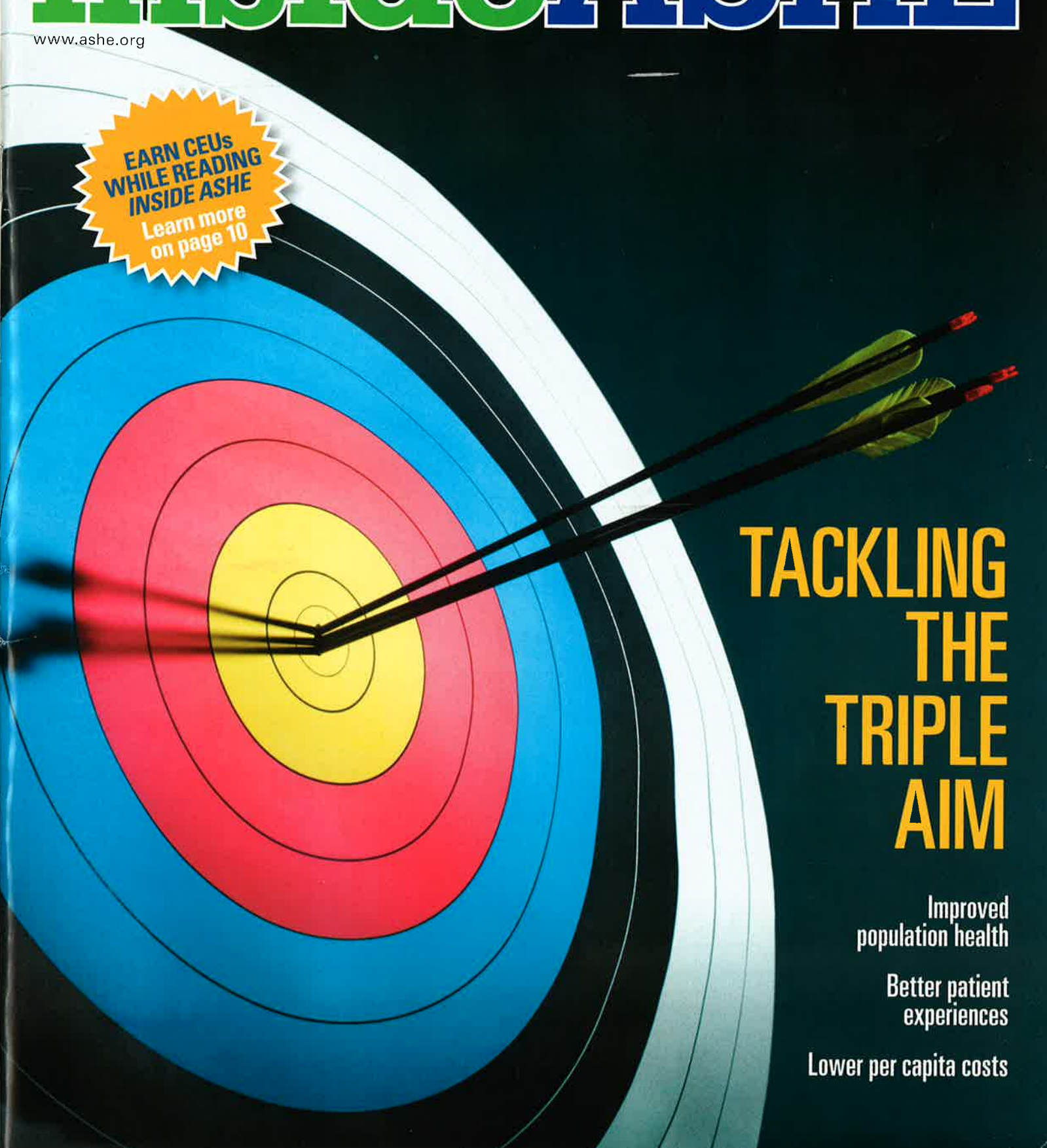


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Focusing on the supply side:

A new energy approach

By Judson Orlando, senior director, facilities development & engineering, Children's Health; and Michael Cozzi, managing principal, Bridgevue Energy Services, LLC

With ever-rising health care costs and lower reimbursements to most hospitals in the United States,

Children's Health in Dallas, which includes the nation's seventh-largest pediatric hospital, wanted to find new ways of addressing cost increases. In 2014, the system's facilities group decided to take a different approach to addressing rising energy costs by hiring an outside energy management expert, developing a comprehensive energy management strategy, embracing new ideas, and becoming more socially responsible regarding the environment.

Many hospitals have rightfully focused on demand-side energy

consumption reduction by investing in energy efficiency projects to reduce electric demand and consumption at their facilities. While it is important for most hospitals to focus on demand-side reductions, a number of hospitals have not focused as much time and resources on supply-side energy purchase optimization initiatives. Children's Health was no different until management decided in 2014 to focus on optimizing supply-side energy procurement of natural gas, electricity, and renewable energy. Children's Health concentrated on supply-side energy cost savings because the incremental cost savings potential available from supply-side energy initiatives was projected to be faster and greater than that of demand-side energy initiatives. In addition,

the supply-side energy cost savings initiatives did not require any up-front capital investments, unlike many demand-side energy initiatives.

