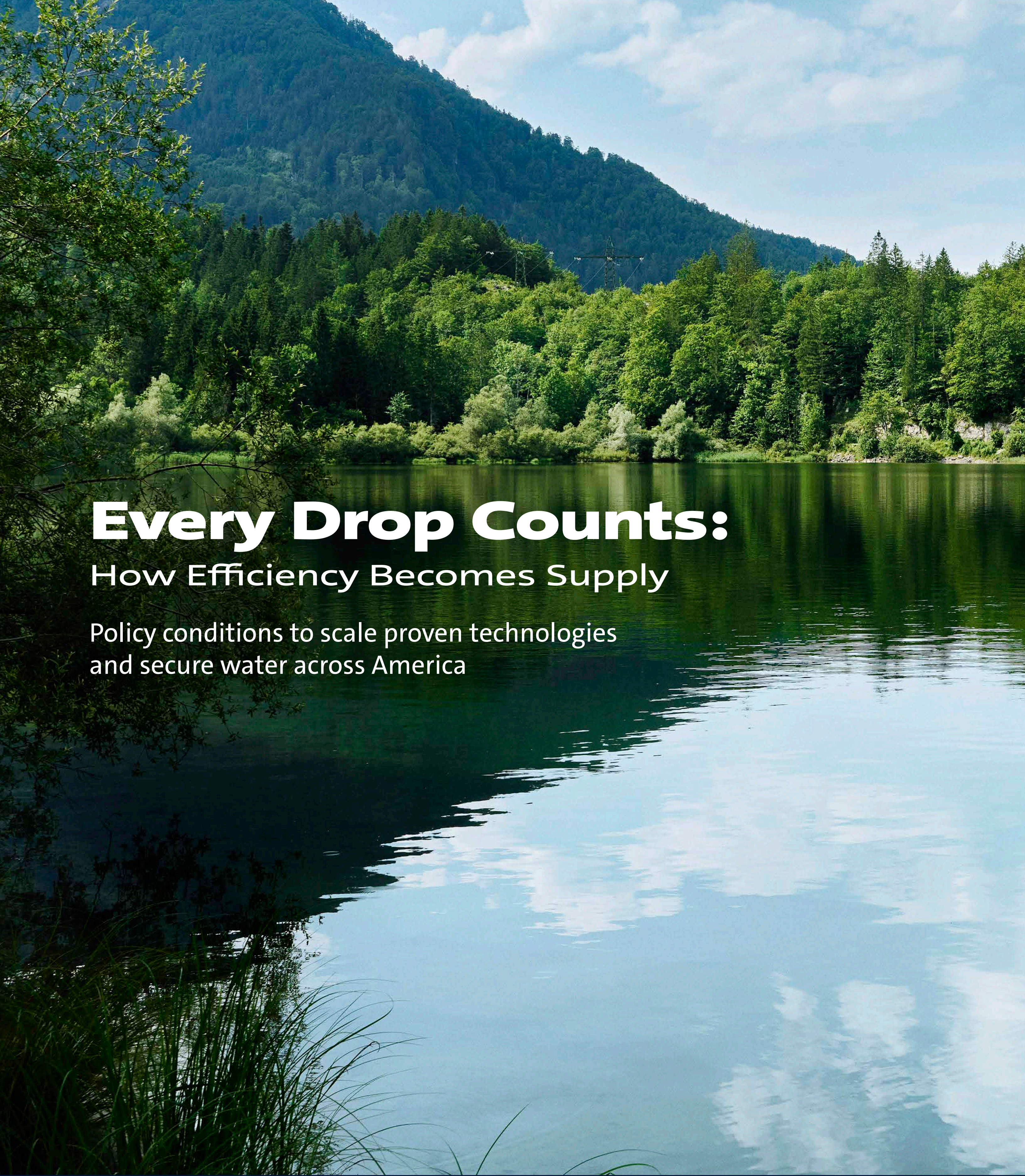


Every Drop Counts:

How Efficiency Becomes Supply

Policy conditions to scale proven technologies and secure water across America

GRUNDFOS

Possibility in every drop

GRUNDFOS

Possibility in every drop

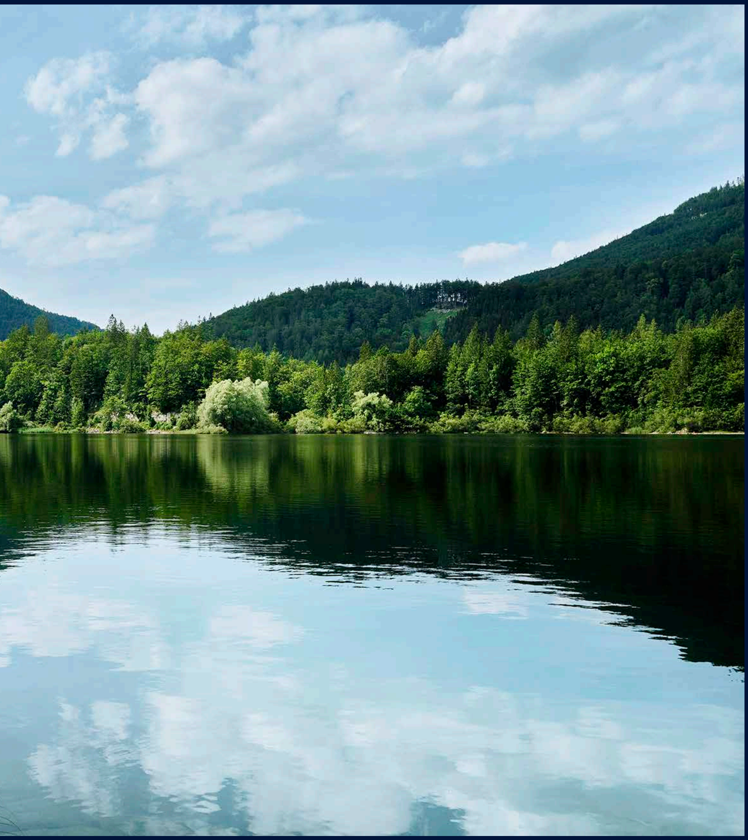


Table of contents

"Water has no substitute. It sits behind every factory, every harvest, every community, and every digital service we rely on. Yet we continue to underestimate its value until it becomes scarce. Solving water scarcity requires a different mindset, one that treats every drop as a resource to be protected, reused and managed intelligently. The technologies are available today. Our opportunity is to make them the standard rather than the exception."

Inge Delobelle
CEO, Grundfos Industry division

Executive Summary

Water is the one resource with no substitute, and the country has long planned, priced, and governed it as though supply were endless. Roughly 60 percent of U.S. land and half the population face medium-to-high water stress in a typical year, and demand keeps climbing — from population growth across the Sun Belt and Mountain West, and from a wave of new industrial load landing on the systems least able to absorb it.

Faced with shortage, the instinct is to look for new supply in reservoirs, pipelines, desalination, and deeper wells. While each has a role, new sources are expensive and take years to bring online. The faster response requires no new source at all — doing more with the water we already have. The supply already moving through the nation's homes, farms, factories, and pipes is not being used as efficiently as it could be, with much of it lost along the way or only used once when it could safely be used again and again.

And that supply is substantial. American households lose nearly 900 billion gallons a year to leaks, plus the treated water sent down the drain while a tap warms. On farms, irrigation delivered on a fixed schedule rather than to actual crop need draws more water than necessary from stressed aquifers. In industry, most water is used once and discharged, though much of it leaves a facility still clean enough for another round. And utilities lose nearly one in five gallons of treated drinking water before it reaches a customer — close to 7 billion gallons a day, already drawn from a stressed supply, already cleaned, already paid for. Seen together, that is one of the largest untapped water sources in the country.

Efficiency is how that source gets tapped, and the tools to do so already exist. Smart recirculation builds water and energy savings into homes for the life of the building. Precision irrigation grows more crops from every gallon. Industrial facilities that measure, reduce, reuse, and reclaim can cut freshwater intake by 75 to 90 percent. Pressure management recovers drinking water now leaking from utility networks, before it is ever lost. And water reuse turns a single supply into several. Every one of these is proven, and every one is operating somewhere in America today.

