



WHITE PAPER

Cutting Costs While Increasing Sustainability and Wellness by Upgrading to Filtered Water Coolers

This paper discusses the reasons behind the growing trend of organizations switching from bottled to filtered water coolers. Also called “point-of-use” or “bottle-less” coolers, filtered water coolers compress the sophisticated purification technology of a filtration plant into an appliance the size of a traditional bottled water cooler, which can be placed anywhere in the workplace. The key drivers behind the switch to filtered water coolers fall into three categories: cost reduction, increasing sustainability, and improving employee wellness.



Traditional office water coolers, with their bulky 5-gallon plastic jugs, are rapidly being replaced by filtered water coolers. The filtered water cooler industry has grown nearly 15% per year for the past decade – with most of that growth coming at the expense of plastic jug delivery services¹. Following is a detailed analysis of the three main benefits reported by companies after having upgraded to filtered water coolers.

THREE REASONS TO UPGRADE YOUR WATER COOLER(S) IMMEDIATELY

Cost Reduction	Eliminating the costs of water and plastic jug delivery provides savings for all but the smallest firms. In fact, the larger the workplace (and the more bottles consumed), the greater the savings. Freeing workers from managing plastic jug inventory also leads to savings in the form of productivity gains.
Health and Wellness	Filtered water coolers often use sophisticated self-sanitization technology to keep water bacteria and germ-free. Conversely, bottled water coolers require an extensive and frequent cleaning regimen to maintain similar levels of purity.
Sustainability	Replacing just one traditional water cooler with a filtered water cooler is the greenhouse gas equivalent of planting up to 120 trees every year. ¹⁰ Thus, filtered water coolers provide organizations with one of the few opportunities to improve their environmental footprint while also saving money.

1. Cost Reduction

AVOID THE STAGGERING MARKUP ASSOCIATED WITH PLASTIC JUG DELIVERY

When one considers the numerous costs passed along the water delivery supply chain to the end user, it is easy to understand why water delivery is so expensive and why filtered water coolers provide a more cost-effective solution (See Fig. 1). If your office pays for water delivery, you are subsidizing:

- The costs associated with manufacturing plastic jugs and filling them with water at bottling plants;
- The cost of shipping 5-gallon water jugs from the bottling plant to distribution centers; and
- Fuel and labor costs of delivery trucks hauling jugs from the distribution center to your workplace.

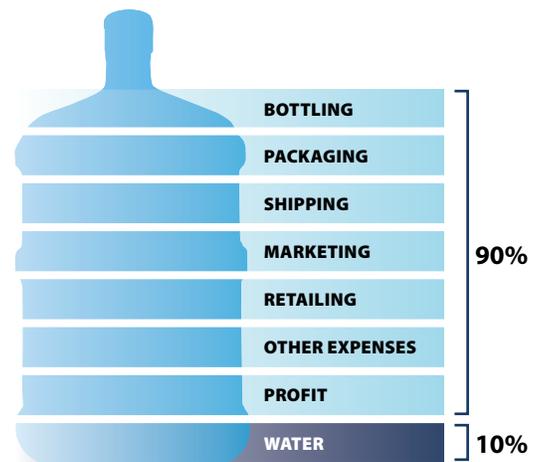


Figure 1: Breakdown of bottled water costs

SOURCE: Natural Resources Defense Council

The Natural Resources Defense Council estimates that “90 percent or more of the cost paid by bottled water consumers goes to things other than the water itself – bottling, packaging, shipping, marketing, retailing, other expenses, and profit.”²

Eliminating water delivery prevents these costs from being passed through to your organization. And the higher your water consumption, the more of these costs you eliminate by upgrading to filtered water coolers.

Research shows that businesses can save up to 50% by switching from bottled water coolers to filtered coolers.³

INCREASING EMPLOYEE PRODUCTIVITY

In addition to the costs outlined above, there are hidden costs associated with water delivery service – namely, the cost of employees devoting time to managing your organization's plastic jug inventory.

Managing water delivery service is time consuming. Large organizations wrestle with the logistics of keeping track of plastic jugs, knowing the exact location of each cooler, and reordering jugs to prevent running out of drinking water.

Further complicating matters, the number of jugs used on a monthly basis can be quite different due to seasonality. The Accounts Payable department must try to make sense of invoices that vary each month and ensure the number billed for is the same as the number delivered.

Each time additional bottles are delivered to a location, someone needs to meet and, often, escort or supervise the delivery person. By eliminating the need for frequent, unscheduled deliveries, filtered water coolers reduce or even eliminate security concerns related to the presence of outsiders in a facility.

