NAWI National Alliance for Water Innovation

The Technological Frontier of Desalination and Water Reuse: More Water at Lower Cost

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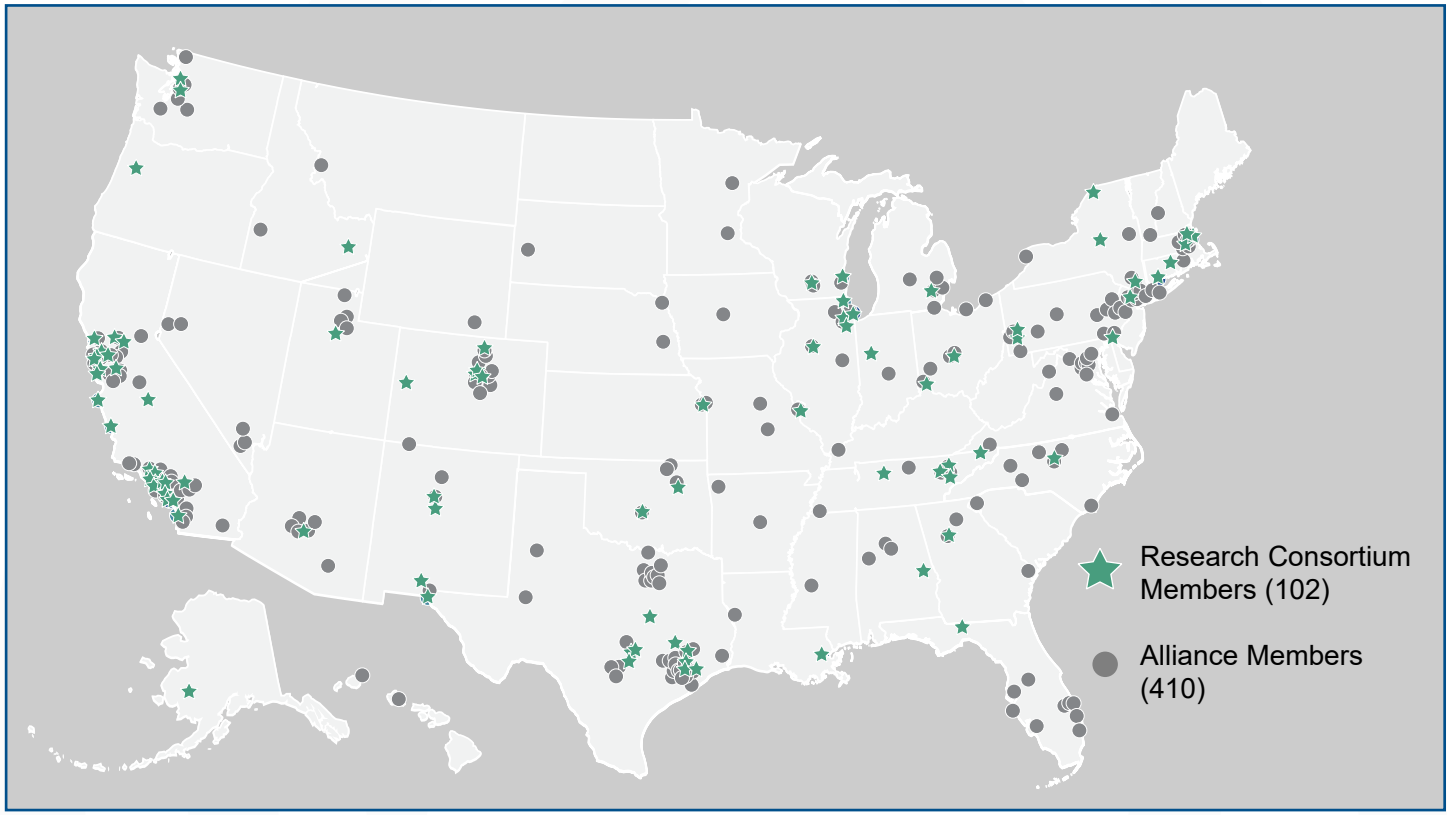
NAWI Hub – At A Glance

