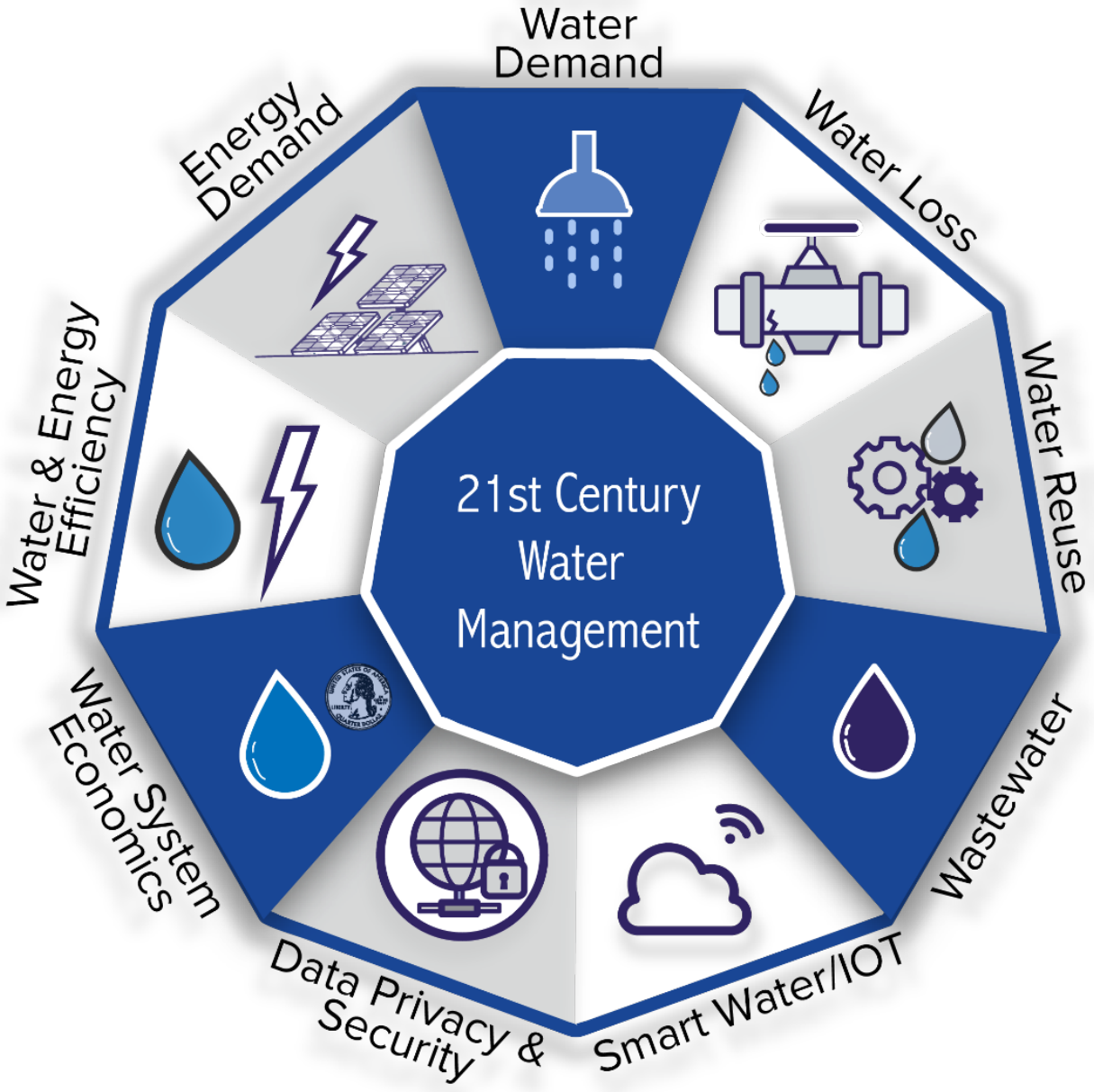
UCDAVIS
Center for Water-Energy Efficiency

Onsite Non Potable Water Systems: Overcoming the Barriers

Center for Water-Energy Efficiency
University of California, Davis
Amanda Rupiper M.S.


