CT: Southwest Fairfield County Drought

How it Progressed, Our Response and Where We’re Going

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NE Conference of Public Utility Commissioners

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Aquarion Water Facts

- 160-year track record
- P.T. Barnum, second president
- Based in Bridgeport, CT
- Serves CT, MA and NH
  - 75 Water Systems
  - 700,000 people
- A wholly-owned subsidiary of Eversource
Southwest Fairfield County

- Greenwich Reservoir System
  - Bargh
  - Rockwood
  - Putnam
- Stamford Reservoir System
  - Mill
  - Trinity
  - Siskowit
  - Laurel
  - N. Stamford
- Southwest Regional Pipeline
- Wire Mill Well
- Rewak Well
Greenwich Reservoir System – 2016
Bargh Reservoir
Greenwich Reservoirs – July 2016

2016 Greenwich System Reservoir Status

Issued request for voluntary restrictions

Date

1-Jan-16
1-Feb-16
1-Mar-16
1-Apr-16
1-May-16
1-Jun-16
1-Jul-16
1-Aug-16
1-Sep-16
1-Oct-16
1-Nov-16
1-Dec-16
1-Jan-17

Capacity (%)

20 YR Average 1995-2014
Advisory
Watch
Warning
Emergency
2016 Actual
2015 Actual
Greenwich Reservoirs – Aug 2016

2016 Greenwich System Reservoir Status

- Code Red request to reduce outdoor irrigation to 2 days/wk

- Graph showing reservoir capacity from Jan 2016 to Dec 2016

- Different colors represent different levels of water reserves and status (Advisory, Watch, Warning, Emergency, 2016 Actual, 2015 Actual)

- Water Company logo at the bottom right
Greenwich Reservoirs – Sept 2016

2016 Greenwich System Reservoir Status

Repeat Code Red request to reduce outdoor irrigation to 2 days/wk

- 20 YR Average 1995-2014
- Advisory
- Watch
- Warning
- Emergency
- 2016 Actual
- 2015 Actual
Greenwich Reservoirs – Sept 16, 2016

2016 Greenwich System Reservoir Status

Imposed outdoor water ban

20 YR Average 1995-2014
Advisory
Watch
Warning
Emergency
2016 Actual
2015 Actual
Greenwich Reservoir Capacity

Declined to about 24% full.
Regional Water Demands
Aquarion Actions – Increase Supply

- Temporary Pumps & Piping
- Work with: Local Towns, DPH, PURA, DEEP, DOT
Funding for Drought Response

- Temporary Infrastructure/Drought Response
  - Not capital – can't be part of rate base
  - Not recurring – can't be included in test year
  - Estimated cost = $9.5 million

- Previous Tangible Property Regulations (TPR) Settlement
  - AWC refunding $30 million to customers over 3 years
  - Approx. $10 million left to be refunded in 2017
Funding for Drought Response

• Aquarion, OCC, AG and PURA agreed to:
  – Eliminate TPR credit as of Jan 1, 2017
  – Record drought related costs against remaining TPR account
    • If Drought Costs < TPR – then refund remaining TPR
    • If Drought Costs > TPR – then recover in future proceeding
  – During Future Normal Rate Case
    • All drought response costs will be subject to prudency review
    • Determine amortization period for the remaining TPR liability or corresponding under-recovery of drought related costs.

• Aquarion believes this was the best approach to deal with significant drought related costs.
  • No new surcharge
  • No request in next rate case
  • TPR credit was set to expire within 12 months
Greenwich Reservoir System – 2016
Water Conservation

• Already started down this road
• Southwest Fairfield County Demands
  – Southwest Regional Pipeline Expansion
• Streamflow Regulations
  – 10 years out
  – Loss of 15 MGD
• Completed a Water Use Study with Amy Vickers
CT Single-Family (SF) Customer Water Use Analysis

• Average SF 83 GPCD
  – Median SF = 62 GPCD

• CT SF average is below U.S. average domestic 88 gpcd
  – 7 CT systems are above the national average

• Top 1% SF avg. 693 GPCD, 8 times higher than U.S. avg.
  – #1 highest account averages 4,932 GPCD (12,873 GD/acct)

• Bottom 50% avg. 37 GPCD, about 1/3 U.S. avg.
  – Weekenders, seasonal, part-time residents, for sale and under foreclosure, small households, homes with private well augmentation, and “Super savers”
38% of All Water Use is Outdoor
2 Day per Week Irrigation Policy

- Used Dallas, Texas Program as a model
- 2 Days per week maximum
  - Even addresses – Sundays and Wednesdays
  - Odd addresses – Saturdays & Tuesdays
- Applies to:
  - Automatic/buried irrigation systems
  - Hose sprinklers
- Doesn’t apply to:
  - Handheld watering, drip irrigation, soaker hoses
- Variance process
SWFC Total Demand – May to Sept
SWFC – Demand – Days of the Week

SWFC Demands by Day of Week
May - October

Sunday: 33 mg/L
Monday: 37 mg/L
Tuesday: 35 mg/L
Wednesday: 34 mg/L
Thursday: 32 mg/L
Friday: 32 mg/L
Saturday: 31 mg/L

2010-2015: Blue
2017: Red
SWFC – Demand – Days of the Week
SWFC – Demand – Days of the Week
Water Conservation 2017

- **May 1 to Late October**

- Greenwich received the same rainfall in 2016 and 2017
  - 20.4 inches – 4 inches below normal

- 2017 Demand in the 4 towns was down 860 Million Gallons
  - 40,000 customers = approx 120,000 people

- 15.8% Reduction in demand through October

- 19.7% Reduction in demand through September

- 2 Day per week Implementation Cost = $450,000
  - Communications - $300,000
  - Back office support - $100,000
  - Field overtime - $50,000
Outcomes

- Increased Reliance on Reservoir Forecasts
- Voluntary Restrictions are Ineffective
- Better Understanding of Everyday Water Use
  - Most Customers are Water Efficient
  - Small Number of Users in each Customer Class are Very Large Users
  - Outdoor Water Use offers a Large Potential for Savings
  - Conservation Efforts should be focused on:
    - Very High & High Users in each Customer Class
Outcomes – Two Day per Week Irrigation

- Irrigation has become pervasive in some service areas
- Grass will survive
- Right thing to do
- Reduce the potential for future droughts
- Customer Education required
- Less pushback than expected
- Enforcement required
  - Rules/Laws may be required
- Address impact on revenues