

New Ecology works nationally to bring the benefits of sustainable development to the community level, with a concerted emphasis on underserved populations.

A mission-driven non profit, we seek to make the built environment more efficient, healthy, durable, and resilient.

#### THIS IS MANIFESTED IN OUR CORE WORK TO:

- Research, test and implement new approaches to sustainability, resiliency, healthy environments and energy efficiency;
- Monitor, test, diagnose and solve operational and building performance issues on existing buildings;
- Help design, build, certify and operate new high performance buildings;
- Share our learnings with building professionals, contractors, government, financiers, owners and managers through education and training.

# NEW ECOLOGY



Community-Based Sustainable Development



## TODAY, YOU WILL LEARN:

- 1) WAYS IN WHICH EXISTING SYSTEM OPERATIONS ARE INADEQUATE
- 2) THE DIFFERENCE BETWEEN DATA ANALYTICS AND SINGLE DEVICE MONITORING
- 3) THE OPERATIONAL INSIGHT AFFORDED BY MONITORED DATA
- 4) WHAT YOU SHOULD PAY ATTENTION TO - WE ALL PLAY A PART
- 5) THAT LEARNING CAN BE FUN!





4

NESEA FAMILY FEUD NESEA FAMILY FEUD NESEA FAMILY FEUD NESEA F

NESEA



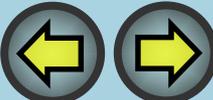
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Round 1

# NESEA FAMILY FEUD

**XXX**

<b>DATA</b>	<b>50</b>	
<b>Perseverance</b>	<b>25</b>	
<b>Understanding</b>	<b>15</b>	
<b>Awareness</b>	<b>10</b>	



SHOW QUESTION

HIDE QUESTION



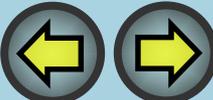
# Round 2

# NESEA



# XXX

<b>Service Contractor</b>	<b>40</b>	<b>BMS/EMS</b>	<b>5</b>
<b>Handwritten Notes</b>	<b>25</b>	<b>RCx Agent</b>	<b>5</b>
<b>Utility Bills</b>	<b>15</b>	<b>ESCO</b>	<b>5</b>
<b>Building Operator</b>	<b>10</b>	<b>Smart Devices</b>	<b>5</b>



SHOW QUESTION

HIDE QUESTION



# Round 3



**XXX**

**Temps Too High 80**

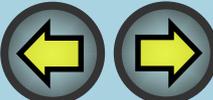
**Excessive Cycling 30-60**

**OA Sensor Issues 58**

**Improper Controls 19**

**Combined Systems  
Mixing Water 54**

**Poor Maintenance 39**



SHOW QUESTION

HIDE QUESTION



Round 4

NESEA  
**FAMILY  
FEUD**

**XXX**

**Problem Coming! 14**

**Improper Maintenance 12**

**Unsafe Conditions 14**

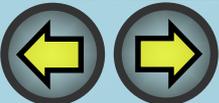
**Settings Changed 12**

**Exactly How to  
Get Savings 12**

**Past Lessons 12**

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Problem 12**

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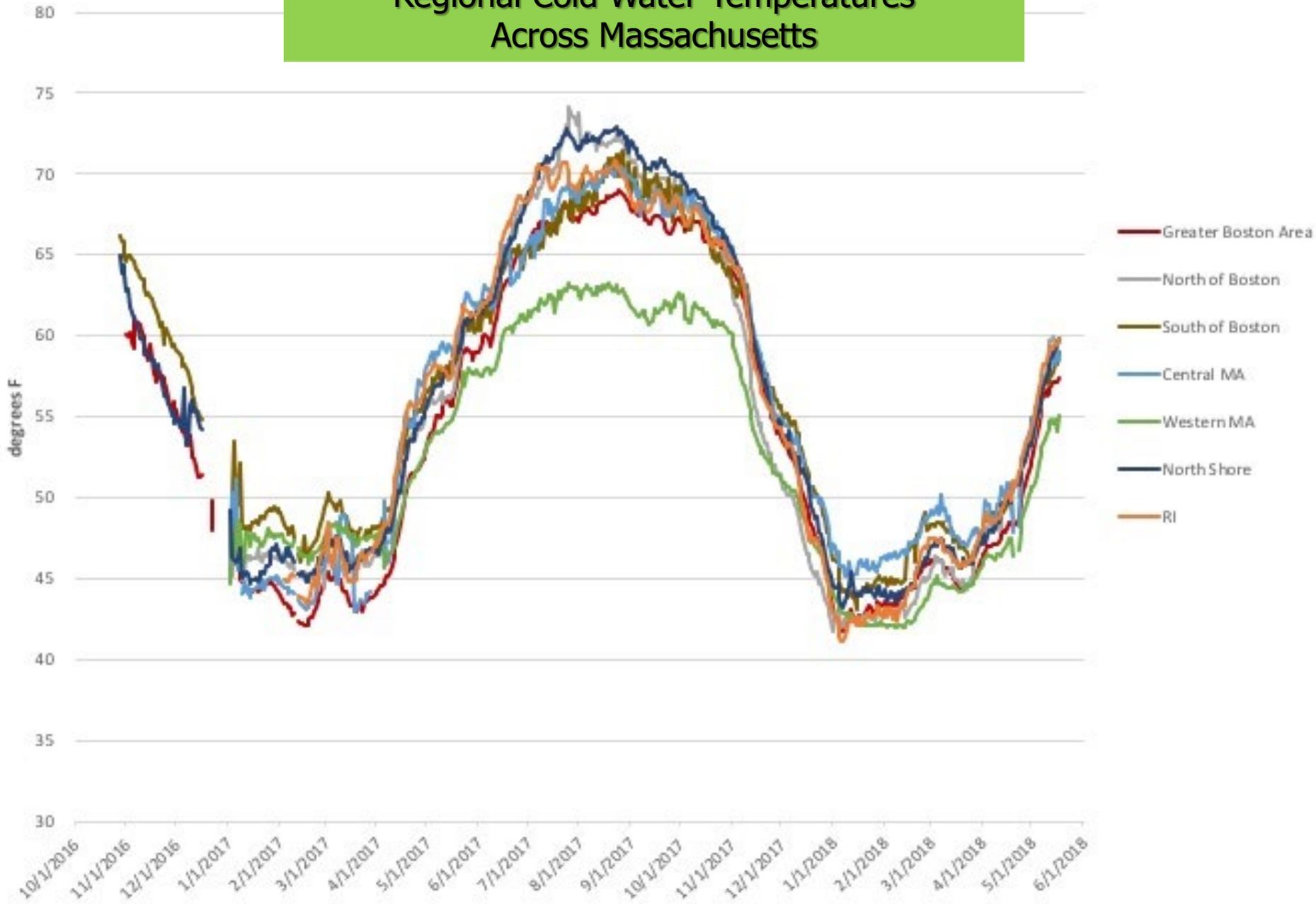
SHOW  
QUESTION