- **5-Year, $110M+ “early-stage applied research” program from DOE’s Advanced Manufacturing Office (EERE), headquartered at LBNL**
- **$23 million in cost share support from CA State Agencies**
- **Goal: 75% reduction in cost and energy of desalination**



Nearly 1,500 individuals have joined the (free) NAWI Alliance

(go to: www.nawihub.org)

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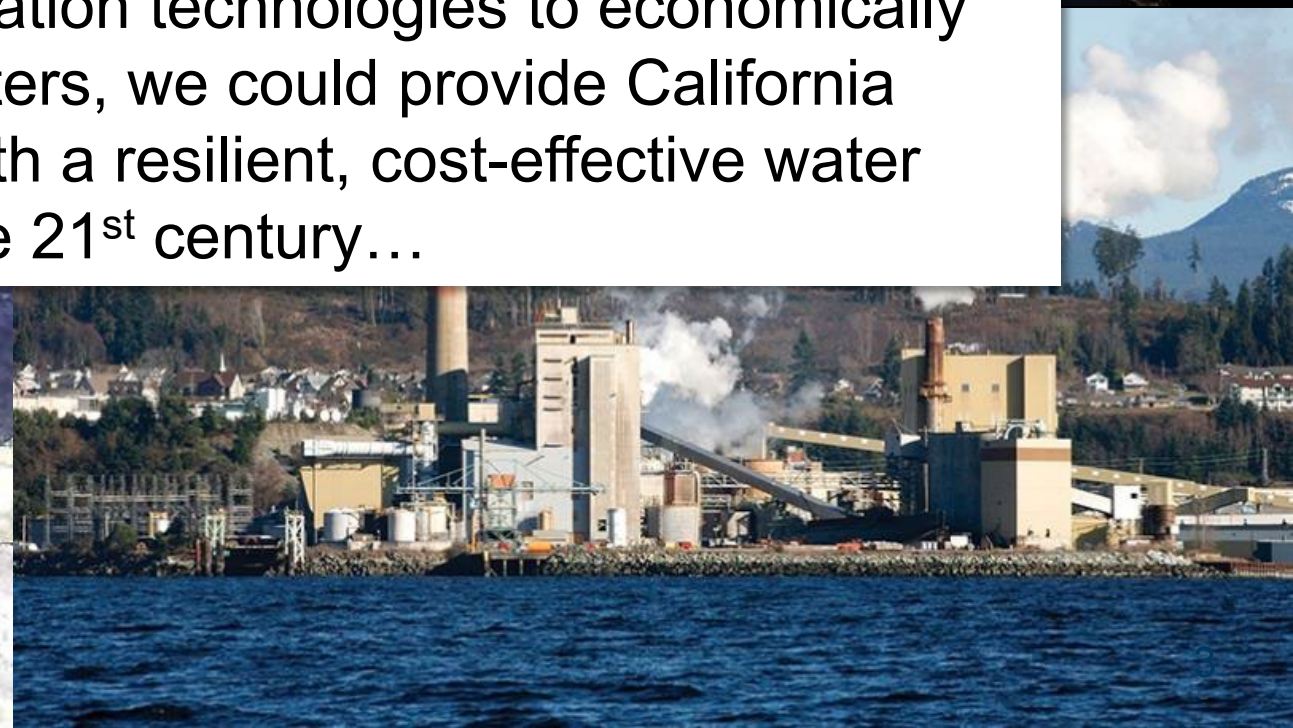
These non-traditional waters are geographically widespread, often contain valuable constituents, and are presently discarded…