The gap is not invention. It is deployment — the standards, funding, incentives, and accountability that carry a working approach from early adopters to common practice. That is the work of policy, and each level of government holds a lever the others do not.

The recommendations that follow are organized by who holds those levers. For federal leaders: national water-loss reporting standards, infrastructure funding aimed at recoverable water, and the bipartisan Advancing Water Reuse Act. For states: transparent loss accounting, clear frameworks for water reuse, and groundwater management through the model that fits — paths that are already proven in states as different as California, Georgia, Arizona, and Kansas. For local governments and utilities: pressure management that is funded ahead of new supply, and development that is built to be reuse-ready from the start. And for industry: water managed as a business asset, with water and energy addressed as one system.

The choices over the next few years will decide whether these solutions remain scattered examples or become how the country manages water as a matter of course. The technology is doing its part. What remains is the decision to make proven practice the standard rather than the exception.

The true value of water

Water is the one resource with no substitute. It underpins every part of our lives, our society, and our economy, from the food we grow to the energy we generate, the goods we manufacture, and the communities we build. Without it, none of the rest is possible. Yet we have long treated water as an endless supply, always on, effectively free, and rarely counted until it runs short. By almost any measure, it remains undervalued and under-prioritized in how we plan, govern, and invest.

That value is easy to miss because so much of it stays hidden. It takes water to grow the coffee in a morning cup, the cotton in a favorite t-shirt, and the grain, patty, and toppings inside a hamburger. Every grocery receipt carries that embedded cost, even when water isn't listed as a line item. Water keeps the lights on, because the power plants generating our electricity need it to run. It keeps digital life going, because the data centers behind online services rely on water to stay cool.

Roughly 60 percent of U.S. land and half the population face medium-to-high water stress in a typical year.[1] The Colorado River, which supports 40 million people and more than $1.4 trillion in annual economic activity, is committed to deliver more water than it reliably carries, and now sits near a third of its total storage capacity.[2,3] Beneath the Great Plains, the Ogallala Aquifer supplies roughly 30 percent of the nation's irrigation groundwater and is being drawn down faster than rainfall can refill it.[4] And these already strained resources are further depleted when they're run through the aging pipes beneath American cities, which lose billions of gallons of treated drinking water every day, before it ever reaches a tap.[5]

And while supply is shrinking, demand keeps climbing, pushed by growing populations, urbanization, and rising consumption across the Sun Belt and Mountain West, and by a wave of new industrial demand landing on the water systems least able to absorb it. Climate change is intensifying these challenges, compounding the stress on resources and systems that were planned, priced, and governed in an era when water seemed limitless.

Faced with shortage, the instinct is to look for new supplies; construct and maintain reservoirs, expand and extend pipelines, scale up desalination, and dig deeper wells. While these options each have a role to play, new sources can be large, expensive, and take years to bring online. And in their own way they leave one of the biggest opportunities untouched — doing more with the water we already have. It's one of the fastest responses to scarcity, and it doesn't rely on breakthroughs yet to come. The technologies and practices that stretch existing supplies are proven, not experimental, and where in use they deliver measurable results.

The premise of our assessment is that water moving through our homes, farms, factories and pipes can be used far more efficiently than it is today, and the tools to make it happen are at our fingertips. Among the most powerful of those is one of the simplest ideas in water management — using the same water more than once. For more than a century, American water systems were designed to be linear. Water is drawn, treated, used once, and sent downstream. Rather than that being the end of the story, much of this water can safely be used again. As a solution, water reuse works at nearly every scale — on farms, in factories, across cities, and towns. In fact, many communities and industries already practice a version of it, so planned reuse formalizes and improves on something already happening around us.

So, the opportunity is to do more with the water we already have in hand. The challenge is that, while the solutions to do this exist, they have not yet been broadly adopted into practice. The gap, and focus of this paper, is deployment — and closing it comes down to priorities, financing, and incentives. Creating the necessary conditions for these solutions to scale at speed rests on setting the right policies.

Every solution in the pages that follow is already working somewhere in America, delivering more water, lower costs, and stronger communities. Scarcity is a solvable problem.

The Colorado River at a glance:

40 million people rely on it for water

$1.4 trillion in annual economic activity depends on it

1/3 of total reservoir capacity remains

Savings built into the home

The place to start is the most familiar one. In tens of millions of American homes, an opportunity awaits to prevent water loss that most of us never think about. To get hot water, a tap or shower often runs until the water warms, sending clean, treated, pressurized drinking water down the drain before it is ever used. Research indicates that roughly 30 percent of shower water is lost this way, along with up to 40 percent of the energy used to heat it.[6] And the warm-up wait is only the most visible of a home's hidden losses. Household leaks, through running toilets, dripping faucets, overwatered yards, and hidden pipe failures, result in a loss of nearly 900 billion gallons nationally each year.[7] Together, it adds up to billions of gallons a year that never do any work at all.

No one designed homes to do this, and individuals can't fix it by simply watching the faucet or hunting for drips. The solution isn't asking people to change their habits, it's building the savings into a home the same way the waste was. Behavior-dependent conservation, like remembering to take shorter showers, is hard to sustain and easy to forget. Conservation embedded in the infrastructure works whether anyone thinks about it or not.
Leak detection that catches silent losses, high-efficiency fixtures, and smart irrigation that responds to a yard's actual needs all conserve water in the background, without a homeowner having to do a thing.

> **"Small, proven technologies**
>
> **in the home can make a meaningful difference to how we use water.**
>
> **Hot water recirculation is one example. It reduces the clean water lost while people wait for hot water and can save up to 8,000 gallons of water per year in a single household. If we are serious about water resilience, solutions like this should be more widely adopted."**
>
> **Morten Bach Jensen**
> CEO, Grundfos Domestic Building Services division

Hot water recirculation is one such solution, and one that holds great promise. A recirculation pump keeps hot water moving gently through a home's pipes so that it is already there when someone opens a tap, eliminating both the wait and the waste. Modern systems use sensors and intelligent controls that follow a household's real patterns, so the home itself becomes a smart water infrastructure, with the savings locked in for the life of the building.

The technology is proven. Since 2017, roughly 60,000 new homes across Georgia have been built with smart recirculation installed, saving an estimated 180 to 720 million gallons a year.[10] And there is a larger opportunity in homes that already exist, where roughly nine in ten still have no system to eliminate the wait.[8] Every renovation, water heater replacement, and repipe that passes without one is a missed chance to lock in decades of savings.[8]

The fastest path to millions of water-smart homes runs through policymakers rather than homeowners. Building codes and efficiency standards can make smart recirculation and leak detection the default in new construction. Utility and state rebate programs can reach the retrofit market at exactly the right moment, as homes come up for renovation and water heater replacement. And federal efficiency incentives, built around energy, can be extended to the technologies that save water and energy together. Legislators and regulators who pull these levers lock in savings that compound for the life of every building they touch, without asking a single person to change a habit. That is the opportunity in the nation's homes, conservation that lasts as long as the buildings themselves, scaled not by persuading millions of homeowners but by the standards and incentives that make efficiency the default.

