# **OPENING KEYNOTE: CFEE WATER CONFERENCE**

Time: ~10:00 Minutes

### I. INTRODUCTION (0:00 - 1:30)

Good afternoon, everyone. I’m Keith Wilkinson.

I run a water treatment plant out in Sunol Valley for the SFPUC. I spend my days—and plenty of my nights—keeping water safe and flowing to millions of people.

I’m coming to this table today not just as an operator, but as someone who has spent years thinking about the systems we run... and the people we ask to run them.

I want to share some real-world insights from the field. These are things you don’t learn from reading the policy manual. You learn them from working through problems at 2:00 AM when the system isn’t behaving the way it should.

We are here to talk about big concepts like "Abundance" and "State Capacity." But I want to ground those concepts in the reality of the switchboard, the valve yard, and the control room.

### II. HISTORY AND THE PENDULUM (1:30 - 3:30)

We often look back with awe at what Americans built in the 20th century—the dams, the aqueducts, the treatment plants. And rightly so. It was a monumental era of state-building.

But there’s a tendency to stop the story there. We act as if the "building" was the whole story.

What followed was just as significant: **We used what we built.**

For the last 100 years, we have optimized, extended, maintained, and extracted every ounce of value from those legacy systems. From SCADA retrofits to duct tape solutions, we kept things running.

Out at my plant, we are still relying on pipes and tunnels laid out a century ago. The bones are good. But we are asking them to do things they were never designed to do.

**Think of our infrastructure strategy as a pendulum.**

In the early 1900s, it swung all the way towards **Creation**. We built the massive hardware that defines the modern West.

But then, the pendulum swung the other way—towards **Optimization**. The mandate became "do more with less." For 100 years, we squeezed efficiency out of the system. We maintained, we patched, and we stretched the lifespan of every asset.

But I’m here to tell you: **We have maxed out that logic.**

You can only stretch a rubber band so far before it snaps. You can only optimize a system so far before you hit physical limits.

We are facing a changing climate, new contaminants, and a housing crisis. We can’t solve 21st-century problems by just squeezing 20th-century tools a little harder.

**The pendulum is swinging again.**

It is swinging away from the era of maintenance, and back toward an era of **Creation**.

It is time to **build**.

Not just physically—but institutionally and culturally. We have the chance to be the generation that does for the next hundred years what our predecessors did in the last.

### III. THE HUMAN FACTOR: THE "SILVER TSUNAMI" (3:30 - 5:00)

But here is the reality check.

When I look at org charts, I don’t see percentages or vacancy rates. I see the folks I’ve worked with for a decade walking out the door... taking 30 years of institutional memory with them.

We call it the "Silver Tsunami," but out in the field, it feels like a brain drain.

We had someone retire recently who had the entire logic of a legacy disinfection system memorized. He knew which switches could be bypassed safely, which workarounds were valid, and which ones would shut us down. That information never made it into a database. It was in his head. **And now it’s gone.**

We talk a lot about "Water Abundance"—about new dams, advanced recycling, and desalination. But I worry about who is going to turn the valves.

**You can’t drink a ribbon cutting.**

Someone still has to run the plant. Someone has to troubleshoot the sensor. Someone has to make the call during a storm.

I see operational bottlenecks every day. Sometimes, the thing stopping us from moving more water isn’t a lack of pipes.

* It’s a missing signature on a permit because a department is understaffed.
* It’s having one SCADA tech covering three districts.
* It’s a broken chlorine sensor and no one cleared to fix it.

**One missing person can throttle massive capacity.**

### IV. THE TWIN SYSTEMS DOCTRINE (5:00 - 7:00)

This brings me to a concept that I think is critical for this group. We need to redefine what "Infrastructure" means.

I view infrastructure like a coin.

* **One side is the hardware:** The concrete, the steel, the pumps, the sensors.
* **The other side is the Operating System:** The workforce.

**You cannot spend a coin with only one side.**

If we want abundance, we can’t just invest in the hardware. We have to invest in the Operating System.

That means shifting from a mindset of **Quantity** to **Quality**. We don’t necessarily need *more* bureaucrats. We need a *more capable* bureaucracy.

We need to build a "Farm System" for talent—just like baseball.

* We need a **Rookie League** of apprenticeships that connect community colleges directly to the control room.
* We need to train our mid-level folks—our **Double-A players**—in digital tools, not just mechanical ones.
* And we need to respect our **Big League** veterans enough to let them mentor the next generation before they retire.

This isn’t about "bloating" the government. It’s about **sharpening** it.

### V. PINCH POINTS AND SMALL WINS (7:00 - 8:30)

So, how do we do this? We don’t have to burn the system down and start over.

In my world, the biggest results often come from the smallest interventions. We call them **"Pinch Points."**

These are the places where a single overstretched person or an outdated process blocks the whole line.

I’ll give you a concrete example from the plant floor.

For a long time, we were stuck in a cycle of **corrective maintenance**. We were just fixing things as they broke—putting out fires.

We finally got approval to add a **third person** to the shift. That one extra body didn’t just mean lighter work. It meant we could turn the corner into **preventative maintenance**.

Instead of waiting for a pump to fail and spending $50,000 to replace it, we had the time to grease the bearings and align the shaft so it *didn't* fail.

The return on investment for that single salary is massive compared to the capital cost of emergency repairs.

But here is the risk: as soon as attrition hits and we lose that third person, we are short-handed again. We slide right back into firefighting mode.

That is why workforce capacity isn't just "overhead." It is an asset protection strategy.

And when we solve a pinch point like that, we have to celebrate it. We need to create a culture of **"Authentic Small Wins."**

When someone streamlines a process or finds a smarter fix, that has to be noticed. Not because a manual says to clap, but because it genuinely makes the work better.

This creates a "winning psychology." People stop playing defense and start innovating.

### VI. THE CONSERVATIVE CASE FOR INNOVATION (8:30 - 9:30)

I want to leave you with a thought on risk.

In our industry, "conservative" usually means "don’t change anything." We are risk-averse because the stakes are public health.

But in a world where the climate is changing, and the infrastructure is aging... **standing still is reckless.**

Doing nothing guarantees failure. The truly "conservative" thing to do—the only way to conserve the function of our system—is to innovate. To update the map so it matches the terrain.

We need a new professionalism. Today’s operator needs to be as comfortable with a tablet as they are with a wrench. Steel toes and a smartwatch. Field-tested and digitally fluent.

### VII. CLOSING (9:30 - 10:00)

This isn’t just a policy debate for me.

It’s a real-world question about who is going to be there to fix the logic and test the water when the alarms go off at night.

We have the chance to build the next century of water infrastructure. Not just the concrete and steel, but the human infrastructure too.

I think we can do it. I know we have to. And it’ll be something to be proud of when we do.

Thank you. I look forward to the conversation.