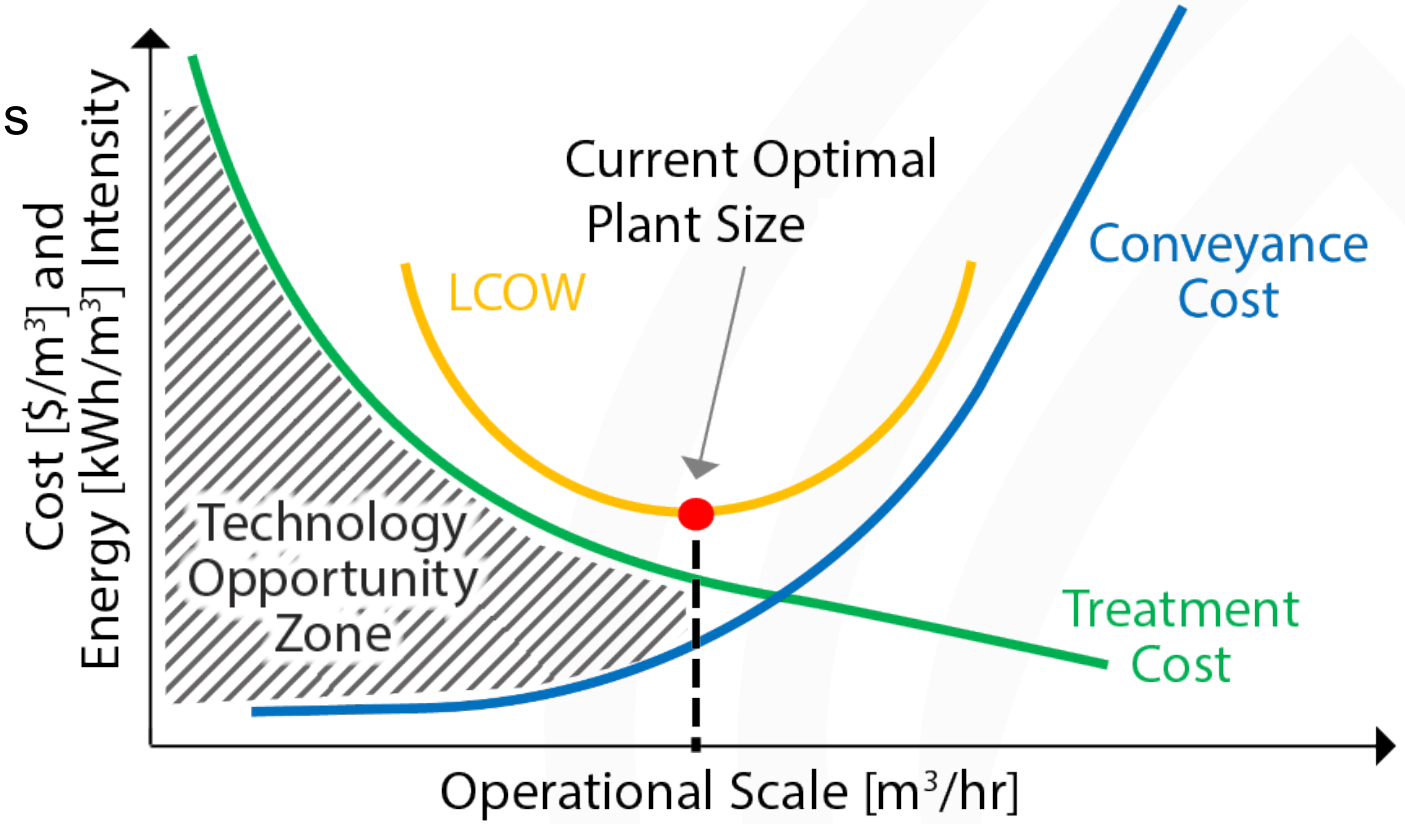
If we could develop new desalination technologies to economically treat these non-traditional waters, we could provide California industries and communities with a resilient, cost-effective water supply for the 21st century…




50 MGD
Our Region's Trusted Water Leader
San Diego County Water Authority
POSEIDON WATER
Claude "Bud" Lewis
Carlsbad Desalination Plant

