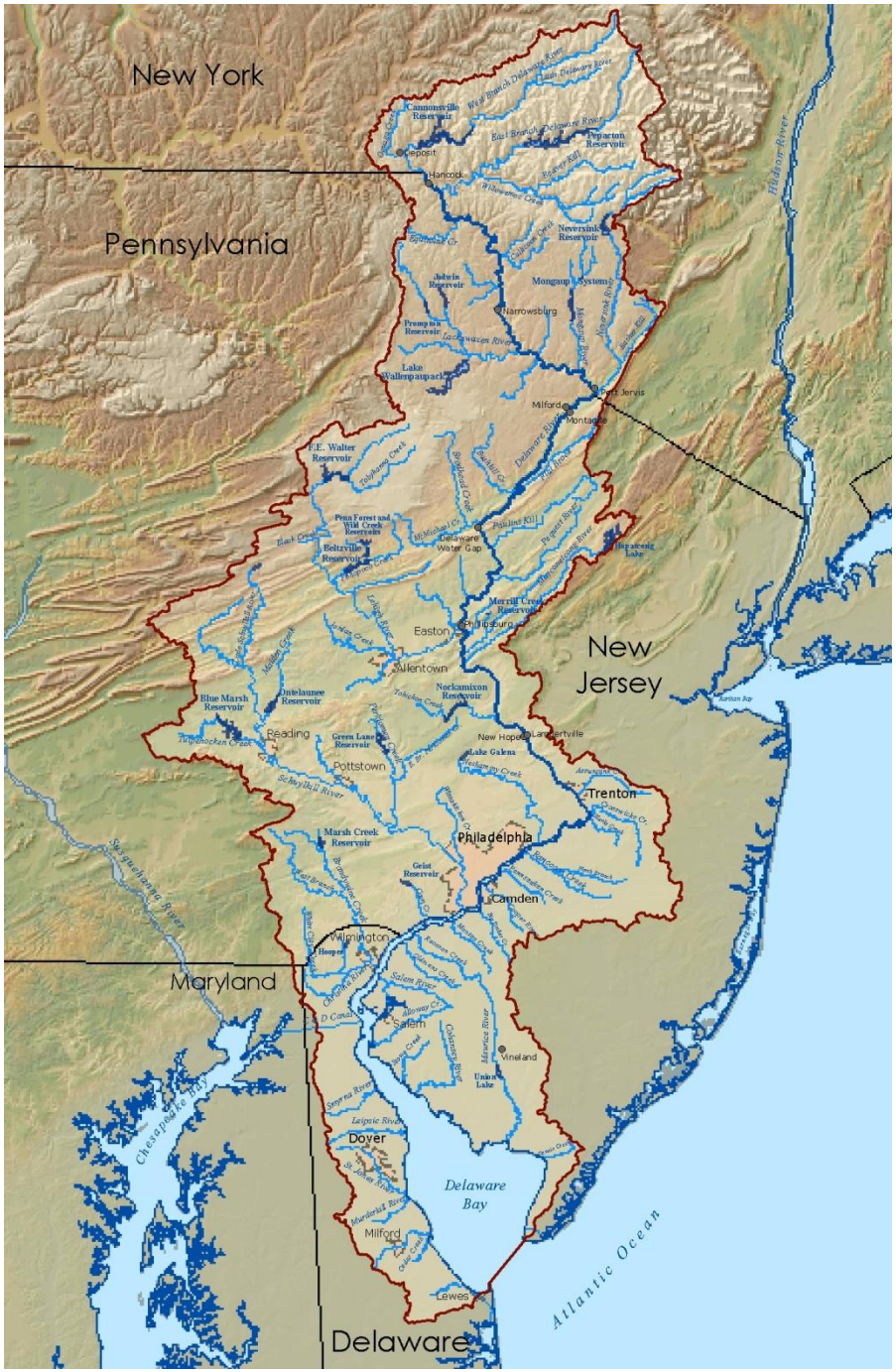


DRBC CY2012 Water Audit Program Summary

10/22/2013

DRBC Water Management Advisory Committee

David Sayers

Planning and IT Branch

Delaware River Basin Commission

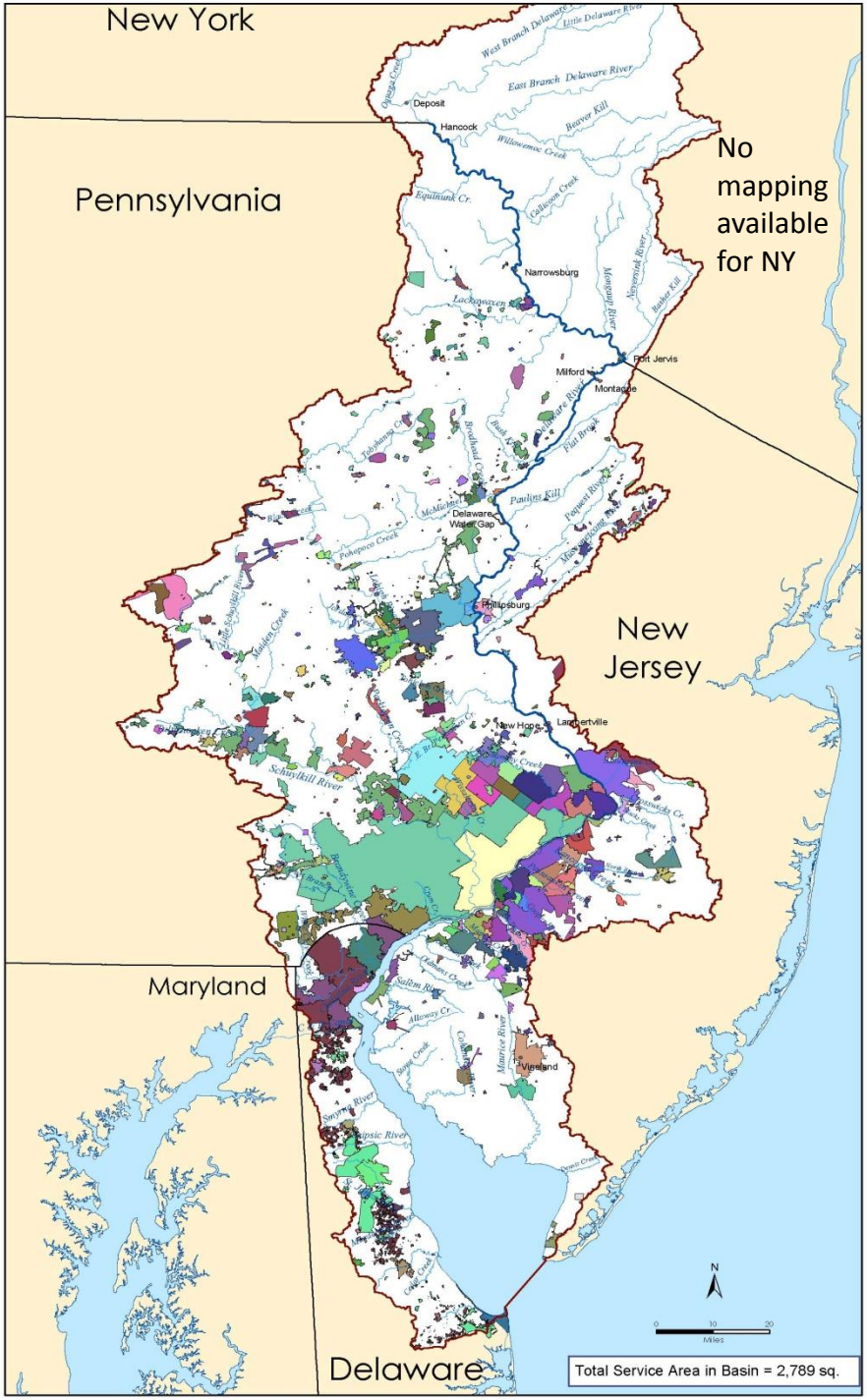
DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA

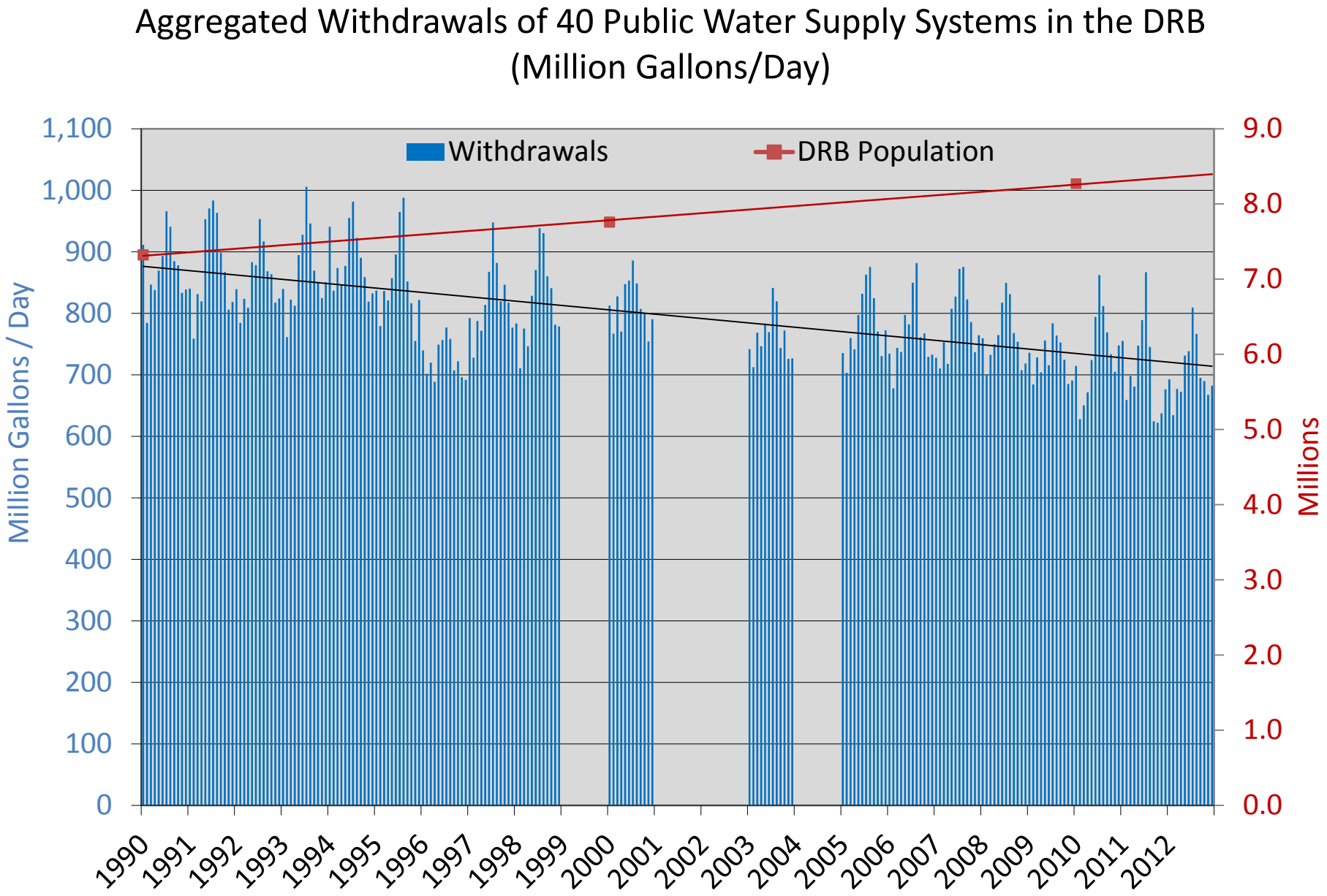
Water Service area in the Delaware River Basin

- Approx. 21% of Basin covered by service area
- 80% of basin residents (6.7 million customers)
- Total PWS withdrawals:

~865 MGD

- 2nd largest water use sector in the Basin
- Approx. 300 systems subject to Water Audit Requirement




Aggregated Withdrawals of 40 Public Water Supply Systems in the DRB
(Million Gallons/Day)
Withdrawals
DRB Population
Million Gallons / Day
Millions
1,100
1,000
900
800
700
600
500
400
300
200
100
0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012

DRBC Rule change

~~Unaccounted for Water~~

IWA/AWWA Water Audit Methodology ✓

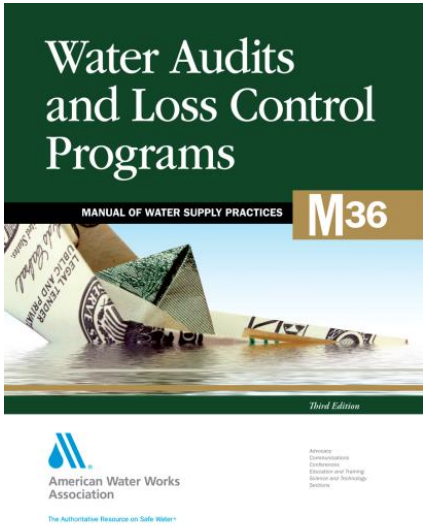
Delaware River Basin Commission
DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA

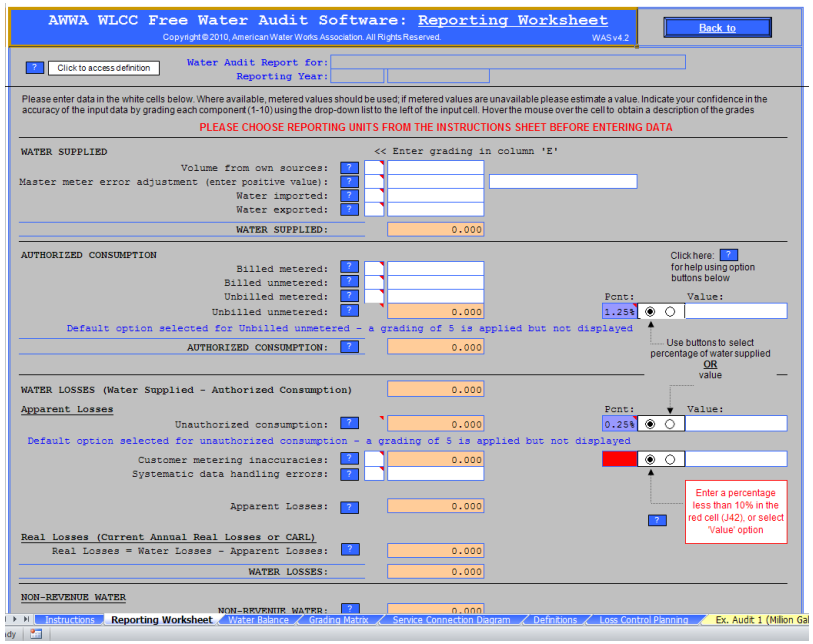
Delaware River Basin Commission
DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA

AWWA Resources

- Recent Water Audit manual published
- Free interactive audit software available
- Data grading capability assesses the validity of the input data
- Instructions, definitions provided in software
- DRBC member of AWWA Water Loss Control Committee

www.awwa.org





Implementation Summary

2006-9: Water Loss Accountability (WMAC)

2009: Resolution 2009-1 Resulting in **water code revisions**

2009-11: Outreach / Voluntary Implementation
DRBC workshop and webpages

2012: DRBC Database preparation

2013: 2012 Calendar year reports received

Initial evaluation of audit results

Delaware River Basin Commission
DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA

Audit Data Collection

- Team Effort!
- DRBC Database utilized to:
  - Identify regulated entities
  - Track docket requirements
  - Track contact details for outreach
  - Track receipt of audits
- Provided opportunity to clean-up database/dockets
- Electronic reporting required (AWWA audit format)
- Tools developed for audit data management
- Significant staff effort to track down outstanding audits and provide assistance on completing the audit

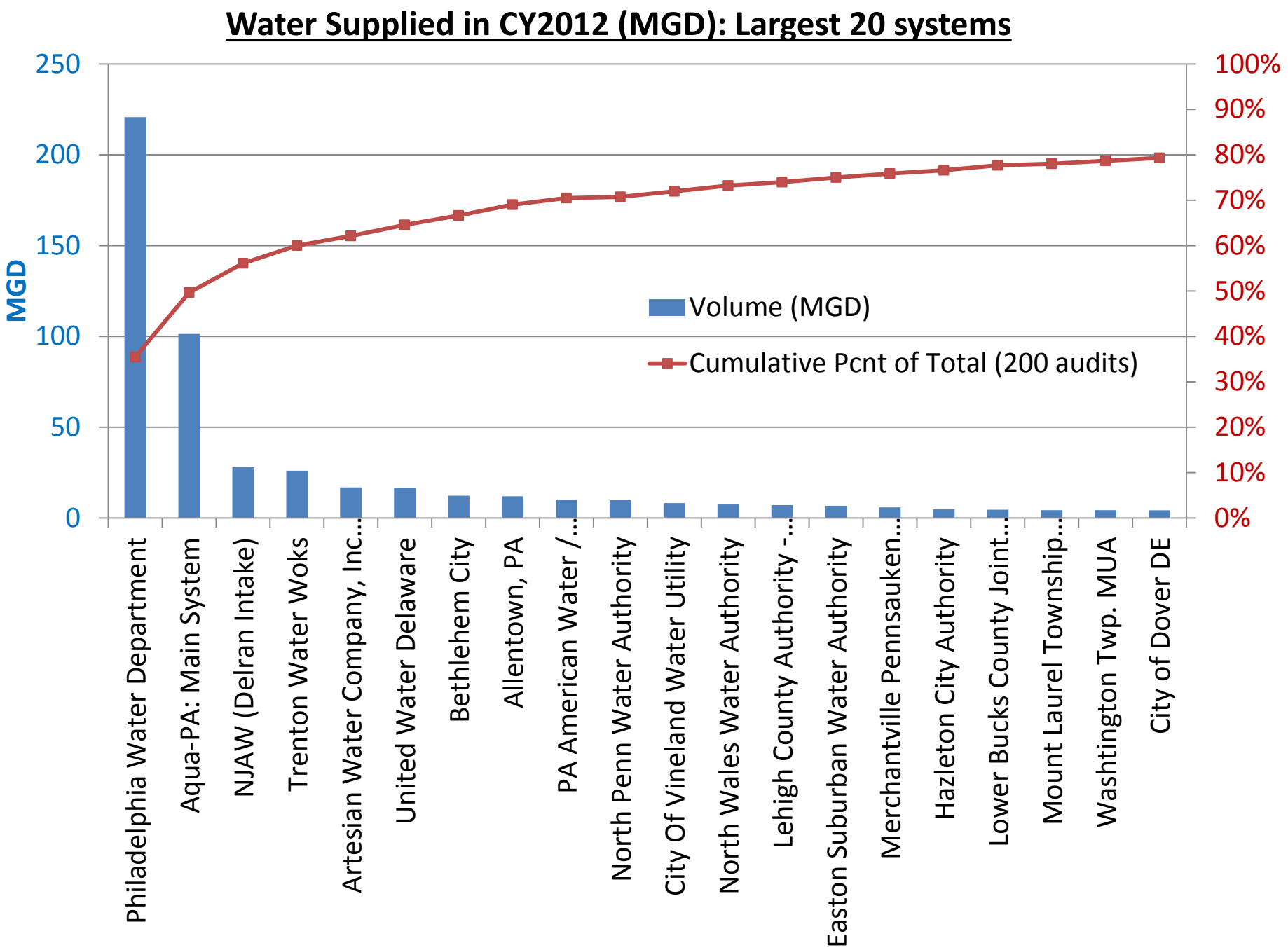
Delaware River Basin Commission
DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA

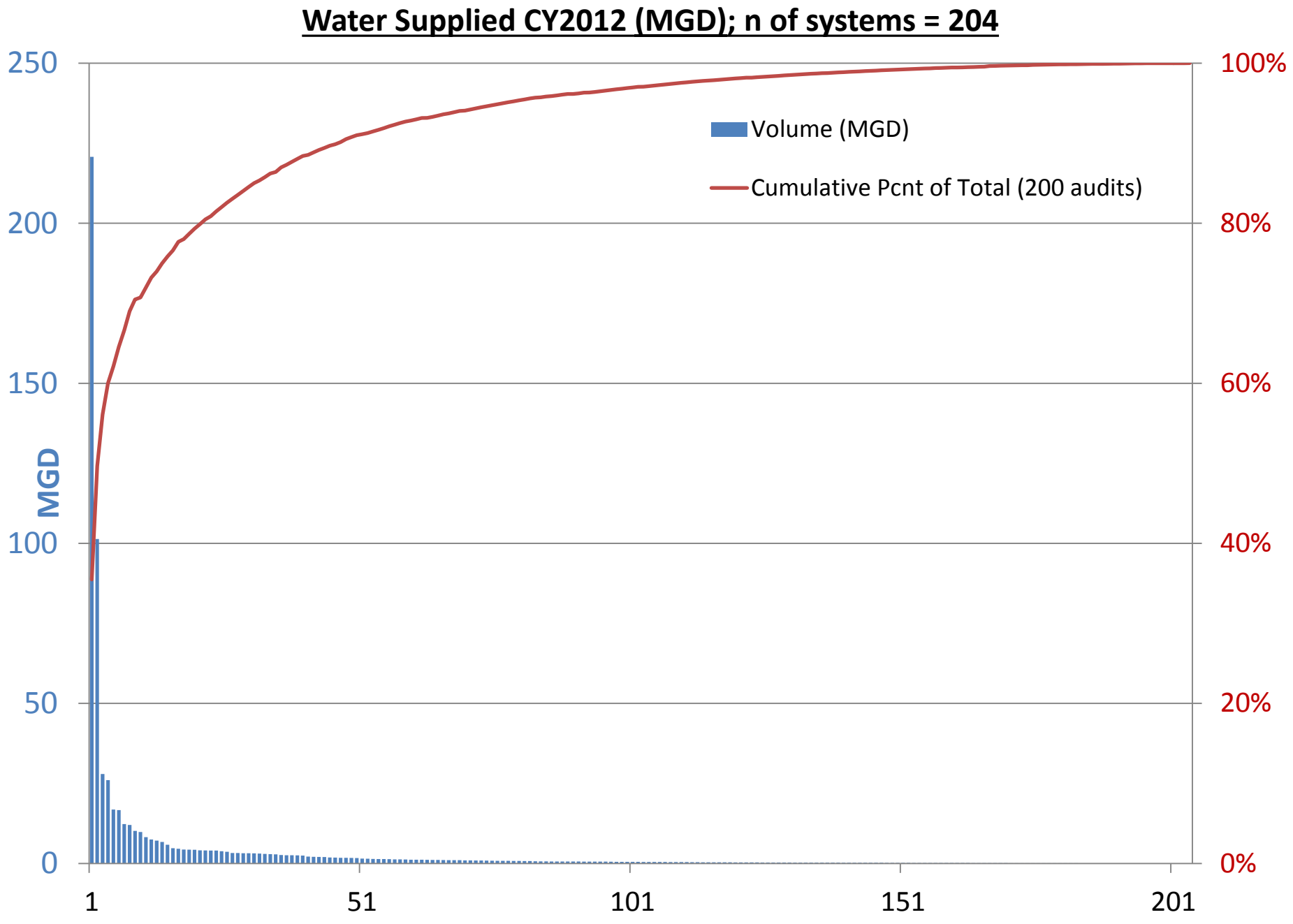
Water Audit Program Status: Oct 2013

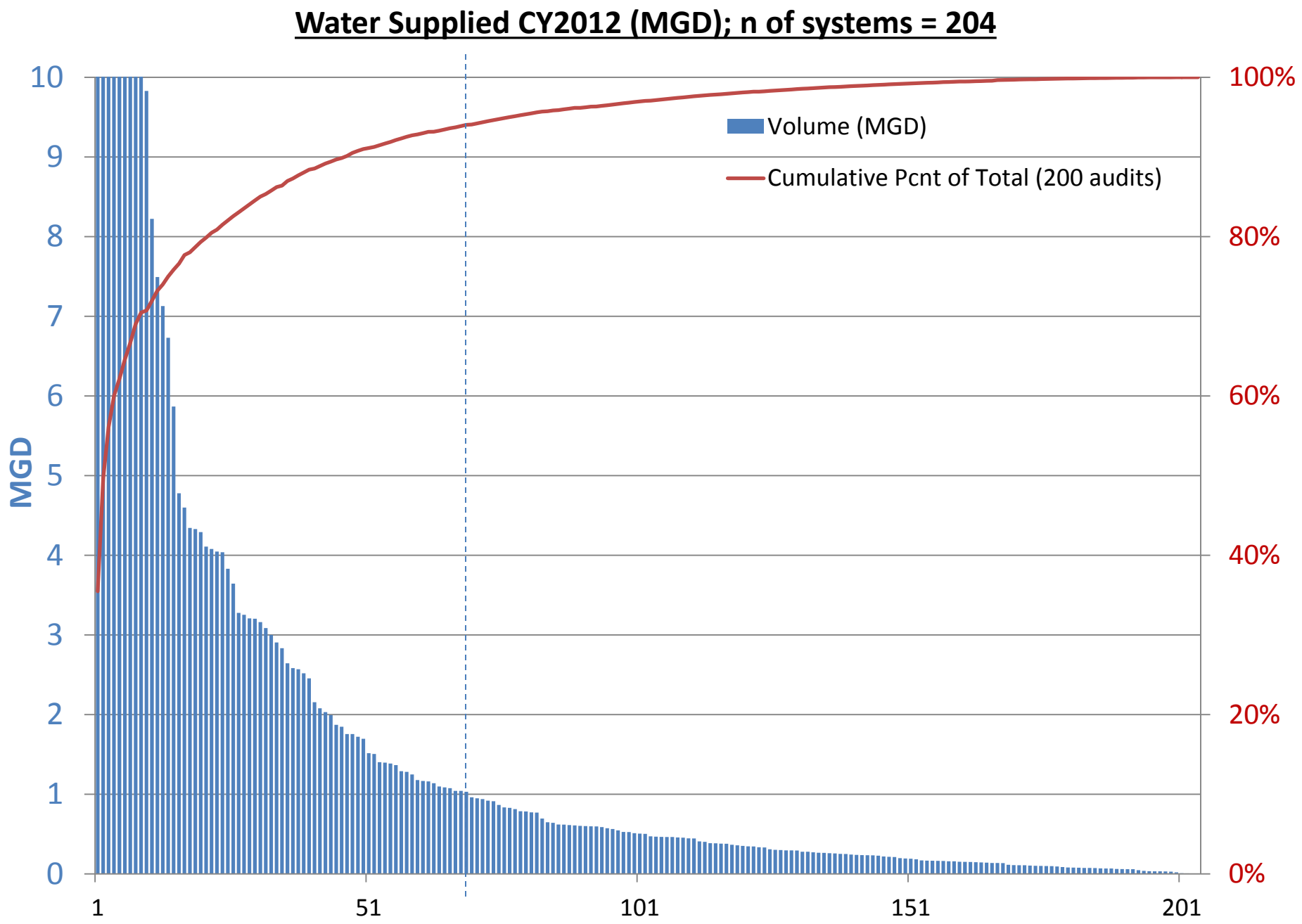
- Reporting deadline: March 31, 2013
- ~ 140 audits submitted by deadline
- Significant follow up required by staff
- ~300 water audits required from docket holders
- ~200 water audits received and suitable for analysis
- Audits received account for ~665MGD (77% of total PWS volume)

