

Sustainable Utilities; Cost Saving Alternative Approaches

VRA Conference

April 5, 2019, 9:10-10:00



AQUASM

Hartmanconsultant.com

Gerald C. Hartman, PE, BCEE, ASA

Meet Aqua



Clifton L. Parker, IV, PE

- Director, Corp. Development
- Professional engineer (27 years)
- Licensed Water and Sewer Operator
- Managed maintenance >200 utilities
- Completed 27 utility transactions (91 water and sewer systems)
- BS & MS in Civil Engineering from ODU, and Master's of Engineering Management

Aqua America - Perspective

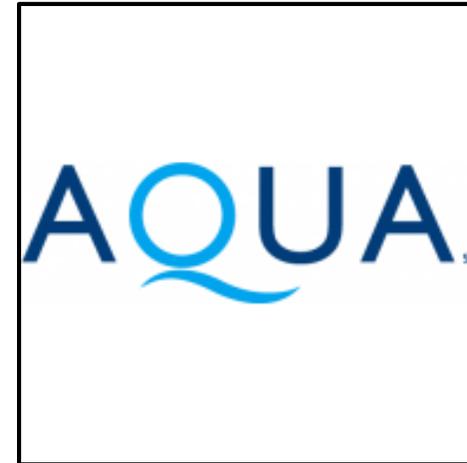
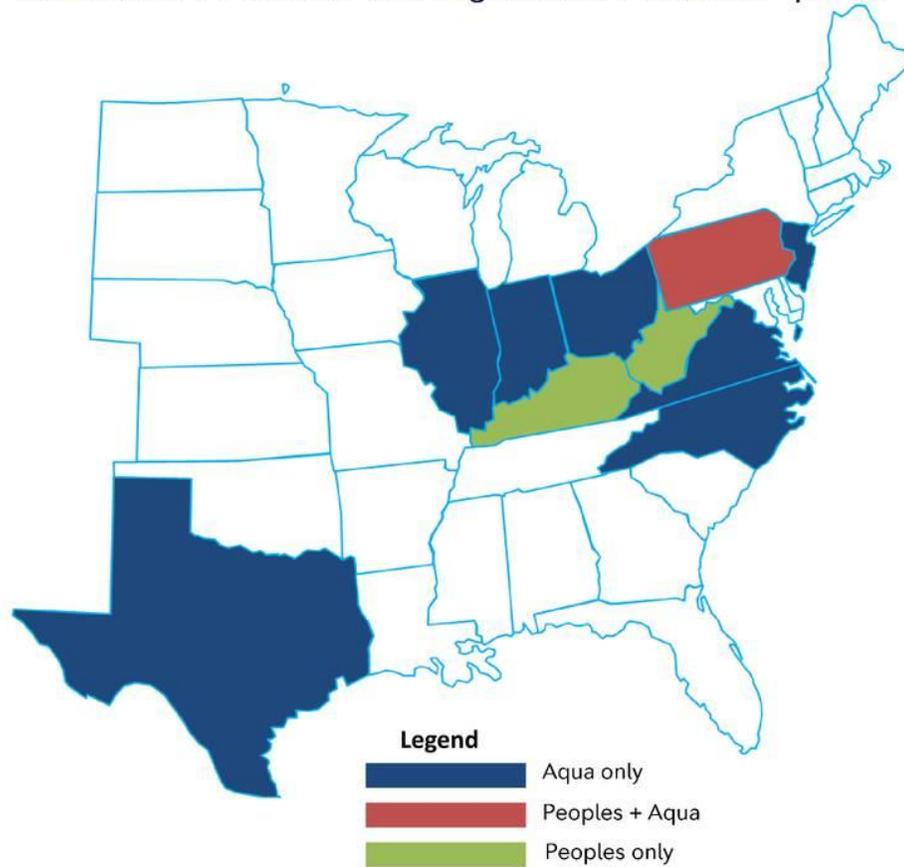
- NYSE: “WTR”
- 132 years Old
- Reputation for industry leading efficient operations, investing long term, and a strong management team



A Fully Regulated Water and Natural Gas Company

Combined Utility Profile

A Balanced Portfolio with Significant Potential Upside



Efficient & Financially Sustainable Utility

Achieving the lowest possible rates, to meet all regulatory obligations, while investing long term, for a sustainable utility

- ✓ Efficient operations
- ✓ Prudent and continuous capital investment
- ✓ Excellence in employee training & safety

Controllable Expenses:

80% Cost Impact – The Big Five

- Labor
- Power
- Chemicals
- Samples
- Sludge Disposal

Capital Spending

Sustainable Infrastructure

- On track to install approximately 170 miles of pipe this year
- 3 Year Total, Approx 1.4 Billion



Capital Efficiency

- Small projects add up!



Why Is Continuous Investment So Important?