Water Demand
Water Loss
Water Reuse
Wastewater
Smart Water/IOT
Data Privacy & Security
Water System Economics
Water & Energy Efficiency
Energy Demand
21st Century Water Management

Alternate Water Sources

Water Reuse Practice Guide Cover Image
https://urbanfabrick.com/peer-review-water-reuse-practice-guide-building-industry-now-open-comments/

Onsite Non-Potable Water Systems (ONWS):

AKA: Decentralized Non-Potable Water Systems(DNWS)

Use local alternate water sources for non-potable applications in close proximity to where the water was collected (may or may not involve treatment).

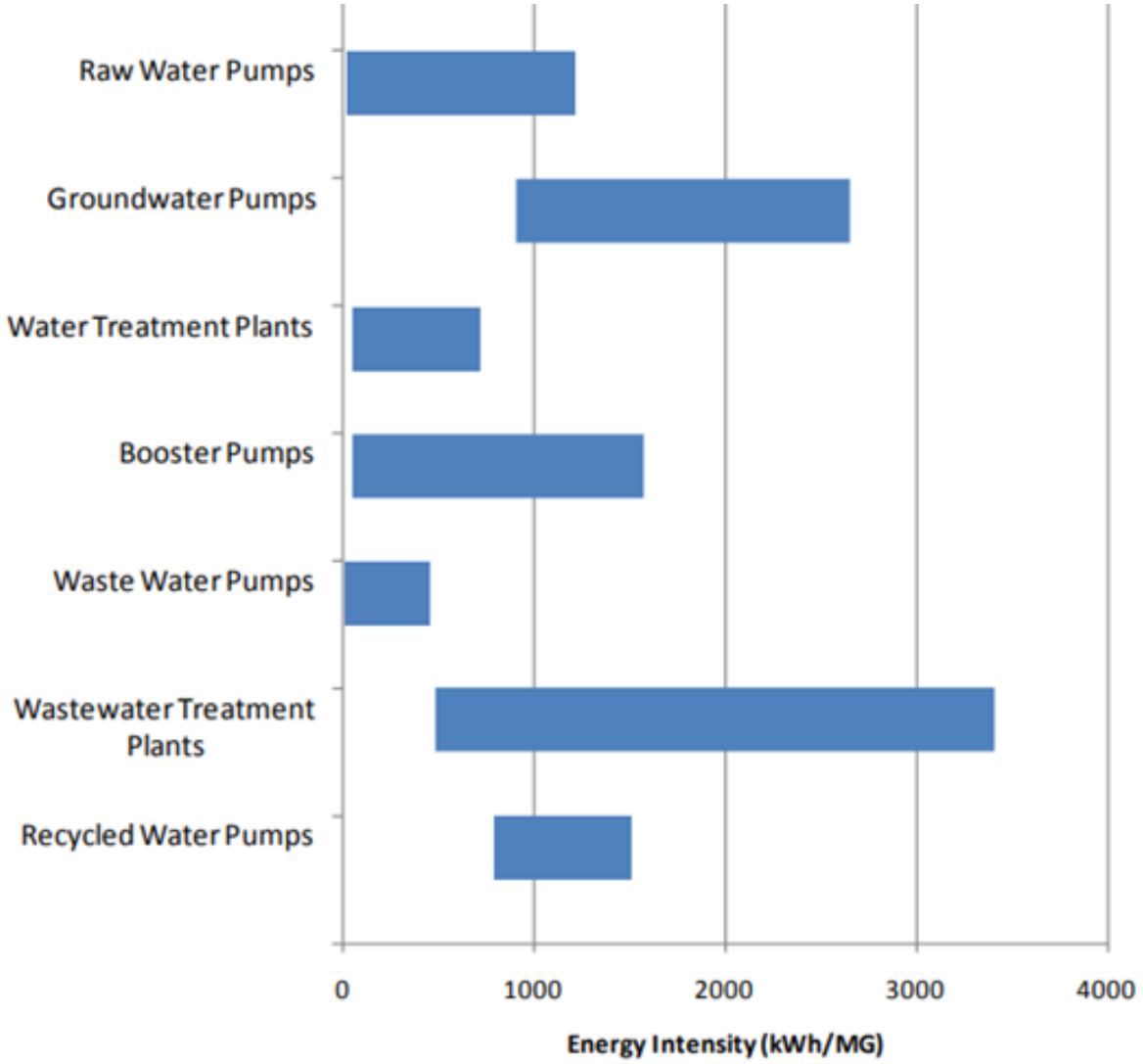
Reduction in potable water demand:

30% **75%**

Residential **Commercial**

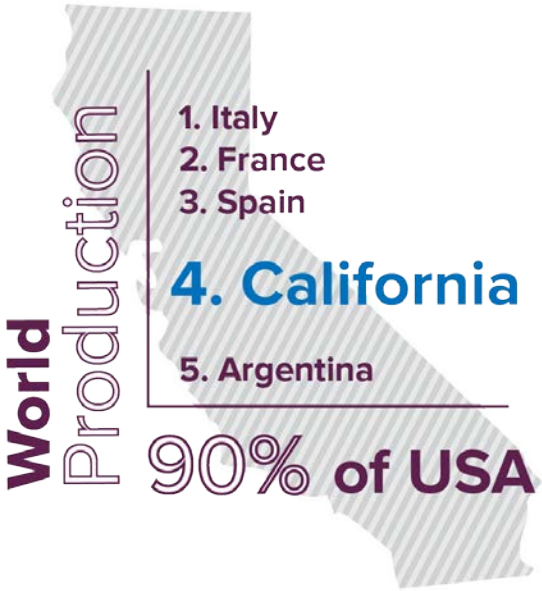
(EPA Water Sense)

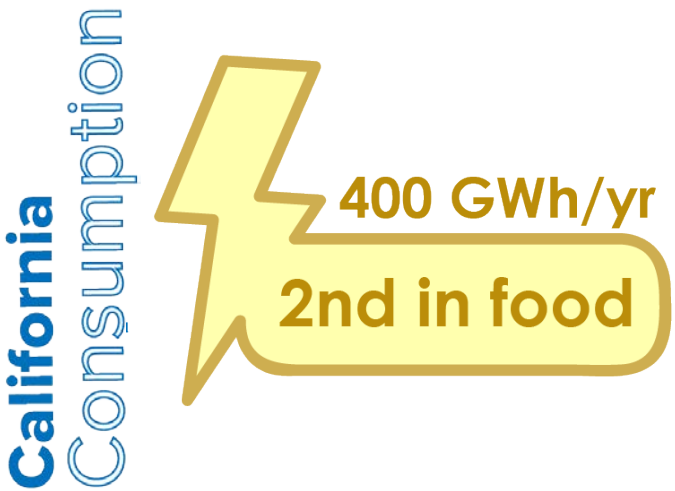
Reduced Water = Reduced Energy Consumption



Taken from: Embedded Energy in Water Studies 3 - May 10, 2011 retrieved from:http://www.cpuc.ca.gov/general.aspx?id=4388