USING OFFICE SPACE MORE EFFECTIVELY

Office space is expensive. Rent in Chicago was as high as \$38 per square foot in Q1 2011; in New York City the price per square foot was nearly \$50 during the same time period.⁴

When a business is paying several thousand dollars per month in rent, it is imperative that office space be utilized effectively. Large, 5-gallon containers of water consume valuable real estate for storage of jugs. Imagine the other ways these spaces could be utilized if they did not have to house dozens of 42-pound jugs (both empty and full).

2. Maintain Employee Health

KEEPING BOTTLED WATER COOLERS CLEAN AND SANITARY IS LABOR INTENSIVE AND IMPRACTICAL.

Plastic jug water coolers are open systems – in other words, they constantly interact with their environment and are thus vulnerable to bacterial growth. For example, humans must replace bottles when they become empty, allowing air to come in contact with the inside of the cooler.

When people replace the bottles, they add germs or bacteria to the water supply when handling the top of the bottle. Similarly, there are microbiological contaminants in the air that can come into

Cost per Month: Filtered Water vs. Water Delivery

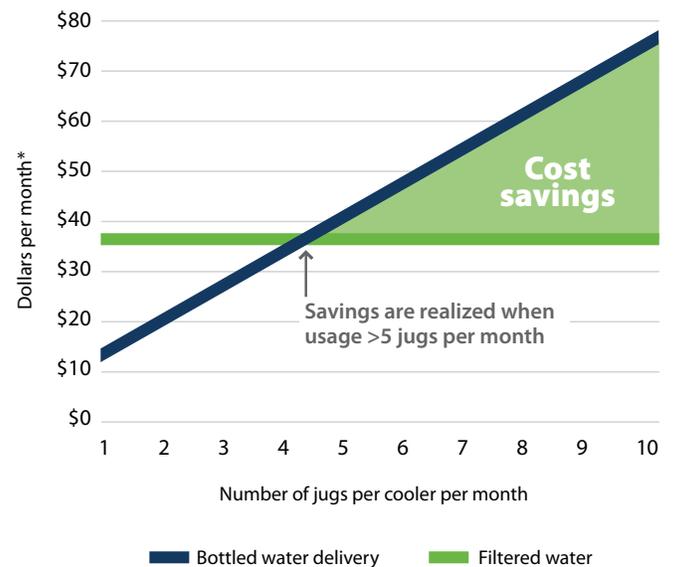


Table 1: Organizations can realize significant cost savings with filtered water coolers.

* Assumes \$6/month cooler rental with constant \$7/jug water cost (no volume discount)
SOURCE: L.E.K. Interviews and Analysis

An endless water supply eliminates the need to spend time tracking jug inventory, chaperoning deliveries, and hoisting 42-pound jugs of water out of storage and onto water coolers.

contact with the water supply, resulting in bacteria growth or other organic substances in the cooler well.

The ability for the open system water cooler to spawn microbe growth is an acknowledged problem. The International Bottled Water Association (IBWA) recommends that bottled water coolers be sanitized every three months with gloves and bleach⁵. Most businesses are unwilling to maintain this regimen to ensure that the bottled water dispenser is bacteria-free, leading many companies to ask themselves, "Why pay the premium for bottled water coolers when they harbor microbes?"

By contrast, filtered water coolers maintain an internal water supply.

In a Quench water cooler, ultraviolet (UV) sanitization and external antimicrobial surface protection keep the water safe. Internal UV light sanitizes the water inside the machine to prevent microbe growth. This process is effective in preventing E. coli, viruses, mold, protozoan cysts, giardia and Cryptosporidium⁶.

BPA ISSUES RAISE ADDITIONAL HEALTH CONCERNS.

There is growing concern about plastics that use the chemical bisphenol-A (BPA) as a stiffening agent. BPA has been linked to breast cancer, immune system damage, heart disease, and diabetes. Eight US states currently ban BPA in baby bottles, and Canada has declared BPA a toxic substance^{7,8}. Additionally, 17 more states and the District of Columbia are considering new legislation to ban BPA from baby bottles, infant formula packaging, receipt paper and other products.⁹

Many bottled water providers use 5-gallon jugs that contain BPA. Since BPA can leach from plastic into the water supply, offices with plastic water jugs made from BPA are at risk of exposing workers to the controversial chemical.

LIFTING 42-POUND PLASTIC JUGS PUTS UNNECESSARY STRAIN ON YOUR WORKFORCE.