Aging Water Infrastructure



Aging Water Infrastructure

- Water main break costs \$\$
- Traffic
- Business impacts
- Water safety



Aging Sewer Infrastructure

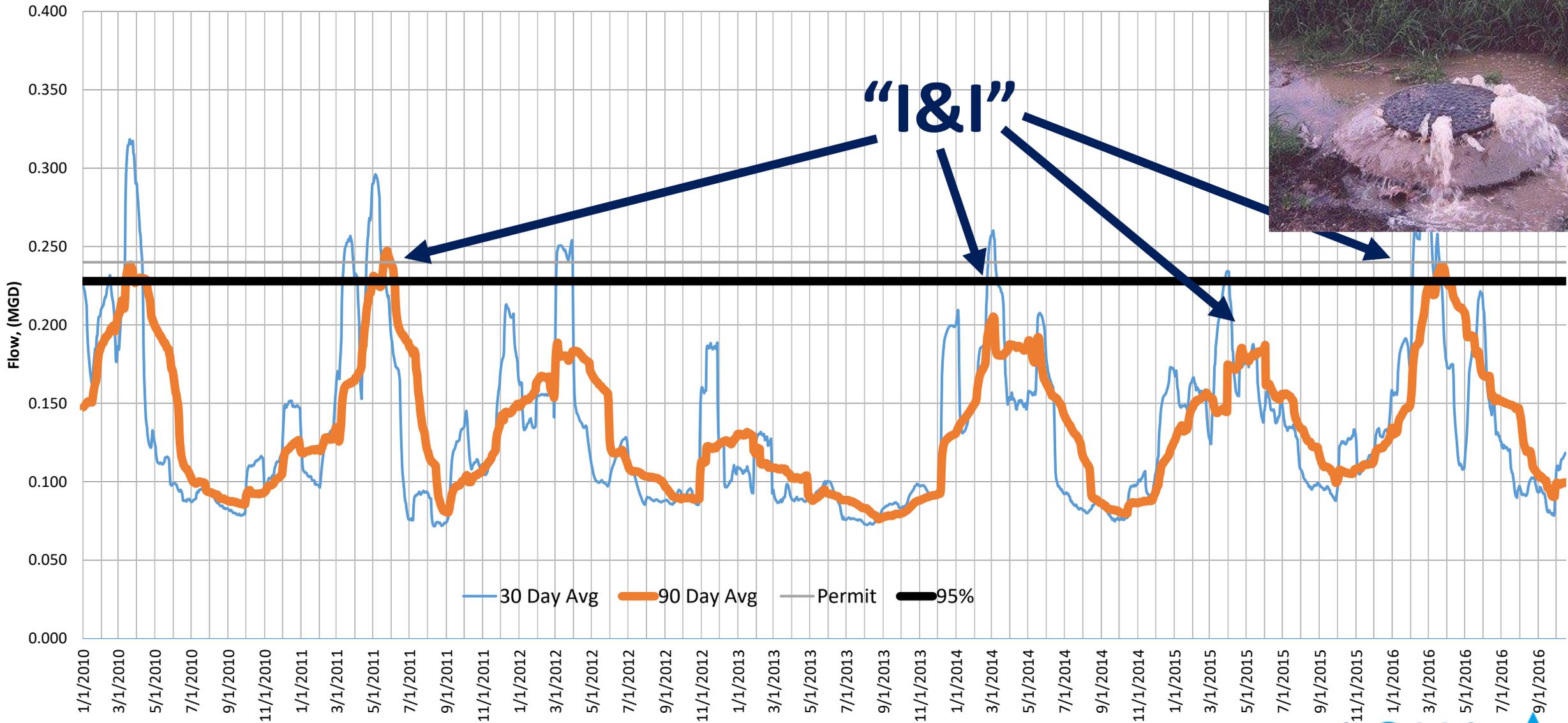


Aging Sewer Infrastructure

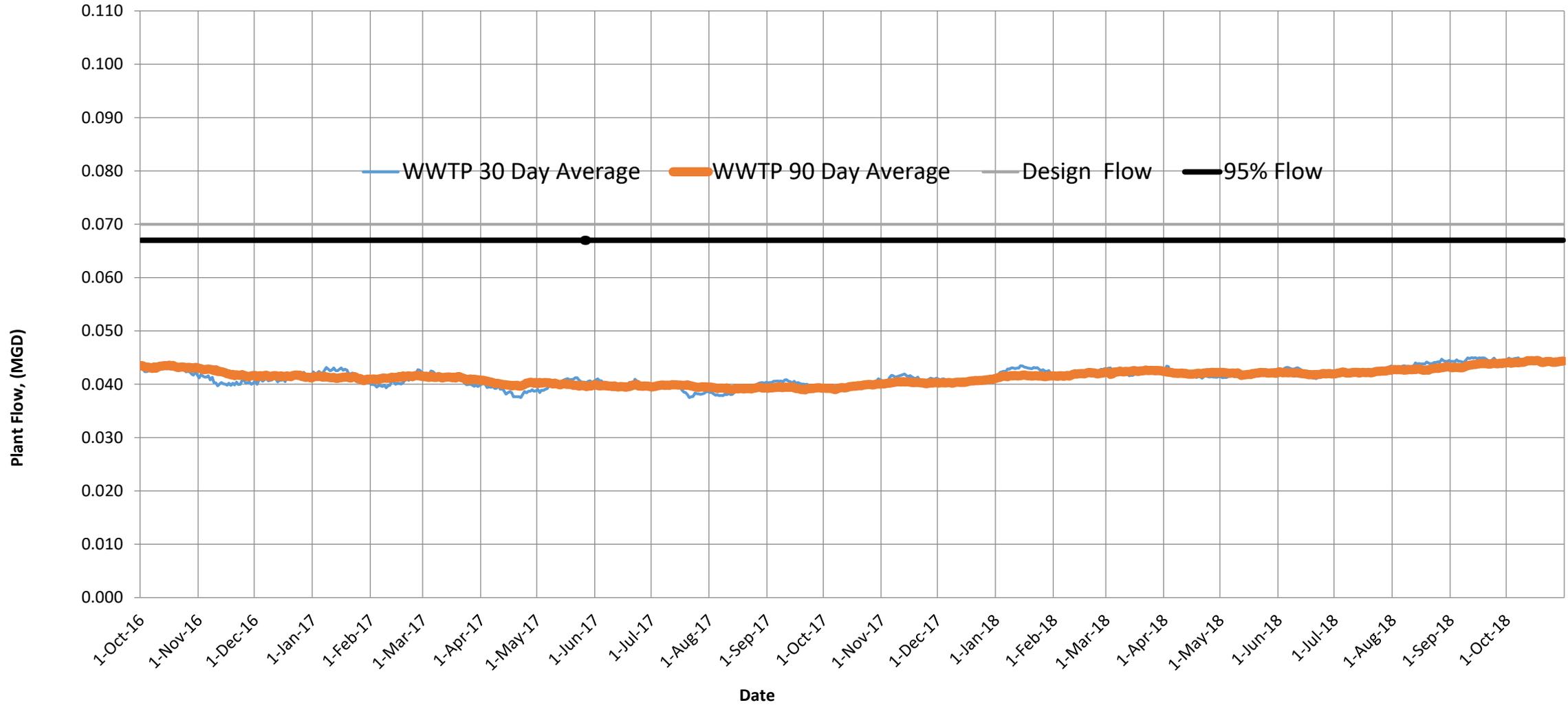
- Infiltration and Inflow (“I&I”)
- Costly backups
- Sanitary overflows
- Limited plant capacity



Managing Wet Weather Flow Capacity



Managing Wet Weather Flow Capacity



Sustainability and Size

Size Impacts; Small Utilities have 91% of violations

EPA Data	Size Range	Systems	% Systems	Pop. Served	% Pop.	Violations	% Violations
Very Small	<500	28,804	55.8%	4,820,949	1.6%	81,489	75.4%
Small	501 to 3,300	13,820	26.8%	19,806,741	6.7%	16,837	15.6%
Medium	>3,301-10,000	4,871	9.4%	28,402,697	9.6%	4,607	4.3%
Large	10,000-100,000	3,746	7.3%	106,856,965	36.3%	4,723	4.4%
Very Large	>100k	410	0.8%	134,452,529	45.7%	434	0.4%

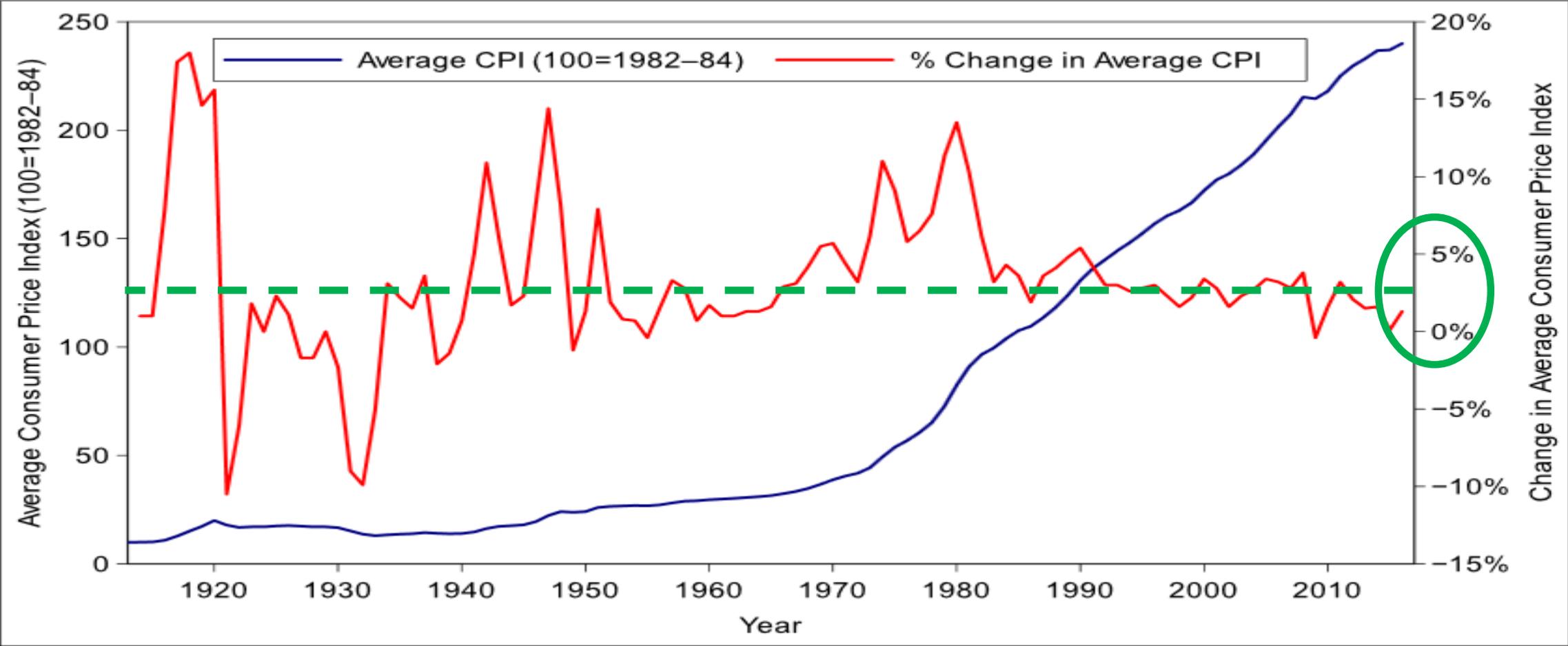
Size Impacts; Small Utilities have >2-3x Need

EPA Data	Size Range	Systems	% Systems	Pop. Served	% Pop.	\$ Need - 20 Yr CapX (billions)	\$/Person
Small	<3,300	39,482	76.4%	23,900,000	8.1%	76.6	\$3,205
Medium	>3,301-100,000	9,279	18.0%	140,100,000	47.6%	212.3	\$1,515
Large	>100,000	644	1.2%	141,700,000	48.1%	174.4	\$1,231

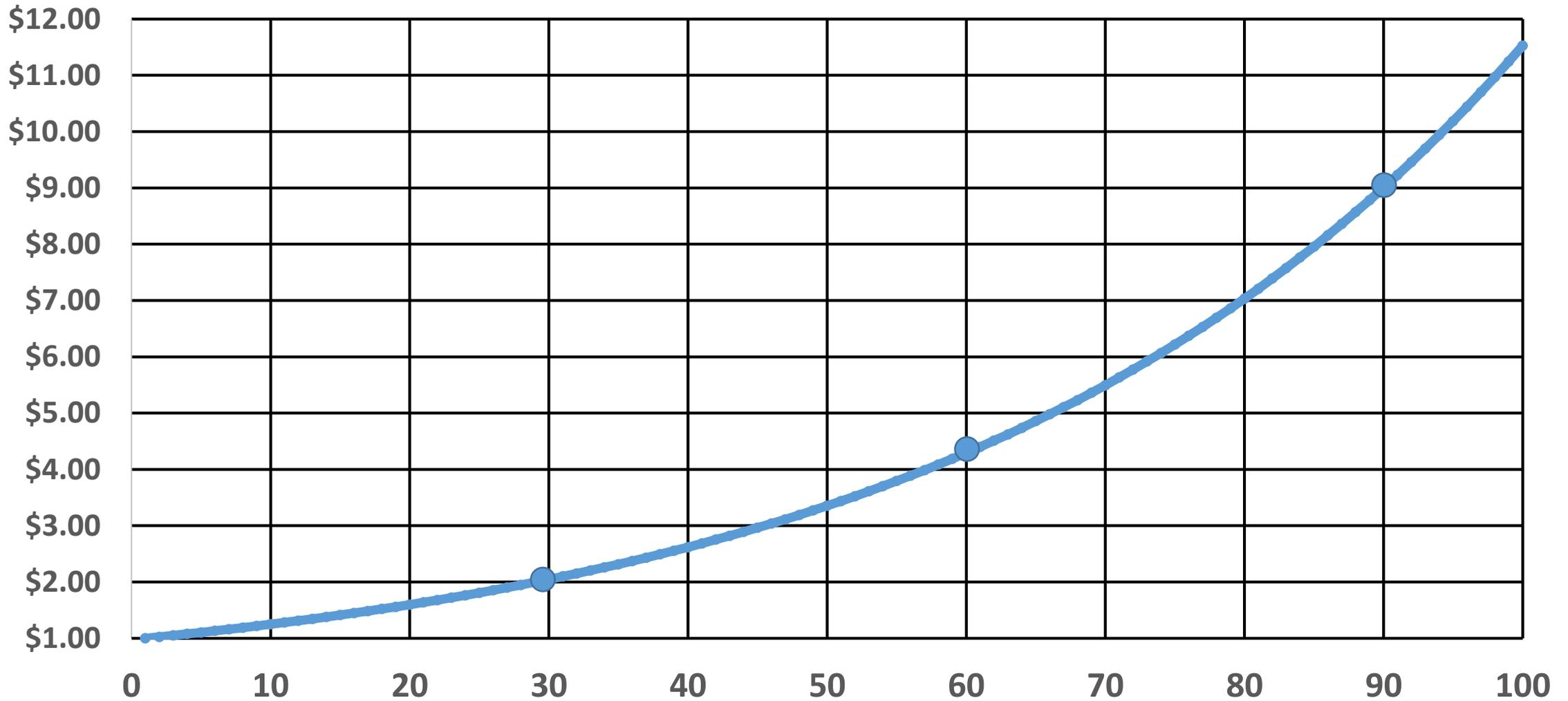
“Invisible Financial Forces”

