8 November 2017

Global Water Challenges and Opportunities

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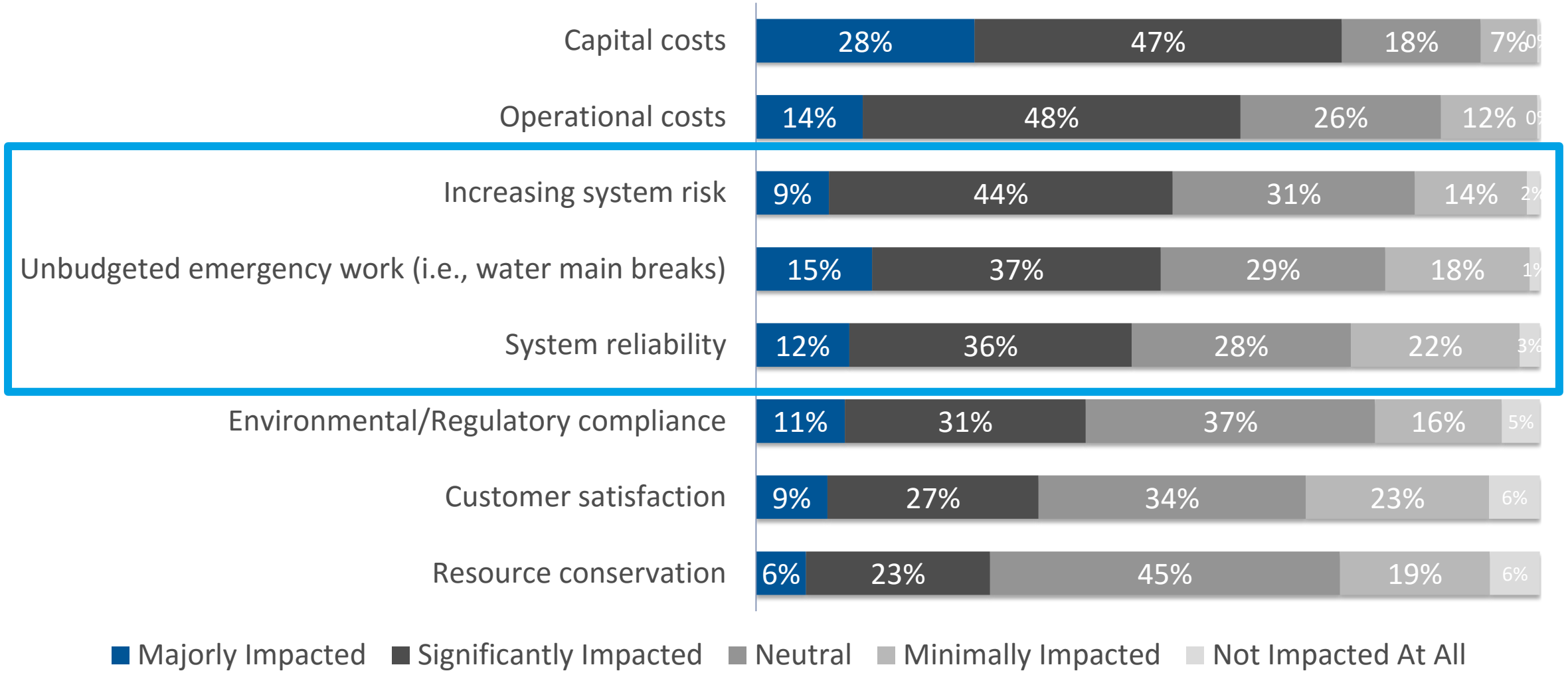
Global Practice & Technology Leader, Water

BUILDING A WORLD OF DIFFERENCE®

BLACK & VEATCH

- Customer Engagement
- Sustainable Water Supply
- Data Driving the Modern Utility

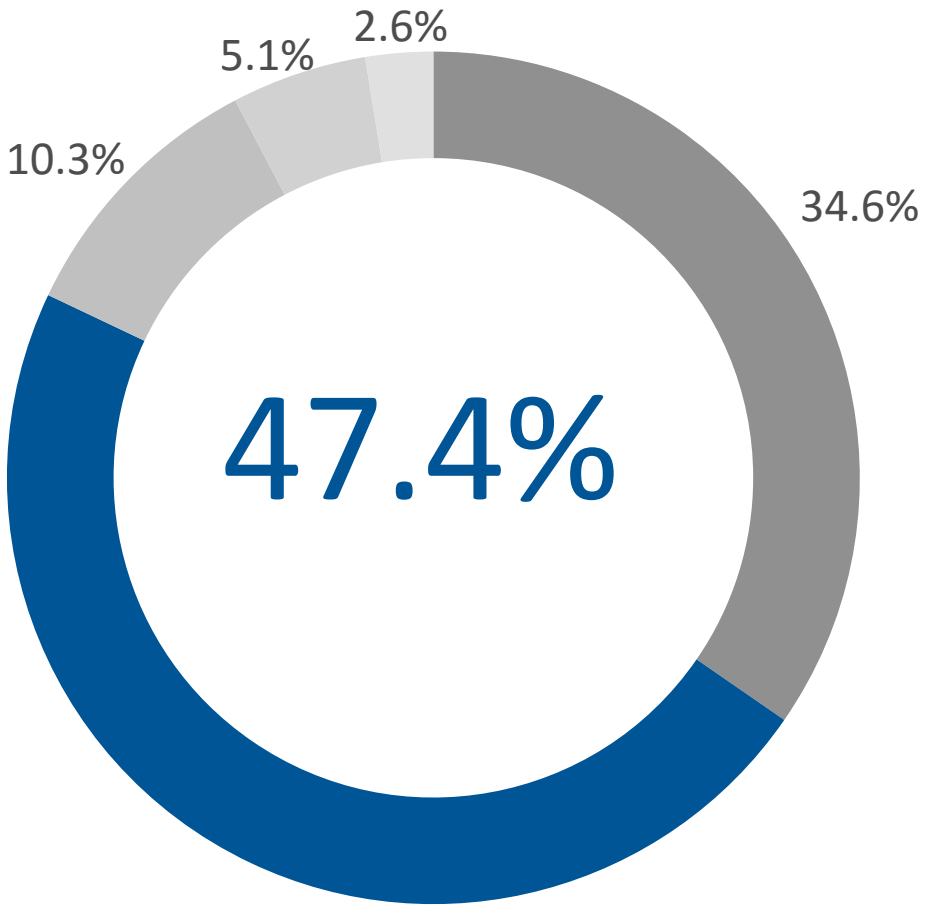
Please indicate the extent that the following items have been impacted by aging infrastructure.



