THE SECRET LIFE OF YOUR WATER BILL: WHAT YOU'RE REALLY PAYING FOR

As you check your letterbox (or open your email), a sense of dread washes over you as you realise it's that time again… your next water bill has arrived. Internally, you feel frustrated about the cost, especially since you consider yourself water-conscious – you're taking short showers and nagging the kids to turn off the tap when they brush their teeth. Many of you reading this are likely nodding in agreement. Combined with the increasing cost of living, the frustration, stress, and annoyance only grow.

WHY IS OUR WATER BILL SO HIGH?

In 2024-25, depending on water usage, most customers across Victoria will see an increase in their water bills compared to 2023-24. As an owner-occupier, if you are a metropolitan customer, you will pay an average of 3.2% more, and as a regional customer, you will pay an average of 4.1% more[1].

You're not alone in your annoyance. The question, "Why is our water bill so high?" resonates with many households across the globe. However, the reality behind this question is steeped in complexities that extend far beyond the simple act of turning on the tap. As practitioners who are dedicating their careers to the water industry, we've come to understand the intricate systems and monumental efforts that ensure clean, safe water flows into our homes. The day we started in this industry was the day we stopped questioning our water bills and began to appreciate the true cost of delivering this invaluable resource.

Before we started working in the water industry, we used to be among those who complained about their water bills, thinking, "Utility providers are profiting off consumers". However, it wasn't long before we began to realise just how hard water businesses work to keep costs down. The strength of regulation in Victoria ensures that water corporations practice "prudent and efficient expenditure", with water falling under the remit of the Essential Services Commission (more on that later)[2].

What many don't appreciate is that the cost of getting that amazing drinking water (better than most of the world) to your house and taking the waste away is funded by tariffs. In simple terms, the money you pay for you bill enables a water corporation to operate. Tariffs, in general terms, cover a range of essential activities that enable a water corporation to operate effectively.

[1] Average household water bills in Victoria | Essential Services Commission
[2] 2023 water price review guidance paper - August 2022 amendment.pdf

THESE INCLUDE:

1. Maintenance: Regular upkeep and repair of existing water infrastructure to ensure reliable service.
2. New Infrastructure: Installation and development of new facilities and pipelines to support growing populations and enhance service delivery.
3. Operations: Daily operations required to manage water treatment plants, distribution networks, and customer service.
4. Water Treatment: Ensuring that the water supplied meets health and safety standards through rigorous treatment processes.
5. Wastewater Management: Collection, treatment, and safe disposal or recycling of wastewater.
6. Environmental Protection: Initiatives and technologies to minimize the environmental impact of water and wastewater operations.
7. Compliance: Adhering to regulatory requirements and standards set by governing bodies.
8. Research and Innovation: Investing in new technologies and practices to improve efficiency and sustainability.
9. Customer Services: Providing support and services to customers, including billing, inquiries, and dispute resolution.
10. Emergency Response: Preparing for and managing emergency situations like leaks, bursts, and other disruptions to service.

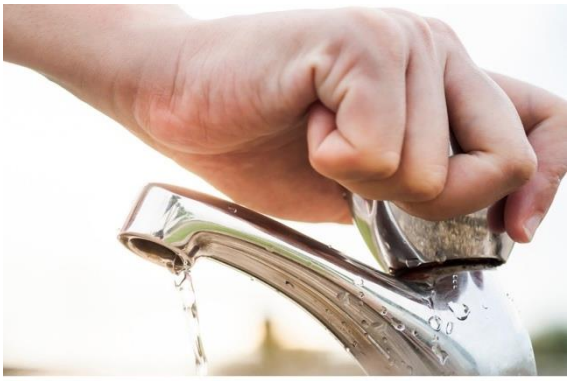
Unlike other sectors, water corporations do not receive a government budget. Instead, the regulator ensures that every planned activity is conducted with prudence and efficiency. This oversight guarantees that water businesses remain accountable, operate efficiently, and deliver essential services and outcomes to their customers, all while keeping costs as low as possible.

In Victoria, The Essential Services Commission (ESC) ensures that water businesses do not overinflate prices while delivering services and outcomes to their customers.

