



# Collaboration and Innovation: We are in it together!

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**Sr. Director, Government Affairs**  
**Water Environment Federation**

# Water Security GRAND CHALLENGE



*The following activities have taken place to develop and launch the Water Security Grand Challenge:*

## MAY—SEPTEMBER 2018

DOE assembled and convened experts from across the Department to build out the Grand Challenge based on input, hurdles, potential partnerships, and previous work.

## OCTOBER 25, 2018

Secretary Perry announced the Grand Challenge launch at the American Water Summit, which included an announcement of current, new, and planned activities.

To help develop the pipeline of future activities, DOE is hosting a workshop at the National Renewable Energy Laboratory to solicit input from experts on prizes and competitions that DOE and its partners could launch to support the Grand Challenge.

## MARCH 2018

Secretary Perry hosted a roundtable at the White House with experts across industry and government on how to use prizes to address critical water issues.

DOE released a Request for Information to solicit views from the public on the key water challenges that could be best addressed through prizes and competitions.

## JULY 2018—ONGOING

DOE began outreach to other agencies to obtain feedback on the challenge goals, vision, and design, and to identify opportunities to collaborate.

## GOING FORWARD

Now that the Grand Challenge has officially launched, it's time to get to work. Several prizes, programs, and funding opportunities are already underway. DOE anticipates that future activities will be announced on a rolling basis as they develop.

# U.S. DOE Water Security Grand Challenge

**Goal 1:** Launch desalination technologies that deliver cost-competitive clean water

**Goal 2:** Transform the energy sector's produced water from a waste to a resource

**Goal 3:** Achieve near-zero water impact for new thermoelectric power plants, and significantly lower freshwater use intensity within the existing fleet

**Goal 4:** Double resource recovery from municipal wastewater

**Goal 5:** Develop small, modular energy-water systems for urban, rural, tribal, national security, and disaster response settings

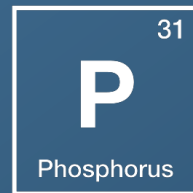
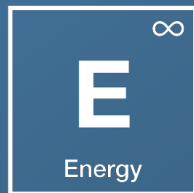
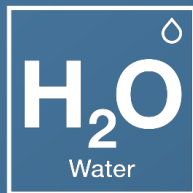




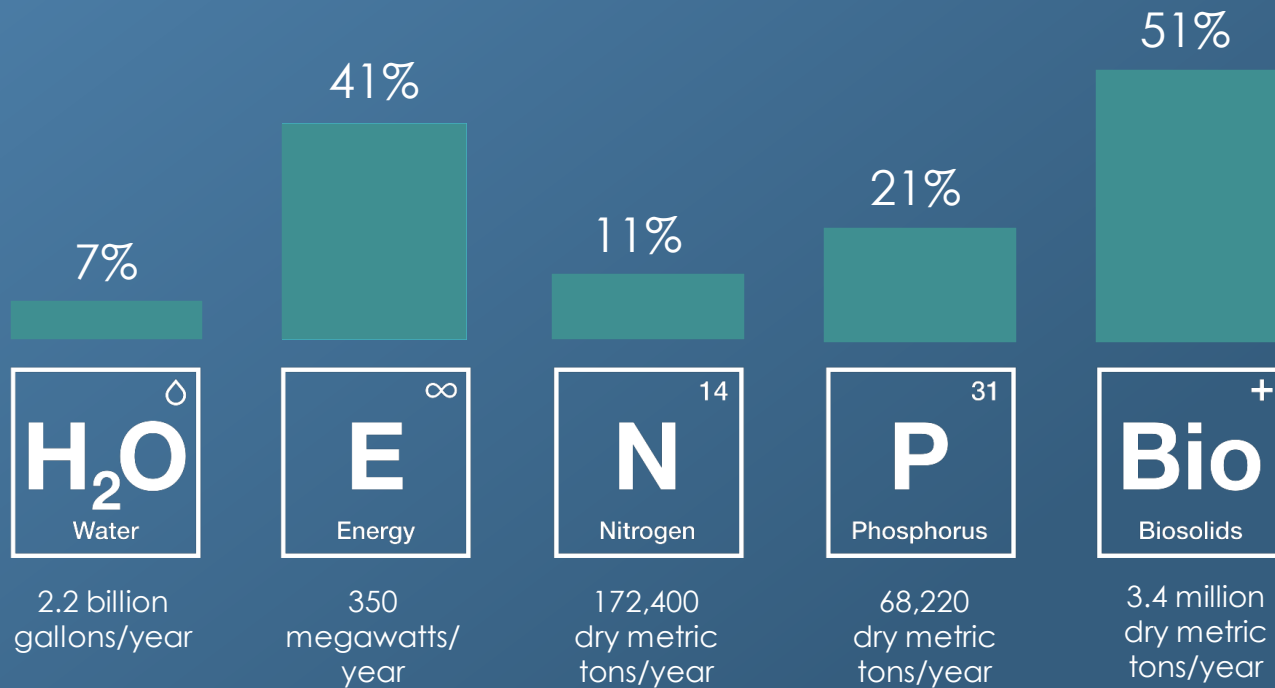
# RESOURCE RECOVERY

# ReNEW

W A T E R P R O J E C T



# BASELINE RECOVERY RATES

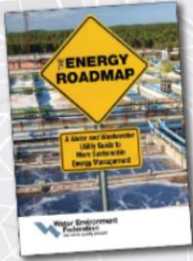




# ROADMAPS

## The Energy Roadmap PRIMER


A preview of more sustainable energy management



The cover of 'The Energy Roadmap Primer' features a yellow diamond-shaped sign that reads 'ENERGY ROADMAP'. Below the sign, there is a photograph of a water treatment facility. The Water Environment Federation logo is visible at the bottom.