Historic CPI is Roughly 2.5%

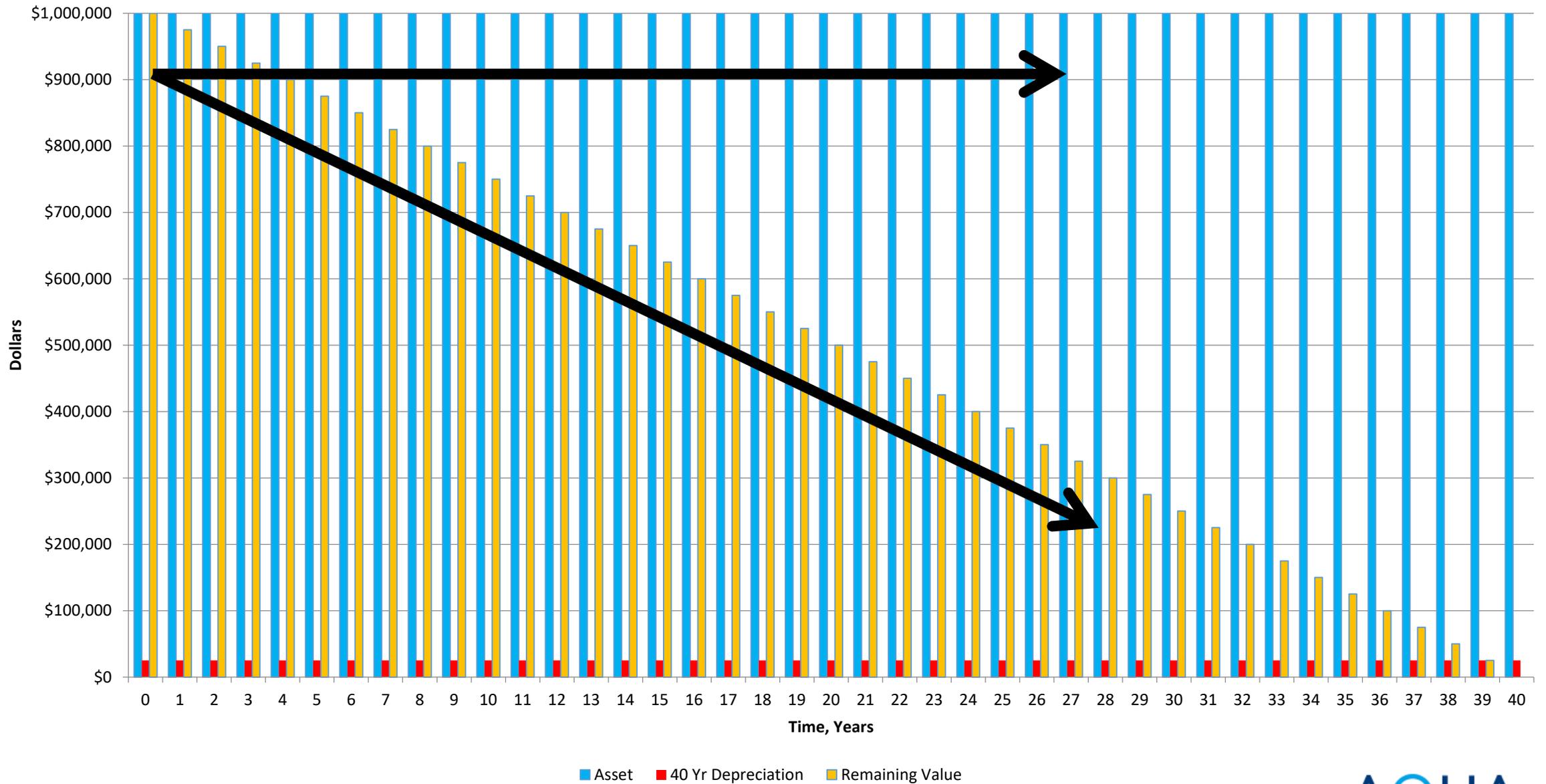
United States Consumer Price Index 1913–2016



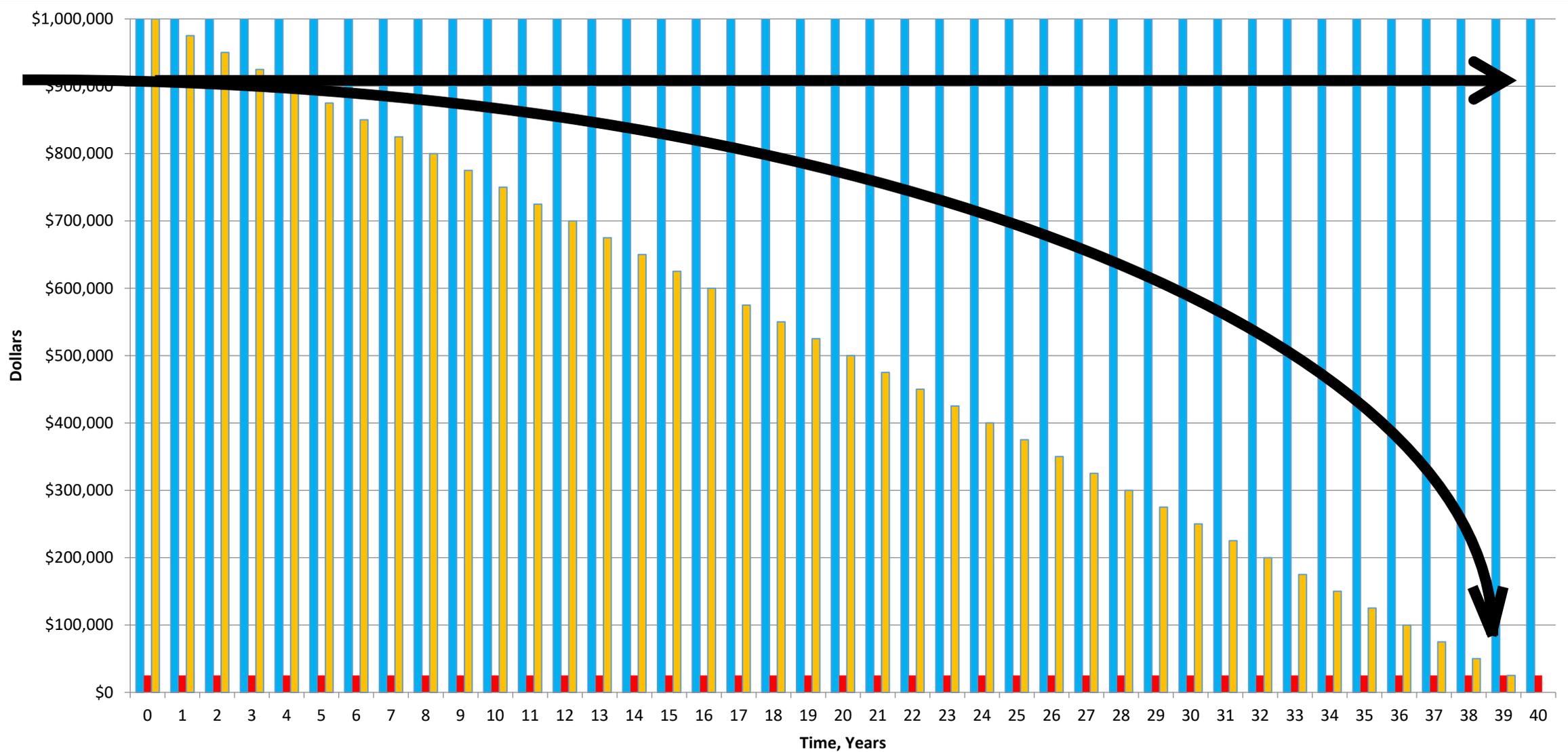
2.5% Inflation Doubles Cost Every 30 Years



