

## INTRODUCTION

**Commercial buildings account for 40% of national energy consumption in the United States and 35% of carbon emissions in North America.**<sup>1</sup>

There is an overall growing pressure and urgency to transform commercial building operations that consume large amounts of energy and water, and that use substances potentially harmful to the environment and to human health.

Cooling systems, in particular, consume enormous amounts of energy and water resources in commercial buildings – **up to 30% of a commercial building's overall energy budget and 50% of the water used.**

As a result, cooling system efficiency is emerging as the prime area for buildings to improve overall energy and water efficiency and reduce a facility's carbon footprint.

Commercial building owners and managers are under significant pressure to reduce operating costs associated with running cooling tower systems. In addition, portfolio managers are increasingly charged with improving the energy efficiency and overall sustainability of their building operations.

## THE *EnviroTower* OVERVIEW

The *EnviroTower* technology provides a proven, reliable solution for maximizing energy and water efficiencies while minimizing the environmental impacts of cooling towers.

The *EnviroTower* solution enables commercial, institutional and industrial customers to drive down their cooling costs through a clean, comprehensive water treatment system that reduces energy and water consumption, cuts carbon emissions and reduces chemical usage on cooling towers. *EnviroTower* is recognized by leading Engineering and Design firms for its green building benefits and potential to contribute to *Leadership in Energy and Environmental Design* (LEED) certification.

The *EnviroTower* patented, comprehensive water treatment solution has earned the endorsement of North America's largest and most demanding commercial real estate organizations through its ability to deliver consistent, measurable results.

## THE *EnviroTower* VALUE PROPOSITION

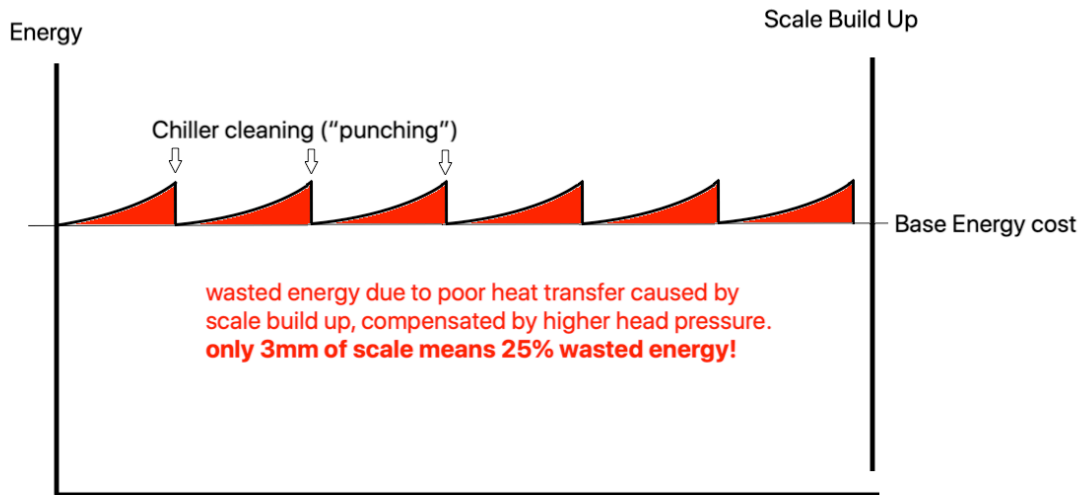
The *EnviroTower* clean cooling tower water treatment solution directly addresses the following critical challenges facing commercial building owners and managers:

- **Reduce Cooling Costs:** With *EnviroTower*, commercial building owners can achieve immediate, verifiable cost savings from improvements in building cooling system efficiency – due to reductions in energy and water consumption – and cut their facility's cooling costs by nearly 20%, or about US\$0.15 a square foot.

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<sup>1</sup> Commission for Environmental Co-operation, March 2008.

- Maximize energy efficiency:** *EnviroTower* guarantees superior protection against scaling and fouling buildup. Scaling and fouling can reduce chiller efficiency up to 25 percent and more in some cases.



- Reduce water consumption:** The *EnviroTower* removes the hardness limit on cycles of concentration. Water consumption can often be reduced by up to 20 percent depending on the water quality.



## Savings Potential From Increased Cycles



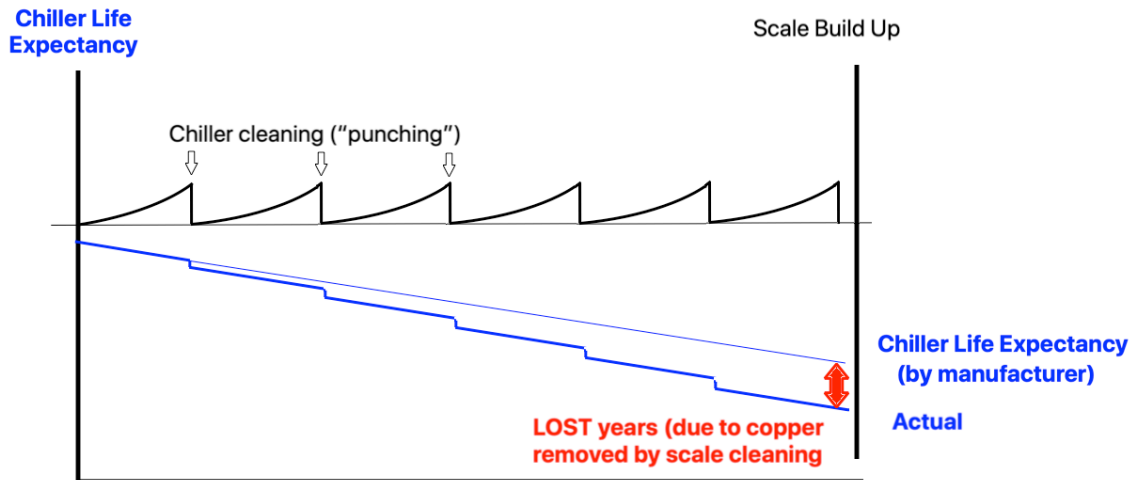
Increasing cycles of concentration from 3 to 6 reduces cooling tower water usage by 20 percent

