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WATER IN TRANSITION

Rising costs and the decline of 'free' environmental services

WATER SERVICES ASSOCIATION OF AUSTRALIA

In association with

THE UK WATER REPORT
POLICY | REGULATION | FINANCE

EXECUTIVE SUMMARY

The global water industry is in a long-term transition to higher levels of investment, increased costs and, ultimately, higher prices for customers.

The immediate drivers of this transition are well understood and widely discussed. They include: population and economic growth; climate change, requiring mitigation and adaptation; higher public and regulatory expectations; and the need to renew ageing infrastructure. In some geographies, there is also historic under-investment to catch up.

However, there is also a more fundamental driver that underpins all of the above except for ageing assets, and helps account for the scale of the forward investment requirements. This is best understood as a reduction in the 'free' environmental services that are a core input to the production of water and the management of wastewater. The industry has relied on these inputs for centuries, but can no longer do so to the same extent.

Articulating this clearly is important. First, because customers deserve an accurate explanation about why their bills have risen and will continue to do so. Second, because policy makers need to understand the detail and dimensions of the transition, if they are to set policy and regulation that is in the long-term interests of society.

This paper draws on the Australia/New Zealand and the England/Wales water sectors to illustrate the case.

Water Services Association of Australia (WSAA) is the peak body representing the water sector. Our members provide water and wastewater services to over 24 million customers in Australia and New Zealand and many of Australia's largest industrial and commercial enterprises.

The UK Water Report, published by Global Water Intelligence, is a specialist magazine covering UK water sector policy, regulation and finance.

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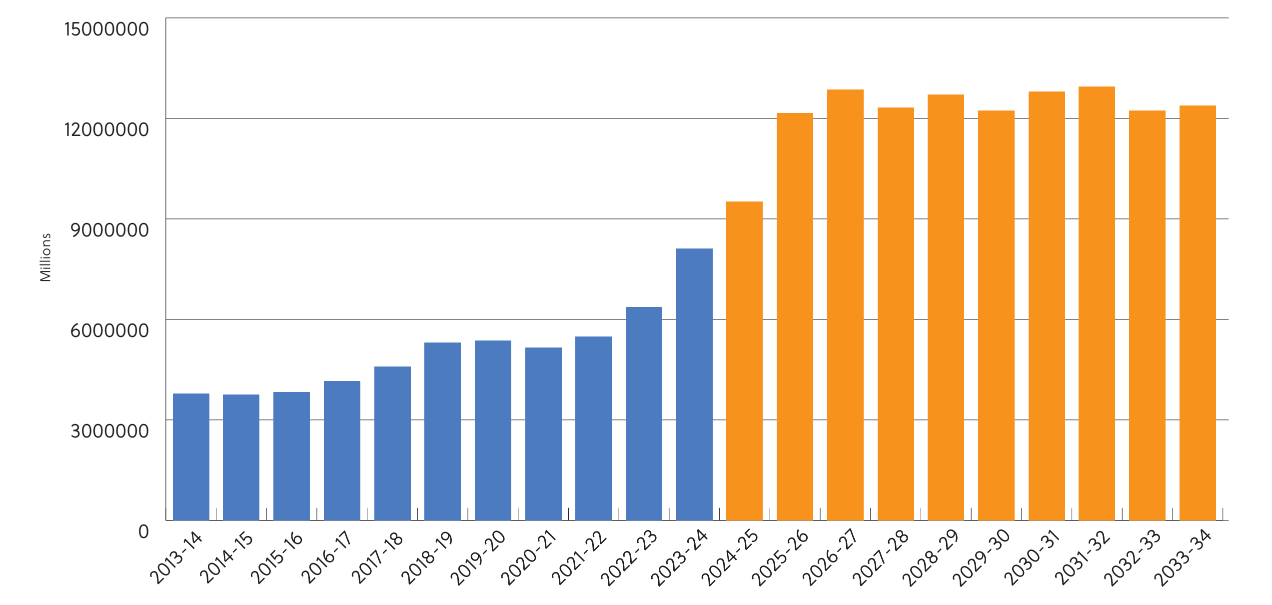
1. WATER IN TRANSITION: A SNAPSHOT OF PRICE AND INVESTMENT TRENDS

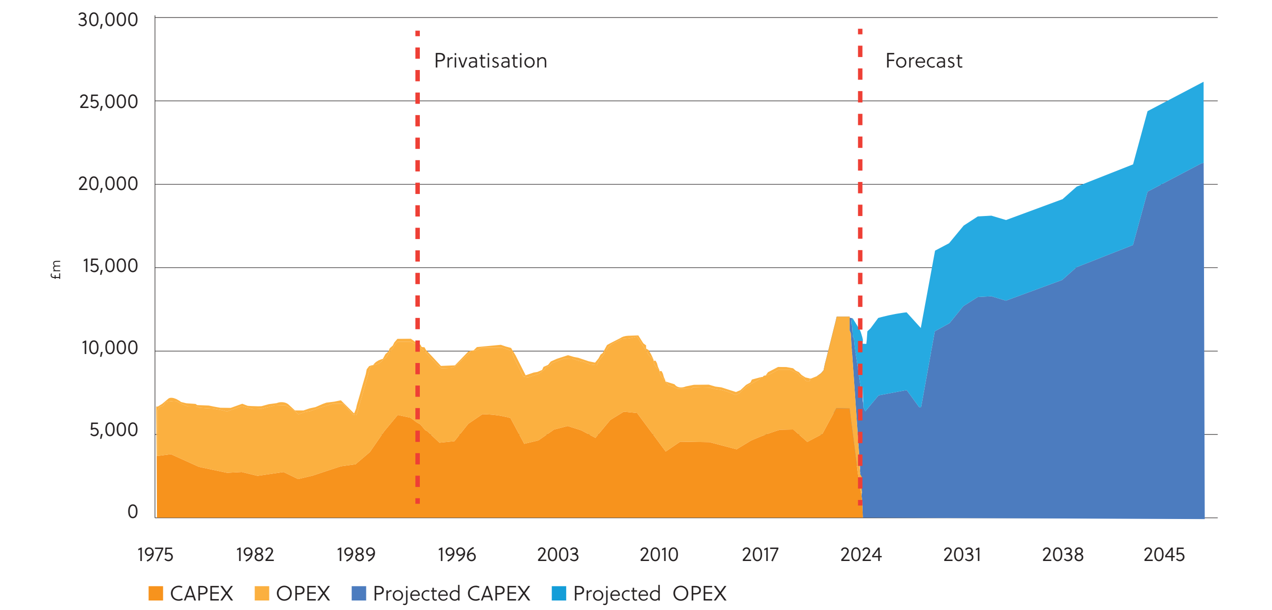
The energy transition is one of the biggest policy challenges of the last two decades – a global structural shift from fossil-based energy systems to renewable, low carbon sources. To limit global warming to 1.5°C, we can no longer use the environment as a free disposal route for greenhouse gas emissions. Instead, we are investing in cutting those emissions through clean power sources and high levels of energy efficiency.

We contend that a water transition is also underway, mirroring the energy transition. Many commentators have pointed to the need for water systems to make a leap away from linear use (abstract, use, dispose) to become sustainable, efficient and circular. Missing from this argument until now is the root cause of the need for change. Globally, we can no longer use the



Source: National Performance Report 2023/2024 and WSAA

Figure 1: Water and wastewater capex in Australia (22 utilities, 2023-24 dollars)



Source: Water UK (Oxera analysis, based on company long-term delivery strategies)

Figure 2: Water and sewerage companies' historical and projected spend in England and Wales (2020, real)

environment to provide free resources to the water industry to draw from and discharge to. Instead we are investing in systemic changes in infrastructure, management and consumption.

That we are not in a steady state is clear from water investment (see Figure 1 and Figure 2[1]) and charging trends in both Australia and England and Wales. Prior to the most recent price determinations, average charges remained flat for ten to 15 years in both geographies. But the most recent price reviews have ushered in unprecedented levels of investment, with accompanying higher bills. This elevation is not a short-term peak, but rather a landmark point of change, setting both industries on a path to sustained higher expenditure and bills.