Depreciation Rate = Spend Rate

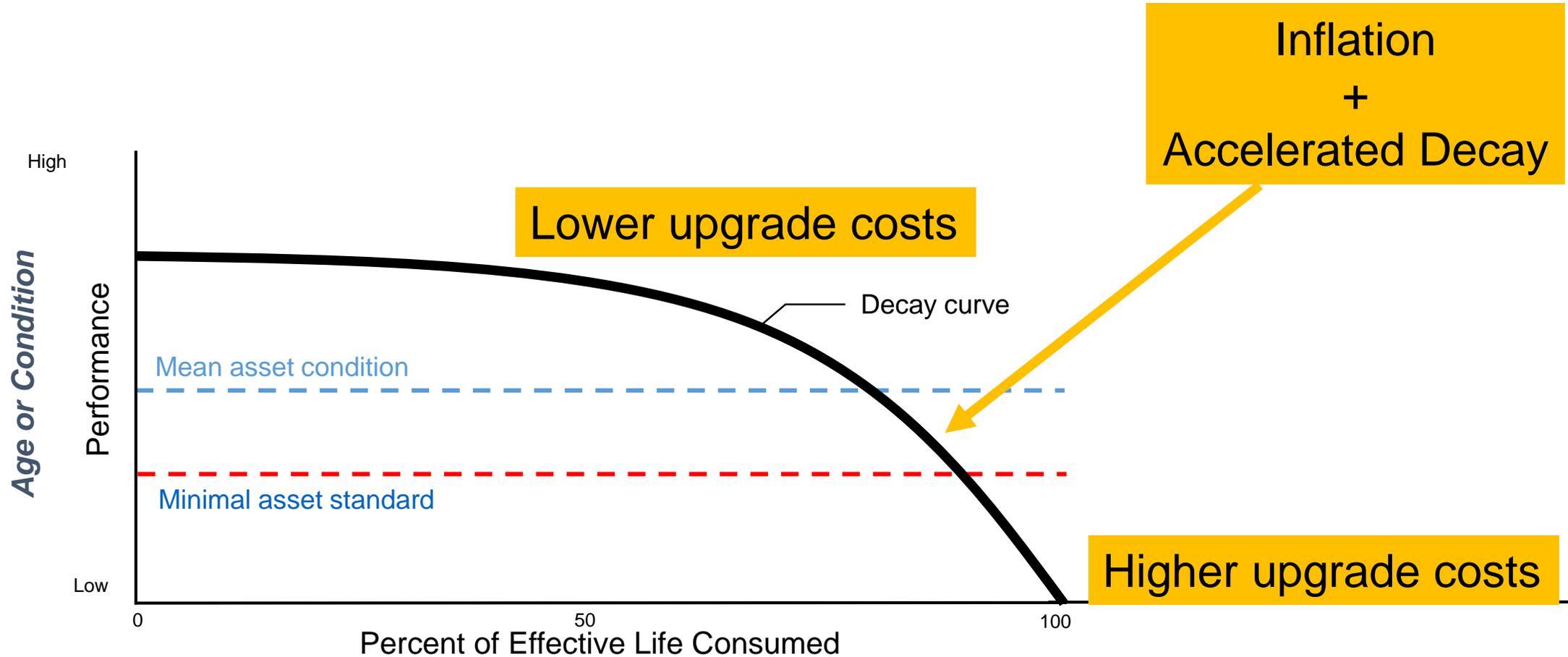


Decay Rate



■ Asset ■ 40 Yr Depreciation ■ Remaining Value

Deferred Maintenance = Higher Cost!