ESSENTIAL SERVICES COMMISSION

THEY ACCOMPLISH THIS BY:

1. Setting Price Limits: The ESC establishes maximum price limits that water companies can charge their customers. These limits are based on comprehensive assessments of the company's costs and necessary infrastructure investments.
2. Reviewing Business Plans: Water companies are required to submit their business plans to the ESC, detailing proposed prices, costs, and investments. The ESC reviews these plans to ensure they are justified and necessary.
3. Public Consultation: The ESC engages in public consultation, seeking feedback from customers and other stakeholders to understand their perspectives on proposed price changes.
4. Performance Monitoring: The ESC continuously monitors the performance of water companies to ensure they operate efficiently and meet service standards. Companies that fail to meet these standards may face penalties.
5. Regular Audits: The ESC conducts regular audits of water companies' financials to ensure transparency and accuracy in their reported costs and revenues.



It's no surprise that now we know all this, we get a bit frustrated and defensive when our family and friends comment about the cost of their water bill (even not so long ago we thought the same thing). This got us thinking about why consumers have a hard time understanding the costs associated with the privilege of turning on a tap at home and having clean drinking water come out of it every time (not to mention… the waste that gets removed at the press of a button!)

THE COST OF TURNING ON YOUR TAP

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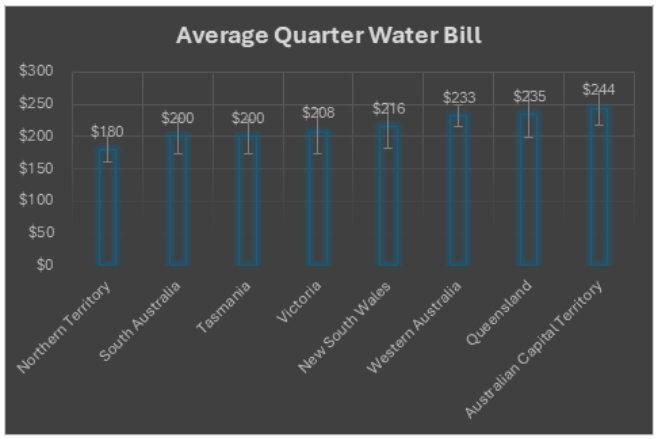
When we turn on the tap, we rarely think about the elaborate network of infrastructure that makes it possible – after all, so much of it is hidden from plain sight, it can be easily overlooked. Water treatment plants, reservoirs, pipelines, and wastewater facilities all play a critical role in our water ecosystem, and to make sure they're up to the task at hand, these systems require constant maintenance, upgrades, and monitoring to ensure they operate efficiently and safely. For passionate professionals in the water industry, one of the biggest challenges is that consumers can't see these assets. The miles of underground pipes, the intricate machinery in treatment plants, and the relentless work of engineers and scientists are hidden from view. This invisibility coupled with the work (and cost) required to keep them functioning is underappreciated.

The average annual water bill in Australia varies significantly by state and territory. The following table shows average quarterly water bills across Australia in 2023:

State/Territory	Average Quarterly Water Bill	Average Annual Water Bill
Northern Territory	$180	$720
South Australia	$200	$800
Tasmania	$200	$800
Victoria	$208	$832
New South Wales	$216	$864
Western Australia	$233	$932
Queensland	$235	$940
Australian Capital Territory	$172	$686



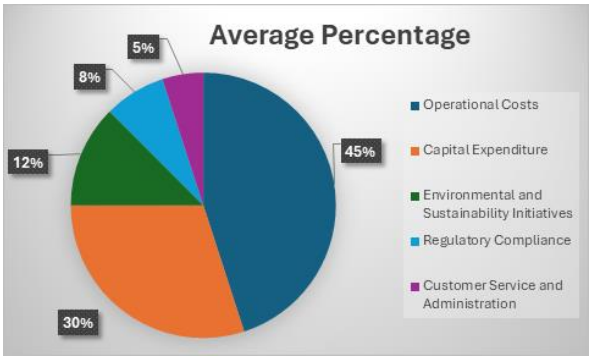
*Error bars represent the standard deviation of the average water bills across different regions. The maximum and minimum values shown are influenced by the location within each territory. For example, households in Sydney, NSW, typically face higher water rates and bills compared to regional areas due to factors like infrastructure costs and water availability.

