

# Energy and Environmental Stewardship Award: Canadian College of Health Leaders

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## Energy and Environmental Stewardship Award – Nomination Form: University Health Network

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Nominations must be made by an individual member of the College.

**Nominee:**

Prefix: Mr.

Name: Edward Rubinstein (on behalf of the Energy & Environment Department)

Title: Director, Environmental Compliance, Energy & Sustainability

Organization: University Health Network

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**Nominator:**

Prefix:

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**Please submit nominations to:**

Cindy MacBride, Manager, Awards and Sponsorships

Canadian College of Health Leaders

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## Letter of Support from the Senior Clinical Vice President



January 27, 2016

To: Cindy MacBride, Manager, Awards and Sponsorships  
Canadian College of Health Leaders  
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Ottawa, ON K2P 0J6  
Tel: (613) 235-7218 ext. 13  
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Re: Canadian College of Health Leaders Energy & Environmental Stewardship Award letter of support

As Senior Clinical Vice President of University Health Network (UHN), and a member of the Canadian College of Health Leaders, it gives me great pride to showcase our organization's excellent strides in energy and environmental stewardship.

UHN's energy and environment program originated in 1999 and has grown into a vital force that helps all areas of our organization achieve sustainability. From energy conservation to waste reduction, UHN strives to achieve patient and planet-centred care. By reducing the negative environmental impacts of our day-to-day actions, and instituting positive systemic change, our collaborative effort supports patient care through a sustainable environment.

Thank you for your consideration.

Sincerely,

A handwritten signature in blue ink that reads 'Kathy Sabo'.

Kathy Sabo  
Senior Clinical Vice President  
University Health Network

# Energy and Environmental Stewardship Award – Nomination Details

## Summary for Publication

Since program inception in 1999, University Health Network (UHN) continuously strives to build a culture of environmental sustainability by focusing on energy efficiency, waste and toxic reduction, sustainable procurement, design, transportation, local food, and now climate change resiliency. Powered by the Energy & Environment department, environmental stewardship is an embedded and ongoing process, not a one-time initiative.

Staff engagement is vital, as over 700 Green Team members champion initiatives at the departmental level. This supports 2,245 metric tonnes (35%) of waste recycled in 2015, many eco-certified products used for cleaning & maintenance, and 1,172 bike parking spots available throughout the organization. The Local Food Project crowdsourced ideas from healthcare workers, food professionals and patients on how to increase local food in patient meals.

UHN saves energy with “Operation TLC”, a program combining people and technology to achieve conservation and efficiency. People conserve via behaviour change, while building retro-commissioning and efficient technologies like LED lights and variable speed drives (VSD) maximize savings. The new Krembil Discovery Tower, built for energy efficiency, is a LEED silver candidate. The program is on track to reduce annual utility costs by over \$2 million throughout UHN sites.

UHN’s commitment to environmental stewardship goes beyond improving its own environmental performance. Members of Energy & Environment regularly share insights to help others achieve their environmental goals, and have chaired the Canadian Coalition for Green Healthcare. This raises the bar for everyone and benefits all sustainability efforts.

More on UHN sustainability here: <http://talkintrashwithuhn.com/>.

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## Contact Information for Publication

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## Report

### 1. INTRODUCTION TO UHN

The University Health Network (UHN) is a recognized leader in patient care, research and education. It is comprised of the following sites:

- Toronto General Hospital (TGH)
- Princess Margaret Cancer Centre (PMH)
- Toronto Western Hospital (TWH) and
- Toronto Rehabilitation Institute (TRI):
  - Bickle Centre (TRI-BC)
  - University Centre (TRI-UC)
  - Lyndhurst Centre (TRI-LC)
  - Rumsey Centre (TRI-RC)
- Toronto Medical Discovery Tower (TMDT)
- Krembil Discovery Tower (KDT)

The nine buildings amount to 5,999,482 square feet in total. Affiliated with the University of Toronto for teaching and research, UHN's programs and services are among the most advanced in the world.

Environmental Sustainability has been an integral part of UHN culture since 1999 with the inception of the Environmental Coordinator role. That one role has grown into a fully-fledged Energy & Environment Department of six. The department's motto "supporting patient care through a sustainable environment" brings sustainability into the core business of healthcare. UHN's environmental programs frequently break new ground. The department is involved at all levels, whether it is advising on building retrofits, working with staff to green their departments, integrating environmental sustainability into hospital policies and procedures, or providing leadership in the broader health care community.