The waste shows up twice:

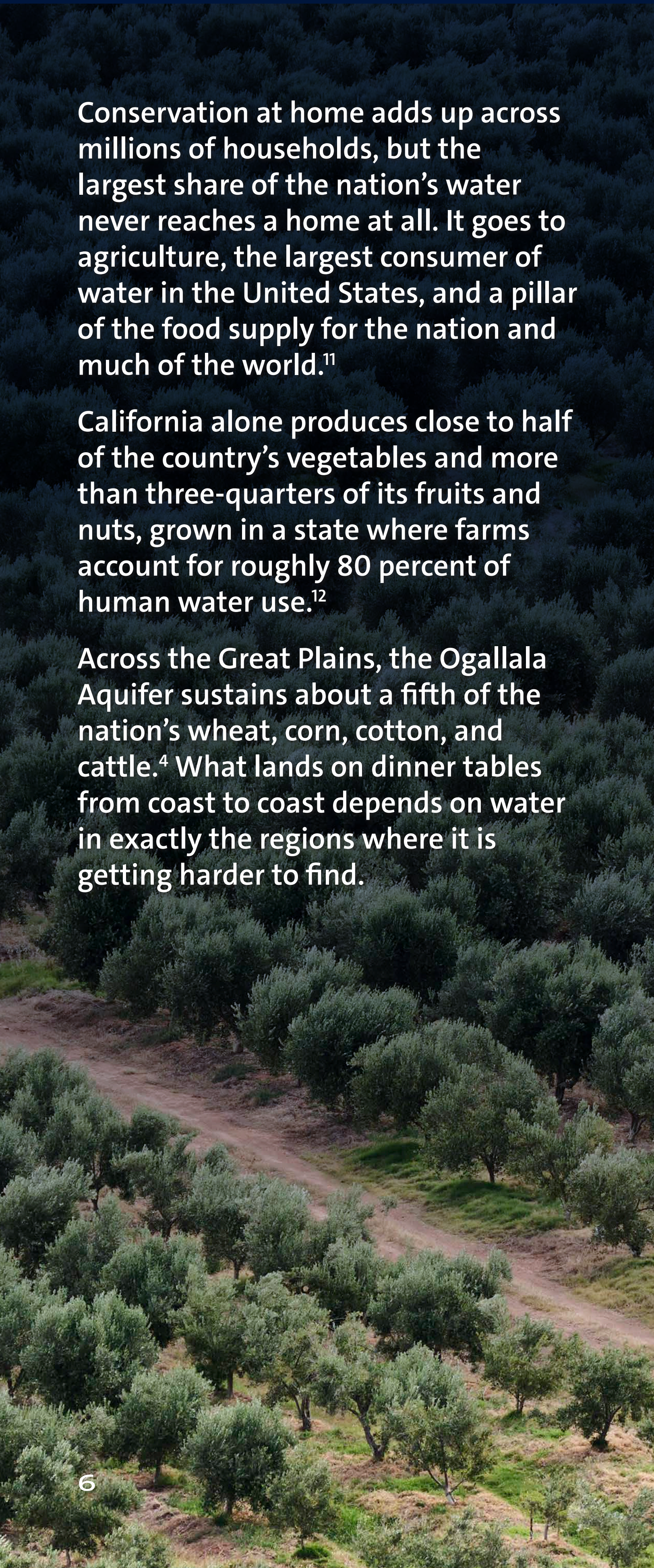
Treating and delivering water that never gets used consumes 745 million to 2.76 billion kilowatt-hours every year, enough to power up to 260,000 homes.[8] The Natural Resources Defense Council estimates that improved plumbing codes alone could cut the waste of hot water, and the energy that heats it, in new homes by 15 to 30%.[9]

2.4 million
Olympic-sized swimming pools of water are wasted every year waiting for hot water.

That could supply
50 million
Americans for a year.

660,000 gallons per pool × **2.4** million pools ≈ **1.6** trillion gallons.

More food from less water



Conservation at home adds up across millions of households, but the largest share of the nation's water never reaches a home at all. It goes to agriculture, the largest consumer of water in the United States, and a pillar of the food supply for the nation and much of the world.[11]

California alone produces close to half of the country's vegetables and more than three-quarters of its fruits and nuts, grown in a state where farms account for roughly 80 percent of human water use.[12]

Across the Great Plains, the Ogallala Aquifer sustains about a fifth of the nation's wheat, corn, cotton, and cattle.[4] What lands on dinner tables from coast to coast depends on water in exactly the regions where it is getting harder to find.

And it is getting harder. In late 2025, more than 65 percent of the Western United States was in drought, with 14 percent classified as extreme.[13] In California's Central Valley, groundwater has been drawn down so far that the land itself has subsided in some areas, damaging the wells farmers rely on.[14] While in the Great Plains, the Ogallala is being drawn down faster than it can be refilled, and unlike California, there is little new supply to develop. Rising temperatures compound the strain in both regions, pulling more moisture from the soil so that the same harvest demands more water than it once did.

Yet the outlook is far from set in stone, and solutions to these significant challenges are already being deployed. Water planners broadly agree that the Ogallala can support the region's farm economy for decades to come, provided withdrawals keep declining. Our focus, therefore, must be continuing to leverage technologies that reduce waste, increase efficiency, and maximize reuse. American farmers across both regions are already showing they can grow more with less. In California, on-farm efficiency investments have cut agricultural water use by more than 14 percent since 1980 even as food production rose 38 percent.[12] Across the Plains, growers are adopting regenerative and soil-health practices that hold moisture in the ground, and matching crop choices to the water actually available.[15]

Precision irrigation is at the leading edge of these shifts. Rather than watering on a fixed schedule, it delivers water according to real-time readings of soil moisture, crop need, and weather, so each field gets what it requires and little more. The logic mirrors the recirculation loop in a home, building the efficiency into the system itself. Field trials consistently show 20 to 40 percent less water used than conventional irrigation, and the lower-pressure systems that deliver it also trim pumping costs by 15 to 20 percent, savings that matter where energy is one of farming's largest expenses.[16]

And precision irrigation is just one tool in a wider kit. Pressure management and smart, variable-speed pumping cut the water and energy lost in moving it. Managed aquifer recharge takes excess water that accumulated during a wet-year and reserves it underground for use during dry years. Non-potable water reuse takes treated water from nearby municipalities and reroutes it to fields. And beyond the fields, groundwater accounting, conveyance upgrades, and locally led governance help conserve water at the scale of the basin, turning scattered savings into water the whole region can count on.

Precision irrigation at a glance:

20-40%
less water used than conventional irrigation

15-20%
lower pumping costs with low-pressure systems

With agriculture using the majority of the nation's water, the efficiency of its fields is one of the largest levers for easing pressure on every other user of the same strained supply. And the payoff reaches well beyond the farm. When growers can hold full yields through dry years on less water, the food system stabilizes and the cost of feeding a family stays within reach.

What stands between most growers and these tools is often capital, and the policy conditions around it. A precision system or a well retrofit is a major investment for a farm operating on thin margins, and it pencils out fastest where public programs share the cost, the way federal and state conservation programs already do for soil. Policymakers hold the key to other solutions too.

They fund and permit the recharge projects that bank wet-year water, they connect towns and farms through recycled water infrastructure, and they back the locally led groundwater compacts, like those Kansas has pioneered, that let farming communities set their own path to a stable aquifer. None of this asks agriculture to grow less. It equips the people who feed the country to keep doing it on the water that remains.

Garden City, Kansas:

A phased reuse program is on track to irrigate cropland with treated effluent water that once came from aquifer pumping, while simultaneously recharging groundwater at the nearby Sandsage Bison Range.[17]

Water as an industrial asset

Food may be the most visible of water's products, but almost everything the economy produces carries a hidden water cost. It is embedded in a microchip and a dose of medicine, a cold drink and a prepared meal, even a single online search. In the power sector alone, cooling the nation's thermoelectric plants accounts for roughly 40 percent of all U.S. water withdrawals.[18] Factories and industrial facilities draw roughly another five percent on their own, plus a sizable share of the water that city systems deliver.[19] These industries, resources, services, and technologies power our lives and lead to innovation, education, comfort, and a broader future for people in America and around the world. To ensure that growing demand across so many sectors remains in balance with the resources called upon, efficiency and reuse must remain front and center in the water toolkit.

Water as an economic issue

For industry, water is not just a sustainability issue, it's an economic one, and the actual water bill is the smallest part of it. Water carries the cost of the energy that heats, cools, and moves it, the chemicals that treat it, and the risk that in a stressed region, supply is curtailed and production stops. Where factories, power plants, and data centers are converging in fast-growing, water-stressed regions, efficiency is what keeps a facility running and competitive. The companies that are leading the way increasingly manage water the way they learned to manage energy a generation ago, as a strategic resource to be measured, valued, and optimized rather than simply purchased. The scale of that shift shows in the spending. Industrial water-management investment in the U.S. and Canada is projected to grow from $48.4 billion in 2024 to $62 billion by 2030.[20]

Measure, then manage

On the plant floor, efficient water management follows a consistent sequence. Measure first, then reduce, then reuse, then reclaim. Measurement leads because a facility cannot manage what it has never counted. The foundational tool is a water balance, a full accounting of the water entering a site, where it flows through every process, and where it leaves, losses included.[21] Most facilities that build one find water they did not know they were using, and with a baseline in hand, every improvement can be verified.