Delaware River Basin Commission
DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA

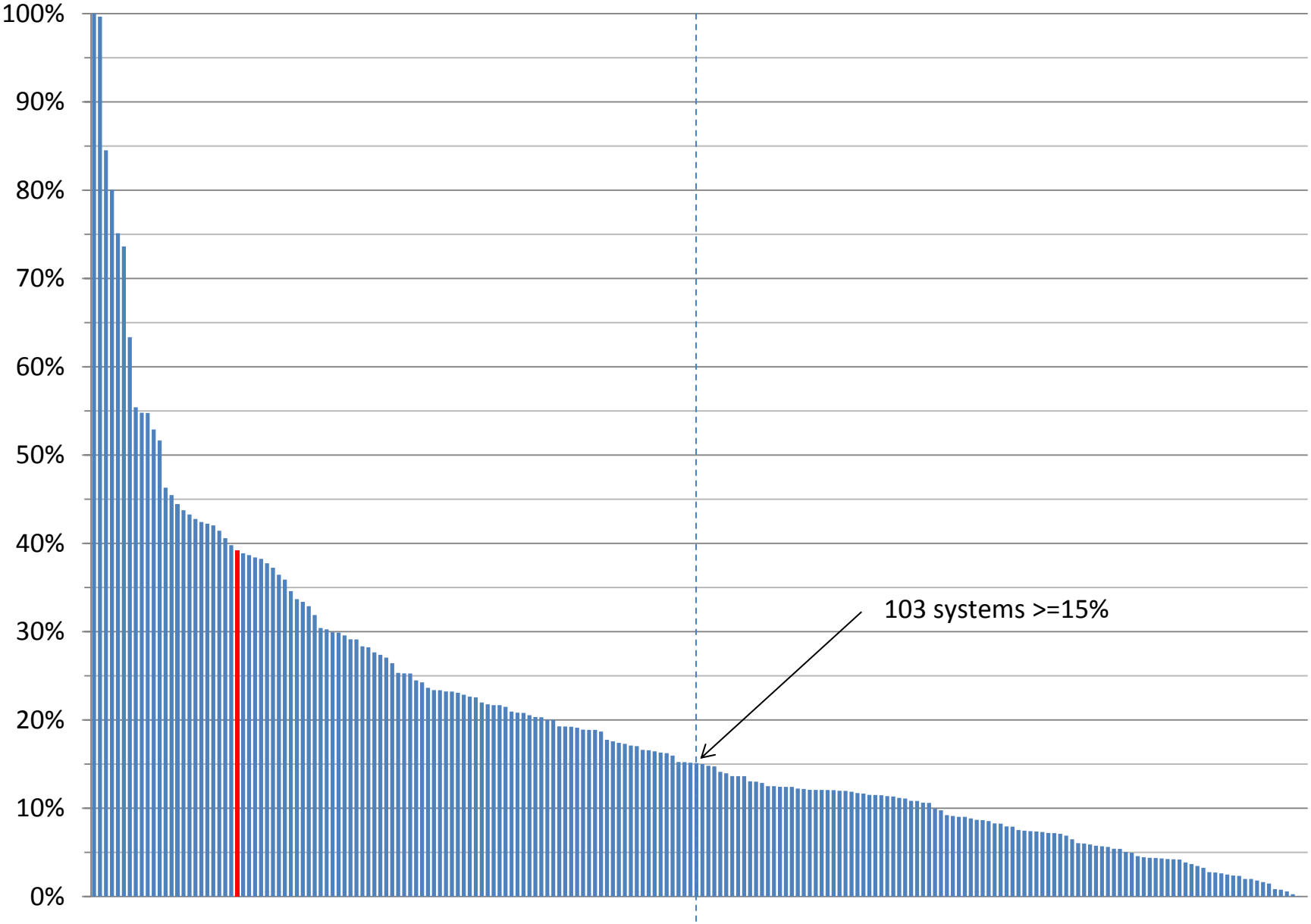
Water Audit Data Analysis: CY2012 Results...

