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Desalination vs. Conservation in Rockland County, NY: The Surprise Findings

October 5, 2016

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Adelaide, AU Desalination Plant

Rockland County, New York

- Urban and suburban community 30 miles north of NYC
  - Bear Mountain State Park
  - Hudson River, “Valley gateway”
- Suez/United Water New York
  - Private water supplier to County
- Est. 280,000 service area population
- ~ 83,400 water customers
- **2014 avg. day: 29.1 mgd**
  - ***12% below 33.0 avg. day safe yield***
- Max. day safe yield: 51.4 mgd

Source: Rockland County (NY) Planning Department, 2010

The Hudson River is one of Rockland's greatest natural resources.

Source: BFJ Planning, 2010

Suez/United Water NY-Rockland Desalination Debate

2007

- Suez proposes 7.5 mgd Hudson River desal plant for Rockland
- Many oppose, instead urge sustainable water management

2010: USGS study: RC groundwater recharge faster than expected, addt'l 1.0-1.5 mgd available with optimized well management

2014: NY PSC established Water Management Task Force, involving all stakeholders–officials, Suez, Coalition–to study desal alternatives

- Phase 1: System and customer demand study, preliminary estimates of potential water loss and customer savings
- Phase 2: Comprehensive conservation plan, min. 2-3 mgd savings goal

2015: Phase 1 system and customer demand study, "Vickers report"

- PSC cancels desal proposal

2016 postscript

Scope of Work: Phase 1, March 2015-July 2015

- **Data & Information Collection**
  - UWNY production and customer use data
  - Rockland County planning and demographic information
- **Profiles of Customer and System Water Use**
  - Sorting and analysis of customer and system demands
    - Residential, nonresidential, and system/utility
    - Metrics/Indicators: Per capita, rank, percentile, in/outdoor, NRW/UFW
  - Identify significant or high indoor and outdoor water uses
    - Compare to efficiency benchmarks, e.g., homes and leaks/losses
    - Identify types of water-saving measures and program strategies to evaluate in Phase 2–Water Conservation Plan development
- **Preliminary estimate of potential conservation savings**

Project Approach

Primary Source Materials

- **Suez/United Water New York (UWNY)**
  - System production, water loss, and customer meter data
  - Numerous background studies and reports
- **New York State Public Service Commission (PSC)**
  - Annual Reports of United Water New York
  - Non-revenue Water reports of UWNY
- **New York State Department of Environmental Conservation (DEC)**
  - Water Withdrawal Reports submitted by UWNY
  - Water Conservation Program Report submitted by UWNY, 2010 (most recent).
- **Rockland County**
  - Planning reports, maps, and demographic data

Project Approach
Standards & Methodologies

- **American Water Works Association (AWWA)**
  - IWA/AWWA Water Audit Methodology
  - AWWA Water Audit Software v5.0 (2014)
  - Manual: *M36–Water Audits and Loss Control Programs (3rd ed.)*
  - Manual: *M6–Water Meters: Selection, Installation, Testing, and Maintenance (5th ed.)*
  - Manual: M52–*Water Conservation Programs–A Planning Manual (1st ed.)*
  - Partnership for Safe Water Distribution System Optimization Program, June 2014.
  - Vickers, Amy, et al. *"A Guide to Customer Water-Use Indicators for Conservation and Financial Planning"* (American Water Works Association, Denver, CO, 2013).
  - "Water Loss Control: Apparent and Real Losses" (2012)
- **Water Research Foundation (formerly AWWA Research Foundation)**
  - Residential End Uses of Water Study Update (preliminary findings as of 2015)
  - Residential End Uses of Water (AWWA Research Foundation, Denver, CO, 1999)
- **Water Research Foundation and the Environmental Protection Agency.**
  - *Real Loss Component Analysis: A Tool for Economic Water Loss Control*, Report #4372a (2014).

– REPORT–

Water Losses And Customer Water Use In The United Water New York System

July 2015

Prepared for

Rockland County Task Force on Water Resources Management
Rockland County, New York

Prepared by

Amy Vickers & Associates, Inc.
Water Planning, Policy, and Management

SUMMARY OF KEY FINDINGS

1. **Suez/UWNY water demand has been largely flat** during 2000-2014 despite a growing population
2. **High system water losses have persisted for decades**
3. **Data inconsistencies, errors, and missing data in UWNY's records and reports make it difficult if not impossible to know the true volumes of water supplied, consumed by customers, and lost to non-revenue water** for at least the last three years (2012-2014).
4. **Errors found in UWNY's AWWA Water Audit Reports underestimated leakage recovery potential, overestimated apparent losses (2012-2014)**
   - **Revised reports prepared by Task Force consultant**

(Cont.)

SUMMARY OF KEY FINDINGS (Cont.)

5. **The snail's pace of UWNY's main replacement put it on an astounding 704-year schedule in 2014**, on top of being more than a decade behind the state's recommended timetable for surveying leaks in system mains.
6. **Preliminary estimated 4.4 MGD to 7.0 MGD of potential water savings, about 15% to 25% untapped capacity in UWNY system**
   - **2.5 MGD to 3.3 MGD of recoverable leakage**
     - Corrected UWNY AWWA Water Audit reports
   - **1.9 MGD to 3.6 MGD from customer-oriented conservation**
     - Based on analysis of customer water use/efficiency
7. **Need for additional water supplies is doubtful at this time**
   - **Leakage reduction, conservation, water reuse, rainwater harvesting, and green infrastructure = future water independence for Rockland County**

KEY FINDING #1

Water demand in United Water New York's service area has been largely flat since 2000 despite a growing service area population, a trend that may continue for the foreseeable future

Figure 1-1. United Water New York: Annual Average Day Production, Maximum Day Demand and Population Served, 2000-2014