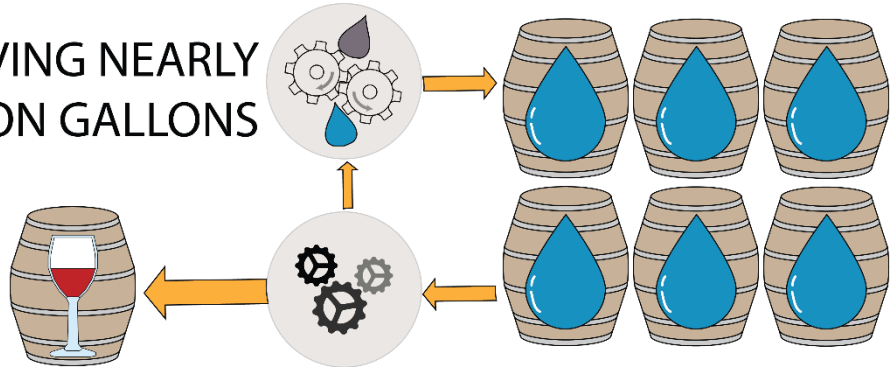
Water Savings Potential – Wine Industry



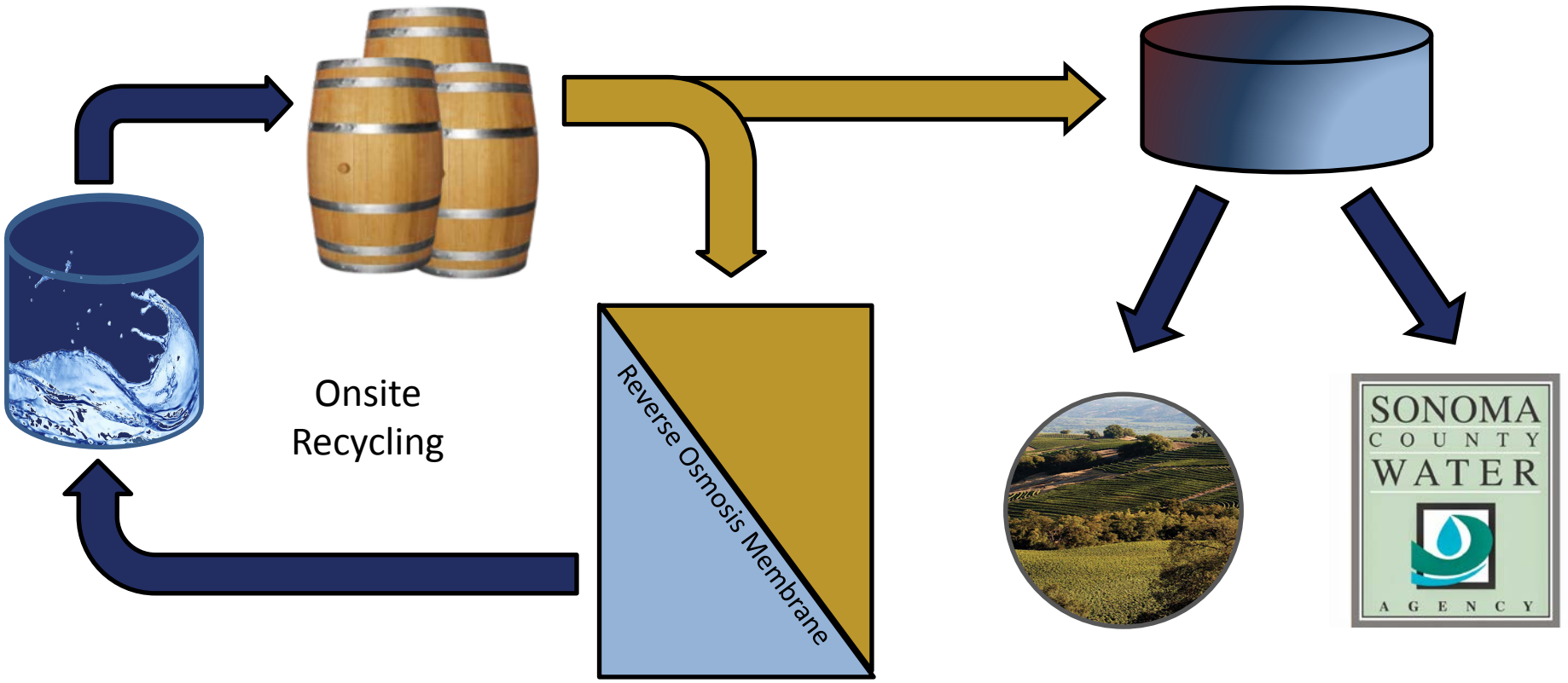


WITH INDOOR WATER REUSE

SAVING NEARLY 4 BILLION GALLONS