Reduction is where some of the fastest gains live, and few industries demonstrate it better than food and beverage. In a modern plant, cleaning and sanitation account for 50 to 70 percent of water use, and that is where the tools have greatly improved.[19] Intelligent dosing pumps now meter cleaning chemicals to exactly what each cycle needs, instead of flooding equipment with water and chemicals to be safe. Variable-speed pumping delivers the precise pressure and flow each cleaning cycle requires, matching water movement to actual demand. Real-time monitoring tracks consumption across a facility and finds the losses a monthly bill hides. And the same toolkit serves dairies, bottlers, breweries, meatpackers, and snack producers alike.[1] Some leading breweries have even cut their water-to-product ratios from 10 to 1 down to 3 to 1 or better, with no drop in output.[22]

Reuse rests on a simple principle — matching water quality to the task. Not every job needs drinking-quality water, and much of what a facility has already used is still clean enough for another round. The final rinse of one cleaning cycle becomes the first rinse of the next. Condensate recovered from evaporators and steam systems returns as boiler feed or cooling makeup. Cooling loops recirculate instead of discharging. Sensors route each stream wherever its quality allows, all of it caught before it becomes wastewater.

Reclamation closes the loop, recovering the water set to leave a facility. Through onsite treatment and membrane filtration, wastewater that once departed as discharge can be treated back to whatever quality its next use demands and no further. This is called fit-for-purpose, and it's the discipline that keeps reclamation affordable. Run end to end, the full measure, reduce, reuse, reclaim sequence can lower a facility's freshwater intake by 75 to 90 percent.[1]

Intel, Chandler, Arizona:

Water reuse is what has allowed Intel to keep growing in the desert Southwest, where scarcity is a real barrier to development.

98%
of the campus's water is recovered for reuse.

5 billion
5 billion gallons of water have been saved since onsite treatment began in the late 90s.

9,000
jobs have been created across Intel's Chandler-area campuses.[1]

Beyond the fence — Wichita, Kansas:
A public-private pipeline carries treated municipal wastewater directly to the Boeing manufacturing campus, freeing drinking-quality water for the community.[17]

Beyond the fence

The recycling loop does not have to stop at a property line. In a growing number of cities, utilities treat municipal wastewater to the quality a factory needs and pipe it directly to the plant. These partnerships work in both directions. Industry gains a supply that is drought-resistant and price-stable, and the community keeps its drinking water for people while gaining a paying partner for its treatment infrastructure. Projects like these, underway from Virginia to Ohio to Washington State, are among the fastest-spreading forms of reuse in the country.[23]

Where water meets energy

Running through every one of these systems is water's partner, energy. It takes energy to pump, treat, and move water, and water to generate most electricity, roughly 12,000 gallons per megawatt-hour through the nation's power plants.[24] The two are so bound together that efficiency in one directly impacts the other, and often inversely — something known as the water-energy nexus. For example, a cooling system that uses no water often uses more energy, which shifts a facility's water draw to the power plant. The right choice must weigh both energy and water use against local conditions, and managing the two together as one system is where some of the largest industrial water gains can be found.

Few industries illustrate the water-energy nexus better than data centers. They are essential infrastructure for the digital economy, and a significant portion of the water they use goes to a single purpose — keeping densely packed servers cool. Their direct draw is less than one percent of the nation's water, but the larger share of their footprint arrives indirectly, through the electricity they consume.[25] The sector is growing fastest in some of the driest parts of the country, turning water-smart design from a virtue into a requirement.

Across the sector, water is increasingly managed like the strategic input it is, measured, minimized, and reused. In data centers, closed-loop liquid cooling recirculates the same water rather than evaporating it away, and many of the largest campuses are now being specified this way from the outset, with several expecting to use almost no water once filled. Where evaporative cooling still suits the climate, a growing share of facilities run their systems on reclaimed water rather than drinking water, with intelligent pumps matching flow to the actual heat load. Many operators have gone even further, making water-positive commitments and investing nearly $800 million in water project partnerships with utilities.[27]

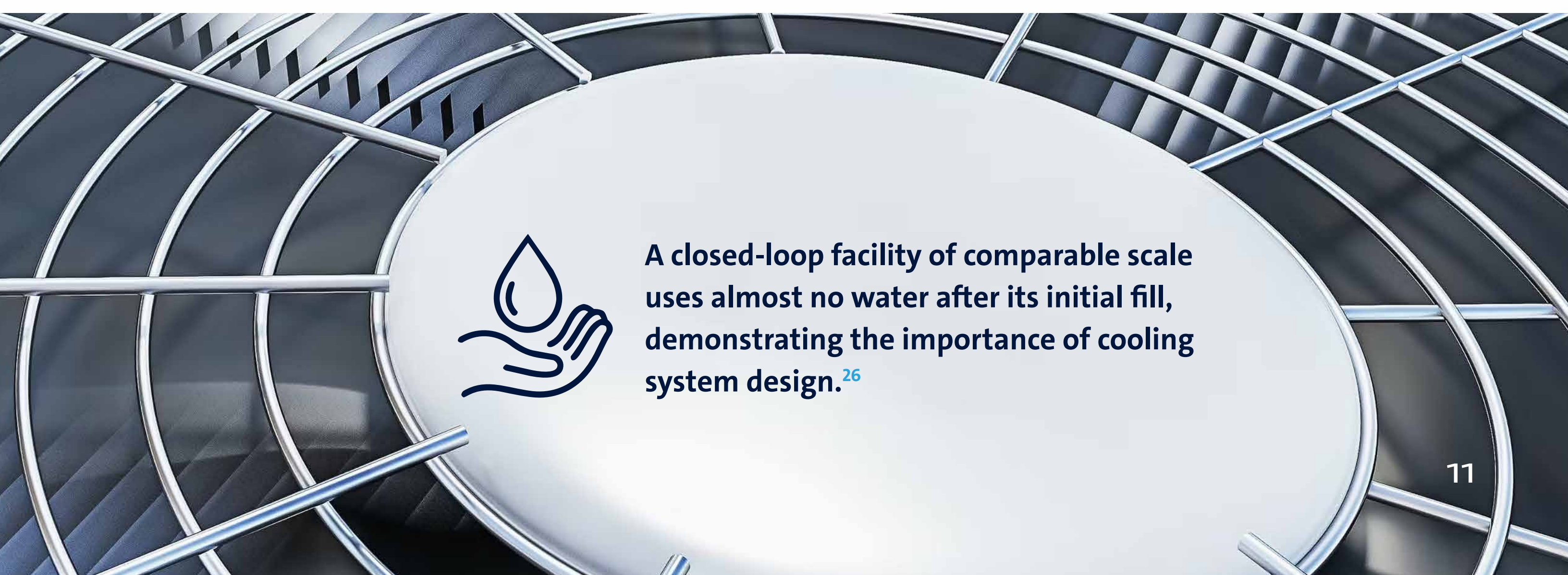
A factory, a refinery, or a server farm draws on the same water and power as the community around it, which gives policymakers a direct stake in how efficiently industry operates. The tools in this section spread fastest where policy invites them, through permitting that rewards water-smart design, reporting that makes use visible, and utilities empowered to partner on reuse. As industrial growth pushes into the driest parts of the country, water, not land or labor, is increasingly what decides whether a region can say yes to new investment. The leaders who set these conditions now will shape which communities capture the next generation of American industry, without straining the supplies their residents depend on.

Read more ▶
about data centers and water use in Building America's Digital Economy

Same size, very different footprint

An evaporatively cooled facility can use
18,000 to 550,000
gallons a day,

the daily water use of roughly
60 to 1,800
U.S. households.