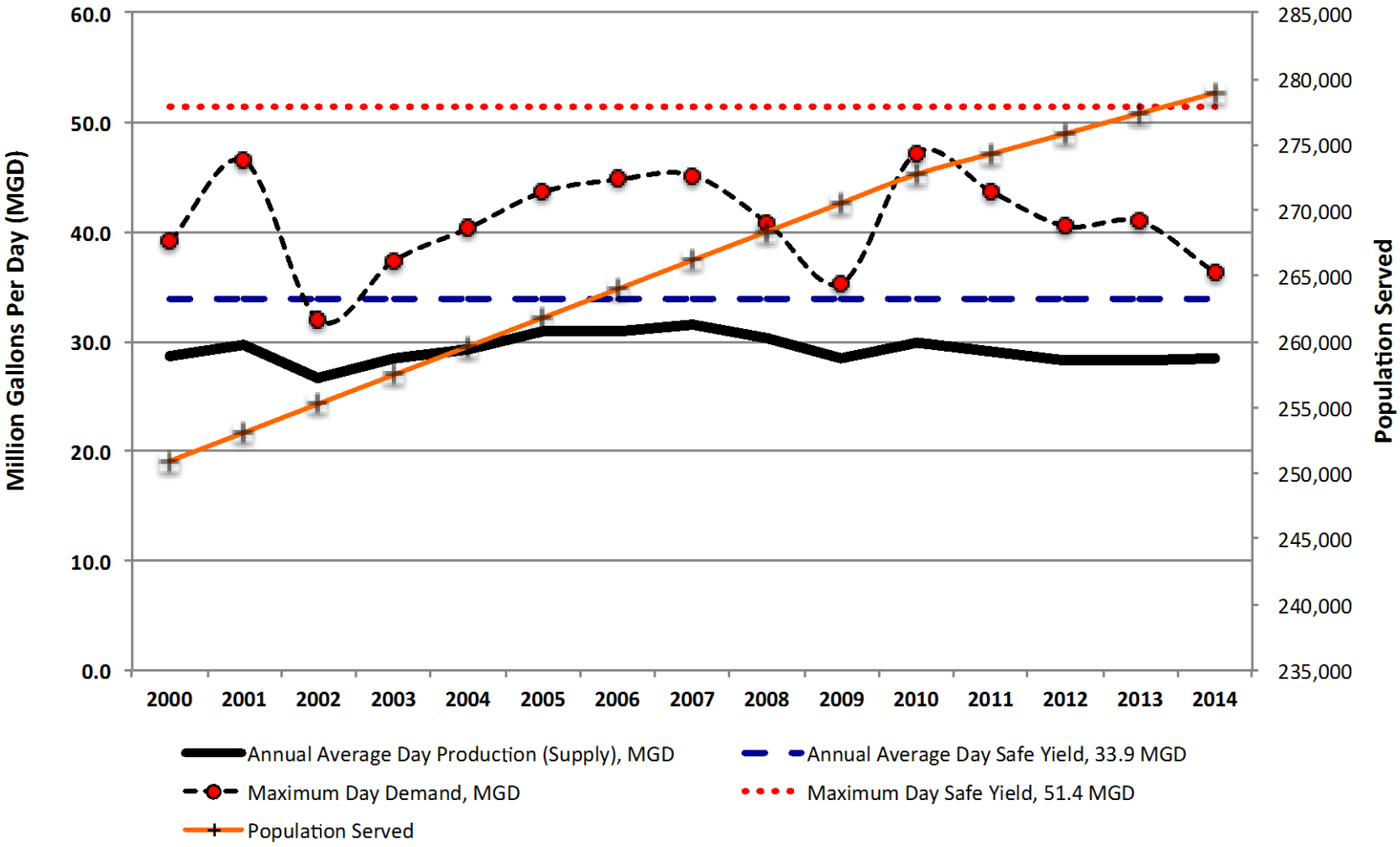
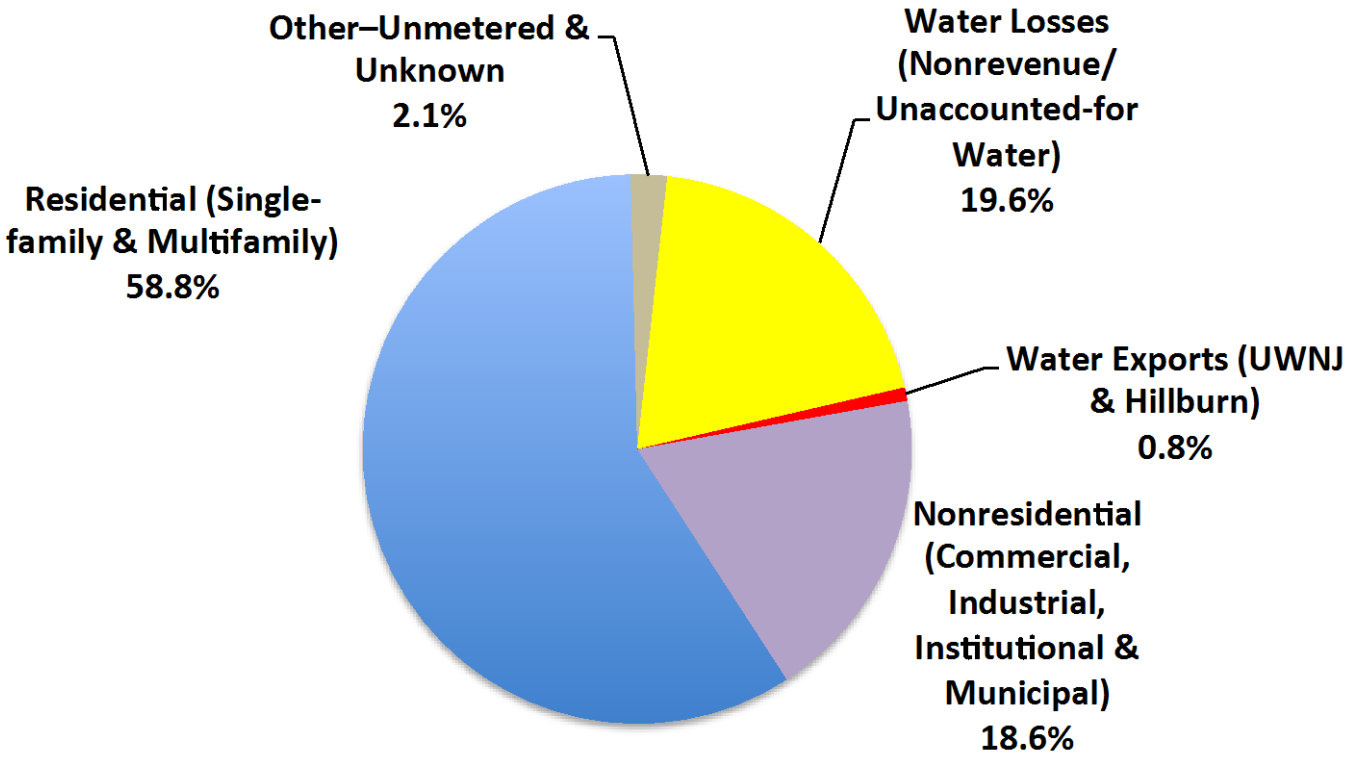
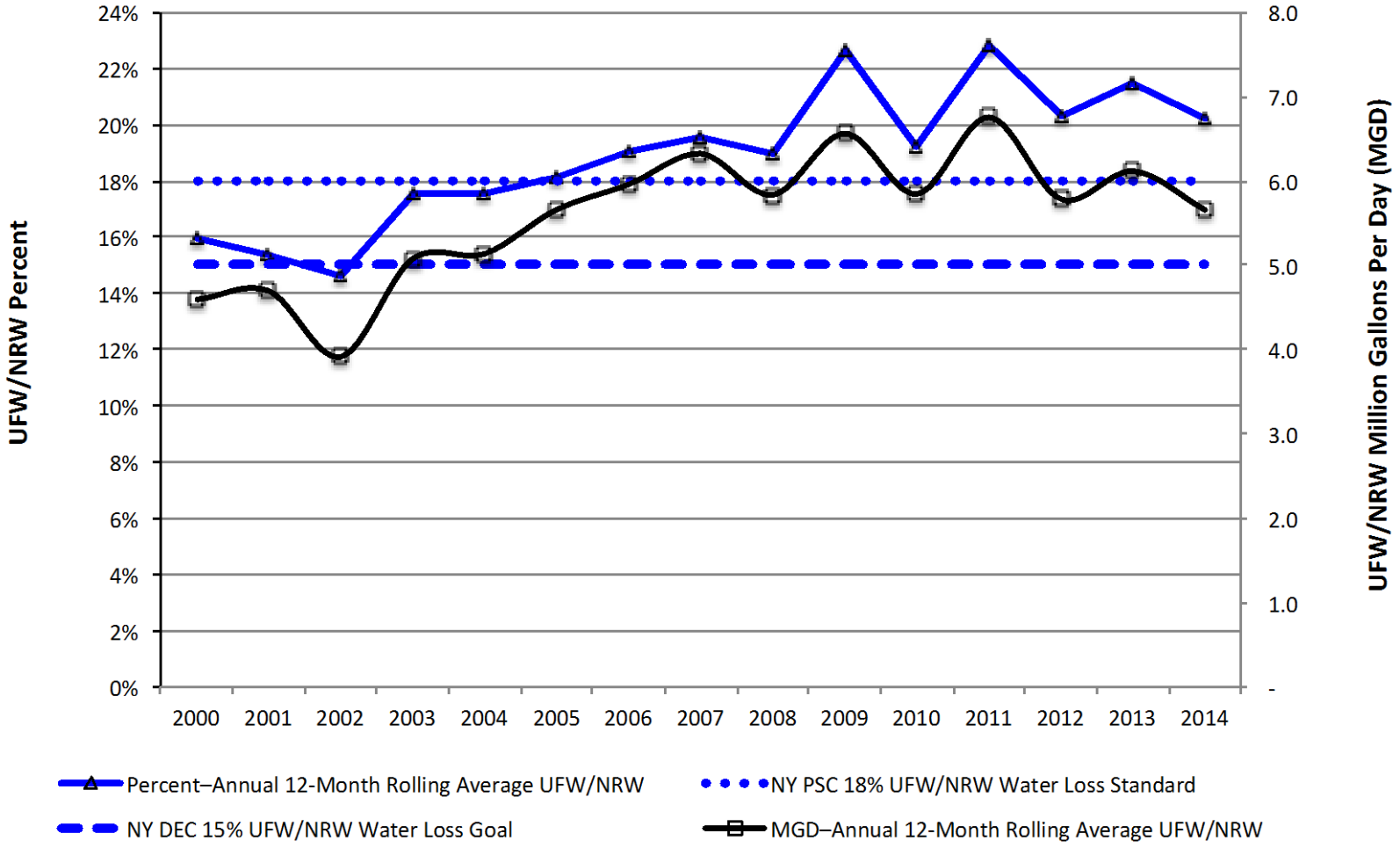


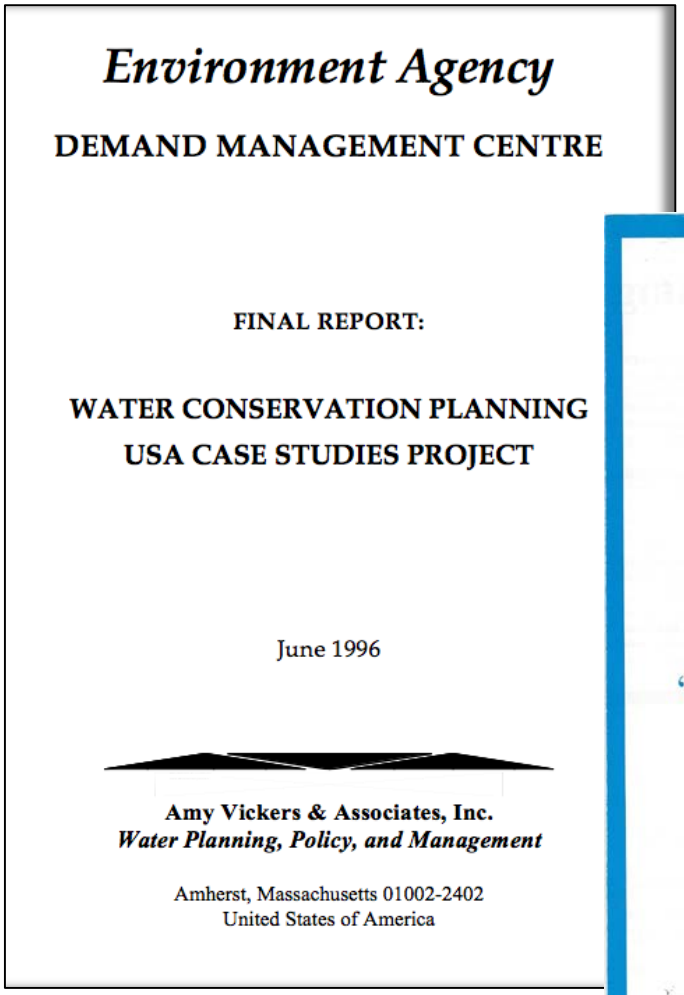
Figure 1-2. UWNY Categorical Water Usages in 2014, Total 10,513.7 Million Gallons