Q2. Please indicate the extent that the following items have been impacted by the aging infrastructure within your organization. (Select one choice per row)

- Customer Engagement
- Sustainable Water Supply
- Data Driving the Modern Utility

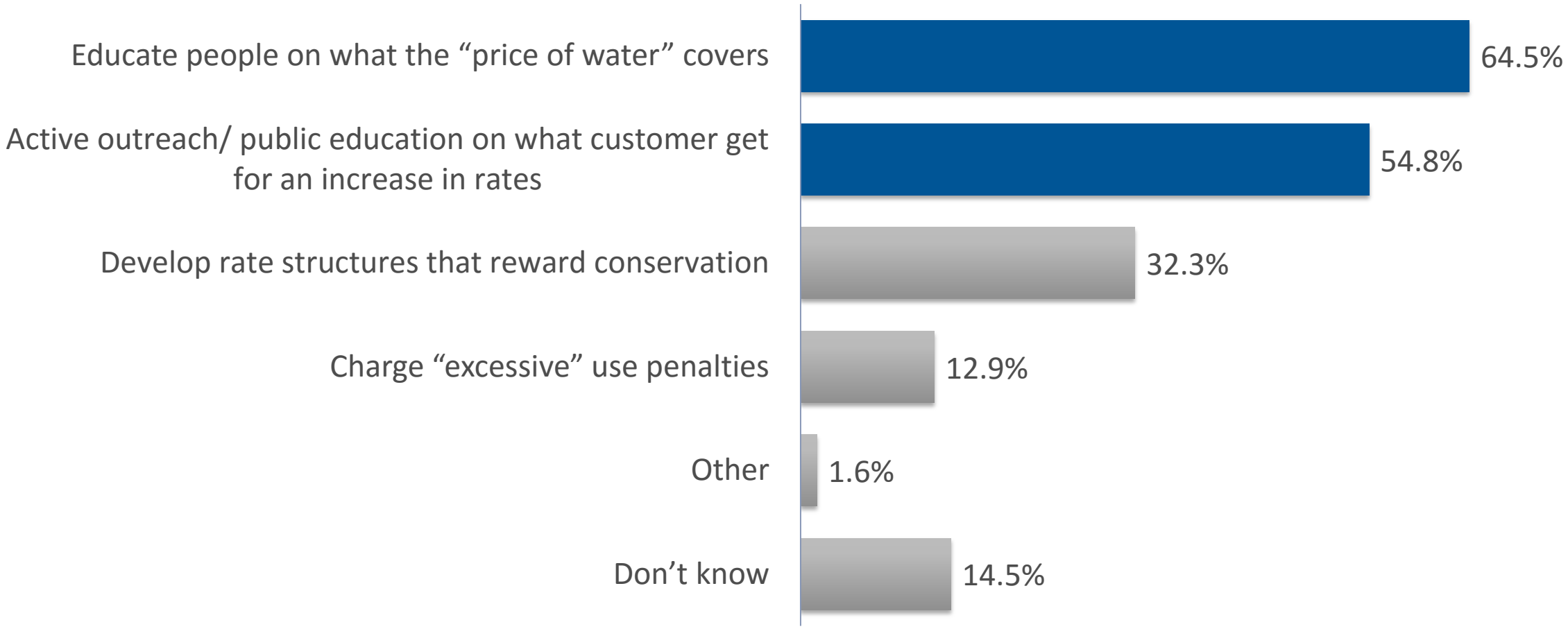
How would you rate the level of understanding about the value of water and proposed rate increases?



- They understand the “need” and accept that increases are necessary
- They understand the “need,” but still want us to cut costs (do more with less)
- They don’t understand but accept that increases are a part of life
- They protest every increase regardless of the need
- Other

Q10. Over the past five years, how would you rate the level of understanding and acceptance from key stakeholders and the public about the “value of water” and proposed rate increases? (Select one choice)

