

Greening Health Care

Greening Health Care is a collaboration between 26 healthcare organizations with 56 hospital facilities aimed at achieving deep reductions in energy use, utility costs and greenhouse gas emissions. Founded in 2004, the program engages with its members in workshops, forums and webinars, conducts applied research into identified knowledge gaps and provides information and best practices to help members plan for and meet their energy and environmental goals. Greening Health Care is building towards a sustainable future through:

- Utility data management and analytics to quantify savings potential, highlight the biggest savings opportunities in each facility and monitor actual savings over time.
- Evidence-based case studies, best practice guides and checklists to help every hospital identify and evaluate their full range of retrofit and operational improvement opportunities.
- Business case development including grants and incentives and options for project funding
- Research, pilot and cohort projects, bringing together hospitals with technical experts to develop and demonstrate new knowledge and best practices.
- Networking with like-minded organizations seeking to improve environmental performance.
- Recognition and celebration of top-performing hospitals.

Recognizing Successes

As governments commit to deep reductions in carbon emissions, Greening Health Care is celebrating the real, substantial savings being achieved by its member hospitals.

Despite the challenges faced by the healthcare sector in 2021, 63% of member hospitals recorded savings worth \$4,750,000 compared against the 2016 baseline. Net greenhouse gas emissions reductions for the year topped 13,400 tonnes. Five hospitals saved over 20%, primarily through improvements in operations and controls.

The GHC 5% Club Award was achieved by 10 of 56 member for total energy reductions of at least 5% in 2020. Just one of these was a first-time winner, while the others are continuing to make improvements since their previous awards.

Top-5 Savers in 2021 (% total energy vs 2016)

1. North York General – Branson Site, Toronto; 26.4%
2. Humber River Hospital, Toronto; 23.9%
3. Alberta Health – William J Cadzow Healthcare; 22.7%
4. Halton Healthcare – Milton District Hospital; 21.8%
5. Women’s College Hospital, Toronto; 20.5%



Humber River Hospital - topping both top-performer and top-savings charts

2021 In Review

February 18: Webinar #1

- **LED Lighting Conversions:** our survey results from 193 hospitals reveal that only about 30% of space has been converted to LED so far. A moderated technical panel discussion addresses best practices for LED retrofits to avoid common mistakes and optimize light levels, energy cost savings and project costs.
- **OR Ventilation Retrofits:** our survey also shows that only about half of OR ventilation systems in 66 hospitals have setback capability during unoccupied periods to safely enable energy and emissions reductions. Best-practice checklists are presented to enable all hospitals to assess their own systems, and three leading hospitals present the technical, economic and human practicalities of retrofits and operations.

April 14: Webinar #2

- **Ventilation Resiliency:** this is the first in a series of webinars to help members implement and verify ventilation systems which provide required indoor environmental quality standards with the least utility costs and greenhouse gas emissions. A systematic approach to ventilation testing is presented with an interactive panel discussion between three hospitals and an air testing contractor address best practices.

August 11: Mid-Year Forum [event sponsorship by Armstrong Fluid Technology]

- **Managing Hospital Facilities in Challenging Times:** finding the win-win-wins for policy makers and hospital executives to reconcile and respond to sometimes competing economic, public health and environmental priorities. The keynote address by Dr Penny Ballem, chair of Vancouver Coastal Health, was titled “Time is Running Out” and laid out clearly the scale of healthcare’s climate footprint, the need for hospital governance to lead the way, the importance of metrics and the responsibility of everyone to take action.
- **Finding the Win-Win-Wins:** Dr Ballem is joined in the Executive Panel by H. Ramé Hemstreet, VP with Kaiser Permanente, Steve Rees of Alberta Health Services and the incoming president of IFHE, and Rudy Dahdal, VP with North York General Hospital, discussing a wide range of strategies for implementing organizational sustainability.
- **Exploring the Low Carbon Future:** The panel discussion between the Canada Infrastructure Bank, Northwell Health (New York) and the Niagara Health System examines the emerging landscape of infrastructure funding, grants, incentives and penalties.
- **Benchmarks and Targets:** A presentation of the metrics by which every hospital can evaluate their potential for energy and emissions reductions and prepare their strategies and action plans.
- **Ventilation Resiliency:** Building on the Webinar #2 deep dive into air testing, this presentation and panel discussion with Alberta Health and ASHRAE brings together the 5 steps to resilient ventilation systems, including the case study of Medicine Hat Regional Hospital.
- **Transitioning to the Low Carbon Central Plant:** With Headwaters Health Care Centre as the working example, the framework by which existing hospitals with conventional, steam-centric central plants work towards low carbon over time through smart capital planning is presented and discussed with the hospital’s Director of Facilities and Engineering and procurement specialist.

October 6: Webinar #3

- **Actual Energy Performance of Ontario’s New P3 Hospitals:** recognizing the 2020 top energy performers among Ontario’s growing fleet of new P3 hospitals and reporting on the ongoing research into building system level metrics by which all new hospitals can set high-performance energy targets and achieve exceptional levels of energy efficiency.