HIDE  
QUESTION

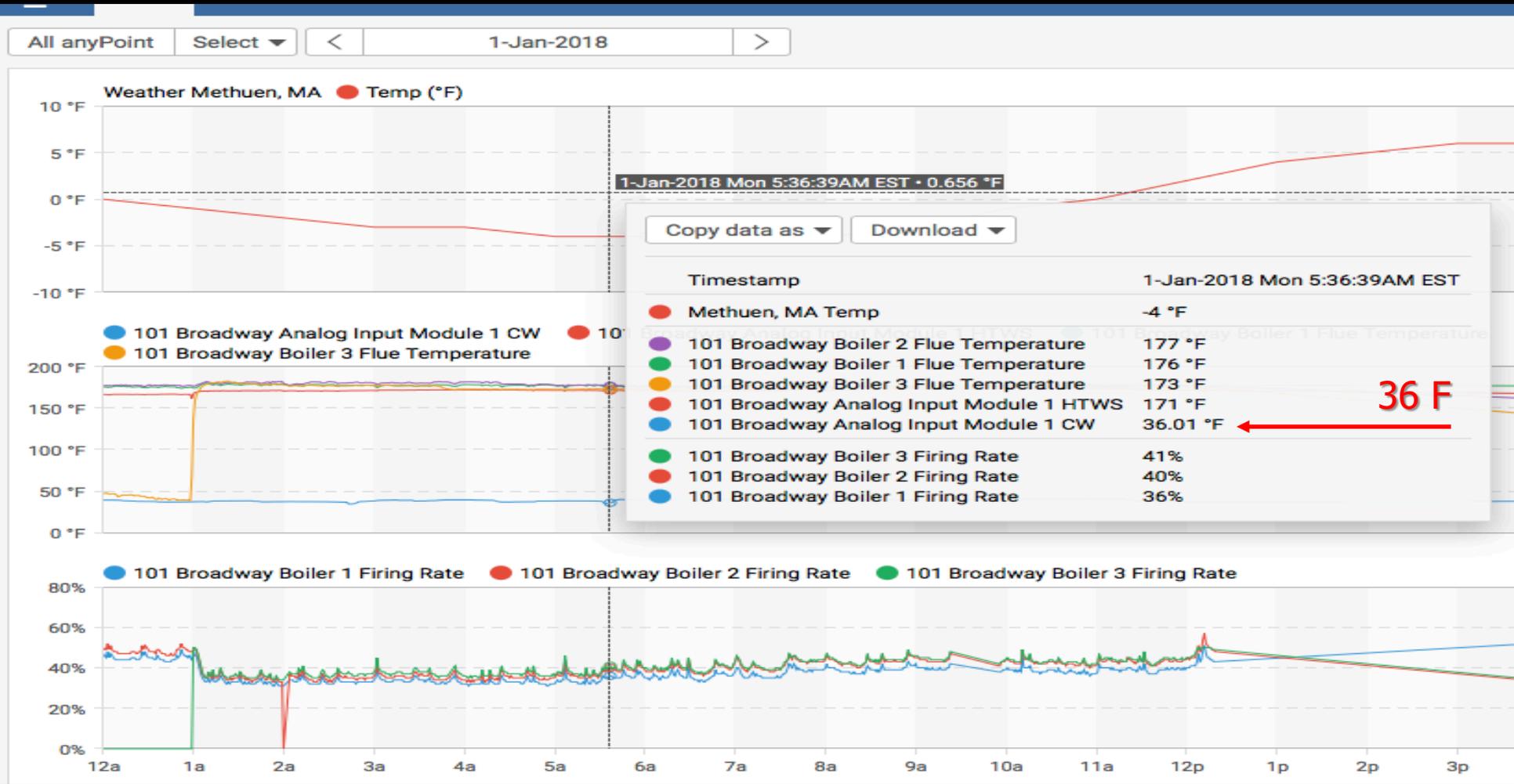


Win Lose Cheer Boo Silence

# Regional Cold Water Temperatures Across Massachusetts

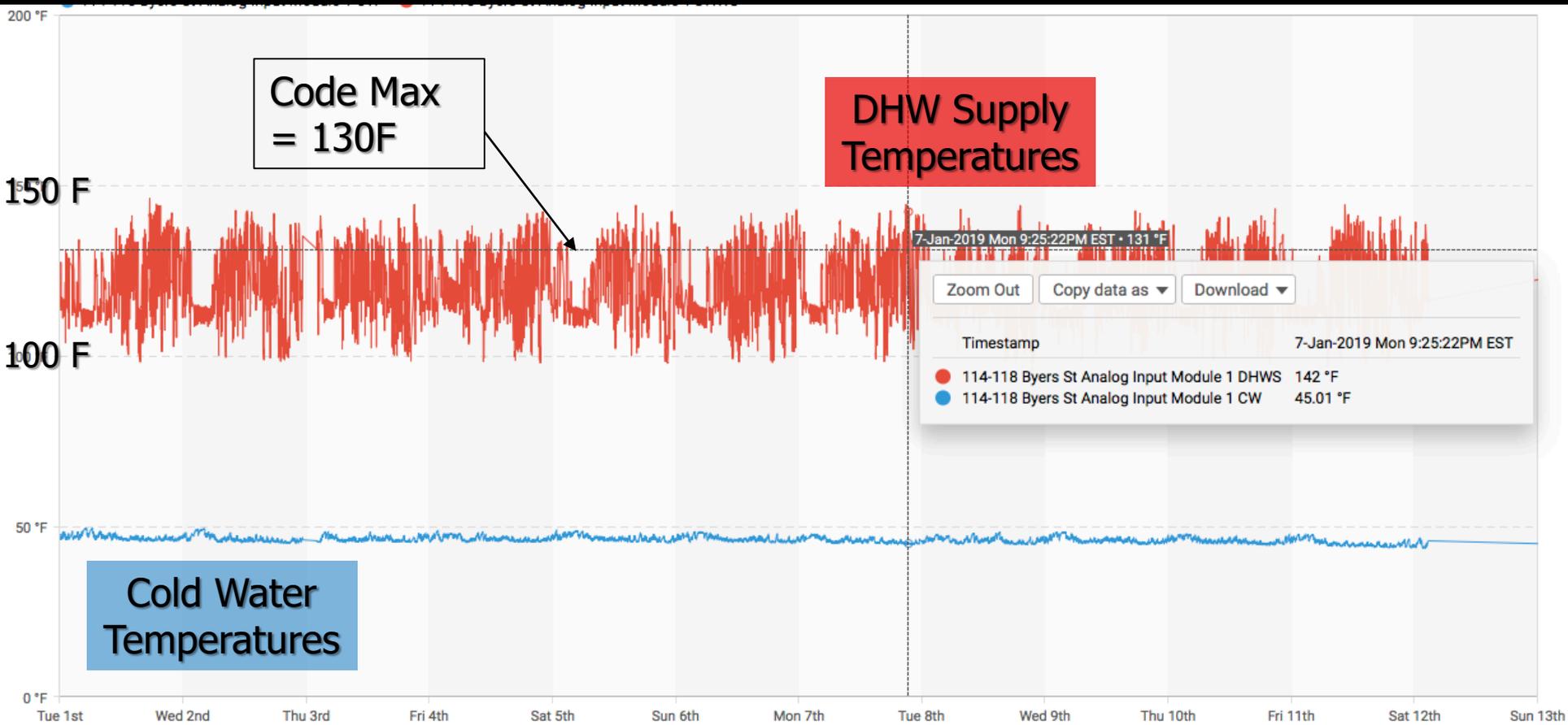


# Problem Coming!



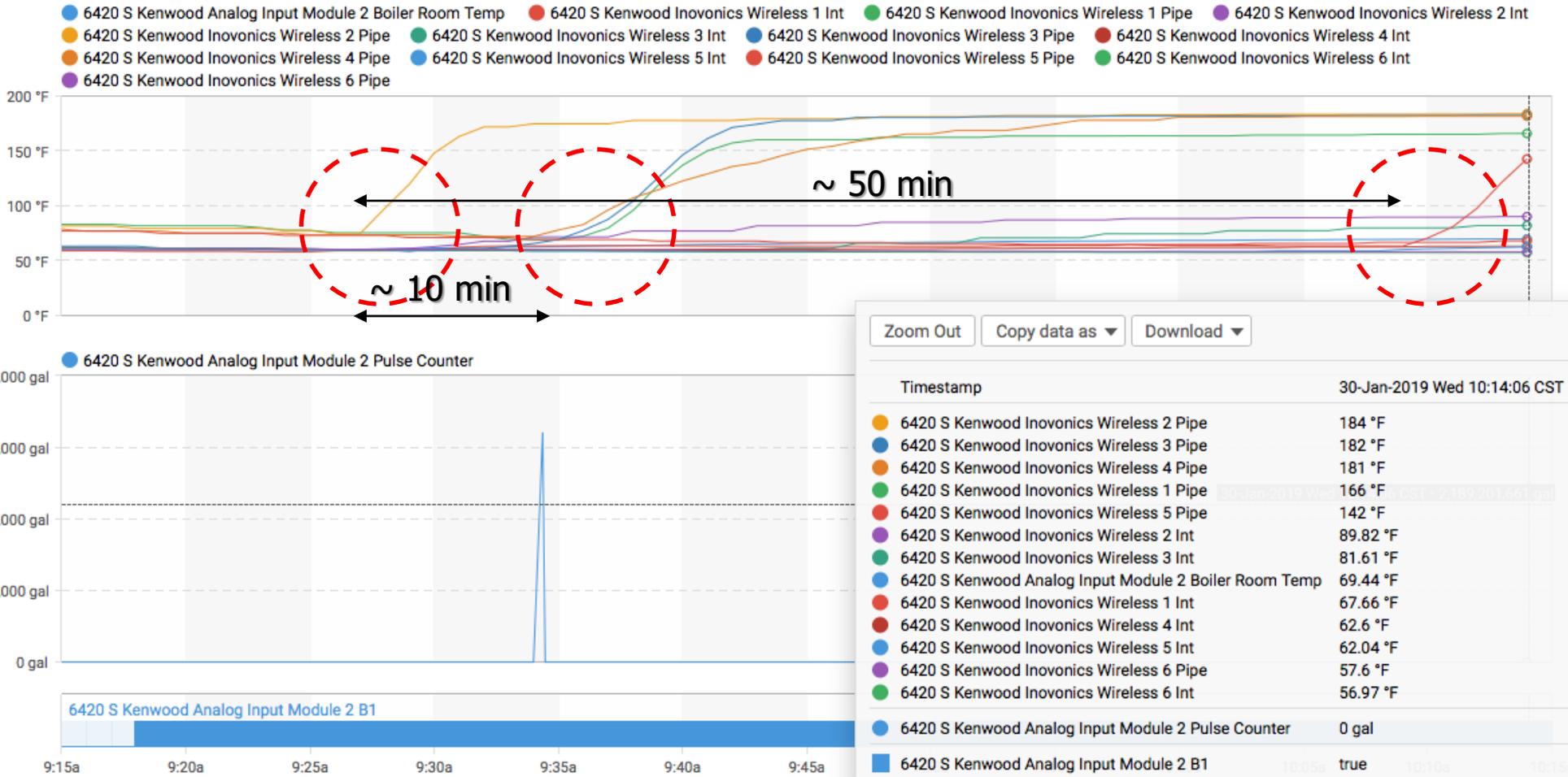
Hydronic System  
Methuen, MA