Where's the biggest opportunity in desalination? Going SMALL

- **A**utonomous
- **P**recise
- **R**esilient
- **I**ntensified
- **M**odular
- ***E***lectrified



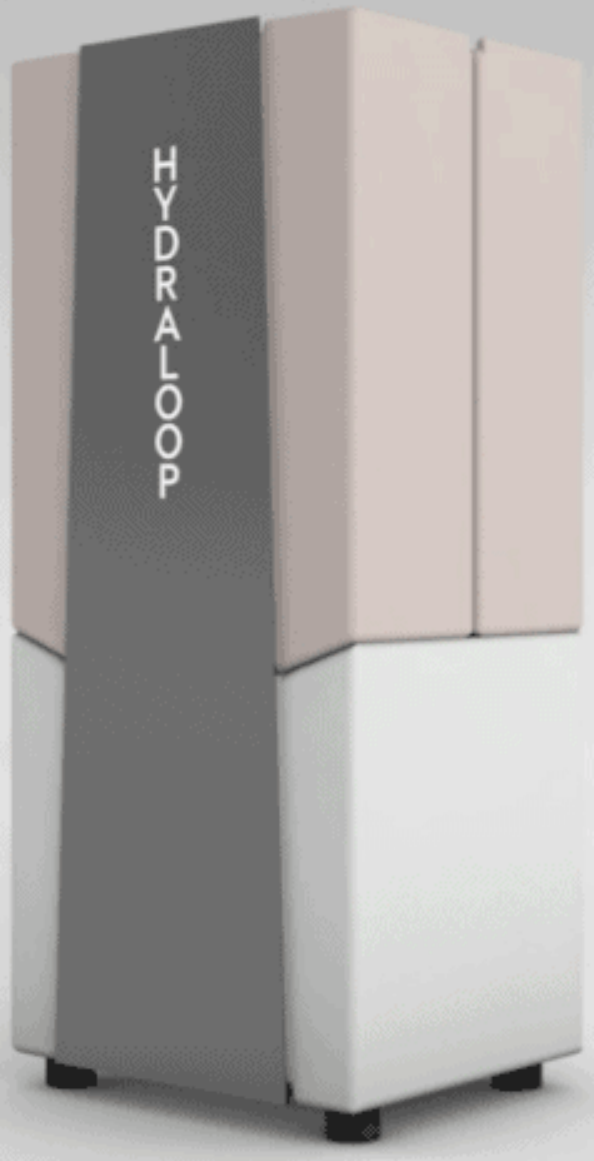
NAWI's Goal: Enable cost-effective (small-scale) distributed water treatment and reuse