### 2. RESULTS

#### a. TOTAL UTILITY SAVINGS

Electricity		2013	2014	% Change 2013-2014
Bickle	kWh	3,680,303	3,465,265	-5.8%
Lyndhurst	kWh	2,990,182	2,723,880	-8.9%
Rumsey	kWh	716,999	756,722	5.5%
University	kWh	6,831,285	6,938,254	1.6%
TMDT	kWh	24,871,318	23,050,924	-7.3%
TGH	kWh	57,202,456	56,117,897	-1.9%
TWH	kWh	31,230,153	27,990,144	-10.4%
PMH	kWh	32,710,909	30,298,339	-7.4%
<b>TOTAL</b>	<b>kWh</b>	<b>160,233,605</b>	<b>151,341,424</b>	<b>-5.5%</b>

<b>Natural Gas</b>		<b>2013</b>	<b>2014</b>	<b>% Change 2013-2014</b>
Bickle	m3	536,623	532,018	-0.9%
Lyndhurst	m3	510,119	461,724	-9.5%
Rumsey	m3	131,018	152,131	16.1%
University	m3	4,715	2,194	-53.5%
TMDT	m3	102,293	115,627	13.0%
TGH	m3	112,519	115,532	2.7%
TWH	m3	5,072,141	4,621,220	-8.9%
PMH	m3	2,089	1,796	-14.0%
<b>TOTAL</b>	<b>m3</b>	<b>6,471,516</b>	<b>6,002,241</b>	<b>-7.3%</b>

<b>Water</b>		<b>2013</b>	<b>2014</b>	<b>% Change 2013-2014</b>
Bickle	m3	31,324	27,434	-12.4%
Lyndhurst	m3	19,049	17,078	-10.3%
Rumsey	m3	3,514	5,016	42.7%
University	m3	43,751	40,290	-7.9%
TMDT	m3	104,783	96,634	-7.8%
TGH	m3	219,599	221,337	0.8%
TWH	m3	237,304	246,022	3.7%
PMH	m3	145,119	117,018	-19.4%
<b>TOTAL</b>	<b>m3</b>	<b>804,443</b>	<b>770,830</b>	<b>-4.2%</b>

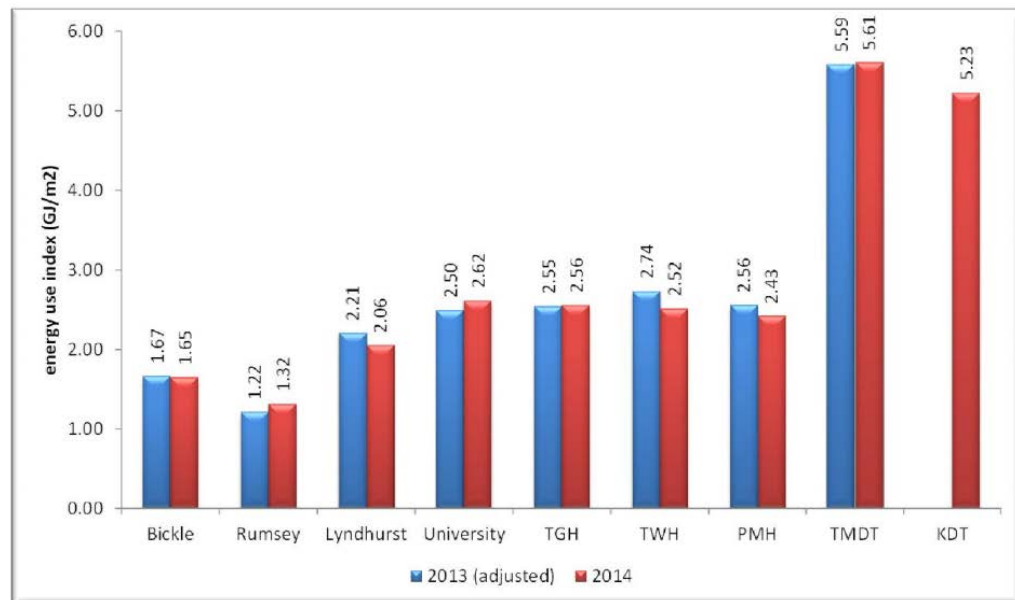
The above graphs show a 5.5% savings in electricity, 7.3% savings in natural gas, and a 4.2% savings in water from 2013 to 2014, though there is far more to the energy-saving story here. “Operation TLC”, UHN’s energy management program, integrates behaviour change and technology to maximize energy conservation and efficiency. Numerous energy saving measures were started, continued or completed throughout 2014, including:

- retrofitting over 2,200 lamps with LEDs throughout UHN including installing high bay LEDs in TGH’s underground garage and TRI-BC’s auditorium
- installing advanced lighting controls, including daylight and occupancy sensors at TGH, TMDT and TRI-UC
- Removed several fridges at University Centre from once-through municipal water cooling, reducing water use by approximately 2,365,000 litres per year
- initiating project to upgrade TWH’s Building Automation System (BAS) and, at the same time, implement a real time utility monitoring and commissioning system; several retro-commissioning measures, such as stabilization of AHUs and tuning of equipment sequences, have already been implemented
- upgrade of BAS components and functionality at TRI-LC, TRI-UC and TRI-BC
- Began replacing the steam boilers at TRI-BC with more efficient boilers

- replaced small chiller at TRI-RC with a more efficient unit
- installed “white roofs” at both the Bickle Centre and Rumsey Centre
- Replaced 34 variable inlet vanes at PMH with variable speed drives (VSD)
- initiated co-development pilot to create an “intelligent live re-commissioning system”, to autonomously monitor and optimize a building’s operations and energy use, at TRI-UC
- replacing faulty steam traps at University Centre, Bickle Centre and TMDT, saving a combined 5,200 gigajoules per year of natural gas and purchased steam
- retro-commissioning including condenser water temperature reset, boiler temperature reset, repair and re-commissioning of VSDs and heat recovery wheels, rescheduling of air handling units and modification of HVAC control sequences to optimize efficiency
- implementation planning for a demand control ventilation system for the recently completed KDT, a LEED silver candidate expected to use 25% less energy than a base building system (*note: KDT was not listed in comparison charts as it was only partially occupied in 2013*)

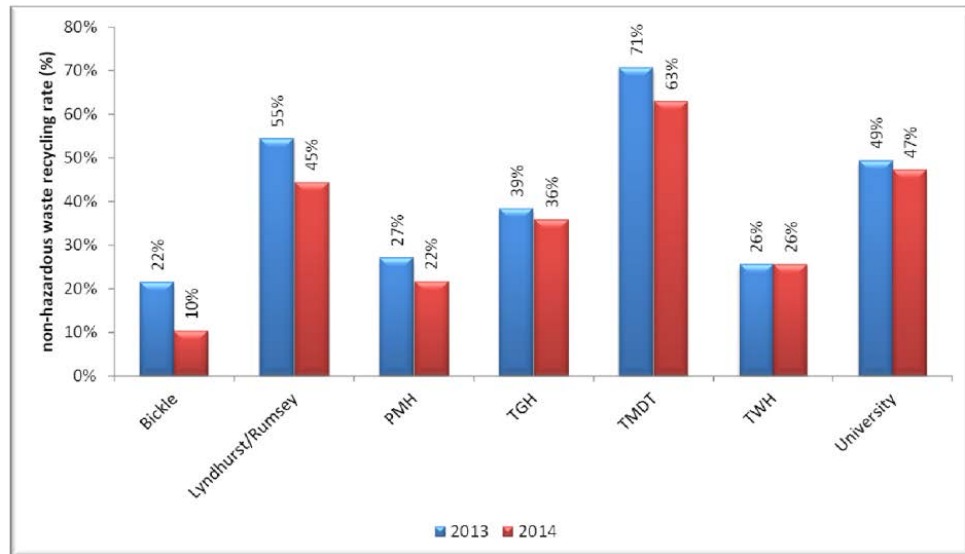
Energy management has also been embedded as part of new construction and redevelopment at UHN, with efficiency being a key component in the planning and design of large projects planned for TRI-BC, TGH, TWH and PMH.

The energy saving projects listed above are part of an ever evolving energy plan that has driven UHN to reduce annual energy costs by over \$1.7 million over the past five years; some of the projects have been in development for years and are based on audits conducted between 2006 and 2009. At the same time, UHN’s commitment to Operation TLC, with its goal of reducing utility costs of \$2.3 million per year, ensures that resources are available to continue to identify new energy saving opportunities and help ensure energy management remains a part of UHN’s future.