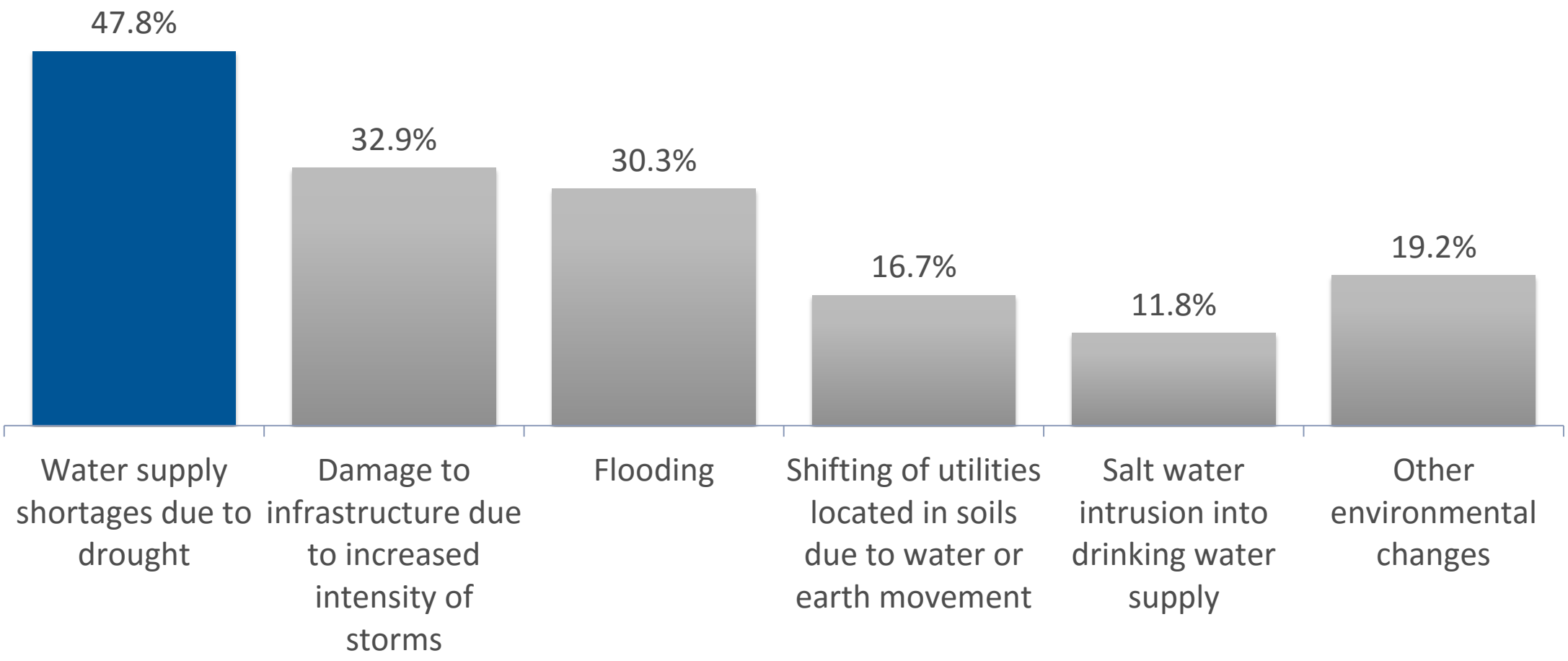
What methods is your utility using to address the ratepayer conundrum: “We conserve water and rates increase.”



Q20. Water conservation efforts can create difficulty in predicting how much consumption will decline. What methods is your utility using to address the ratepayer conundrum: “We conserve water and rates increase.” (Select all that apply)

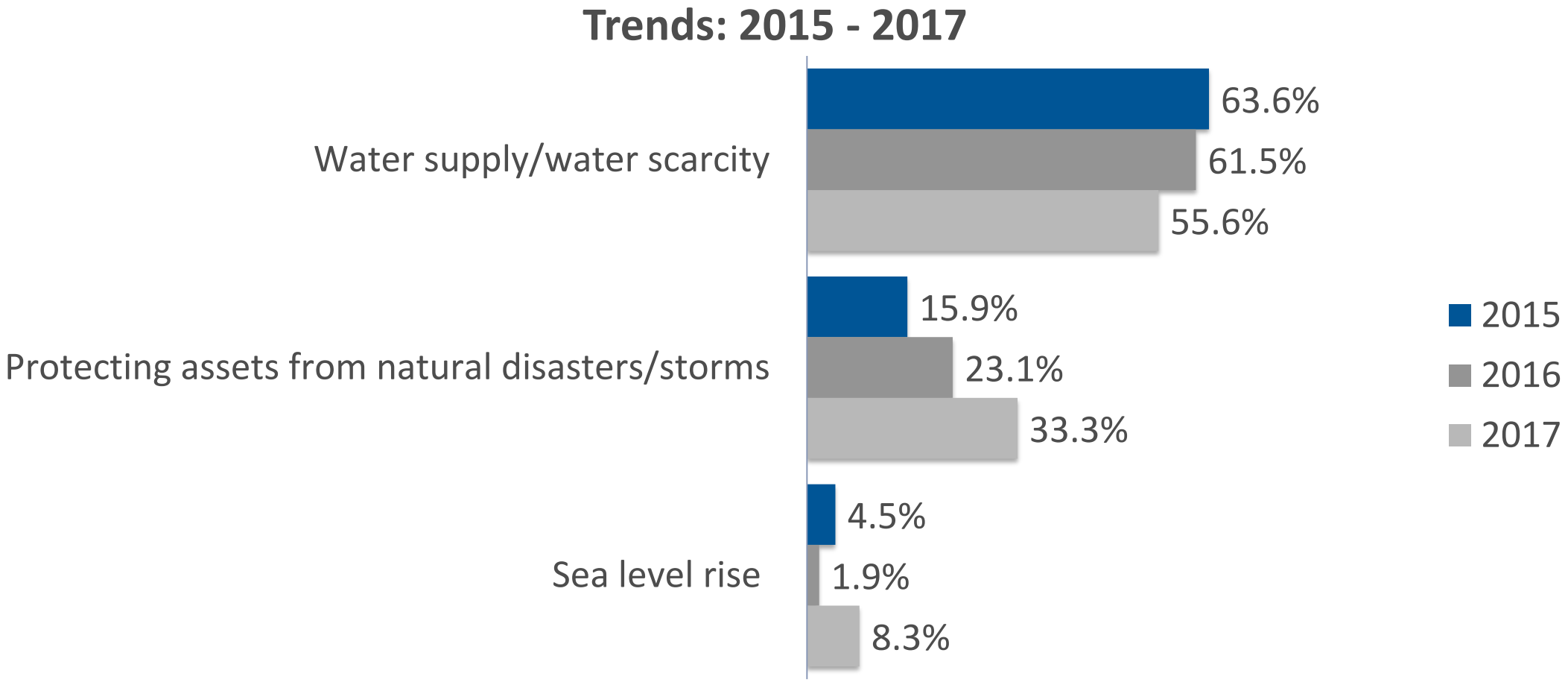
- Customer Engagement
- **Sustainable Water Supply**
- Data Driving the Modern Utility