# Unsafe Conditions



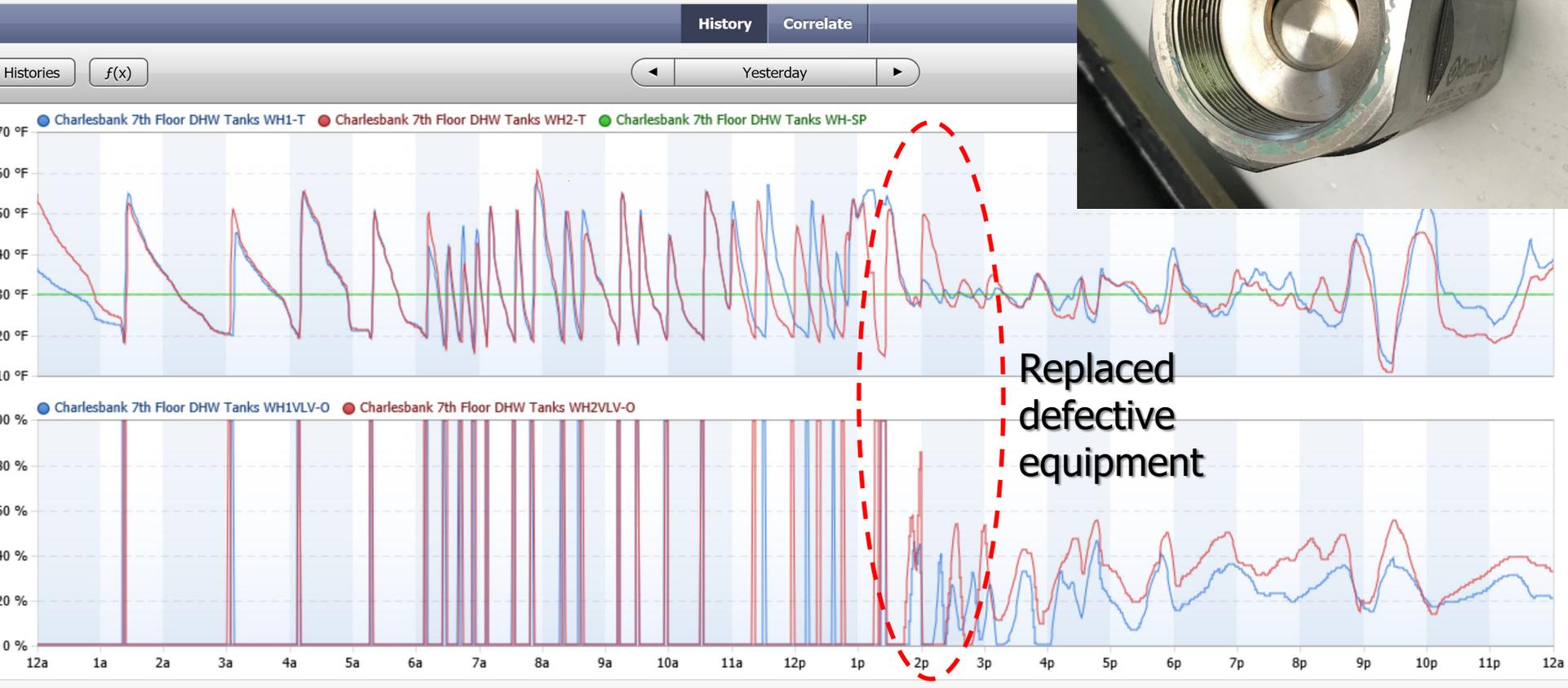
DHW System  
Everywhere, USA

# Exactly How to Get Savings



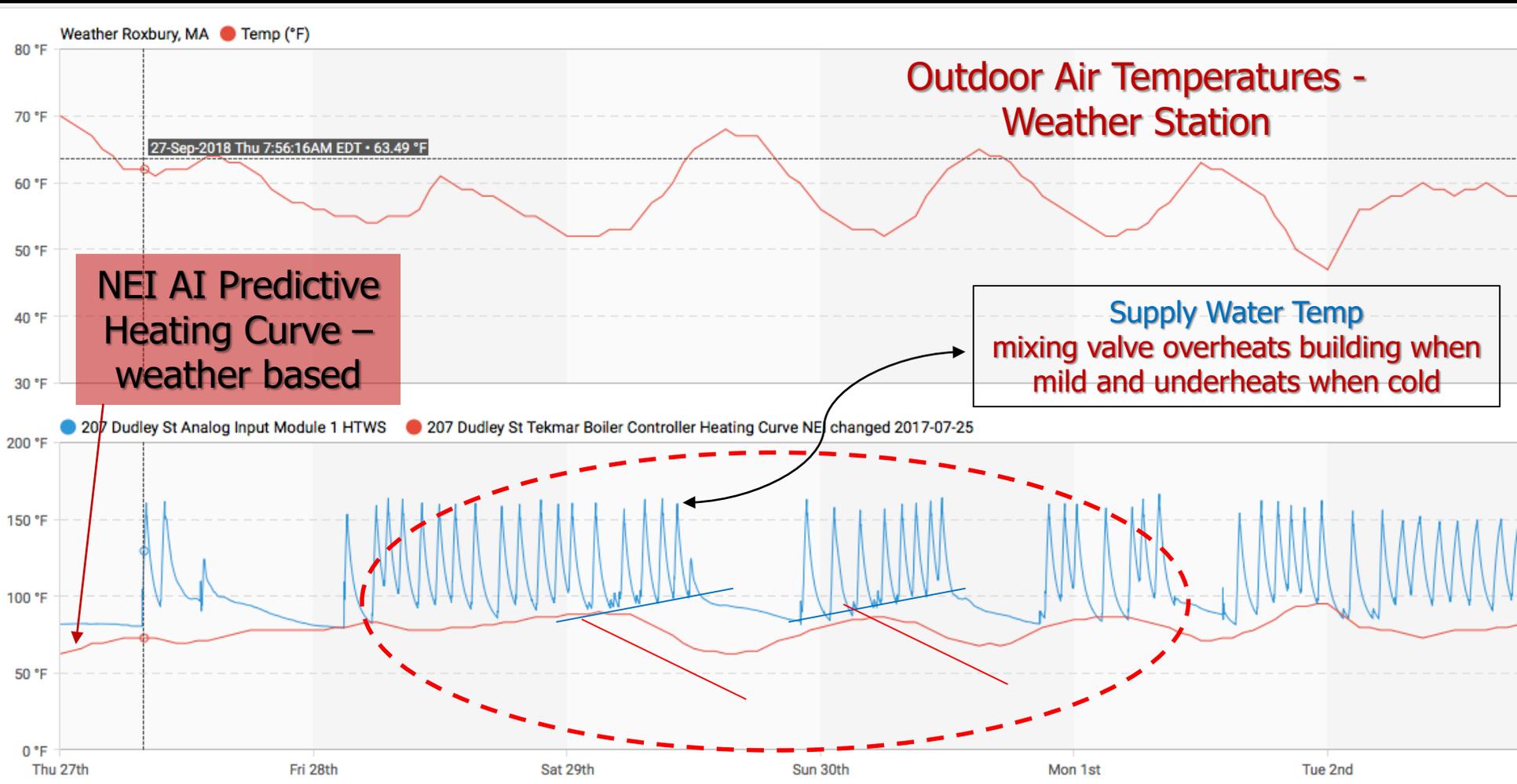
Steam System  
 Chicago, IL

# Installation Problem



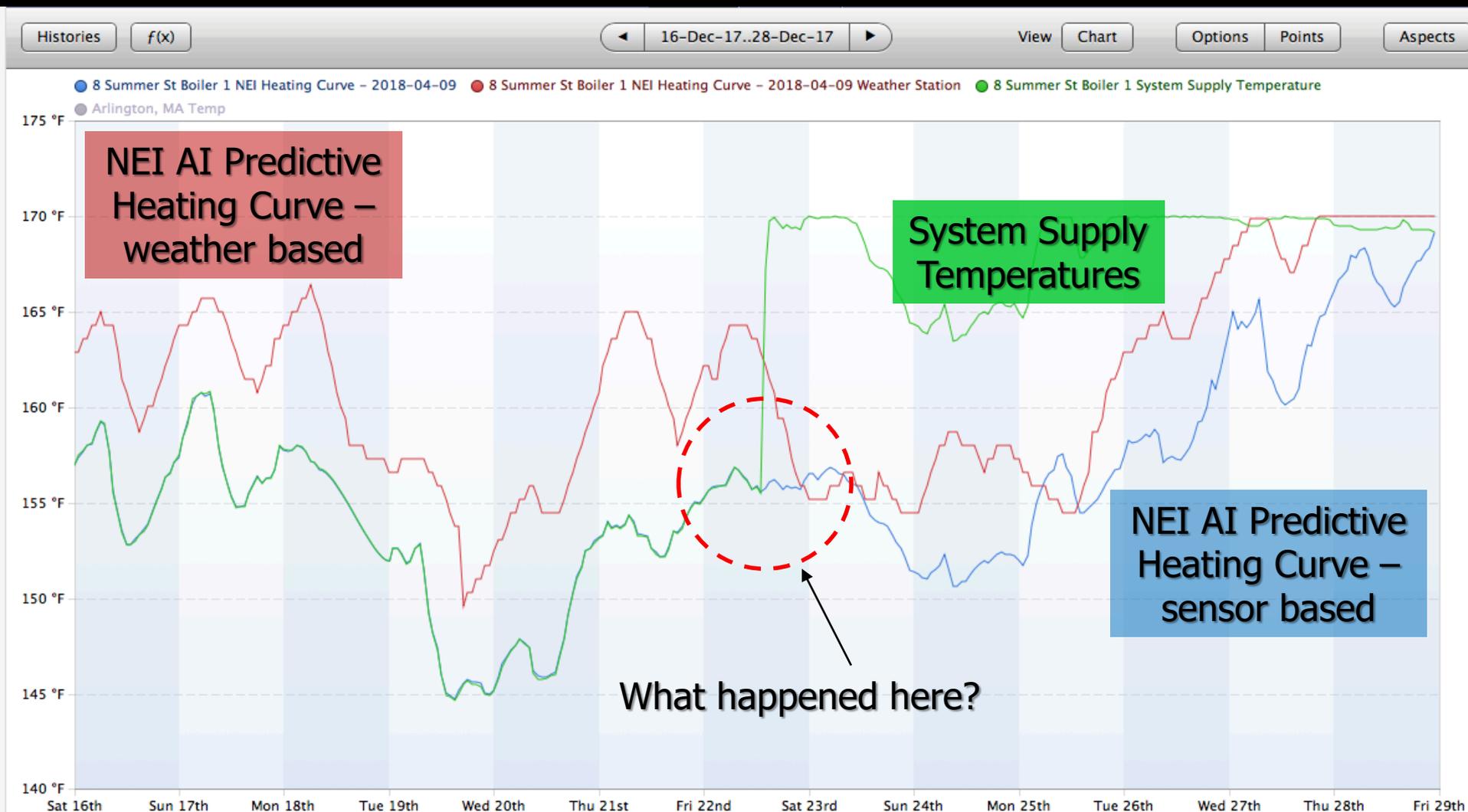
DHW System  
Boston, MA

# Improper Maintenance



Hydronic System  
