

# Ice Arenas

Minnesota is home to nearly 300 indoor ice arenas that collectively spend millions of dollars in energy costs each year. Most arenas are community-operated, so the energy they spend — or save — has a direct impact on the people they serve.

Since the early 1990s, Center for Energy and Environment (CEE) has helped our state's ice arenas to save thousands of dollars in monthly utility costs. In addition to dozens of recommissioning projects to improve energy efficiency, CEE's independent research has demonstrated potential to cost-effectively cut ice arena energy costs by an average of 30% per facility.

Our work in arenas began in the early 1990s, at a time when the state of Minnesota offered "Mighty Ducks" grants to help local governments construct ice arenas. In 1995, the Legislative Commission on Minnesota Resources funded CEE's study "Energy Improvements in Public Ice Arenas." This allowed us to apply our expertise in both HVAC systems and commercial/industrial refrigeration systems to improve the energy efficiency and air quality in Minnesota's ice arenas. As part of the study, CEE performed energy audits in 28 arenas.

Today, CEE continues to provide engineering studies, recommissioning, and other services for ice arenas around the state.

## Engineering for Efficiency

From ice arenas to traditional offices, and everything in between, we have extensive experience reducing energy waste in many types of facilities. Our professional engineers are especially equipped to meet the needs of complex or unique buildings with an emphasis on low- or no-cost solutions.

We clearly communicate our findings and make sure that our recommendations fit both your budget and your building's operations. And as an independent nonprofit, we're mission-driven to provide unbiased, energy- and cost-saving recommendations.

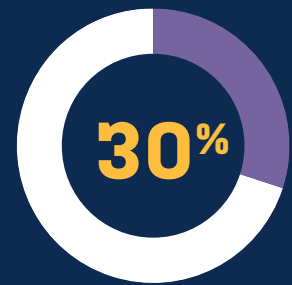
## About Center for Energy and Environment

CEE is an energy efficiency nonprofit with expertise and experience stretching back 40 years. CEE conducts state and federally funded research to identify and explore cost-effective energy efficient technologies in building applications. CEE provides a range of practical energy solutions for homes, businesses, and communities to strengthen the economy while improving the environment.

## Ice Rink Savings

3

Average payback under three years



Average energy savings identified per facility

50

Over 50 Minnesota rinks served



Statewide reach

# Efficiency Excellence

## National Sports Center

CEE worked with the National Sports Center to identify energy savings and opportunities to improve operational efficiency. Primary systems under review were the ice-making equipment, arena heating and cooling systems, domestic hot water production, and lighting. Researchers documented system performance through data collected from the existing building automation system, deployment of data loggers, and one-time measurements of operating parameters.

At a total cost of roughly **\$264,200** and a simple payback of **2.7 years**, the recommended energy conservation improvements would yield annual savings of:

**\$96,314**

in energy  
spending

**997,074**

kilowatt hours  
of electricity

**80**

kilowatts of  
electricity  
(summer demand)

**92**

kilowatts of  
electricity  
(winter demand)

**17,852**

natural gas  
therms

**"CEE identified low-cost and no-cost opportunities to save us money through efficiency — no up-selling, just well-tested practical solutions."**

**Steve Olson**, Chief Operating Officer, National Sports Center

## Braemar Arena

At the Braemar Arena, CEE's engineers partnered closely with maintenance staff to uncover new opportunities to maximize operations and cut waste. The arena is one of the highest energy consumers in Edina's building portfolio, and addressing its energy use through recommissioning will help the City achieve the greenhouse gas reduction goals it has set for 2025 and 2050.

CEE identified **26** energy conservation opportunities at Braemar Arena, with a total implementation cost of **\$310,257**. Savings included:

**\$101,000**

in annual  
energy spending

**\$5,519**

recommissioning  
rebate

**\$10,000**

maximum bonus  
rebate achieved

**3 year**

payback

**"CEE worked well with our whole team to improve quality while cutting waste. Their final report is a practical guide for saving operational energy and money."**

**Chad Eischens**, Arena & Field General Manager, Braemar Arena

## Contact

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