Balance: Reactive and Proactive CapX



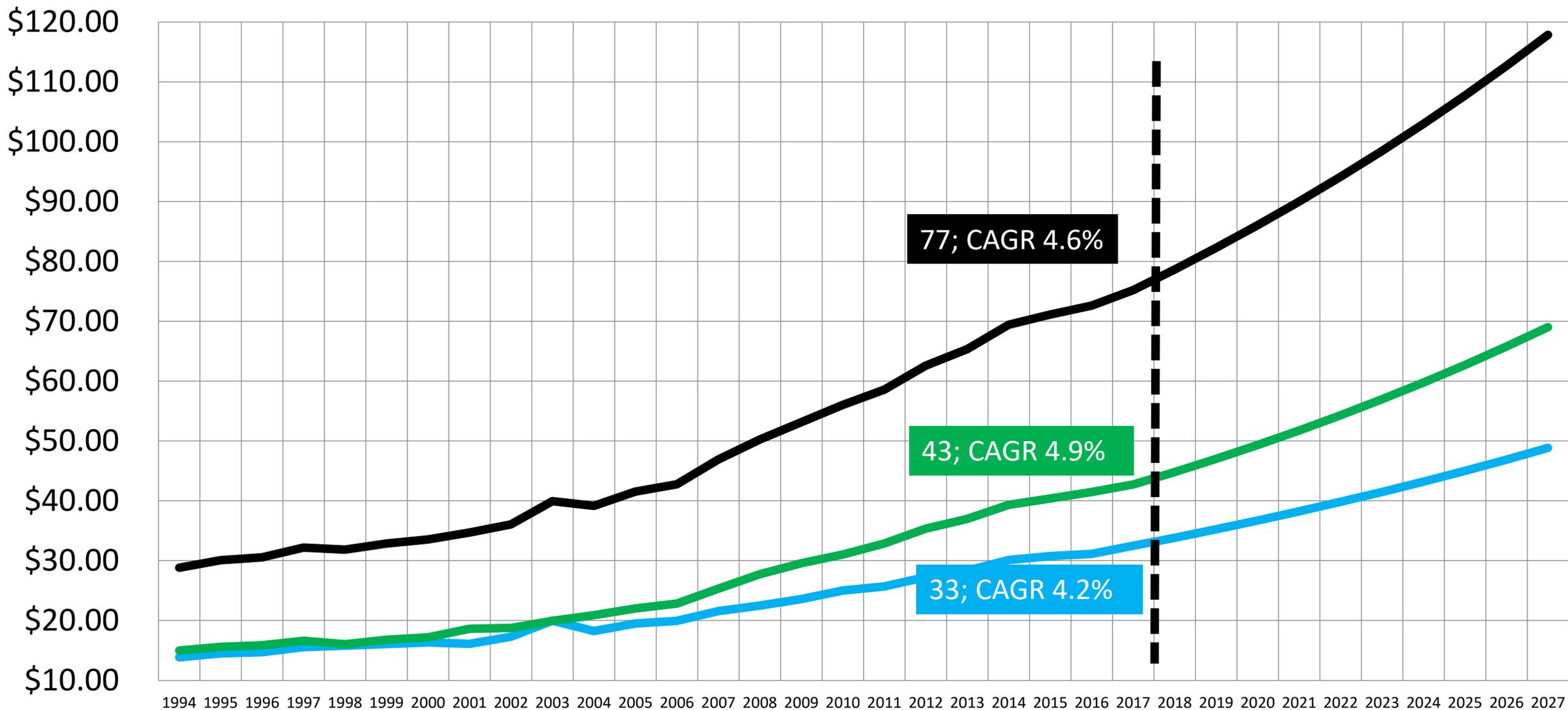
Reactive

Proactive



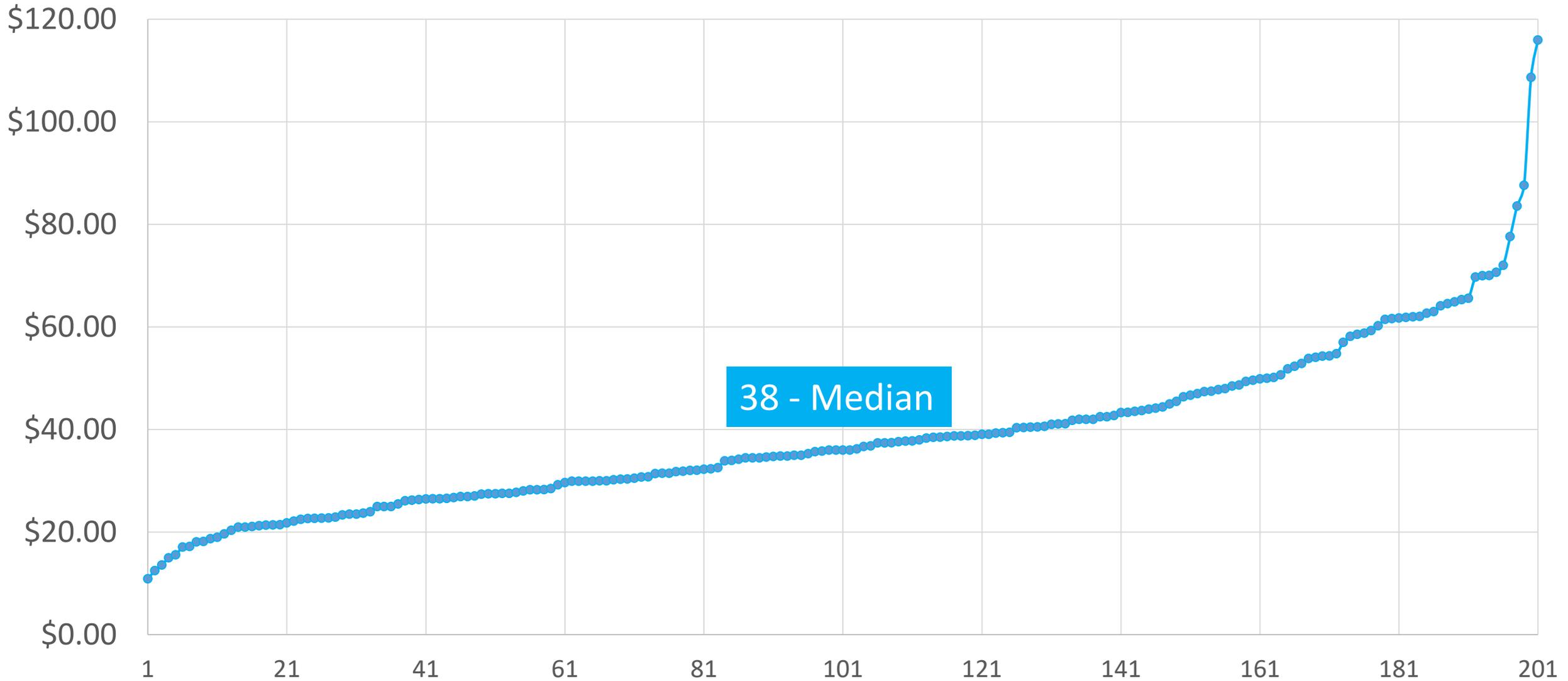
Sustainability & Rate Trends

Historic Rate Trends – 1994-2017, Sample Data



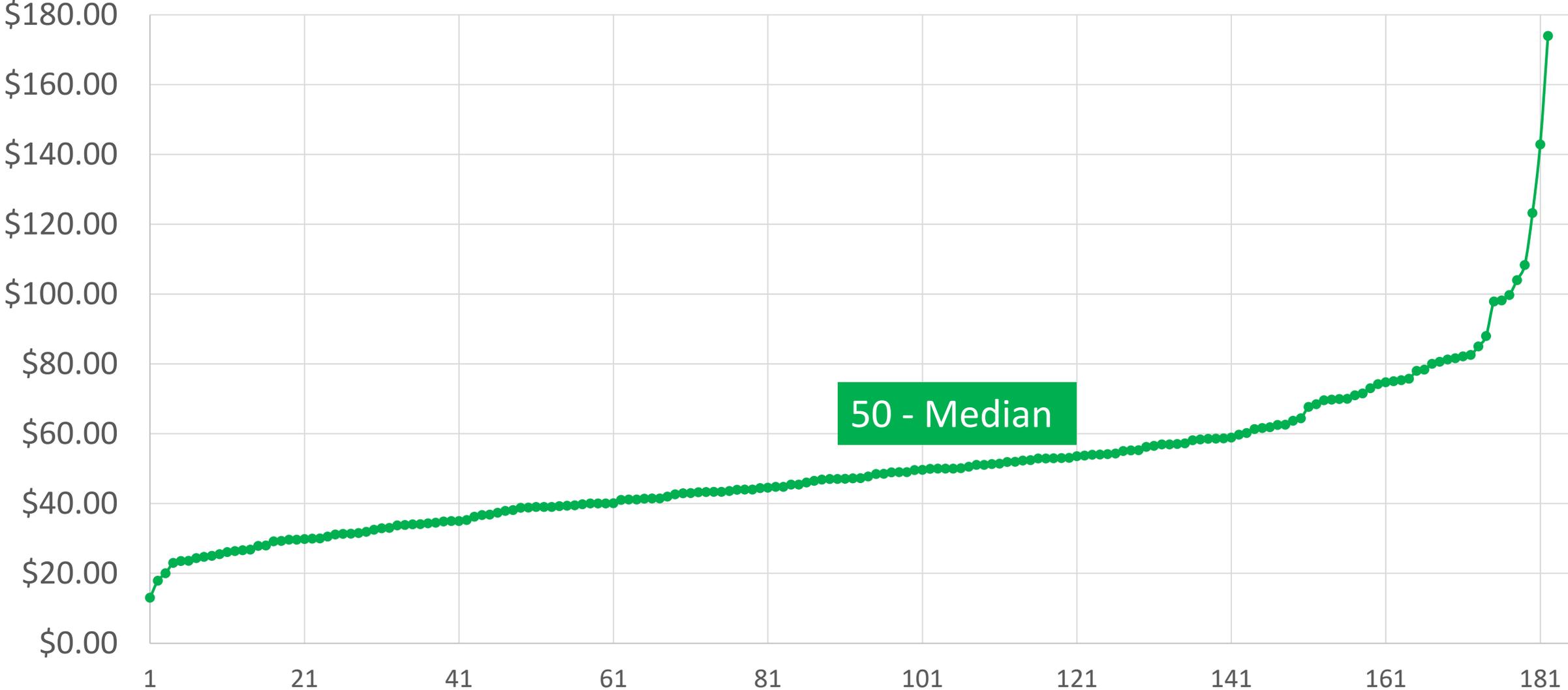
Sources: Draper Aden Rate Study — Avg Water Rate @ 5kgals — Avg Sewer Rate — W+WW Total

Reported 2017 Virginia Water Rates, 5kgal/month



Sources: Draper Aden Rate Study

Reported 2017 Virginia Wastewater Rates, 5kgal/Mo



Sources: Draper Aden Rate Study

Connection Fees As Rates

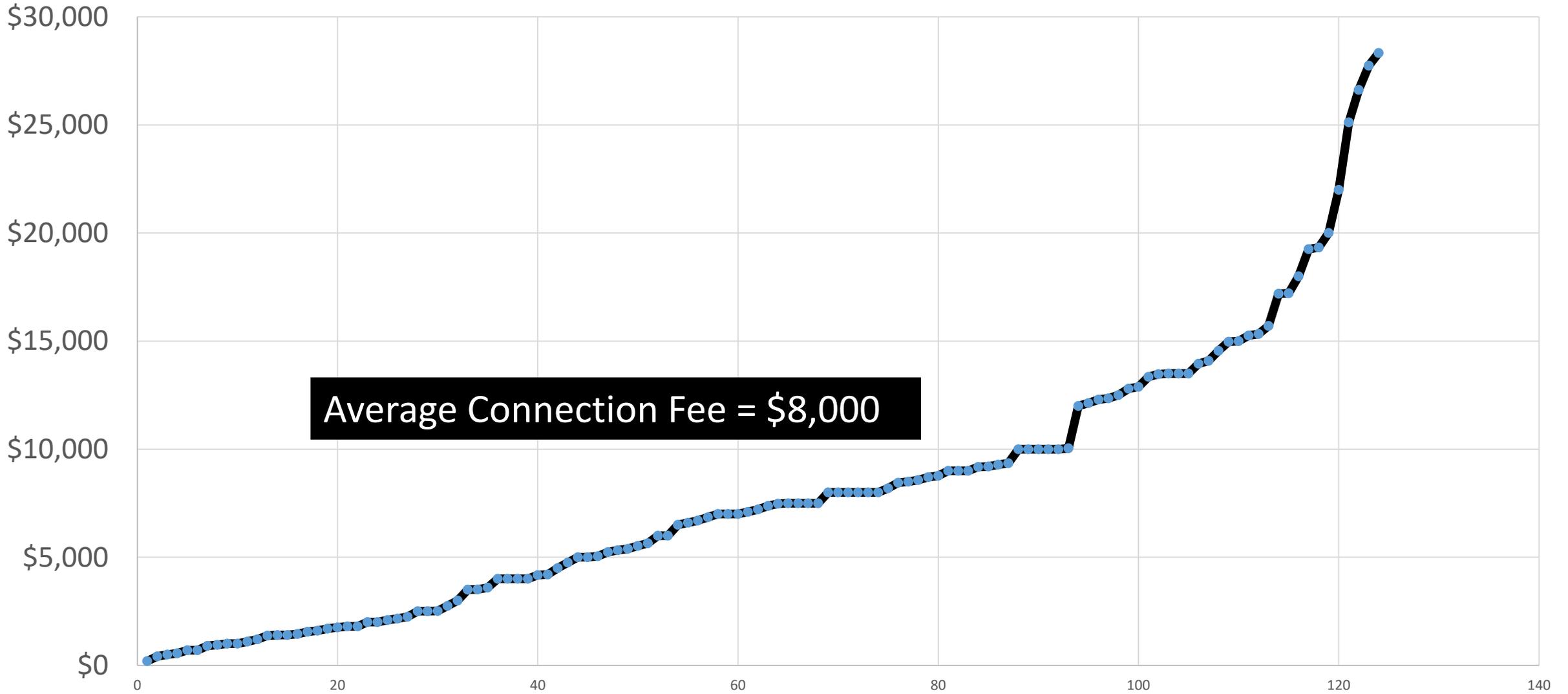


Connection/Availability Fees

+User Fees

Effective Rate

Reported 2017 Virginia Connection Fees



Sources: Draper Aden Rate Study

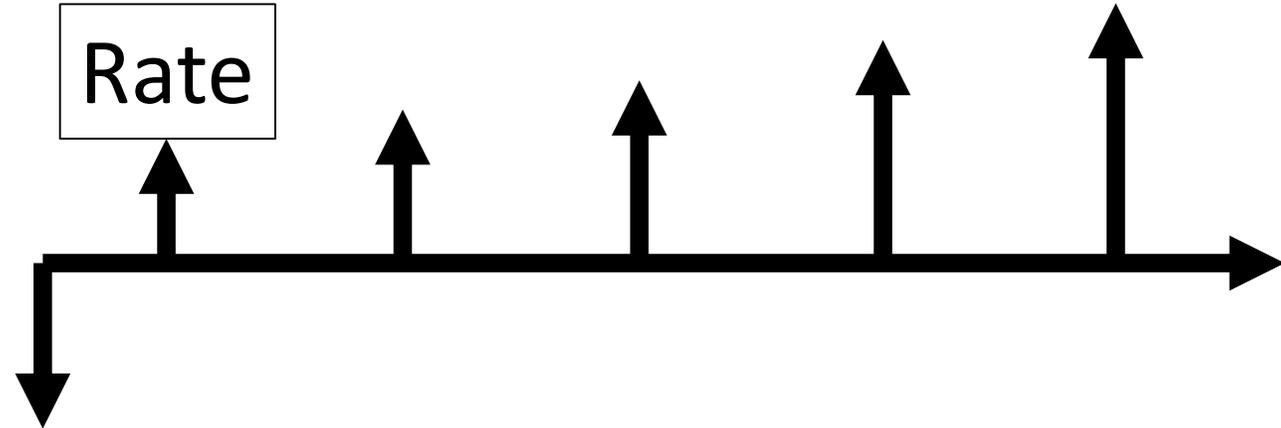
Connection Fees Converted to Rates

Assumptions:

30 Years

4.5% Rate Increases

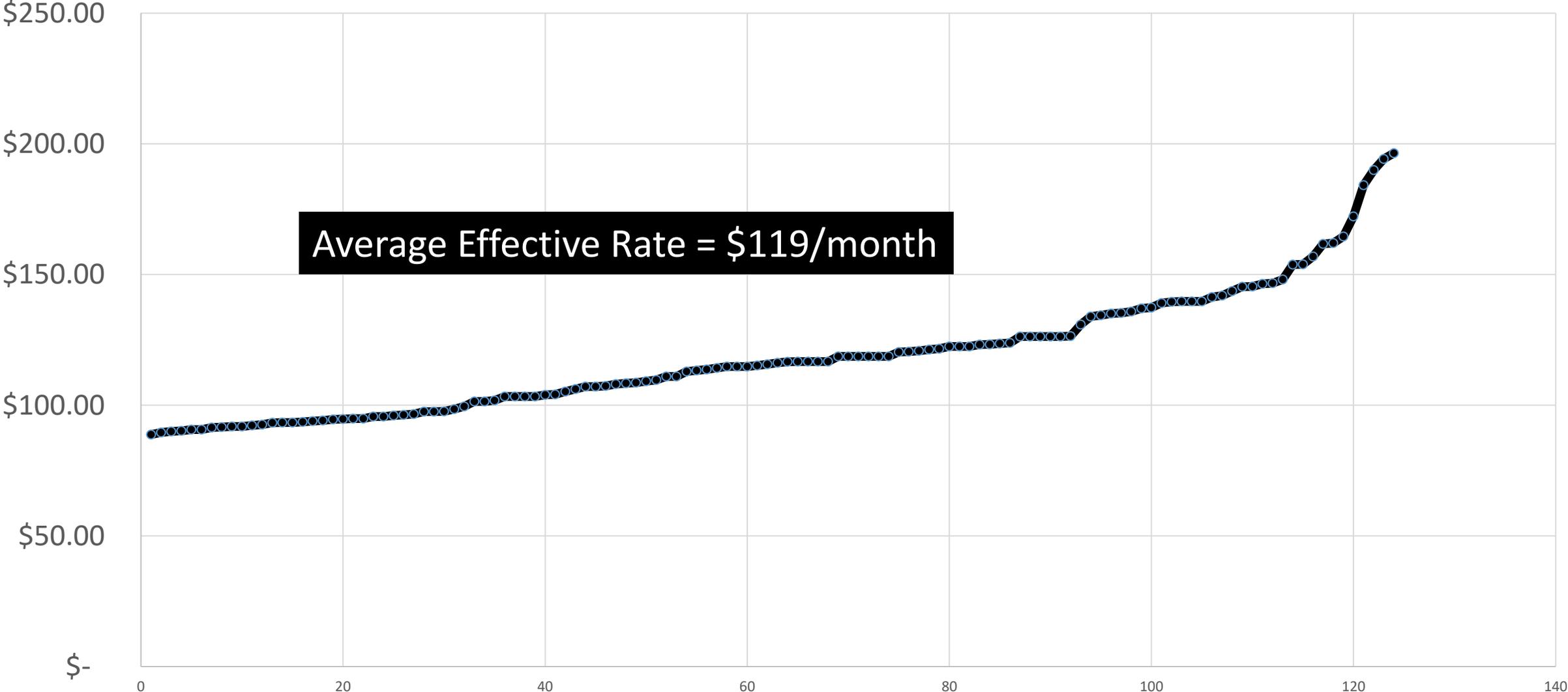
6% Cost of Capital



Present Value/Rate:

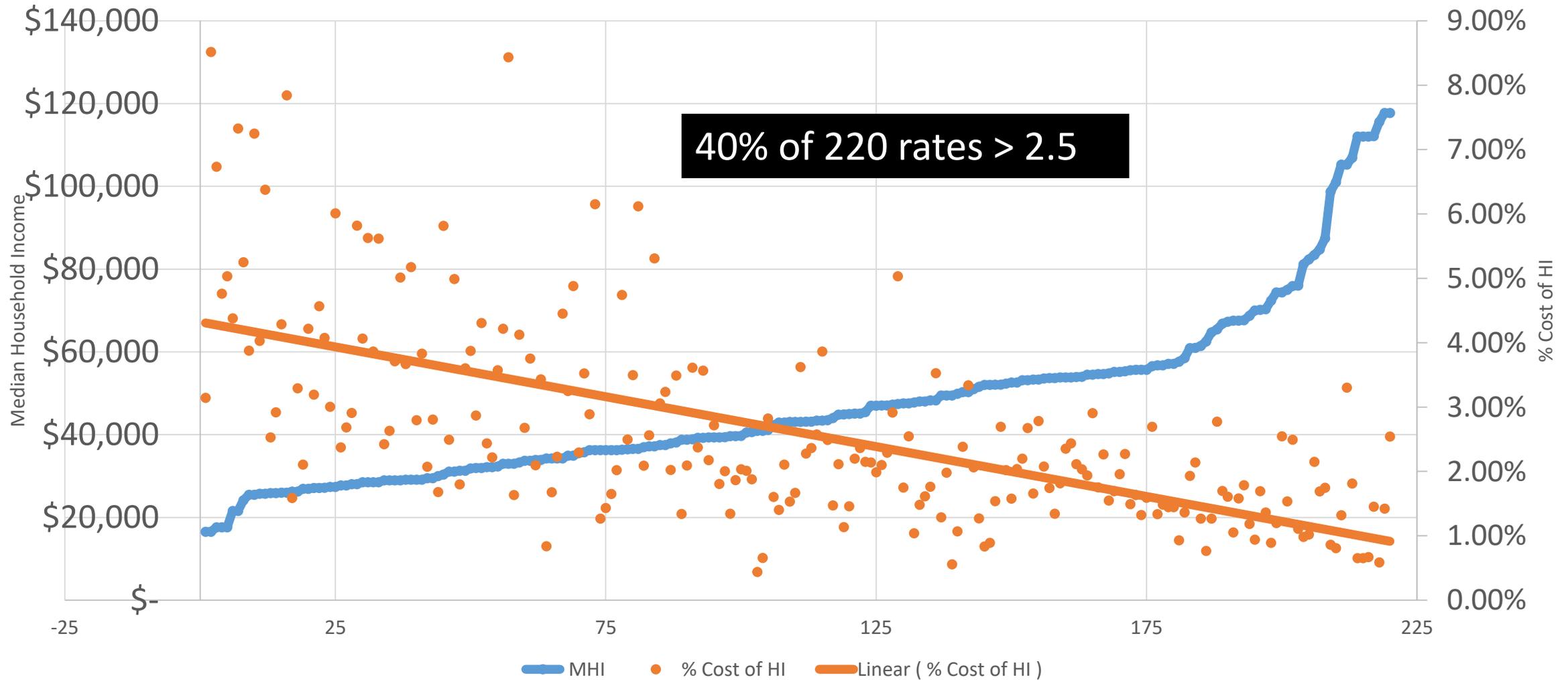
$\$8,000 = \$31/\text{month}$

Effective Rate

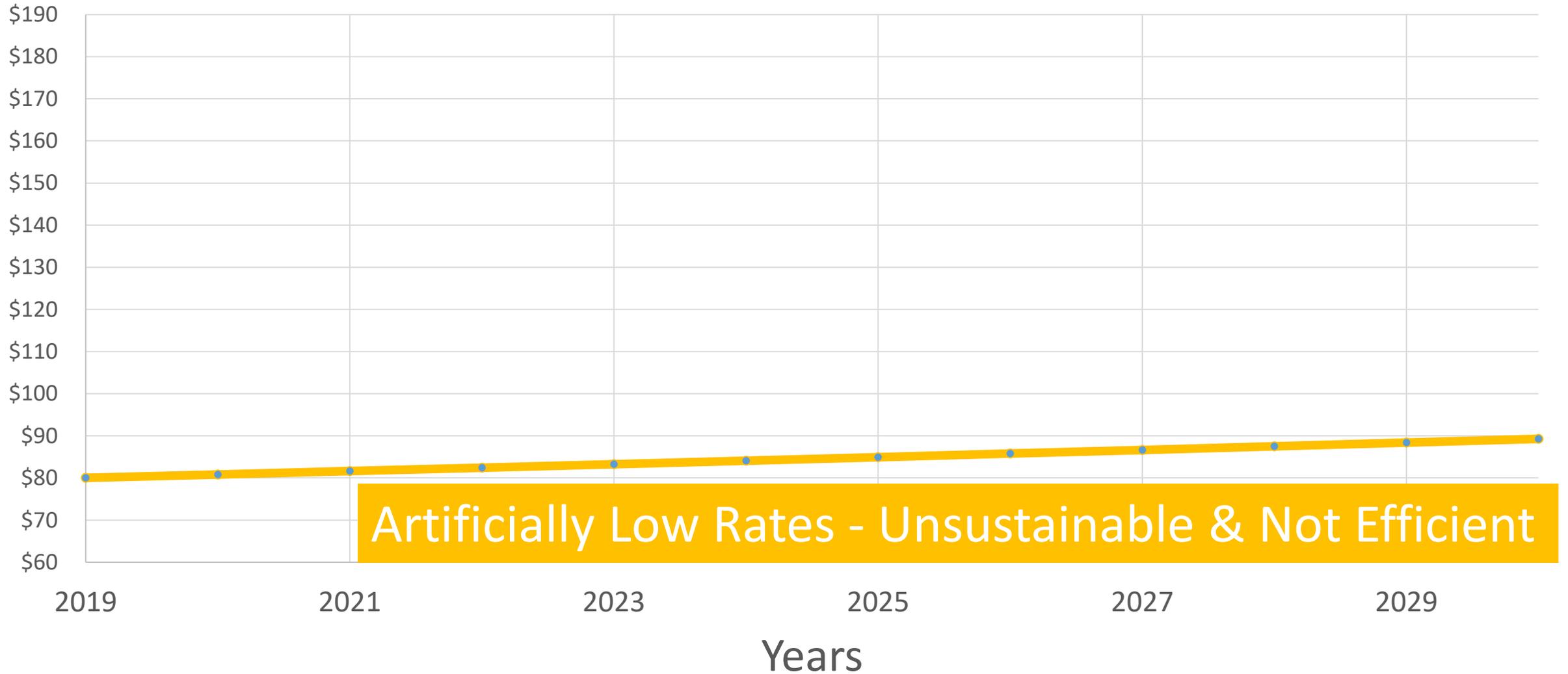


Sources: Draper Aden Rate Study

Affordability Data = Rate/MHI < 2.5%

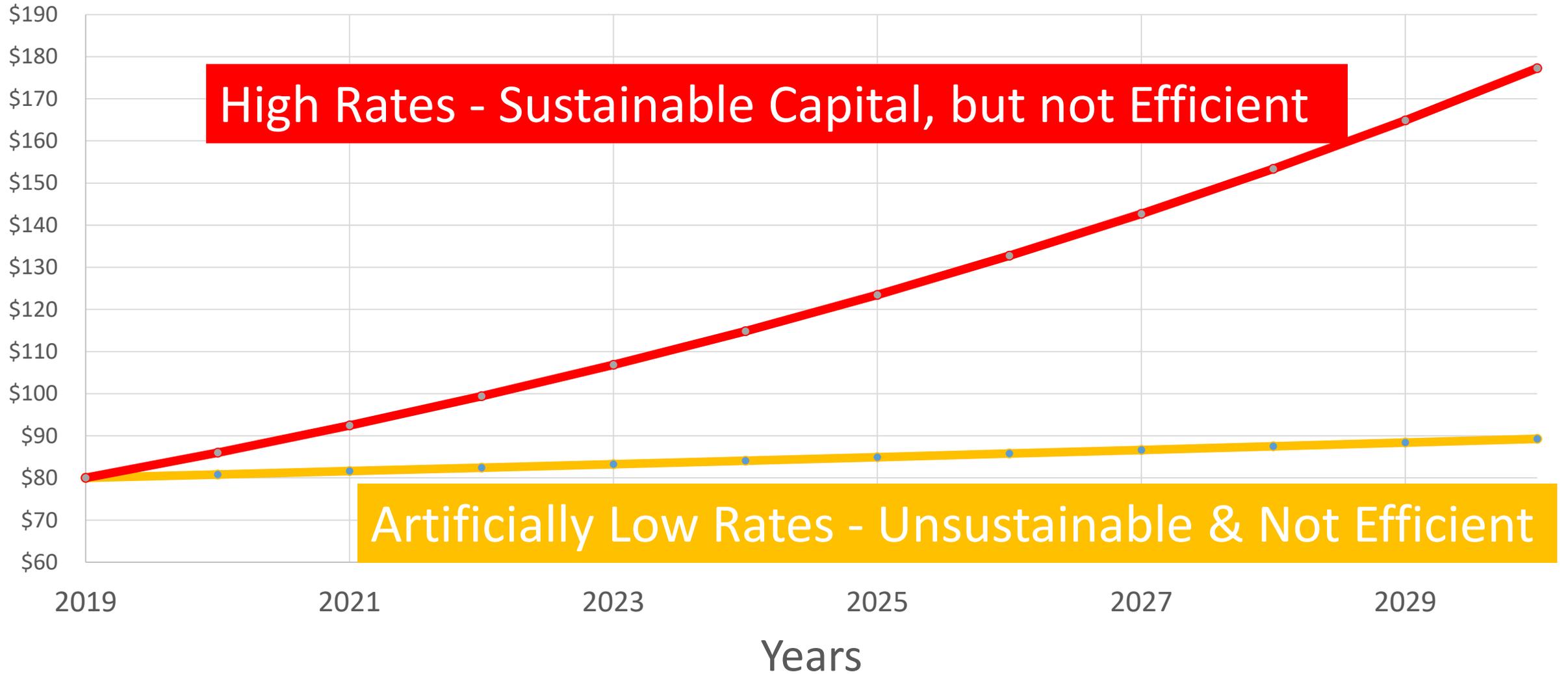


“Goldilocks” – Sustainable & Efficient



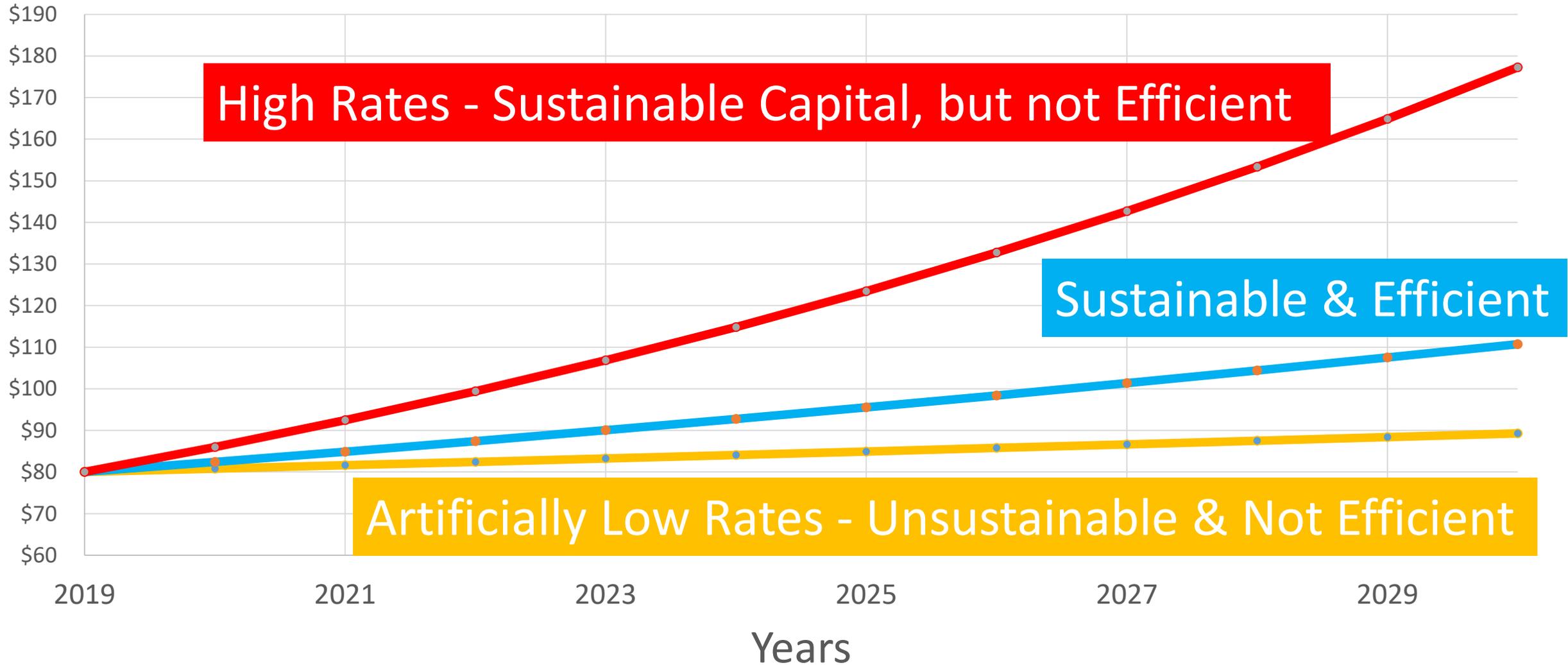
Illustrative Rate Projection

“Goldilocks” – Sustainable & Efficient



Illustrative Rate Projection

“Goldilocks” – Sustainable & Efficient



Illustrative Rate Projection

Summary

1. Sustainability is a marathon of continual effort
2. Manage the business and get better everyday
3. Investment must keep pace with depreciation
4. Delays will increase costs
5. “Increased scale is the cornerstone of efficient utilities”

VIRGINIA RESOURCE AUTHORITY

“EMPLOYING OPTIONS FOR FINANCIAL SUSTAINABILITY”



“Forces Impacting Utility Systems”

Virginia Tech – Hotel Roanoke
April 5, 2019
Session: 9:10 AM – 10:00 AM

Presented by:
Gerald C. Hartman, PE, BCEE, ASA
Hartman Consultants, LLC

Hartman – Experience Summary

- BS '75 MS '76 Duke University
- 600 Utility Purchase or Sale Assignments
- PE, BCEE, ASA – Public Utilities – MTS
- Water Seminar Speaker – Bond Buyer Southeast (“Water” Area Consultant)
- Credit Worthiness Consultant to Florida (S&P Subconsultant)
- Transactions in 36 States
- Testified at 9 PSC’s
- Utility Management Consultant
- One Book, Numerous Papers and Presentations
- Utility Acquisitions 3 Day Seminar at Wake Forest Law School
- Numerous Engineer/Financial Feasibility Reports for Bonds
- Numerous Financial Programs (i.e. Capacity Sales, etc.)
- Assisted in the formation of authorities and other utility entities

Overview

- Financial Sustainability
- Financial Forces Impacting Utility Systems
- Questions to Consider
- Strategies
- Trends

Financial Sustainability:

What Does it Mean?