Roxbury, MA

# Settings Changed

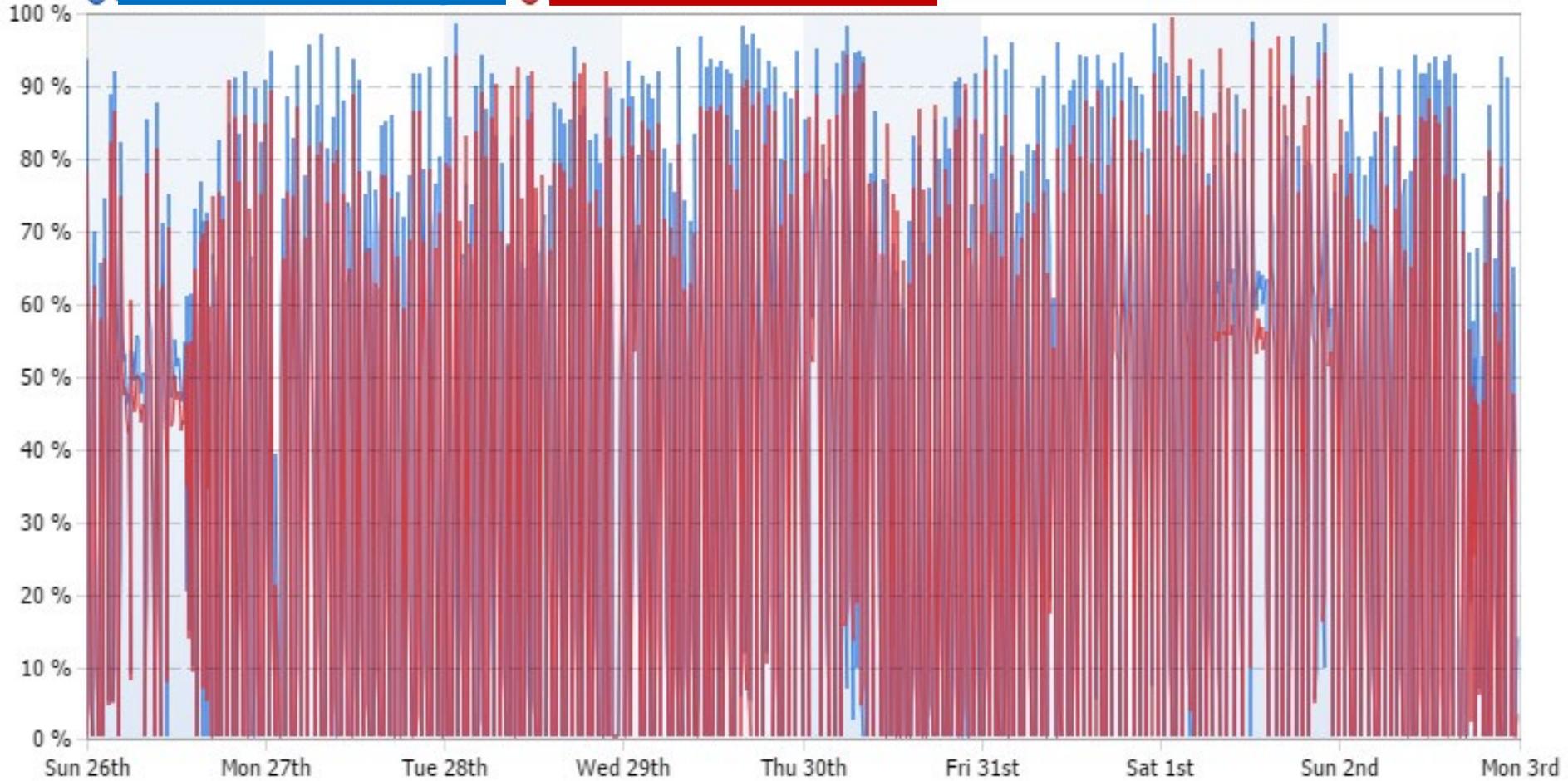


Hydronic System  
Arlington, MA

# Something Broke

Boiler 1 Firing Rate

Boiler 2 Firing Rate



Hydronic System  
Boston, MA

# Past Lessons

Unit	Description of Problem	Date Requested	Date Completed	