From: Rycke Brown
To: HWREC Exhibits
Subject: The Fires of September 8th, 2020
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Honorable Representatives and Senators,

Part of recovery from a natural disaster is ensuring that it will not happen again, if at all possible. This disaster was preventable, and it can be prevented from happening again, though it will take time. It took 35 years to cause this disaster, but it does not have to take that long to stop what we are doing that caused it.

The fires of September 8th were blown up by katabatic winds, which start on mountains and high plateaus under high pressure, dryness and cold. The most common example of this happens in Southern California from the Sierra Nevada in late fall and winter: the Santa Anna winds. Over the last 10 years, katabatic winds have been blowing up fires further north and earlier in the fall, as it gets cold at high elevations sooner farther north.

Katabatic winds occur under high pressure systems that produce clear skies and cold nights. The pressure is lower the higher one goes, but it is still higher than normal. *Trees in Trouble* author Daniel Matthews[1] tells us that these winds are more intense the drier the air is, which makes sense: dry air has no clouds to hold in heat at night, or to block sunlight during the day, and little humidity to hold heat by thermal mass, so dryness creates extreme temperatures, hot in daytime and cold at night, well known desert conditions. Daytime heating of the land produces high pressure.

Under these conditions at night, cold, dry, calm air under high pressure becomes very dense and heavy and slides down creek and river drainages. As its elevation drops, air pressure is higher and it becomes hotter and flows faster, becoming a high-speed, hot, super-dry wind that blows up any spark into flame and flames into conflagrations.

In 2020, we had a very dry spring that started us watering in March in Grants Pass, a first in my experience. The city had record water sales for March and April. But the bulk of the watering in Josephine County and much of the West started in May when hemp and cannabis crops were planted, so May and June were cool and rainy, due to evaporation from irrigation. Our Fire Marshal worked hard last summer to inform farmers that they had to have permits to use water from wells or surface water to water crops, and a lot of growers started hauling expensive city bulk water to their fields and used it sparingly. Grants Pass had record bulk water sales. July was cloudy, but August was dry, clear, and hot, getting to 100 degrees F by the end of it. High pressure built up over the West-coast states like I had never seen before, stretching from Mexico to British Columbia and west to the Aleutians.

This culminated after midnight on September 8th when katabatic winds started blowing all

over the western half of California, Oregon, and Washington, flowing to the west off the Cascades and the Rockies and blowing up fires in 100-degree heat. That day, we in Grants Pass, being smoked by the Almeda fire, wondering if it would reach us or another would start here. But by mid-afternoon, smoke clouds were building up from the west, shading us and reducing the heat. This stopped the winds and lowered the air pressure, giving firefighters a chance to fight the fires. We had moist smog for a week from burning cellulose and wood, which plants make from carbon dioxide and water, to which it returns when burned. The lower pressure allowed a system to come in; it rained, cleared the smog, and helped put the fires out.

Why has it been so dry?

Starting in California and spreading around the First World countries over the last 35 years, water-rationing rates have been imposed on us by cities and water districts, with high unit rates and correspondingly low base rates to make us pay high prices for the water we use so we will use less of it. The easiest use to cut is irrigation, and much of Grants Pass has gone dry every summer, like cities all over this nation, regardless of their natural rainfall. This is to their detriment, as such cities become unkempt: dirty, weedy, seedy, littered, and hazardous while their middle and lower classes live poorer from paying the water bills. In dry climates like the West side of anywhere in temperate zones, if people do not water, they do not mow and often stop maintaining their property at all. No one likes to maintain dry ugliness. Some do it anyways, but many do not.

This replaced steady base rates paying for the *service* of providing cheap water by paying for all the overhead in the base rates, a monthly charge to pay monthly bills, and paying for unit costs by charging only marginal unit rates, if any, for the water that is cleaned and transported to our homes. Since the time that we started building water and sewer plants until the late 1980s, these local monopolies gave us dependable water and sewer service such that everyone who could pay the base rate could afford to use as much as they liked. The bills varied little from winter to summer, and rose slowly over the years, less than inflation.

Why did this happen?

In the mid-'80s, we started being told that fresh water is a scarce, precious resource, being only 2% of the water on the planet, ignoring the water cycle. In 2000, when I was taking Landscape Management at Rogue Community College, our teacher, Steve Seigel, said that sprinklers evaporate half of what they throw, and that evaporation is waste, as he sold us on drip irrigation. But he also said that our city was safe from wildfire, because we had green lawns and green grass does not burn. Activists started talking to city councils in California in the late '80s. Cities share information in intergovernmental councils, spreading ideas, good and bad, around the state, the nation, and the world. The EPA encourages cities to do tiered rates. States likewise push cities to ration their water with high unit rates.

Most cities have moved on to doing low base and high unit rates on sewer use, another means of rationing water, as sewage cannot be metered, so cities use winter water use as a stand-in for metering sewage. As people cut back on what goes down their drains, there is less water to carry sewage solids to the plant, and pumps clog, creating more maintenance cost which is being blamed on baby wipes.