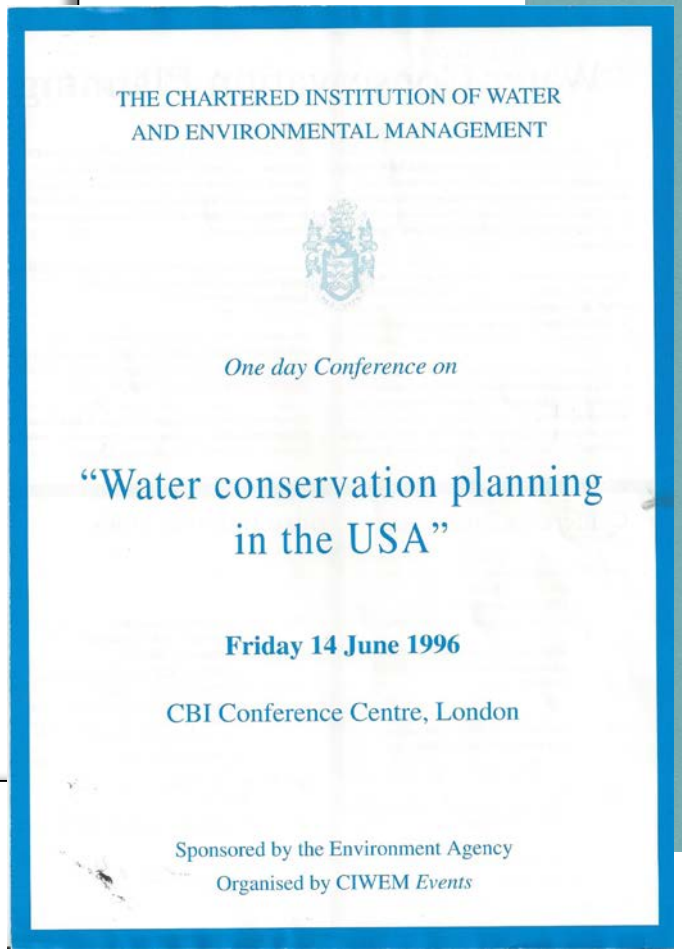


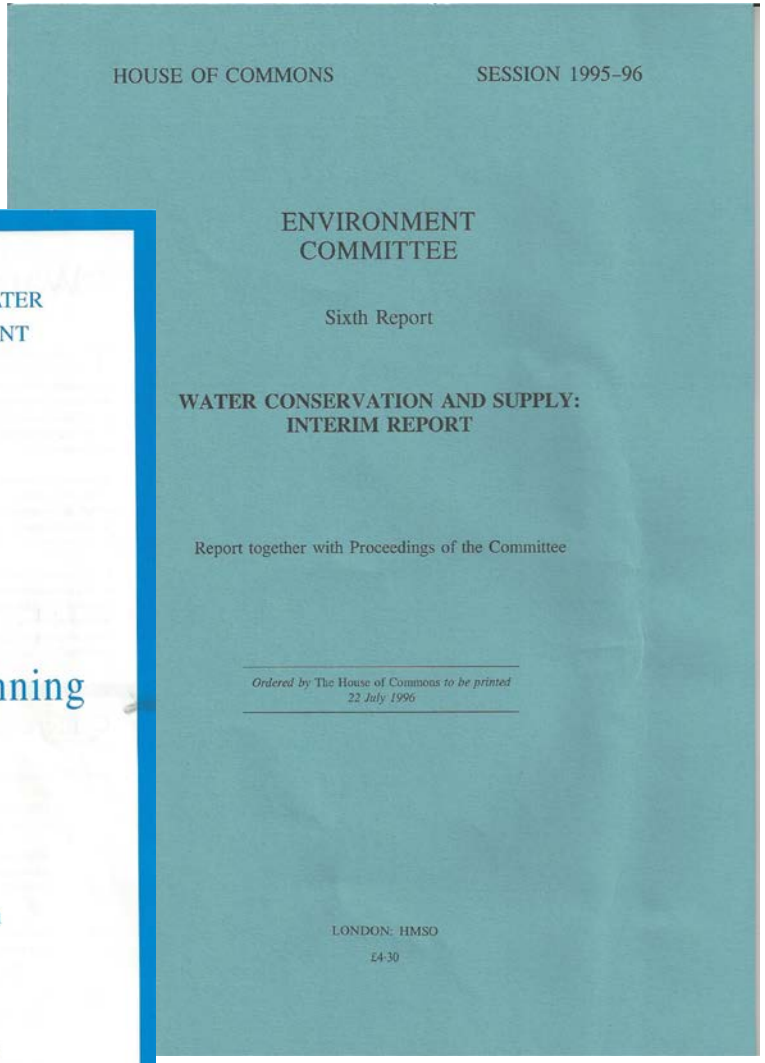
KEY FINDING #2: High system water losses and leakage have been a chronic problem in the UWNY system for decades.

Figure 2-2. UWNY Non-revenue/Unaccounted-for Water (UFW/NRW) Annual 12-month Rolling Average, 2000-2014



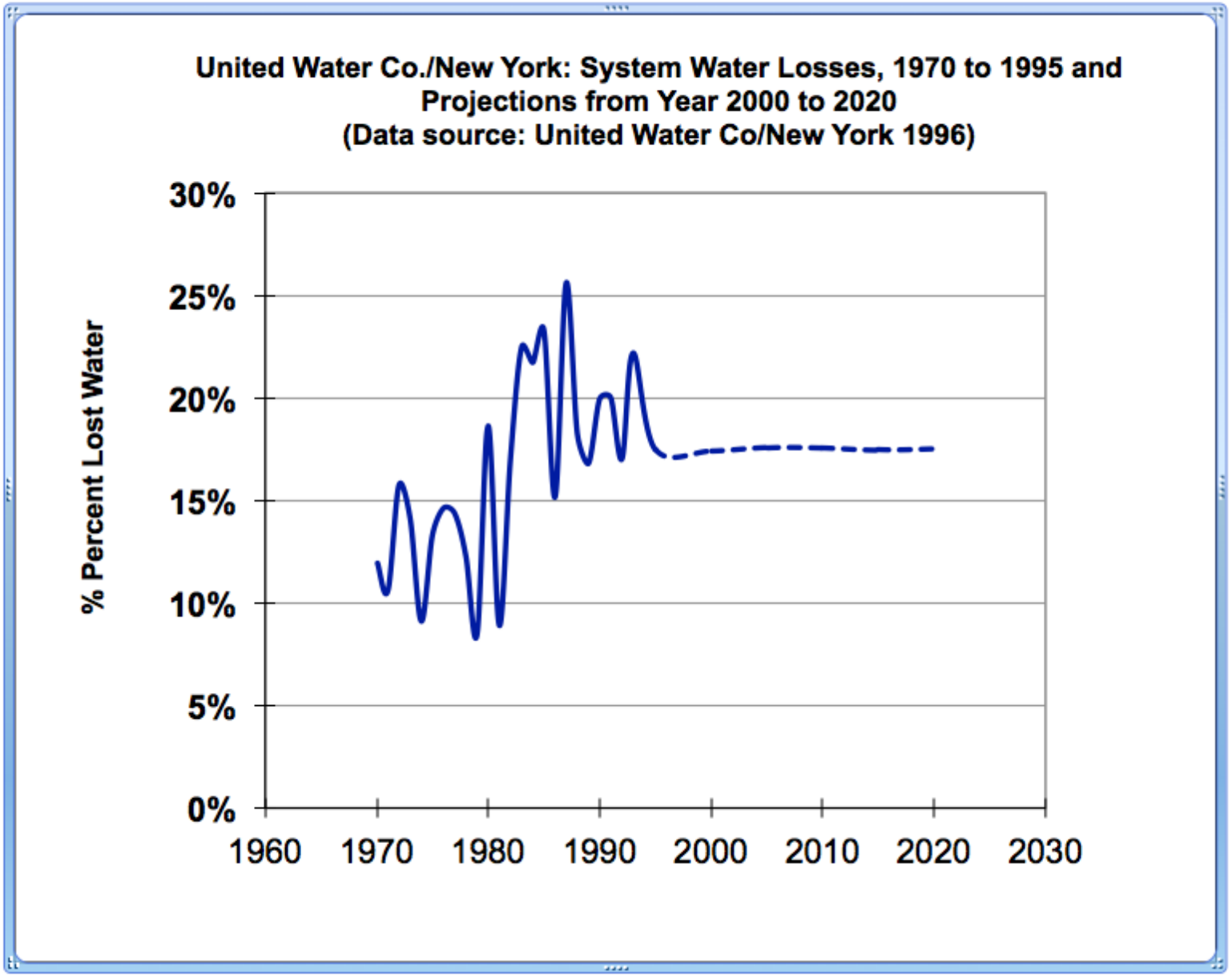

Environment Agency
DEMAND MANAGEMENT CENTRE
FINAL REPORT:
WATER CONSERVATION PLANNING
USA CASE STUDIES PROJECT
June 1996
Amy Vickers & Associates, Inc.
Water Planning, Policy, and Management
Amherst, Massachusetts 01002-2402
United States of America


THE CHARTERED INSTITUTION OF WATER
AND ENVIRONMENTAL MANAGEMENT
One day Conference on
"Water conservation planning
in the USA"
Friday 14 June 1996
CBI Conference Centre, London
Sponsored by the Environment Agency
Organised by CIWEM Events


HOUSE OF COMMONS
SESSION 1995–96
ENVIRONMENT
COMMITTEE
Sixth Report
WATER CONSERVATION AND SUPPLY:
INTERIM REPORT
Report together with Proceedings of the Committee
Ordered by The House of Commons to be printed
22 July 1996
LONDON: HMSO
£4·30

Source: United Water Co/New York 1996

	Water Loss %
1970	12%
1971	11%
1972	16%
1973	14%
1974	9%
1975	13%
1976	15%
1977	14%
1978	12%
1979	8%
1980	19%
1981	9%
1982	17%
1983	22%
1984	22%
1985	23%
1986	15%
1987	26%
1988	18%
1989	17%
1990	20%
1991	20%
1992	17%
1993	22%
1995	17%
2000	17%
2005	18%
2010	18%
2015	17%
2020	18%



KEY FINDING #3

Data inconsistencies, errors, and missing data found in UWNY's records and reports.

It is difficult if not impossible to know the true volumes of water supplied, consumed by customers, and lost to leakage and other types of non-revenue water for at least the last three years (2012-2014).

Table 2-1. Data Inconsistencies in Volumes of Water Supply, Demand, and Water Losses (UFW/NRW) in UWNY Reports to the PSC, DEC and Task Force Consultant

Total Water Produced (Sources of supply)	*Million Gallons per Year* 2012	2013	2014
PSC Annual Report of UWNY (p. 400):	10,348.87	10,384.00	10,513.68
NY DEC Annual Water Withdrawal (Permit) Report by UWNY, Section 2:	10,330.82	10,384.03	10,513.68
UWNY data sent to Task Force consultant, v4, v5 and v6:	10,322.66	10,357.80	10,402.64
UWNY data sent to Task Force consultant, v7:	10,348.87	10,384.00	10,513.68
Maximum difference among ranges, MG/Y:	**26.20**	**26.20**	**111.04**

Total Water Purchases (Imports)	*Million Gallons per Year* 2012	2013	2014
PSC Annual Report of UWNY (p. 305)	182.50	182.50	182.50
NY DEC Annual Water Withdrawal (Permit) Report by UWNY, Section 2:	0.00	0.00	0.00
UWNY data sent to Task Force consultant, v4, v5, v6 and v7:	0.00	0.00	0.00
Maximum difference among ranges, MG/Y:	**182.50**	**182.50**	**182.50**

Total Water Consumption (Customer demands)	*Million Gallons per Year* 2012	2013	2014
PSC Annual Report of UWNY (p. 300)	8,188.56	8,068.39	8,453.84
PSC Annual Report of UWNY (p. 400):	8,141.95	8,068.39	8,453.84
NY DEC Annual Water Withdrawal (Permit) Report by UWNY, Section 2:	8,192.28	8,124.09	8,447.44
UWNY data sent to Task Force consultant, v4, v5 and v6:	8,142.36	8,068.39	8,221.31
UWNY data sent to Task Force consultant, v7:	8,141.95	8,068.39	8,453.84
UWNY data sent to Task Force consultant, total of customer metered demands*:	7,981.15	7,825.20	8,101.46
Maximum difference among ranges, MG/Y:	**211.13**	**298.89**	**352.38**

(Continued)

(Continued)

Table 2-1. Data Inconsistencies in Volumes of Water Supply, Demand, and Water Losses (UFW/NRW) in UWNY Reports to the PSC, DEC and Task Force Consultant