Are you experiencing any of the following environmental changes that are causing you to adapt?



Q6. Are you experiencing any of the following environmental changes that are causing you to adapt your water system resiliency planning to accommodate for these changes? (Select all that apply)

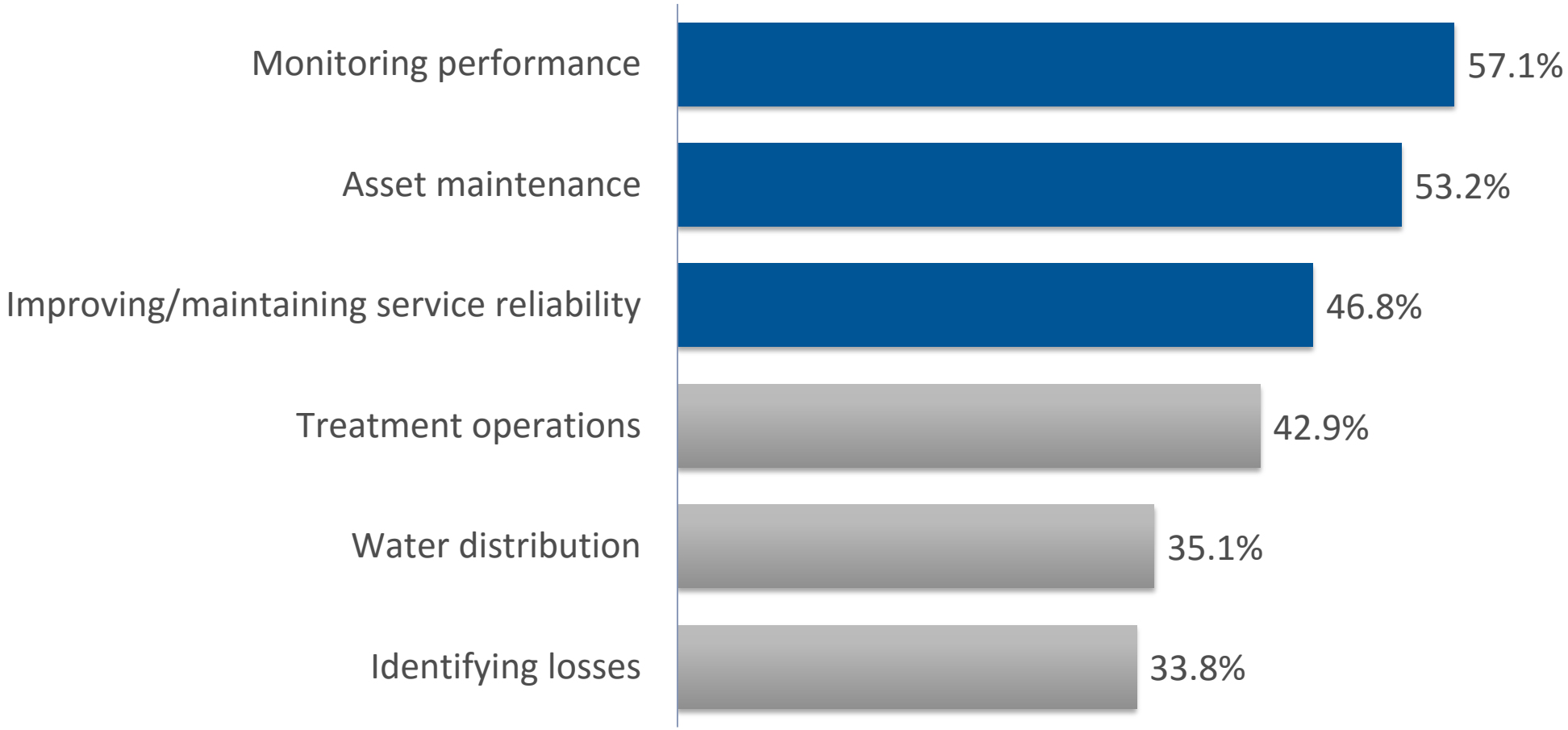
Most Significant Climate Change Issues by Year



Q4a. Which of the following is the most significant climate change issue for water utilities? (Select one choice)

