

March 23, 2018

The Honorable John Barrasso
Chairman
U.S. Senate
Committee on Environment & Public Works
Washington, DC 20510

The Honorable Thomas R. Carper
Ranking Member
U.S. Senate
Committee on Environment & Public Works
Washington, DC 20510

The Honorable Bill Shuster
Chairman
U.S. House of Representatives
Committee on Transportation &
Infrastructure
Washington, DC 20515

The Honorable Peter A. DeFazio
Ranking Member
U.S. House of Representatives
Committee on Transportation &
Infrastructure
Washington, DC 20515

Re: Principles for Infrastructure that Leverage Opportunities Within the Energy-Water Nexus

Dear Chairman Barrasso, Ranking Member Carper, Chairman Shuster, and Ranking Member DeFazio:

We, the undersigned, on behalf of a coalition of energy businesses, trade associations, researchers, energy officials, and advocacy organizations, submit this letter in recognition of World Water Day, during the 10th Anniversary of “Fix A Leak Week”¹ to urge you to address the “Energy-Water Nexus” – described in the attached factsheet – in any infrastructure proposals considered by the 115th Congress. We were encouraged to see that water and wastewater infrastructure was substantively addressed in the White House infrastructure proposal, but there’s more to be done.

By ensuring that key energy-water nexus opportunities are addressed in infrastructure legislation, we can see investments that pave the way for a double-benefit: greater energy and water efficiency, security, and sustainability for decades to come. A wide variety of new technological innovations are available today that can help us achieve these benefits, but they require sustained investment and deployment. As our energy-water systems are updated, we recommend the following general principles to maximize the opportunities to increase energy productivity across all sectors of the U.S. economy through the energy-water nexus:

- 1. Encourage direct investment and asset management:** Water systems, burdened with an aging network of leaking pipes, face disproportionately high capital challenges. The American Society of Civil Engineers estimates U.S. systems waste more than two trillion gallons of treated, energy-embedded drinking water through 240,000 water main breaks each

¹ Environmental Protection Agency (EPA). Fix A Leak Week: Campaign Summaries, 2009-2012. <https://www.epa.gov/sites/production/files/2017-04/documents/ws-ourwater-falw-campaignsummaries-2009to2012.pdf>

year.² The Congressional Budget Office suggests the federal government can raise productivity by funding infrastructure projects that would not receive private sector interest consummate with the broad public benefits they provide.³ Current spending is estimated to be only \$45 billion per year, with most addressing a backlog of maintenance projects. Moving forward, direct spending can be tied to sustainable asset management plans that account for lifelong rehabilitation, repair, and replacement costs to these systems. We encourage direct spending for works of great public utility, as well as expanded and refined legislation governing State Revolving Funds and the Water Infrastructure Finance and Innovation Act (WIFIA) loan program, which could help close the funding gap.

- 2. Encourage public-private partnerships (P3s):** Leveraged private capital should supplement, not supplant, federal spending on the infrastructure necessary for safe, reliable water services. P3s enable all involved entities to combine skills and assets to deliver a service for public use. Given the high capital costs and investment needs for water infrastructure, P3s could inject much-needed capital into the system in certain circumstances. The Energy Savings Performance Contract model, or ESPC, is a highly successful example of a P3, in which a government agency partners with an energy service company to implement energy efficiency provisions, and pays for the project entirely through future energy savings.
- 3. Encourage investments in the energy-water nexus through tax incentives:** Modifications to federal tax incentives can support greater investment in water infrastructure, including: continuing to allow state and municipal governments to issue tax-exempt bonds to enable lower interest rates; removing state caps on Private Activity Bonds (PABs), which allow private issuers access to the same debt available to state and municipal entities; allowing for tax-exempt rebates from water utilities (as is currently allowed from energy utilities); and updating applicable depreciation schedules and accelerating depreciation to incentivize equipment replacement, such as pumps, which can consume more than 95 percent of a utility's total electricity use.⁴
- 4. Reduce water and energy waste through building codes, appliance and equipment standards:** While the energy consumption of buildings and appliances is often governed by codes and standards, water efficiency has received far less consideration, leading to waste of both water and energy. With updated standards for water efficiency, water savings could reach an estimated 770 billion gallons per year by 2035, resulting in an annual savings of \$43 billion in utility bills across the residential, commercial and industrial sectors.⁵

² ASCE. 2017 Infrastructure Report Card. Drinking Water. <https://www.infrastructurereportcard.org/wp-content/uploads/2017/01/Drinking-Water-Final.pdf>

³ Congressional Budget Office. Public Spending on Public Transportation and Water Infrastructure, 1956 to 2014. March 2015. <https://www.cbo.gov/publication/49910>

⁴ American Water. The Water-Energy Nexus: Challenges and Opportunities. October 2014. <http://www.underground.amwater.com/files/Water%20Energy%20Nexus%20v3.pdf>

⁵ Appliance Standards Awareness Project (ASAP) and American Council for an Energy-Efficient Economy (ACEEE). Next Generation Standards: How the National Energy Efficiency Standards Program Can Continue to Drive Energy, Economic, and Environmental Benefits. August 4, 2016. https://appliance-standards.org/sites/default/files/Next_Gen_Executive_Summary.pdf