Total Water Sold (Exports/Resale)	*Million Gallons per Year* 2012	2013	2014
PSC Annual Report of UWNY (pages 300 and 305): United Water New Jersey and	*35.33*	*38.45*	*39.46*
Village of Hillburn	*38.24*	*32.41*	*44.74*
Total Exports reported to PSC:	73.57	70.87	84.20
NY DEC Annual Water Withdrawal (Permit) Report by UWNY, Section 2:	41.54	32.41	44.73
UWNY data sent to Task Force consultant, v4, v5 and v6:	73.75	70.98	80.32
UWNY data sent to Task Force consultant, v7:	73.57	70.87	84.20
Maximum difference among ranges, MG/Y:	**32.21**	**38.57**	**39.47**

Total NRW/UFW: Water Produced/Imported Minus Water Consumed/Exported†	*Million Gallons per Year* 2012	2013	2014
PSC Annual Report of UWNY (p. 400)	2,315.85	2,427.24	2,158.14
NY DEC Annual Water Withdrawal (Permit) Report by UWNY, Section 2:	2,138.55	2,259.94	2,066.25
UWNY data sent to Task Force consultant, v4, v5 and v6:	2,111.10	2,232.30	2,064.40
UWNY data sent to Task Force consultant, v7:	2,206.90	2,315.60	2,059.80
Maximum difference among ranges, MG/Y:	**204.75**	**194.94**	**98.34**

Total NRW/UFW: Water Produced/Imported Minus Water Consumed/Exported†	*Percent* 2012	2013	2014
PSC Annual Report of UWNY (p. 400):	22.0%	23.0%	20.2%
NY DEC Annual Water Withdrawal (Permit) Report by UWNY, Section 2:	20.7%	21.8%	19.7%
UWNY data sent to Task Force consultant, v4, v5 and v6:	20.5%	21.6%	19.8%
UWNY data sent to Task Force consultant, v7:	21.3%	22.3%	19.6%
Maximum difference among ranges, Percent:	**1.5%**	**1.4%**	**0.6%**

Contradicting data sends United Water performance reports down the drain

By Anne Phyllis Pinzow
STAFF WRITER

A preliminary analysis of water use in Rockland County the fifth wettest county in the State of New York and the supplier, United Water of New York (UWNY), was the subject of a report given on June 27 at Rockland Community College to the Rockland County Water Task Force from the internationally known consultant, author in the field of water conservation and efficiency and engineer, Amy Vickers.

After it had been vetted by both the New York Public Service Commission (PSC) and UWNY to determine if any rate payers' confidentiality had been breached, the preliminary report was cleared for viewing said Harriet Cornell, chairperson of the Task Force and Rockland County legislator.

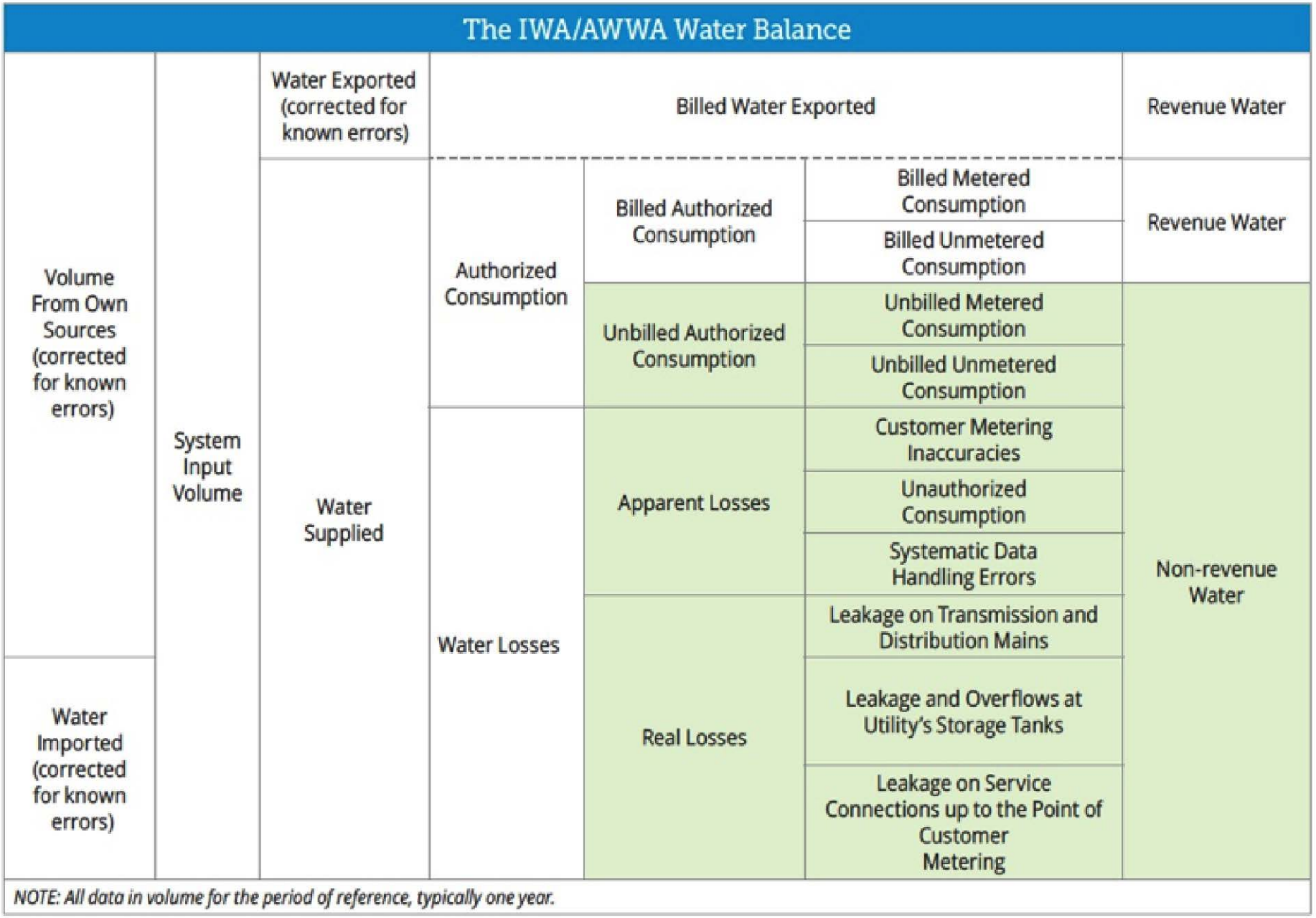
In addressing a group of about 60 people, Vickers said her findings showed that UWNY has been using different figures to report on water

Source: OurTownNews.com

KEY FINDING #4

Errors found in UWNY's AWWA Water Audit Reports underestimated leakage recovery potential, overestimated apparent losses (2012-2014).

Revised reports prepared by Task Force consultant yielded much higher estimate of recoverable leakage.



American Water Works Association

Table 2-3. Reporting Worksheets in UWNY's Annual AWWA Water Audit Report: Data Inconsistencies, Missing Data, and Errors in Reports Prepared By UWNY Compared to Corrected Reports Using Data in UWNY's Annual Reports to the PSC, 2012-2014

REPORTING WORKSHEET (AWWA Water Audit Software*)	"A" Columns: UWNY Water Audit Data & Default Overrides			"B" Columns: Corrected UWNY Water Audit Data Using UWNY's PSC Annual Report Data & No Default Overrides		
	2012	2013	2014	2012	2013	2014
A. WATER SUPPLIED	*Million Gallons per Year*			*Million Gallons per Year*		
Volume from own sources (MG/Y):	10,348.865	10,389.154	10,513.682	10,348.865	10,383.997	10,513.682
Water Imported (MG/Y):	0.0	0.0	0.0	182.500	182.500	182.500
Water Exported (MG/Y):	41.542	27.280	0.0	73.569	70.866	84.201
Total Water Supplied (MG/Y):	**10,307.3**	**10,361.9**	**10,513.7**	**10,457.8**	**10,495.6**	**10,612.0**
B. AUTHORIZED CONSUMPTION	*Million Gallons per Year*			*Million Gallons per Year*		
Billed Metered Consumption (MG/Y):	8,192.276	8,124.086	8,447.437	8,141.947	8,068.390	8,453.843
Billed Unmetered Consumption (estimate) (MG/Y):	0.0	0.0	0.0	43.117	129.600	131.275
Unbilled Metered Consumption (MG/Y):	29.555	65.717	30.250	0.825	4.019	8.250
Unbilled Unmetered Consumption (estimate) (MG/Y):	128.842	129.523	131.421	2.670	5.968	6.385
Total Authorized Consumption:	**8,350.7**	**8,319.3**	**8,609.1**	**8,188.6**	**8,208.0**	**8,599.8**
C. WATER LOSSES	*Million Gallons per Year*			*Million Gallons per Year*		
Total Water Losses (Water Supplied-Authorized Consumption) (MG/Y):	**1,956.7**	**2,042.5**	**1,904.6**	**2,269.2**	**2,287.7**	**2,012.2**
C.1 Apparent Losses						
Unauthorized Consumption (estimate) (MG/Y):	497.0	412.9	373.8	26.1	26.2	26.5
Customer Metering Inaccuracies (estimate)(MG/Y):	222.1	221.2	229.0	219.9	218.0	228.6
Systematic Data Handling Errors (estimate)(MG/Y):	80.0	191.7	143.9	20.4	20.2	21.1
Total Apparent Losses (MG/Y):	**799.1**	**825.8**	**746.7**	**266.4**	**264.4**	**276.2**
C.2. Real Losses (Current Annual Real Losses or CARL)						
Total Real Losses (MG/Y):	**1,157.6**	**1,216.8**	**1,157.9**	**2,002.8**	**2,023.2**	**1,736.0**
Total Water Losses (MG/Y):	**1,956.7**	**2,042.5**	**1,904.6**	**2,269.2**	**2,287.7**	**2,012.2**
D. NON-REVENUE WATER	*Million Gallons per Year*			*Million Gallons per Year*		
Total Non-Revenue Water, MG/Y:	**2,115.0**	**2,237.8**	**2,066.2**	**2,272.7**	**2,297.6**	**2,026.9**
Total Non-Revenue Water, Percent of Total Water Supplied:	**20.5%**	**21.6%**	**19.7%**	**21.7%**	**21.9%**	**19.1%**
E. SYSTEM DATA	*System Data*			*System Data*		
Length of mains (miles):	1,049.3	1,050.5	1,056.3	1,049.3	1,050.5	1,056.3
Number of active and inactive service connections:	73,733	74,576	74,973	73,733	74,576	74,973
Service connection density (conn./miles main)	70	71	71	70	71	71
Average length of service line (ft):	75.0	75.0	44.0	44.0	44.0	44.0
Average operation pressure (psi):	107.0	103.30	103.30	107.0	103.30	103.30
F. COST DATA	*Cost Data*			*Cost Data*		
Total annual cost of operating water system ($/year):	$32,332,734	blank	$52,637,304	$28,759,617	$27,442,369	$26,529,066
Customer retail unit cost (applied to Apparent Losses ($/100 ccf)):	$ 5.74	blank	$ 5.11	$ 5.32	$ 5.53	$ 5.78
Variable production cost (applied to Real Losses) ($/MG):	$ 362.00	blank	$ 430.51	$ 362.00	$ 430.51	$ 430.51
G. WATER AUDIT DATA VALIDITY SCORE (maximum 100)†						