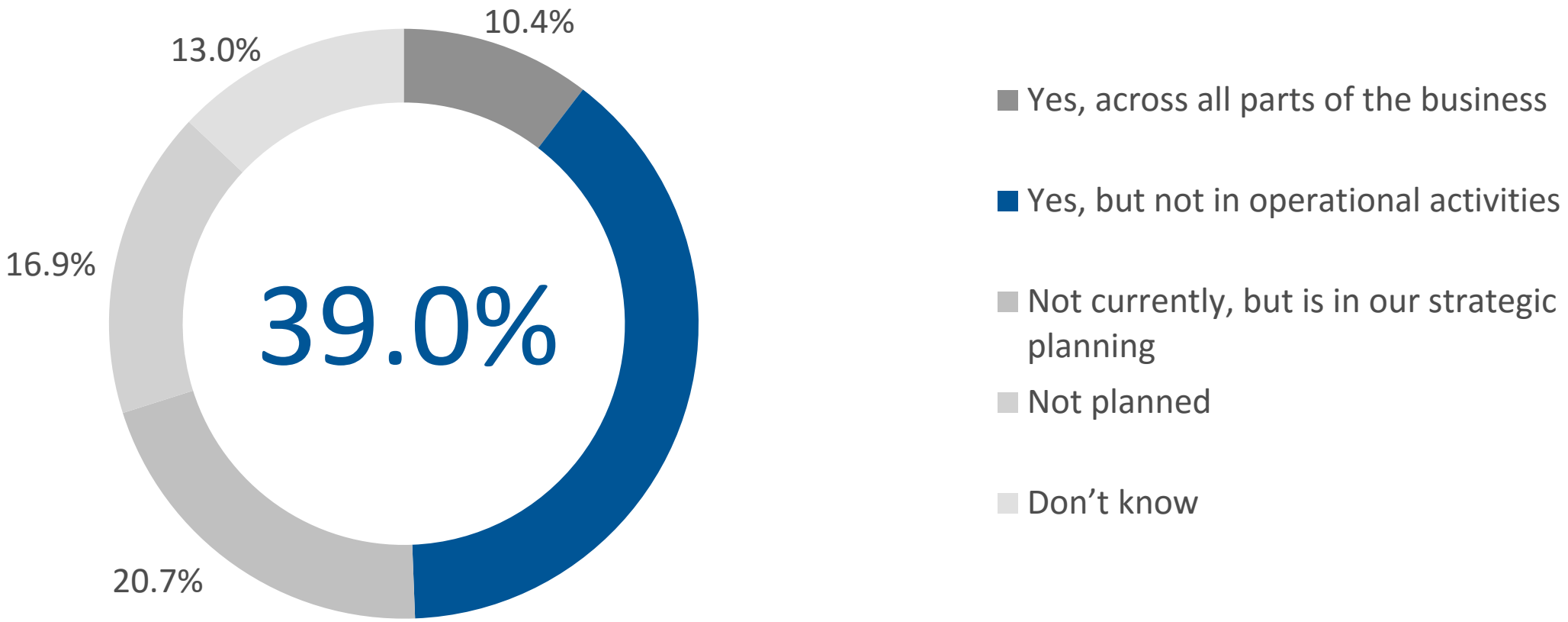
- Customer Engagement
- Sustainable Water Supply
- **Data Driving the Modern Utility**

What operational areas do you feel that data analytics and automated monitoring will help improve most?



Q34. What three operational areas do you feel that data analytics and automated monitoring will help improve most at your organization? (Select top three choices)

Does your organization utilize cloud-based software and/or analytics?



Q35. Does your organization utilize cloud-based software and/or analytics? (Select one choice)

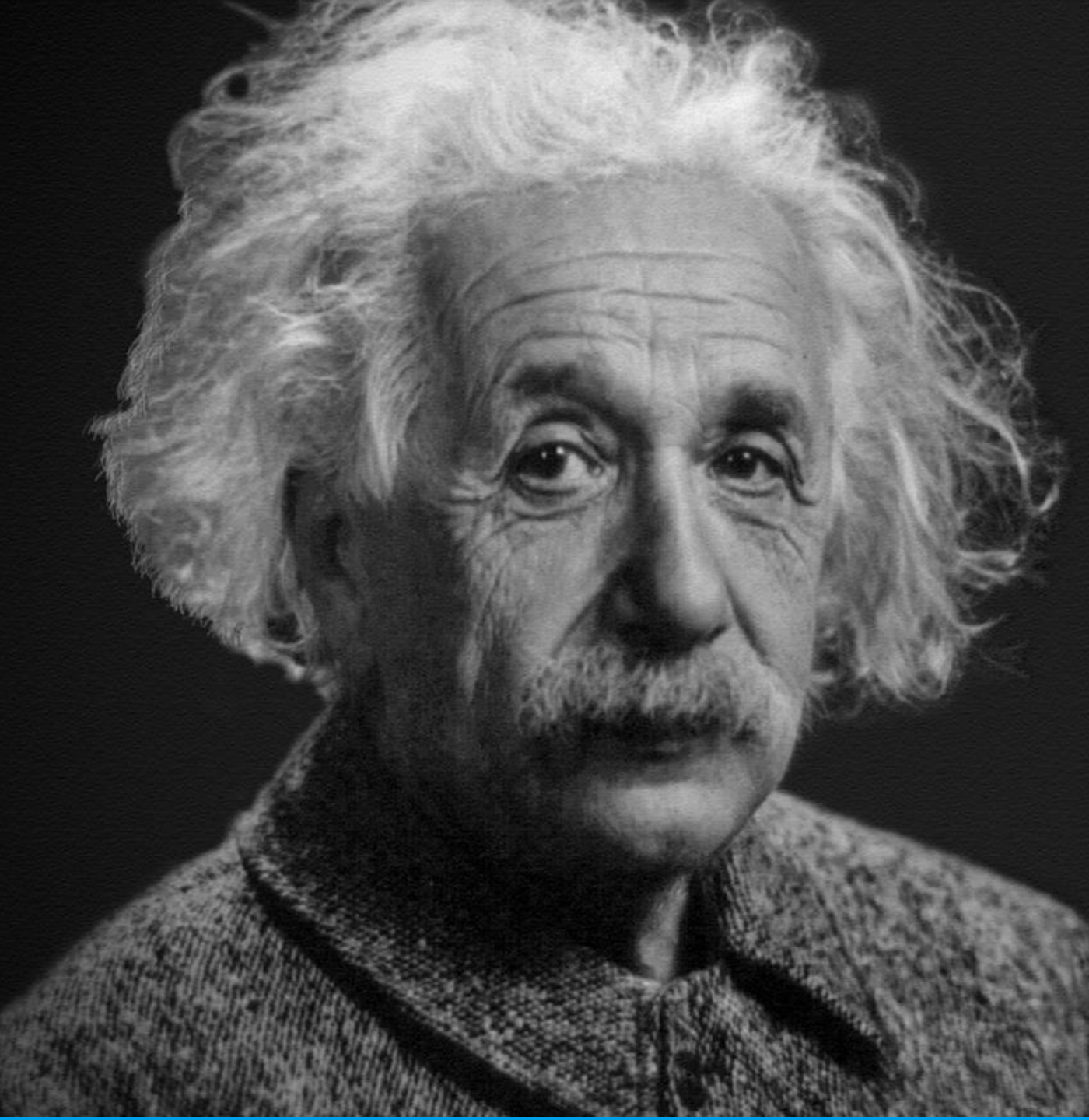
Key Challenges in the U.S.