> **A water transition is also underway, mirroring the energy transition.**

Appendix 1 sets out more detail on historic, current and projected investment and water charge levels in Australia and England and Wales.

2. RECOGNISED DRIVERS OF TRANSITION

The energy and water transitions have drivers in common. Climate change, population growth and environmental degradation are underpinning factors. These have given rise to accelerants including higher regulatory/legislative demands and changing societal expectations.

More recent developments have added to these established drivers. Governments in both Australia and the UK have ambitious housing targets to manage the housing crisis, and new water connections are a critical component of any new development. Governments also view AI data centres as central to national productivity growth. Data centres are energy intensive but also create a potentially large new source of demand for water that has only emerged in the last few years. WSAA has released a paper on data centres and water which can be accessed here.

There is far greater public awareness of these issues in energy, but they are all also present in water. In both cases, the drivers of change demand an investment response and carry cost for consumers. In both Australia and the UK, cost pressures in water have been building for some time. But customers have hitherto been 'protected' in two ways – one positive and one negative.

On the positive side, interest rates have remained low for an extended period; indeed, in recent times the world has seen some of the lowest interest rates in recorded history. This enabled a decade-long reduction in the cost of capital. As a highly capital-intensive industry, lower interest rates have allowed for increased levels of capital investment in water and wastewater, without prices increasing in step. It has been an exceptional time, but now interest rates are returning to historically more normal levels. Higher borrowing in the low cost years has also left water utilities in both countries with high levels of debt and in some cases, deteriorating financials.

On the negative side, policymakers have pretended the need for higher investment did not exist. That is, they allowed less investment than necessary, in order to keep prices down. In New Zealand, for instance, chronic underinvestment over decades has left the industry with a daunting level of required investment. In England and Wales, the real world consequences of underinvestment – most obviously, the high frequency of discharges of raw sewage to waterways via storm overflows, even sometimes when it hasn't rained – has triggered extensive press and political attention and a full scale crisis of trust in the industry. Legislation to comprehensively overhaul regulation and governance is now in development.

Now, underinvestment choices are coming home to roost at the same time as interest rates increase and the drivers of the water transition – population growth, economic growth, climate change and higher societal/regulatory expectations – also gather pace.

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3. ENVIRONMENTAL SERVICES ARE NO LONGER 'FREE'

However, underpinning these factors, there is another theme common to both countries that has not been explicitly acknowledged, but that significantly exacerbates the need for higher levels of investment and expenditure. That theme concerns the environment's depleting capacity to provide the water sector with vital services for little or no cost.

The environment has been providing services to the water and wastewater industries for free since their earliest days. But it is no longer possible in some cases, or legitimate in others, for this to continue unabated.

In short, free services are reducing and we now need to pay in one way or another for things that have hitherto cost the water customer very little.

Here are some examples.

Water services

Australia is 20 years into a transition from rainfall dependent dam water supplies to rainfall independent supplies for new water sources – either desalination or different forms of water recycling. Australia now has nine desalination plants operating or under construction, and most capital cities are planning for an expansion of desalination or pursuing purified recycled water for drinking.

This is not a matter of choice. Regardless of climate change, population growth requires new water supplies. In many places, new dam sites are either not available or unthinkable because of the environmental costs. There is a clear need to supplement services and inputs obtained from the environment with more conventionally produced goods using capital and labour. We even term these sources 'manufactured water'.

England and Wales and parts of Australia still have options for viable dams and reservoirs. However, even in these cases, the level of service provided by the environment will tend to be lower than that from existing dams, because the most favourable sites (with the cheapest environmental inputs) have already been developed. New storages cost more than older storages.

The cost impact of supplementing old dams and reservoirs with either newer dams or manufactured water is heightened by the regulatory model.

Most dams were built generations ago and the infrastructure costs borne by previous generations – long before the regulatory asset base model was developed. The current generation is therefore receiving 'free' services from the environment in a physical sense and free infrastructure (aside from the cost of maintaining it) from past generations in a financial sense. It exacerbates the cost of the transition when new and inherently more expensive assets are added to the regulatory asset base.

In England, the situation with chalk streams offers a particularly compelling illustration of the contraction of free natural water supply services. England is lucky enough to possess roughly 85% of the world's 200 or so chalk rivers. These are concentrated in the south and east, which are densely populated parts of the country. Fed by underground chalk aquifers, these act as giant natural filters and provide a consistent, pristine and mineral-rich water supply that tastes good and needs a low level of treatment. These cheap, high quality sources have long been heavily exploited for public drinking water, including post-war when whole new towns such as Welwyn Garden City and Stevenage were built, fed by chalk.

Now, many of these (globally rare) chalk rivers are both over-abstracted and polluted, prompting (from the c1990s) conservation and restoration action. These efforts were formalised in 2021 in a multi-stakeholder Chalk Stream Restoration Strategy[2], which sought to improve river health and biodiversity.

Beyond chalk streams, there is a much broader programme of work underway in England to abstract less water from the natural environment to preserve its health. In its 2025 National Framework for Water Resources[3], the environmental regulator identified that England will face at least a 6 billion litre a day supply deficit by 2055. A whopping 60% of this is attributed to 'environmental destinations' – the need to leave more water in the environment for nature.

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The remaining 40% is driven by population growth, climate change and drought resilience –supplemented by government economic growth ambitions.

After decades of inaction (the UK has not built a reservoir since the Carsington Reservoir in Derbyshire in 1992), this looming supply deficit has triggered a rush to build 2,800 megalitres a day worth of strategic water supply solutions, including nine reservoir schemes, large-scale water transfers, desalination projects and water recycling plants, as well as additional options to enable adaptive planning (in case the demand reduction measures planned in parallel fall short). The 2025-30 price settlement allowed £2 billion for the exploratory work for this programme, with the ultimate cost expected to reach £50 billion, and to provide enough water to meet the daily needs of around a third of the population of England and Wales. This provides a stark example of the rising cost of ceasing to take as much from nature as we have hitherto.

Wastewater services

The 'sewage scandal' in England and Wales is the most obvious example in the wastewater world of previously 'free' environmental services now coming at a significant cost. The wastewater system was deliberately designed with outlets to carry untreated excess flows (from drains and sewers combined) into rivers and seas, to prevent the system backing up and flooding – typically during heavy rain. But modern monitoring of the duration of discharges from these overflows has made for alarming headlines (3.6 million hours of spills in 2024), leading to enormous press and political criticism of the industry for polluting the water environment and jeopardising public health.

Untreated discharges are now widely considered unacceptable. Following a crisis of trust in the industry and a public apology from trade body Water UK, the sector is now in remedy mode. The Government has drawn up a Storm Overflow Discharge Reduction Plan and in the 2024 price settlement (PR24), regulator Ofwat allocated £12 billion for 2,884 storm overflow projects, which aim to see spills reduced by 45% by 2030 on 2021 levels.

Time is gradually being called on the use of waterways as a free disposal route for other contaminants too. PR24 allocated £6 billion for wastewater treatment upgrades to combat nutrient pollution for around 1,000 sites and catchments, and to reduce phosphorus entering rivers from water company activities by 28%.

> **Biosolids have recently been rebranded by campaign groups as 'toxic sludge' – largely on account of the forever chemicals and micro plastics that can remain post-treatment.**

There is growing international attention on the pollution entering rivers and seas from forever chemicals, micro plastics, pharmaceuticals and other emerging contaminants. Clean-up costs can be expected to rise as the scientific evidence of harm gathers.

Use of land is also coming into greater focus. Today, biosolids are recognised as a valuable source of organic matter and nutrients. Many utilities routinely plan for beneficial reuse of biosolids, with high rates of land application in Australia and growing reuse initiatives in New Zealand. But new guidelines and regulations in Australia and New Zealand are likely to further limit reuse of biosolids on land, especially in agriculture and composting.