Table 2-4. Performance Indicators in UWNY's Annual AWWA Water Audit Report: Results of Data Inconsistencies, Missing Data, and Errors in Reports Prepared By UWNY Compared to Corrected Reports Using Data in UWNY's Annual Reports to the PSC, 2012-2014

PERFORMANCE INDICATORS (AWWA Water Audit Software*)	"A" Columns: UWNY Water Audit Data & Default Overrides			"B" Columns: Corrected UWNY Water Audit Data Using UWNY's PSC Annual Report Data & No Default Overrides		
	2012	2013	2014	2012	2013	2014
H. System Attributes	*Million Gallons per Year*			*Million Gallons per Year*		
Apparent Losses (MG/Y):	799.1	825.8	746.7	266.4	264.4	276.2
+ Real Losses (CARL) (MG/Y):	1,157.6	1,216.8	1,157.9	2,002.8	2,023.2	1,736.0
= Water Losses (MG/Y):	**1,956.7**	**2,042.5**	**1,904.6**	**2,269.2**	**2,287.7**	**2,012.2**
Unavoidable Annual Real Losses (UARL) (MG/Y):	**960.4**	**935.6**	**816.2**	**833.6**	**811.8**	**816.2**
	Cost Data			*Cost Data*		
Annual cost of Apparent Losses:	$ 6,131,511	blank	$ 5,095,668	$ 1,894,860	$ 1,954,947	$ 2,134,347
Annual cost of Real Losses:	$ 419,042	blank	$ 498,483	$ 725,013	$ 871,010	$ 747,365
I. Financial Performance Indicators	*Performance Indicators*			*Performance Indicators*		
Non-revenue water as percent by volume of Water Supplied:	20.5%	21.6%	19.7%	21.7%	21.9%	19.1%
Non-revenue water as percent by cost of operating system:	20.4%	blank	10.8%	9.1%	10.3%	10.9%
J. Operational Efficiency Performance Indicators	*Performance Indicators*			*Performance Indicators*		
Apparent Losses per service connection per day (gal/connection/day):	**29.7**	**30.3**	**27.3**	**9.9**	**9.7**	**10.1**
Real Losses per service connection per day (gal/connection/day):	**43.0**	**44.7**	**42.3**	**74.4**	**74.3**	**63.4**
Real Losses per length of main per day (applies to small systems only):	NA	NA	NA	NA	NA	NA
Real Losses per service connection per day per psi pressure:	0.40	0.43	0.41	0.7	0.72	0.61
Real Losses = Current Annual Real Losses (CARL) (MG/Y):	**1,157.6**	**1,216.8**	**1,157.9**	**2,002.8**	**2,023.2**	**1,736.0**
Infrastructure Leakage Index (ILI)* [CARL/UARL]:	1.21	1.30	1.42	2.40	2.49	2.13

Table 2-5. Summary of UWNY's System Water Losses and Estimated Recoverable Leakage: Comparison of UWNY's Annual AWWA Water Audit Reports to Corrected Reports Using UNWY Data As Submitted in Annual Reports to the PSC, 2012-2014

SYSTEM LOSSES AND RECOVERABLE LEAKAGE	"A" Columns: UWNY Water Audit Data & Default Overrides			"B" Columns: Corrected UWNY Water Audit Data Using UWNY's PSC Annual Report Data & No Default Overrides		
	2012	2013	2014	2012	2013	2014
K. Non-revenue Water Loss Components	*Percent of Total Water Supplied*			*Percent of Total Water Supplied*		
Total Non-revenue Water, Percent of Total Water Supplied:	20.5%	21.6%	19.7%	21.7%	21.9%	19.1%
Total Apparent Losses, Percent of Total Water Supplied:	7.8%	8.0%	7.1%	2.5%	2.5%	2.6%
Total Real Losses, Percent of Total Water Supplied:	11.2%	11.7%	11.0%	19.2%	19.3%	16.4%
Total Recoverable Real Losses, Percent of Total Water Supplied:	1.9%	2.7%	3.3%	11.2%	11.5%	8.7%
L. Recoverable Leakage	*Measurements of Recoverable Leakage*			*Measurements of Recoverable Leakage*		
Current Annual Real Losses-Leakage (CARL) (MG/Y):	1,157.6	1,216.8	1,157.9	2,002.8	2,023.2	1,736.0
Unavoidable Annual Real Losses-Leakage (UARL) (MG/Y):	960.4	935.6	816.2	833.6	811.8	816.2
Est. Net Recoverable Leakage (CARL-UARL), MG/Y:	**197.1**	**281.2**	**341.7**	**1,169.2**	**1,211.4**	**919.8**
Est. Recoverable Leakage/Real Losses, Average MGD:	**0.54**	**0.77**	**0.94**	**3.20**	**3.32**	**2.52**
Est. Net Recoverable Leakage Per Mile of Main, Avg. MG/Y:	**0.19**	**0.27**	**0.32**	**1.11**	**1.15**	**0.87**
Est. Recoverable Leakage, Percent of Total Water Supplied:	**1.9%**	**2.7%**	**3.3%**	**11.2%**	**11.5%**	**8.7%**

Comparison of UWNY and Corrected UWNY AWWA Water Audit Reports for Components of Non-revenue Water, 2012-2014

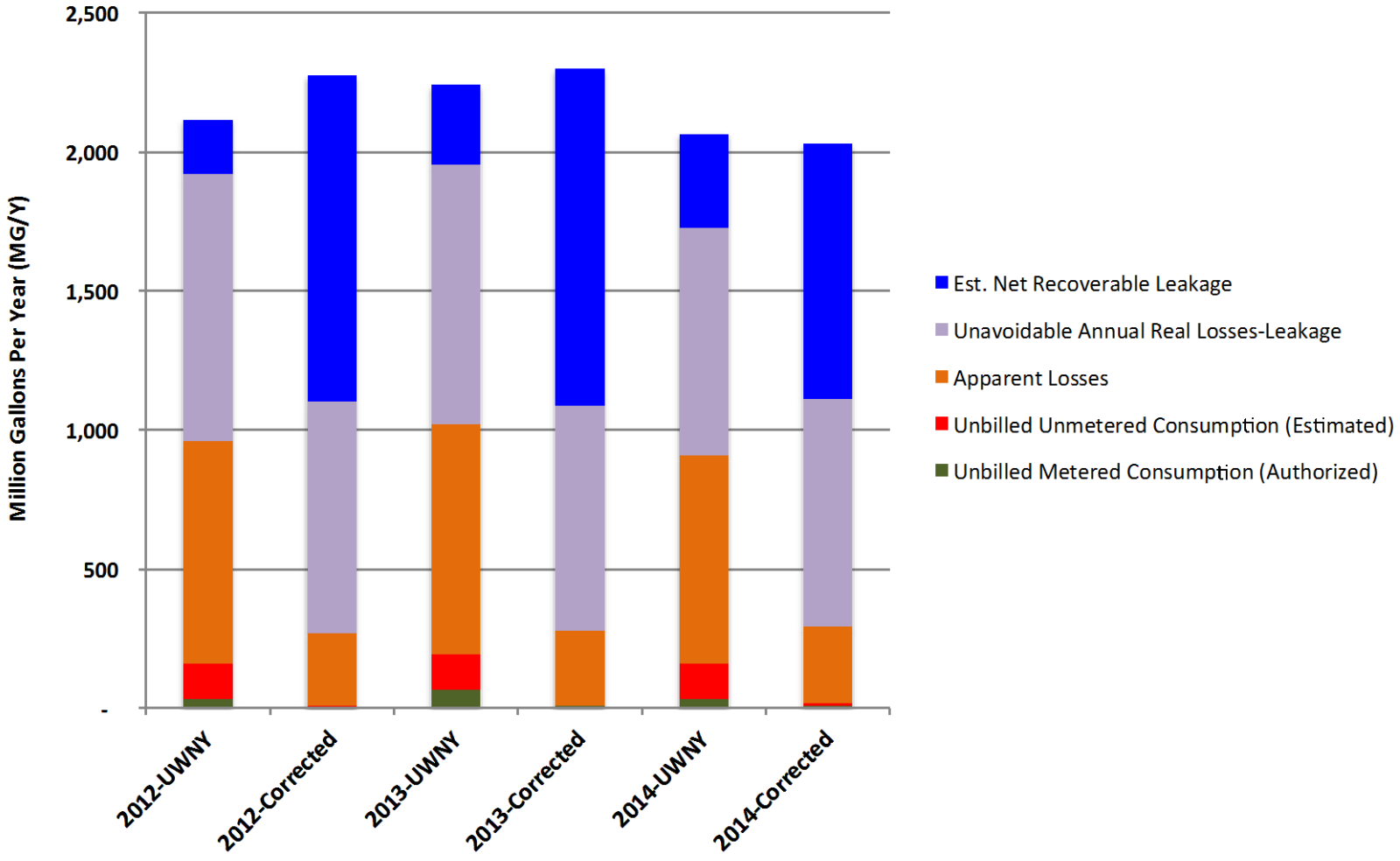
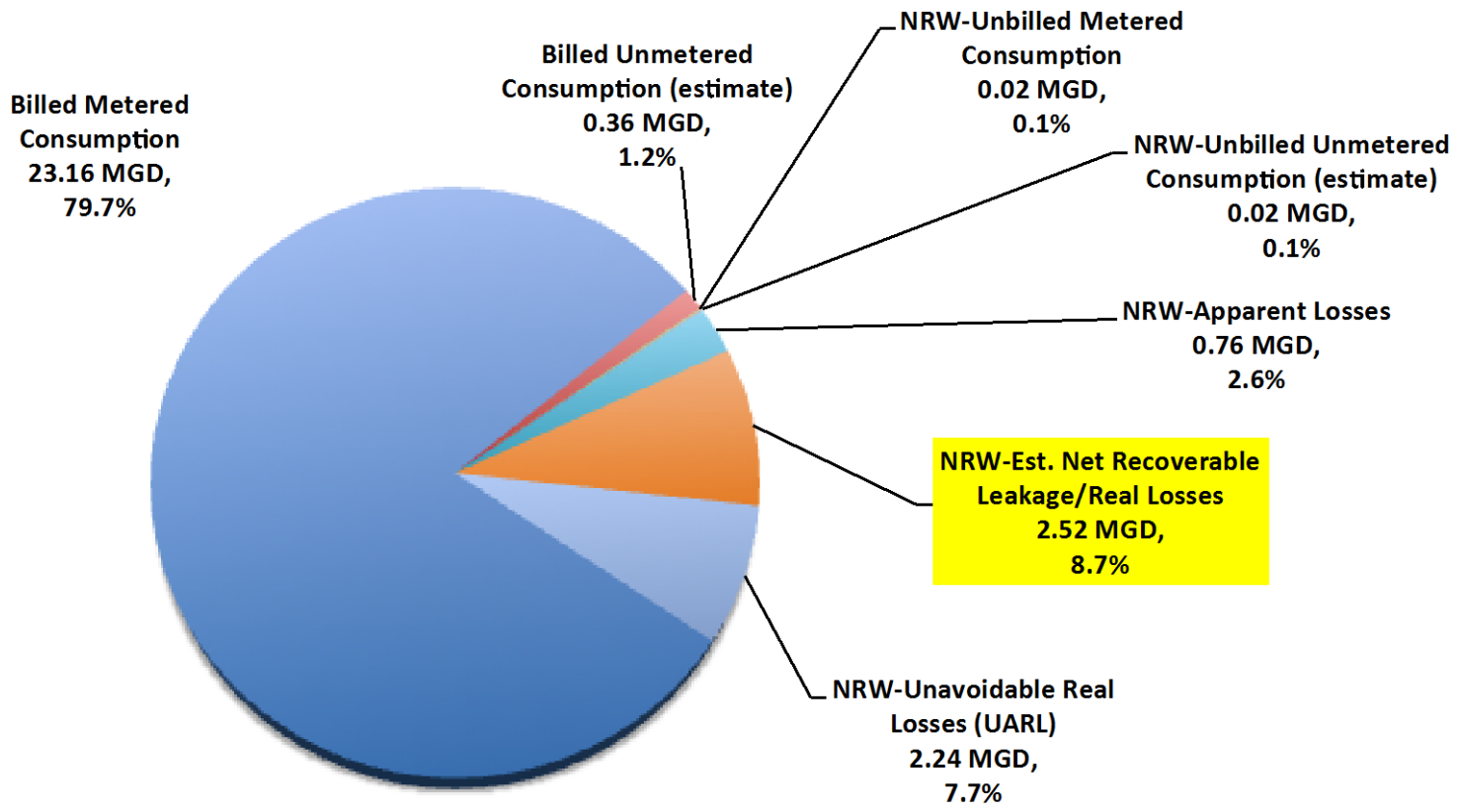