Mechanic	Temp. Living Room	Temp. Dining Room	Temp. Bedroom #1	Bedroom #2	Bedroom #3	Bedroom #4	D
17/413	NO heat	12-29-17	12-29-17	Rigo	69°	69°	69°	70°	70°		
21/684	NO heat	12-29-17	12-29-17	Rigo	70°	70°	70°	-	-	-	
21/713	NO heat	12-30-17	12-30-17	Rigo	69°	69°	70°	-	-	-	
21/698	NO heat	01-02-18	01-02-18	Rigo	63°	63°	64°	-	-	-	
21/695	NO heat	01-02-18	01-02-18	Rigo	69°	69°	69°	-	-	-	
2/110	NO heat	01-02-18	01-02-18	Mensue	71°	70°	70°	69°	69°	69°	
21/713	NO heat	01-02-18	01-02-18	Mensue	70°	69°	69°				
21/618	NO heat	01-02-18	01-02-18	Mensue	69°	69°	68°				
3/114	NO heat	12-30-17	12-30-17	Rigo	69°	67°	68°	67°	66°	65°	
21/666	NO heat	12-30-17	12-30-17	Rigo	70°	69°	69°				
21/642	NO heat	12-31-17	12-31-17	Rigo	70°	70°	69°				
21/648	NO heat	12-31-17	12-31-17	Rigo	69°	69°	68°				
12/313	NO heat	01-03-18	01-03-18	Rigo	65°	66°	66°	64°	66°	67°	
12/				Rigo	65°	66°	67°	64°	66°	67°	