Energy consumption per floor space area and per-cent change, 2013 – 2014

## b. WASTE DIVERSION



Percentage of non-hazardous waste recycled at UHN, 2013 – 2014

In addition to lowering UHN’s environmental impact, UHN’s recycling program provides a financial benefit by avoiding waste disposal costs and receiving rebates for recycled materials sold. The recycling program saved approximately \$125,000 in 2014.

The graph above shows the percentage of non-hazardous waste recycled at UHN between 2013 & 2014. UHN’s overall recycling of 36% in 2014 was a great leap forward from the 13.7% diversion rate in 1999. Some decreases from the previous year relate to a change in the methodology used by UHN’s main non-hazardous waste hauler to calculate weights. However, the 2,102 metric tonnes of waste diverted from landfill in 2014 was a slight increase from the 2,068 metric tonnes recycled in 2013.

In accordance with the 3-R principle: Reduce, Reuse, Recycle, there were greater efforts by staff to reduce waste at the source, especially clinical recyclable waste. The Toronto Western MSICU even wrote and created their own song and video about it (“Blue Bin” to the tune of “Blue Moon” [https://youtu.be/x\\_7Hvkh4U0w](https://youtu.be/x_7Hvkh4U0w)). There was a continued roll-out of waste plans, including new recycling bins, training for Environmental Services and on-going engagement of staff.

Beyond the regular recycling program, [Operation Green](#), a medical-student-run initiative, collects unused medical supplies and donates them to communities in need around the world. In addition to helping humanitarian efforts and the environment, diverting material from the landfill also provides healthcare savings that could be used in improving patient care.



## c. OTHER SUSTAINABILITY INITIATIVES:

### i. LOCAL FOOD PROJECT

Energy & Environment received funding from the Greenbelt Fund to investigate and overcome the day-to-day barriers to providing more local Ontario food to patients. As the health care system in Ontario is a major institutional purchaser of food, increasing the amount of local food in hospitals strengthens the entire food system in Ontario while adding a positive nutritional impact to our patient's meals and patient satisfaction. Some numbers at a glance:

- 527 Talkin' Food Team newsletter subscribers from staff, volunteers, patients and the community
- 30 Expert Interviews of the UHN food system
- Crowdsourcing ideas from July-Sept 2014: 402 participants, 186 ideas, 288 votes, 207 comments, 9085 post views
- Local food data: 50% of hot vegetables are local, 54% of dairy is local, 44% of eggs are local, with more to come.
- 25 participants at the Conversation Café to follow up on crowdsourcing ideas
- Creating a [video on Local food](#) at UHN, viewed over 1,000 times and counting



### ii. CLIMATE CHANGE RESILIENCY

UHN completed the Climate Change Resiliency Toolkit via the Canadian Coalition for Green Healthcare. This is the first step to ensure emergency preparedness in even the most extreme events brought on by a warming world. The toolkit looks at:

- Assessing risks to inform emergency management and risk reduction strategies
- Assessing risks to infrastructure and systems
- Risk management to reduce climate related risks
- Procurement of health care resources and supplies
- Notifications, Monitoring and Surveillance
- Clinical risk management
- Infrastructure and systems risk management
- Energy supply and use
- Sustainable health care and climate change mitigation

UHN scored 75%, weighted average. The experience was written up in [Hospital News](#).

### iii. SUSTAINABLE TRANSPORTATION

UHN's sustainable transportation program supports staff in shifting to modes of transportation that are better for the environment. Public transportation, cycling, walking and carpooling all reduce single occupancy vehicles on the road and carbon dioxide emissions to the air. This led to UHN winning the SmartCommute Employer of the Year award in 2014 for sustainable transportation, a competition between workplaces throughout Toronto. Here are some of the reasons why:

- 1,172 bicycle parking spaces, including over 300 new installations since 2011
- 800 staff members of the Bicycle User Group
- A comprehensive Cycling Masterplan to plan and execute initiatives
- The TeleHealth program: 3,200 rural patients/year have a video consultation with specialists without having to travel
- 2,644 staff members of the TTC VIP program for public transportation
- An online carpool matching tool links staff to share a ride



### 3. RESOURCES AND GOALS: MAKING SUSTAINABILITY SUSTAINABLE

All of these programs and projects are possible because UHN has decided that this is a worthy goal and invests the resources to make it so. UHN has shown great leadership in creating a fully-functioning Energy and Environment Department. In turn, the Energy & Environment programs make all of UHN more efficient, saving far more resources than it takes to run.