A closed-loop facility of comparable scale uses almost no water after its initial fill, demonstrating the importance of cooling system design.[26]

The water utilities already own

Behind every home, farm, and factory runs a network most Americans never picture, more than 2.2 million miles of pipes, pumps, and treatment plants moving finished water from source to tap. When it works, it is invisible. The challenge is that much of the country's water pipes date to the decades after World War II, and they are simply wearing out. Utilities and operators work every day to maintain, repair and upgrade their local systems, but the challenge is enormous. The American Society of Civil Engineers grades the nation's drinking water infrastructure a C-minus, with more than $625 billion in investment needed over the next two decades to keep it running.[28]

Aging infrastructure is not only a maintenance problem, it is a scarcity problem hiding in plain sight. Nearly one in five gallons of treated drinking water is lost before it ever reaches a customer, leaking out of cracked mains and failing joints across the system.[5] Utilities have a name for it, non-revenue water, water produced and paid for but never billed. It amounts to billions of gallons of water already pulled from a stressed supply, already cleaned, already pressurized, already paid for, and then lost before anyone can use it. Seen from a different angle — the utility network is one of the largest untapped sources of water in the country. Every gallon recovered from a leak is a gallon that needs no new reservoir, no new pipeline, and no new well, available immediately and in exactly the places already under strain.

7 billion
gallons of treated drinking water leak away every day before reaching a tap.

It is a resource that is already here, ready to use.

The tools to recover this water exist and are proven. Among the most powerful is pressure management, adjusting the pressure across a network in real time to match what the system actually needs instead of holding it at a fixed set point around the clock. Most systems hold that set point higher than they need to, because too little pressure brings complaints from customers, but too much pressure shows up years later as a burst main. Smart controllers and remote sensors read conditions at critical points and ease pressure wherever demand does not require it. The physics work in the utility's favor twice over. Water escapes existing leaks faster under higher pressure, and excess pressure drives the stress that cracks pipes, so easing it both slows every current leak and prevents new ones. It's what makes pressure management one of the most effective tools a utility has for reducing non-revenue water.[29]

Across intelligent pressure management projects delivered since 2014, utilities have cut on average[30]:

leakage by	energy use by	pipe bursts by
15%	**25%**	**35%**

Adoption of technologies like pressure management remains uneven across nearly 48,000 community water systems, and the gap begins with measurement. Many utilities still lack validated data on their own losses, which makes it hard to know where to invest or whether a fix worked.[5] Part of the reason is the lack of a national standard for water-loss reporting, with some states requiring audited loss reporting and many requiring nothing at all. California offers one of the clearest models, folding water-loss audits, pressure monitoring, and loss-reduction targets into its long-term reliability planning.[32] That baseline of accountability is what makes progress measurable, and building it nationwide is among the highest-leverage steps available to policymakers.

Most people never think about the utility network until it breaks. For the utilities and officials who run these systems, recovering lost water is among the cheapest supply they can find, water already paid for and treated, captured before it leaks away. It also eases the steady climb in water bills, up roughly 24 percent in five years, that comes in part from charging customers for what is lost before it reaches them.[33] Fixing the network will not be seen, but it will be felt, with its measure of success being a system that goes back to being invisible.

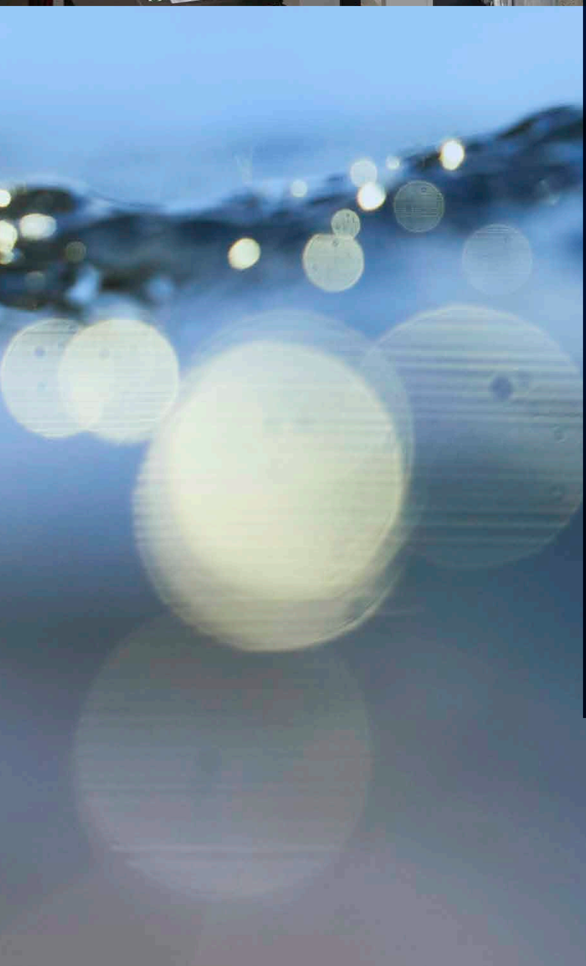
Rincon del Diablo Municipal Water District, California:

A pumping station serving Escondido had held a fixed 90 psi around the clock. Adaptive controls now match pressure to real demand, bringing critical points down from 65–70 psi to 50–56 psi, cutting the energy needed to move each gallon by 60% and leakage by an estimated 10%. The district has since extended the approach to a second zone.[31]

The solutions so far are proven and ready today. But innovation has not stopped, and newer supplies and technologies are steadily moving toward the mainstream.

Rainwater harvesting lets a large commercial building or campus capture runoff for irrigation and cooling, easing demand on municipal supply and on stormwater systems at the same time. Advanced salinity management strips the dissolved salts that have traditionally capped how many times recycled water could cycle through a system.[34] District heating networks are beginning to recover the surplus heat that moves through cooling loops and put it to work elsewhere. Produced water, the fluid that surfaces alongside oil, emerges in enormous volumes in the same Western basins where freshwater is scarcest. An estimated 2 to 4 billion barrels a year from the Permian Basin alone could eventually be treated for use beyond the oil field.[35]

These are just a few examples of many such innovations in the pipeline, and each will be put to work fastest where clear standards and science-based permitting already exist. And while we should continue pushing what's possible, the near-term solutions don't change — the fastest, cheapest supply is the water already in hand, used more efficiently.



Who holds the lever

The technologies and practices that can solve America's water challenges exist. What is needed now are the conditions that allow them to scale at speed — the standards, funding, incentives, and accountability that carry a proven approach from early adopters to common practice. That is the work of policy. Each level of government holds levers the others do not, and when they pull in the same direction, proven solutions spread. The recommendations that follow span every sector covered in this paper, grouped by who holds the lever.

Federal action

1 **Establish minimum national standards for water loss reporting.** Congress should direct the EPA to require annual water audits from community water systems using the American Water Works Association's methodology, public reporting of non-revenue water, and loss-control plans where losses exceed defined thresholds. Utilities cannot fix what they have not measured.

2 **Extend the Infrastructure Investment and Jobs Act and aim it at recoverable water.** The IIJA, set to expire in September 2026, has been the most significant water investment in a generation. Its successors, State Revolving Funds and WaterSMART, should make non-revenue water reduction explicitly eligible and prioritized, from pressure management and district metering to leak detection and validated audits.

3 **Advance the bipartisan Advancing Water Reuse Act and fund the Water Reuse Action Plan 2.0.** H.R. 2940 and its Senate companion, S. 4506, would provide a 30% investment tax credit for water reuse infrastructure.[36] Paired with WRAP 2.0, which names industrial reuse, data center cooling, and electricity generation as priorities, the framework and the capital incentive would move reuse from pilot to standard practice together.[37]

4 **Make groundwater data and aquifer recharge federal priorities.** Expand USGS and Bureau of Reclamation monitoring and basin mapping, and direct existing infrastructure programs to support managed aquifer recharge and groundwater banking.

5 **Extend home efficiency incentives to water-energy savings.** Water efficiency is energy efficiency. Federal rebate programs should recognize technologies that save both, including smart hot water recirculation and leak detection.