5-gallon water jugs weigh an astonishing 42 pounds. To put the weight of these plastic jugs in perspective, that's the same weight as an 18-foot canoe! As simple as it may sound, the vast majority of workers who replace these jugs have no training on proper technique for heavy lifting and are in jeopardy of suffering a workplace injury. For most businesses, asking office employees to do this manual labor adds unnecessary risk to operating costs.

Filtered water coolers eliminate the effort needed to replace 5-gallon bottles. This allows firms to mitigate one source of workers' compensation risk in their organizations.



Figure 2: The type of ultraviolet bulb found in many filtered water coolers.

Many types of filtered water coolers sanitize your drinking water using internal ultraviolet light bulbs.



Figure 3: 18-foot canoes and 5-gallon water jugs both weigh 42 pounds!

3. Improve Sustainability

WATER DELIVERY HAS A MASSIVE ENVIRONMENTAL FOOTPRINT.

The water delivery lifecycle consumes energy, burns fossil fuel, and overruns landfills with plastic that never gets recycled. Each year, the production and delivery of 5-gallon plastic jugs:

- **Consumes 140 million kilowatt hours of electricity** – A staggering amount of power is needed to manufacture plastic jugs, fill them with 5 gallons of water, store them, and transport them from facility to facility. As for the coolers themselves, some filtered water coolers use up to 65% less energy than their traditional counterparts.
- **Burns 6 million gallons of fuel** – It's not just the delivery truck fleets that burn fuel in the water delivery lifecycle – manufacturing plastic bottles for the US market alone consumes over 1.5 million barrels of oil per year.
- **Adds over 70 million pounds of waste to landfills**¹⁰ – Evidence suggests that as much as 80% of all plastic water jugs end up in landfills. Additionally, industrial waste from bottle manufacturing and packaging are also found in landfills.
- **Wastes a gallon of water for every gallon of water that is bottled** – It takes two to five jugs of water to manufacture a plastic jug, including all the process steps to extract the petroleum, make the plastic, and form the bottle. Another bottle's worth of water is then consumed to fill the plastic bottles – i.e. to generate power, wash used bottles before re-use, and other aspects of the bottling process.

It is easy to see how, on an individual office/workplace level, participating in the water delivery supply chain increases a firm's carbon footprint¹¹. Switching to filtered water coolers – with their continuous water supply – takes your business off of the water bottle truck's delivery route.

In stark contrast to the strain placed on the environment by the plastic water jug delivery service, filtered water coolers have a positive impact. The filtered water cooler industry has saved tens of thousands of metric tons of greenhouse gas emissions by replacing bottled water coolers. Millions of 5-gallon plastic jugs have been kept out of landfills, and enough fuel has been saved from water delivery to drive a bottled water delivery truck around the world thousands of times.

Increasingly, companies are being asked to incorporate sustainable business practices into their decisions. By replacing bottled water coolers with eco-friendly filtered water coolers, they can improve the environment.

Unlike most sustainability initiatives, upgrading to filtered water coolers:

- Does not require major infrastructure changes;
- Is cost-effective; and
- Provides immediate efficiency and sustainability gains.

Eliminating the greenhouse gas emissions from water delivery is an easy step to take when facility managers are asked to do their part for a company's sustainability efforts.

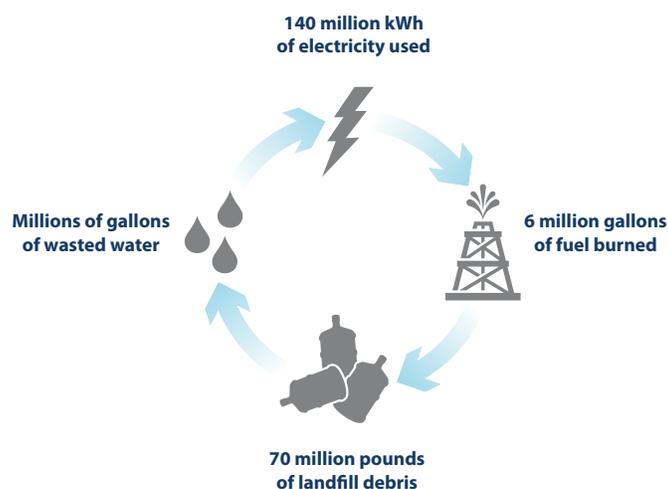


Figure 4: The bottled water delivery lifecycle squanders natural resources.