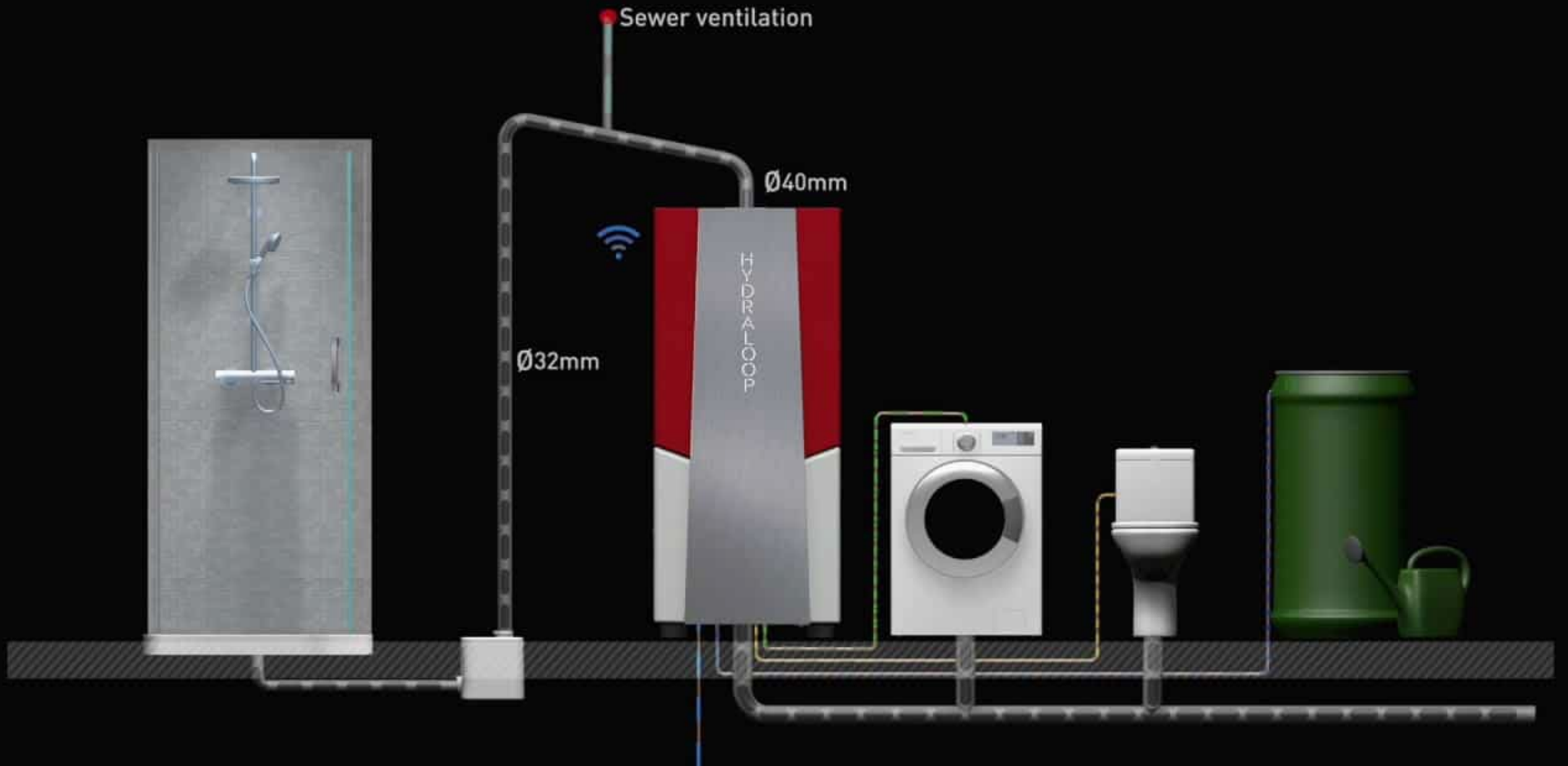
Small desal actually works well for California...