Round 5

NESEA  
**FAMILY  
FEUD**

**XXX**

**Combos of All!** **40**

**Fault Codes** **10**

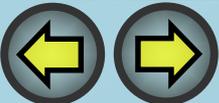
**Supply Temp** **10**

**Status** **10**

**Return Temp** **10**

**DHW Recirc Temp** **10**

**Tank Temp** **10**



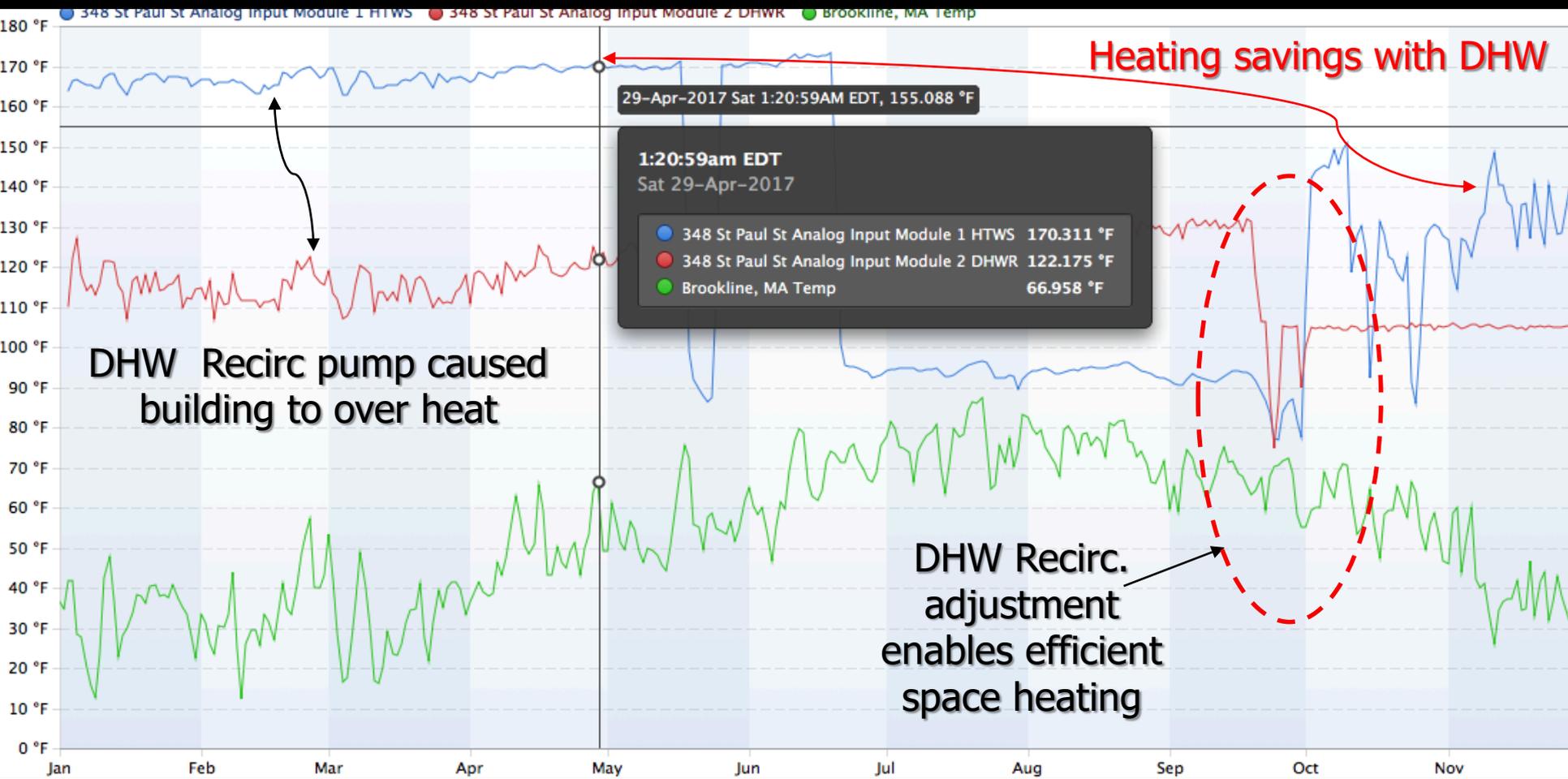
SHOW  
QUESTION

HIDE  
QUESTION



Win Lose Cheer Boo Silence

# Combinations of Real Time Data Tell The Stories of What is Really Happening in YOUR Boiler Room



**LEFT SIDE**

# **Fast Candy**

**1:30**

**How many can you get right in 1.5 minutes?**

**1. Affects system efficiency**

+

X

**6. Common installation issue**

+

X

**2. MOST important factor!!**

+

X

**7. Operations improved how**

+

X

**3. Impact of equip cycling**

+

X

**8. Health & Safety Concern**

+

X

**4. Overlooked Maintenance**

+

X

**9. Responsible party (ies)**

+

X

**5. Critical data points**

+

X

**10. Your first & last name**

+

X



**RIGHT SIDE**

# **Fast Candy**

**1:30**

**How many can you get right in 1.5 minutes?**

**1. Affects system efficiency**

+

X

**6. Common installation issue**

+

X

**2. MOST important factor!!**

+

X

**7. Operations improved how**

+

X

**3. Impact of equip cycling**

+

X

**8. Health & Safety Concern**

+

X

**4. Overlooked Maintenance**

+

X

**9. Responsible party (ies)**

+

X

**5. Critical data points**

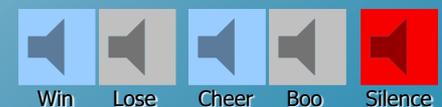
+

X

**10. Your first & last name**

+

X



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**NESEA**



**NEW ECOLOGY NEW ECOLOGY NEW ECOLOGY NEW ECOLOGY**