- Financial
- System Resilience
- Aging Infrastructure

Key Challenges in Asia Pacific

- Security of Water Supply
- Urbanization
- Aging Infrastructure
- Wastewater

Opportunities



“Problems cannot be solved with the same mind set that created them.”

Effective Utility Management

A Primer for Water and Wastewater Utilities

January 2017

21st Century Utilities

- Leadership
- Strategic Business Planning
- Knowledge Management
- Measurement
- Continual Improvement

"Smart" Utilities for Smart Cities

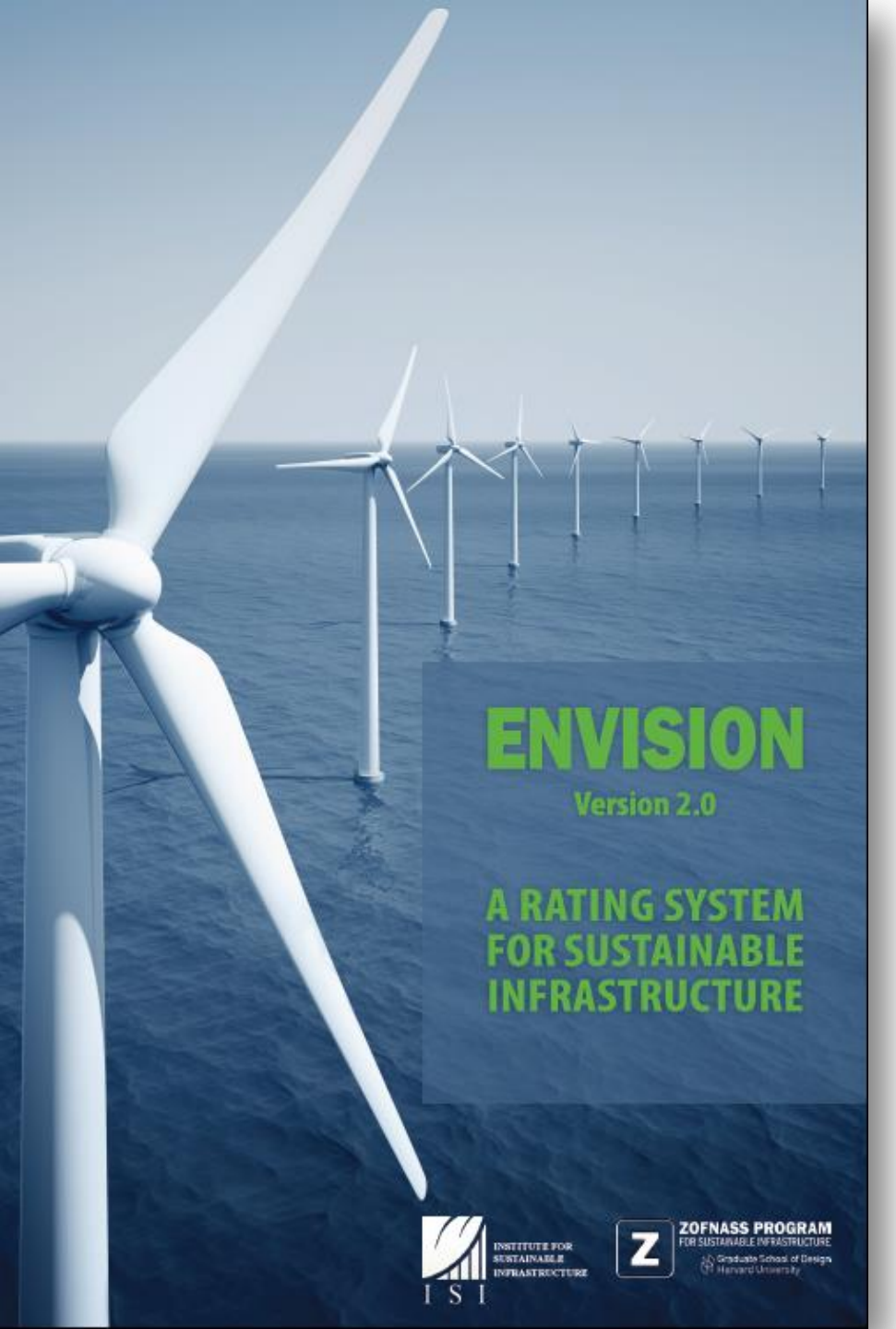
Report Card for America's Infrastructure