So too in England and Wales, where 94% of biosolids are currently used on agricultural land as a fertiliser and soil enhancer. But these biosolids have recently been rebranded by campaign groups as 'toxic sludge' – largely on account of the forever chemicals and micro plastics that can remain post-treatment. The UK Government issued a January 2026 consultation on tightening up the rules for sludge spreading on land, as a first step response. If the 'free' land bank reduces or closes entirely, more costly routes of biosolids reuse will need to come into play.

Acceleration

None of these trends are new. In fact, there is clear precedent for higher water charges to pay for the services that nature can no longer provide to the same extent for free. Examples abound, from The Great Stink in London in the 19th century, which led to the Victorians constructing London's (still in use) sewer system; to the newly operational £5 billion Thames Tideway Tunnel, which collects storm overflows and transports them for safe treatment to cut pollution in the capital's river. Another UK example is the £2 billion 20-year Clean Sweep programme run by South West Water. Concluding in 2010, this involved massive infrastructure upgrades in Devon and Cornwall, resulting in 97% of South West England beaches passing water standards. Each householder in the region received a £50 public subsidy on their wastewater bill for many years, to help them bear the high cost.

In Australia, in the 1980s, iconic Sydney Beaches such as Bondi reached unacceptable levels of pollution due to coastal discharge of sewage. The solution of deep ocean outfalls 3.2km from the shore returned bathing water quality to its original condition, preserving the values the coastline is renowned for. Meanwhile, the recent expansion of Australian cities has brought strict discharge requirements to protect sensitive inland receiving waters as well as the Great Barrier Reef.

What we are seeing now is an acceleration of the trend of diminishing free natural services, driven by population and growth pressures, climate change, community expectations, better evidence and the need for higher levels of treatment.

This trend should be seen in the context of society's explicit acknowledgement elsewhere that historically 'free' environmental inputs are free no longer. This is clear from the emergence of Payments for Ecosystem Services and nature markets – for carbon and biodiversity, amongst other things.

We are at the point now where we need to join the dots and articulate that the reduction of free environmental services is a central concept that needs to underpin the breadth of our thinking, rather than a niche issue relevant only to specific circumstances or pockets of activity. In fact, the reduced availability of free environmental inputs underpins the rise of the drivers traditionally used to explain the increased need for investment. It explains the higher costs of future water security and of future environmental health. It also explains the high costs of growth, both in terms of securing new water sources and of safe waste disposal.

We also need to explain the shift as part of a necessary and positive – albeit costly – transition to a better relationship with the natural world on which we all depend, rather than as an exercise of compliance or benevolence. We should have stopped treating environmental services as free much sooner, before we reached the levels of degradation and nature crisis that we now see. But we are where we are, and now need to articulate the situation clearly to bring people on the journey that is already underway.

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4. THE ECONOMICS OF THE WATER TRANSITION

While this idea of a reduction in free natural services can be framed in environmental terms, it is primarily an economic argument. A lot of the thinking in this paper derives from a staff research note published in 2013 by the Australian Government's economic think tank, the Productivity Commission[4]. WSAA and The UK Water Report acknowledge the important contribution to public policy provided by this Topp and Kulys paper. It was a concerted attempt to articulate the environmental cost element of the water transition – in unapologetically economic terms.

In summary, Topp and Kulys argued that most industries use capital and labour (as well as intermediate inputs such as energy) to produce outputs. However, there is a class of industries including agriculture, mining, electricity and water that rely to a significant extent on a third input: natural resource inputs or services, provided by the environment for free.

In agriculture, rainfall is the most obvious and variable service provided by the environment. The output of farms will vary with rainfall, even though farmers have not become more or less efficient.

In water and electricity, Topp and Kulys said these free environmental services take three fundamental forms:

"Water catchments and their associated creeks and rivers provide inputs to production in the water industry through their role as sites for the capture,

storage and delivery of urban drinking water and rural irrigation water.

Waterways and oceans provide inputs to the water industry through their use as sinks for the disposal of wastewater. Note that the more polluted the wastewater being discharged, the greater will be the effective quantity of inputs (in the form of waste assimilation services) provided by the environment.

The electricity supply industry derives inputs to production from the atmosphere (air) by using it as a sink for the disposal of waste products, most notably carbon dioxide. Again, the more polluted the waste material, the greater the effective quantity of inputs (in the form of waste assimilation services) provided by the environment."

Topp and Kulys pointed out in respect of water that these free environmental services are "*just as important to production in the utilities industry as conventional inputs. Without these inputs, production would either be impossible — no dam site, no reliable water supply for example — or would require businesses to incur significant additional costs."*

Right now, the level of free environmental services available to the energy and water industries is diminishing. The existence of an energy transition is entirely uncontroversial. There are legitimate debates about the rate of transition and what its endpoint should be, but the fact of a transition – of a need to decarbonise the world's economy – has underpinned energy policy in the last two decades across the globe.

There is no equivalent recognition in water[5]. Yet it is equally important and indeed, the rate of the transition may be much less open to control than the energy transition.

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5. AGEING ASSETS – THE LAST PIECE OF THE PUZZLE

While the reduced availability of free environmental inputs underpins most of the drivers traditionally used to explain water's new hunger for investment, it is important to recognise that it is not the whole story.

Ageing pipes and plants are a feature of the water industries of both Australia and England and Wales. The need to maintain, repair or replace them is a clear driver of higher future investment need, and this cannot be linked to our main argument about rising costs deriving from the decline of free natural services. Hence it is the water transition coinciding with an ageing asset base that creates the truly perfect storm for water prices.

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For several years, WSAA has been pointing out that the need to renew or maintain ageing assets is among the drivers of the need for higher levels of investment in the water industry, alongside population growth and the need to boost water security in a changing climate.

Its UK equivalent, Water UK, has long made a similar case. In very recent months in England and Wales, the condition of water and wastewater assets has become a key focus of political attention. In January 2026, the Government published a Water White Paper[6] – soon to be followed by a Water Reform Bill – the central thrust of which is to restructure how water is regulated, planned and managed. That is on the back of the judgement that current structures have severely under-performed, leaving an investment backlog and an urgent need to re-focus on asset health. The White Paper contains promises such as the appointment of a chief engineer at the regulator, and the development of forward-looking asset health metrics and statutory asset resilience standards.

6. IMPLICATIONS

The purpose of this paper has been twofold: to demonstrate that the water industry is a sector in transition and to analyse its fundamental cause.

We consider it should prompt serious debate about the future of water policy and regulation.

Productivity and innovation

One key example for regulation concerns how water sector productivity is measured and treated in price reviews.

Over time, innovation and rising productivity results in lower costs and lower prices for most goods and services. Consumers pay less for the same goods, quality improves or generally both. Think about the real price of cars, phones, computers, clothing and air travel over the last 20 years. At times high inflation, cost of living issues can obscure these trends and it can seem that everything is going up, but generally if we take inflation away the real costs and prices fall over time.

The water industry globally is an exception. Underlying costs are rising significantly, despite productivity and efficiency gains; the price of water and wastewater services is likely to increase at a rate above that of other goods and services.

Promoting innovation and productivity within the water industry remains paramount. Innovation provides the best hope of blunting the impact on customers as the transition continues. But we need to recognise the limitations of normal productivity measurement. Understanding these limitations was the original purpose of the Topp and Kulys paper and was set against a background of falling productivity in the water industry as conventionally measured.

The key point of the paper is that if we don't measure a core input to production, then conventional productivity measurement will be a distortion. That was true in 2013 and remains true today.

The Australian Bureau of Statistics combines the water industry with the electricity and gas industry for productivity measurement. Figure 3 compares multi-factor productivity for the Australian market sector with productivity in the electricity, gas, water and waste industries. The results are stark. Taken at face value, water is among industries chronically underperforming. Measured productivity has declined for 25 years[7].

In fact, Figure 3 presents a misleading view of a sector which has forever shifted how it delivers secure drinking water to rapidly growing Australian cities.

