and recent developments - a discussion of the key market drivers, and developments in the previous six months, including any new entrants and retirements, new transmission lines, market rule changes, market auction outcomes, mergers and acquisitions, new state policies or initiatives, and environmental rules.

Modeling assumptions in the LEI price forecast - a detailing of assumptions used for each region, including market topography, future fuel prices, emission costs, the cost of generic new entry, import and export flows, demand levels, and the breakdown of supply. For regions with multiple zones, assumptions are broken down by zone.



1. Market overview and recent developments

The existing capacity in the New England plant database is calibrated primarily based on the latest official data from the ISO-NE, namely the 2007 Regional System Plan (RSP) and Capacity, Energy, Loads and Transmission (CELT) reports, and supplemented with Global Energy Decision's Energy Velocity Suite, generation resources data from utilities, surveys of independent power producers, and our own independent research.

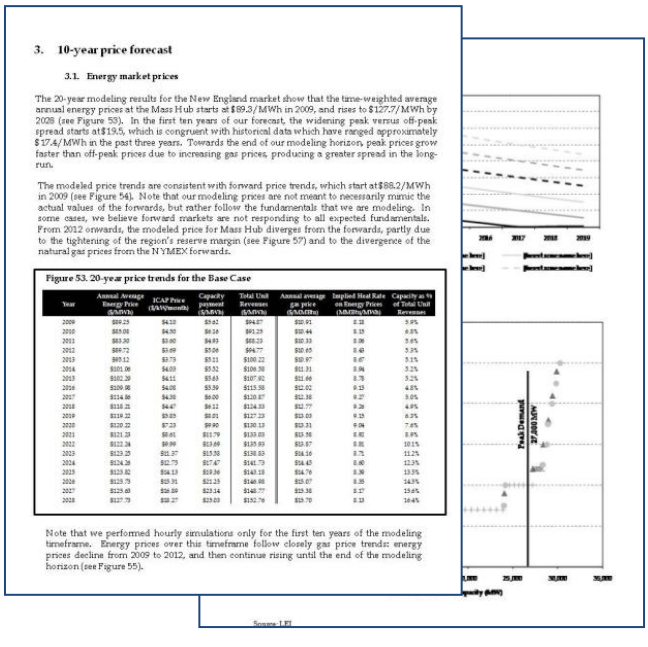
Although different sub-regions have different resource profiles, most of the sub-regions in New England are dominated by gas-fired or oil-fired units. There is a large amount of nuclear capacity in Connecticut and hydroelectric capacity in parts of Northern New England. However, such baseload resources do not typically impact prices because their position on the supply stack is below minimum demand-levels or they are shadow-pricing off higher priced resources. For example, in Maine, despite the abundance of hydro resources, prices are driven by the marginal cost of gas-fired units, because the hydro units typically shadow price off gas-fired units elsewhere in New England, subject to transmission constraints. Figure 19 illustrates the supply-demand balance by RSP area in the 2009 modeled year.

Figure 1. Installed capacity (left) and generation (right) by technology type, [2010]

Source: ISO-NE

Currently, the price-setting unit in the region is primarily gas-fired and it is expected to stay this way in the future. The shape of the short-run marginal cost-based supply curve, New England-wide, compared against the range of system-wide demand levels also confirms that, as seen in Figure 20. Average demand levels currently fall on the relatively flat portion of the supply curve; therefore, substantial shifts in the supply curve will be necessary to impact the underlying price of energy, holding everything else constant (i.e., fuel prices and transmission system ratings).

assumption in our modeling.



3. 10-year price forecast

3.1. Energy market prices

The 20-year modeling results for the New England market show that the time-weighted average annual energy prices at the Mass Hub starts at $89.3/MWh in 2009, and rises to $127.7/MWh by 2028 (see Figure 53). In the first ten years of our forecast, the widening peak versus off-peak spread starts at $19.5, which is congruent with historical data which have ranged approximately $17.4/MWh in the past three years. Towards the end of our modeling horizon, peak prices grow faster than off-peak prices due to increasing gas prices, producing a greater spread in the long-run.