CATEGORY	1988	1998	2001	2005	2009	2013	2017
Aviation	B-	C-	D	D+	D	D	D
Bridges	–	C-	C	C	C	C+	C+
Dams	–	D	D	D+	D	D	D
Drinking Water	B-	D	D	D-	D-	D	D
Energy	–	–	D+	D	D+	D+	D+
Hazardous Waste	D	D-	D+	D	D	D	D+
Inland Waterways	B-	–	D+	D-	D-	D-	D
Levees	–	–	–	–	D-	D-	D
Ports	–	–	–	–	–	C	C+
Public Parks & Recreation	–	–	–	C-	C-	C-	D+
Rail	–	–	–	C-	C-	C+	B
Roads	C+	D-	D+	D	D-	D	D
Schools	D	F	D-	D	D	D	D+
Solid Waste	C-	C-	C+	C+	C+	B-	C+
Transit	C-	C-	C-	D+	D	D	D-
Wastewater	C	D+	D	D-	D-	D	D+
GPA	**C**	**D**	**D+**	**D**	**D**	**D+**	**D+**
Cost to Improve	**–**	**–**	**$1.3T**	**$1.6T**	**$2.2T**	**$3.6T**	**$4.6T**

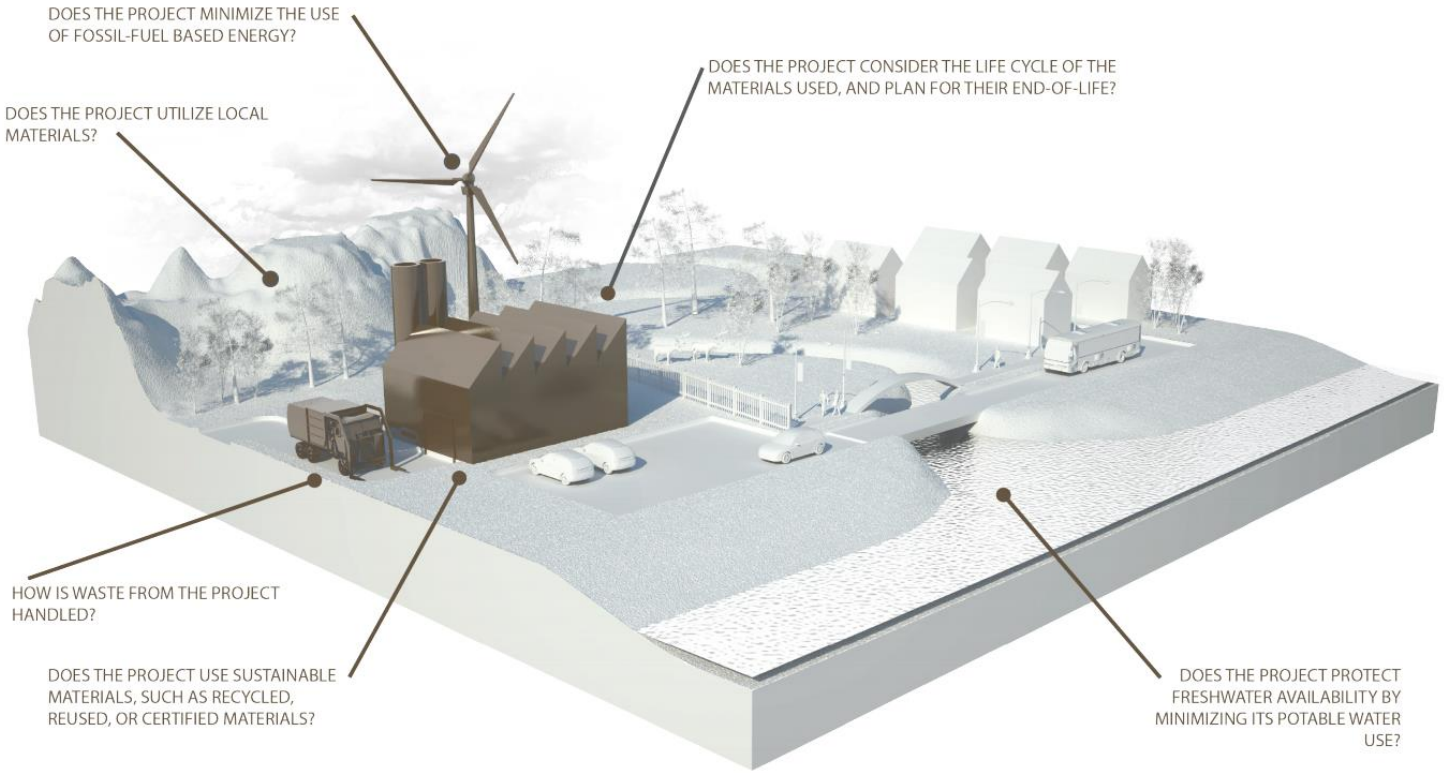
https://www.infrastructurereportcard.org/cat-item/wastewater/

