



Celebrating 40 Years

Water Distribution System Investment Charges: A Retrospective

Kathryn J. Kline, Senior Associate Researcher
National Regulatory Research Institute

**NRRI Colloquium
NARUC Summer Policy Summit
San Diego, CA – July 15, 2017**



Overview

- DSIC Explained
- History of the DSIC
- Expected life of distribution system material
- Pros and Cons
- Customer Protections
- Overview of DSIC states and citations
- DSIC for customer-side lead service line replacement?
- Alternative options
- Further reading

What is DSIC

- Distribution System Investment Charges allow for non-revenue producing investments to be funded through modest and interim rate increases which are separate from formal rate case decisions
- Enables investments to be funded and made on an ongoing basis with regulatory oversight, but without prolonged wait for contested rate proceedings
- Over 17 states allow for some form of DSIC
- DSIC can be created to support investment of water, wastewater, and natural gas



History of DSIC

- First implemented in Pennsylvania in 1996 as the result of multi-stakeholder collaboration
- Prior to the DSIC, one Pennsylvania water company estimated it would take over 900 years to make all of the necessary infrastructure replacements at its current rate
- First adopters included: Pennsylvania, Indiana, New York, Connecticut, Illinois
- States continue to adopt the practice



Pipe Lifetime (approx.) by Material

Pipe Material	Claimed Lifetime (in years)
Cast Iron	120
Concrete	100
Polyvinyl chloride (PVC)	100
Metal Pipe (CPM)	30-80
Vitrified Clay	100
High Density Polyethylene (DPE)	70+

Adapted base on information from: City of Olympia, WA. Appendix J: Pipe Evaluation and Replacement Options and Costs-- Storm water System Inventory.

- Cast iron pipes from the 1890s can last 120 years, while newer pipes installed after WWII have an average life of 75 years
- Used and useful life of pipes can vary based on factors such as:
 - Soil condition,
 - Materials used,
 - Pipe installation practices, and
 - Character of the water flowing through pipes



Eligible for DSIC

- Replacement of existing plant including:
 - Chemical feed systems
 - Chemical feed filters
 - Filters
 - Pumps
 - Motors
 - Sludge-handling equipment
 - Plant generators
 - Meters,
 - Service lines
 - Hydrants
 - Mains
 - Valves
 - Main extensions that eliminate dead ends (to resolve documented water supply problems presenting significant health or safety issues to existing customers), and
 - Main cleaning or relining
 - Inflow and infiltration elimination



Impacts

- Companies have stated that DSIC charges have reduced the lifetime system replacement from 400 years down to 100 years
- Kentucky American Water says that DSIC programs have increased the number of water main replacement and rehabilitation projects from 4 miles per year pre-DSIC to 23 miles per year with DSIC (2014)



Advantages

- Enables utilities to accelerate infrastructure remediation
- Enables utilities to recover infrastructure remediation costs on a quarterly basis rather than waiting until the next rate case
- Makes projects more affordable for both utilities and ratepayers
- Enhanced quality of service
- Reduction of water loss through leaks
- Avoidance of rate shock
- Decreases frequency of general rate cases
- Improves fire protection through flow & reliability improvements



Triple win

Customers

- Reduced rate shock
- Reliable service, reduced service interruptions
- Improved fire protection services

Regulators

- DSIC allows for better coordination with municipalities for road paving (30-50% of replacement costs go to repaving roads)
- Enhance conservation efforts

IOUs

- timely cost recovery= credit rating maintenance
- encourage better long-term planning
- Main replacement



Criticism

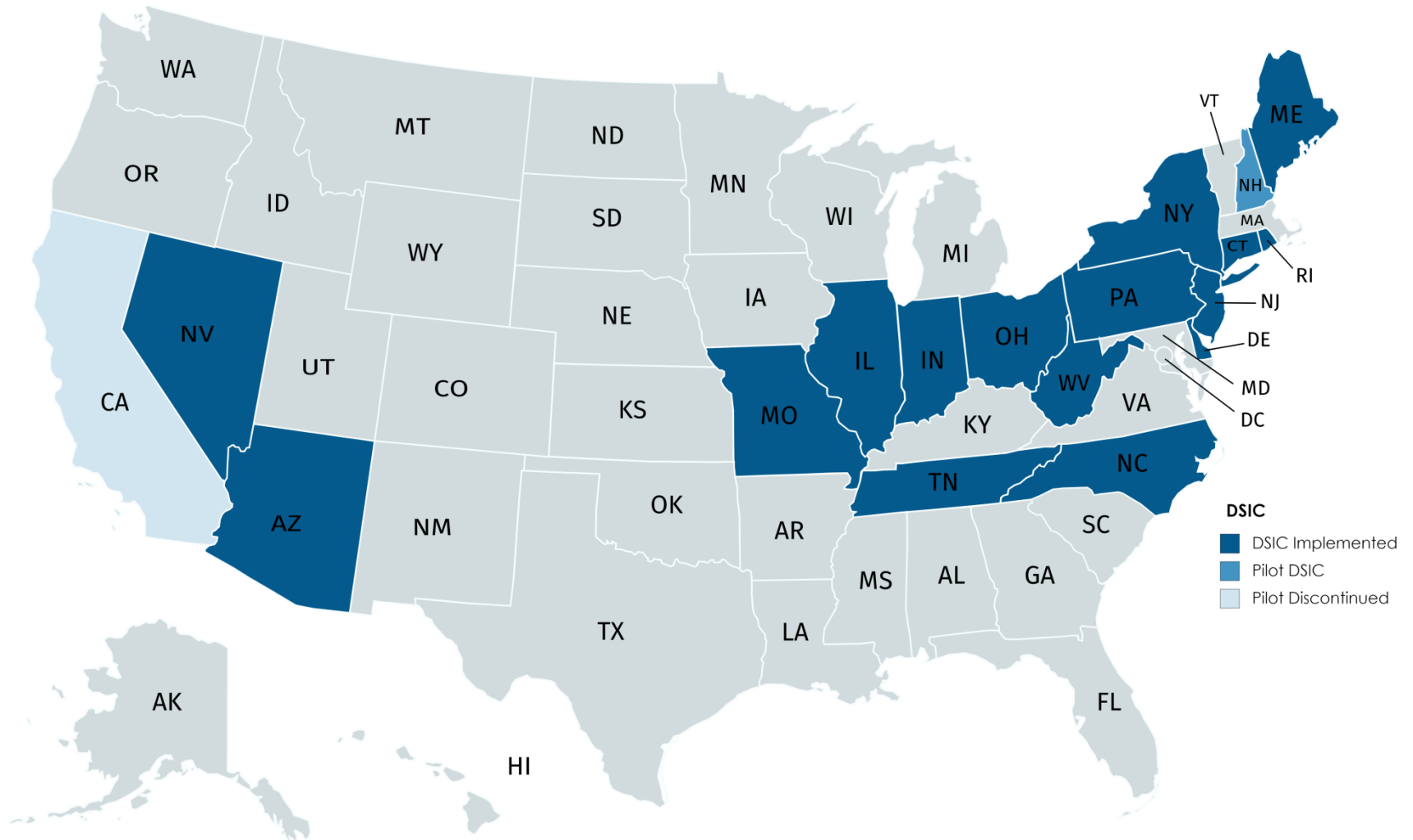
- Reduces utility incentives to control costs
- Shifts utility business risks away from investors and onto customers
- Increases costs to consumers
- Circumvents detailed review that rate base receive in full rate proceeding



Checks and Balances

- Placing limits on eligible plant
- Annual audits to ensure appropriateness of expenditures
- Annual true-ups
- Surcharge reset to zero in next rate case ,
- Surcharges reset if utility exceeds allowed rate of return,
- Implementation of DSIC subject to hearing
- Cap on the Investment Charge as a percentage of the base rates billed to customers

Overview of States Using Water DSIC





Customer Protection

	AZ	ME	NC	NH	NY	PA	NV	OH	WV
Caps	●	●	●	●	●	●	●	●	●
Annual reconciliation			●		●	●			●
Audits	●		●	●	●	●			
Customer notice	●		●	●		●	●	●	
Reset to zero if return exceeds limit		●		●		●		●	
Project change notice				●					
Adjustments to under- or over -collection in next filing	●				●		●		



State DSIC Caps

AZ	Annual avg. increase of 2%, ultimate cap of 6% of system revenue	ME	No greater than an x% increase in revenue re'q greater than current RR S:7.5% M:5% L: 3%	NY	2.5%
CA*	--	MO	10%	OH	4.25% (w) or 3% (ww)
CT	10%	NC	5%	PA	5%
DE	5%	NH*	Cum. Increase of 7.5% between rate cases, or 5% in any 12-month period	RI	--
IL	Annual avg. increase of 2.5%, ultimate cap of an increase of no greater than 3.5% in any year	NJ	5%	TN	--
IN	2.1%	NV	10.2% ?	WV	3.75%

* Indicates pilot program

NJ: 44 NJR 1-723(a), Mo. Rev. Stat. 393.1000, CT <http://blog.nawc.org/?p=3242>, DE Title 26, Subchapter III, Ch. 1, Title 26, Section 314, IN <http://www.ai.org/oucc/2730.htm>, ME: 407c675, NY: <http://bit.ly/2tGEvZx>, PA: Docket no. M-2012-2293611, OH: <http://codes.ohio.gov/orc/4909.172>, NV: <https://www.leg.state.nv.us/register/2014Register/RO78-14A.pdf>



Citations

State	Citation	Year Enacted	Description
AZ	Decision 73938(AZ Water Co.)	2011	System Improvement Benefits Mechanism (SIB)
CA*		2008	Infrastructure Investment Surcharge Mechanism (IISM) — pilot, no longer active
CT	(Section 16-262v and w of CGS	2007	Water Infrastructure and Conservation Adjustment (WICA)
DE	Title 26, Subchapter III, Ch. 1, Title 26, Section 314	2001	Distribution System Improvement Charge (DSIC)
IL	Section 9-220.2 IL Statutes	2001	Qualifying Infrastructure Plant Surcharge (QIPS)
IN	IN AD. Code 170 IAC 6-1.1-1	2000	Distribution System Improvement Charge (DSIC)
ME	407c675	2013	Infrastructure Surcharge and Capital Reserve Accounts for Water Utilities
MO	Mo. Rev. Stat. 393.1000	2003	System Infrastructure Charge (SIC)



Citations (con't)

State	Citation	Year Enacted	Description
NC	Rule 7-39	2013	Water System Improvement charge mechanism
NH*	Order No. 25,019	2013	Water Infrastructure and Conservation Adjustment (WICA) — pilot basis for Aquarion Water
NJ	44 NJR 1-723(a)	2012	Distribution System Improvement Charge (DSIC)
NV	NAC 704.63425	2014	System Improvement Rate (SIR)
NY	Commission Order in Case 11-W-0200	2001	Long Term Main Renewal Project (LTMRP) / System Improvement Charge (SIC)
OH	ORC § 4909.172	2003	Infrastructure Improvement Surcharge (IIS)
PA	Sect. 1307(g) PUC	1997	Distribution System Improvement Charge (DSIC)
RI			
TN			
WV	Order No. 16-0550-P-DSIC	2017	Distribution System Investment Charge



Lead line replacement with DSIC?

- PA American Water is seeking permission from the PUC to replace customer's lead service lines, using DSIC funding
- Research suggests that partial replacement actually increases the risk of lead contamination
- Company estimates it would cost customers 11 cents each month
- Would allow PAWC to allocate \$6 million annually to replace both the company and customer portion of the service line
- The company estimates that private service line replacement would cost \$3,500/house
- Plans to replace 1,800 annually based on customer request



Going forward, other approaches?

- Other riders and trackers
- Construction Work in Progress
- Decoupling or revenue stabilization
 - 5 states allow use for water,
 - at least 24 allow for electricity and gas (Bishop, 55)
- Formula Rates
- Earnings sharing
- Performance based rate making
- Future test years
- Multi-year rates



Further Reading

- AARP. (2012). Increasing Use of Surcharges on Consumer Utility Bills. Retrieved from http://www.aarp.org/content/dam/aarp/aarp_foundation/2012-06/increasing-use-of-surcharges-on-consumer-utility-bills-aarp.pdf
- Atkinson, William. (2014). DSIC Offers a Triple Win for Water Infrastructure. *Water Efficiency*, 9 (3), pp. 42-46. retrieved from <http://digital.waterefficiency.net/publication/?i=203640&p=43>
- Florida Public Service Commission. (2001). Distribution System Improvement Charges for the Florida Water and Wastewater Industry. Retrieved from <http://www.psc.state.fl.us/Files/PDF/Publications/Reports/Waterandwastewater/dsic4ww.pdf>
- Bishop, Heidi, Bente Villadsen, & Joe Wharton. (2013). Alternative Regulation and Ratemaking Approaches for Water Companies: Supporting the Capital Investment Needs of 21st Century. National Association of Water Companies. Retrieved from http://www.nawc.org/uploads/documents-and-publications/documents/NAWC_Brattle_AltReg_Ratemaking_Approaches_102013.pdf
- O'Connell, Jon. (2017). PAWC Wants to Replace Old Lead Lines. The Times Tribune. Retrieved from <http://www.pressreader.com/usa/the-times-tribune/20170524/281505046162914>