Covering Your Climate: Emerald Corridor Tries Flipping the Switch on Co2

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In Part Three of "Covering Your Climate: The Emerald Corridor," we're examining how business, government and academia in the Pacific Northwest are doing at so-called mitigation — actions designed to keep the source of the problem from worsening. This tipsheet is meant to offer fresh story ideas for veteran environment journalists and be a primer for reporters who are new to covering climate change and the larger economic and political forces in play when it comes to climate mitigation. This project focuses on the so-called Emerald Corridor that stretches from Portland and the Willamette Valley to Vancouver, B.C., but is generally applicable across the Pacific Northwest, also known as Cascadia.

The Northwest, with its spectacular landscapes, natural resource-based economies and history of environmentalism, has been especially active in fighting climate change. The governments of Oregon, Washington and British Columbia all launched aggressive plans to

cut greenhouse gases in the next few decades. But progress has been slower than hoped, while the planet is heating up faster than expected.

There are three ways to mitigate the greenhouse gas emissions that cause climate change: by reducing them, by stopping them from being emitted at the source or by removing greenhouse gases from the atmosphere that have already been emitted. Northwesterners are also trying to change attitudes and laws with a big mitigation fix.

Reducing greenhouse gas emissions

More emissions come from energy — production and usage — than any other source. That includes heating and powering homes, offices and manufacturing plants, fueling transportation of all kinds, construction, lighting, food production and everything else that plugs into a socket.

The Northwest has long been a hotbed of alternative energy sources, including the big three (wind, solar and hydropower), as well as biofuels, geothermal energy and more esoteric sources like wave, currents and tidal power.

Oregon Department of Transportation/FLICKR
Solar panels being installed on the roof of the Transportation Building in Portland in 2012. The Pacific Northwest has long encouraged alternative energy sources to reduce global warming emissions.

The region is also engaged in making renewables work better when the sun isn't shining or the wind isn't blowing. That includes better battery storage and "managing the "gap" between when the energy like solar or wind is gathered and when it is used.

There are also innovations brewing in how to balance the energy market and to retool the electric grid to make it "smarter," notably at the Pacific Northwest National Lab in Richland, Wash.

And when China stopped taking the world's plastic waste in 2018, it opened a new front: thinking about plastic pollution as fossil fuel.

Cities from Vancouver and Victoria, B.C., to Portland, Ore., banned single-use plastic bags, with Seattle taking up the rear. This movement acknowledges what industry knows: plastic is a petrochemical product.

Busting sprawl and congestion

A pair of 1973 landmark Oregon laws created a statewide planning process aimed at protecting farmland and forests by limiting growth. No matter how small, every city and town in the state by law has an urban growth boundary, which has resulted in upward, not outward growth.

Still, Portland has joined Seattle and Tacoma, Wash., as congested cities, while Vancouver, by contrast, has less traffic. Oregon and Washington are considering measures like peak pricing at drive time, but Oregon continues to argue against building new and bigger roads.

Portland's green transportation planners have focused on trying to get people out of their cars and onto bikes, scooters and public transportation. The city has prioritized spending on things like bike lanes and bioswales at the expense of repairing crumbling streets. And traffic deaths have risen.

Meanwhile, Washington's thorniest emissions problems are global shipping and air travel. The Seattle area, longtime headquarters of Boeing and Alaska Airlines, is a major transportation industry hub — and emitter.

Joe A. Kunzler/FLICKR
Sea-Tac airport is a major source of greenhouse-gas emissions.

As emissions from Sea-Tac, the Seattle-Tacoma International Airport, continue to rise, Gov. Jay Inslee has proposed joining Oregon and British Columbia by adopting a low carbon fuel standard, but that failed. The Ports of Seattle, Tacoma and Vancouver have shared a carbon-cutting action plan since 2007.

Counting 'negawatts'

Another way to increase the amount of "avoided energy," is with what Colorado physicist Amory Lovins dubbed "negawatts," otherwise known as energy efficiency in appliances, electronics, heating and cooling systems and stricter vehicle emissions standards. It's worth brainstorming what your community is — and isn't yet — doing.

Oregon and many of its cities are aggressively pushing electric vehicles with tax incentives and rebates, which can be used together, as well as for other zero-emission vehicles (PDF). Washington, too, offers generous rebates for reduced fuel vehicles.

British Columbia offers significant tax incentives for plug-in vehicles and other energy efficiency purchases. Washington and Oregon have eliminated incentives for rooftop solar altogether, while keeping modest tax incentives for energy-efficient appliances, home heating and cooling systems and electric vehicles.

Many Northwest utilities also offer rebates. Oregon cautiously recommends residential wind turbines for rural homeowners, but warns costs haven't come down the way they have commercially.

