

New England Water Innovation Network

LOCAL INNOVATION : GLOBAL IMPACT



NEWIN Mission

NEWIN is the non-profit, water industry cluster for New England whose members are committed to addressing water resource challenges.

NEWIN's mission is make an impact on the global water challenges by working to broaden and accelerate innovation to market.

Catalyze Water Industry Collaboration in New England

Bring together water industry stakeholders: Technology Introduction, Business Development, Advocacy, Outreach and Communication

Drive Local Innovation with Global Impact

Promote collaboration to make an impact on the world's pressing water challenges, starting with those in New England.



Why NEWIN?

- **Water issues require innovation**
There exist significant unmet local, regional, national and global water challenges
- **Water innovation is slow and risky**
Time to market is measured in decades and faces significant technical and market based commercialization challenges
- **Local innovation can have a global impact**
New England has an unrivaled combination of intellectual horse-power and industry expertise
- **Water innovation can be accelerated and derisked**
Industry and innovation cluster organizations stimulate innovation and encourage industry growth

Locally, in New England, we have unparalleled resources to innovate for global impact.

Technology



Academia



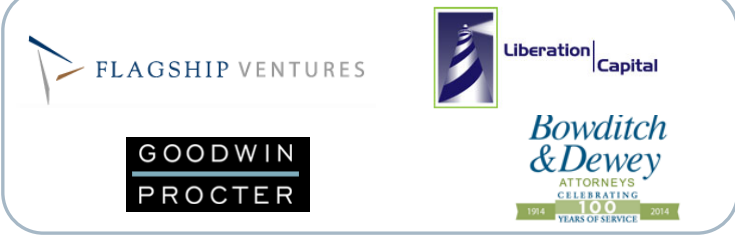
Engineering



Emerging Technologies & New Companies



Support



Local Innovation : Global Impact

Alicia Barton
CEO
Massachusetts Clean Energy Center

1.7
BILLION
ECONOMIC OUTPUT
GENERATED BY THE
MASSACHUSETTS
WATER
TECHNOLOGY INDUSTRY

MASSACHUSETTS
WATER TECHNOLOGY INDUSTRY ROADMAP

MASSACHUSETTS
CLEAN ENERGY
CENTER

The infographic features a blue and green color scheme with a hexagonal pattern. It includes the name and title of Alicia Barton, CEO of the Massachusetts Clean Energy Center, and a large graphic of '1.7 BILLION' representing economic output. A green banner contains the title 'MASSACHUSETTS WATER TECHNOLOGY INDUSTRY ROADMAP'. The Massachusetts Clean Energy Center logo is at the bottom right.