> **If we don't measure a core input to production, then conventional productivity measurement will be a distortion.**

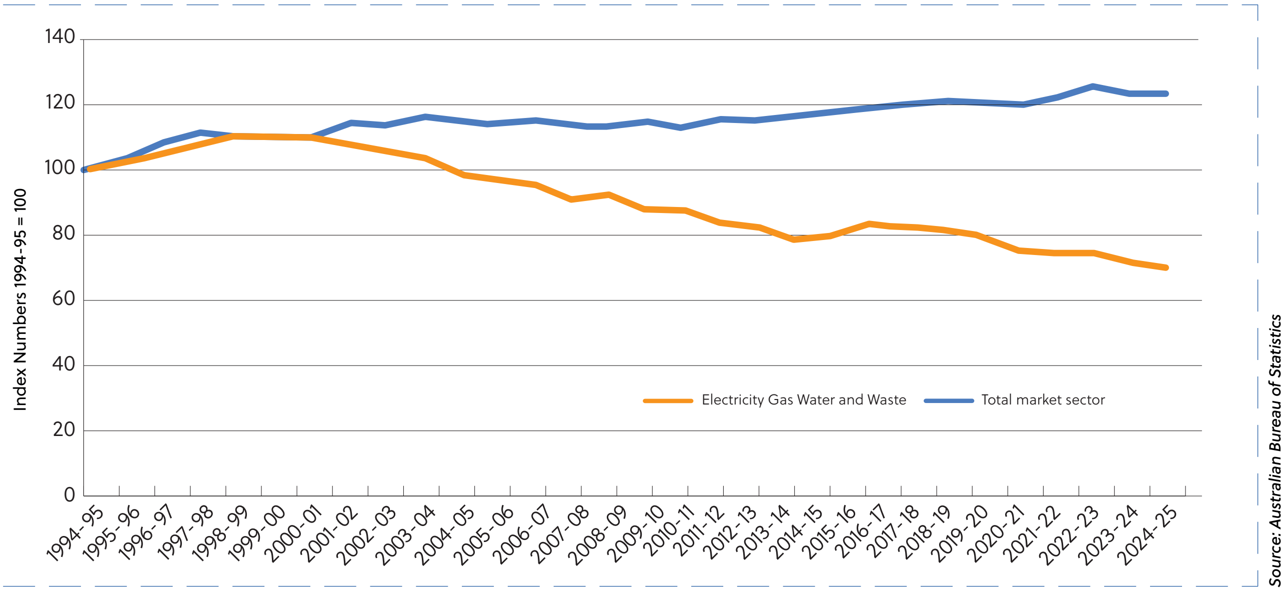

Figure 3: Productivity in the water, waste, gas and electricity sectors, Australia

Instead, it should signal that there are profound changes occurring in the industry. It is not reflective of a sector in decline, it is reflective of a sector in transition.

Without a detailed understanding of the transition underway, policy makers risk drawing the wrong conclusions and creating the wrong policy settings for the industry. Appendix 2 sets out the need to re-evaluate the concepts of 'ongoing efficiency' and 'catch-up efficiency' which are used in the UK and by some regulators in Australia to set underlying efficiency targets for the water sector.

Sustaining the transition

More generally, regulators' historic focus on keeping bills low, rather than protecting the consumer interest in a wider sense, is already giving way to much higher levels of investment, as Appendix 1 shows. This is being articulated as driven by the tangible factors of higher standards, bigger populations, more erratic climate conditions, and old/ageing assets, all of which are correct. But we are in the foothills of this transition and must consolidate our stance on it. Any future attempts to suppress investment on the mistaken basis that the water industry is in a status quo position will clearly be misjudged.

Paying for previously free environmental services is fundamental, and comes on top of the need to maintain ageing existing infrastructure. It will put a permanent upward pressure on water costs, regardless of any other positive factor – such as innovation or productivity growth.

As such, the growing need to pay for nature's services should be part of societal conversations about acceptable environmental and financial costs, and the associated policy choices. In short, what are we collectively willing to pay for in terms of level of water charge, level of environmental protection and level of service? In extremis, 'payment for nature' could be an itemised line on bills.

The growing need to pay for nature's services should be part of societal conversations about acceptable environmental and financial costs, and the associated policy choices.

Bills are rising not only to cater for more people, growth, a changing climate and higher standards but also because it is no longer possible or legitimate to use natural services for nothing.

The resulting societal and policy choices will inevitably raise further questions, some of which might concern:

- **Affordability policy** – are existing affordability support mechanisms appropriate in this context, or do they need to be rethought?

- **Polluter pays** – should those who are causing distress to the environment through pharmaceutical, chemical and plastic contamination pay for its clean up, rather than the water consumer? Should road users pay to clean-up toxic road runoff, or supermarkets foot the environmental bill for intensive agriculture?

- **Control at source** – Should the focus shift to control at source rather than end-of-pipe clean up? It is noteworthy that the UK Government has adopted this high level policy position in its White Paper.

To end on a positive note, consistently paying for environmental services should put us on a trajectory towards an improving water environment with all the associated benefits – higher compliance, healthier ecosystems, the ability to support growth, greater amenity, and health and wellbeing opportunity, to name but some.

This provides a compelling opportunity to engage citizens and refresh the public narrative about water – something that is much needed, especially in England and Wales where trust is depleted and the public steeped in a negative press narrative about the 'sewage scandal' and the country's private ownership model. This paper does not seek to tackle these arguments, merely to point out that whatever your starting view, the reduction in previously free environmental services is a real factor driving up cost.

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APPENDIX 1 – INVESTMENT AND BILLS

Historic trends

Figure 4[8] shows capital and operating expenditure in the English and Welsh water industry since privatisation in 1989 up to 2024, the final year of the previous price control period. Figure 5[9] shows average household bills for the same period. Bills rose by 50% in real terms between 1990 and 2000, then fell and remained stable until 2005. 2005-10 saw a 7% rise and then stability again until 2020, after which there was a 5% cut and fluctuation over the following years. In real terms, the 2024/25 average bill was 7% below that of 2019/20.

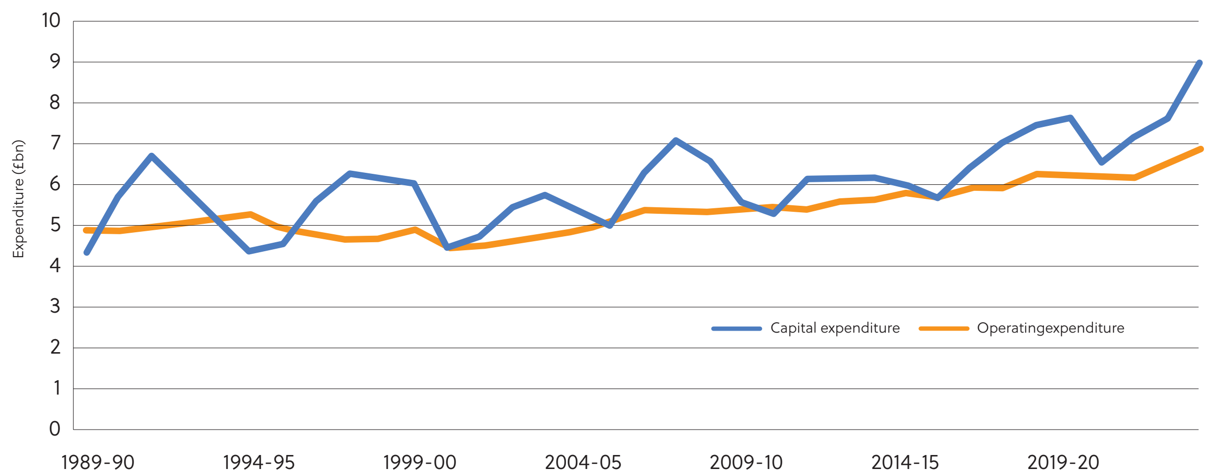
In Australia, consumer bills have been flat for the last 11 years (see Figure 6).

In both geographies, consumers have been shielded from price increases over the past decade plus, by a combination of a falling cost of capital (low interest rates), cheap debt, water utility efficiency gains and political/regulatory choices to keep bills down rather than step up investment.