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- **Going Deeper:** a forward-looking panel discussion with Cliff Harvey who is leading the South Niagara Hospital development; Ann Ford who is responsible for the major hospital redevelopments at William Osler Health; Angela Taylor, President of Project Delivery at Infrastructure Ontario; and Fiona Daly, National Sustainability and EFM Workforce Lead, NHS England and NHS Improvement. The wide-ranging discussions explore today's practical experience and future policy and standards by which all hospitals will work towards the end-game of net zero greenhouse gas emissions.

December 1: Annual Forum

- **Responding to COP 26:** connecting the dots between government commitments and action on the ground by healthcare organizations which are making a big difference now. The keynote address by Barbara Collins, President and CEO of Humber River Hospital, provides a compelling account of how an individual hospital's values, goals and commitment set the ground rules and stayed the course to deliver this world-class facility.
- **Humber River Hospital Case Study:** The metrics of this award-winning energy performance and the key design and contractual factors which made the difference are presented through the lens of the project team panel discussion. {partial funding by Sustainable Buildings Canada and the IESO}
- **Benchmarking the World:** The Tunbridge Wells Hospital in the UK and Humber River Hospital in Toronto are recognized for topping the leader board in our growing international benchmarking of the most energy efficient large acute care hospitals in the world.
- **From Today's High Performance to Net Zero by 2050:** the international panel discusses challenges and practical solutions from the perspectives of a large US healthcare provider, the UK's National Health Service and the original hospital technical lead for the Humber River Hospital project.

Our Common (Climate) Challenge

Recognizing the major role played by equipment suppliers, contractors and consultants in achieving and sustaining high-performance facilities, we introduced industry membership for the first time in 2021, open to companies which share our vision and goals and have technical expertise which can help advance this agenda. Welcome to Thermogenics Boilers Inc as our first industry member.

Government, utility companies and associations are also central to meeting common energy efficiency and climate goals and active engagement with the Canadian Healthcare Engineering Society (CHES), Enbridge Gas, Ontario's Independent Electrical System Operator (IESO) and Infrastructure Ontario were among the important contributors to advances made in 2021.

Last year also marked substantive growth in international engagement around data analytics and strategic approaches to energy efficiency and emissions reductions. Sharing data, insights and experience with Kaiser Permanente and Northwell Health in the United States, the UK's National Health Service and Archus in the United Kingdom and the Australian Healthcare Design Council is expanding the collective knowledge and understanding around practical pathways to net zero for healthcare facilities.

The Program for 2022

Our goal for 2022 is to rapidly scale up utility cost savings and emissions reductions; and to lay strong foundations for all member hospitals to meet the emerging challenges and opportunities of the low carbon future. We will work to grow membership and build on the common cause relationships established across North America and internationally. We

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will continue to work together on leading edge thinking around practical pathways to net zero emissions, and to support the necessary developments in facility management, capital planning and organizational alignment.

The year begins with discussions with members and partners to share perspectives on the rapidly evolving climate change agenda and determine shared goals and priorities for 2022. The valuable insights are applied to designing the focus and content of events, and in prioritizing our research work and the range of possible cohort projects (see below).

The 2022 program will feature events on issues which matter most to our members and learning from the growing number of member hospitals recording savings and climbing up the benchmark chart. There will also be focus and support for members needing assistance in planning and implementing improvements, specifically ones with emissions increases in 2021. The international search for the most energy efficient hospitals in the world continues and we will be recognizing the top-20 leader board, along with lessons learned about their common characteristics which can be applied by others to make improvements. We look forward to working with CHES and the International Federation of Hospital Engineering (IFHE) to share this knowledge at their International Congress being held in Toronto from September 17-21, 2022.

Greening Health Care cohort projects look to fill knowledge gaps in the sector by bringing together groups of hospitals with industry experts to develop and demonstrate best practices and share them widely to advance the common good:

- LED Lighting and Controls: audits of hospitals to establish the best retrofit and controls solutions for energy savings and light quality, leading to a best practice guide addressing procurement of audits and implementation, design standards and life cycle costing.
- High-Performance Building System Metrics: comparative benchmarking of sub-meter data from new P3 hospitals to identify the most efficient system designs and controls, leading to a best practice metrics guide for use by design teams in developing high-performance energy models and specifications.
- Thermal Recovery Wheel Optimization: building on the 2020 pilot, in auditing additional hospitals to identify opportunities for deep energy savings through improved controls, maintenance and airflow balances and leading to a best practice guide with checklist and savings calculator.
- Ventilation Resiliency (Re-commissioning): an in-depth analysis of air testing reports, BAS trend logs and energy data for high savings potential hospitals sets the stage for one-on-one charrettes with project teams to plan, implement and verify upgrades which will improve both air quality and energy efficiency.
- Low Carbon Central Plants: prepare in-depth feasibility studies for a group of hospitals detailing the concept design, life cycle costing and project phasing for the transition from existing steam-centric to future low carbon plant, together with workshops with facilities, redevelopment, capital planning, finance and procurement managers to develop implementation strategies under alternative funding models.

Join Us!

If this Greening Health Care vision aligns with your own, consider joining us. Each hospital that becomes part of the program benefits from the collective knowledge of all that have come before while adding their own experience and vitality to the mix. Together, we can deliver a decisive contribution to the global drive towards deep emissions reductions and a sustainable healthcare system.

For information on membership and sponsorships, please visit www.greeninghc.com

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