Categories and Percentage of Spend by Water Corporations

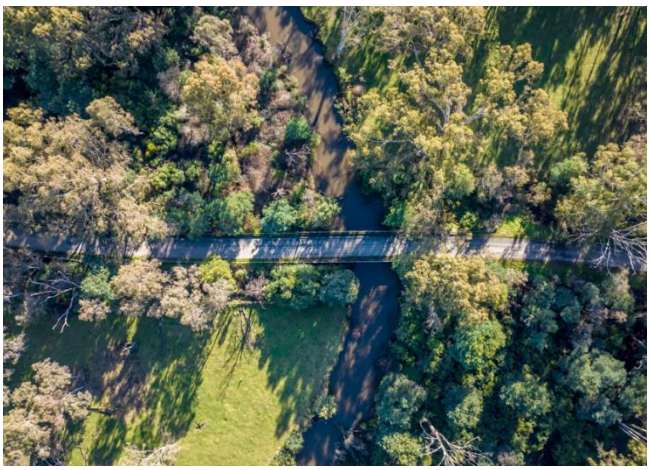
Water corporations in Australia allocate their expenditures across several categories. Here's a typical breakdown of the categories and their percentage of total spend:

- **Operational Costs:** This includes day-to-day operations, maintenance, and labor costs. It typically accounts for about 40-50% of total spending.
- **Capital Expenditure:** Investment in infrastructure, such as building new pipelines, treatment plants, and upgrades to existing facilities. This can range from 25-35%.
- **Environmental and Sustainability Initiatives:** Efforts to ensure water sustainability and environmental compliance. This can be around 10-15%.
- **Regulatory Compliance:** Meeting government regulations and standards, which may take up 5-10%.
- **Customer Service and Administration:** Costs related to customer support, billing, and administrative overhead. This is usually around 5-10%.

These allocations can vary slightly depending on the specific needs and priorities of each state and territory's water authority.



A COMMITMENT TO CUSTOMER ENGAGEMENT



In recent years, the water industry has seen an unprecedented investment in a genuine commitment to authentic customer engagement. Water businesses are not just focused on delivering water effectively and efficiently; they are deeply invested in understanding the concerns and drivers of their customers. This involves balancing those needs with the complexities of maintaining infrastructure to ensure quality water delivery to homes. In Victoria in particular, this effort is encouraged and supported by the regulator to ensure consistency and a focus on understanding customer drivers across the state. Water corporations are listening more than ever to the needs and expectations of their communities, striving to balance better service levels, environmental stewardship, and the cost of bills. Whilst the focus is commendable, the challenge remains that the complexity of this service makes it increasingly difficult for many customers to truly understand the costs behind the valuable resource they get access to every day. This proactive approach aims to foster a better understanding and appreciation of the value of water services among consumers whilst also educating them about water conservation, so they can help us help them look after this incredibly valuable resource.

NAVIGATING CULTURAL HERITAGE AND ENVIRONMENTAL CONSIDERATIONS

Water is the lifeblood of every civilisation, often determining the very location and growth of communities. Building water infrastructure is essential for long-term national development, but it must be done in a way that preserves the integrity of both the environment and the nation's cultural heritage. Thus, constructing and maintaining water infrastructure is not merely a technical challenge; it is a delicate balancing act involving cultural and environmental considerations. When constructing assets, it is crucial to navigate the preservation of cultural heritage sites, protect flora and fauna, and ensure the survival of endangered species. These considerations demand additional resources, time, and innovative solutions, underscoring the importance of integrating respect for cultural and environmental values into the development of water services. Acknowledging and addressing these factors is essential for sustainable and responsible infrastructure that honours both our natural world and our cultural heritage.

BOTTLED WATER: A COSTLY CONVENIENCE

While we're a nation that baulks at the price water from our taps at home, we don't hesitate to drop big bucks on bottled water, with a UN report from 2021 finding that, on average, Australians spend $580 per person each year in the name of convenience.

This is particularly surprising given the widespread availability of clean, safe drinking water directly from our taps at a fraction of the cost. Bottled water, frequently marketed as a superior alternative, can cost up to 2,000 times more than tap water. This choice is often driven by convenience, perceived "purity", and aggressive marketing. Yet, it overlooks the significant environmental impact of plastic waste, water source exhaustion pumping[3].

In Australia, strict water quality targets are enforced, with water treatment plant operators continuously testing and monitoring to ensure compliance. Assuming the private sector conducts as many tests as public water treatment plants do, the difference between bottled and tap water is not in the final quality but in the process itself!