## The Nutrient Roadmap PRIMER


A preview for smarter nutrient management



The cover of 'The Nutrient Roadmap Primer' shows a close-up of a fountain or water feature with a blue sign that says 'THE NUTRIENT ROADMAP'. The Water Environment Federation logo is at the bottom.

## The Water Reuse Roadmap PRIMER

Essential practices to make water reuse an element of a diverse and resilient water management strategy



The cover of 'The Water Reuse Roadmap Primer' depicts a city skyline reflected in a body of water. A green sign at the top reads 'THE WATER REUSE ROADMAP'. The Water Environment Federation logo is at the bottom, and the text 'Done covering Fall of 2017' is printed below the cover.

A collage of images related to water and wastewater treatment. The background features a large water treatment facility with multiple rectangular basins and pipes. In the top right, there is a building with the 'EBMUD ENERGY' logo. In the bottom right, there is a large, dome-shaped structure, likely a biogas digester, with a worker visible on top. A yellow diamond-shaped sign is overlaid on the left side, and a yellow rectangular sign is overlaid at the bottom.

# **THE ENERGY ROADMAP**

**A Water and Wastewater  
Utility Guide to  
More Sustainable  
Energy Management**





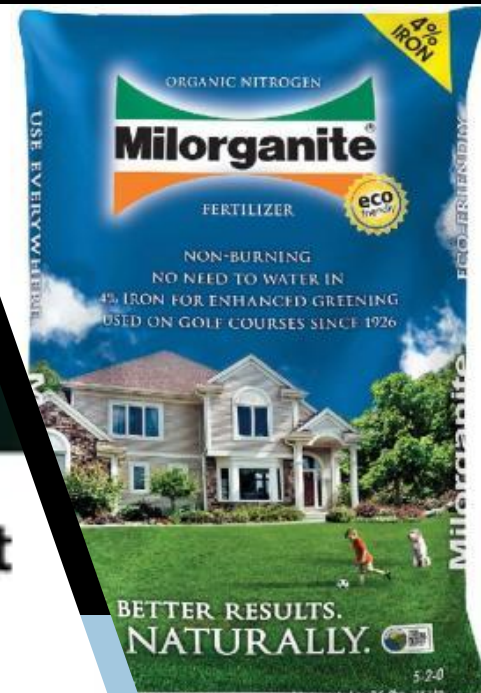
# RENEWABLE ENERGY

# THE NUTRIENT ROADMAP



5-28

...n the roots up with Crystal G  
...phosphorus fertilizer. [Click](#)





# BLOOM



loop  
Turn your dirt around

# THE WATER REUSE ROADMAP



 **Water Environment  
Federation**  
the water quality people®







# FRAMEWORK FOR DIRECT POTABLE REUSE





**waterreum**  
Effective Utility Management



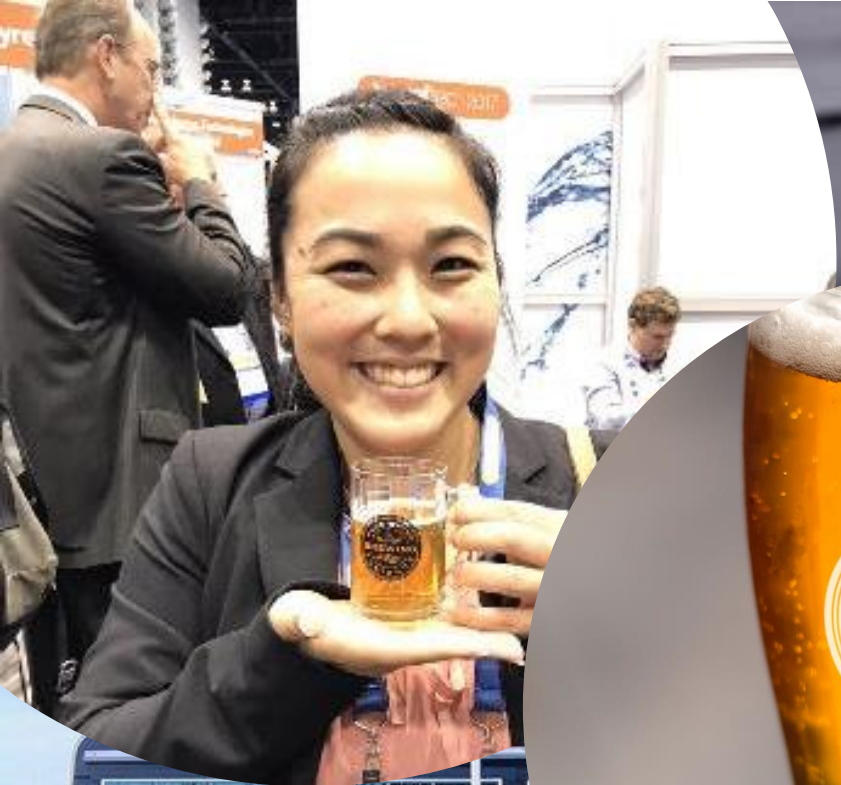








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