
CHAPTER THREE

PROTECTING THE ENVIRONMENT

1. Policy recommendation: Empower individuals with smartphone environmental solutions

In a world where smartphones and the internet connect everyone, environmental activism is stuck in the 1970s and the immediate impulse is to use the same approach today that we chose in the 1970s, when we created the Environmental Protection Agency and creating the Clean Air Act and the Clean Water Act.

A half-century later, however, there are many new technology options and the nature of environmental problems are now very different. Former Environmental Protection Agency Administrator William Ruckelshaus notes, “We have made little or no progress on non-point-source pollution. In fact, the EPA’s latest estimate is that the percentage impact on receiving waters is just the reverse of that in 1970: 15% of the problem is point sources of pollution, and 85% of the impact is non-point sources.”

Smartphones and personal technology offer the ability to address these distributed environmental problems better than centralized government agencies. Rather than immediately turning to government for environmental solutions, smartphone environmentalism offers a better way to address many of our most difficult environmental problems.

Giving power to people with incentives to conserve

Market prices send strong signals about the value of resources, providing incentives to conserve while saving money. For example, Nest thermostats allow homeowners to save money while reducing energy demand during high-cost hours, when utilities pay

the most for electricity. Nest users in some areas can choose to participate in programs that automatically adjust your thermostat to save energy during critical parts of the day.

Southern California Edison (SCE) tested the effectiveness of Nest thermostats at reducing peak demand and found Nest thermostats, combined with price incentives, “significantly increased the magnitude of peak load reductions relative to the first summer [of the test period].” Simply giving people information and a tool to respond to the incentives they already have worked to shift demand and reduce energy costs.

Electricity use is not the only area in which smartphone technology can save resources. A new technology called Buoy connects to a house’s water line and provides users more information about how they use water and gives them increased control.

By tracking where the water goes, Buoy provides information that helps users find ways to conserve. Buoy’s creators found homeowners typically waste about 9.5 percent of the water their homes receive. Fixing those household leaks would save up to 13,000 gallons of water a year, saving hundreds of dollars.

Collaborating to help the environment

Smartphones and the internet also connect people, allowing them to combine information and tackle environmental problems. For example, an app called eBird helped create habitat for migratory birds simply by collecting data from a wide network of birdwatchers.

Using the existing data from eBird checklists, The Nature Conservancy (TNC) was able to identify land in California most used by the birds as they migrated.

Once they had the information, TNC went to the California Rice Commission and to farmers, offering to pay them to create “pop-up habitats” for short periods of time. TNC offered to pay farmers to flood their fields with a few inches of water and leave them idle during a time when they might otherwise be preparing for the next growing season. Farmers agreed, named their price, and TNC rented the land to create migratory habitat.

Smartphones reduce what Nobel Prizewinning economist Ronald Coase called “transaction costs,” the cost of sharing information and collaborating.

For distributed environmental problems, like those identified by Ruckelshaus, smartphone information aggregation is a critical part of identifying problems and opportunities in ways that have not been available before.

Smartphone environmental opportunities

Smartphones can also improve the efficiency of government. One example is King County’s new noxious weed app, which allows users to photograph, identify, and report noxious weeds.¹ Photos can be assessed by King County staff without a site visit. Previously, users had to submit a written report with vague descriptions of the location and the plant. The new app saves time and money by improving the quality of information shared by users.

Conclusion

Smartphone technology can empower people who have the incentives to save resources. By allowing users to track electricity and water use, they can conserve energy and avoid waste. Unlike

1 “Noxious weeds? Now there’s an app for that in King County,” by Paige Cornwall, *The Seattle Times*, June 18, 2019, at <https://www.seattletimes.com/seattle-news/noxious-weeds-now-theres-an-app-for-that-in-king-county/>.

many politicians, individuals will admit when they have made a mistake, and find ways to change their behavior in order to save money.

Rather than simply turning to expanded government programs that are unable to solve many of today's environmental problems, policymakers, innovators, and the public should use the power we now have in the palm of our hand.