But is bottled water purer than tap water? Or in the age of 'health', is one type of water better for you than another? It's a longstanding debate. Both bottled water and tap water go through a series of treatment processes to be purified. The technology used to clean each does not matter as much as the target water quality. This target water quality, while achievable through different methods, is a compliance requirement set by the government—the same authorities responsible for treating tap water. In Australia, strict water quality targets are enforced, with water treatment plant operators continuously testing and monitoring to ensure compliance. Assuming the private sector conducts as many tests as public water treatment plants do, the difference between bottled and tap water is not in the final quality but in the process itself!

One distinguishing process in water treatment is disinfection, the final step in ensuring safe drinking water. Disinfection kills microorganisms in water and can be achieved through various methods, such as ozonation, ultraviolet (UV) treatment, chlorination, or hydrogen peroxide dosing. While all these methods are effective, chlorination offers a unique advantage: residual protection. Chlorination provides ongoing disinfection as water travels through the distribution network, ensuring it remains safe until it reaches your tap. This extended protection is why tap water, treated with chlorine, is considered safe to drink even after several days. In contrast, bottled water, often disinfected with ozone or UV light, does not have this residual protection and can become unsafe if left open for an extended period—some estimates suggest an expiry date of 24 hours without residual chlorine.

[3] In many cases, bottled water companies manage to find their ways into over using their entitlements leaving other industries and the environment without sufficient water shares to support their needs.

Conversely, the sophisticated infrastructure that delivers tap water—through treatment plants, pipelines, and regular quality checks—remains largely underappreciated. Consumers seldom recognise the intricate systems and dedicated professionals ensuring that tap water meets stringent safety standards. This paradox highlights a crucial gap in public awareness – while bottled water is frequently purchased at a premium without hesitation, tap water's comparatively minimal cost frequently draws criticism when bills arrive. With a bit of forward thinking and a reusable water bottle, we can participate in more sustainable consumption practices, while supporting and investing in vital water infrastructure.

Unfortunately, simply "buying" an off-the-shelf technology to address water issues is just not possible. Finding these solutions can be difficult and even impossible sometimes. Therefore, research and development in this field is now greater than ever. Researchers are working to identify "safe" alternative water sources and a more efficient way to use and dispose the available ones. However, R&D comes at a high cost, with a very long-term return on investment. In fact, in many cases, a research project may not have any applicable and measurable output. This is not to be seen as a flaw in our R&D system, it is simply how science works.

THE IMPACT OF CLIMATE CHANGE ON AUSTRALIA'S WATER SECURITY

Climate change is exacerbating water scarcity and putting immense pressure on Australia's water infrastructure. Droughts, unpredictable rainfall patterns, and extreme weather events are becoming more common, challenging our ability to provide a consistent and safe water supply. These conditions not only strain resources but also necessitate significant investments in infrastructure to adapt to changing environmental realities. The cost of mitigating these impacts inevitably trickles down to consumers. Think about it as though we constructed a road 100 years ago based on a certain capacity and now the use of it suddenly doubled! Climate change does the same to our water treatment plants and infrastructure, and overcoming this issue must be paid for somehow.

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WATER SCARCITY IMPACTS BOTH OUR COMMUNITIES AND ECOSYSTEMS

Water scarcity is a growing concern globally. As populations increase and industrial activities expand, the demand for water rises. In many parts of the world, water sources are becoming depleted, contaminated, or inaccessible. Addressing water scarcity involves significant investments in technologies, research and development and processes that can secure water from alternative sources, such as seawater desalination or wastewater recycling. These advanced solutions, while essential, come with high costs that are reflected in our water bills.

PERSONAL INSIGHTS: A TRANSFORMATIVE EXPERIENCE

We will never forget the first time we visited a wastewater treatment plant. Witnessing the extensive processes involved in treating our waste to make it safe for release into the environment was nothing short of fascinating. Wastewater treatment is a critical component of water management, ensuring that the water we use is purified before being returned to nature or repurposed for various uses. These processes involve multiple stages, including screening, sedimentation, biological treatment, and disinfection, all meticulously designed to remove contaminants and protect public health and ecosystems.

Similarly, our visits to water treatment plants revealed the meticulous levels of quality control required to ensure that the water from our taps is safe to drink. Each step, from filtration to chemical treatment, is designed to meet stringent standards and, crucially, to ensure that the water tastes good too. This dual commitment to safety and palatability underscores the dedication of water industry professionals.

In Australia, we benefit significantly from the reuse of treated wastewater, particularly in irrigation. Recycled water is used to irrigate agricultural lands, parks, and sports fields, conserving potable water for drinking and other essential uses. This practice not only supports sustainable water management but also enhances the resilience of our agricultural sector and green spaces.

