

35 Years – a Possibility of Hope

By David Hawley

In 2016, things looked pretty bleak. The world's population was growing at a rate of about one Lake Oswego / per day. We'd had multiple months of record world high temperatures. Climate change had rocked the world. In Syria, years of drought forced the rural inhabitants to the cities. The Assad regime and Daesh forced one third of the citizens out of the country leading to a massive European refugee crisis.

We were in the middle of a crazy presidential election in the US, but Lake Oswego seemed peaceful. The predicted warm wet winter had been just cool enough to bring great snow to the Cascades (and Sierra Nevada) for the first time in several years. Climate talks in Paris brought good news and President Obama was starting climate initiatives that promised to at last bring focus on our fossil fuel emissions. Still, even had we gone to no fuel carbon emissions, it would have taken a century to get the atmospheric and ocean carbon levels back to a safe range. Sea level rises of several feet looked probable in the next 30 years. It seemed that the loss of Arctic sea ice would disrupt Atlantic currents driving the Gulf Stream and moderating Northern Europe climate. What could a small city known for its trees do to help?

The only option was to get out front and lead. We had to start taking an integrated design approach. We had just successfully completed huge and critical sewer and water upgrades, but it was seen that had we thought about these projects as an integrated system, they could have been more robust and less expensive. For example: emphasizing home water use reduction techniques as well as recycling could have made big impacts in both needed water inputs as well as sewer flow outputs. Pumping water to high storage is a major city electric cost, so savings compound. Any home water collection/reuse/recycling capability makes the home more robust during natural disasters as well.

The people of Lake Oswego decided to start using integrated designs with respect to transportation, building, power, water, schools and communications. Since we don't have much in the way of land resources, efficiency was a key tool. Unplanned Interacting synergies between systems also helped.

Key was to insist that all new construction be carbon neutral. This forced design that tended to be smaller, and in many cases remodel instead of tear down. The net result was very high quality buildings with beautifully efficient designs of living and working space. Heating and cooling systems were largely eliminated with passive well insulated designs. Large trees tended to be kept in place and landscaping plans considered soil carbon sequestration, grey water recycling and rain collection. Where possible, solar panels were installed and over all were able to provide the electricity required in the energy efficient home designs as well as extra to charge electric vehicles.

Because transportation needed to be part of the any net zero energy building plan, it was decided that car sharing (Zip and Uber commute/ride share models) as well as city

van/jitney and bicycles would be emphasized. This saved valuable real estate both in homes and on the streets. In-city traffic was reduced to comfortable levels. It was possible to repurpose lanes of many roads into paths and green space. Electric bicycles and semi-enclosed scooters were very important and popular; Lake Oswego has some really steep hills. Solar inverters, water heaters, electric cars and home batteries were integrated into the power grid bringing stability to the “noisy” solar power input.

The city, in Luscher Farm had experience in community gardens and a small CSA program. However, Luscher is on the far south side of town and virtually impossible to get to after work. On the other hand, the school district had significant lands within neighborhood walking distances throughout town. A number of school/community collaboration projects were tried. Most successful were food forest gardens, which used dense planting of crops at multiple levels fruit trees down to mushrooms. While these took several years to become productive, once going required little maintenance and were found to store massive amounts of carbon in the soil. Importantly, the programs brought new life into school system. The city has smart people young and old that can learn a lot working together. This collaboration gave the community a close look at school building conditions and bought consensus on the need to invest in major structural upgrades to community and earthquake standards.

A city wide high speed network allowed sophisticated virtual home offices even enabling remote medical procedures. Collaboration with local schools on MakerSpaces (3D printers, computer controlled milling and weaving) created an impressive local industry combining skills of experienced professionals and boundless youthful energy. All of these city wide developments were put to a test in 2025 when a 9.4 earthquake hit the Northwest. In general all of the new construction methods held together well. The integration of water reuse, solar power generation, city food production and small scale industry was a real life saver over the next several years as regional infrastructure was rebuilt. Community sharing experience (school, garden, commuting) created strong personal bonds that kept the community on track during this terrible period.

At a global level, the Lake Oswego models were adopted, reworked and expanded. The decades long trend in lower cost solar energy production and storage (and efficiency) kept up with the “hype” those who had not divested in fossil fuels by 2017 were very sorry.

More importantly, the realization that we had to remove carbon from the atmosphere and oceans drove us to massively support the earth’s biological processes for doing this. Overnight, agriculture had to switch from being a net emitter of 2545% of carbon to a net restorer. We had to recruit soil carbon hoarders like fungi, bacteria, dung beetles and prairie dogs to work with grasses and forests. We recruited cattle and native ungulates to trample grasses into the soils as well as eating stalks that would normally oxidize by controlled mob grazing. For wild animals, mob grazing meant recruiting wolves and other predators and restoring habitat. Poly crop farming was extended to the oceans in 3D farms of kelp, oysters and clams feeding off nutrients spilled from the land not from other hunted sea creatures.

The demise of simple mono crop farming and ranching was the death knell to confined animal feeding operations (cattle, pigs, poultry and fish). These animals remained an important part of the composting stream, but became more of a condiment in a largely vegetable based diet. Ranchers and farmers became wealthy producing high quality foods and in payments for carbon sequestration. Overall, these smaller scale, largely local systems brought a much healthier diet to the world. The obesity, diabetes epidemic was reversed in a few years.

Now in 2050, the world is a much brighter place. We held sea level rise to 68 inches and atmospheric carbon dioxide is below 350ppm. Arctic ice is back to normal coverage, sea life and coral are thriving. Population growth is nearly steady state and people are active, healthy and engaged. The winter ducks are back, and it's peaceful on the lake.

Dave Hawley is a Lake Oswego resident and engineer, geologist and foodie. He believes that there is still time to reverse the damage we have done to the planet, and that the changes we need to make can be incredibly liberating.