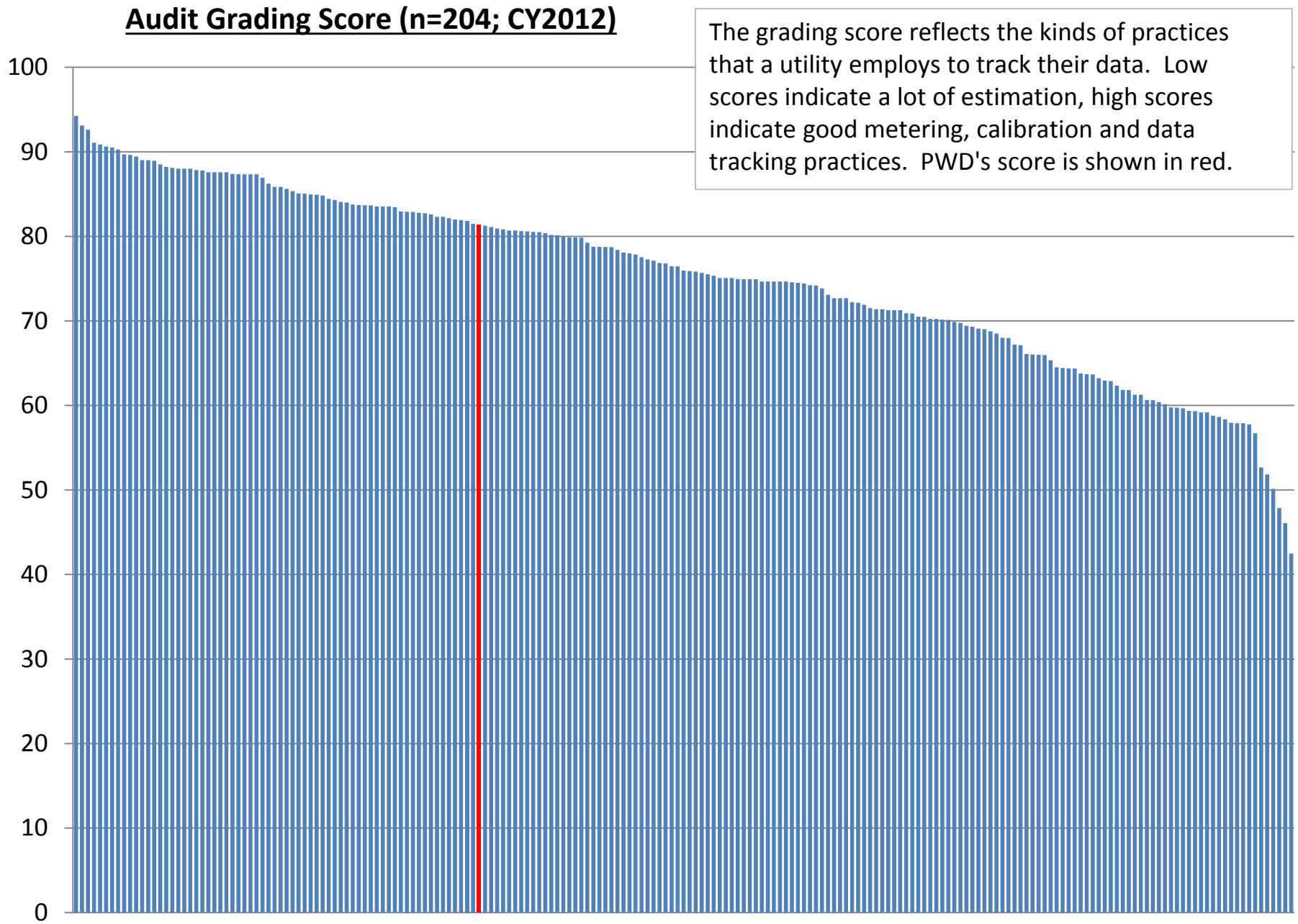

Water Supplied in CY2012 (MGD): Largest 20 systems
MGD
250
200
150
100
50
0
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Volume (MGD)
Cumulative Pcnt of Total (200 audits)
Philadelphia Water Department
Aqua-PA: Main System
NJAW (Delran Intake)
Trenton Water Woks
Artesian Water Company, Inc...
United Water Delaware
Bethlehem City
Allentown, PA
PA American Water /...
North Penn Water Authority
City Of Vineland Water Utility
North Wales Water Authority
Lehigh County Authority -...
Easton Suburban Water Authority
Merchantville Pennsauken...
Hazleton City Authority
Lower Bucks County Joint...
Mount Laurel Township...
Washtington Twp. MUA
City of Dover DE


Water Supplied CY2012 (MGD); n of systems = 204
250
200
150
100
50
0
MGD
100%
80%
60%
40%
20%
0%
1
51
101
151
201
Volume (MGD)
Cumulative Pcnt of Total (200 audits)

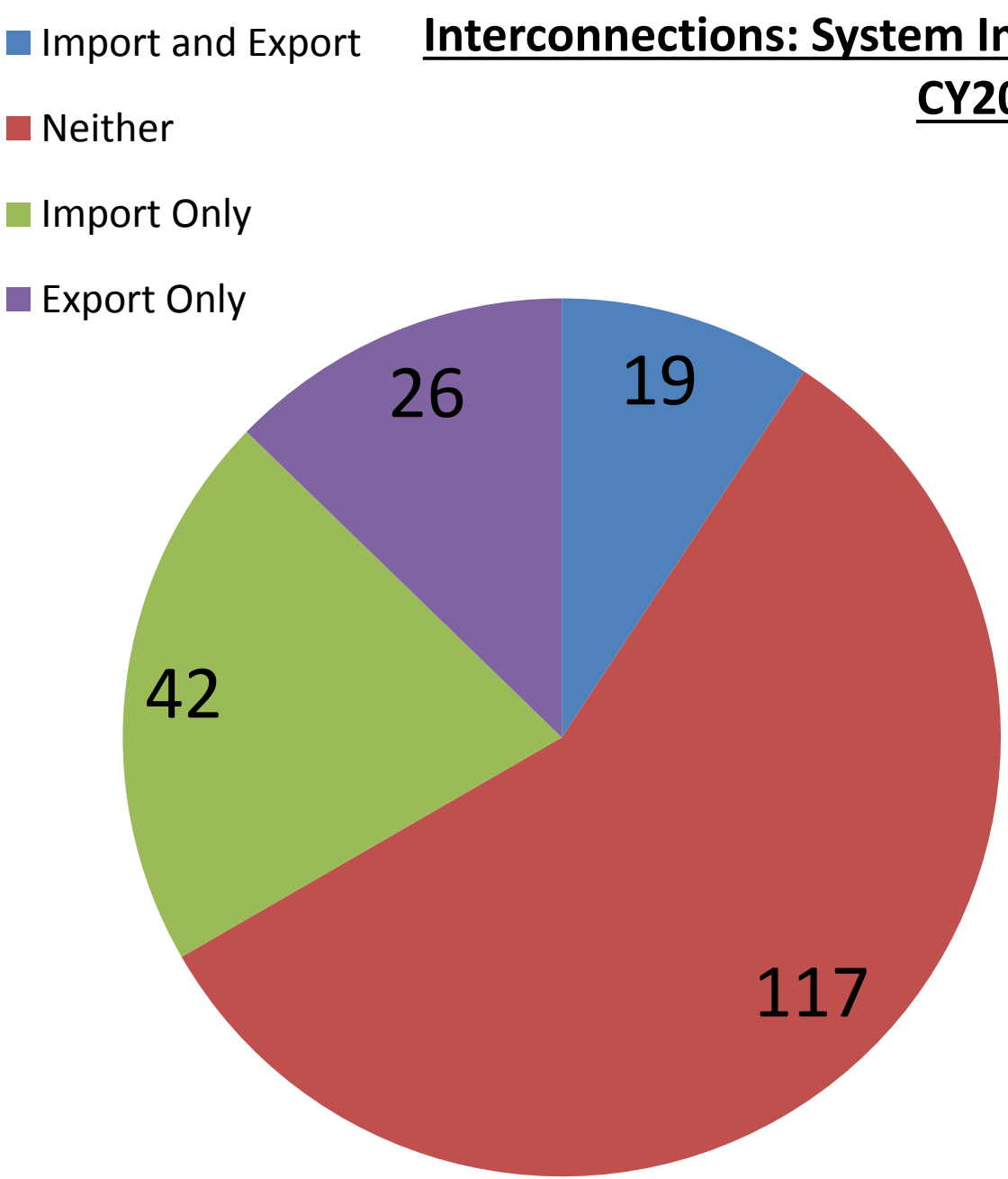

Water Supplied CY2012 (MGD); n of systems = 204
MGD
10
9
8
7
6
5
4
3
2
1
0
100%
80%
60%
40%
20%
0%
1
51
101
151
201
Volume (MGD)
Cumulative Pcnt of Total (200 audits)

Non-Revenue Water as % of Water Supplied (n=204; CY2012)



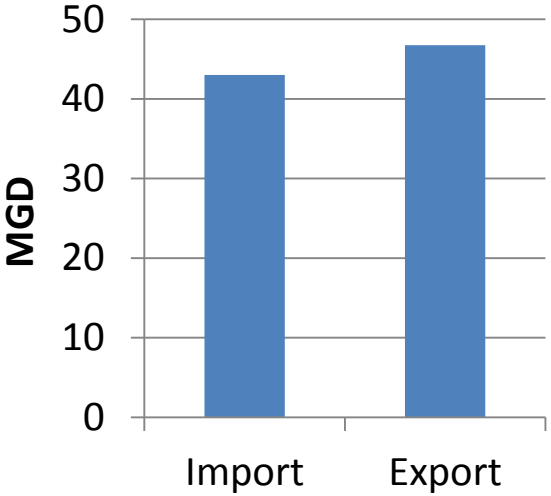

Audit Grading Score (n=204; CY2012)
The grading score reflects the kinds of practices that a utility employs to track their data. Low scores indicate a lot of estimation, high scores indicate good metering, calibration and data tracking practices. PWD's score is shown in red.
100
90
80
70
60
50
40
30
20
10
0