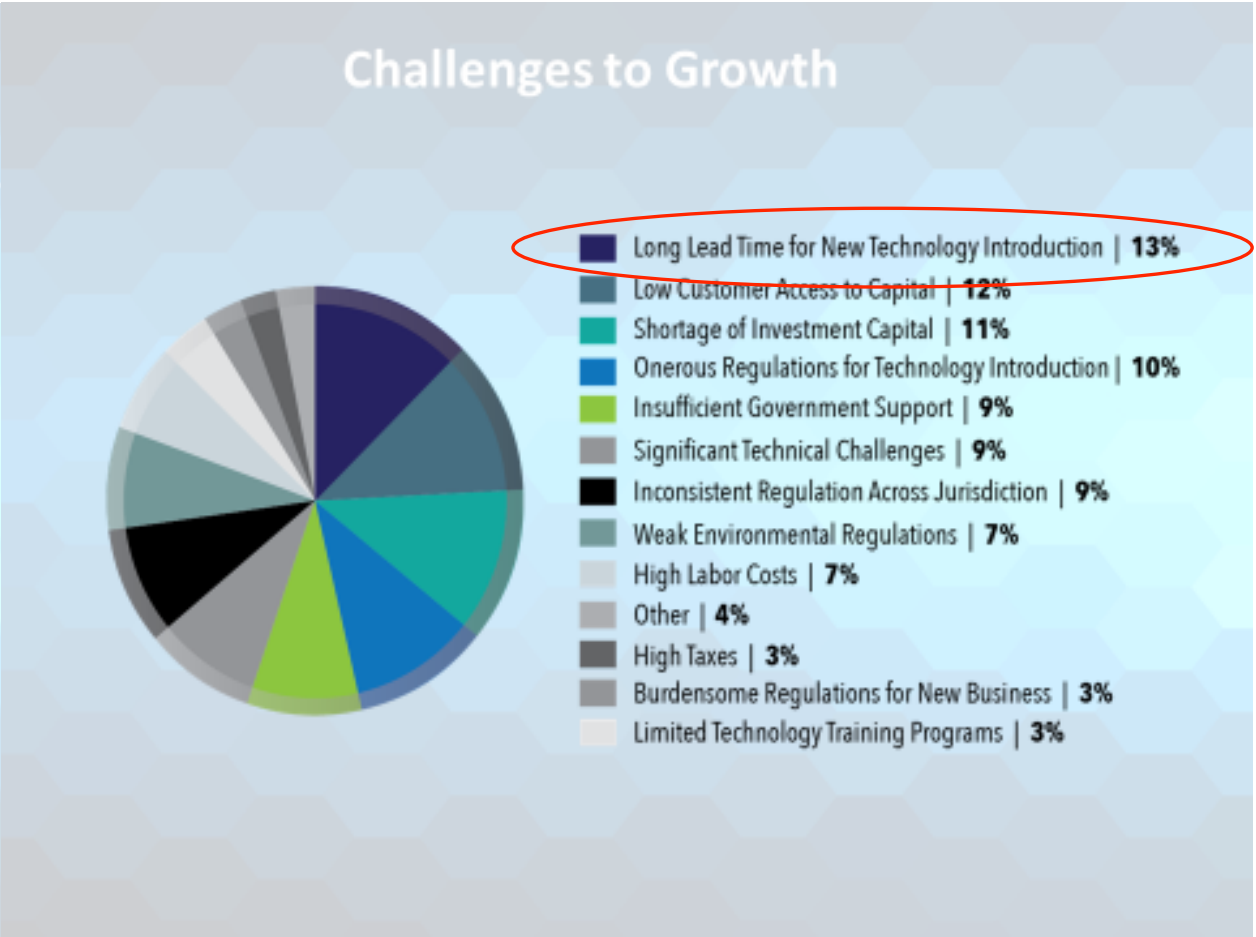
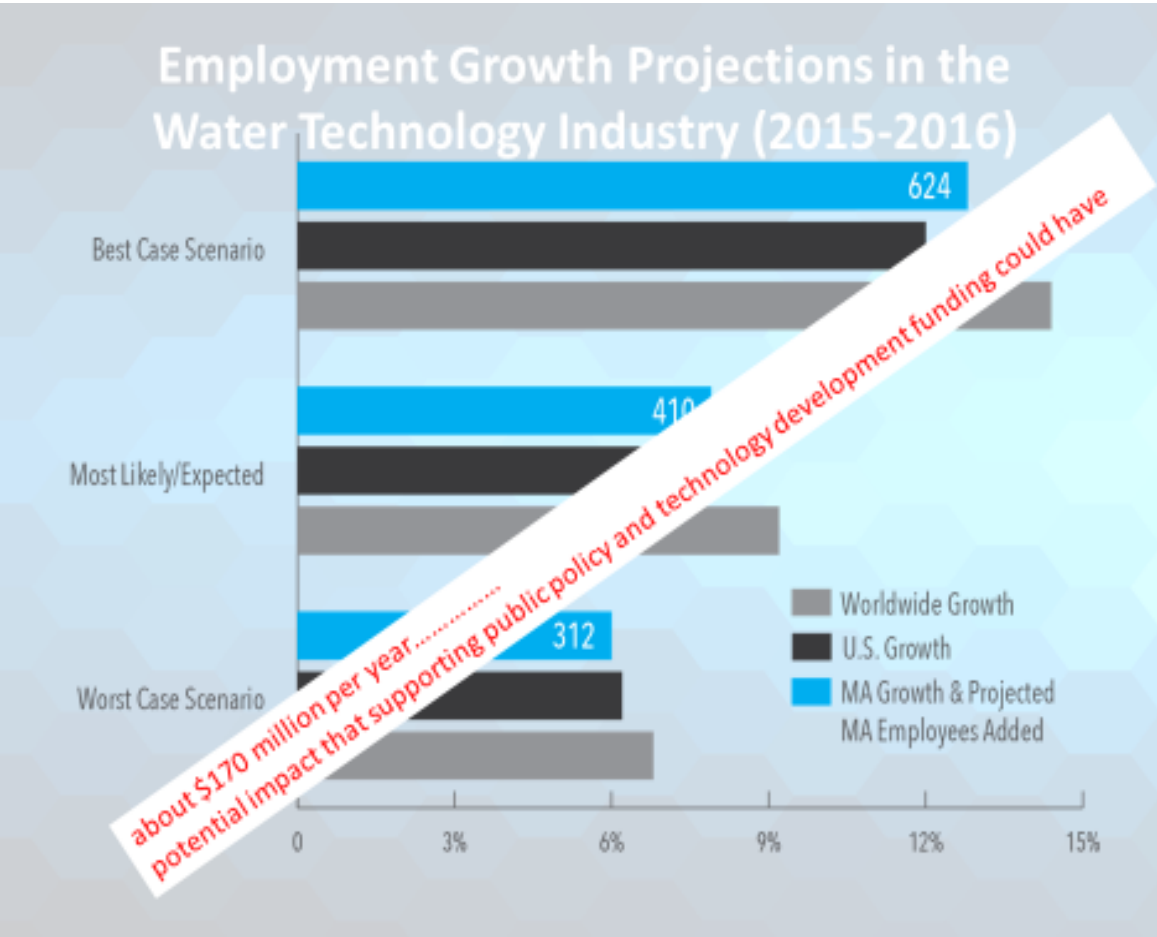