- The financial ability of the utility to meet the needs of the present without compromising the ability of future generations to meet their own utility financial needs.
- There are no financial barriers to implementing resource options that are in the best interest of the customers.
- The utility is financially sound and can effectively and efficiently meet its public service obligations.

Financial Sustainability:

Why Is It Important?

- Only financial sustainable utilities can guarantee provision of services that will meet the current and future needs. Public utility service is Perpetual no term.
- Lack of financial sustainability of utilities means operating with losses and permanent cash flow deficits leading to degradation of infrastructure and resulting in poor quality services.
- Utilities that are financially sustainable have wider access to external funds including grants and loans.
- Financially sustainable utilities are the most effective and efficient utilities providing their customers with services that meet their needs for the lowest long term cost.

Financial Forces – Questions to Consider:

Financial and Capital Related

- Does the utility have the proper reserves?
 - 3 months operations
 - Renewal and Replacement
 - Rate Stabilization Fund
 - Debt Service Reserve Fund

- Can the utility consolidate its debt?
 - Is it possible to refinance for savings?
 - Can the utility secure better terms and conditions and eliminate conflicts?
 - Does the utility have a line of credit?
 - Can the utility have interfund loans?

Financial Forces – Questions to Consider:

Financial and Capital Related

- Does the utility have the capital for its system needs?
- Has the utility researched the various utility grant and funding sources, as applicable?
- What is the return to the owner (City, Investor Owned Utility, etc.) from the utility?
 - Allocated overheads
 - Payment in Lieu of Taxes (PILOT)
 - Transfers to the General Fund for services
 - Etc.
- Is the utility competitive with cash investment returns?

Financial Forces – Questions to Consider:

System, Operational, and Market Related

- What are the condition of the facilities? Are they in need of renewal and replacement?
- Does the system meet existing and promulgated regulations?
- Does the utility have cooperative agreements with neighboring utilities?
- What utilities are nearby? Are there any not-for-profits, governmentally-owned, authorities, or IOU's?
- Should the utility buy wholesale/bulk services from another entity?

Financial Forces – Questions to Consider:

Management and Customer Related

- Is the utility using the full resources of the AWWA, WEF, Rural Water Association, State Operators Association, USEPA, etc.?
- Is there access to support, including Utility Management Consultants, Engineers, Contract Operators (private and governmental), etc.?
- Is communication sufficient between decision makers and management?
- Has automatic annual rate indexing (i.e. 3.0% per year or so) been put in place to offset the declining value of the dollar and inflation?
- Are the rates, fees and charges adequate?
- Are existing policies, procedures, standards, developer/customer agreements, etc. up-to-date and do they support a healthy utility?

Government Strategies to Consider

- Optimization
- Ownership with Contracted Operators
- Divestiture
- Other Non-Traditional Approaches

Optimizations:

“Let’s Make It Better”

Revenue Enhancements

- Customer accommodation
- Master metering to individual metering
- Billing per equivalent residential connections (ERCs) or units versus meter size
- Miscellaneous Charges
- Mandatory connections

Expense Reduction

- “Piggyback” purchasing
- Contracting services
- Employee idea cost savings programs
- Leak and loss reduction
- Electric/other aggregation negotiations

Increasing Your Sandbox

- Wholesale agreements
- In-house outsourcing
- Contract operations for others
- Service area agreement
- Expansion

Ownership with Contracted Operations:

“We Don’t Have the Resources”

➤ Advantages:

- Operations day-to-day operations handled by the contract operator, improved emergency preparedness, contracted compliance liability
- Economies of scale – cost savings; access to technology and best practices; bulk contracts in place for equipment, chemical, etc.; ability to share equipment as needed (Multiple System Advantages)
- Personnel resources – seasoned management, optimized labor, additional employees during emergency situations

➤ Disadvantages:

- Loss of direct involvement and control – “Personal Touch”
- Time involved in the process to select and integrate contract operator
- Asset Integrity (Remaining Useful Life)

Divestiture:

“We Have Better Uses for Our Equity”

- Sale of the System
- Typical Purchasers
 - Investor Owned Utility
 - Dependent Not-for-Profit (including municipalities/counties/etc.)
 - Independent Not-for-Profit (Authorities, etc.)

Other Non-Traditional Approaches:

“We Have Other Problems, Utilities Can’t Be Our Focus Right Now”

- Leases
- Public-Private Partnerships
- Consolidation into an Authority or Cooperative
- OOT (Own, Operate, Transfer)
- DBOOT (Design, Build, Own, Operate and Transfer)

Who Is Typically Sustainable?

- Usually large Governmentally Owned Utilities (GOU) meeting the previous questions and that have the “10 Funding Buckets” filled serving over 50,000 Customers.
- The large Investor-Owned Utilities (IOU) over 50,000 Customers.
- Most of the Medium/Regional IOU’s and GOU’s serving 10,000 to 50,000 customers.
- Some of the small IOU’s and GOU’s - 2,000 to 10,000 Customers.
- Few of the very small village, town, IOU’s (unless regionalized as owned by large IOU’s) and GOU’s less than 2,000 Customers.

What Has Happened?

Historically Utilities were fair market value entities. (Generally prior to the 1950's).

Then the trend went to "Rate Base" or the original cost of investment less depreciation (1960's to 2010) for rate and cost containment.

Due to Sustainability concerns some 15 States have gone back to "Fair Market Value" for utilities. California is one of the first, many States have followed. In Illinois alone over the past 5 years, over 20 sales from a GOU to an IOU have occurred. Recently, North Carolina passed FMV regulation (NCUC).

In the "Rate Base" era approximately 85% +/- of the dollar value of transactions were GOU's buying IOU's. Only 15% +/- of the dollar value were in IOU based transactions.

What Has Happened?

(cont.)

In the “Transition Period” from 2010 to 2017 the GOU percent has dropped from 85% to 70% +/- . The IOU based transactions have increased from 15% to 30% +/- . The “Transition” is to Fair Market Value (FMV) Regulation and I predict that this transition back to FMV probably will continue for another 10+/- years.

Prediction is by 2030 (who really knows) the dollar value of transactions may become 50% GOU and 50% IOU due primarily to fair market value regulation, regulatory impacts, and deferred renewals and replacements. This will be a return to previous practices, yet with differing conditions and configurations of consolidation.

Divestiture Example – Glenview, Illinois

- North Maine Utilities – Owned by Village of Glenview (Near O’Hare Airport)
- Sold 2012/13
- Price Paid \$22,000,000 *Rounded
- CIP Commitment \$15,000,000
- Outstanding Debt of Village \$1,960,000 Rounded
- Use of Remaining Funds (\$20 Million) for Public Works Projects, for Economic Development Projects, for Quality of Life Projects, and Recurring income to Village
- Number of Customers 7,400
- Completed Selection 6 months
- Completed Closing 14 months thereafter
- Result – Buyer is long-term customer of Glenview
 - Created Village Sustainability with major customer
- Buyer Performance has been excellent (AIWC)

Divestiture Examples - (100's of Others)

- Indianapolis, IN to Citizens Charitable Trust (\$1.9 B)
- Westfield, IN to Citizens (\$93 MM)
- McKessport, PA to American (\$159 MM)
- Scranton, PA to American (\$195 MM)
- Arnold, MO to American (\$27.2 MM)
- North Maine, IL to AQUA (\$22 MM)
- Peotone, IL to AQUA (\$12.3 MM)
- Manteno, IL to AQUA (\$25 MM)
- Alton, IL to American (\$53.8 MM)
- City of Okeechobee, FL OWA & County to OUA (\$12 MM)

Optimization and Contract Operations Example – Polk City, FL

- 2010 City defaulting on RD Loan, Sued by County over payments, four (4) different funding entities and SRF loan. Needed \$3 million in CIP only 1,000 Wastewater and 2,000 Water customers. Population petition to dissolve City. Losing \$300,000/yr. Auburndale Interconnect
- 2011 Legal Issues Resolved, 3 Water Plants to 2 (Standby), 2 Wastewater Plants to 1, Contract operator saving \$160,000/yr. Consolidated debt to 1 long term bond issue saving \$170,000/yr. Corrected billing saving \$80,000/yr.
- 2012 CDBG \$800,000 grant for deficiencies
Service area 6 mi² to 31 mi²
Now abuts USF Polk Campus - Customers
Partial Regulatory Compliance from Non-Compliance
Bond Issue paid \$1,370,000 of projects
No Rate Increase
- 2013 Initial Construction Complete – 2 WTP to 1 WTP & Standby.
8 optimization tweaks completed
Strong utility performance due to capacity for pent-up development

Optimization and Contract Operations Example – Polk City, FL (cont.)

- 2014 Rebid and renegotiate all Contracts including Contract Operations – Savings \$120,000/yr.
City takes back billing savings of \$20,000/yr., New Water Interconnect to City of Lakeland
Code, Master Plan, Stormwater Utility changes
Strong utility performance – No rate increase since 2010
- 2015 Personnel upgrades, excellent Public Works Director
Electric aggregation power savings - \$130,000/yr.
Impact fees and fund reserves pay for over \$1 million in project for I&I and Water Loss
- 2016 City studies in-house operations. Still no rate increase since 2010
- 2017 City takes back utility operations and refunds bonds for \$200,000/yr. savings
City gets \$160,000 grant for reclaimed water optimization
- 2018 City gets \$1,365,000 grant for RW as part of \$2 million of 2019-2020 CIP
City saves \$21,000/yr. with Sludge Thickening
Utility Fund has \$2 million in reserves
No rate increase since 2010 (City considering rate decrease)

Questions for

G.C. Hartman

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