Utilities are high-overhead businesses and are monopolies. Electricity and natural gas are regulated by state utility boards. Water and sewer service are local monopolies regulated by city councils and water district boards. Electricity and natural gas companies started rationing

rates for their products during the oil crisis of the '70s and never stopped. State Public Utility Boards went along with it in the name of energy conservation. City Councils and District Boards go along with water-rate-rationing in the name of water conservation

Water is not precious or scarce. Next to air, it is the most abundant resource on the planet, and the most naturally recycled. It even cleans the air. But the water cycle works better for us when we throw water in the air and all over the ground and it evaporates from surfaces and transpires from plants. Evaporation is not waste; it is the first step in the surface water cycle: evaporation; condensation; precipitation. There is another water cycle as well, from the mantle, which is soaked with water in the upper mantle. It comes up through cracks in the crust as springs that feed creeks and rivers whether it rains or not and is the pressurized source of artesian wells.[3]

Irrigation, particularly with sprinklers, is vital in the naturally dry West, particularly in cities. Wooden cities used to burn and were rebuilt with brick. The advent of pressurized clean water allowed people to water their yards easily with sprinklers and allowed builders to use cheaper and easier wood again. The ‘80s were the height of sprinkler irrigation around the world and were known as a wet decade. Evaporation of millions of gallons per day in a small city like Grants Pass kept the city and the countryside around it moist enough not to burn. Water-rationing prices sow drought and reap wildfire in naturally dry climates.

The West side of any continent is dry in temperate zones because ocean currents on that side come from the poles and are too cold to evaporate much. The East sides are wet because their ocean currents come from the equator and are warm. Look at the places that have had catastrophic fires in the last decade or so; they are on the west sides, except for Australia, which is a small continent, mostly desert, with a little band of wet on the East and North, toward the equator. Even wet places can be too dry in some years. The Florida Everglades have burned at times. Australia appears to have been an early adopter of water-rationing rates.

On the West side of the Rockies, we have the best conditions for sprinkler irrigation to be quickly recycled or shared with places over the mountains. The prevailing wind is from the west and our rivers run west into the ocean. Our irrigation vapor blows uphill and upstream, where it forms clouds and rain in the mountains from which our rivers and creeks run, filling creeks, rivers, and aquifers. Some makes it over the mountains to add to monsoonal moisture from the Gulfs of California and Mexico and increase precipitation in the Plains and Southwest desert.[4]

Product-rationing rates are not just bad for consumers, but also for utilities, which are high-overhead businesses. In 2006, Grants Pass got serious about water-rationing rates and instituted high tiered rates. Over the next two years, use plummeted during the recession as people cut back on water use. Staff told the Council that the tiered rates were working way too well at getting people to cut back, mostly on irrigation, the biggest use in summer, and the city could not pay all the overhead. Staff asked that they raise the base rate by $3 to "stabilize the rates," bringing the base back up to where it was in 2005 at $12. Council did so, but the rates were still too high, and people kept cutting back. Since then, both base and unit rates have been raised frequently and by the same percentage, chasing the overhead as people keep cutting back on use. These rates stop rising so fast only when people cannot or will not cut back any further.

I have noticed that Grants Pass never budgets enough to keep up with pipe maintenance at the recommended rate of 1% replacement per year. Electrical utilities also have maintenance problems that have directly contributed to fire danger and now, along with excessive dryness,

are the reason for power shutdowns on windy days. When utilities are chasing the overhead, maintenance of pipes and lines is the last thing that gets paid for. We have seen natural gas line maintenance problems as well.

I had envied people who live in the country and use wells and septic systems, until a friend on Facebook told me about when they lived way out of town and had to stop watering because of the cost of electricity to run the pump.

Electricity-rationing rates are thereby contributing to fire danger in rural areas. Electricity and natural gas compete for part of the energy market, but electricity has more uses and producers often use natural gas for fuel, so it is less competitive and more expensive. But not so expensive that they must charge us more than the marginal cost of production for using their product.

Utilities with rationing rates are hard on ratepayers, particularly those with less income and more people in their homes. They have contributed to people losing their homes, and they cheat businesses where people otherwise might spend that money. Businesses are also ratepayers and must raise their prices to cover that extra utility expenses. The only winners are water and sewer rates consultants who create rationalizations for high unit rates and pick winners and losers among ratepayers by discriminatory pricing, getting paid so much for it that they do not care about the prices they pay or the consequences for the cities and their residents.

We are paying more and more to use less and less water, power, and gas. Overhead has to be paid, regardless of how much we use. We need to reform rate systems back to paying for all overhead, including maintenance, with minimum charges or base rates, and paying only unit costs with unit charges--or folding them into the base rate as well, which we did with sewer in Grants Pass until 2013, when my sewer bill doubled because of unit rates being added to it.

Sincerely yours,

Rycke Brown

1. Daniel Matthew, *Trees in Trouble: wildfires, infestations, and climate change*, 2020, Counterpoint, Berkley, CA
2. RAMMB: HTML5 Image Looper - ramsdis/online/images/loop_of_the_day/goes-16/20200911000000 (colostate.edu)
3. Christopher Dewdney, *18 Miles: the epic drama of our atmosphere and its weather*, pages 227-228, 2018, ECW Press, Ontario, Canada.

   Also www.primarywater.org and The Primary Water Institute - More Scientific Evidence

4. http://www.sciencedaily.com/releases/2013/01/130128133908.htm

   https://www.circleofblue.org/wp-content/uploads/2013/01/Irrigation-in-Californias-Central-Valley-Strengthens-the-Southwestern-US-Water-Cycle.pdf