Snapshot of the
Massachusetts Water
Technology Industry:

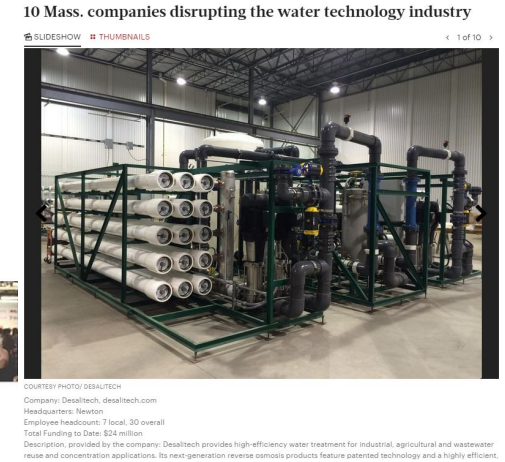
COMPANIES:
93
TOTAL NUMBER OF WORKERS:
5,201
DIRECT STATE ECONOMIC IMPACT GENERATED
1.7 BILLION
TOTAL STATE ECONOMIC OUTPUT GENERATED
2.8 BILLION
EXPECTED JOB GROWTH THROUGH 2015
7.9%

The infographic is set against a pink background. It lists key statistics for the Massachusetts Water Technology Industry, including the number of companies (93), total workers (5,201), and economic impact (1.7 billion direct, 2.8 billion total). It also notes an expected job growth of 7.9% through 2015, which is significantly higher than the 2.4% employment growth rate.

Local Innovation : Global Impact



Local Innovation : Global Impact



Innovation Nation: The Top 12 Water Technology Hot Spots In America

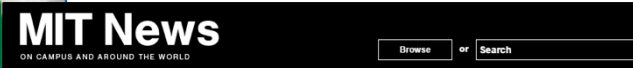
By Laura Mart / DRINK / BEER

Beer Made From River Water? It'll Be Available in Boston

A Boston brewery is sourcing water from the Charles River for this exclusive pale ale
September 4, 2015 | 02:26 PM By Samantha Neudorf, Editor



The Harpoon Brewery is located in Boston.



MIT alumnus Mohammed Abdul Latif Jameel gives major gift to solve urgent challenges in world food and water security
Professor John Lienhard will lead the new laboratory.