		New Concentration Ratio (CRf)										
		2	2.5	3	3.5	4	5	6	7	8	9	10
Initial Concentration Ratio (Cri)	1.5	33%	44%	50%	53%	56%	58%	60%	61%	62%	63%	64%
	2.0	17%	23%	30%	33%	36%	40%	42%	43%	44%	45%	
	2.5	-	-	10%	16%	20%	25%	28%	30%	31%	33%	34%
	3.0	-	-	-	7%	11%	17%	20%	22%	24%	25%	26%
	3.5	-	-	-	-	5%	11%	14%	17%	18%	20%	21%
	4.0	-	-	-	-	-	6%	10%	13%	14%	16%	17%
	5.0	-	-	-	-	-	-	4%	7%	9%	10%	11%
	6.0	-	-	-	-	-	-	-	3%	5%	6%	7%

Source: EPA – US Environmental Protection Agency

- Protect the environment:** The *EnviroTower* systems produce significant reductions in a facility’s environmental footprint by conserving energy and water use, and reducing the discharge of harmful chemicals into the environment.

- **Get maximum life span of your equipment:** Every time the chiller are cleaned and scale is removed (a process known as “chiller punching”) either by chemicals or mechanical brushing or both, some copper is lost from the chiller tubes, resulting in shorter life expectancy of the chillers (vs. estimated life span by the chillers manufacturers). The *EnviroTower* solution keeps scale build up in the chillers under control, eliminating the need for chiller “punching”.



- **Improve health and safety:** Chemical handling and exposure are a health and safety risk to employees (and owners). The *EnviroTower* removes the need for handling of harmful chemicals.

## THE *EnviroTower* DIFFRETEATION

*EnviroTower* is focused on delivering long term customer savings and peace of mind to its customers and is uniquely positioned in the market by its:

- **Comprehensive solution:** More than just a product, *EnviroTower* technology gives the customer a total solution to protect the Chillers and Tower in HVAC systems from scale build up, corrosion and biological growth in the water. Key solution elements include full engineering and application expertise to fit the *EnviroTower* system to the customer requirements, reduction of chiller’s tube cleaning (“punching”), minimal chemical usage, ability to drain blow-down water into storm systems (as to lack of harmful chemicals in the water) and optional remote system performance monitoring capability.
- **Technical Expertise:** *EnviroTower* has in-depth expertise in water treatment, water chemistry, treatment chemicals, product development, manufacturing, engineering and application knowledge. In addition to the numerous patents and patents pending on its technology, *EnviroTower* has a key IP advantage in its proprietary **ScaleBuster** water conditioning technology as well as knowledge and experience in applying the technology in the field under a variety of conditions. This knowledge has been used to develop a proprietary software model that can analyze a water sample to determine the viability of the solution and operating parameters.

## FINANCIAL ANALYSIS

*EnviroTower* delivers solid financial benefits through energy, water, chemical and maintenance savings. Calculating and measuring these savings is straight forward. The following tables summarizes the estimated financial impact of implementing the *EnviroTower* solution.

### Example 1 – Hotel HVAC (CA USA)

OpEx Cost Components	Chemicals	EnviroTower	EnviroTower Savings	Percent Savings
Chemicals or Minerals	\$27,000	\$1,200	\$25,800	96%
Water	\$36,907	\$33,554	\$3,353	9%
Water Rebates	N/A	N/A		
Annual system cleaning/service	\$6,000	\$0	\$6,000	100%
Maintenance/labour	\$7,800	\$1,200	\$6,600	85%
Energy (chiller and pumps operation)	\$212,400	\$189,500	\$22,900	11%
<b>Total OpEx</b>	<b>\$290,107</b>	<b>\$225,454</b>	<b>\$64,653</b>	<b>22%</b>
ET system CapEx	\$142,600			
ROI (Months)	26			

### Example 2 - Hotel & Conference Center HVAC (CA USA)

OpEx Cost Components	Chemicals	EnviroTower	EnviroTower Savings	Percent Savings
Chemicals or Minerals	\$36,000	\$1,200	\$34,800	97%
Water	\$212,300	\$194,300	\$18,000	8%
Water Rebate	\$0	\$12,900	\$12,900	100%
Annual system cleaning/service	\$5,200	\$1,000	\$4,200	81%
Maintenance/labour	\$3,600	\$600	\$3,000	83%
Energy (chiller and pumps operation)	\$1,671,000	\$1,447,450	\$223,550	13%
<b>Total OpEx</b>	<b>\$1,928,100</b>	<b>\$1,657,450</b>	<b>\$296,450</b>	<b>15%</b>
ET system CapEx	\$297,150			
ROI (Months)	12			

**Important:** The OpEx savings doesn't include the potential CapEx savings by increasing the life span of the chillers (eliminating or reducing "chiller punching" which shorten life expectancy of the equipment as well imposes health & safety concerns). CapEx improving can be in the range of hundreds of thousands of dollars (US) for the chillers life span of 20-25 years!