2. Policy recommendation: Destroying the Snake River dams would be bad for the economy and for the environment

In 1999, environmental activists paid for a full-page ad in *The New York Times* claiming that unless the four Lower Snake River Dams were removed, “wild Snake River spring chinook salmon, once the largest run of its kind in the world, will be extinct by 2017.” Instead, adult Chinook returns average more than five times as many fish per year than in the decade before the ad ran.

Despite increased fish populations, some in the environmental community are still calling for destroying the Snake River dams. Focus on the dams is a dangerous distraction from the real work that needs to be done to help salmon populations across the Northwest.

Destroying dams won't save salmon or orca

NOAA Fisheries notes that the dams are “very close to achieving, or have already achieved, the juvenile dam passage survival objective of 96 percent for yearling Chinook salmon and

steelhead migrants.”² At best, destroying the dams would increase the current survival rate by a very small amount.

NOAA Fisheries’ recovery plan notes that some risks to salmon will decrease without the dams, but others may increase. Dr. Peter Kareiva, who analyzed the impact of the Snake River dams for NOAA Fisheries in the early 2000s, argues, “it is not certain that dams now cause higher mortality than would arise in a free-flowing river.” He concludes that, “it has become clear that salmon conservation is being used as a ‘means to an end’ (dam removal) as opposed to an ‘end’ of its own accord.”³

With the declining population of Southern Resident Killer Whales in Puget Sound, some argue that destroying the dams would help them recover. In 2018, NOAA Fisheries and the Washington State Department of Fish and Wildlife ranked the watersheds based on their importance to orca recovery. They determined that the Snake River ranked 9th in importance behind the Puget Sound, the Frasier River, Lower Columbia and other regions.⁴

In their briefing paper on “Southern Resident Killer Whales and Snake River Dams,” NOAA Fisheries wrote:

2 “ESA Snake River Spring/Summer Chinook Salmon and Snake River Basin Steelhead Recovery Plan,” NOAA Fisheries, November 2017, at https://www.westcoast.fisheries.noaa.gov/publications/recovery_planning/salmon_steelhead/domains/interior_columbia/snake/Final%20Snake%20Recovery%20Plan%20Docs/final_snake_river_spring-summer_chinook_salmon_and_snake_river_basin_steelhead_recovery_plan.pdf.

3 “Fealty to symbolism is no way to save salmon,” in “Effective Conservation Science: Data Not Dogma,” by P. Kareiva, and V. Carranza, edited by Peter Kareiva, Michelle Marvier, and Brian Silliman: Oxford University Press, 2018, DOI: 10.1093/oso/9780198808978.003.0015, at http://www.pugetsoundanglers.org/Fealty_to_symbolism_is_no_way_to_save_salmon.pdf.

4 “Southern resident killer whale priority Chinook stocks,” NOAA Fisheries and Washington State Department of Fish and Wildlife, June 22, 2018, at <https://www.documentcloud.org/documents/4615304-SRKW-Priority-Chinook-Stocks.html>.

“...the relative size of the Snake River salmon stocks compared to others on the West Coast means that increases in their numbers, whether from breaching dams or otherwise, would result in only a marginal change in the total salmon available to the killer whales.”⁵

According to the Army Corps of Engineers, the cost to remove the dams would be more than \$1 billion.⁶ A \$1 billion public expense would be equal to more than 11 years of state funding for salmon recovery efforts in Western Washington. In the 2019-21 state Capital Budget, funding for six salmon-recovery funds amounted to \$173.5 million.⁷

Increasing funding for salmon recovery even by a few million dollars has been politically difficult. It is unclear where politicians would find \$1 billion. Encouraging politicians to spend public money on destroying the dams rather than focusing resources where the science indicates is counterproductive and will end up harming orca recovery.

The high cost of replacing the electricity

The four Lower Snake River Dams provide about seven percent of Washington’s electricity, providing about 7.5 million megawatt hours (MWh) of electricity.⁸ That is more than the amount

5 “Southern Resident Killer Whales and Snake River Dams,” NOAA Fisheries West Coast Region, 2016, at https://www.westcoast.fisheries.noaa.gov/publications/protected_species/marine_mammals/killer_whales/killerwhales_snakeriverdams.pdf.