6 **Support a next-generation water metric for data centers.** Water Usage Effectiveness (WUE) measures only direct, on-site use, not the water embedded in electricity or local watershed stress. Federal agencies should convene industry to build on WUE with a standardized, holistic metric, then tie data center incentives to it.

“**The most overlooked water source in America**

is the water we are already treating, pumping, and paying for, only to lose it before it reaches a customer. As water stress grows, utilities that treat efficiency as a source of supply, through better measurement, pressure management, and smarter operations, will be best positioned to meet future demand.”

Hamed Heyhat
CEO, Grundfos Water Utility division

State action

1 **Make water loss transparent, and tie it to action.** The states leading on non-revenue water share one principle, transparency, applied through different models. California embeds enforceable loss standards in its long-term efficiency regulation. Georgia's Water Stewardship Act pairs annual audits, certified by qualified water-loss auditors, with required loss-control programs and demonstrated progress, a framework that has balanced reporting with action for over a decade. States need not copy either model, only the shared principle, that lost water is measured, published, and managed.

2 **Scale state water reuse regulations.** Reuse today is governed by a patchwork, with clear rules in some states and silence in many, and fixing that is among the most concrete steps available to states. States should adopt health-based standards for onsite non-potable reuse and permitting pathways for potable reuse, covering treatment, monitoring, public engagement, and operator certification.

3 **Create rebates for built-in water efficiency.** Fund rebates for smart recirculation, leak detection, smart irrigation, and efficient fixtures, prioritizing retrofits, and fold demand-controlled recirculation into codes for new homes.

4 **Strengthen groundwater management through the model that fits.** Arizona's Active Management Areas, dating to 1980, California's Sustainable Groundwater Management Act (SGMA), and Kansas's locally designed Local Enhanced Management Areas are three workable designs with one common thread, measurement, reporting, and a sustainability obligation. States facing depletion should adopt one, and all should streamline permitting for aquifer recharge.

5 **Bring data centers into state water planning.** When Texas agencies surveyed data centers on water and power use, fewer than a third responded. Governor Abbott has since called for legislation requiring water-efficient cooling and usage reporting.[39] States should follow that direction regardless of party.

Local and utility action

1 **Put recovered water first in capital planning.** Intelligent pressure management, district metering, and leak detection should be the first tier of investment, before more expensive supply-side projects, with validated loss audits steering capital plans, rate cases, and bond programs toward the highest-value recoverable water.

2 **Make new development reuse-ready.** Require major developments, campuses, and data centers to submit water budgets, condition approvals on non-potable sourcing where available, and require water impact assessments for new data centers. Communities that set these expectations early shape growth instead of absorbing it.

3 **Bring rebates to the water-smart home.** Utility rebate programs for smart recirculation and leak detection, offered where hot-water waste and losses are documented, reach homeowners at the moment of replacement and complement state incentives.

4 **Plan groundwater locally, with the people who use it.** Maintain sustainability plans with monitoring and public reporting, and partner directly with farmers to expand recharge capabilities and irrigation efficiency.

Industry action

1 **Manage water as continuity risk, not a compliance exercise.** The markers of leadership are consistent, science-based targets covering water and energy together, transparent reporting, and investment in the measure-reduce-reuse-reclaim sequence.

2 **Make 'water-positive' a standard practice in data centers.** The sector's leaders have shown what is achievable, through replenishment commitments, near-zero-water builds, and nearly $800 million invested in utility partnerships. Rapid growth in stressed regions creates an obligation to make these the norm.

The deployment gap, closed in one bill:

Potable reuse is not untested ground. California has recycled water at scale for three decades, and Arizona's advanced purification rules have Phoenix planning a facility by 2029.

In April 2026, Kansas joined them, enacting House Bill 2462 to establish potable reuse regulations by mid-2028. The technology was ready, the missing piece was a legal pathway, and Kansas wrote one.[38]

Who holds the lever

	Federal	State	Local & utility	Industry
Measure and report	National water-loss reporting standards	Certified audits tied to loss-control action	Audits steer capital plans and rates	Transparent water + energy reporting
Fund and incentivize	Extend IIJA, pass 30% reuse tax credit	Efficiency rebates and plumbing codes	Pressure management first, home rebates	Invest in the measure-to-reclaim path
Enable reuse	Fund WRAP 2.0 programs	Non-potable and potable reuse frameworks	Reuse-ready development rules	Non-potable sourcing, utility partnerships
Protect groundwater	Monitoring, mapping, and recharge funds	Adopt AMA, SGMA, or LEMA model	Local plans, farmer recharge partnerships	Water-positive practices in stressed basins

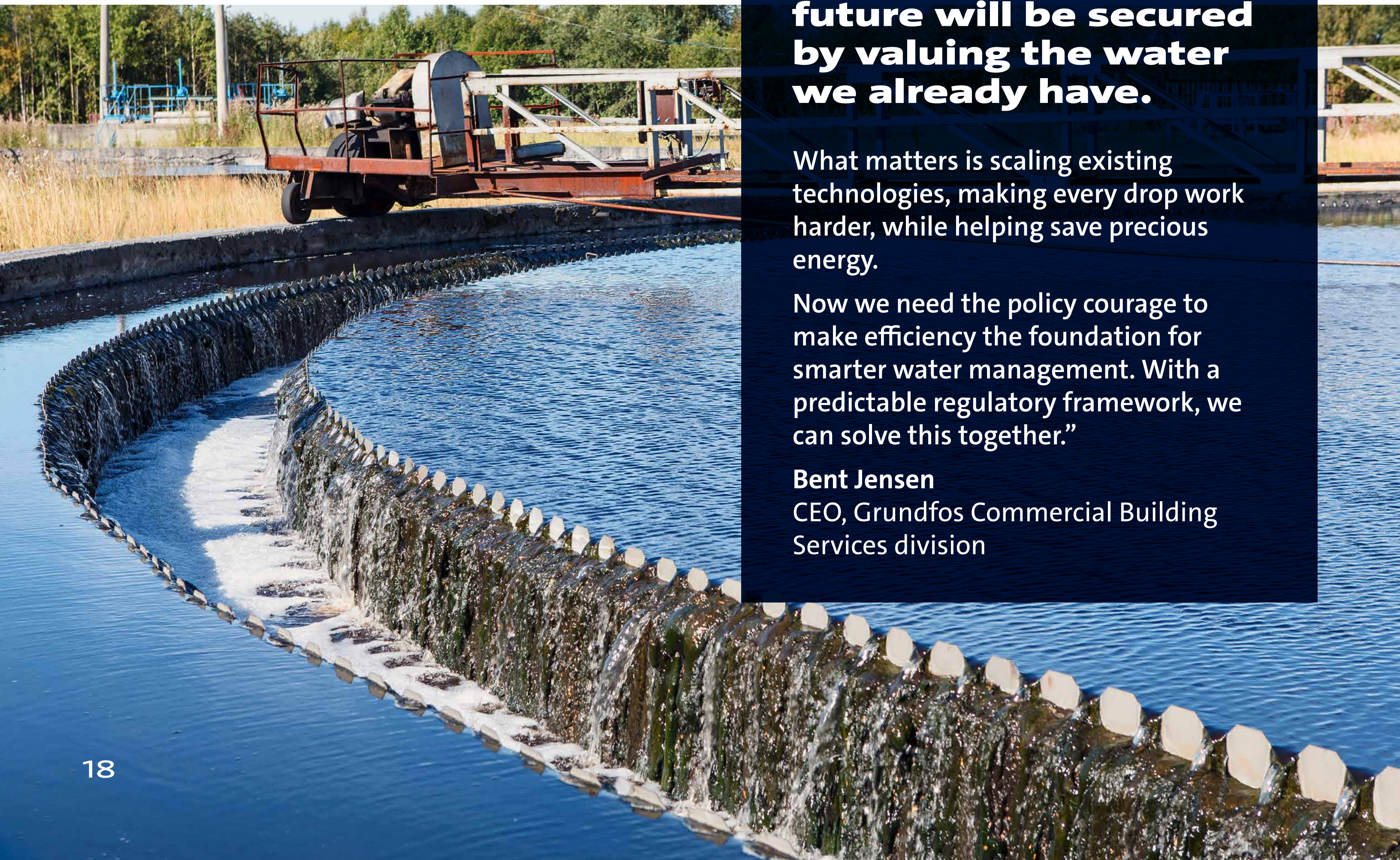
Every recommendation in this section already exists somewhere in America, as a working statute, a funded program, or a proven project. The choices of the next few years will decide whether they stay scattered examples or become how the country manages water as a matter of course. The technology is doing its part. What remains is for policy to value water accordingly, and to move at the speed the shortage demands.