Starting with Ed Rubinstein, Director, Environmental Compliance, Energy & Sustainability; the Energy & Environment team has grown from 1 person to 6 from 1999 to now. As Director, he represents sustainability at critical meetings involving senior site leadership, e.g. Site Operations Committees (TGH, PMH, TRI) and the TWH Leadership Forum. He presents to the Senior Management Team annually, while energy impacts have been reported in the Balanced Scorecard for the last nine years. The Balanced Scorecard is a management framework for goal setting, tied directly to strategic objectives.

Three Energy Project Managers work with specific sites to make our buildings more efficient behind the scenes, collaborating on retrofits, providing energy impact analysis to infrastructure projects, and generally partnering with the facilities departments to not just fix what is broken, but to work proactively to run buildings as efficiently as possible. An Energy Steward works with staff to educate and nudge positive behavior changes, guiding the 700 volunteer green team members and 130 TLC Energy Experts. They also ensure compliance with the Ministry of the Environment for energy tracking, waste reduction and pollution prevention. One Local Food Project Coordinator has undertaken the enormous task of getting more local and fresh food onto patients' plates.

#### 4. INDOOR ENVIRONMENTAL IMPROVEMENTS

UHN's continued efforts and initiatives in sustainability improve the overall indoor environment for patients and staff.

- Lighting projects like the LED conversions not only save energy, they've brightened some dim corridors, improving a deficiency with an efficiency
- BAS and HVAC projects regulate temperature, creating a more pleasant environment with fewer extreme hot or cold spots.
- Waste reduction and recycling programs restore faith in the system that is rife with single use products. Staff appreciate being able to take care of the planet while caring for patients.
- Building bicycle parking allows and encourages staff and visitors to travel sustainably instead of contributing to road congestion and air pollution. Active transportation increases staff wellness and health, while reducing sick times.
- The Local Food Project has captured the imagination of staff and patients alike, and though it is in the early stages, patients especially appreciate that the conversations have started so as to improve their food and the food system within the province.

#### 5. STAFF & COMMUNITY ENGAGEMENT

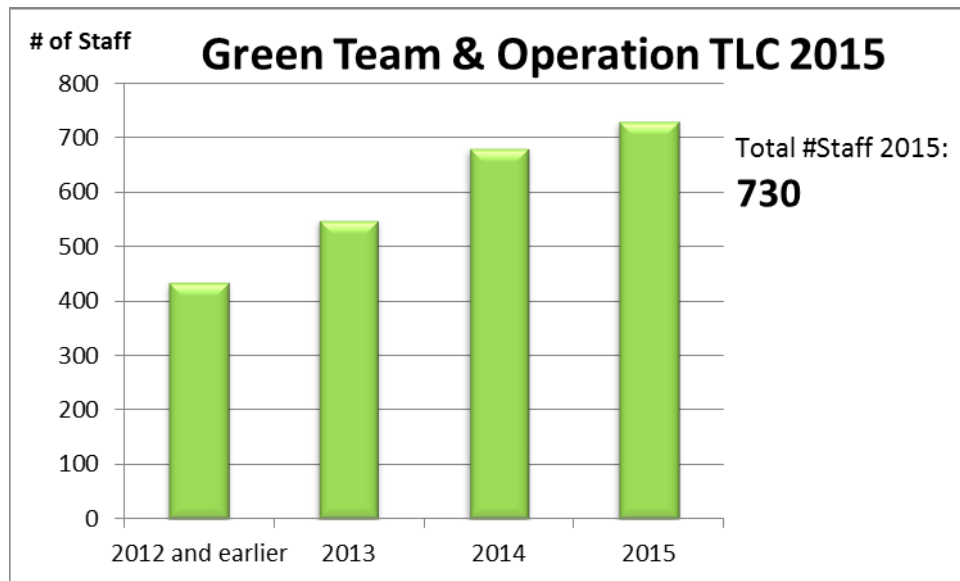
UHN's engagement program has relied heavily on the core components of Community Based Social Marketing, a behaviour change theory designed to make sustainable actions, such as energy efficiency, "stick". UHN's knowledge around behaviour change and engagement have risen in prominence with speaking appearances at the 2013 Behaviour, Energy and Climate Conference in Sacramento, California, and the 2014 Behave Energy Conference at the University of Oxford.