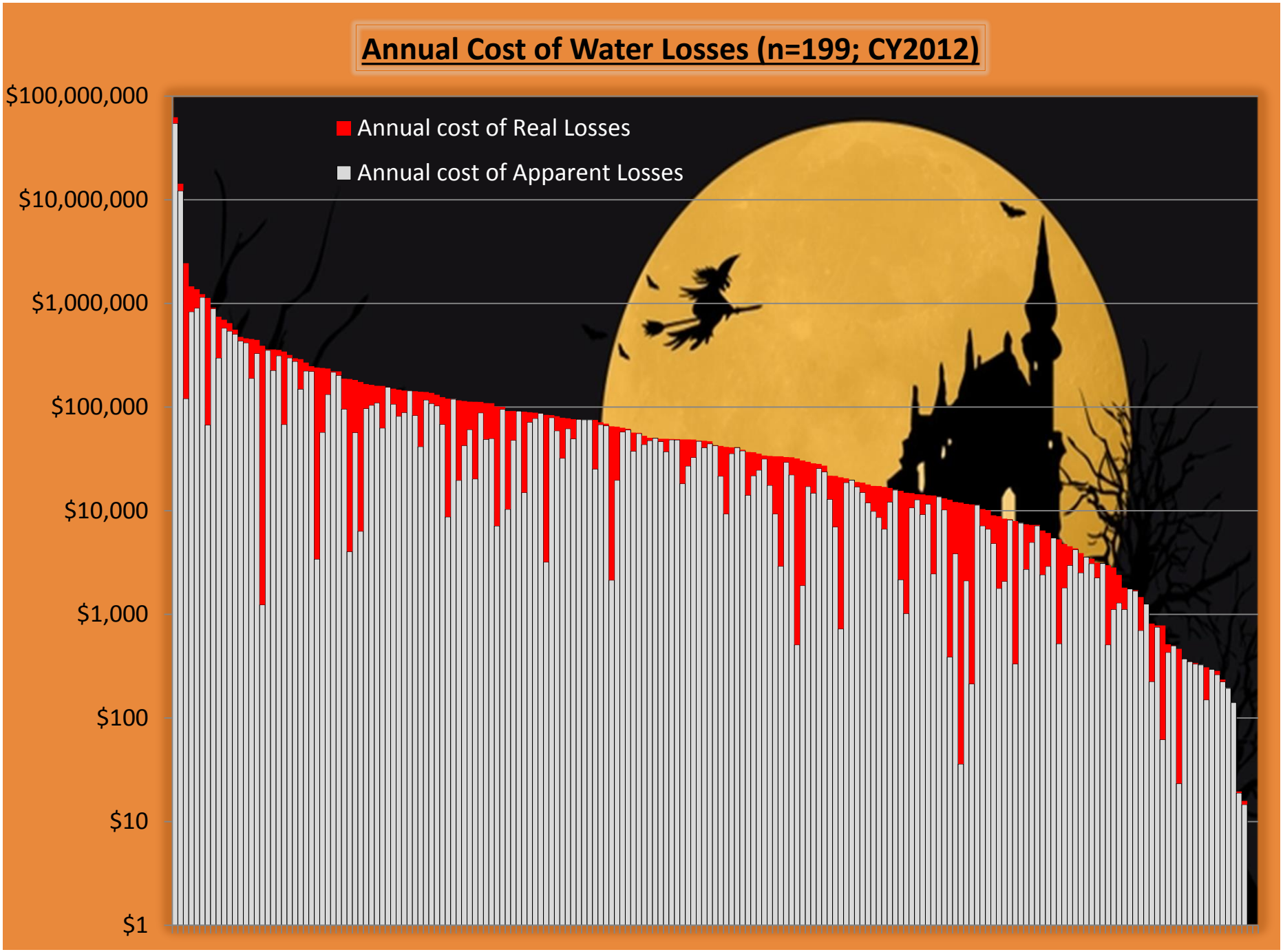
Interconnections: System Imports and Exports (n=204; CY2012)

