

Viewpoints essay on Climate Change, Casey Kulla, Dec 20, 2028

Over the course of my campaign for county commissioner, I was asked regularly, “What is the greatest challenge facing Yamhill County?” While we face many complex challenges today, including rising homelessness, lack of affordable housing, population growth, mental illness, and chemical dependency, we can solve all of these problems together with our existing partners and knowledge. So, I answered honestly, “Climate change.” I view climate change as our greatest challenge because it is global in scale and affects every single aspect of our lives. But, on the farm, when we are presented with a challenge, we see an opportunity. In climate change, I see opportunity for our county to strengthen the relationships between farmers and eaters, and to rebuild the relationship between the county and residents.

What does climate change look like for Yamhill County? According to the Oregon Climate Change Research Institute (OCCRI), the basic framework of our future is shorter, wetter winters and longer, hotter, drier summers. If we continue to increase our carbon emissions, by 2050, the county average temperature will increase by 3-7 degrees Fahrenheit. What does that mean? It means a shift from conifer forests to oak and other drought-tolerant species, with increasing wildfire risk. You can learn about the wildfire risk for your address at the Oregon Wildfire Risk Explorer (<https://oregonexplorer.info/topics/wildfire-risk?ptopic=62>). The farm crops we grow will change, too. In its Third Climate Assessment Report, the OCCRI says, “warming winters, expanding growing seasons, and carbon enrichment may boost yields for some Oregon crops and create opportunities to grow some new crops;” however, in the long term, increased heat and drought stress, water shortage and increased pest pressure will likely outweigh benefits to crops (http://www.occri.net/media/1045/ocar3_final_legsummary.pdf). Lower stream flow, warmer water, and algal blooms on the Yamhill River will harm farm irrigators, recreators and fish. Speaking of fish, according to the OCCRI’s report, “climate change uniquely affects the culture, sovereignty, health, economy and ways of life of American Indian tribes.” So, we are facing shorter, wetter winters and longer, hotter and drier summers resulting in more wildfire, poorer growing conditions for our favored crops, and lower water quality and quantity.

Tackling climate change at the county level is necessary and timely. The Oregon Governor’s Office is presenting a cap-and-trade/invest bill in the 2019 Legislative Session. It caps Oregon’s carbon emissions, with a goal of reducing emissions by 2050 to 50% below 1990 levels. The trade component involves putting a tax on carbon emissions by the biggest point source emitters but allowing companies who have reduced their emissions to sell their emissions permits to others who find it harder to reduce their carbon emissions quickly. Finally, the invest component means the state invests carbon tax revenue in carbon emission-reduction; examples of this investment would be upgrading the windows and insulation in older homes, and installing roof-top solar on rural buildings. While the Legislature will likely pass some version of cap-and-trade/invest, what can we do in Yamhill County to address climate change without singling out point-source emitters? How can we tackle climate change *together*?

There are three primary ways to address climate change in the county together: mitigation, adaptation and sequestration. Mitigation means we reduce our carbon emissions. Adaptation means we adapt to the changing climate. Sequestration means we pull carbon out of the atmosphere.

In the simplest terms, mitigation is about making more of our electricity from carbon-free sources *and* increasing energy efficiency. For example, Oregon is committing to 50% carbon-free energy generation by 2050; other states and many cities are aiming for 100% by 2050. In Yamhill County, we have a number of utility-scale solar arrays, which produce carbon-free electricity (they do require energy in the production of the panels, of course). Thus far, these solar arrays are mainly sited on farm land with high-value soils because of the proximity to higher-capacity power lines and the lower cost of rent on farmland; the county effectively banned solar arrays in 2018 because of concerns over loss of farmland, use of gravel and persistent herbicides, and aesthetics.

With a little creative thinking, our county can increase the amount of carbon-free electricity generated in the county without losing farmland or sacrificing our breathtaking views; for example, the county can leverage state dollars to upgrade the capacity of power lines in areas of lower-value soils so that arrays can be installed there. We can require that all solar arrays on farmland *continue to be farmed*. Also, the county has the financial means to waive permit fees for new residential and commercial buildings in exchange for on-site solar arrays. For existing buildings, the county can afford to waive property taxes for ten years in exchange for new on-site arrays.

We can also match the state goal for carbon-free energy by becoming more efficient. In rural Yamhill County, an older, less-insulated home might use 200 kilowatt-hours of PGE electricity monthly for heating and lights. If the county used state carbon tax dollars to upgrade the insulation, windows and lights, we cut kilowatt-hours in half!

Adaptation in Yamhill County will require that we prepare for longer summers and shorter winters. For example, we must reverse the forecasted trend toward lower summer water levels in rural wells and streams. We can do this by slowing down the abundant rainfall in winter to recharge our aquifers and re-emerge in summer as filtered water for our streams. Water management will require helping county Public Works, farmers, and rural residents to re-vegetate and maintain ditches and field edges. We can also slow down the water that emerges from farm drain tile outlets and allow it to infiltrate in native plant-lined swales.

Adaptation also means fire-proofing our buildings as our wildfire risk increases. Helping homeowners in rural areas and on the urban-wildland edge to maintain a defensible perimeter and to convert siding and roofing to non-combustible materials will keep wildfires from becoming structure fires. We can provide incentives to maintain on-site water storage for fire-fighting. Developing a county-wide fire district will reduce the losses from the inevitable wildfire, as we decrease response time to the wildland fire starts to keep them from moving into buildings and towns. Prescribed burns done by trained fire managers must be a normal part of proactive county culture. Ultimately, adaptation will require that we

acknowledge water is a precious resource that must be kept in our county, and that fire is a part of our landscape.

For farmers and foresters, adaptation requires new crops and trees. The USDA has a great resource at the NW Climate Hub (<https://www.climatehubs.oce.usda.gov/hubs/northwest>).

Sequestration is the easy part for Yamhill County. We are really good at growing plants, and sequestration is all about pulling carbon out of the atmosphere and storing it in stable forms... like plants! An acre of mature Douglas-fir sequesters 120,000 pounds of carbon. I propose that our county contract with the Miller Woods native plant nursery to provide trees and shrubs to homeowners, farmers and rural residents, and assist in planting field edges, yards, and rights-of-way. There are many fields in our county that would benefit from conversion to forests, an idea codified in our comprehensive land use plan. Farmers have a role in sequestration, as soil can hold tons of carbon in decay-resistant compounds; planting cover crops for carbon storage must be part of our future. Finally, planting shade-loving native plants under and alongside solar arrays would further our sequestration, adaptation and mitigation goals all at once!

We residents of Yamhill County are experiencing the effects of climate change already, but we can take the opportunity to innovate together for a better, more resilient future for all of us.

Introductory blurb:

Casey Kulla is a farmer on Grand Island and Yamhill County Commissioner-elect. He loves hiking with his wife Katie and children Dottie and Rusty, and surfing on the Oregon Coast whenever he can find time!