Contemporary rising investment

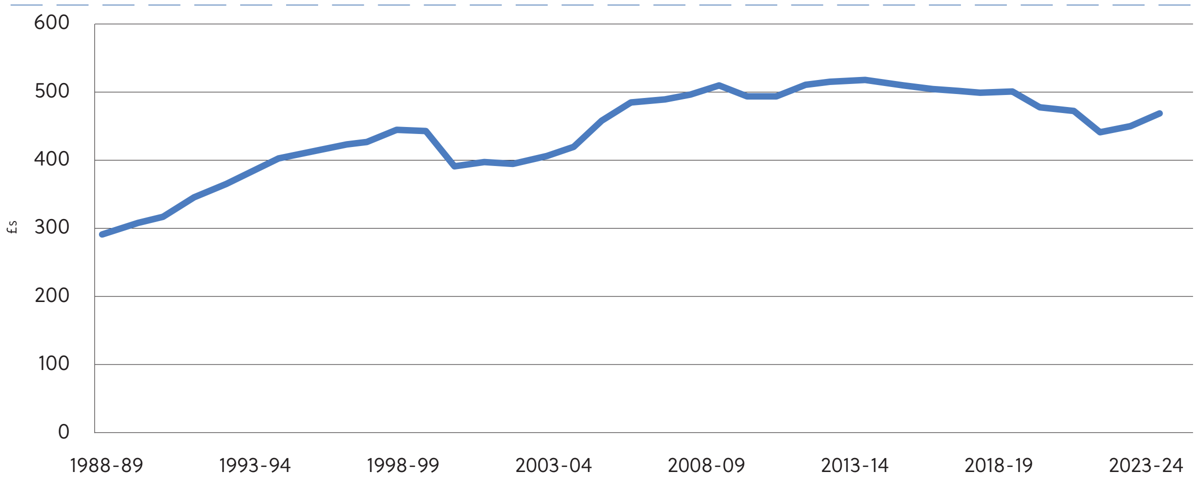
Right now in both geographies, the water industry is in the midst of a step change in the level of investment to provide services for current and future generations.

In England and Wales, Ofwat approved a £104 billion investment package for 2025-30, a 71% increase on 2020-25 (PR19). Base allowances to fund operations and maintenance at £61 billion were 19% higher than at PR19. Enhancement allowances to fund new assets were quadrupled



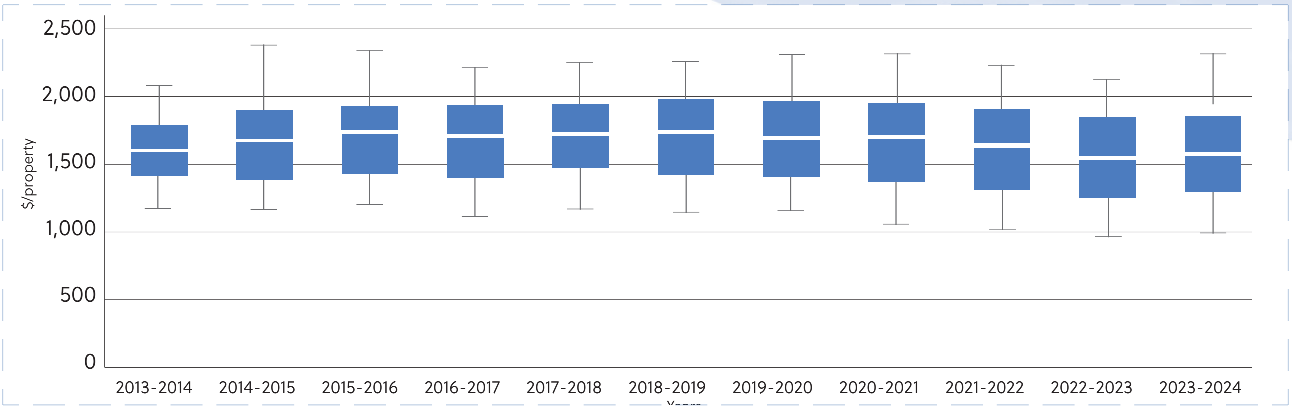
Source: National Audit Office analysis of Ofwat data

Figure 4: Capex and opex for the water industry in England and Wales, 1989-2024



Source: House of Commons Library (Ofwat and Discover Water data)

Figure 5: Average annual household water and sewerage bills in England and Wales 1989-2024



Source: National Performance Report

Figure 6 Typical national water and wastewater bill in Australia, 2013-2024

from £11 billion at PR19 to £44 billion. 90% of this was statutory investment, to fund the Water Industry National Environment Programme (see Figure 7[10]), Water Resource Management Plans, the Industrial Emissions Directive and Drinking Water Inspectorate requirements. Key items of expenditure include £24 billion for improving the environment – to reduce pollution, reduce harm from storm overflows, improve river water quality, and increase biodiversity – and £12 billion for protecting the water system – to expand supply, tackle leakage, install 10 million smart meters, and upgrade drinking water. All investment will be ring-fenced, with a claw back mechanism to ensure any unspent money is returned to customers.

To pay for all of this, average bills were increased by 36% over the period (£157, before inflation). There was significant variation across the country (see Table 1[11]).

The increase was front loaded, with the average bill rise in 2025-26 at 27%. The 2026-27 increase is much smaller at an average 5.4%, with this smaller level of increase expected in the remaining years to 2030.

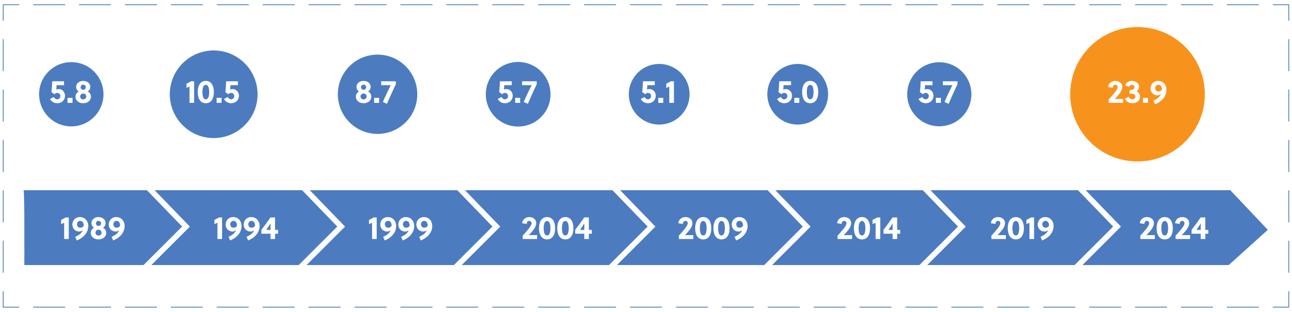
Affordability support was doubled to over £500m over five years to help those who struggle to pay. 9% of customers, up from 4%, will be on social tariffs.