All told, the filtered water cooler industry has had the same impact on greenhouse gas reduction as planting millions of trees all over the world.¹²

Conclusion: The Right Drinking Water Solution for Your Organization

Bottled water coolers can lead to numerous issues related to cost, environmental concerns and health risks. Filtered water coolers, by contrast, are like having the convenience of a miniature water filtration plant in your workplace, filtering and purifying water directly from the building’s water lines.

As discussed above, organizations are increasingly making the switch to filtered water coolers in order to drive efficiencies, maintain employee health and enhance sustainability initiatives.

Water Delivery Service vs. Filtered Water Coolers		
	WATER DELIVERY SERVICE	FILTERED WATER COOLERS
Cost	<ul style="list-style-type: none"> • High costs that increase with consumption • Time lost spent managing inventory • Frequent office visits for bottle delivery • Space wasted by extra bottles 	<ul style="list-style-type: none"> • One monthly rate regardless of consumption • Low maintenance • One preventive maintenance visit per year • Space only needed for coolers themselves
Health and Wellness	<ul style="list-style-type: none"> • Risk of contaminants (i.e. germs, bacteria) • BPA in plastic⁷ • Risk in carrying & lifting 42-pound jugs 	<ul style="list-style-type: none"> • Self sanitization • Stainless steel tanks • No risk since no lifting required
Sustainability	<ul style="list-style-type: none"> • Significant carbon footprint from fossil fuel emissions, excessive energy usage, and massive contribution to plastic in landfills 	<ul style="list-style-type: none"> • Eco-friendly solution that has had the same impact on greenhouse gas reduction as planting millions of trees all over the world¹²

FOOTNOTES:

- ¹ L.E.K. Consulting proprietary report, 2009.
- ² Olson, Erik. *Bottled Water: Pure Drink or Pure Hype?* April 1999. Web 17 October 2011.
- ³ DiPaolo, Richard. "Finding a Sound Alternative in POU Coolers." *Water Technology: The Information for Water Treatment Professionals* 33.8 (2010). *Water Technology Online*. Aug. 2010. Web. 21 June 2011. www.watertechonline.com/drinking-water/article/finding-a-sound-alternative-in-pou-coolers.
- ⁴ *Global Office MarketView*. Rep. CB Richard Ellis, 2011. Web. 22 June 2011. www.cbre.com/EN/Research/Documents/Global-Office%20MarketView-Q12011.pdf.
- ⁵ *How to Maintain Your Bottled Water Cooler*. International Bottled Water Association, 2004.
- ⁶ "An overview: UV Technology." *Water Technology: The Information for Water Treatment Professionals* 34.2 (2011). *Water Technology Online*. Feb. 2011. Web. 21 June 2011. www.watertechonline.com/disinfection/article/an-overview-uv-technology.
- ⁷ Lane, Meghan. "New Study Shows BPA's More Dangerous than Previously Thought." *Connect MidMissouri*. KRCC 13, 12 June 2011. Web. 22 June 2011. www.connectmidmissouri.com/news/story.aspx?id=628889.
- ⁸ Mittelstaedt, Martin. "Canada First to Declare Bisphenol A Toxic." *The Globe and Mail*. 13 Oct. 2010. Web. 22 June 2011. www.theglobeandmail.com/news/national/canada-first-to-declare-bisphenol-a-toxic/article1755272/.
- ⁹ Bardelline, Jonathan. "BPA Bans, Chemical Reform Laws in the Works in 30 States." *GreenerDesign*. January 18, 2011. www.greenbiz.com/news/2011/01/18/bpa-bans-chemical-reform-laws-works-30-states
- ¹⁰ Environmental impact analysis provided by Environmental Capital Group.
- ¹¹ A carbon footprint is the sum of all emissions of CO2 (carbon dioxide) produced as a result of activity (i.e. running a business) over a set time period.
- ¹² Figure based on internal Quench study of greenhouse gas reduction impact of Quench’s coolers.

About Quench

Headquartered outside Philadelphia, Pennsylvania, Quench USA, Inc. is a clean technology company that rents, installs and services “bottleless” water filtration systems (also known as point-of-use water coolers) for businesses across North America. Quench systems purify tap water, providing a more cost-effective and environmentally-responsible solution than delivery of water in 5-gallon plastic jugs. With an installed base of more than 50,000 water filtration systems across 47 US states, Mexico, Canada and the Caribbean, Quench is the largest bottleless water cooler company in North America – serving approximately one-third of the Fortune 500. For more information, please visit www.quenchonline.com for more information or call 888.877.0561.