The decision ahead

The water America needs is not waiting to be discovered. It is already moving through the country's homes, fields, factories, and pipes, and recovering it is the fastest new water supply we have available to us. Though no two basins will solve water scarcity the same way, there is one common solution that can help us all stretch what we already have — efficiency.

Using our existing supply more efficiently does not require invention. The technologies work, many of the policy models exist, and nearly all of them are already operating somewhere in the country. What separates current practice from proven practice is deployment, and deployment is shared work. Federal, state, local, and industry leaders each hold a lever the others do not, and getting proven practice to scale at the speed the challenge demands will only happen if those levers are pulled together.

Water stands behind the food on the table, the power in the wires, and the digital life the country runs on — and there is no substitute. What will save it is the decision to make proven practice the standard rather than the exception. The water is already here. What remains is to use it well.



"America's water future will be secured by valuing the water we already have.

What matters is scaling existing technologies, making every drop work harder, while helping save precious energy.

Now we need the policy courage to make efficiency the foundation for smarter water management. With a predictable regulatory framework, we can solve this together."

Bent Jensen
CEO, Grundfos Commercial Building Services division

A partner for the long run

Solving water scarcity will take partners that understand water systems at every scale, whose commercial interests run in the same direction as the public interest, and that are built to work on the timescale the challenges demand.

Grundfos is a global leader in advanced water technology, with:

- **Solutions that deliver measurable results.** Grundfos solutions saved nearly 400 billion gallons of water worldwide in 2024 alone, and more than 2 trillion gallons since 2020.

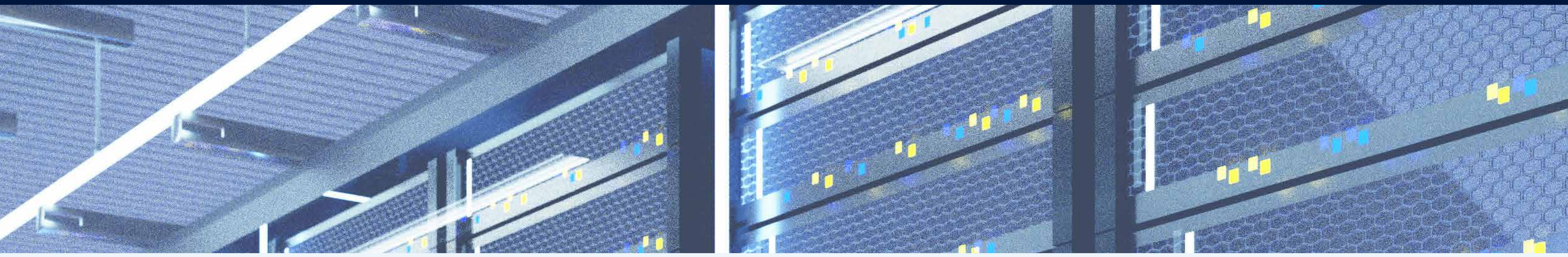
- **A manufacturing presence across America.** 15 sites in 10 states, 1,600 U.S. employees, and more than a million pumps produced annually.

- **Accountability to science.** The first water solutions company with a validated science-based net-zero target, committed across all operations by 2050.

- **Collective action on shared water.** In 2026, Grundfos became co-champion for the Colorado River Basin within the Water Resilience Coalition, a CEO-led group of more than 40 companies committed to joint work on water security.

Learn more about Grundfos ▸
and its efforts to build water resilience:
grundfos.com/sustainability/water

Technical Annex



The paper describes some of the solutions to water scarcity. This annex names the Grundfos technologies behind them, with representative performance figures from delivered projects and published research.

In the home: smart hot water recirculation

Grundfos smart recirculation systems keep hot water moving gently through a home's pipes so it is already at the tap when needed, eliminating the warm-up wait that sends water down the drain. Built on high-efficiency electronically commutated motor (ECM) technology with temperature sensors and adaptive controls, the systems circulate only when a household's actual patterns require it.

- ECM technology cuts the pump's electricity use by up to 80% compared to the fixed-speed circulators it replaces.
- Compatible with both new construction and retrofits, including homes without a dedicated return line.
- Once installed, savings persist for the life of the home with no ongoing homeowner engagement.

On the farm: intelligent irrigation pumping

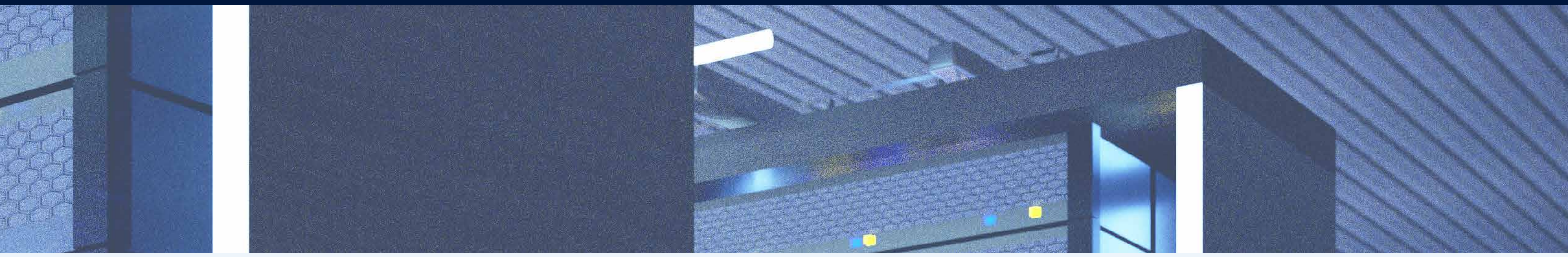
Grundfos CUE 100, CUE, RSI, and MGE/MLE controllers can automatically adjust pumping speed to real-time irrigation demand, delivering precise flow instead of running at fixed capacity. Pairing these variable frequency drives (VFDs) with Grundfos's highly efficient pumps provides world-class solutions. SPE borehole pumps, NB/NK above ground pumps and CR/CM vertical multistage pumps all offer world-class efficiency when paired with CUE 100, CUE & RSI. For growers and irrigators, that means drawing and using only the water a field actually needs, which lowers energy costs, reduces downtime and reduces unnecessary extraction from stressed aquifers.

- Variable-speed operation delivers energy savings of up to 40% compared to older fixed-speed pumping.
- Precise, demand-matched flow prevents overwatering and supports precision irrigation systems.
- Remote monitoring and diagnostics catch developing inefficiencies before they become failures.

In industry: process efficiency, reuse, and treatment

Grundfos industrial solutions cover the full reduce-reuse-reclaim sequence and support efficient fluid management across a range of industrial processes. Real-time monitoring that tracks consumption across a facility, variable-speed pump systems matched to process demand, precision chemical dosing and disinfection, intelligent cooling, and advanced treatment from Grundfos, that recovers usable water from wastewater streams. Treatment can be engineered fit-for-purpose, matching water quality to each task rather than treating every gallon to the same standard.

- Early reduce-and-reuse measures typically cut a facility's freshwater intake by 20 to 40%; adding on-site reclaim takes the total to 75 to 90%.
- Reclamation at around 80% adds roughly 4% to site energy use, much of which intelligent pumps and temperature-driven control could save.
- Grundfos intelligent e-pumps built on IE5 motors with integrated variable-speed controls cut cooling energy by up to 70% compared with fixed-speed systems.