UMASS Amherst won \$4MM grant to develop a Water Innovation Network for Sustainable Small Systems

Oasys Water Named to the 2014 Global Cleantech 100



List Recognizes the Top Private Companies in Clean Technology



Leadership Conference November 2014



NEWEN

2014 Water Leadership Conference
Water and Wastewater Utility Challenges and Opportunities: The Role of New Technology
 Wednesday, November 19th, 2014
 Worcester Polytechnic Institute

Follow NEWEN on Twitter @NEWEN_H2O & Share your thoughts at the conference #waterleaders2014

Join the [NEWEN LinkedIn Group](#)

Sign up for the [NEWEN H2O Bytes Water News and Events Digest](#) on our website newengland-win.org

NEWEN Water Leadership Conference Program

8:00 a.m. Registration and Networking Continental Breakfast

8:45 a.m. Welcome & Introductions:
 Chair/Program Moderator – Ned Bartlett, Bowditch & Dewey
 Introduction of NEWEN and WPI – Earl Jones and Karen Oates

9:00 a.m. Water and Wastewater Utility Challenges and Opportunities Panel Discussion

10:15 a.m. Coffee Break & WPI Student Water Research Poster Exhibit

10:40 a.m. CoMag Technology Case Study (with Q&A) - Town of Concord

11:10 a.m. Advising Public Sector Clients on the Use of Technology: The Issues Communities Face

11:40 a.m. Legislative Update –
 The Honorable Representative Carolyn Dykema

12:00 p.m. Lunch

12:45 p.m. WPI'S Water Research

12:50 p.m. State of Water and Wastewater Technology in US

1:20 p.m. The NEWEN Water Leadership Award

1:35 p.m. Finding Solutions –
 Massachusetts Water Cluster Panel Discussion

2:50 p.m. Next steps/Action Items – Program and Panel Moderators

3:00 p.m. Adjourn



NEWEN Sponsors and Partners



Technical Innovations need to:

- Protect the public health
- Be proven
- Work with regulations
- Anticipate regulatory changes
- Be cost effective
- Be reliable and able to maintain long-term
- Be accepted by the public

Local Innovation : Global Impact

Examples of Support to Local Innovation

- Partner with Regional Organizations to support technology needs
- Symposium on Water Innovation in Massachusetts (SWIM)
- “Water Pitcher” events



- NEWIN Exchange- test bed network
 - Support for start-ups
 - Feasibility studies
 - Formalize logistics and put into action



