

Delaware River Basin Commission

Presented to the DRBC Water Management Advisory Committee on February 23, 2017. Contents should not be published or re-posted in whole or in part without the permission of DRBC.

Water Utility Auditing in the Delaware River Basin

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Water Resource Planner

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Water Management Advisory Committee



Delaware River Basin Commission

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

Water Utility Auditing and Water Use Trends in the Delaware River Basin

Today's talk will cover...

- The DRBC water audit
 - Brief history
 - Program Results from CY2014

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DRBC Water Audit Program: What is it?

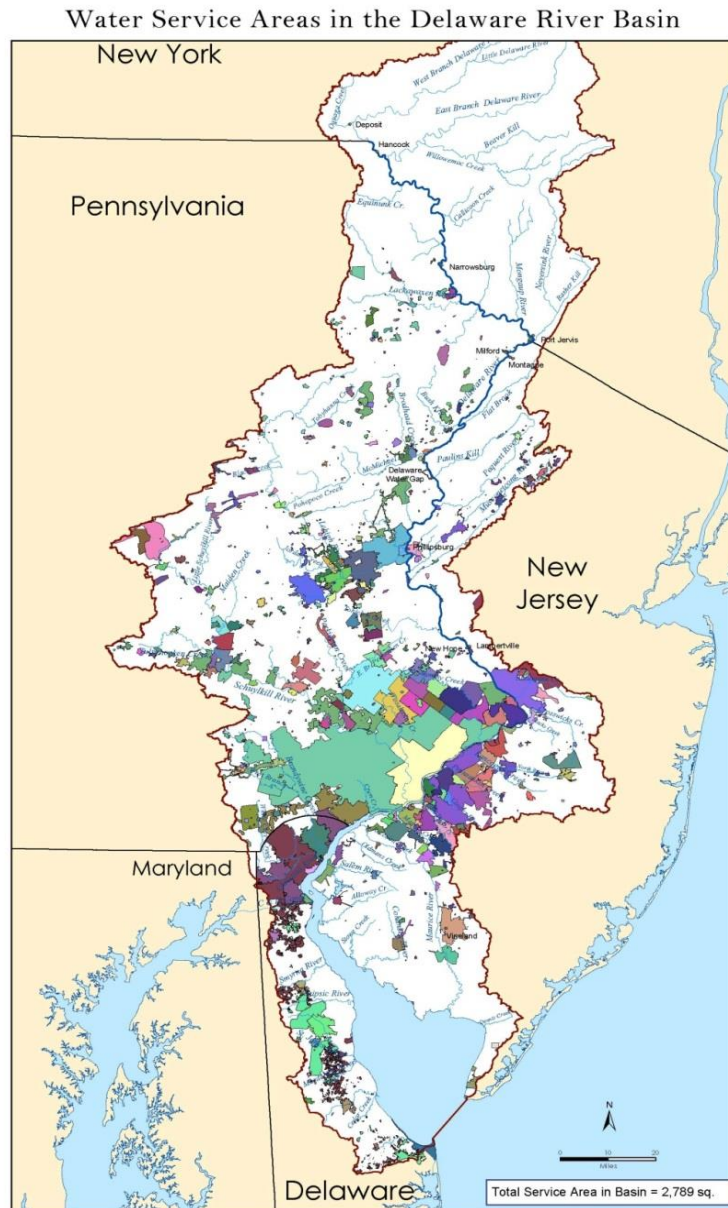
The purpose of DRBC's water audit program is to track how efficiently water is moved from its source to the customer (within a public water supply system) and to ensure that systems quantify and are accountable for water losses.

