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## Lighthouse Electrical completes solar installation at Carlson Orchards

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Recently Fifth District congresswoman Niki Tsongas joined with state officials and Carlson Orchards owner Frank Carlson, Lighthouse Electrical Contracting president Herb Aikens for the official launch of one of Massachusetts largest agricultural solar installation, a 220kW solar system at Carlson Orchards. The ground-mount solar installation covers approximately 2-acres at the orchard.

Tsongas headed a number of guest speakers at the special solar launch ceremony. She was joined by Symantha Gates, Carlson's project manager; Scott Soares, Massachusetts agricultural commissioner; Jay Healy, USDA Rural Development state director; Lighthouse principal Aikens; and officials from Massachusetts Farm Energy Program and the Massachusetts Department of Agricultural Resources.

Lighthouse Electrical provided the comprehensive electrical installation services for the 220kW solar system, which is comprised of 1,050 Evergreen Solar panels and Solectria Renewables inverters. Both Evergreen Solar and Solectria Renewables are Mass. based renewable energy manufacturers. Lighthouse teamed with the architectural firms, Stephen Kelleher Architects of Fairhaven and kWind, Inc. of Mattapoissett in the design/build project. Lighthouse project manager Newell Thomas and Aikens supervised a field crew of 9 IBEW electricians at peak construction during the three-month project.

The solar project is funded in large part by grants from the Massachusetts Technology Collaborative (MTC)/Massachusetts Clean Energy Center (CEC). It is among the first solar projects in the State to incorporate virtual net-metering and an MTC/CEC grant.

The PV system is expected to generate approximately 70% of the annual energy usage of the orchard, largely for the operation of refrigeration units used to chill and preserve harvested apples.

To make room for the solar array, Carlson Orchards made a conscious decision to remove two acres of 45-year-old apple trees, displaying the company's commitment to incorporating renewable energy resources to meet its electricity demands.

"The ability to continue my family's farming tradition has required imagination and resourcefulness," said Franklyn Carlson, president of Carlson Orchards. "I had looked at solar incentives, but Symantha Gates of EC3 Consulting helped guide and provide us a vision â€” a sustainability approach for our power consumption â€” that was viable. She managed our financing and project implementation. Now, 10 months later the effort is complete."

"This is a unique and interesting solar power system that shines the spotlight on a company that is dedicated to finding clean, reliable ways to power their business," said Scott Gish, Evergreen Solar's vice president of sales and marketing. "We're proud to not just be associated with the Carlson Orchards project but to have it just down the street from our Devens factory where these panels were produced. Our Devens manufacturing plant continues to be a major success for Evergreen

Solar manufacturing high quality solar panels for use around the world."

Because the array is located on slanted ground, careful attention had to be paid to its architecture. Lighthouse Electrical hired Steven Kelleher Architects and its subsidiary, kWind, Inc. Working closely together, they designed a racking system that employs variable length legs to yield a level installation that maximizes each solar panel's electrical potential.

"It was important to preserve the contour of the land so as not to significantly disrupt the natural feel of the orchard," said Herb Aikens, president of Lighthouse Electrical Contracting, Inc. "With that design requirement in mind, we took great care to design the array in smaller sub arrays that fit into the existing topography. In looking at the final product, I think we were very successful in achieving our goal."

"Because of the uneven terrain, the Carlson Orchards project presented a unique set of design challenges," said Chuck Fougere, Architectural Project Manager for Stephen Kelleher Architects. "Due to time constraints we determined that the fastest and most accurate way to incorporate Lighthouse's design was to model the system in three dimensions on the computer. Using three-dimensional terrain maps and a model of the array we were able to lay out the initial plan and design the foundation and steel beam leveling system capable of supporting the panels and to prevent uplift from the wind. In early meetings with the orchard's owner Frank Carlson and his project coordinator Symantha Gates, the solar team was able to arrange the array to suit the site while minimizing the amount of land that had to be converted from apple production."