In buildings and data centers: high-efficiency cooling

Grundfos intelligent e-pumps, built on IE5 motors with integrated variable-speed controls, match cooling flow precisely to thermal load, from a single commercial building to a hyperscale data center plant. Grundfos pumping and control solutions help district heating systems recover surplus heat from wastewater and cooling loops and put it to work. Packaged systems such as Hydro MPC and DELTA HCU deliver factory-engineered reliability on compressed construction timelines.

- Distributed Pumping retrofits deliver demand-driven control across building zones; at Seattle's Museum of Flight, the approach cut pump energy roughly 74% across a full season and improved chiller Delta T by 15 to 20%.
- KPVS vertical split-case pumps in hyperscale chilled-water and condenser plants show roughly 4 to 5% efficiency gains over competitive equipment, drawing 13 fewer horsepower on primary chilled water and 8 fewer on condenser duty.
- Integrated variable-speed and PID control lets pumps meet load with only the flow and head required, removing the throttling losses of valve-based systems and simplifying commissioning.

Across the network: smart water distribution

Grundfos Connect Demand Distribution adjusts network pressure in real time to match actual demand rather than holding fixed set points around the clock. Battery-powered remote sensors at critical points feed a cloud-based controller, enabling adaptive pressure management without major system reconfiguration, while pressure ramping prevents the transients that crack pipes and shorten asset life. Performance analytics turn the same telemetry into operating insight, tracking flow, head, and power to surface energy intensity and burst risk across the network.

- Across projects delivered since 2014, utilities have averaged roughly 15% leakage reduction, 25% energy savings, and 35% fewer pipe bursts.
- Replacing aging pumps at the same time the Demand Distribution system is installed can add energy savings of up to 50%.
- Lower operating pressure reduces active leakage control costs, defers pipe renewals, and extends the working life of pumps and mains.

References

1. Grundfos, Black & Veatch, and WateReuse Association, *Accelerating Industrial Reuse*, 2025, pp. 4, 9–13.

2. Tim James et al., "The Economic Importance of the Colorado River to the Basin Region," L. William Seidman Research Institute, Arizona State University.

3. Bureau of Reclamation, *Colorado River Basin Conditions*, April 2026. usbr.gov.

4. U.S. Geological Survey, *Ground Water Atlas of the United States*, HA 730, High Plains aquifer. pubs.usgs.gov/ha/ha730/ch_c/C-text5.html; National Integrated Drought Information System, "Ogallala Aquifer Summit: Collaboration on the High Plains," December 11, 2024. drought.gov

5. Bluefield Research, "Water Losses Cost U.S. Utilities $6.4 Billion Annually," April 2025. bluefieldresearch.com.

6. J. Lutz, "Water and Energy Wasted During Residential Shower Events: Findings from a Pilot Field Study of Hot Water Distribution Systems," Lawrence Berkeley National Laboratory, LBNL-5115E, 2011.

7. U.S. Environmental Protection Agency, WaterSense, "Fix a Leak Week." epa.gov/watersense.

8. David McMillan, "Ending the Wait: How Saving Hot Water Can Power Households, the Economy and the Environment," Grundfos, 2025.

9. Natural Resources Defense Council, "Major New Proposal Seeks Change to Plumbing Codes that will Save Americans Money on Energy and Water Bills," January 6, 2014. nrdc.org.

10. David McMillan, internal Grundfos DBS impact analysis, 2025.

11. U.S. Department of Agriculture, Economic Research Service, "Irrigation & Water Use." ers.usda.gov.

12. Public Policy Institute of California, "Water Use in California's Agriculture," July 2024. ppic.org; California Department of Food and Agriculture, *California Agricultural Statistics Review*.

13. Drought.gov, "The Western Drought Issue," September 3, 2025.

14. U.S. Geological Survey, "Groundwater Sustainability and Land Subsidence in California's Central Valley," April 2024. usgs.gov.

15. U.S. Department of Agriculture, Natural Resources Conservation Service, "Soil Health Key Points." nrcs.usda.gov.

16. Khalid et al., "A Review of Precision Irrigation Water-Saving Technology under Changing Climate for Enhancing Water Use Efficiency, Crop Yield, and Environmental Footprints," 2023.

17. WateReuse Association, "Advancing Water Reuse in Kansas: Projects, Policy and Opportunity," webcast presentation, 2026.

18. C.A. Dieter et al., *Estimated Use of Water in the United States in 2015*, U.S. Geological Survey Circular 1441, 2018.

19. U.S. Environmental Protection Agency, *Lean & Water Toolkit*, Chapter 2: Water Use and Water Costs. epa.gov/sustainability.

20. Bluefield Research, "Powered by High Tech and Energy Growth in the U.S. and Canada, Industrial Water Spend Set to Climb 28% by 2030," November 2024. bluefieldresearch.com.

21. U.S. Environmental Protection Agency, *Lean & Water Toolkit*, Chapter 3: Finding Water Waste. epa.gov/sustainability.

22. Grundfos, "How much water is used for beer brewing?" grundfos.com; Brewers Association sustainability benchmarking data.

23. WateReuse Association, "Water Reuse for Artificial Intelligence." watereuse.org; WaterWorld, "Columbus Explores Water Reuse to Support Data Center Growth," June 2026.

24. American Public Power Association, "How Much Water Our Electricity Uses" (U.S. Energy Information Administration data, 2020). publicpower.org.

25. Bluefield Research, *The Water-Power Nexus: How Data Centers are Reshaping the U.S. Water Landscape*, February 2026.

26. Ceres, *Drained by Data: The Cumulative Impact of Data Centers on Regional Water Stress*, September 2025. ceres.org.

27. Bluefield Research, *U.S. Water Utility Strategies for the Data Center Buildout: Opportunities, Trends and Outlook*, June 2026, p. 19.

28. American Society of Civil Engineers, *2025 Infrastructure Report Card: Drinking Water*. infrastructurereportcard.org.

29. American Water Works Association, *M36 Manual of Water Supply Practices: Water Audits and Loss Control Programs*, 4th ed.

30. Grundfos, "Save Water, Energy, and Costs Using Pressure Management" (Demand Driven Distribution white paper), 2024. grundfos.com.

31. Grundfos, "Optimizing the Water-Energy Nexus: Rincon del Diablo Municipal Water District Deploys Grundfos Connect Demand Distribution System," case study, 2026. grundfos.com.

32. Grundfos Water Utility internal analysis, 2025; California State Water Resources Control Board, "Making Conservation a California Way of Life."

33. Bluefield Research, "U.S. Water and Sewer Bill Has Increased 24% in Five Years, Raising Affordability Concerns," February 2025.

34. Moulton Niguel Water District, *Advanced Water Treatment Facility Salinity Management System Project*, 2024. mnwd.com.

35. Texas Real Estate Research Center, "The Future of Produced Water Recycling in Texas," October 2025. trerc.tamu.edu.

36. Advancing Water Reuse Act, H.R. 2940 and S. 4506, 119th Congress. congress.gov.

37. U.S. Environmental Protection Agency, "EPA Launches Water Reuse Action Plan 2.0," April 16, 2026. epa.gov.

38. Kansas House Bill 2462, 2026 Session (enacted April 9, 2026); City of Phoenix Water Services Department, Advanced Water Purification program; Arizona Department of Environmental Quality, Advanced Water Purification rules.

39. Office of the Texas Governor, directive to the Public Utility Commission and ERCOT on data center infrastructure, June 10, 2026. gov.texas.gov.

GRUNDFOS

Grundfos — Possibility in every drop

Grundfos is a global leader in advanced water technology, dedicated to addressing the world's water and climate challenges. Founded in Denmark in 1945, the company develops innovative solutions that enable utilities, industries, businesses, and communities to move, manage, and reuse water more efficiently.

Grundfos operates with a long-term perspective, combining technological innovation with a strong commitment to sustainability and societal responsibility. By improving water efficiency and reducing the energy required to move water, Grundfos helps customers strengthen resilience, improve resource management, and contribute to a more sustainable future.

Learn more at **grundfos.com**

For more information or if you have questions, please contact:
PublicAffairsUSA@grundfos.com

Grundfos Americas
Brookshire, Texas

grundfos.com