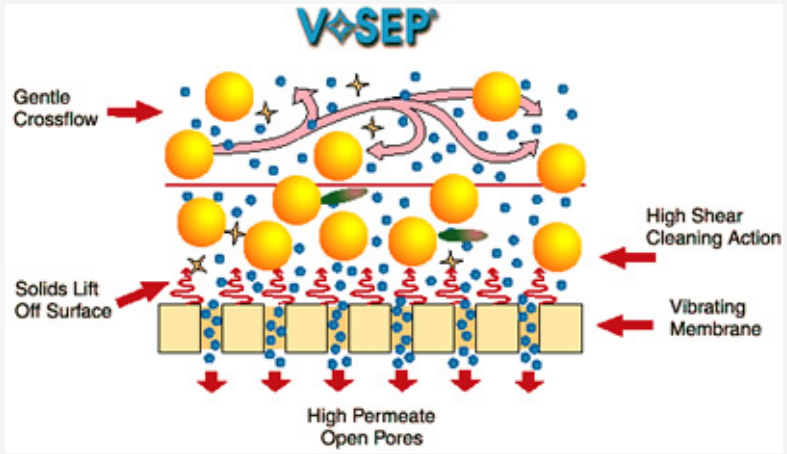
Case Study – Tracking a ONWS through Process



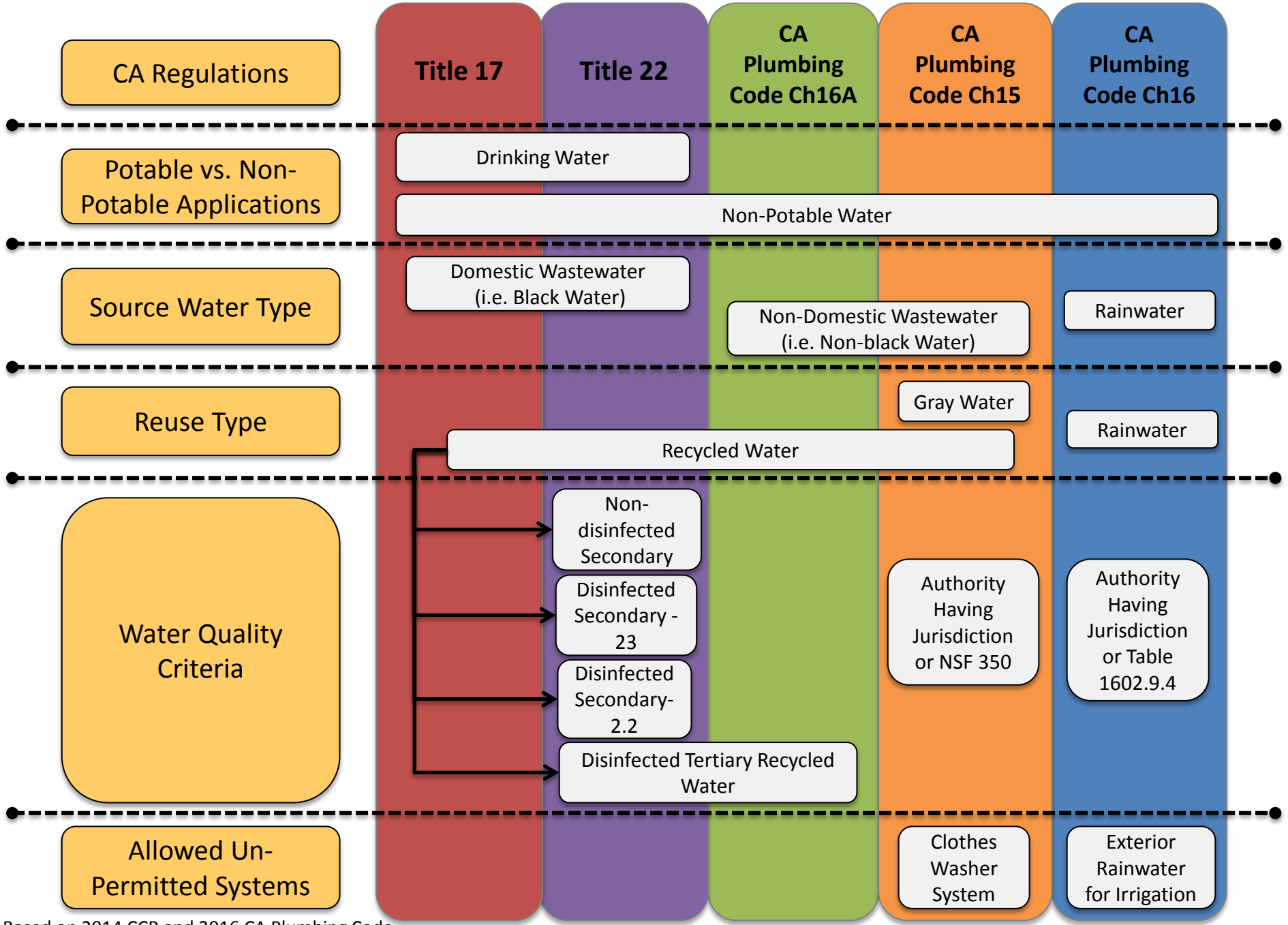
UCDAVIS
Center for Water-Energy Efficiency