5. **Permanently authorize WaterSense:** EPA’s WaterSense program demonstrates that “Saving Water Saves Energy,” through a voluntary program labeling high-performing appliances based on water efficiency metrics, helping customers make informed decisions about their purchases. From its creation in 2006 through 2015, WaterSense has helped Americans save 1.5 trillion gallons of water and more than \$32.6 billion on water and energy bills.⁶
6. **Support ENERGY STAR®:** Of course, saving energy saves water too. The ENERGY STAR Portfolio Manager⁷ provides facility managers, including water and wastewater utilities, with tools that help operators evaluate and measure energy consumption, and compare performance to the energy-intensity of peers. Portfolio Manager also helps reduce water and energy consumption in the built environment by providing consumption data and suites of best practices to building managers. To date, nearly 50 percent of commercial floor space has been benchmarked using ENERGY STAR tools.⁸ Further, water-intensive ENERGY STAR products (dishwashers, clothes washers) include water efficiency criteria, delivering savings for both water and energy.
7. **Encourage cross-cutting coordination between energy and water utility planners to co-locate facilities to enhance synergies:** Policymakers and planners at all levels should encourage a more integrated approach to developing, managing, and regulating energy and water systems to maximize benefits across the economy. This should be raised to a level of critical concern in addressing issues of water scarcity, which threatens energy security.

We are prepared to work with you and your colleagues on the Environment and Public Works, and Transportation and Infrastructure Committees to provide more assistance as requested to identify specific programs, activities, and projects that we believe may warrant specific congressional direction and guidance. We pledge to assist your staff by identifying further legislative measures that would address the nation’s energy productivity by maximizing opportunities within this critical energy-water nexus.

Thank you for your consideration.

Alliance to Save Energy
Alliance for Water Efficiency
Danfoss
National Association of State Energy Officials

cc: Members, U.S. Senate Committee on Environment and Public Works
Members, U.S. House of Representatives Committee on Transportation and Infrastructure

⁶ EPA. “WaterSense Accomplishments 2015.” <https://www.epa.gov/sites/production/files/2017-01/documents/ws-aboutus-2015-accomplishments-3page.pdf>

⁷ EPA. “ENERGY STAR: Learn How Portfolio Manager Helps You Save.” <https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/use-portfolio-manager/learn-how-portfolio-manager>

⁸ EPA. About ENERGY STAR for Commercial Buildings. https://www.energystar.gov/about/origins_mission/energy_star_overview/about_energy_star_commercial_buildings

THE ENERGY-WATER NEXUS: TWO INEXTRICABLE RESOURCES, DOUBLE THE BENEFIT

The energy-water nexus represents the interdependency between our energy and water systems. It can be divided into two main categories: water for energy, and energy for water.

“Water for energy” includes the water required to produce energy – from hydropower to thermal power cooling, biofuels, and oil and natural gas extraction. Currently, electricity generation is the largest user of water in the United States and worldwide, with thermoelectric power alone constituting [45 percent](#) of our total water withdrawals. “Energy for water” reflects the energy required for the withdrawal, transport, and treatment, and end use of water for residential, commercial and industrial use. These energy needs can also be considerable: water and wastewater treatment alone typically accounts for [30-40 percent](#) of the energy consumed by a municipality; nationally, this sums to [\\$4 billion](#) annually. Water infrastructure is also in poor shape: each year, up to 20 percent of treated water (2 trillion gallons) is wasted through leakage and the rupture of [240,000 underground mains](#), most of which are more than 50 years old, and are estimated to require more than [\\$1 trillion of investment](#) over the next 25 years. The American Society of Civil Engineers (ASCE) projects a [\\$105 billion annual gap](#) between spending and need for the next decade.

These connections between our energy and water sectors are often overlooked and underfunded, resulting in a serious vulnerability of our critical infrastructure. It also means that “getting it right” can produce compounded positive impacts. Parallel opportunities exist in a variety of sectors, highlighting the diversity and impacts of the sector:

- Every drop of water delivered to a household requires energy for water extraction, purification, and transportation; reducing water leaks in municipal infrastructure saves both water and the wasted “embedded” energy
- Enhancing the efficiency of thermal electricity generation reduces the energy wasted and the amount of water needed for cooling
- More efficient hydropower generation makes better use of water resources while producing more electricity, and
- Biogas can be recaptured from wastewater facilities to generate electricity, turning waste into energy.

Advances in efficiency at the energy-water nexus can have twice the impact on society, while creating more reliable, resilient, clean, and more efficient access to our key resources. By contrast, ignoring these opportunities may have grave implications for the nation’s future energy security, as strained water systems become less able to support the reliability demanded of electricity generation. As populations shift to warmer, more arid regions, and precipitation and temperature patterns change, the United States can expect to see more regional variation in [water availability](#). The Government Accountability Office reported that 40 out of 50 state water managers expected freshwater shortages in some portion of their jurisdictions by [2024](#).

Fortunately, the tools to strengthen the energy-water nexus already exist today. Technologies are available to more effectively extract, pump, measure, track, and use our water resources, as well as to more efficiently generate and use energy for society’s needs. Incentivizing strong investment will be the key, through tax incentives, public-private partnerships, codes and standards, R&D, and well-designed government programs. It’s the perfect moment to double our impact and bring the energy-water nexus into the 21st century.