Figure 2-3. AWWA Water Audit "Balance" of UWNY's Consumption and NRW Based on UWNY's 2014 Annual Report Data, Average 29.1 MGD



KEY FINDING #5

The snail's pace of UWNY's main replacement put it on an astounding *704-year schedule* in 2014, on top of being more than a decade behind the state's recommended timetable for surveying leaks in system mains.

Table 2-6. UWNY Infrastructure Compared to Water Industry Standards and Performance Indicators, 2012-2014

MAIN REPLACEMENT	2012	2013	2014
Miles of main in UWNY distribution system (excluding customer service line pipes)	1,053	1,051	1,056
Miles of main UWNY renewed/replaced	4.2	2.7	1.5
Percentage of main UWNY renewed/replaced	0.4%	0.3%	0.1%
Est. average service life in years for UWNY's mains (primarily cast iron and ductile iron) when it was installed*†		50-100	
At current rate, approximate number of years it will take UWNY to replace its mains:	**248**	**389**	**704**
MAIN BREAK FREQUENCY	**2012**	**2013**	**2014**
UWNY Main breaks	221	286	384
Average failure frequency in North America‡, number of breaks/100 miles of main/year:	25	25	25
Average failure frequency for optimized distribution systems‡, number of breaks/100 miles of main/year:	15	15	15
UWNY Main breaks, number of breaks/100 miles of main/year:	21	27	36
LEAK DETECTION	**2012**	**2013**	**2014**
Miles of main on which UWNY performed leak detection using sonic listening equipment (primarily noise loggers)	76	156	75
Percentage of main sounded for leaks	7%	15%	7%
DEC Water Conservation Program's recommended maximum number of years to survey an entire system for leaks:	**3 (Minimum one-third annually)**		
At current rate, approximate number of years it will take UWNY to survey its entire systems for leaks:	**14**	**7**	**14**
LEAKS DETECTED/REPORTED	**2012**	**2013**	**2014**
Surfacing (visible) leaks reported in UWNY system, number	271	353	389
Non-surfacing (invisible) leaks reported in UWNY system, number	27	46	102
Total number of leaks detected/reported by UWNY:	**298**	**399**	**491**
Surfacing (visible) leaks detected/reported, percent:	**91%**	**88%**	**79%**
Non-surfacing (invisible) leaks detected/reported, percent:	**9%**	**12%**	**21%**
WATER RECOVERED BY LEAK REPAIRS–POTENTIAL AND ACTUAL	**2012**	**2013**	**2014**
Estimated recoverable leakage in UWNY distribution system (Table 2-6, Corrected UWNY water audits), MG/Y:	1,169.2	1,211.4	919.8
Volume of leakage recovered by UWNY (mains, service lines, and valves), MG/Y:	57.1	64.1	63.1
Volume of leakage recovered by UWNY as percent of total water supplied:	**0.5%**	**0.6%**	**0.6%**
Volume of leakage recovered by UWNY as percent of estimated recoverable leakage (corrected water audits):	**4.9%**	**5.3%**	**6.9%**
At current rate, approximate number of years it will take UWNY to perform repairs on its recoverable leakage:	**20**	**19**	**15**

OPINION

Our Town welcomes submissions for our Opinion pages. Please mail, fax or email your letter or comment. Submissions reflect the opinions of the writers and do not necessarily reflect those of this newspaper.

Email to:
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Leaks are us: United Water's fuzzy data

Here's a classic good news-bad news scenario. First the good news – the Rockland Water Coalition and Water Task Force have made real progress toward evaluating the county's water usage, predicting our future needs, and marshaling an effective combination of conservation and demand-side planning measures to insure no additional resources will be needed.

Now the bad news – United Water of New York (UWNY), our much beloved (and only) water utility has issued conflicting and sometimes contradictory sets of data about water usage, about the availability of water for present and future needs and about losses to due leakage and other management and infrastructure related problems.

And more bad news – out of a total of 1,056 miles of aging and often failing water mains, UWR replaced a mere 1.5 miles in 2014. At that snail's pace, UWR would require 704 years to upgrade its entire system. Let's do the math – how old would the system and current ratepayers be after the last pipe is replaced? Just as dire, UWR is losing, out of 10 million gallons per day delivered, an estimated 2.5 million gallons of what should be recoverable water.

Water conservation and efficiency and engineer Amy Vickers at a public meeting on Saturday, revealed this startling and distressing information.

In that report, supported with charts and graphs detailing data, some of which was supplied by UWNY itself, she alleges that the utility is supplying different numbers to different agencies, so much so that she has been unable to accurately determine which of the conflicting data is valid and which is not. Yet, any reliable estimate of water needs and availability is dependent on accurate information, which, apparently, is not forthcoming from United Water of New York.

For example, discrepancies in water usage exist for the years 2012, 2013 and 2014. UWNY told the New York State Department of Environmental Conservation that water consumption in 2014 totaled 8,453.84 million gallons per year (mgy).

However, data UWNY released to Vickers showed total consumption for the same year to be 8,101.46 mgy. The discrepancy? Exactly 352.38 mgy.

That's enough of a difference to bolster a case for the urgency of additional water supply, such as a desal plant, or to impress upon regulators the utility's contention that conservation alone won't work. Vi
ered and reported discrepancie
sets of conflicting data produ
mitted by United Water.

One might conclude that eit
relying on flawed accountir
really know how much wa
through, and leaking out,
These discrepancies cast d
aspects of UWNY figures, e
submitted in support of its
Public Service Commission
charge on ratepayers for the
so ram a desal plant down
plant that a thorough an
incomplete or conflicting
have been not only flagrant
totally unnecessary. That s
is due to be heard by the P

After poring over mul
(Vickers pores while U
resources down the drain
these telling conclusions:

- UWNY water demand has been largely flat since 2000 despite a growing population
- High system water losses have persisted

If a private company were losing
not account for 21 percent of its output, and
could not produce consistent numbers, it
would go out of business. A public utility,
however, can be rewarded for its sloppy
oversight and fuzzy data because such a
utility is guaranteed a profit. Ratepayers
make up the shortfall.

All but 7.7 percent of that wasted water,
deemed unrecoverable, can and should be
controlled by UWNY. In other words, the
utility needs to plug its leaky pipes and col-
lect from customers stealing water.

future. We're eagerly awaiting this response
from a public utility whose former general
manager Michael Pointing was fired presumably over accounting issues regarding
revenue and expenses.

He did not leave of his own volition, but
was summarily sacked and frogmarched out
of headquarters by UWNY security officers.
Two other employees were also fired. Those
departures sparked announcement of a PSC
investigation "to determine if any action is
required to protect the interest of United
Water's New York ratepayers."

