United States Environmental Protection Agency

Building Water Utility Resilience Using EPA's CREAT

CREAT: A Risk Assessment Tool for Water Utilities

Extreme weather events, sea-level rise, shifting precipitation patterns, and temperature changes affect water quality and availability. Managing these events will pose significant challenges to water sector utilities in fulfilling their public health and environmental mission.

EPA's tool, CREAT, developed under the Creating Resilient Water Utilities initiative, assists drinking water, wastewater, and stormwater utility owners and operators in assessing risk from these events.

CREAT...

- Provides a flexible and customizable risk assessment framework
- Organizes available historical and projected climate data
- Guides users through a process of identifying threats, vulnerable assets, and adaptation options
- Supports utilities in considering impacts at multiple locations, assessing multiple climate scenarios, and documenting the social and energy use impacts of adaptation measures
- Informs decision-making as users compare the performance of adaptation options in multiple time periods across climate scenarios

Input	Module	Output
Utility location Current concerns	Climate Awareness	Awareness of potential climate challenges
Climate data Threats	Scenario Development	Threat scenarios for assessment
Utility information Priority assets	Consequences & Assets	Consequence matrix Critical/vulnerable assets
Existing measures Potential adaptive measures	Adaptation Planning	Plans for assessment
Projected scenarios Consequence matrix Assets Adaptation plans	Risk Assessment	Monetized risk reduction Adaptation plan comparison

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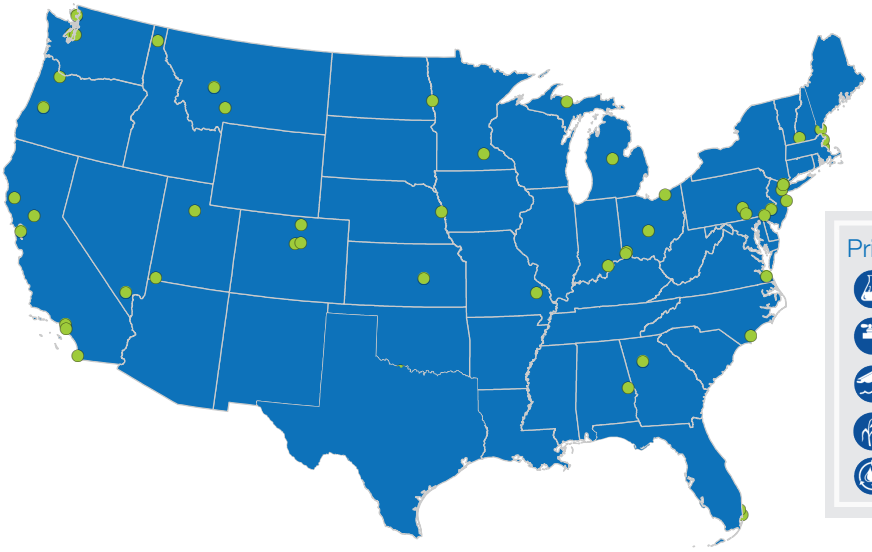
Conducting a Facilitated CREAT Exercise



EPA has collaborated with several water utilities across the country to help improve resilience through facilitated CREAT exercises. Each exercise demonstrates CREAT's capabilities to assess diverse challenges and provides a solid foundation for utilities to build upon and fully assess both their long-term needs and potential performance of resiliency projects and strategies.

Priorities for Water Utilities

- Water Quality
- Service Reliability
- Flooding
- Drought
- Ecosystem Changes

What does a CREAT exercise require from utilities?

Recognizing partner utilities' significant time constraints, EPA makes the process as efficient as possible and provides substantial facilitation support throughout each exercise. Utilities are typically asked to provide a lead that spends around 35-40 hours to serve as a point-of-contact, participate in webinars and coordinate the on-site visit. Other staff and experts (such as hydrology modelers, engineers, and treatment plant managers) may spend 5-15 hours collecting data and providing feedback on meeting notes and the final report. The total process takes 4 to 6 months, depending on the frequency of meetings and availability of utility staff and local partners.

What is the CREAT exercise process?

Kickoff Call	Understand context, introduce CREAT, and start defining exercise objectives
Webinar 1	Walk through CREAT platform and start working through initial modules
On-Site Visit	In-person or remote CREAT working sessions and facility review of critical asset(s)
Webinar 2	Integrate additional data and finalize CREAT modules
Final Report	Comprehensive summary of process and findings for stakeholders and decision-makers
Case Study	Two-page summary published on CRWU's Case Study and Information Exchange website