Local Innovation : Global Impact

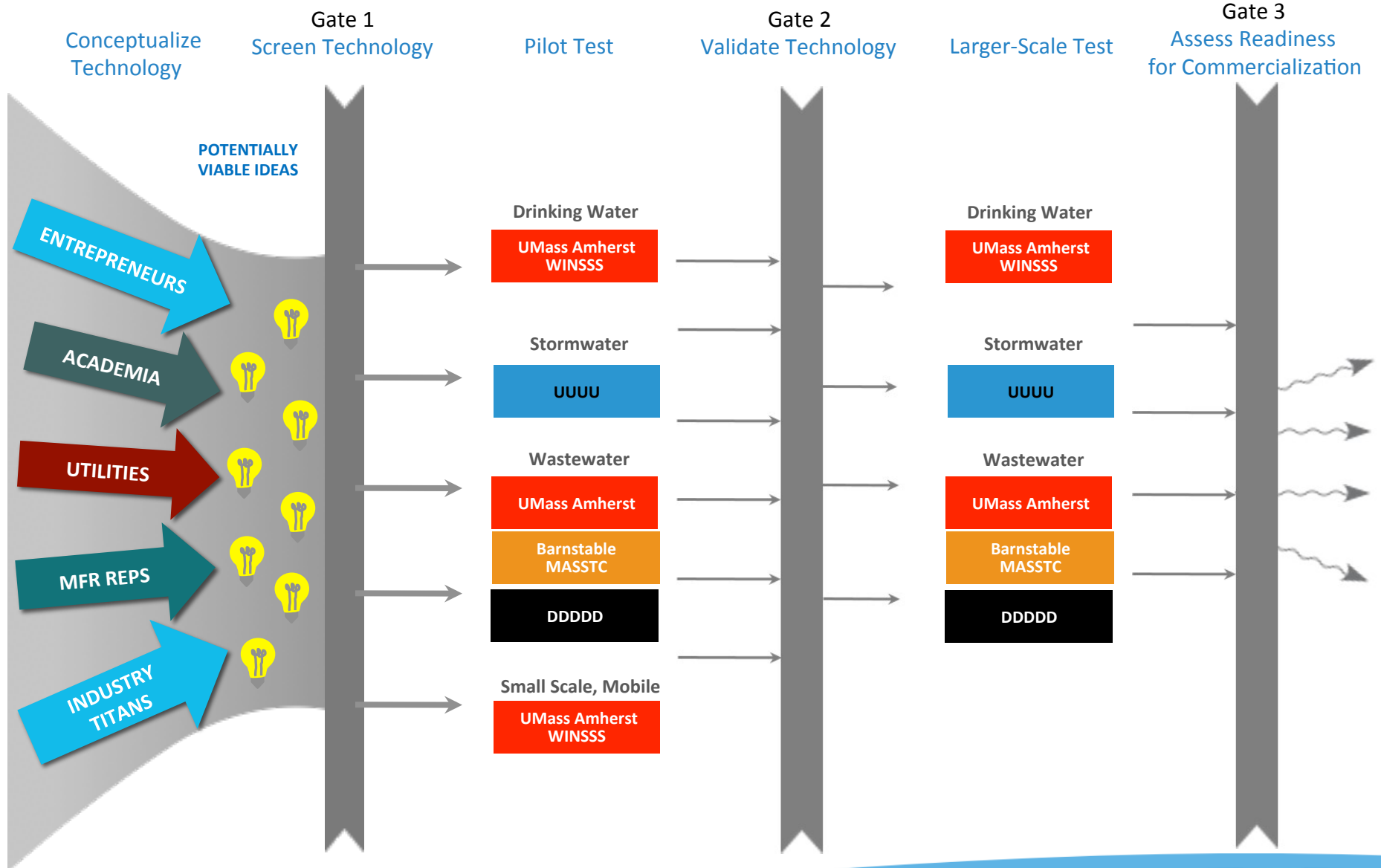
Technology to Innovation with:

A NETWORK OF RESOURCES TO TEST, PILOT, AND DEMONSTRATE NEW WATER TECHNOLOGIES, IN ORDER TO:

- Attract companies and researchers to work and build businesses in New England;
- Advance new solutions to local water issues; and
- Connect innovators to industry.



Technology to Innovation





An ideal location:
Easy access, with close proximity to drinking water and wastewater influent and effluent disposal



For wastewater and drinking water pilot testing, this facility is designed to enable researchers from both public and private sectors to test and evaluate new and innovative water treatment technologies without the barrier and cost of building their own pilot system.

A new permanent structure on the University of Massachusetts Amherst campus containing six testing beds, each plumbed with an influent line of raw wastewater, primary effluent, secondary effluent, sludge, finished wastewater, and raw surface water.

Ability to test and pilot new treatment technologies conveniently, and with extreme ease of use. The on-site laboratory enables rapid assessment of treatment performance.

Testing beds can be rented for any duration of time, from as little as one day, up to a year.

Key Features

- 4,900 ft² State-of-the-art wastewater and drinking water testing facility
- Located at the Amherst Wastewater Treatment Plant on the UMass Campus
- Accessible 24 hours per day, 7 days per week
- Six testing stations available, each approx. 20'x20'. Can be combined to create 20'x40' or 20'x60' testing space
- Temperature-controlled environment
- Up to 0.15 MGD of raw wastewater, primary, and secondary wastewater effluent
- Options for blending of feed waters and addition of challenge compounds
- Full access to on-site laboratory, additional access to nearby research laboratory
- Preparation and storage space and additional office space available
- Dedicated Power Connections
- Full partnership with University of Massachusetts – Amherst and Worcester Polytechnic Institute students and faculty possible.
- Contact info:

Resources and Services Available from the University

Chemical analyses

- TOC Analyzers
- Total Nitrogen Analyzer
- Total Organic Halide Analyzers
- GCs equipped with ECD, FID or TCD
- GC/MS
- LC/MS/MS
- LC/QTOF-MS
- Solid Phase Extraction Setup
- IC
- UV-Vis Spectrophotometers
- Computer-Controlled Laboratory Ozone Contactor