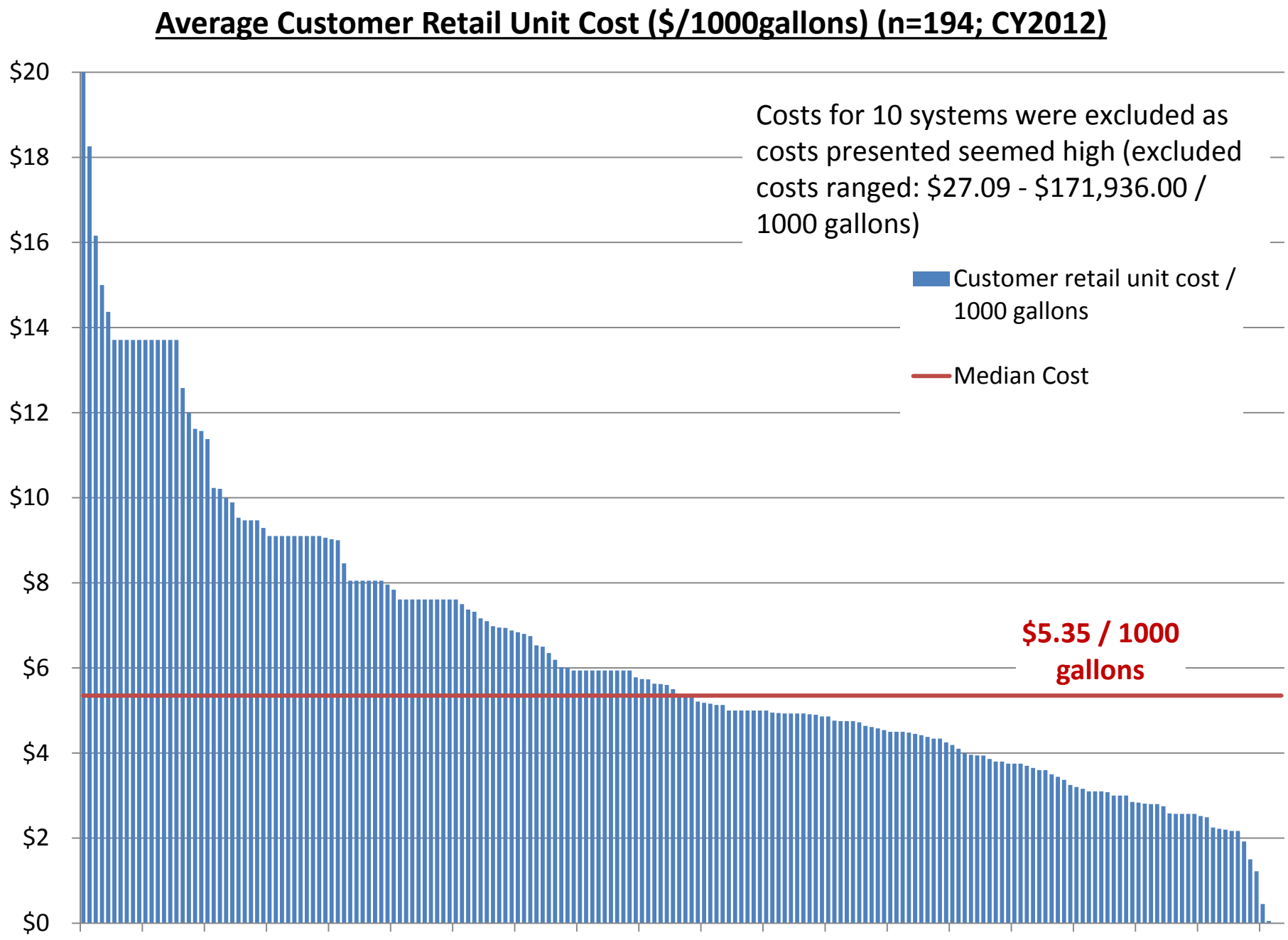


Pie chart shows a count of systems having, or not having, imports and exports (at the system level). This is NOT a basin boundary import / export analysis but indicates degree to which water moves between purveyors' systems (interconnections).

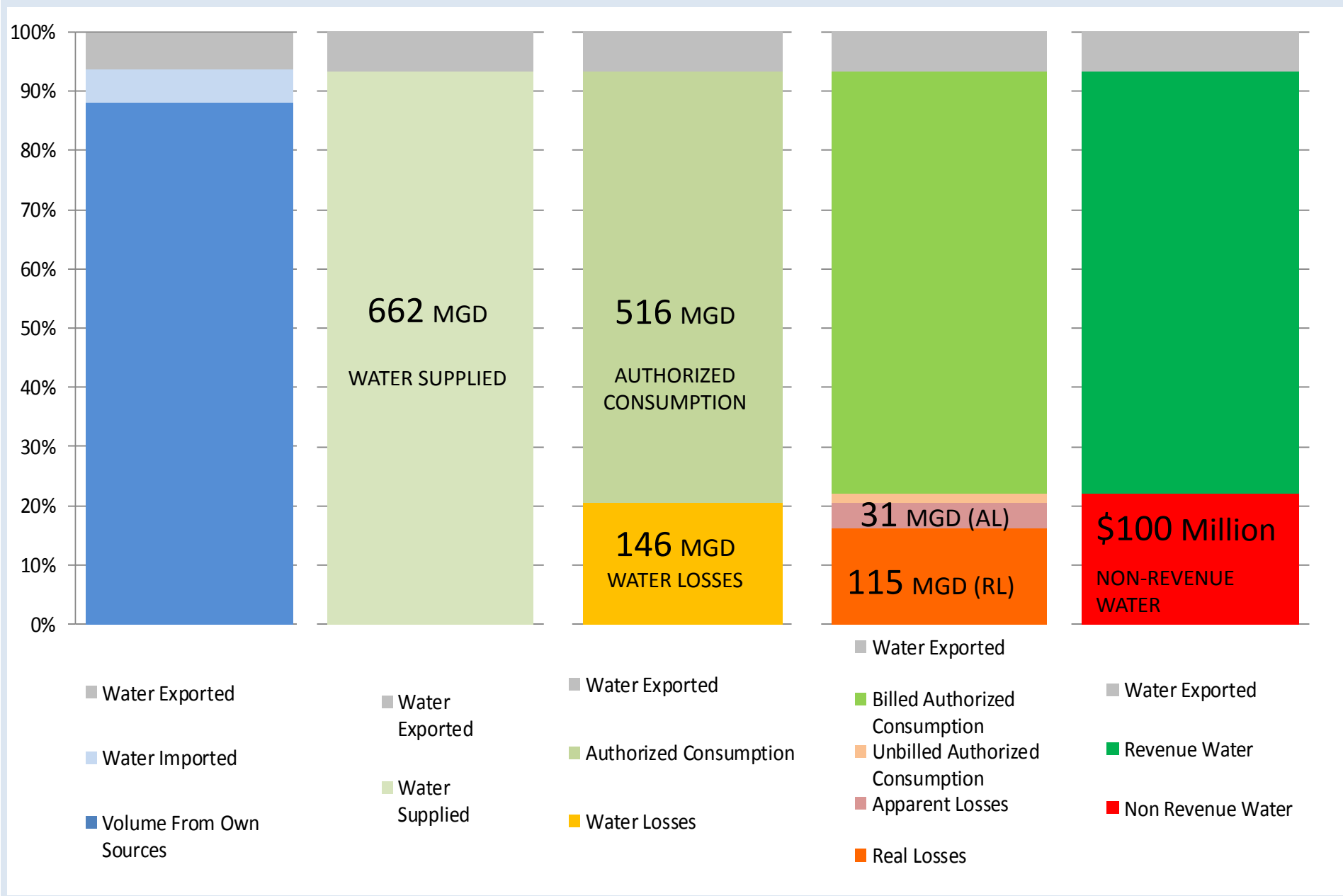
The bar chart shows the data by volume, aggregated for all systems




Annual Cost of Water Losses (n=199; CY2012)
Annual cost of Real Losses
Annual cost of Apparent Losses
$100,000,000
$10,000,000
$1,000,000
$100,000
$10,000
$1,000
$100
$10
$1


Average Customer Retail Unit Cost ($/1000gallons) (n=194; CY2012)
$20
$18
$16
$14
$12
$10
$8
$6
$4
$2
$0
Costs for 10 systems were excluded as costs presented seemed high (excluded costs ranged: $27.09 - $171,936.00 / 1000 gallons)
Customer retail unit cost / 1000 gallons
Median Cost
$5.35 / 1000 gallons

The CY2012 DRB Water Audit / Water Balance (*aggregate* of 204 audits)



Water Audits Year One: What did we achieve?

- Evolution not Revolution
- Docket database significantly cleaned up:

  - Expired dockets renewed

  - Better understanding of multi-system utilities
- Systems are performing the AWWA audit
- Docket holders recognize DRBC is looking at this issue
- One utility “found a Marina” (apparent loss)
- DRBC implemented a new program with limited resources

Delaware River Basin Commission
DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA

Next steps (short term)

- Conclude data collection for CY2012 reporting
- Prepare an article summarizing results/experience
- Data Validation / follow up for anomalies (how to prioritize?)
- Prepare for CY2013 reporting
- Provide additional guidance for common errors (enhance FAQs / You Tube?)
- Prioritize systems by size (as per EPA / PUC)?

Delaware River Basin Commission
DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA

Next steps (longer term)

- Continue annual program / build dataset
- Pursue metrics or best practice?
- WMAC to provide recommendations for cont'd outreach / regulatory follow up
- Funding??? / SRFs / State Partners
- Coordinate with other programs:
  - State Partners
  - PAPUC
  - Georgia model

Delaware River Basin Commission
DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA