

► POLICY UPDATE

# Can Your Heating and Cooling System Provide an Income Stream?

A field guide to evolving RECs, and what it means to the built environment

In Massachusetts it potentially can, starting on January 1, 2015. With the recent passage of Senate Bill (SB) 1970, Massachusetts joined New Hampshire and Maryland to allow productive thermal energy from a ground source heat pump heating and cooling system, or “geothermal” system, to qualify for Renewable Energy Credits (RECs) that can be sold.

## WHAT ARE RECS AND AREN'T THEY JUST FOR PHOTOVOLTAICS (PV) AND WIND TURBINES?

Most people have some familiarity with Renewable Energy Credits, or RECs. Electric power generated by solar photovoltaic (PV) or wind turbines can be assigned a renewable credit and sold for income. One REC is generated for every one MWhr of electric power generated by these renewable means. There has been a proliferation of large and small wind and solar PV projects throughout the United States and within Massachusetts as a result of the ability to monetize these RECs.

State regulated utilities are the ultimate buyers of these RECs. The regulating states require utilities to either purchase RECs, or make Alternative Compliance Payments (ACPs), which is what gives the RECs value. Most states currently have these “Portfolio Standards” which must be met.

Traditionally, RECs have been tied to renewable electric power generation and thus associated with solar PV and wind turbines. In recent years, however, an increasing number of states have begun to recognize that renewable thermal production, not just renewable power production, should be qualified as RECs. For example, solar thermal systems, which generate hot water for productive use, can now qualify for RECs in many states. This reflects an evolution in policy thinking which acknowledges that the goal is to increase renewable energy as a whole, not just renewable power.

## RECS COME INDOORS: A TRANSFORMATIONAL MOMENT

RECs have now truly come indoors in three states: Massachusetts, New Hampshire, and Maryland, which now allow for productive heating and cooling energy gener-

ated from ground source heat pumps to qualify for RECs. Unlike tax incentives, RECs can be generated and sold by both for-profits and non-profits.

This is a transformative moment for practitioners in the built environment: we used to build “REC generating” features as project add-ons such as solar panels on roofs, or as separate projects such as a wind farms or biomass plants. We can now think of REC generation as part of the alreadyplanned building heating and cooling system itself.

RECs have undergone an interesting evolution and transformation: three states now recognize productive energy creation from the building systems as contributing toward society’s renewable energy goals.

## MEASURING AND VERIFICATION

The Massachusetts Department of Energy Resources (DOER) is charged with developing the mechanisms and “rules of the road” for creation of RECs. A key task in the coming months will be to develop the standards for measurement and verification of the productive thermal energy. Because a ground source heat pump uses energy to create useful heating and cooling output, the measurement and verification scheme will need to account for both energy input and output.

## SHOW ME THE MONEY

The value of a REC depends on many factors. If we assume that the building owner can sell the RECs for 50% of the ACP, we estimate that the income stream for a 50,000 square foot office building would be approximately \$5,000 to \$10,000 per year. For the first time, heating and cooling your office, dormitory, school, home or other buildings will actually generate an income, if you use a geothermal system.

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## TO DISCUSS THESE INSIGHTS OR OTHERS CONTACT:

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