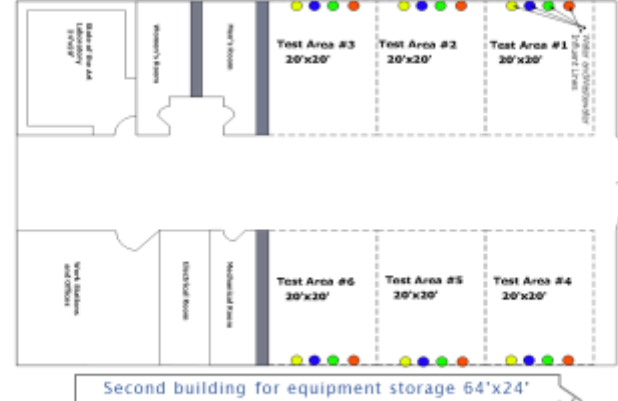
Biological analyses

- DNA/RNA Extractions
- PCR Thermocyclers
- Quantitative PCR
- Next-generation Sequencing
- Omics Techniques such as proteomics, transcriptomics, and metabolomics

Additional Resources

- Full Chemical Stockroom
- Misc. Sampling and Sample Preparation Equipment
- Technical assistance and troubleshooting
- Report preparation
- Engineering consultation
- Market analysis for new technologies

Pilot plant layout with multiple bays for testing protocols





The Massachusetts Alternative Septic System Center is located in Massachusetts, on Kittredge Road at the Joint Base Cape Cod on the Massachusetts Military Reservation.

MASSTC offers vendors high quality and integrity to conduct research and development on their products and complete any number of standardized NSF protocols.

Test beds can be rented for any duration- one day to many years.

Testing Areas	Equipment
Standard Treatment Testing (TSS, BOD, fecal indicators)	Field pH, dissolved oxygen, ORP, temperature-probes
ETV and NSF Nitrogen Testing	Data logging equipment
Phosphorus Removal Technologies	Refrigerated composite and discrete samplers
Contaminants of Emerging Concern Research	Access to Certified Laboratories
Seasonal- Intermittent Use Research	Light construction tools

[Link to: MASSTC](#)

Key Features

- Can accommodate up to 21 concurrent test beds for onsite septic system technologies plumbed with an influent of domestic wastewater from residential households and a country jail (influent delivered up to 700 GPD to each bed)
- Site offers space dedicated power connections and individualized accommodations for flow, data collection and the possibility for remote access of operational parameters
- All lab tests are performed by certified laboratories
- Test Site Center is fully fenced facility attended from 07:00am to 03:30pm Monday through Friday
- During operational hours vendors have ability to use Test Site light construction tools and equipment
- Professional staff offer help with light construction and modifications to the test beds as well as development of test and sampling protocols
- Contact Info:
George Heufelder, Director
Phone: 508-375-6616
Email: gheufelder@barnstablecounty.org
Keith Mroczka, Operator
Phone: 508-563-6757
Email: masstc@barnstablecounty.org

A test site to emulate:

- 21 stations to test technologies
- Only cold water test facility
- New technology source for EPA and others
- Has outlived its usefulness for Barnstable County
- Site director willing to continue through transition and help with rest of test bed network

Needs:

- Long-term owner/operator plan
- Feasibility study and upgrade

Urgency:

- EPA grant request in Fall 2015

Proposal:

- NEWIN to conduct feasibility study (\$70k) starting now so that the ownership and operation are defined in time to apply for EPA grant

Value for NEWIN Members:

“Solution Seekers”



For Industrial Water Users and Established Industrial Providers

- Access to cutting edge research, new companies, solutions and talent
- Global partnerships
- Discount services
- NEWIN marketing and advertisement



For Public Water Utilities

“Solution Providers”



For New Technology Companies

- Industry needs identification
- Business development
- Research collaboration
- Access to ‘Test Bed Network’
- Professor and student exchanges; internships, student hiring
- Support in grant submissions



For Academic Partners

“Ecosystem Enablers”



For Private Equity and Foundations

- Business development
- Insight into market trends
- Domain knowledge and deal flow
- Industry needs identification
- Focused opportunities for impact investing and risk management



For Professional Service Providers