The modeled price trends are consistent with forward price trends, which start at $88.2/MWh in 2009 (see Figure 54). Note that our modeling prices are not meant to necessarily mimic the actual values of the forwards, but rather follow the fundamentals that we are modeling. In some cases, we believe forward markets are not responding to all expected fundamentals. From 2012 onwards, the modeled price for Mass Hub diverges from the forwards, partly due to the tightening of the region's reserve margin (see Figure 57) and to the divergence of the natural gas prices from the NYMEX forwards.

Figure 53. 20-year price trends for the Base Case

Year	Annual Average Energy Price ($/MWh)	ICAP Price ($/kW/month)	Capacity payment ($/MWh)	Total Unit Revenues ($/MWh)	Annual average gas price ($/MMBtu)	Implied Heat Rate on Energy Price (MMBtu/MWh)	Capacity as % of Total Unit Revenues
2009	$89.23	$4.10	$9.61	$94.87	$10.91	8.18	9.9%
2010	$85.08	$4.30	$9.16	$91.23	$10.44	8.15	9.6%
2011	$83.20	$3.60	$8.93	$88.23	$10.33	8.06	9.6%
2012	$89.72	$3.69	$9.06	$94.77	$10.65	8.40	9.3%
2013	$95.12	$3.73	$9.11	$100.22	$10.97	8.67	9.1%
2014	$101.06	$4.03	$9.52	$106.38	$11.31	8.94	9.2%
2015	$102.39	$4.11	$9.63	$107.92	$11.66	8.78	9.2%
2016	$109.46	$4.08	$9.59	$115.50	$12.02	9.15	8.8%
2017	$114.86	$4.36	$9.00	$120.87	$12.36	9.27	9.0%
2018	$118.21	$4.47	$9.12	$124.33	$12.77	9.28	8.8%
2019	$119.22	$5.05	$8.01	$127.23	$13.03	9.15	6.3%
2020	$120.22	$7.23	$9.90	$130.13	$13.31	9.04	7.6%
2021	$121.23	$8.01	$11.79	$133.03	$13.59	8.92	8.9%
2022	$122.24	$8.09	$13.69	$135.93	$13.87	8.81	10.1%
2023	$123.25	$11.37	$15.58	$138.83	$14.16	8.71	11.2%
2024	$124.26	$12.73	$17.47	$141.73	$14.45	8.60	12.3%
2025	$125.82	$14.13	$19.36	$145.18	$14.79	8.59	13.3%
2026	$125.79	$15.31	$21.25	$146.88	$15.07	8.55	14.3%
2027	$125.40	$16.89	$23.14	$148.77	$15.36	8.57	15.6%
2028	$127.70	$18.27	$25.03	$152.78	$15.70	8.53	16.4%

Note that we performed hourly simulations only for the first ten years of the modeling timeframe. Energy prices over this timeframe follow closely gas price trends: energy prices decline from 2009 to 2012, and then continue rising until the end of the modeling horizon (see Figure 55).

Source: LEI

10-year price forecast - a price forecast for wholesale electricity prices, and capacity market prices (for those regions where this is applicable). Where relevant, these price forecasts are broken down by zone.

For more information, visit our website at www.londoneconomicspress.com, call us at (617) 933-7200, or email us at cherrylin@londoneconomics.com.

LE

LONDON ECONOMICS

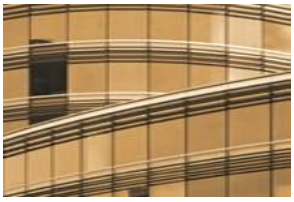
ASSET VALUATION, PRICE FORECASTING & MARKET ANALYSIS

REGULATORY ECONOMICS, PBR & MARKET DESIGN

EXPERT TESTIMONY & LITIGATION CONSULTING

TRANSMISSION

RENEWABLE ENERGY



PROCUREMENT

www.londoneconomics.com