Table 1: Average water and wastewater bill increases in England and Wales, 2025-2030

Company	2024-25 (£)	2029-30 (£)	Change (£)	Change (%)
Anglian Water	491	631	140	29%
Dwr Cymru	455	645	191	42%
Hafren Dyfrdwy	392	557	165	42%
Northumbrian Water	422	510	87	21%
Severn Trent Water	398	583	185	47%
South West Water	497	610	113	23%
Southern Water	420	642	221	53%
Thames Water	436	588	152	35%
United Utilities	442	585	142	32%
Wessex Water	508	614	106	21%
Yorkshire Water	430	607	177	41%
Average	440	597	157	36%

Company	2024-25 (£)	2029-30 (£)	Change (£)	Change (%)
Affinity Water	192	241	49	26%
Portsmouth Water	111	152	41	37%
South East Water	230	287	55	24%
South Staffs Water	161	195	34	21%
SES Water	221	215	-6	-3%
Average	192	234	43	22%

Source: Ofwat



Source: Independent Water Commission (Ofwat analysis)

Figure 7: WINEP allowances in England and Wales, 1989-2030

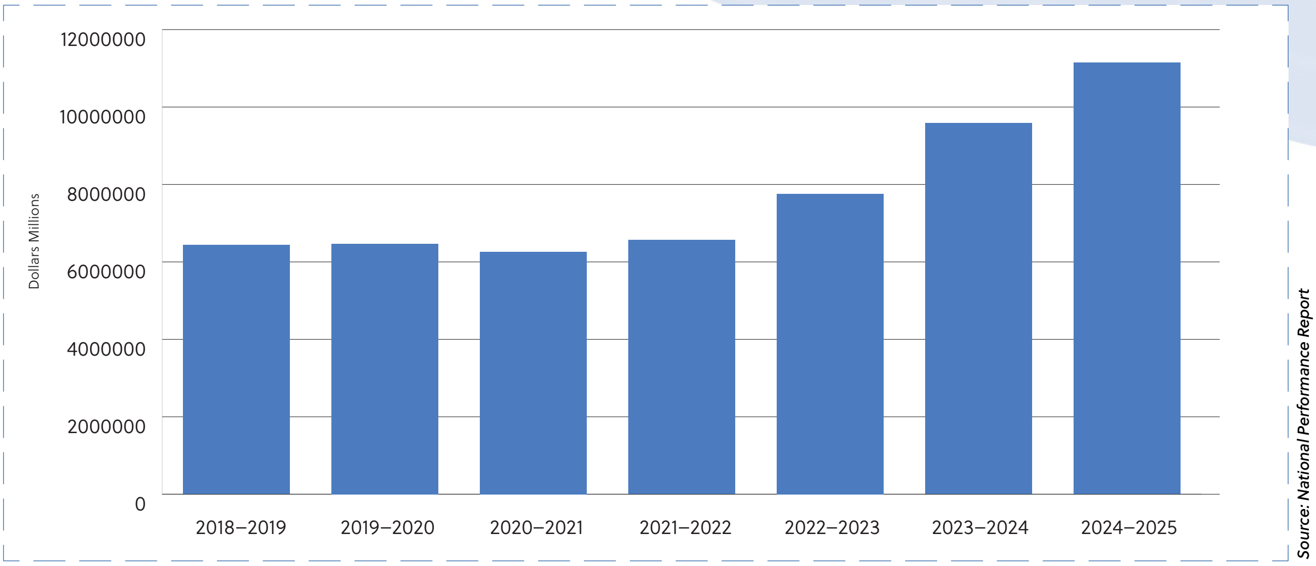


Figure 8: Total water and wastewater capex in Australia

In Australia, the latest data from the National Performance Report shows that capital expenditure in water and wastewater was $11.2 billion in 2024-25 (Figure 8). This has almost doubled from only three years before.

The recent price determinations by the Independent Regulatory and Pricing Tribunal (IPART) for Sydney Water and Hunter Water are both a reflection of the transition drivers across the industry, and confirmation of the forecasts that WSAA and the industry have been making for several years.

For Sydney Water, IPART approved $13.2 billion in capital expenditure. This is much higher than investment in previous determinations and IPART has approved around a 35% real bill increase over the five year period. Underpinning Sydney Water's investment plans is its long term capital and operating plan. It provides for over $30 billion in expenditure over the next ten years.

For Hunter Water, IPART approved $1.6 billion in capital expenditure over the five year determination, or around a 20% real bill increase over the period.

Further price reviews are underway across Australia, all of which are consistent with the national trends:

• Central Coast Water in New South Wales is proposing to invest $578 million. This represents an increase of around 52% on the previous determination. Approximately $324 million is to service growth and $254 million for renewals and compliance expenditure.

• TasWater lodged its submission on 30 June 2025 and has proposed capital expenditure of $1.7 billion over the five year period, an increase of 77% over the previous period. TasWater is proposing to increase prices by 8.8% a year for the next five years, then 5.4% a year in the subsequent five years.

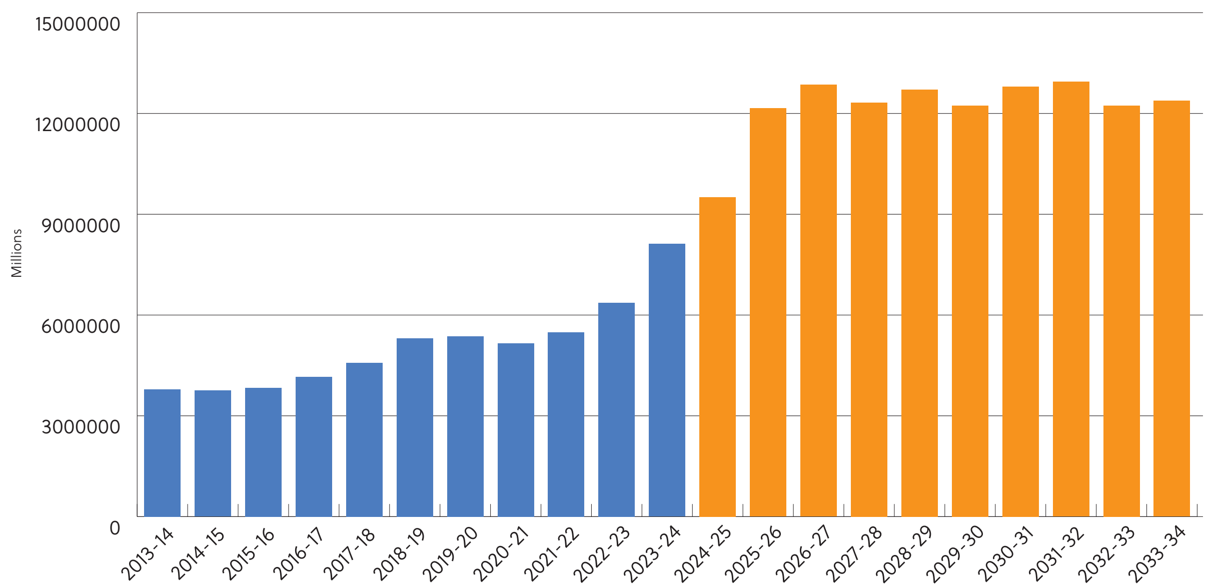
• North East Water, a regional Victorian utility, is proposing capital expenditure of $279.7 million and real price increases of 5.25% per annum for the period 2026-31.

• We understand that Water Corporation in Western Australia is also proposing to increase investment by the same order of magnitude as Sydney Water and Melbourne Water.

Collectively, investment across Australia constitutes a major industry transition.

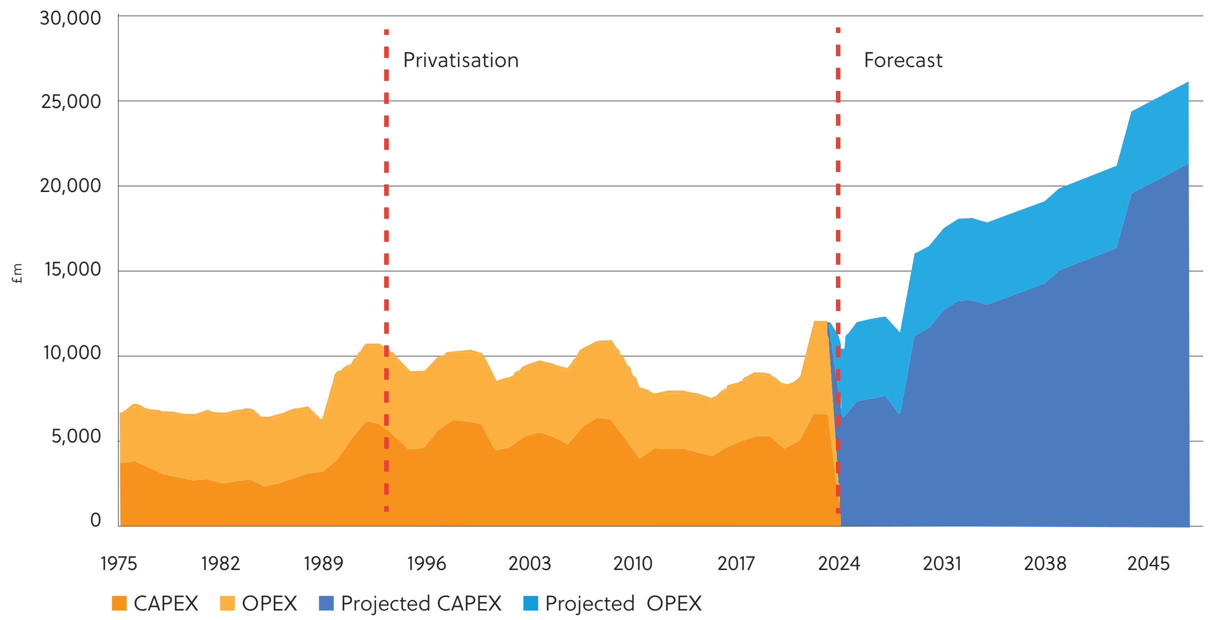
Projected future investment rises

WSAA expects significant further increases in investment across Australia over the next decade. Figure 9 splices historical data from the National Performance Report with WSAA projections for 22 large utilities in Australia. The roughly doubling of annual capital expenditure in real terms between 2013-14 and 2023-24 would be significant enough