In 2014, Children's Health embarked on a strategic energy management plan that contained several strategic thrusts for implementation starting in 2015 and 2016. One of the main thrusts for 2015 was a supply-side energy management initiative with the following key elements:

- Electricity supply purchase optimization
- Natural gas supply purchase optimization
- Demand response
- Renewable energy supply portfolio
- Other utility structure opportunities

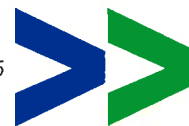
The main objective of the supply-side energy management initiatives was to procure energy by the most efficient means possible while balancing an acceptable level of risk for the system.

The Children's Health facilities team selected Bridgevue Energy Services, LLC, to assist with developing and implementing supply-side energy procurement optimization initiatives. After several meetings to determine goals and objectives, the system's historical and projected energy consumption and energy cost data were assessed. One of the system's main goals was to acquire lower-cost retail electricity supply at a reasonable risk tolerance, and



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electric supply that contained at least 10 percent renewable energy from an identifiable source (on-site or off-site). In addition, the renewable energy needed to be cost effective.

Total annual electricity consumption at all Children's Health facilities is approximately 90 million kWh per year. Annual peak electricity demand, which occurs in the summer months, is about 15,500 kW during the summer season. The total square footage of all facilities is 1.725 million square feet.

A majority (more than 98 percent) of Children's Health sites are located in a region of Texas that is deregulated for electricity supply, which enables the system to competitively select from multiple retail electric providers (REPs), and select from a variety of electricity supply products. Prior to 2015, Children's Health did not really optimize electricity supply purchases, but would enter into a fixed-price contract with a provider based on whatever price was available at the time of contract execution.

A request for proposal (RFP) was developed using a scorecard algorithm and issued for the competitive selection of a retail electric provider that could meet the system's objectives. The scorecard included attributes and weighting factors for each attribute. The attributes included power price, product, credit-worthiness, off-site renewable energy (solar/wind) capabilities, and risk. A retail electric provider was selected

that offered a block-and-index electric product that would enable Children's Health to lock in 75 percent of future electric quantities for five years at a very low fixed block price, and would also enable the system to purchase future quantities (up to 25 percent) of off-site renewable energy supply at wholesale. In spring 2015, Children's Health locked in 75 percent of its forward electric supply for five years at an attractive low fixed price that yielded more than a 23 percent reduction in electric cost savings compared to the prior electric contract.

Another area that Children's Health was interested in exploring was sustainability and becoming more socially responsible concerning the environment and energy. Through research, the team found that the total renewable consumption for the health care industry as compared to other industries in the United States was very small and somewhat concerning. The team did not fully discover why, but some anecdotal evidence indicated that the health care industry had some misperceptions about renewable energy. Some of the misperceptions included power reliability and economic concerns.

Information from Bridgevue indicated that off-site renewable energy solutions could be as equally reliable as conventional power supply (e.g., no loss of power supply to the hospital) and the economics could be on par with conventional energy. A variety of

renewable energy sourcing options were assessed, including on-site and off-site solar energy, off-site wind energy, off-site landfill gas to power energy, and combinations of off-site wind and solar energy. In late summer 2015, Children's Health secured 25 percent renewable energy supply commencing July 2016 for a term of seven years at a fixed price that was on par with conventional energy. The 25 percent renewable energy portfolio contained both wind energy and solar energy from off-site wind and solar farms located in West Texas, and provided the lowest energy cost of all the options investigated.

The 22,500 megawatt hours of green electricity will be backed by renewable energy credits to offset the environmental effect that otherwise would occur because of the use of non-renewable fossil fuels. This action is equivalent to removing more than 16 million pounds per year of carbon dioxide from the environment. For perspective, the average Texas home uses 14.5 megawatt hours per year of electricity, so the commitment to renewable electricity is the same as more than 1,500 average Texas homes going 100 percent green.

"Our mission is to make life better for children, and we have a responsibility to help give children the right start in a healthy environment," said Christopher J. Durovich, president and chief executive officer of Children's Health. "Reducing



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When the plan is implemented in 2016, Children's Health is expected to use more renewable energy than any other pediatric health care system in the country, and is expected to be the second largest health care system user of renewable energy in the nation, and the largest in Texas, according to data collected by the Environmental Protection Agency. Children's Health will continue to source the same amount of renewable energy—including off-site solar and wind—through June 2023.

Children's Health started with the goal of being more socially responsible. The system was able to secure a renewable energy mix of solar and wind power that was on par with conventional energy pricing, which will allow Children's Health to focus on long-term sustainable solutions as the system continues to grow and expand.

Additionally in 2016, the hospital system is committed to identifying new ways to reduce overall energy consumption, improve waste management, and source products made with sustainable, non-hazardous materials. The Children's Health Sustainability Council, which is composed of individuals from a wide variety of positions and backgrounds within the organization, will continue to identify proactive ways for the system to create long-term goals for environmental sustainability.

In addition to the retail electric supply cost reductions, Children's Health will also realize significant cost savings and, from optimized procurement of natural gas supply, financial incentives from participating in several demand response programs and other opportunities to reduce regulated demand charges.

The overall cost savings impact from all of the supply-side energy management initiatives is expected to be more than \$1.5 million per year. These annual savings are expected to continue for the next five years. Incidentally, these savings do not include any cost savings from demand-side energy efficiency management initiatives that are going on in parallel to the supply-side management initiatives. 

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