

Long Island Clean Electricity Vision

Study Summary

Can Long Island meet 100 percent of its electricity needs from renewable energy? In short: Yes.

The surprising answer comes from the Long Island Clean Electricity Vision (CEV) — a bold, visionary study¹ commissioned by Renewable Energy Long Island (reLI) and member organizations of the Long Island Clean Energy Roundtable. The 2012 analysis, performed by Synapse Energy Economics,² using cautious and often conservative assumptions,³ concludes that a clean energy transition could take place within two decades, at relatively modest cost and with significant benefits.



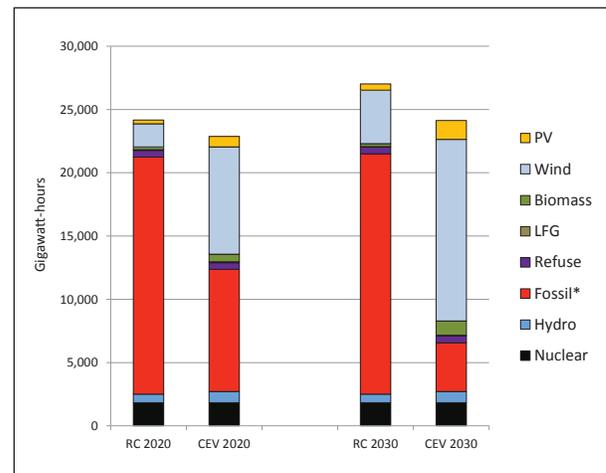
The major conclusions of the CEV study are:

- » **By 2020, it appears technically feasible to meet 100 percent of *residential* electricity needs from renewables, and by 2030 to have a 100 percent renewable and zero-carbon electricity supply.**
- » Aggressive energy efficiency efforts are required to reduce wasteful consumption practices. Large amounts of wind, solar and other renewable energy sources need to be built to replace old, inefficient fossil-fueled power sources. During certain times, e.g. when not enough renewable energy is available to meet electricity demand, some existing fossil-fueled generation would be used to meet demand. Renewable Energy Credits (RECs) would be purchased to offset these emissions.
- » The additional cost of switching to a 100 percent renewable electricity supply is modest: average customer bills are expected to increase by roughly 8–12 percent.⁴ The indirect costs of current practices to individuals and society (i.e. environmental and health-related costs), are not accounted for in this comparison.
- » These costs are relative to a business-as-usual scenario and assume a carbon policy in the U.S. sometime between 2015 and 2020, resulting in an average carbon price for the period 2013–2020 of \$5.70 per ton, and an average price between 2021 and 2030 of \$35 per ton. Depending on carbon and fossil fuel prices, the CEV could provide savings relative to business-as-usual in the later years of the study period.
- » A transition to 100 percent renewable electricity significantly reduces the need to buy and burn fossil fuels for power generation and dramatically lowers carbon emissions and other pollution. It also fosters local economic development, offers insurance against fluctuations in fuel prices and minimizes harmful environmental and health impacts of power generation.⁵

The study compares the CEV scenario to a business-as-usual scenario based on the Long Island Power Authority's (LIPA) 2010 resource plan and data from the New York Independent System Operator.

The study examines a 2020 CEV scenario in which Long Island generates or purchases renewable energy to meet 48 percent of its electricity needs (equal to approximately 100 percent of residential demand). By 2030, 75 percent of electricity supply comes from renewable energy with the remaining 25 percent coming from RECs (offsetting fossil fuel generation needed at times when not enough renewable power is available to meet demand). By 2030 offshore wind, connected directly to the Long Island grid, produces roughly a third of the Island’s electricity per year. In addition, Long Island purchases a quarter of its electricity from land-based wind farms (from upstate and other regions). Utility-scale energy storage capacity on the Island moves nearly 16 percent of the total wind energy from off-peak to on-peak energy demand periods. Solar photovoltaics on the Island produce about 6 percent of electricity needs per year. Smaller amounts of landfill gas, biomass and hydropower also contribute to the mix.^{6,7}

FIGURE: A Comparison of the “Business-As-Usual” Reference Case (RC) and the Clean Electricity Vision (CEV) Scenarios in 2020 and 2030



* The “Fossil” category includes all known fossil-fueled resources and economy purchases, which we assume to be fossil-fueled.

Emissions of climate changing greenhouse gases in the CEV are reduced dramatically: carbon dioxide emissions are cut by 30 percent below the business-as-usual scenario by 2020, and 80 percent lower by 2030. By purchasing RECs for the remaining emissions, Long Island can claim a carbon free electricity supply by 2030. Nitrogen oxides, sulfur dioxide, particulate matter and heavy metal emissions from fossil-fueled generation are reduced accordingly.

The intent of this study is not to lay out a detailed implementation plan, but to look at the feasibility and cost of switching Long Island to 100 percent renewable electricity, to better inform the discussion and to prompt further analysis. More work is needed to assess hourly power system operation under the CEV.

The Long Island CEV study counters conventional thinking by demonstrating that Long Island does in fact have the potential to meet 100 percent of its electricity needs from renewable energy sources by 2030. Choosing such a clean energy future would dramatically reduce harmful pollution and greenhouse gas emissions, create jobs and keep energy dollars in the local economy, and reduce our dependence on imported fossil fuels.

Endnotes

1. The study was funded by the Long Island Community Foundation and the Rauch Foundation
2. Synapse Energy Economics, Inc. provides research, testimony, reports, and regulatory support to consumer advocates, environmental organizations, regulatory commissions, state energy offices, and others. The firm, founded in 1996, specializes in consulting on energy, economic, and environmental topics. Synapse works for a wide range of clients throughout the United States, including attorneys general, offices of consumer advocates, public utility commissions, a variety of environmental groups, foundations, the U.S. Environmental Protection Agency, Department of Energy, Department of Justice, Federal Trade Commission, the National Association of Regulatory Utility Commissioners, and others. Source: www.synapse-energy.com/aboutus
3. One conservative assumption is that energy efficiency costs will rise over time. Information available to date suggests that more aggressive efficiency programs have lower costs per MWh saved than less aggressive ones. However, no utility has maintained a strong efficiency effort over a period of several decades.
4. As compared to a ‘business-as-usual’ reference case, the power supply costs portion of the Clean Electricity Vision in 2020 would be roughly 23% higher. The increase in supply costs in 2030 would be in the range of 16%. Since power supply cost make up about half of the cost of a customer’s bill, the increase in customer bills is roughly half of these increases.
5. These benefits are noted, but were outside the scope of this study and were not quantified.
6. The study notes that energy efficiency is by far the lowest cost electricity resource available to Long Island, and many utilities are capturing more efficiency than LIPA is today. Several states are now aggressively funding efforts to capture cost effective efficiency opportunities.
7. The study examines only one possible scenario. To find an optimal scenario, additional studies are required.