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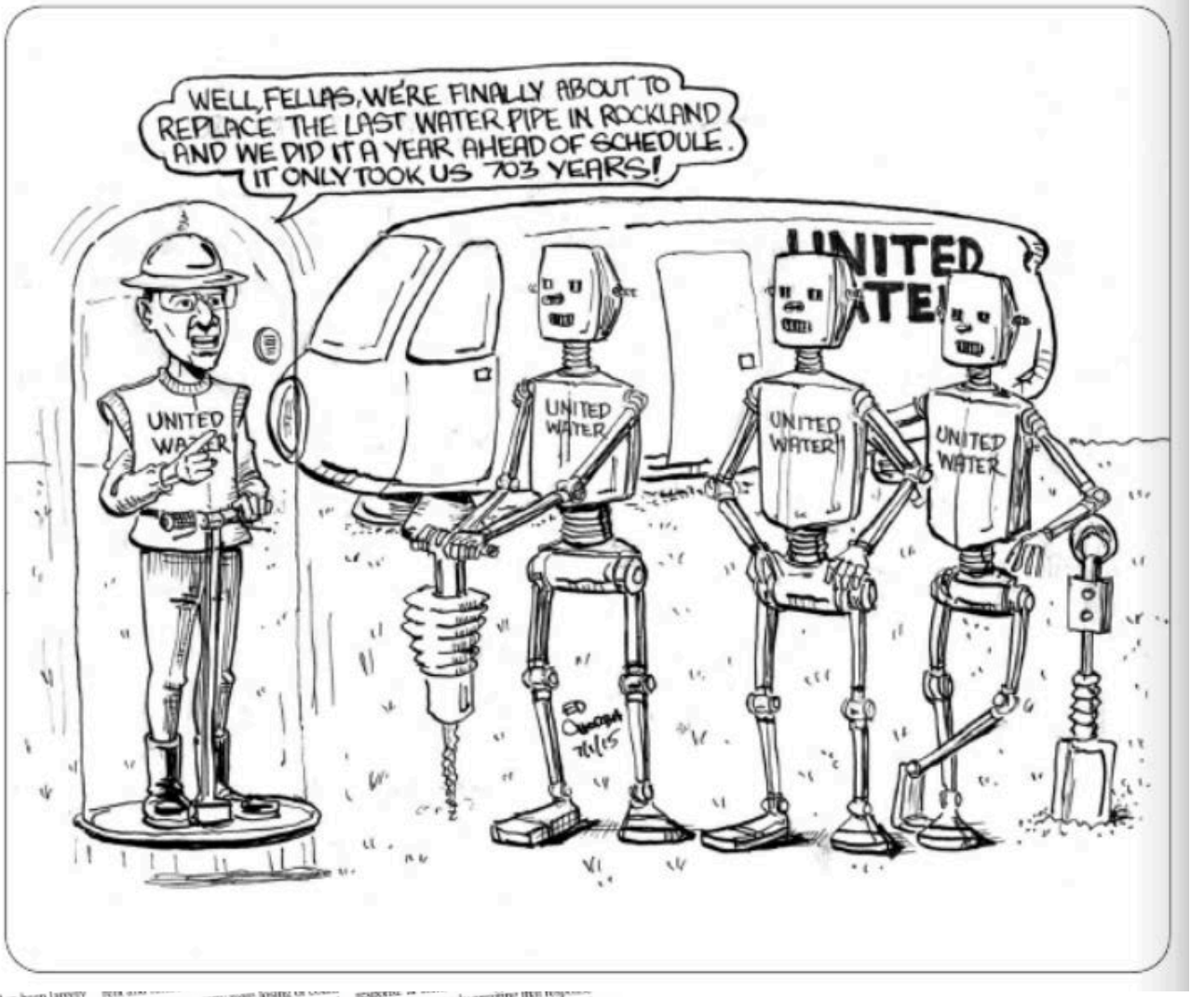


Source: OurTownNews.com

KEY FINDING #6

Preliminary estimate

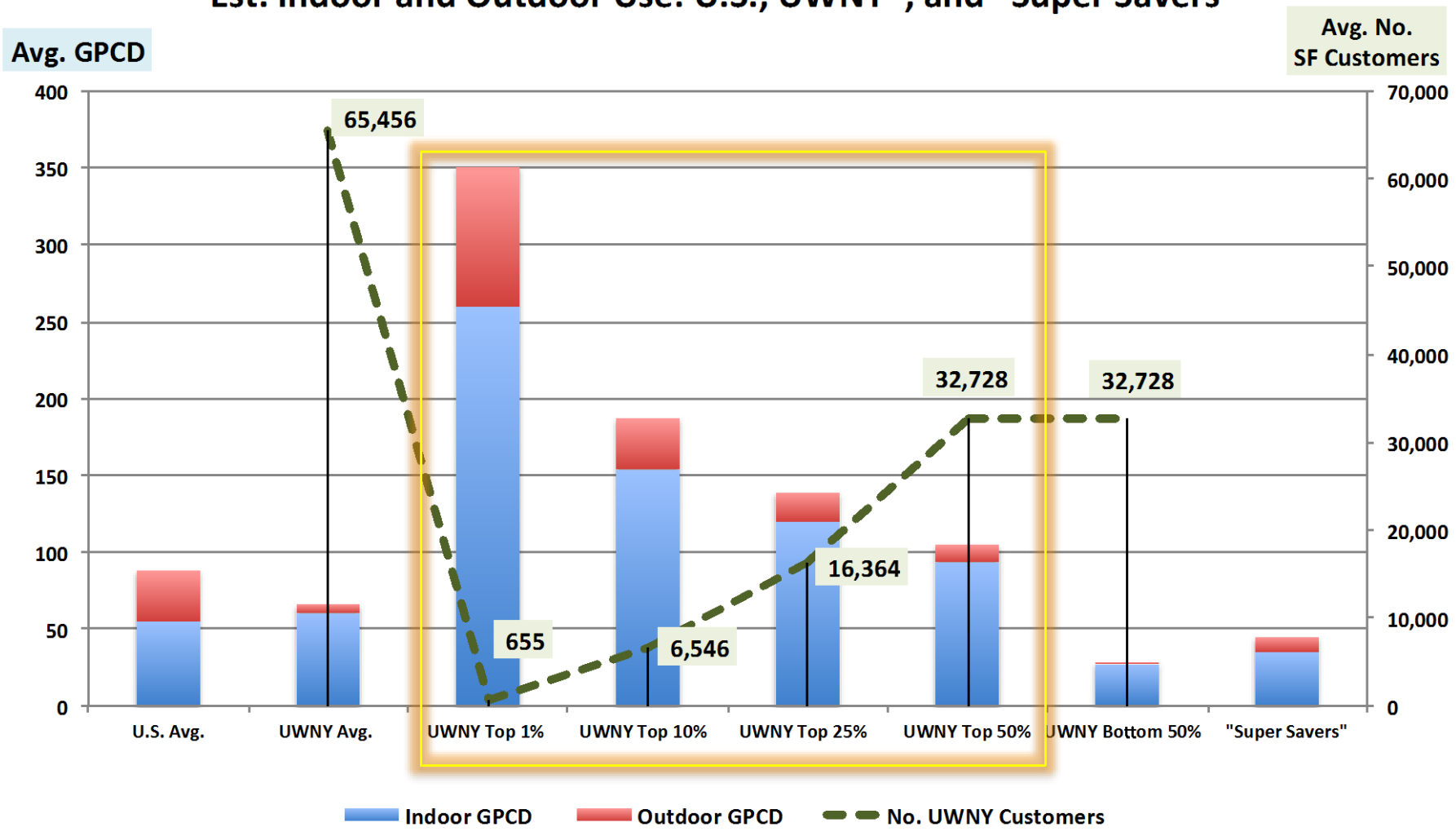
4.4 MGD to 7.0 MGD of potential water savings, about 15% to 25%, in UWNY system:

- **2.5 MGD to 3.3 MGD of recoverable leakage**
  - Corrected UWNY AWWA Water Audit reports
- **1.9 MGD to 3.6 MGD from customer-oriented conservation**

Table 4-1. Preliminary Estimates of Potential Water Savings From Conservation Based on System Water Losses and Retail Customer Demands in 2012-2014*

Category of Water Use	Low Savings Estimate, Avg. MGD	High Savings Estimate, Avg. MGD	Average Savings Estimate, Avg. MGD	Average Savings Estimate, Percent of Total
UWNY System Leakage (Recoverable)				
Est. Total System Savings Potential*:	**2.5**	**3.3**	**2.9**	**51.2%**
Customer Water Use				
Single-Family	1.1	2.1	1.6	28.2%
Multi-Family	0.3	0.4	0.3	5.8%
Sloatsburg (Village)	0.0	0.0	0.0	0.3%
Commercial	0.4	0.8	0.6	10.7%
Industrial	0.2	0.3	0.2	3.6%
Service Points without Meters	Unknown			
Est. Total Customer Savings Potential:	**1.9**	**3.6**	**2.8**	**48.8%**
EST. TOTAL POTENTIAL WATER SAVINGS:	**4.4**	**7.0**	**5.70**	**100.0%**

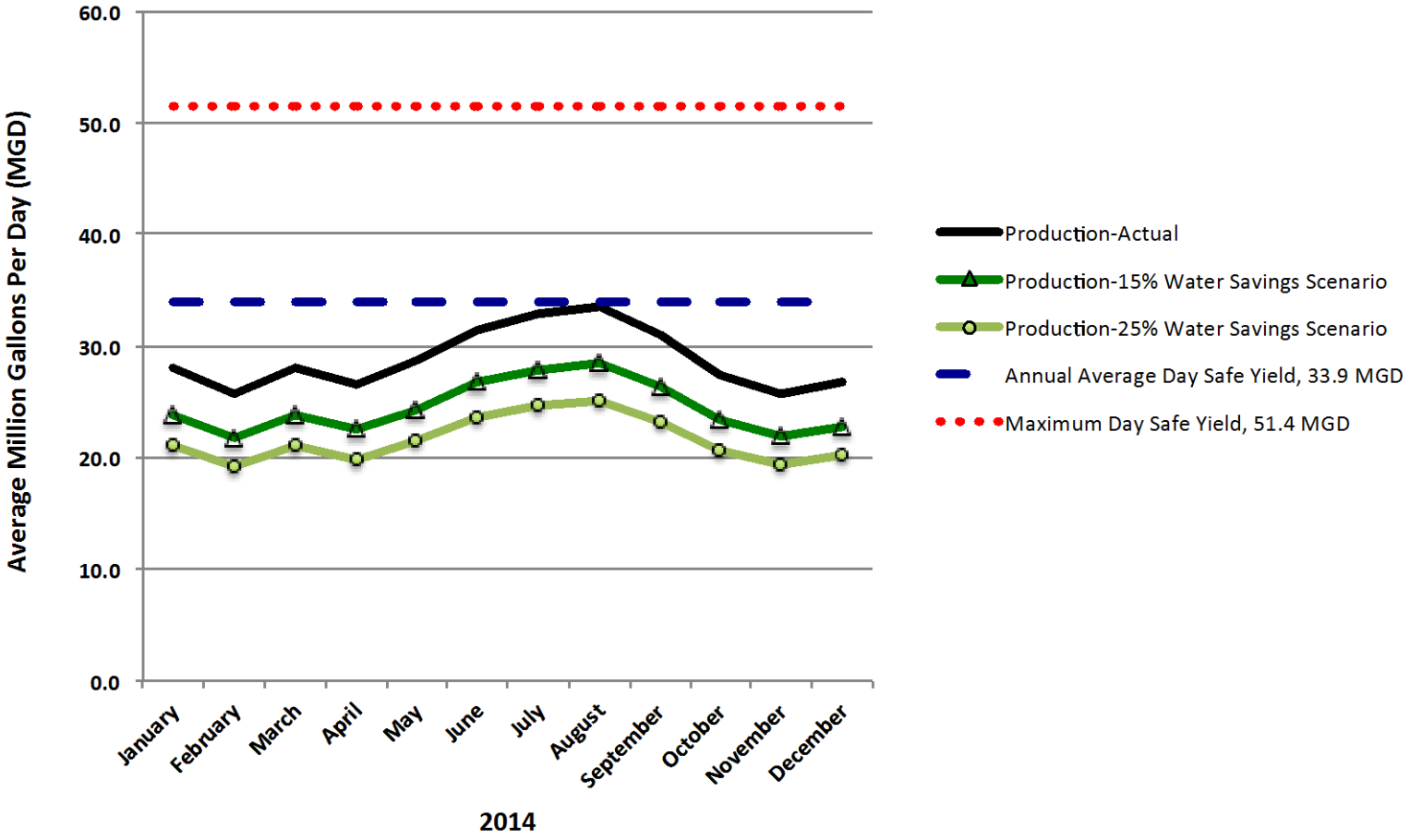
Single-family Average Gallons Per Capita Per Day (GPCD), Est. Indoor and Outdoor Use: U.S., UWNY*, and "Super Savers"