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Public Water Supply Service Area in the Delaware River Basin

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- Total PWS withdrawals:
~850 MGD
- 2nd largest water use sector in the Basin
- Approx. 21% of Basin covered by service area
- Serve 6.7 million customers (80% of basin residents)
- Approx. 306 systems subject to Water Audit Requirement

History of DRBC Water Conservation Regulations

- 1986:** Source & Service Metering
- 1987:** Leak Detection & Repair (UFW)
- 1988:** Conservation Plumbing Standards
- 1992:** Water Conservation Pricing
- 2006-9:** Water Loss Accountability (Committee)
- 2009-11:** “Water Audit” Rule/Outreach
- 2012:** First year for new water audit format
- 2013:** First water audit reports due



DRBC Rule Change

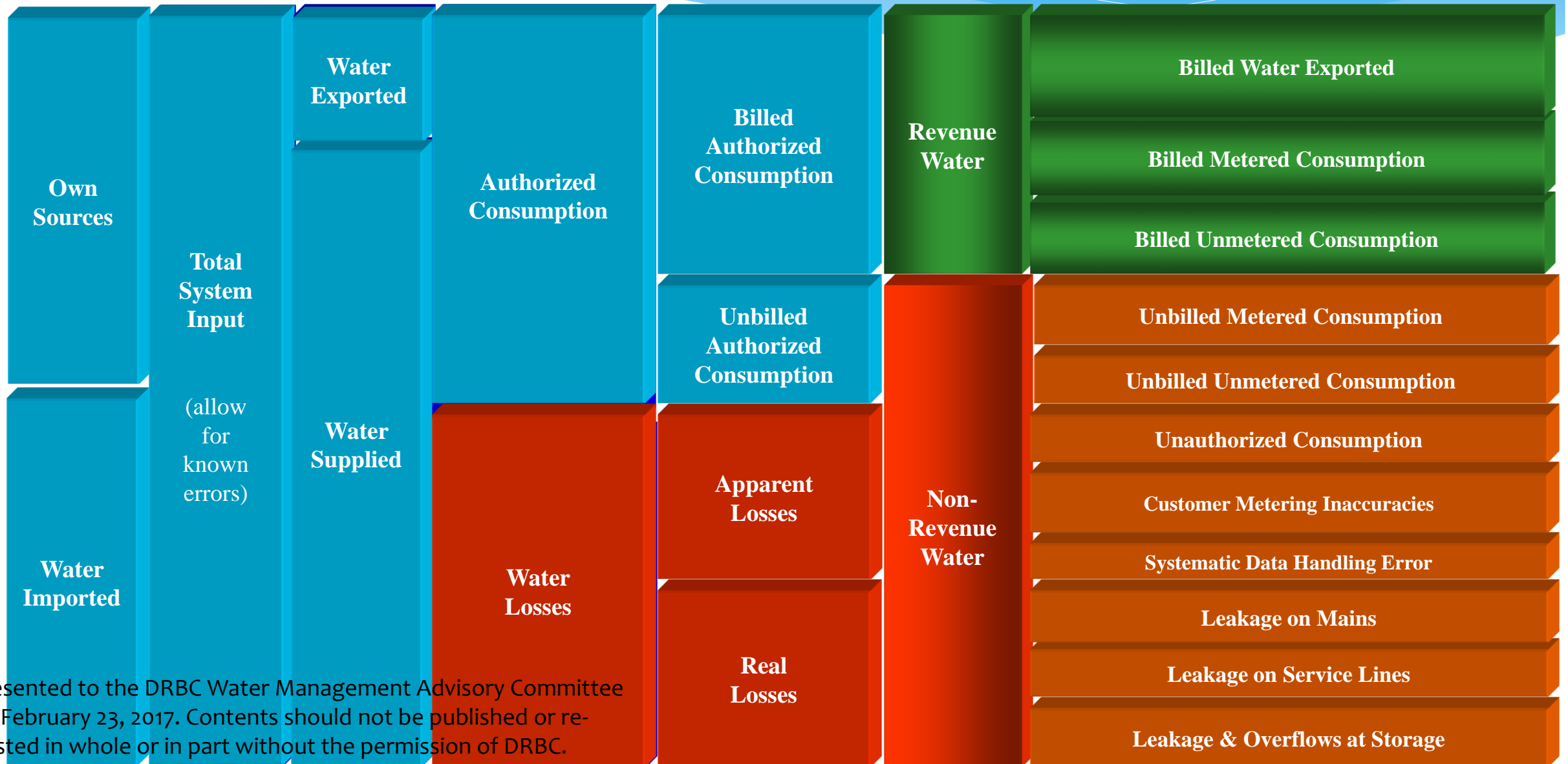
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~~Unaccounted for water (UFW)~~

IWA/AWWA Water Audit
Methodology



IWA/AWWA Water Audit Components



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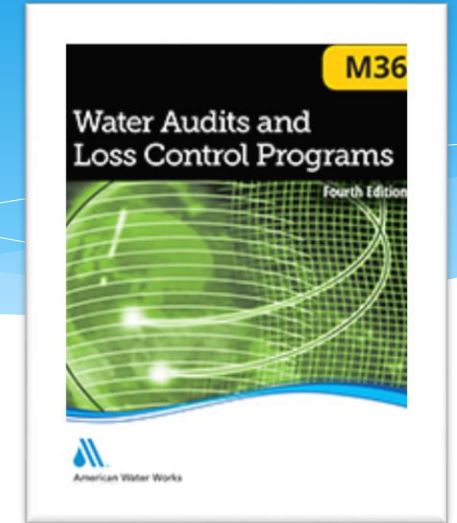
Benefits of the IWA/AWWA Water Audit Methodology

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- UFW:
 - Vague / inconsistent definitions / value
 - Negative UFW values reported!?
- AWWA Method:
 - **Best Practice** Approach
 - Standardized definitions / terminology
 - Meaningful indicators (ILI, gpd/conn)
 - Real losses vs apparent losses
- Better Indicators = better water management

AWWA Resources / Software

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- M36 Water Audit manual
- Free interactive audit software available
 - DRBC provided a key role in software design and development
- Data grading capability assesses the validity of the input data
- Instructions, definitions provided in software

AWWA Free Water Audit Software: Reporting Worksheet (WAS v5.0)

Water Audit Report for: **Philadelphia Water Department**
 Reporting Year: **2013** (1/2013 - 12/2013)

Please enter data in the white cells below. Where available, metered values should be used. If metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades.

All volumes to be entered as: MILLION GALLONS (US) PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

Category	Item	Grade	Value	Unit
WATER SUPPLIED	Volume from own sources	7	87,417.500	MG/Yr
	Water imported	n/a	0.000	MG/Yr
	Water exported	10	5,402.000	MG/Yr
	WATER SUPPLIED:		80,628.500	MG/Yr
AUTHORIZED CONSUMPTION	Billed metered	7	49,907.000	MG/Yr
	Billed unmetered	n/a	0.000	MG/Yr
	Unbilled metered	n/a	0.000	MG/Yr
	Unbilled unmetered	8	1,959.000	MG/Yr
	Unauthorized consumption		2,425.500	MG/Yr
	Unauthorized consumption volume entered is greater than the recommended default value			

WATER LOSSES (Water Supplied - Authorized Consumption): **28,762.500** MG/Yr

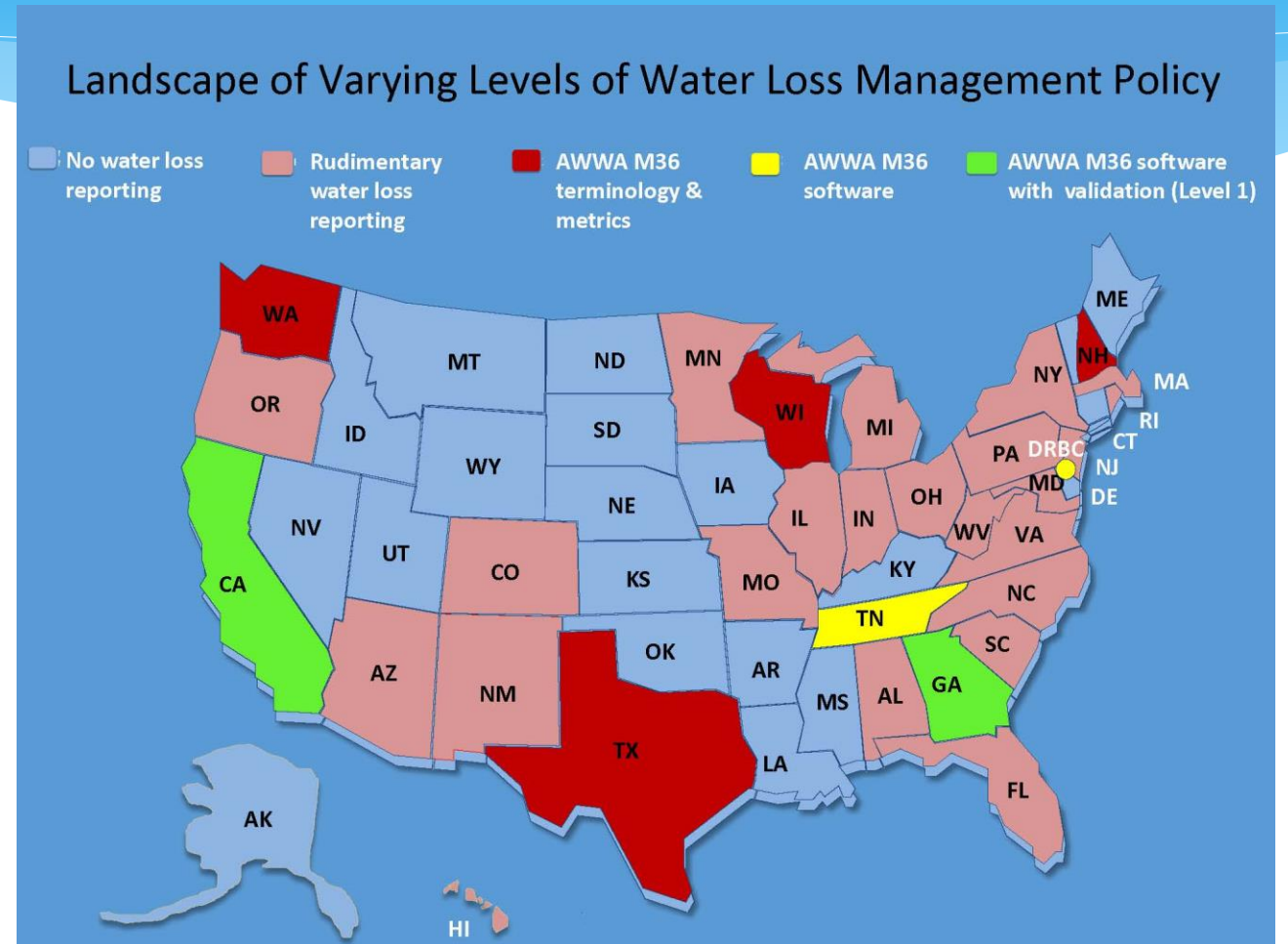
Unauthorized consumption: **2,425.500** MG/Yr

Unauthorized consumption volume entered is greater than the recommended default value

Water Loss – National Perspective

- * DRBC, California, Georgia and Tennessee all require annual water audits using AWWA M36 software
- * California and Georgia also conduct validation

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Water Audit Data Analysis: CY2014 Results for the Delaware River Basin...

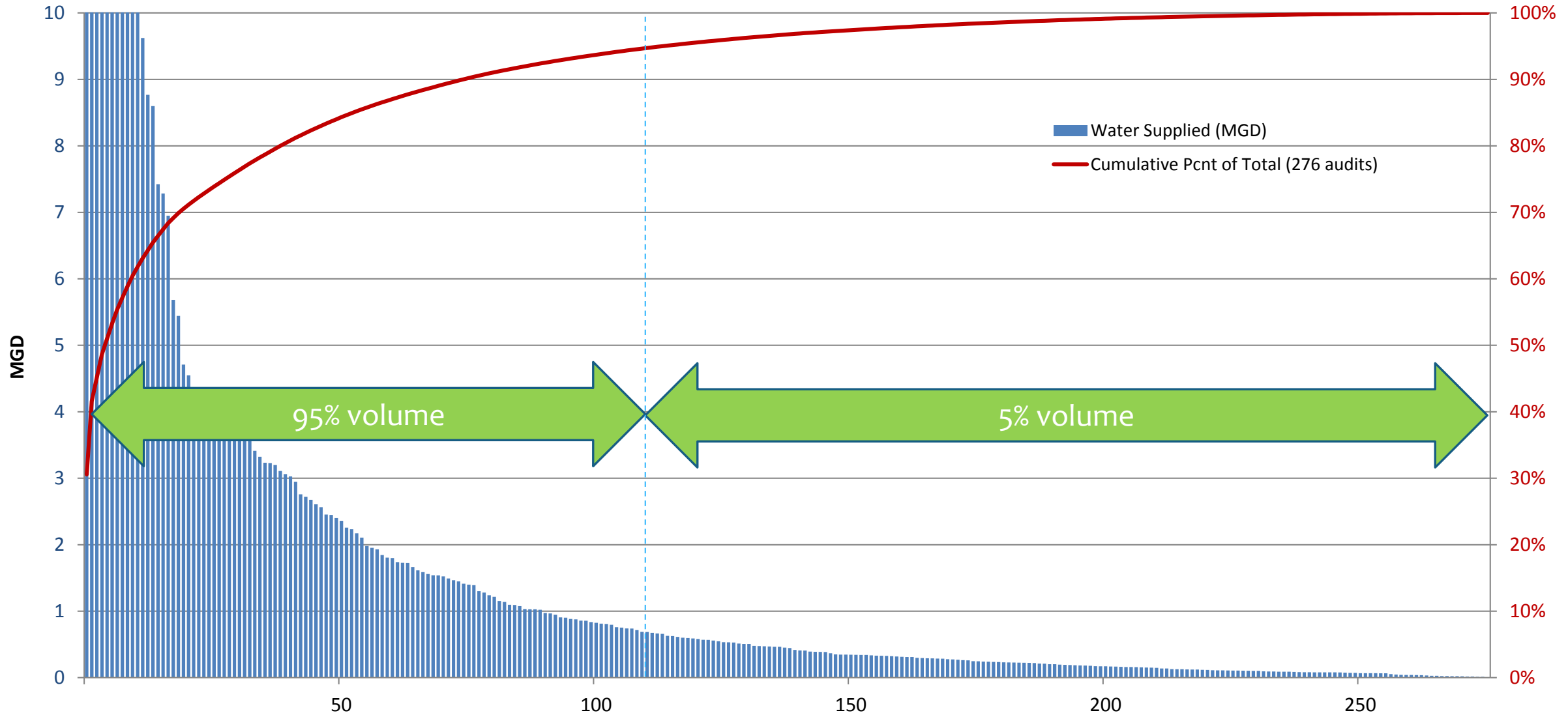


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Water Supplied in CY2014 – DRB (MGD)

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Water Audit Data Validity Score

CY2014 - DRB

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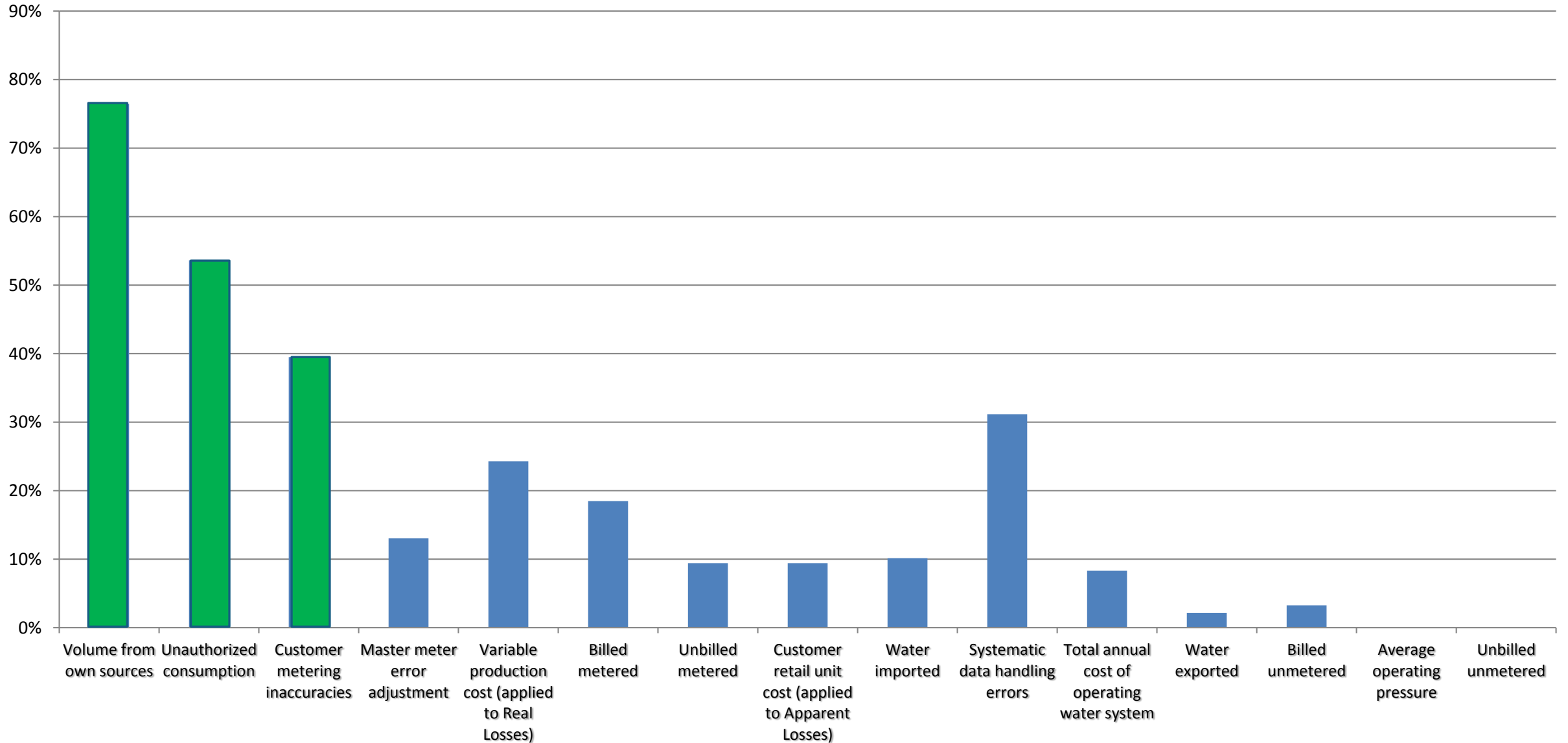




Priority Areas to Improve Grading Score

CY2014 - DRB

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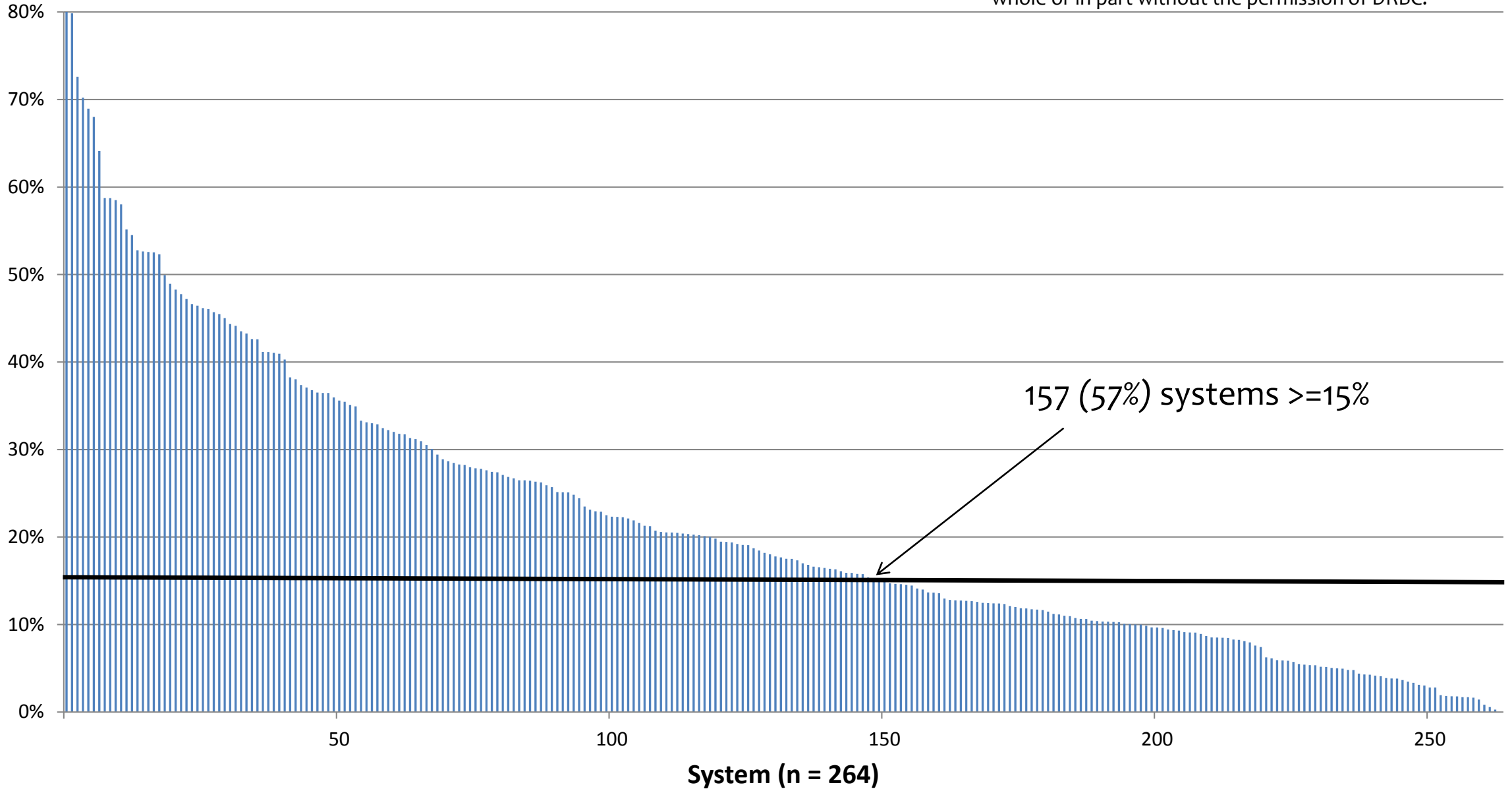




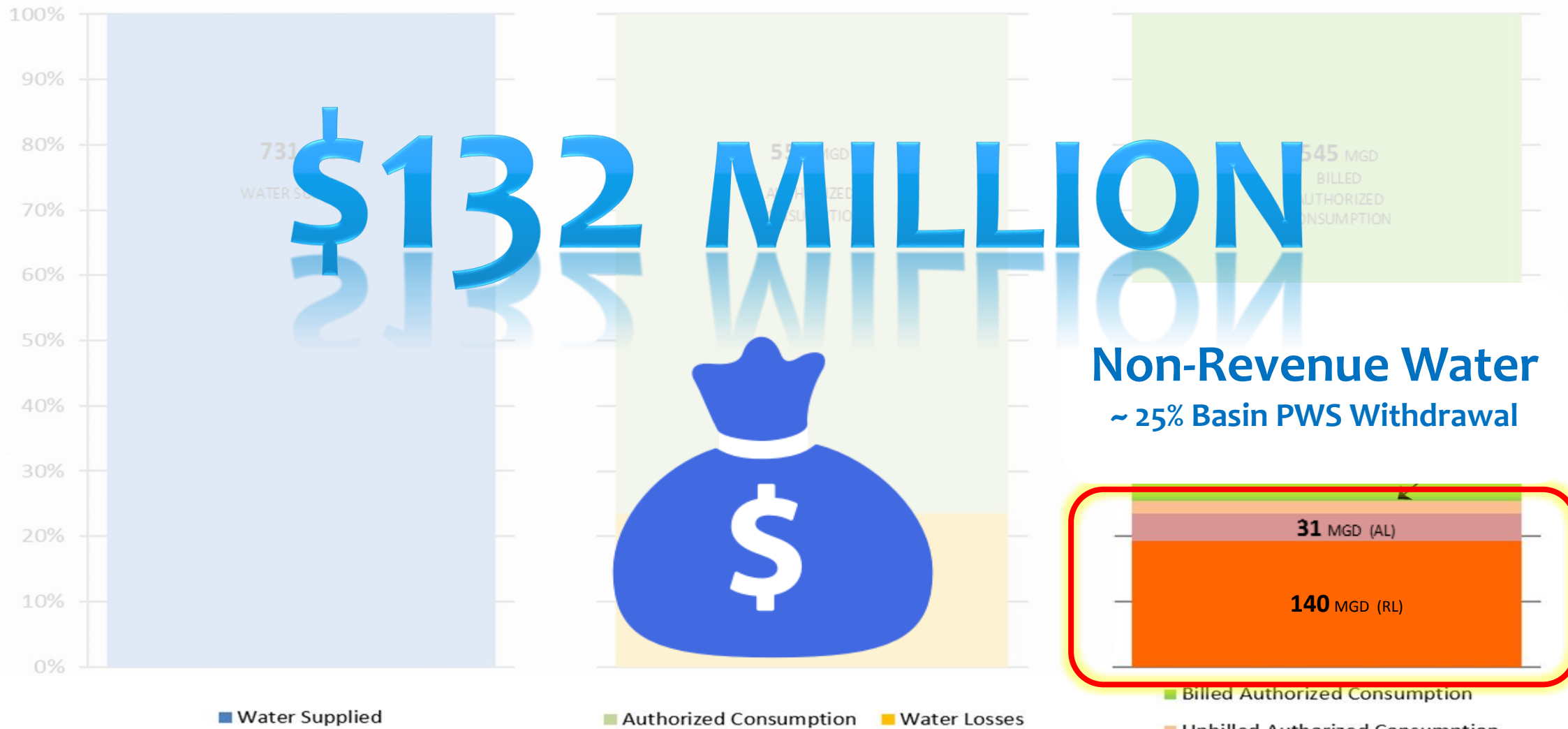
Non-Revenue Water as % of Water Supplied

CY2014 - DRB

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DRBC water audit program summary (CY2014)



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Conclusions / Next Steps

- Water Audit:
 - Raising awareness of best practice
 - Continuing trends in conservation
 - Asset Management Tool
 - DRBC leadership in Water Auditing: Training / Support / Validation Program (funding?)

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Thank You!



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