Projected Savings		
Fresh Water Use	90%	1,417,500 gal/yr
Electricity	63%	42,450 kWh/yr
GHG Emissions	63%	31,000 lb/yr

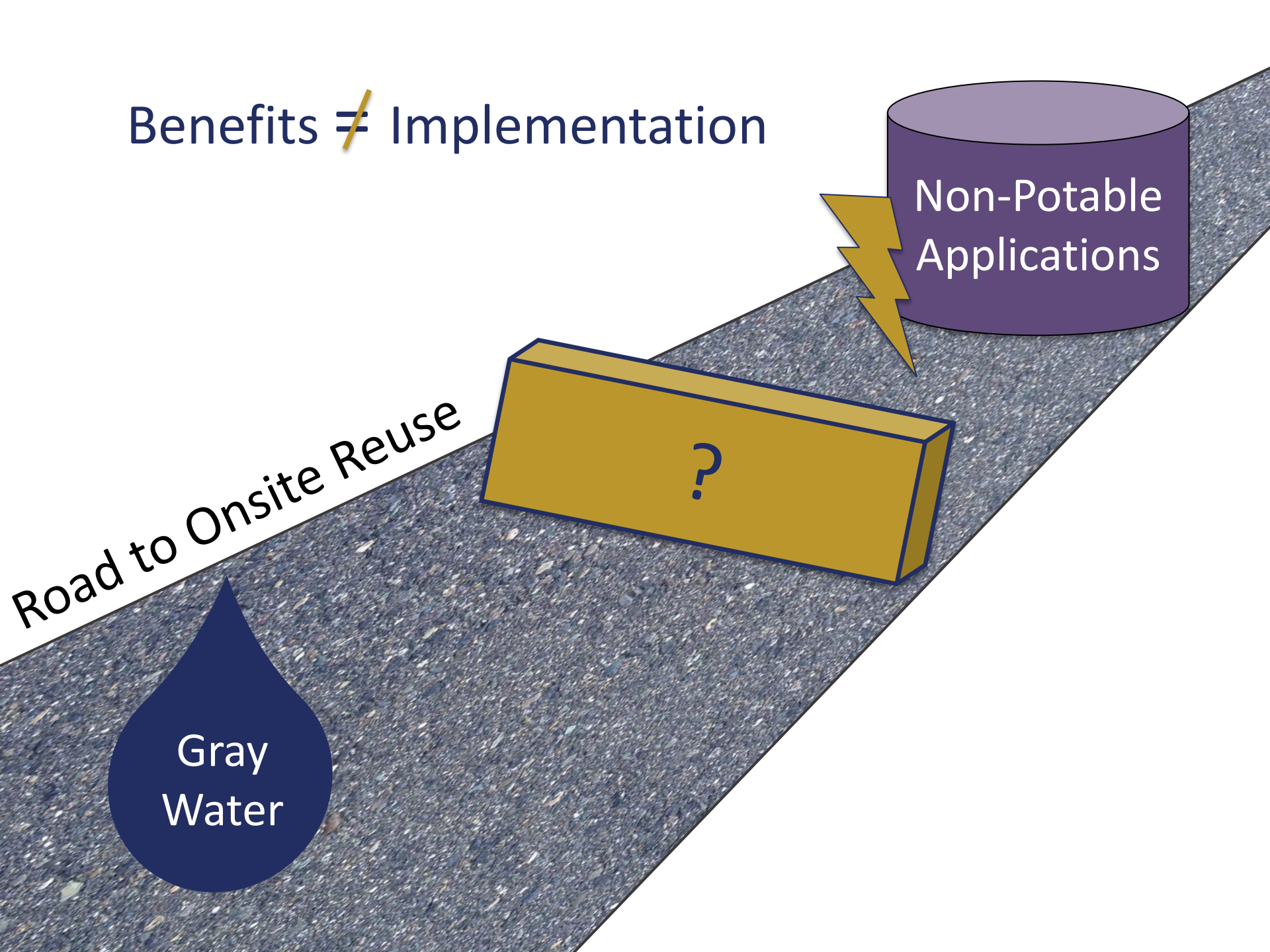
*New Logic Research



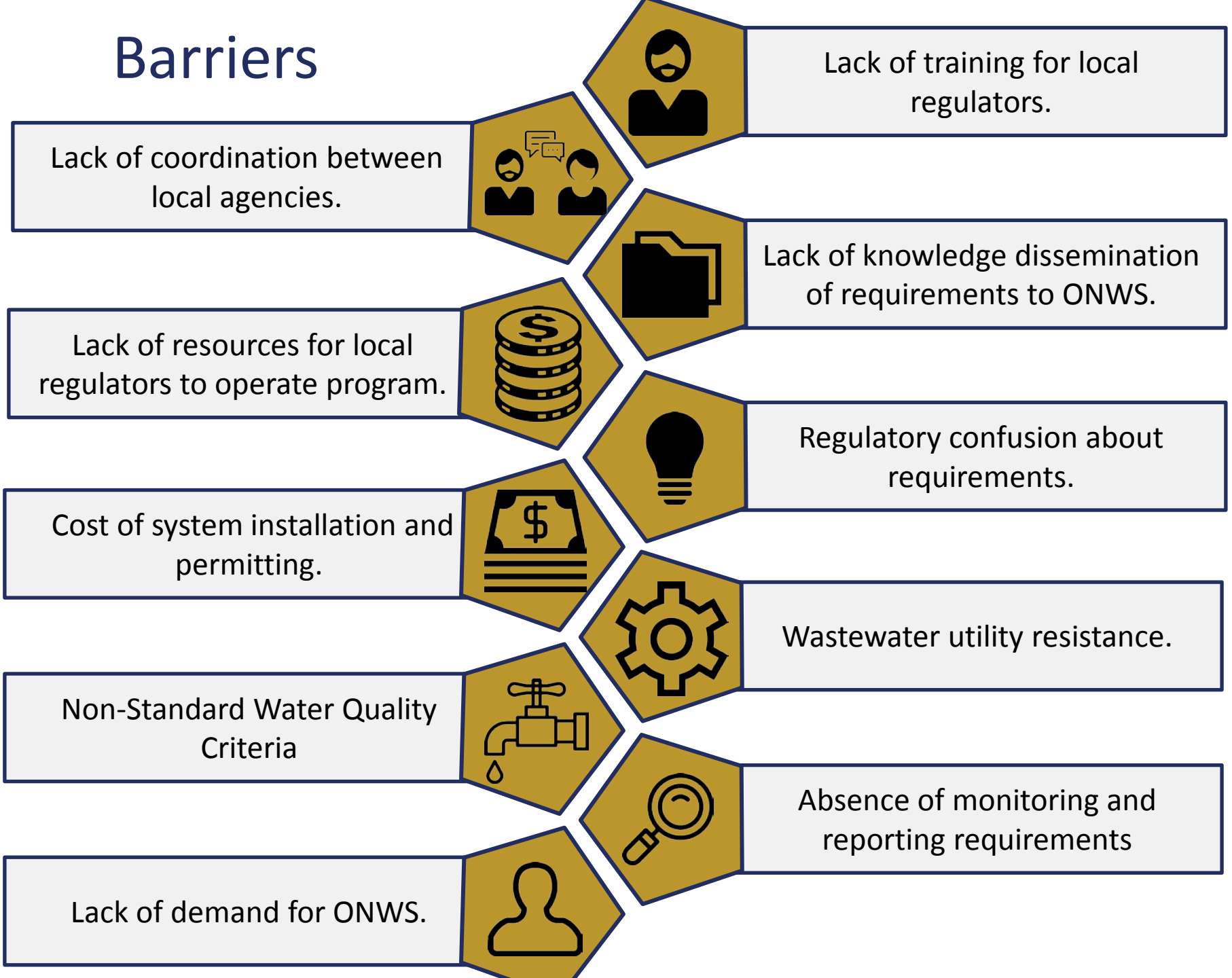
http://www.vsep.com/technology/index.html



