

Gardner Solar Project – then and now

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Then: An example of a typical home with the original two-kilowatt PV system, installed in 1985 and still running today

Since 1980, National Grid has been active in promoting solar photovoltaic (PV) system projects at several locations in New England. The most well-known is in Gardner, MA, where 30 residential PV systems were installed in 1985.

The original 2-kilowatt (kW) systems – comprised of large crystalline-silicon modules and inverters designed in Massachusetts – were placed on roofs to analyze the effects of a high concentration of PV systems on one feeder (distribution line); observe the long-term performance of all components; and assess the reliability of PV systems throughout a variety of weather conditions.

“The project showed that PV electrical generating systems for residential use could be

easily assembled, installed and maintained by local electricians with occasional guidance from PV specialists, while also remaining user-friendly for home owners,” explains Dr John Bzura, Principal Engineer, Research, Development and Demonstration (RD&D). Fast forward to 2009, and National Grid is still collecting information on PV system components. Of the 30 original homes with the PV modules, 25 module arrays remain in good working order and roughly 20 homes still use the original inverters.

Since 1990, National Grid has also supported development of an ‘AC module’, which is a smaller, less-costly, self-contained PV system. Although less powerful than the Gardner systems, AC modules allow more customers to afford a PV system and participate in

making clean electricity. The first five production units will be ready to be installed within a few months at special sites and customer homes, with their performance monitored for the next several years. True to the vision of the original project and using components manufactured by local companies, the AC modules are produced by Massachusetts-based GreenRay, Inc. Although the price of this and other solar technologies has not dropped as much as anticipated, Massachusetts has recently begun offering incentives and rebates for solar technology. This legislation, combined with the more convenient size of the AC modules, may make widespread implementation of PV systems a reality in the coming years.



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Now: The AC module, a smaller (300 watt) self-contained PV system developed by GreenRay, Inc., will be monitored for performance by National Grid