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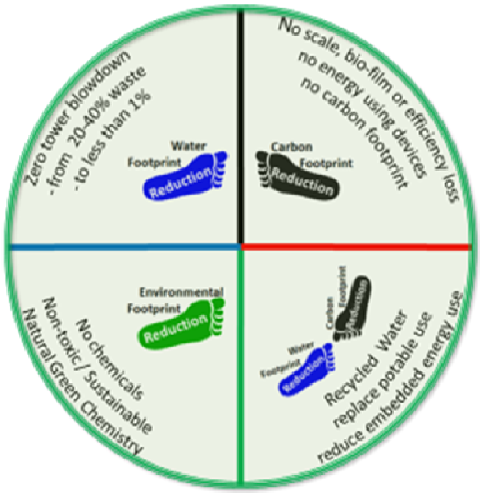
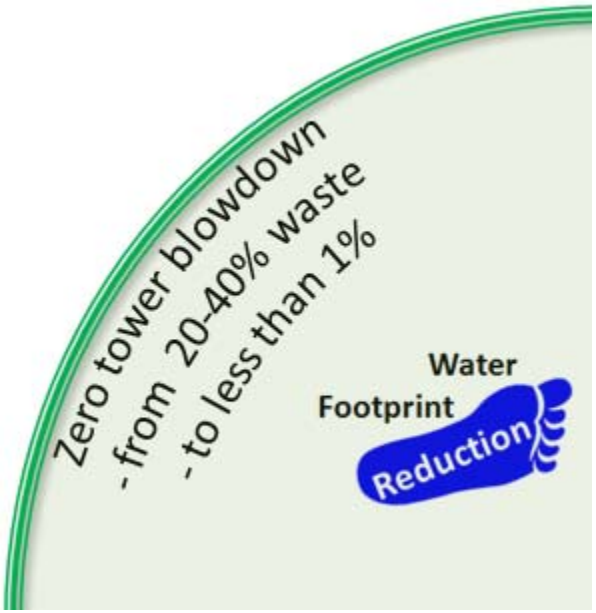
Cooling Tower Water Conservation

New Green Technology to Sustain Water and Energy Resources

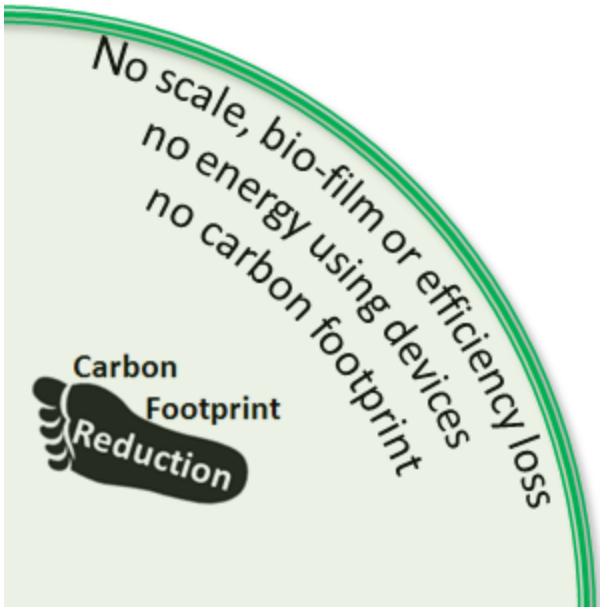




This process removes scale forming hardness that requires traditional tower treatments to waste water, and permits towers to operate at zero blowdown for the greatest possible ***water footprint*** reduction.

Zero blowdown eliminates typical tower water wastage of 20% to 40%, and water and sewer cost savings provide rapid ROI for the technology user. The process reduces total water and treatment costs by 50 to 75%, so there is incentive to save water.

The zero tower blowdown process only wastes about 1% of tower water used by utilizing a high efficiency makeup water softening process that results in the 95% or greater waste water volume reduction and comparable TDS discharge reduction. It now becomes very cost economical to totally eliminate sewer discharge and TDS loading due to the small volume of waste that must be handled.

