

THE Value Initiative

Members in Action: Implement Operational Solutions

Boston Medical Center – Boston, MA

Collaborative Purchases Solar Power, Reduces Greenhouse Gas Emissions

The AHA's Members in Action series highlights how hospitals and health systems are implementing new value-based strategies to improve health care affordability. This includes work to redesign the delivery system, manage risk and new payment models, improve quality and outcomes, and implement operational solutions.

Overview

In an effort to decrease operating expenses and reduce greenhouse gas emissions, Boston Medical Center (BMC) collaborates with two local entities to buy electricity from a large new solar power installation built on farmland in North Carolina. The 650-acre, 60-megawatt solar farm comprises of 255,000 solar panels and provides electricity to BMC, the Massachusetts Institute of Technology and a development corporation that manages an underground 1,400-space parking garage and park in downtown Boston. The project, which is managed by the Boston-based organization A Better City, is the largest renewable-energy project ever built in the United States through an alliance of diverse buyers.

While reviewing bids for this project, the collaborative had three priorities: the project had to be new, thus adding additional power to the electricity grid; preference would go to proposals from New England; and financial projections had

Impact

In its first year, the Boston renewable energy collaborative has met expectations and proved to be cost neutral. The expected 146 gigawatt-hours of emissions-free power per year will result in the abatement of 119,500 metric tons of carbon dioxide emissions – the equivalent of removing 25,250 cars from the road.

BMC, the largest safety net hospital in New England, was already on target to reduce its emissions by at least 50% by this year through a \$300 million clinical campus redesign that includes upgrades to heating, cooling and ventilation systems, energy efficient lighting, a new biodigester to compost food waste, and other improvements. In addition to providing a predictable fixed price for electricity, the additional carbon footprint reduction achieved through this renewable energy agreement is expected to make BMC's energy supply carbon neutral by the end of 2018. Through these efforts, BMC has reduced its utility bill from \$17.2 million in 2011 to \$13 million in 2018. Since 2011, BMC has reduced its greenhouse gases by 93% – almost half of that is attributed to the solar farm.



Boston Medical Center decreased operating expenses and reduced greenhouse gas emissions through a variety of energy-efficient initiatives.

to be cost neutral or better. The rural North Carolina project was enabled in part by lower real estate costs. An acre of land there costs \$5,000, compared with \$20 million in downtown Boston.

In 2017, BMC, a 496-bed academic medical center, entered into a 25-year power purchase agreement to buy 26% of the electricity generated by the solar farm. The project neutralizes 100% of BMC's electricity consumption.

Lessons Learned

Robert Biggio, vice president of facilities and support services, offered the following suggestions for other hospitals considering similar projects:

- Pursue a project with a diverse collaborative; it elevates the discussion and helps offset legal fees and consulting costs.
- Retain a consultant with expertise in utilities and renewable power.

Though BMC's commitment to purchase solar power is for 25 years, the hospital concluded the project was worth it because no capital investment is required. "Participating in a collaborative process proved beneficial for us," said Biggio. "It helped us gain confidence in moving forward."

Future Goals

BMC is committed to continuing its climate-change mitigation efforts by:

- Eliminating the last 7% of its greenhouse gas emissions, aiming to become the first carbon-neutral hospital in New England for its energy supply.
- Launching an on-site battery storage facility this year.
- Implementing smaller on-site solar energy projects.
- Ramping up its new on-site co-generation plant.

"The best way to lead is to lead by example," said Biggio. "Hopefully others will follow."



By purchasing power from a 650-acre solar power farm in North Carolina, Boston Medical Center reduced carbon dioxide emissions equivalent to removing 25,250 cars from the road.

Contact: Robert Biggio, Vice President of Facilities and Support Services

Telephone: (617) 414-2110

Email: Bob.Biggio@bmc.org