America’s Infrastructure Today

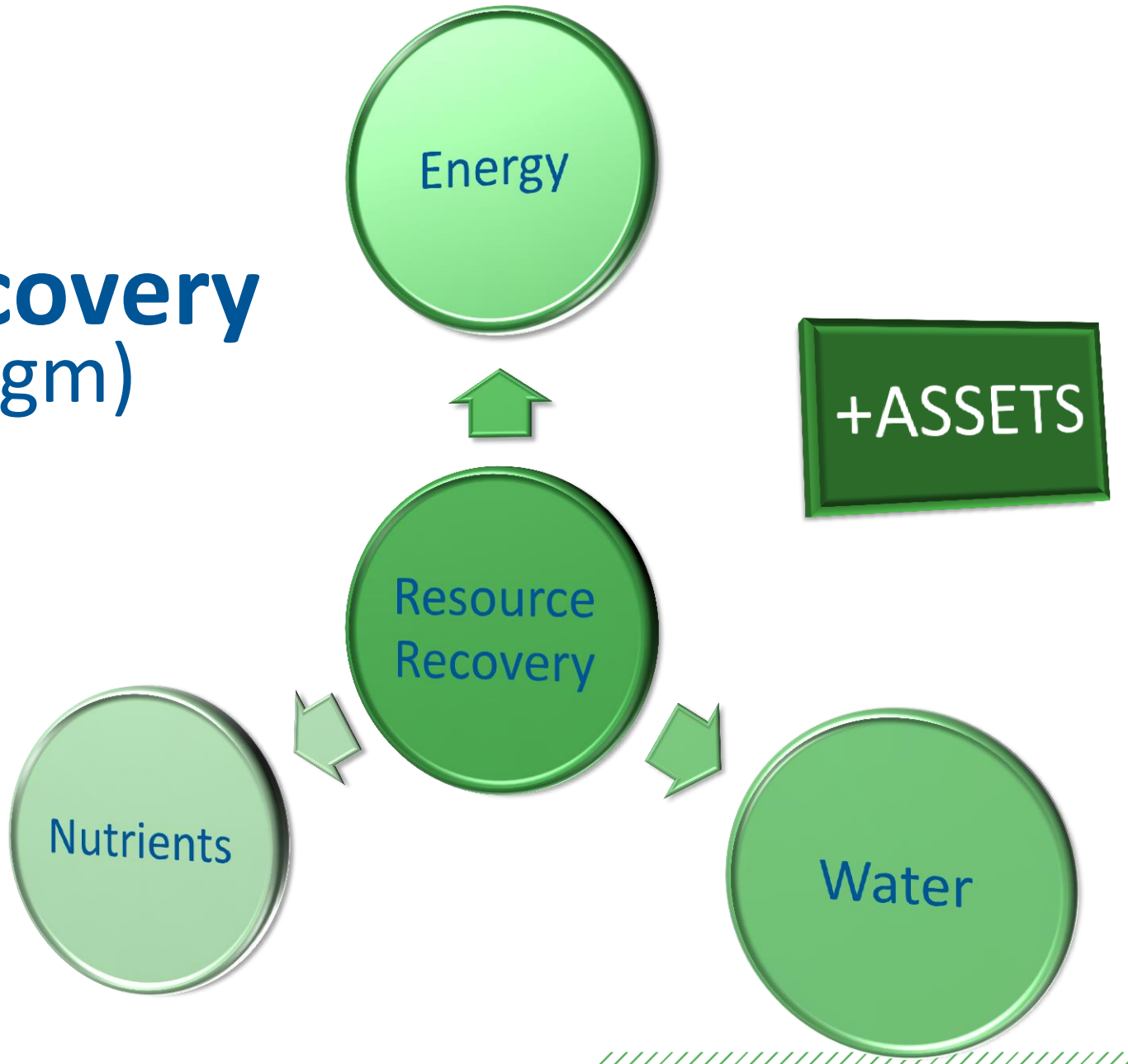
The Future of Infrastructure



Sustainability



Resource Recovery
("NEW+" Paradigm)



Innovation

LIFT

Moving Innovation into Practice

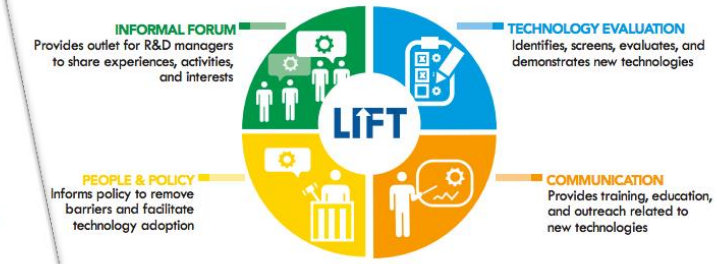
LEADERS INNOVATION FORUM FOR TECHNOLOGY (LIFT)

LIFT brings together the best scientific minds and industry specialists to accelerate adoption of innovative technologies.

WE&RF SUBSCRIBER BENEFITS

- A credible, well-documented vetting system to screen new technologies and processes.
- Ability to more rapidly deploy new technologies and remove existing impediments.
- Peer-reviewed information about emerging technologies.
- Mitigation of the risk and cost of innovative technology deployment through partnerships.
- Facilitation of collaboration among facilities for the evaluation and testing of new technologies.

LIFT'S TECHNOLOGICAL, SOCIAL, AND REGULATORY/POLICY ASPECTS



LIFT PARTICIPANTS

- **Working Group:** WE&RF subscriber municipal and industrial facility owners, includes more than 300 facility owner representatives.
- **Volunteer Expert Pool:** WE&RF consultants, equipment manufacturers, state regulators, stormwater managers, and other subscribers, as well as academics.

"LIFT provides a great opportunity for all stakeholders in the water sector to work together collaboratively for quick diffusion of new technologies. LIFT will serve as an adaptive model for targeted technology evaluation and adoption, by sharing costs, risks, and insights."

AMIT KALDATE
MANAGER, BIOLOGY GROUP, INFILCO DEGREMONT

HOW TO GET INVOLVED

To learn more about how your organization can get involved and participate in LIFT, contact Jeff Moeller at jmoeller@werf.org.

Visit www.werf.org and www.wef.org to learn more.

WATER ENVIRONMENT & REUSE FOUNDATION WE&RF

Water Environment Federation the water quality people

RESILIENCE

STRATEGIC | FINANCIAL | OPERATIONAL