Source: National Performance Report and WSAA projections

Figure 9: Water and wastewater capex in Australia (22 utilities, 2023-24 dollars)



Source: Water UK (Oxera analysis, based on company long-term delivery strategies)

Figure 10: Water and sewerage companies' historical and projected spend in England and Wales (2020, real)

on its own. However, combined with WSAA projections of expenditure rising another 50%, to over $12 billion a year in 2026-27, it is clear that a step change is underway in the industry. For the first time, WSAA used member data to project forward for ten years. This shows that the current increase is not a temporary peak, but a permanent increase in the investment that will be required.

Similarly, consultancy Oxera for Water UK has modelled future five-year periods and identified a sustained increase in company expenditure in England and Wales through to 2050 (Figure 10[12]). The National Audit Office has analysed how enhancement spending specifically might be split between water and wastewater in this period (see Figure 11[13])

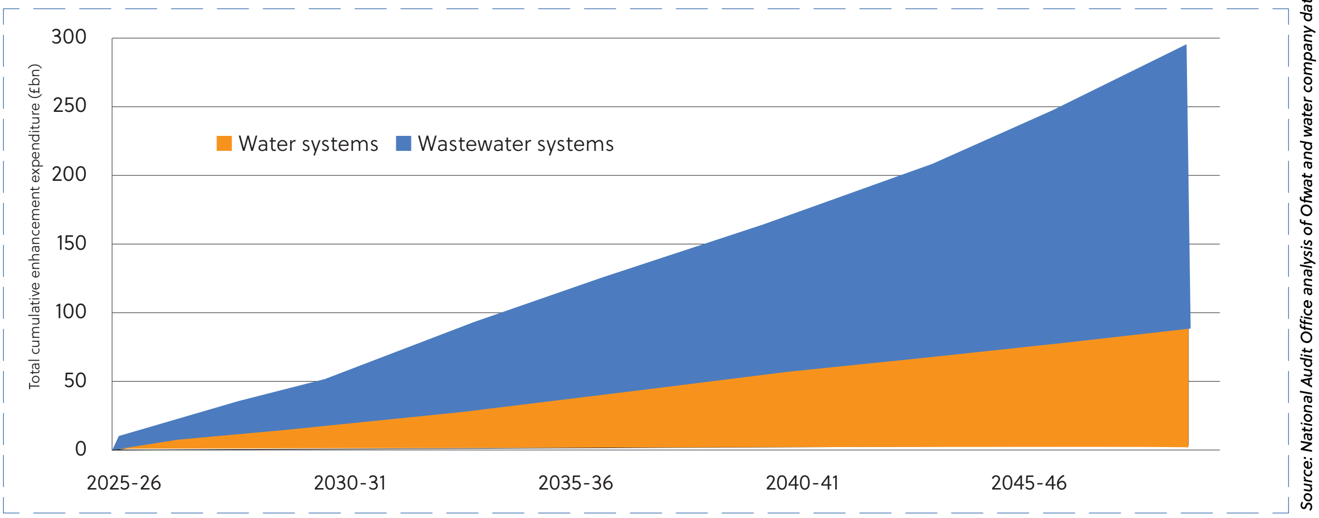


Figure 11: Future enhancement spending in England and Wales, 2025-2050

APPENDIX 2 – WSAA ANALYSIS: RECONSIDERING THE EFFICIENCY FRONTIER IN THE WATER SECTOR

The analysis in this paper suggests we need to re-look at the standard approach for setting efficiency targets in the water sector. This approach involves setting two targets; an 'ongoing efficiency target' and a 'catch-up efficiency target'.

The first target is based on the concept that an efficient firm (operating on the efficiency frontier) should make further efficiency gains over time reflecting productivity and innovation in the sector and the economy generally. The second target is based on the concept that firms which are judged not to be operating as efficiently as possible should also catch up to the (moving) efficiency frontier.

Debate takes place each price review on what figure should form ongoing efficiency. In the UK, extensive use of econometric models has been typically used by Ofwat to set catch-up efficiency targets.

The use of these econometric models was criticised in the 2025 Independent Water Commission Review[14] . For example:

> *'The Commission has heard that, in setting allowances and targets for companies, Ofwat relies too heavily on econometric modelling based on (largely historic) sectoral benchmarking. Ofwat uses the concept of a 'notionally efficient company' to assess what companies should be spending. Investors and water companies have said that 'Ofwat's 'one-size-fits-all' approach does not take sufficient account of company-specific conditions and challenges' (for example, current performance level, geography, hydrology, demography and history). The Commission has also heard that, in setting baselines, Ofwat has insufficiently taken into account the realistic level of progress companies can make in-period to support a different approach.*