In order to engage staff, the Energy & Environment department created a social media strategy employing the use of internal channels and external ones like the blog <http://talkintrashwithuhn.com>, twitter (@UHNTrash), and facebook (@talkintrashwithuhn). The goal is to turn good ideas into even better actions, not just at UHN, but at other hospitals as well for community impact. To do that, one requires a platform accessible both inside and outside organizational (fire)walls.

In 2010, the Talkin' Trash with UHN blog was created. The blog features green healthcare ideas with a free-range, organic sense of humour. It has steadily built an audience of concerned readers, with almost 23,000 views in 2014 alone. Though many are part of the UHN family, readership stretches across Canada and as far away as India, Brazil, the UK and more.



Our robust Green Team is comprised of UHN staff members from throughout the organization who volunteer to act as environmental champions for their department. They play a key role in the Energy & Environment strategic plan and implementation of initiatives. There are currently over 700 Green Team volunteers at UHN with approximately 65 new members joining throughout the year.



Face to face meetings and training sessions are one of the most effective ways of engaging staff in UHN's environmental programs. 3,209 staff were trained in 2014 by Energy & Environment, and more and more staff are taking part in elearning as well.

And of course, there are many events held throughout the year that encourage staff to engage in sustainable behavior:

- Earth Hour energy reduction at work and home: <http://wp.me/p17KM3-NE>
- Earth Day Lobby booths at multiple sites organized by green team volunteers where all staff show how they green UHN: <http://wp.me/p17KM3-OX> , with [Green MythBusting](#) the next year
- Bike to Work Week and Clean Air Commute with onsite education events and online competition: <http://wp.me/p17KM3-Q1>
- Waste Reduction Week with a #WasteFreeUHN Challenge, culminating with many UHN staff showing their creative side: <http://wp.me/p17KM3-XQ> and <http://wp.me/p17KM3-Xr>
- UHN Real Food Garden: staff, patients & friends of UHN volunteer to sow, hoe and grow some delicious produce. That produce goes to ELLICSR for healthy cooking classes for those touched by cancer: <http://wp.me/p17KM3-R3>

## 6. SUSTAINABILITY, CORPORATE BUSINESS PLAN AND SENIOR LEADERSHIP SUPPORT

From every level, sustainability has corporate support from senior management. The CEO at UHN has regularly featured sustainability messaging in elements like Peter Pister's weekly all-staff emails and the Balanced Scorecard quarterly reporting. The Balanced Scorecard is a management framework for goal setting, tied directly to strategic objectives.

Energy & Environment also presents sustainability initiatives to the Senior Management Team. They collaborate regularly with key stakeholder departments, with monthly and bi monthly meetings with management in Facilities and Housekeeping departments. Staff in these departments receive annual training in sustainability as it relates to their roles. Energy & Environment also engages regularly with Pharmacy, Infection Prevention and Control and a myriad of clinical departments.

Many UHN-wide policies and procedures have been created to ensure the organization not only complies with all environmental requirements, but leads the way for others e.g.:

- 1.120.001: Environmental Management
- 1.120.002: Waste Generator & Environmental Compliance Approval
- 1.120.003: Recycling & Disposal of Non-hazardous Waste
- 1.120.005: Disposal of Biomedical Waste
- 1.120.006: Disposal of Chemical Waste
- 1.120.007: Disposal of Pharmaceutical Waste
- 1.120.008: Green Procurement
- 1.120.009: Energy & Water Conservation
- 1.120.010: Removal of Surplus Materials
- Energy & Environment Construction and Design Guidelines

## 7. CONCLUSION

Environmental Management has been a part of UHN since 1999, showcasing some of the best of UHN's corporate social responsibility. Supported by an overall Environmental Policy detailing UHN's commitment to environmental sustainability, and an ISO 14001 based environmental management system, UHN has worked hard to build a culture of conservation. Energy management, waste reduction and all levels of sustainability are an ongoing process instead of a single project.

UHN was one of the first hospitals in North America to dedicate a position to environmental management, and it has grown to a team of 7 dedicated individuals collaborating with a complex, multi-site organization. From top down to bottom up, all 14,000 staff at UHN work towards a common green goal.



UHN's Energy & Environment Team pledge green ideas