



Why Your Fab Pays More for Water Than It Should — and How to Fix It

Water Flow Innovations LLC

Flow Conditioning Device (FCD)
waterflowinnovations.com

Your ultrapure water systems, fab cooling, and scrubbers all draw from the same supply — but your meter counts more than arrives. **UPW makeup cycling, fab cooling tower demand, and scrubber water create the conditions for air, gas, and turbulence to form in the line at your meter — and you're billed for it.** The FCD (Flow Conditioning Device) corrects that at the municipal meter — ahead of every UPW train. Fab parameters stay the same. Your water bill drops — and so does your sewer bill, because sewer charges are calculated from the same inflated meter reading. One device. Two bills fixed.

WHY SEMICONDUCTOR WATER METERS OVER-READ

The Core Problem: The FCD Corrects the Flow at the Municipal Meter — Ahead of Your UPW Purification Train

Your ultrapure water system, DI polishing loops, and fab process water are all controlled downstream of the municipal supply meter — inside your UPW train. The FCD installs at the raw municipal meter, before water enters any purification stage. It corrects total intake measurement without touching any UPW parameter, fab process specification, or yield-critical water quality control.

THE THREE OVER-READING SOURCES UNIQUE TO SEMICONDUCTOR & ELECTRONICS MANUFACTURING



UPW System Makeup Cycling

UPW makeup demand cycling with fab production load creates high-velocity events at the municipal supply meter — generating air, gas, and turbulence on every makeup cycle throughout every operating shift.



Fab Cooling Tower Makeup

Fab HVAC and process cooling tower makeup cycling with cleanroom and tool load creates continuous variable demand — the most sustained over-reading source in any semiconductor facility, running around the clock.



Exhaust Scrubber Water

Wet exhaust scrubber water demand cycling with fab throughput creates variable demand events — compounding UPW and cooling tower over-reading on every production run and every billing cycle.



Your Water Intensity Per Wafer Start Is Better Than Your Meter Shows

Fab sustainability reporting tracks water intensity per wafer start for SEMI S23 environmental health & safety guidelines, customer ESG scorecards (Apple, TSMC supply chain), and CDP water disclosure. When the municipal meter over-reads UPW and scrubber demand, every reported figure is inflated. After FCD installation, metered intake reflects true use — improving the accuracy of all metrics without changing any fab process parameter.

BEFORE & AFTER THE FCD

WITHOUT FCD

- ✗ Air, gas & turbulence billed as water volume
- ✗ UPW makeup inflates meter each shift
- ✗ Scrubber demand compounds over-reading
- ✗ Water intensity per wafer start overstated
- ✗ Sewer charge tied to inflated meter



WITH FCD INSTALLED

- ✓ Metered volume reflects water actually delivered
- ✓ UPW makeup reads accurately
- ✓ Scrubber demand measured correctly
- ✓ True water intensity per wafer revealed
- ✓ Sewer charge based on real usage

5–30%

Average water & sewer bill reduction

46%

Highest documented single-site reduction

~1 Hour

Install time — water off about 1 hour

6-Mo

Money-back, no questions asked · install non-refundable

How the FCD Works — Four Steps

1

Installs between two pipe joints right after your water meter — water off about one hour

2

Creates a slight back-pressure that extends back through the meter, reducing air, gas, and turbulence

3

Delivers a laminar-like flow profile through the meter — the condition it was calibrated to read

4

Meter reads accurately. Bill drops. UPW quality, fab process specs, cleanroom conditions, and every yield parameter are effectively unchanged.

FREE SAVINGS ESTIMATE

Instant estimate — takes 30 seconds, no contact info required.

waterflowinnovations.com/water-bill-savings-calculator

Water Flow Innovations LLC

2651 Route 412
Coopersburg, PA 18036
Info@WaterFlowInnovations.com
1-(844)-934-8258

CERTIFICATIONS

IAPMO NSF/ANSI/CAN 61 KIWA GMP SQF

316L Stainless Steel · Made in USA
Under 0.8 psi pressure loss
Lifetime Transferable Warranty