

VADNAIS SPORTS CENTER HOCKEY RINKS

CASE STUDY
MINNESOTA

NEW ICE RESURFACING TECHNOLOGY SAVES ENERGY
AND MONEY



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Ryan Ries,
Facilities and Sustainability Director,
Ramsey County Parks & Recreation

The cost of energy associated with operating an indoor ice arena is one of the biggest budget lines for a municipality. Finding ways to reduce energy consumption is high on the list for most facility managers.

That was the case for the Vadnais Sports Center in Ramsey County, Minnesota. Facilities and Sustainability Director Ryan Ries decided to take a closer look at a Swedish technology called REALice to determine if it would work for his rinks.

Rebate cuts the cost

Ramsey County purchased the Vadnais Sports Center in 2014, bringing the total number of ice rinks it operates to 11 — more than any other operator in the country.

Hockey and skating associations typically rent ice time by the hour, and that means having to resurface the ice, traditionally with hot water through a resurfacing machine, commonly known as a Zamboni, in between every rental.

“The entire reason for considering a new system is energy savings and subsequent sustainability,” explains Ries. “When we’re resurfacing every hour, that’s 8-10 runs a day per rink, so the energy use adds up. The Ramsey County Parks & Recreation system includes 15 parks, a nature center and administration building, five golf courses, a waterpark, and the ice arenas, which account for 85 percent of our energy costs. We’re always looking for ways to save energy.”

Enter REALice water treatment system. It eliminates the need for hot water when resurfacing ice by removing the micro-air bubbles from water without using chemicals, filters or membranes.

It’s used in more than 400 ice rinks worldwide, but Ries hadn’t seen many rinks in Minnesota with the technology. He worked with REALice and a local consultant, McKinstry, to conduct a trial and compile about a month’s worth of energy data.

“What we learned is that it made a lot of sense to do it in a facility that has multiple sheets of ice that operate year round,” Ries says. “And the Xcel Energy rebate of almost half the overall cost was vital to making it work.”



PROJECT SNAPSHOT

Project	Replace two ice rinks with REALice technology
Est. project cost	\$28,350
Est. annual energy savings	175,000 kWh 10,000 Therms \$23,700
Xcel Energy rebate and bonus amount	\$13,285
Payback term	.75 years

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Colleen O'Shea, Sales Representative for REALice, explains that the technology saves money in several ways.

"You're saving energy since you're no longer heating the water to make the ice," she says. "And by using colder water, there's less heat to take off the ice when it's being frozen, resulting in more savings. Also, the REALice-treated water freezes faster, so the brine temperature or set points need to be warmer to prevent the water from freezing too quickly, so that saves even more energy. And finally, the use of unheated water also produces less evaporation, easing the load on dehumidification systems."

O'Shea says the REALice-treated water freezes hard and clear, similar to freezing ice with hot water, but at a much lower cost.

Part of a bigger plan

Ries says the resurfacing system was just one of many energy efficiency measures they've implemented as part of their overall plan called the Green Ice Initiative. The goal is to use 35 percent less energy by the year 2025.

As part of that plan, Ries and his team have:

- Upgraded to LED lighting in select areas
- Replaced propane-powered Zambonis with electric Zambonis which have a lower environmental impact and improve the air quality inside the rink
- Installed a Building Management System that allows them to program the heating, cooling and other systems, resulting in significant energy savings
- Recommissioned the building's energy infrastructure, including lighting, HVAC, and refrigeration systems

"We've teamed up with Xcel Energy almost since the day we bought the facility, and they've really helped us determine more efficient ways to run this building and have also given us rebates when we implement those opportunities," Ries says.

With significant energy savings achieved at the Vadnais Sports Center, Ries and his team can now focus on other ways to save throughout the Parks & Recreation department.



To find out more about Xcel Energy's Rebate programs, call an Energy Advisor at **855.839.8862** or visit xcelenergy.com/Business.