ZDD
PECIALIZING IN CONCENT
CIDS
Center for Inland Desalination Systems

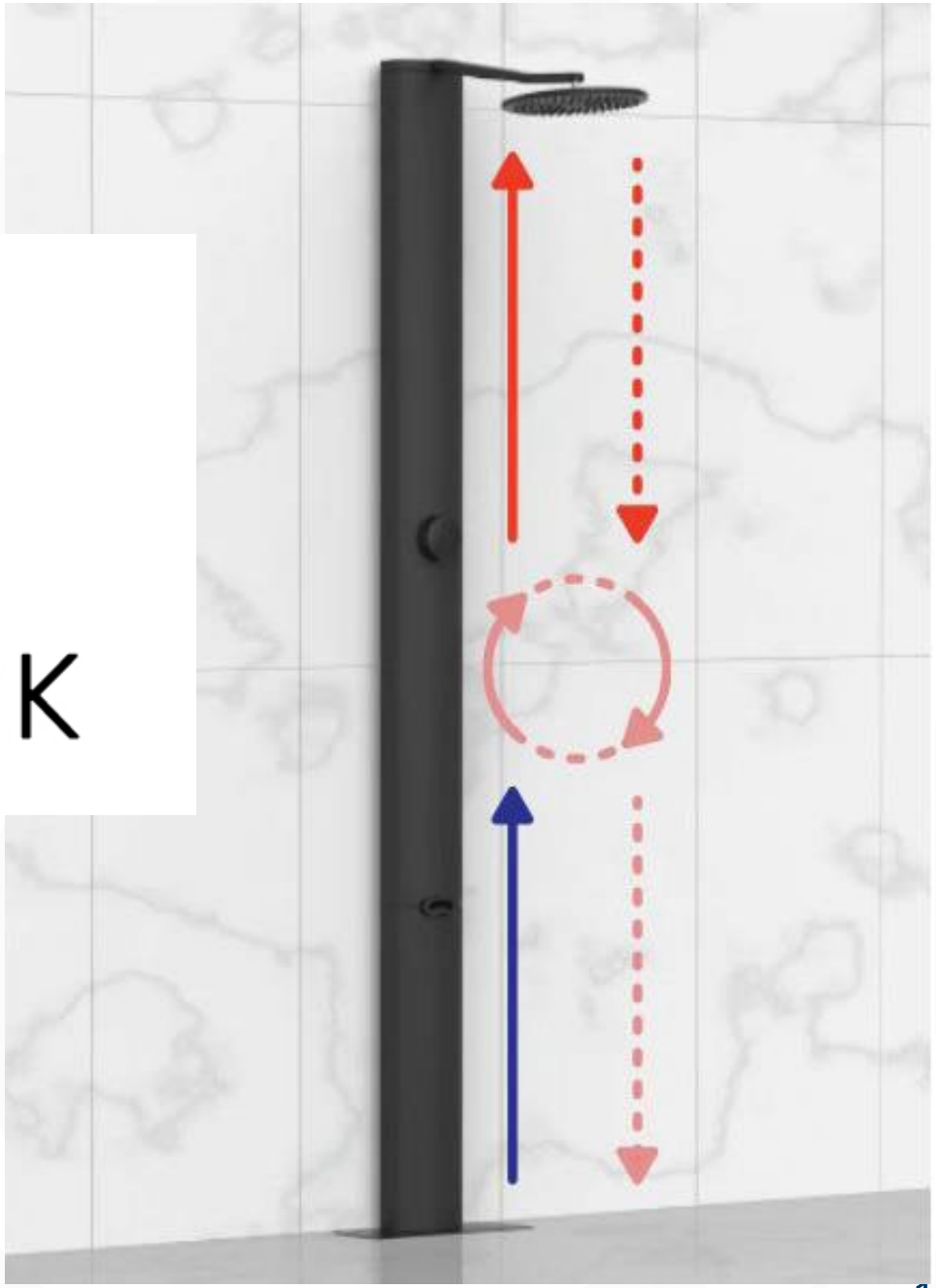

PUREWATER
COLORADO
MINES
WEDECO
REALTECH
INC.
realtechwater.com
REAL SPECTRUM

NAWI's Dream: The Water Washing Machine


HYDRALOOP

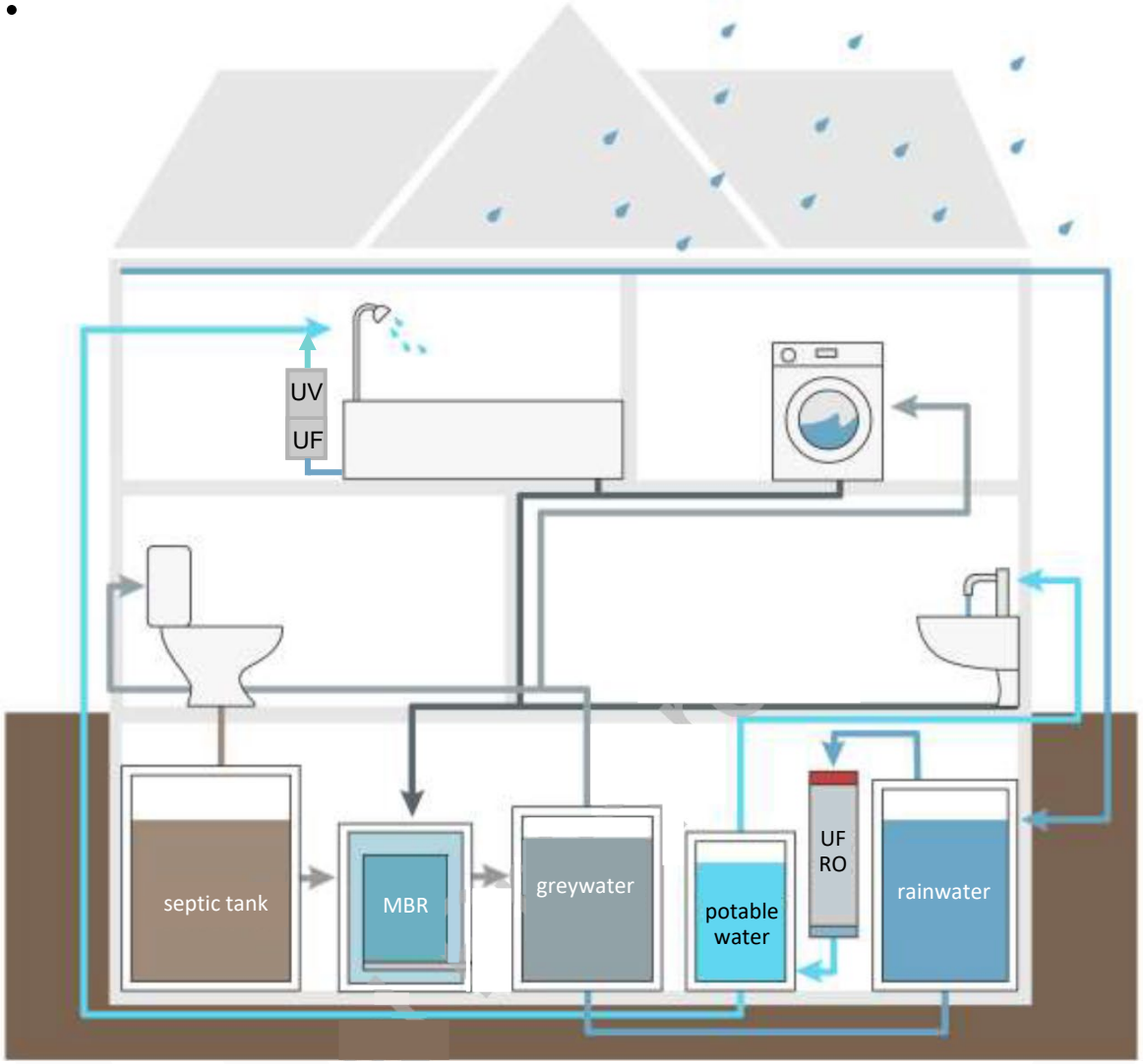

Sewer ventilation
Ø40mm
Ø32mm
HYDRALOOP

RAINSTICK



The home could be a major element of climate-resilient water systems…

Homes could use 80% less water, substantially LESS energy.. and enjoy higher reliability and safety in the water they use…



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Are our water systems 30 years from now really going to look like our water systems 30 years ago?

What if…

- Buildings processed and reused the wastewater generated from occupants so that water in most buildings could be supplied solely by the rain that fell on their roofs or harvested from the air…
- Distributed desalination systems operated flexibly on the grid – maximizing water production when renewable energy was most abundant
- Water treatment systems enabled farmers and manufacturers to recover 100% of the water from their waste discharges and safely dispose of the solutes and suspended debris as solid waste – eliminating the need for environmental discharges…

The transition to decentralized water treatment reuse vision would mirror a transformation that has already happened in the energy sector…

Centralized
Custom-designed
Long lead time
$B
1 per city

Distributed
Manufactured
Short lead time
$K
1 per building