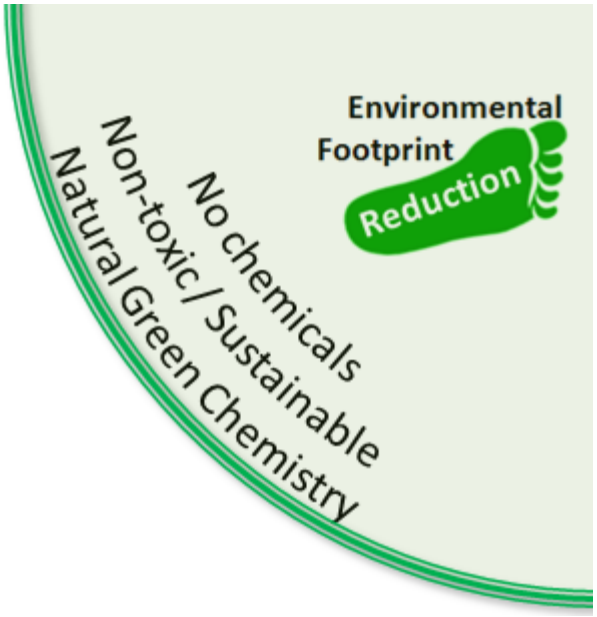


Operating with very soft water and zero tower water blowdown provides many "natural green chemistry" benefits that produce optimum energy efficiency.

- First, there is no potential to form scale on heat transfer surfaces. Soft water has been used to prevent scale in low pressure boilers for decades.
- Second, silica no longer forms heat transfer limiting deposits or has concentration limitations.
- Third, the combination of high TDS and higher pH tower water that result from concentrating natural minerals in makeup water are biostatic to organisms, completely limiting bio-growth. There are no bio-films to inhibit heat transfer efficiency or support pathogenic organisms like Legionella.

Eliminating energy consuming devices and chemical product supply chains also reduce ***carbon footprint***.

LEED NC WE 2.0 & 3.0 / EBOM WE 4.1 & 4.2

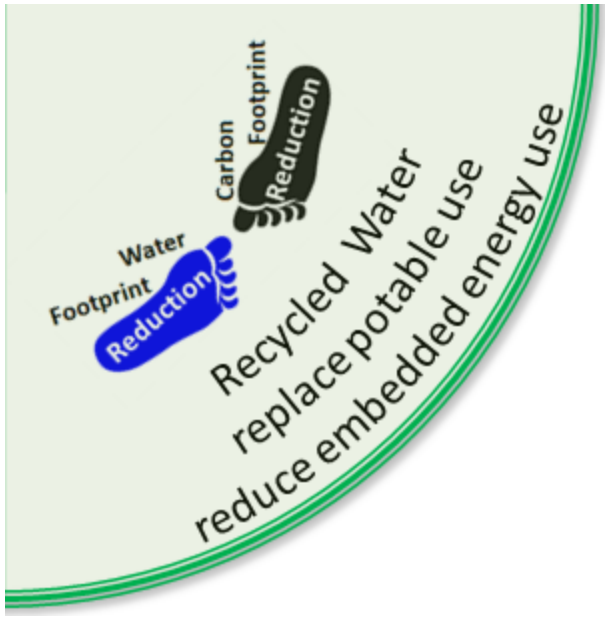


No chemicals are required to control scale, corrosion or biological growth at control conditions. Tower water is not discharged, even if small amounts of chemicals were used. So water use reduction, eliminating tower discharge and eliminating toxic chemical use all provide reduced ***environmental footprint*.**

Natural silica, alkalinity and TDS contained in most water supplies are the feed stocks used to provide tower water treatment performance. So this means no hazardous chemical storage or handling on site, and no chemical supply and transport chain ***carbon footprint*** as well.

Common innocuous salt is the only material used for softening, and is naturally produced with solar energy and seawater, very sustainable resources.

WCTI also creates multiple **LEED** opportunities with NC WE 2.0 & 3.0 / EBOM WE 4.1 & 4.2.



Natural biostatic chemistry and outstanding corrosion inhibition (silica) permit municipal recycled water, storm water, boiler blowdown and pre-softened RO reject to be readily used as tower makeup. High efficiency filtration and softening are all that's required.

Most recycled waters contain significant ammonia, phosphates and organics that promote severe biological growth, bio-fouling and aggressive corrosion of copper and copper alloys.

Higher mineral content also requires more blowdown and chemical use. All these scale, corrosion and biogrowth consequences for recycled water are removed with use of this natural green chemistry process, at comparable cost for potable water treatment.

Replacing potable water and embedded ***water-energy*** consumed will reduce both ***water footprint*** and ***carbon footprint***.

These tower treatment efficiencies would not be possible without discovery of "Mother Nature's" plan, converting natural silica in water to a ***natural green non-toxic*** corrosion inhibitor that almost eliminates corrosion of any metal used in tower systems. The silica corrosion inhibitor is not affected by high TDS, high pH or soft water. This makes zero tower blowdown and water conservation possible without the corrosion damage to equipment that has limited past water treatment.

WCTI will continue R&D in green chemistry to further expand scale and corrosion control performance, while conserving ***water***, ***energy*** and ***environment***. US patents 6/929,749: 6/949,193: 6/998,092: 7/122,148: 7/517,493 and EP1704123 apply.

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