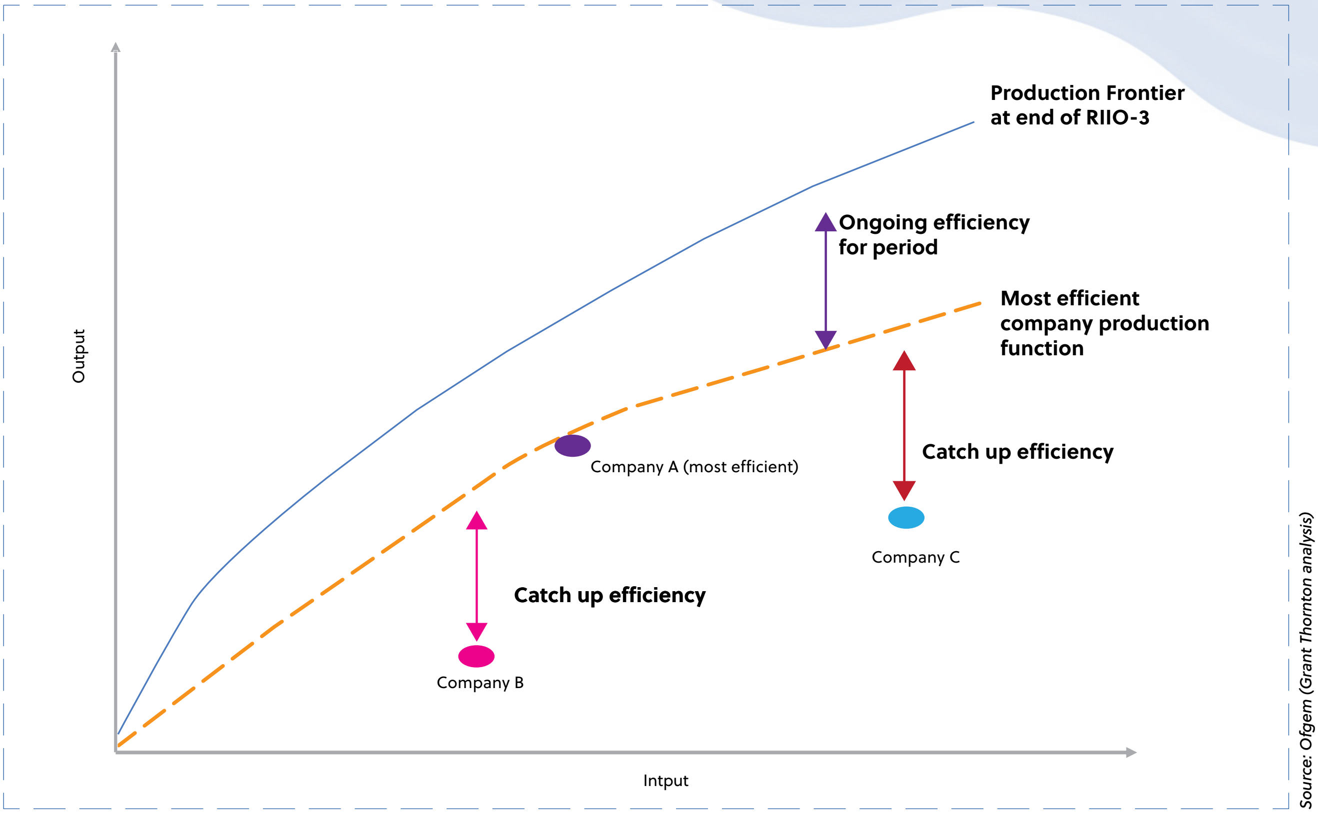


Figure 12: Graphical representation of ongoing efficiency and catch-up efficiency

In addition:

> *"The Commission has heard that there has also been an 'invisible gap' where companies have been deterred by Ofwat for submitting business plans on what they actually need to spend on infrastructure." (Final report p.182 of 464)*

This paper suggests that the whole issue of the notionally efficient firm and the efficiency frontier needs to be reconsidered because of the water transition; reductions in available (free) environmental inputs need to be funded by conventional capital and labour inputs.

Unpacking the frontier

A graphical representation of ongoing and catch-up efficiency appears in a paper for the UK energy regulator Ofgem – reproduced in Figure 12[15]. The same framework is applied in water in the UK and by some regulators in Australia.

The Y axis shows output of the sector while the X axis shows inputs. Ongoing efficiency is shown by the new efficiency frontier at the end of the determination period.

Yet this framework is contradicted by the facts. In Australia it is contradicted by the official measurement of multi factor productivity declining for 25 years, and the fact that costs and prices are increasing well above inflation. A similar pattern is evident in the UK. If real costs are rising faster than the growth in volumes of water supplied or wastewater treated, conventional analysis would say that productivity is falling.

In a reconsidered framework, technical efficiency can be improving in the water sector AND overall costs can be increasing. This is set out in Figure 13. The axis are the same as those above however the input axis explicitly excludes free natural capital inputs. The current production frontier for an efficient firm is shown as the middle curve. If the industry were free to continue using natural capital inputs in the same proportion at the end of a determination the efficiency frontier would have shifted outward. More output can be produced with the same inputs. However, in practice we are observing more capital and labour inputs to produce the same output. The actual production frontier has therefore contracted – as conventionally measured.

The key point is that the sector is improving the productivity of its existing use of capital and labour, however, this is more than offset by the additional capital and labour necessary to replace 'free' natural capital inputs.

WSAA suggests, albeit from a distance, that this was a missing piece of the puzzle that the water sector was searching for during PR24 in the UK. The frontier shift was a matter of debate during PR24 with several reports from both sides.

A consortium of companies commissioned work to look at the evidence for a frontier shift[16]. This work correctly reported and analysed the same low productivity trends — conventionally measured — as have been evident in Australia. However, without the explanation we have set out, the industry is forced into some tortuous positions.

> *'Historical data shows that, factually, over PR14 and PR19 the water industry delivered low productivity, in line with low and flat productivity of the UK'*

And more tellingly.

> *'The water industry is not intrinsically a high tech industry'*

The analysis in this paper suggests that two things can be true at once. The water sector can be a high-tech sector like any other sector; and overall costs can increase. Rising costs in the water sector should not be confused with poor performance. Globally water is indeed a high-tech industry in terms of water treatment, advanced wastewater treatment, recycling for drinking and biosolids processing among others. However, that technology involves higher costs than the low-tech alternatives of free catchments or using, say, the oceans as a disposal sink.

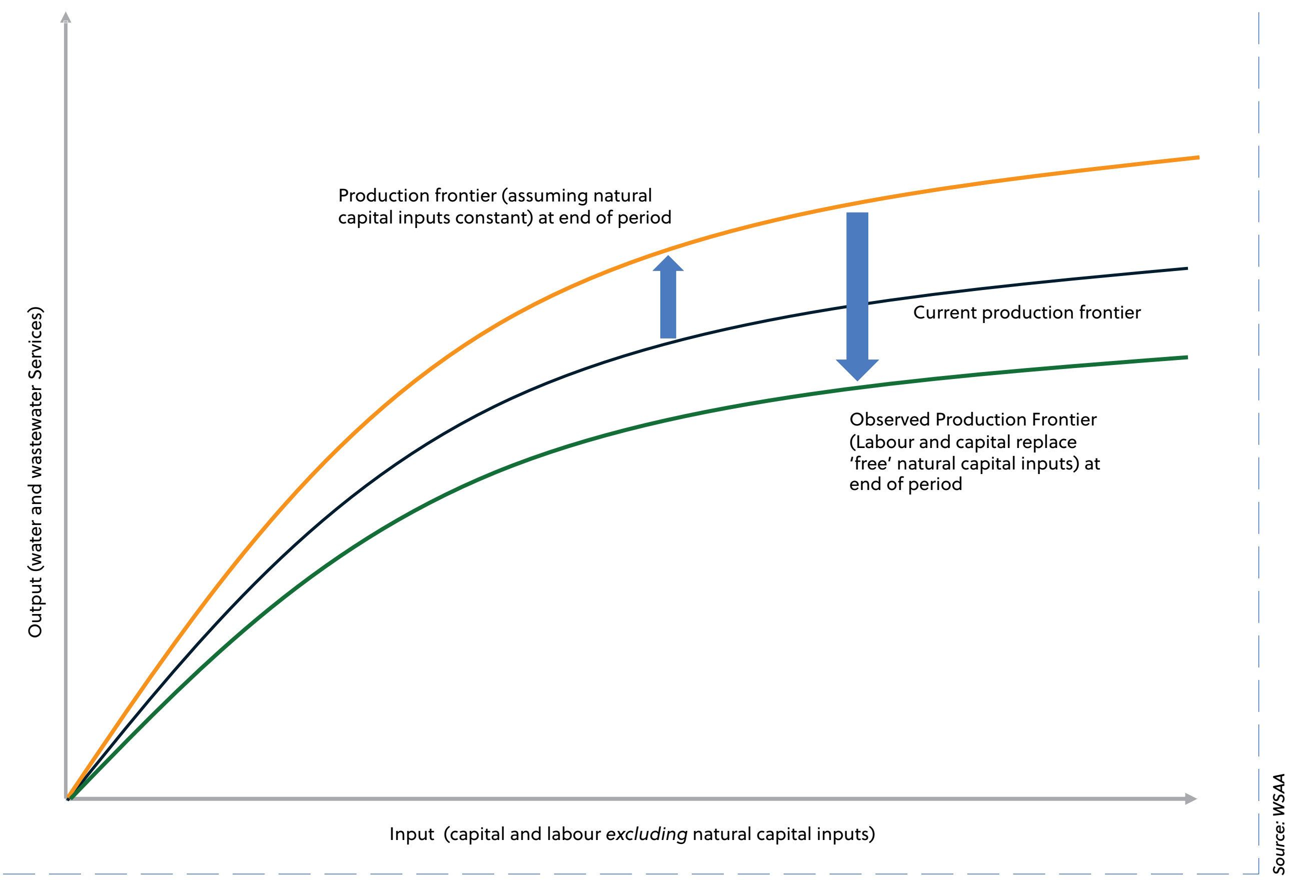


Figure 13: Reconsidering the production frontier in the water sector.

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