Fossil fuels not dead yet

Despite resistance on environmental grounds, coal mining continues in British Columbia, with new mines proposed. Most B.C. coal is exported and therefore not counted in the province's emissions.

Oregon's coal mining died out in the late 19th century, but the last coal mine in Washington didn't close until 2006, setting an example for other Western states. The last two Northwest coal-fired power plants are planning to close: Oregon's Boardman plant in 2020 and Washington's Centralia coal plant by 2025. Both may shift to renewable energy production.

While there's not much natural gas drilling in the Northwest, the legislatures in both Washington and Oregon passed fracking bans. The gas situation is different in British Columbia, which has allowed the earlier, less polluting form of shale gas extraction since the 1960s.

Current fracking technology allows the especially potent greenhouse gas methane to escape, which may be undercutting B.C.'s otherwise aggressive climate change policies. In addition, the provincial government has been open to the controversial step of adding one or more liquefied natural gas plants.

The region is also seeing a public relations resurgence of nuclear power, which doesn't emit greenhouses gases when operating. But power plant construction and uranium mining are highly carbon-intensive.

Northwest-based nuclear researchers at Oregon State and Washington State universities tout partnerships in developing new, smaller nuke designs. There are no nuclear plants in British Columbia and the province is bucking Canada's pro-nuke stance. Climate hawks are split on nuclear power, making it a story worth following.

Stopping emissions at the source

Wall Street is banking on carbon capture and sequestration, which includes capturing carbon dioxide and other gases before they reach the atmosphere and stashing them somewhere geologically long-term, like rocks, or biologic, like plants, in what industry leaders dub "clean coal" (may require subscription).

British Columbia, Washington and Oregon are all seen as offering possible sites for sequestering CO2 from outside coal, but the only pilot project is in Wallula, Wash.

The Northwest is most bullish on the potential role of sequestering Northwest carbon in plants, trees and soil.

Thanks to millions of years of volcanic eruptions, the soil from Oregon's Willamette Valley farmland to eastern Washington's Palouse wheat fields have some of the richest soil and rangelands in the nation, leading Washington State (PDF) and Oregon State universities, as well as local counties to consider soil sequestration. British Columbia's Okanagan wine country is exploring it, too.

While sequestering carbon in soil isn't a new idea, it's gaining rapid acceptance. Potato farmers in eastern Washington to winegrowers in southwest Oregon have adopted practices like cover crops, composting and no-till farming.

And the Washington Legislature this year passed the so-called "sustainable farms and fields bill," providing $1 million in 2020-21 to support carbon-sequestering and greenhouse-gas-slashing practices in agriculture.

Northwest forests are both a bounty of profits for the timber industry and a battleground over how much to cut and how much to protect. Agroforestry seeks to build climate resilience (PDF) by combining agriculture and forest management.

There's also significant interest in rethinking the role of Northwest forests for carbon storage. British Columbia is banking on storing carbon in its forests (PDF), but the timber industry in Oregon and Washington, and some scientists, are wary of relying too much on trees to cut emissions.

Even if forests are legally protected from logging, they'll also need to be managed in a way that protects them from increasing wildfire threats. One ambitious program is the Colville tribes' carbon sequestration forest plan.

The iffy 'grail' of geoengineering

Geoengineering is about intervening in the global weather system to offset the worst climate change impacts. Some technology folks, and a few nations, see geoengineering as a potentially painless silver bullet, while many scientists are extremely wary of the potential unintended consequences of screwing around with nature.

The probably bad: Fertilizing oceans with iron filings, giant mirrors in space to reflect the sun's rays and exploding bombs in the atmosphere, perhaps even nuclear bombs, to dim the sun.

The possible, with caveats: Putting aerosols into the atmosphere to block some of the sun's rays would simulate what happens after volcanic eruptions: skies dim and Earth cools (here's a good explanation from the University of Washington). Despite support from Microsoft founder Bill Gates there are potential problems. Scientists theorize that once the atmosphere clears, the heat could return with a vengeance. There's also concern that atmospheric aerosols could be weaponized. Nevertheless, this idea has gained strength over the years.

The probably good: Afforestation, aka planting lots of trees, advice the Northwest doesn't need. In early 2020, President Donald Trump proposed planting a "trillion trees." Trump's departure from his previous pooh-poohing of the need to address climate change won praise at the World Economic Forum and criticism from climate scientists.

Robert McClure/InvestigateWest
Carbon Engineering in Squamish, B.C., is pioneering a plan to pull carbon dioxide out of the atmosphere and transform it into a fuel that can be used for transportation.