* Figures shown for United Water New York (UWNY) are based on a 3-year average (2012-2014).

KEY FINDING #7: The need for additional water supply capacity seems doubtful at this time.

Figure ES-1. UWNY Water Production Scenarios With 15% and 25% Savings From System Leakage & Customer Conservation in 2014



Press Release

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FOR IMMEDIATE RELEASE

Contact: **Hon. Harriet Cornell** (845) 638-5753
Laura Incalcaterra, Community Relations Coordinator (845) 638-5184

Independent report: Millions of gallons of water available to Rockland County
Rockland Task Force files major water study with state

New City, NY (July 28, 2015) - The Rockland County Task Force on Water Resources Management has submitted to the state Public Service Commission key findings on the status of the local water supply, determining that repairing a leaky system and boosting customer conservation could add millions of gallons to the inventory.

The report, ***Water Losses and Customer Water Use in the United Water New York System,*** offers "a data-driven independent review," said Rockland County Legislator Harriet Cornell, who heads the Task Force and is chairwoman of the Legislature's Environmental Committee.

"This is the first time such an analysis has been done, and it will serve as the basis of a second study which will provide specifics on how to capture 'lost' water and conservation strategies. This important Report will enable the Task Force to move forward with our efforts to ensure a safe, cost-effective, long-term water supply for Rockland," Cornell said.

Amy Vickers, a nationally renowned water conservation and efficiency expert, engineer and author based in Amherst, Mass., conducted the study for the Task Force. The review was in response to the Public Service Commission's November 2014 order instructing United Water to work with the Task Force to identify ways to reduce water demand by 2 million gallons per day.

The order also called for the supply to be increased by 2-million-to-3-million gallons per day. The PSC requested a progress report on the efforts.

Vickers' report shows that as much as 4.4 million to 7 million gallons per day of supply could be available through a reduction in customer demand and the repairs of leaky water mains and pipes. That translates to a 15 percent to 25 percent reduction in current demand levels.

The report indicates that better record-keeping by United Water, which supplies water to approximately 90 percent of the homes and businesses in Rockland, could also improve the ability to determine how much water is being supplied, imported, exported, consumed by retail customers or lost to the non-revenue/unaccounted category.

One recommendation is that United Water improve its pace for water line replacements and water leak surveys. At its current pace, it would take the company 704 years to replace all lines; and 14 years to check for leaks, well beyond the New York State DEC's recommended maximum 3-year schedule.

otes that water demand in UWNY's service area has been largely flat since 2000
percent population growth, a trend that could continue and is likely the result of state
er efficiency standards, including those governing improved-efficiency appliances.
e national water efficiency standards for plumbing fixtures adopted under the U.S.
t of 1992 and authored or co-authored precedent setting state laws on efficiency

commends that a combination of conservation, water reuse technologies, rainwater
en infrastructure options be tapped to help Rockland further drive down demand
supply independence.

hairman Alden H. Wolfe praised Vickers for her professional analysis and said
ngs provide a foundation for true water resource management.

ation that can guide us as we focus on demand-side management versus
ities, which simply add to the supply no matter the costs," Wolfe said.

said, "Rockland County's economic and environmental future is enhanced
precious natural resources.

non-sense solutions to increase Rockland County's water independence,
a long-term supply of safe, clean water," Day said. "I commend all the
for their efforts to promote water efficiency and sustain healthy water
ons."

amont-Doherty Earth Observatory who chairs the Task Force's
the report helps give direction on how to proceed.

f the Rockland County Water Task Force is very happy to have this
er resources use and management," Turrin said. "The report will be
nd recommend effective conservation projects to the Task Force and

e 2014 and is comprised of 19 members representing the County
ed Water, and local governments, academia, business and

o build a costly Hudson River desalination plant galvanized
avor of further studies of the existing supply and demand, and

that while Rockland may one day need more water, it
same decision, the PSC said opponents of the plant would
ent conservation measures designed to possibly delay or

ask Force is moving forward aggressively to develop
trol, building upon the Vickers Report. Additionally, Task
of priority issues; a green infrastructure feasibility study
storage to be done by engineering students at the
start in September.

###

2016 postscript

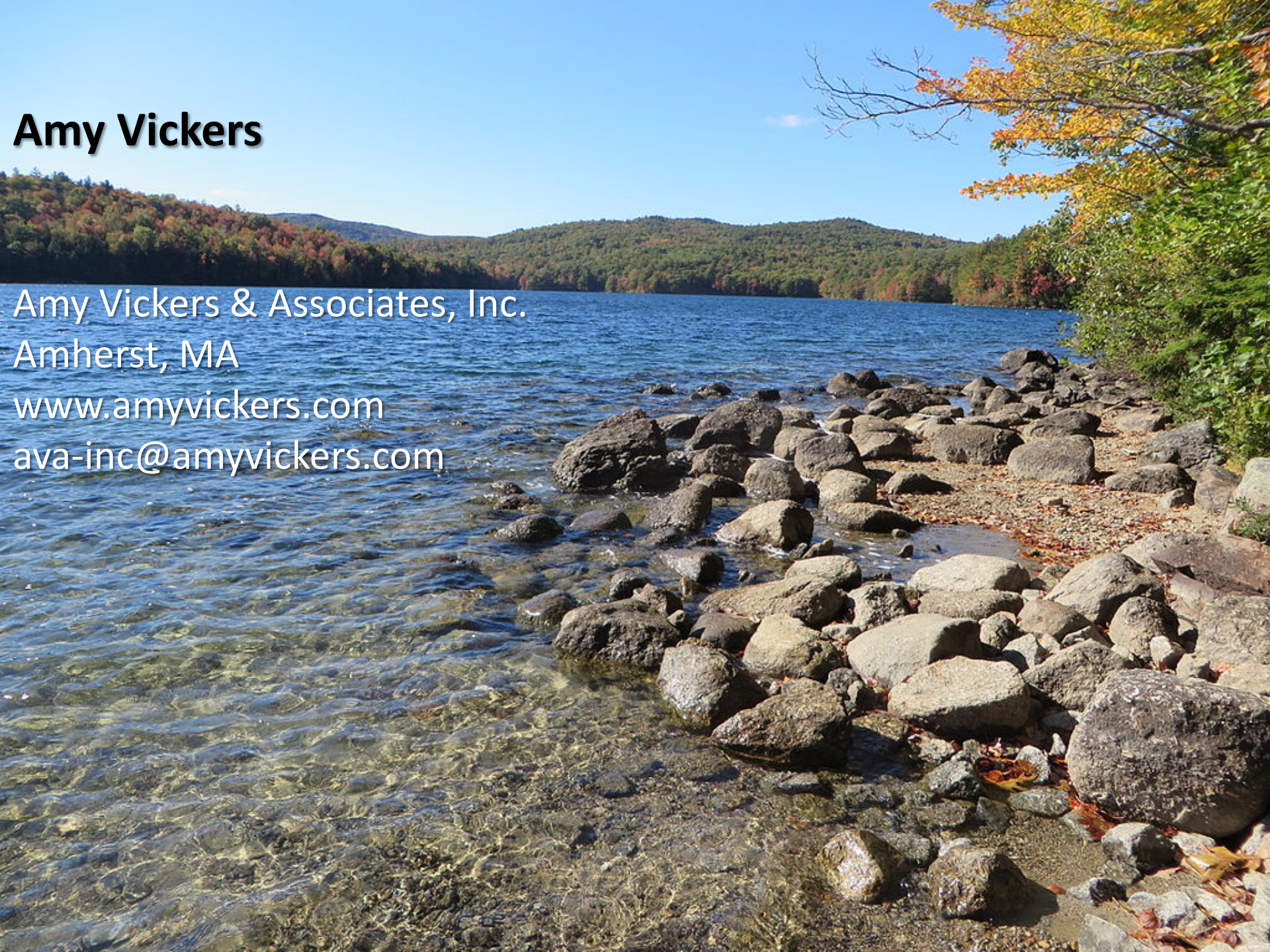
- Suez proposal in lieu of desal
  - Customer conservation plan goal: ~1 mgd *over 10 years**
  - Conservation rate design
  - AMI, Infrastructure upgrades
  - Incremental new supply: wells, interconnections
- Suez claim: Desal study alone cost the company appx ***$54 million… $82 million with interest***
- NY PSC: '*Ratepayers must foot most of the bill*'
  - Major 15-20 year surcharge/rate increase
- Rockland County files lawsuit
- Ongoing: Rockland and NGO regulatory and legal objections to desal surcharge, next steps

**Note: Vickers est. 4.4.-7.0 mgd cust/NRW savings*

Day Says No Way

"Without question, this proposed rate hike will unfairly burden residents and businesses in Rockland County. What's most troubling is that nearly half of the proposed increase will go toward recouping monies expended by SUEZ during its push for a Hudson River desalination plant in North Rockland.

"By allowing the desal process to go forward, the PSC is complicit in driving our water rates even higher. Rubber stamping the request under the auspices of 'There's nothing we can do' or 'It's the cost of doing business' is not satisfactory." — Rockland County Executive Ed Day



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