Based on 2014 CCR and 2016 CA Plumbing Code


Benefits ≠ Implementation
Non-Potable Applications
?
Road to Onsite Reuse
Gray Water

Barriers

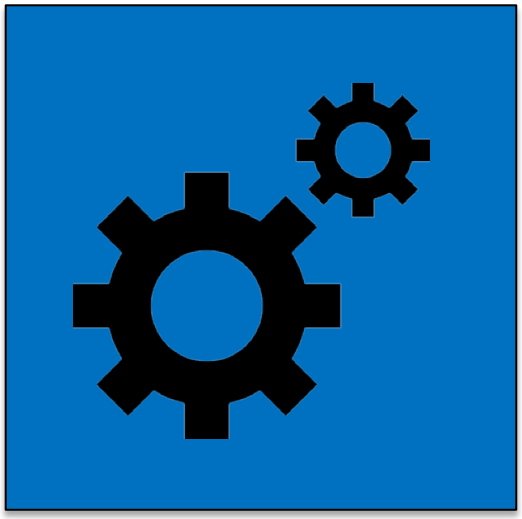

Lack of training for local regulators.
Lack of coordination between local agencies.
Lack of knowledge dissemination of requirements to ONWS.
Lack of resources for local regulators to operate program.
Regulatory confusion about requirements.
Cost of system installation and permitting.
Wastewater utility resistance.
Non-Standard Water Quality Criteria
Absence of monitoring and reporting requirements
Lack of demand for ONWS.

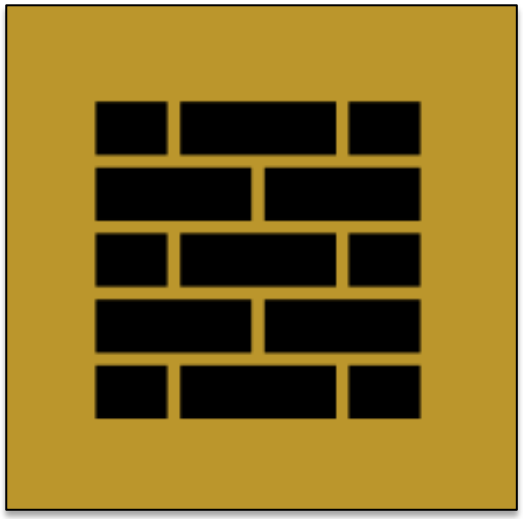
Addressing the Barriers

jurisdiction, as defined, that elects to establish a program for onsite treated nonpotable water systems to, among other things, adopt, through ordinance, a local program that includes the risk-based water quality standards established by the state board. The bill would prohibit an

Goal

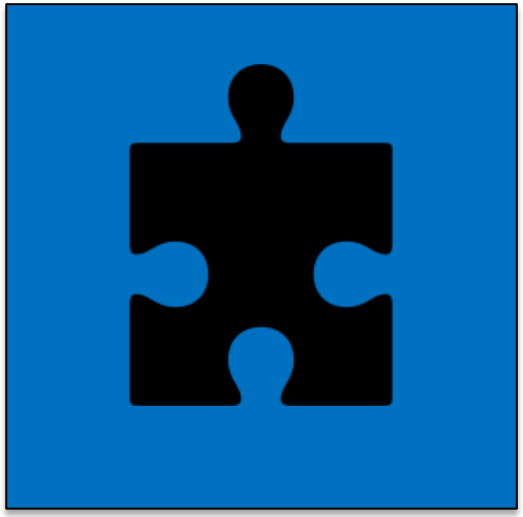
Review state of ONWS





Document barriers and successes.

Document work that has been done.



Identify what remains to be done.

Next Steps

What are the actual challenges/barriers? What remains to be done?

UCDAVIS
Center for Water-Energy Efficiency

Contact info:

Amanda Rupiper, M.S.
Graduate Student Researcher
arupiper@ucdavis.edu

Thank you