Tsongas wrote multiple letters of support for Carlson Orchards' successful state and federal grant applications for the solar array. Using solar power will help reduce the farm's energy costs by approximately two-thirds, an estimated \$40,000 annually.

Carlson Orchards is New England's largest producer of apple cider, producing more than 500,000 gallons annually, which is sold through major chainstore supermarkets, including Whole Foods, Roche Bros., and Donelans. The 120-acre working farm is run by the second generation of Carlsons, Franklyn Carlson, Bruce Carlson and Robert Carlson.

About Evergreen Solar, Inc.

Evergreen Solar, Inc. develops, manufactures and markets String Ribbon® solar power products using its proprietary, low-cost silicon wafer technology. The Company's patented wafer manufacturing technology uses significantly less polysilicon than conventional processes. Evergreen Solar's products provide reliable and environmentally clean electric power for residential and commercial applications globally. For more information about the Company, please visit [www.evergreensolar.com](http://www.evergreensolar.com)

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About Carlson Orchards

Carlson Orchards, Inc., established in 1938, is a diversified agricultural operation located in Harvard,

MA. In addition to managing multiple orchards and a variety of fruit crops, Carlson's is the largest apple cider producer in New England. Come see our new solar array and pick your own fruit!  
[www.carlsonorchards.com](http://www.carlsonorchards.com)

#### About Lighthouse Electrical

Lighthouse Electrical Contracting, Inc. was established in 2002 as a quality union electrical contractor based in Rockland, Massachusetts. In the last eight years, Lighthouse has grown from a small one man shop to over 35 electricians completing multi-million dollar projects. Lighthouse's clients include some of Boston's most prestigious firms including Dana Farber Cancer Institute, St. Elizabeth's Hospital, Harvard University, Massachusetts Institute of Technology, TD Banknorth Garden, and Millennium Pharmaceuticals. Lighthouse has been dedicated to the renewable energy industry and is among New England's leading installers of photovoltaic systems and one of the largest union installers in the country. Lighthouse has installed over 4 MW of commercial and residential solar-electric systems in Eastern Massachusetts. Besides many successful solar installations, Lighthouse has a base of over a dozen successful wind installations and is responsible for the maintenance of the 100 kW turbine at IBEW Local 103 in Dorchester. Lighthouse Electrical Contracting is dedicated to quality performance and prompt attention to customer needs.  
[www.lighthouse-electrical.com](http://www.lighthouse-electrical.com)

#### About Steven Kelleher Architects

Stephen Kelleher Architects, AIA is a full service architectural firm providing design services for residential, commercial, and industrial clients. For the past 20 years, Stephen Kelleher Architects has completed numerous projects providing site analysis, space planning, lease negotiation, permitting, architectural design and engineering.

With an emphasis on environmental design, Stephen Kelleher Architects has assisted many clients in reducing energy and reducing their environmental impact. Through Stephen Kelleher Architect's subsidiary, kWind, Inc., Stephen Kelleher Architects has developed the capability to design and engineer both wind and solar projects. In the past few years, Stephen Kelleher Architects and kWind have been integral team partners in the successful design, engineering, and permitting of numerous renewable energy installations. With extensive building code, governmental, and historic experience, Stephen Kelleher Architect's projects include engineering and architectural design for schools, dormitories, nursing homes, government buildings, museums, theaters, office complexes and buildings, housing, industrial buildings, shopping centers and funeral homes. Complete services range from initial schematic design renderings through contract negotiation, construction supervision, code review and analysis for the

State Building Code, Americans With Disabilities Act, Massachusetts Architect Access Board, and local zoning requirements. [www.stephenkelleherarchitects.com](http://www.stephenkelleherarchitects.com)

#### About EC3 Consulting

EC3 Consulting is a green energy consultancy firm founded by Symantha Gates with the intent of helping small and mid-sized businesses navigate the thicket of utility, state and federal incentives available in the marketplace and implement affordable renewable energy solutions. For more information about how EC3 can secure your organization's renewable energy future, [emailsgates@ec3-consulting.com](mailto:emailsgates@ec3-consulting.com).

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