Our transformative experiences in the water industry have made us acutely aware of the complexities and efforts involved in managing water resources. From the initial collection and treatment of drinking water to the careful processing and reuse of wastewater, every step is crucial to ensuring a sustainable and safe water supply. This intricate system requires continuous investment, innovation, and respect for both cultural and environmental values, ultimately benefiting communities and the environment alike.

COMPARATIVE ANALYSIS OF WATER ACCESS AND COSTS ACROSS DIFFERENT COUNTRIES

While we regularly hear on the news that such-and-such percentage of the world's population is under extreme water stress, we often think of it as general knowledge!

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> The future of the water sector in Victoria depends on our collective willingness to embrace change and drive significant transformation.

But what is it really like to live in a water-stressed country? Based on our personal experience, the thought of living somewhere where there may not be water coming from the tap would be incredibly stressful. And in some of these places, the water that does come out from the tap is not even drinkable, but it is still very valuable. In Jordan for instance, if you wish to drink water you will need to buy it bottled or from a private water treatment business.

For these businesses, you will need to pay $1.20 for 20 litres. That is expensive for an average household. Bear in mind this water is for drinking and cooking which can be much more than 20 litres per day. Alternatively, you can harvest rainwater

from the roof during winter (the only time it rains) and store it in a tank underground for the entire year! Chlorine tablets are often added to the tank to provide disinfection.

In India, similar methods are used, with one significant difference. People in villages have their groundwater wells. They pump it manually using a hand water pump, a job assigned to children most of the time. This water, according to the US - EPA (Environment Protection Authority) is not safe to drink, because it lacks any sort of treatment and most importantly, not "disinfected". In India, even bottled water can be not safe to drink as many local businesses refill empty bottled water from known brands with well water or other unsafe water types! You can say that it is not simple to find one clean glass of water in India.

None of the countries above can afford the sophisticated technologies we have in Australia! It is estimated that if the technologies used in low-income countries are to be upgraded, their water bill can jump by up to 12 times. This is due to the reliance on importing these technologies from overseas.

A SHIFT IN PERSPECTIVE

Growing up in Australia, we took for granted having clean water to drink and the convenience of wastewater being taken away without a second thought. But after entering the water industry, our perspectives shifted dramatically. We became acutely aware of our water consumption and more conscious of educating others about responsible usage. The simple act of turning on a tap is no longer the same; it's a reminder of the vast and complex systems at work and the passionate professionals dedicated to sustaining them.

SPREADING AWARENESS

As water industry experts, one of our ongoing challenges is to bridge the gap between consumers and the unseen infrastructure. Educating the public about the importance of not flushing anything but the three Ps—pee, poo, and paper—is just one aspect of this. Spreading awareness about the true cost and effort behind our water services is essential in fostering a culture of appreciation and responsible usage. We recently led a pricing submission for a water corporation, and we can attest to how hard these water businesses work to be creative, find new, innovative ways of doing things, and keep costs down. This is not an easy task, but it is something that the Victorian water industry is passionate about. As an industry, we understand the affordability concerns of customers and strive to balance these with infrastructure, environmental, and sustainability considerations.

In conclusion, the next time you question your water bill, consider the intricate systems, environmental challenges, and dedicated professionals working tirelessly to ensure that we all have access to safe, clean water; many of whom spent a considerable part of their lives voluntarily and passionately to deliver water to your home. The cost of turning on your tap reflects the value, innovation and complexity of the service it provides. Understanding and appreciating this can transform how we view and use this precious resource, now and into the future.

FURTHER READING

- 25 Countries Face Extremely High Water Stress | World Resources Institute (wri.org)
- Sustainability | Free Full-Text | Universal Access to Safe Drinking Water: Escaping the Traps of Non-Frugal Technologies (mdpi.com)
- Solutions to the problem of drinking water service affordability: A review of the evidence - Pierce - 2021 - WIREs Water - Wiley Online Library (uws.edu.au)

ABOUT THE AUTHORS

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Melissa Thek is a visionary leader with over 20 years of experience driving substantial business transformation, including the last half a decade in the water industry in executive roles. She has spearheaded strategy, innovation, and technology across various roles and organisations, significantly enhancing efficiency and productivity. Melissa is passionate about bringing awareness on issues that matter to our industry and community.

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