Also, dam operators near Wenatchee, Wash., are contemplating creating "renewable" hydrogen by using hydropower to split water — H_2O —into oxygen and hydrogen. The Bonneville Power Authority pumped water uphill when there's an excess of hydropower (such as during the spring snowmelt) and then released it in leaner times using gravity, an idea that's gained traction nationally.

The big kahuna is sucking greenhouse gases out of thin air. In British Columbia, the concept of "direct air capture" has moved rapidly from concept to reality. What's hanging it up at this point is cost and scale, but Carbon Engineering in Squamish, B.C., has the cost down as low as $100 per ton of CO_2.

A big fix?

Despite powerful economic arguments that the cost of doing nothing on climate change vastly exceeds the cost of taking action, change is hard. We humans are not built for long-term thinking. Our brains haven't changed much since we worried about the saber-toothed tiger right outside the cave. Politicians have to run for re-election — every two, four or six years. Even worse, businesses run on quarterly earnings reports.

Changing attitudes: Social scientists from psychologists to behavioral economists are looking into why and how people change, and attempting to find better ways to communicate the climate threat. They've also weighed in on how to incorporate environmental equity into climate mitigation plans. And they're adopting new strategies to encourage environmentally sound behavior.

Still, there are signs of growing buy-in to climate action. Northwest consumers often shop green, they work green and they vote green. Meanwhile, Northwest corporate shareholders, as well as some CEOs of major corporations in Oregon, Washington and British Columbia are pushing for change, although there are skeptics about their motives.

The Northwest is home to a vibrant environmental activist community, which in recent years has been fighting a spate of proposals to vastly increase exports of oil and gas via railroad and pipeline, as well as attempts to site a new shipping terminal for liquified natural gas.

The expansion of Texas-based Kinder Morgan's Trans Mountain pipeline is a high priority for Canada's national government, despite opposition from British Columbia and First Nations groups. It would nearly triple crude oil from Alberta to the Port of Vancouver and then ship it out to the Pacific.

Robert McClure/InvestigateWest
Protesters in Seattle in 2017 decry plans for a pipeline to export crude oil from Alberta through British Columbia, where the provincial government and First Nations are opposed.

Changing laws: Juliana v. United States was filed in 2015 by Our Children's Trust, a group of young people in Eugene, Ore. The federal government, starting with former President Barack Obama and continuing under President Trump, has vigorously fought the case.

Juliana argues that the government has violated the constitutional rights of citizens to life, liberty and property by its affirmative actions to promote the fossil fuels that cause climate change. As of March 2020, the case shows no signs of being resolved.

In 2019, a group of teenagers went to federal court (PDF) in Vancouver, B.C., to sue the attorney general of Canada and Queen Elizabeth II, arguing the government's actions "cause, contribute to and allow a level of GHG emissions incompatible with a Stable Climate System."

Both suits are petitioning their respective countries to adopt serious, comprehensive climate change policies, which in theory, could significantly mitigate the problem.

Political action: In the absence of concerted federal legislation or U.S. buy-in to global climate treaties, many Emerald Corridor cities and states have continued to abide by the Paris accords and Kyoto Protocol (PDF). Seattle City Hall, for example, passed a local version of the Green New Deal in 2019.

British Columbia created a provincial carbon tax in 2008 to put a price on greenhouse gases. Washington's legislature has been trying to do something similar, while Oregon has been pursuing a statewide cap-and-trade plan (may require subscription).

After Republicans in the Oregon Legislature left the state in 2020 to kill the quorum needed to pass the cap-and-trade legislation, Gov. Kate Brown signed an executive order to start ratcheting down greenhouse gas emissions from factories, power plants and transportation fuels. So there will be caps, but there will be no market mechanism to help ease the worst of the pain and encourage innovation.

The Northwest fingerprint looms large in national climate policymaking, with Oregon Democrat Kurt Schroeder teaming up with West Virginia Republican David McKinley on a bipartisan push on Capitol Hill to "innovate and regulate" the energy sector. And, in a first, climate change became a top national issue in the 2020 presidential election, at least partly spurred on by Inslee's candidacy, which was focused on fighting climate change.

Cross-platform writer-producer-editor Christy George has been covering climate change and the environment for 15 years.

She's currently an itinerant editor for public radio newsrooms from Seattle to Salt Lake City, and has been a reporter-producer for the PBS-TV program, "History Detectives;" the national business show Marketplace Radio; Oregon Public Broadcasting, WGBH-TV; WBUR-FM; and the Boston Herald*, where she edited national and foreign news.*

Her awards include three Emmys, an Edward R. Murrow award and a Gracie Allen award. She shared in Marketplace's team Columbia-duPont Silver Baton. She was a 1991 John S. Knight Journalism Fellow at Stanford University.

George is also a past SEJ president and board member. She and Rocky Barker are co-chairing SEJ's conference in Boise, Idaho this coming September.