6 “Final Feasibility Study and Environmental Impact Statement,” U.S. Army Corps of Engineers, Annex X, page D-X-3, 1998.

7 The funds included here are the Salmon Recovery Funding Board, the Puget Sound Acquisition and Restoration Fund, Floodplains by Design, as well as accounts for estuaries, coastal restoration, and fish passage.

8 “Emissions & Generation Resource Integrated Database (eGRID),” U.S. Environmental Protection Agency, February 15, 2018, at <https://www.epa.gov/energy/emissions-generation-resource-integrated-database-eGRID>

generated by all solar panels and wind turbines in Washington state combined.

In 2018, the NW Energy Coalition commissioned a study to argue for dam removal.⁹ Their report said it would cost \$464 million a year to replace 86 percent of the energy with renewables.

Some activists claim the energy from the dams is not needed at all. The producer of a documentary calling for dam destruction claimed, “If we took those dams out, we would not need to replace the electricity and we would all save money.”¹⁰

The Northwest Power and Conservation Council warns the Northwest is facing an energy shortage even with the dams. If the dams were removed, the shortage would get worse, and a NWPCC analyst confirmed that “without these dams, LOLP [Loss of Load Probability] increases significantly.”

Conclusion

Salmon populations along the Snake River are greater today than two decades ago, and the fish survival rate continues to improve.

To help salmon and orca, Washington policymakers should put funding where it will be most effective. Preserving the Snake River dams is not only good for our economy, farmers, and energy – it is good for orcas and the environment.

9 “Lower Snake River Dams Power Replacement Study,” Northwest Energy Coalition, March 2018, at https://nwenergy.org/wp-content/uploads/2018/04/LSRD_Report_Full_Final.pdf.

10 “Film Finds Momentum for Removing Dams to Save Orcas,” by Eric Tegethoff, Public News Service, August 19, 2019, at <https://www.publicnewsservice.org/2019-08-16/endangered-species-and-wildlife/film-finds-momentum-for-removing-dams-to-save-orcas/a67462-1>

3. Policy recommendation: Protect honeybees and farmers with good science

The claims about recent honeybee deaths are dramatic. Environment Washington’s web page proclaims, “Millions of bees are dying off, with alarming consequences for our environment and our food supply. ... It’s simple: No bees, no food.”¹¹ There has been an increase in the percentage of honeybee hives that die each year, and Environment Washington is not alone in blaming pesticides, climate change or other environmental factors.

These claims, however, ignore the fact that beekeepers have successfully replaced lost hives. Surveys of beekeepers by the U.S. Department of Agriculture (USDA) show that the most serious threat is the varroa mite, which attaches itself to honeybees, spreading disease and shortening their lifespan.

Increase in honeybee mortality

According to the USDA, the percentage of honeybee hives that die annually has increased from about 20 percent twenty years ago, to about 40 percent in four of the last five years.¹² Hobbyist beekeepers have the highest mortality, losing nearly 51 percent of hives in 2017-18. Commercial beekeepers have the lowest level of hive loss, losing 33 percent of hives.¹³ The knowledge of beekeepers, and the incentive to keep hives alive, have a strong influence on hive mortality.

The number of honeybee hives in the United States has actually increased in recent years. In 2000, the USDA estimates there were

11 “No Bees, No Food,” Environment Washington, accessed October 3, 2019, at <https://environmentwashington.org/programs/wae/no-bees-no-food>.

12 “Honey Bee Colony Losses 2018-2019: Preliminary Results,” Bee Informed Partnership, June 19, 2019, at <https://beeinformed.org/results/2018-2019/>.

13 “National Management Survey,” Bee Informed Partnership, 2018-2019, at <https://bip2.beeinformed.org/survey/>.

about 2.68 million hives in the US.¹⁴ In 2019, the estimate is 2.8 million hives.¹⁵ Far from seeing a decline in honeybee population, beekeepers have ensured the population is higher than at any time in the last two decades.

Why are bees dying?

It is important to understand why hives are dying, so beekeepers, farmers, and policymakers can address the real problem.

Hobbyist beekeepers have higher mortality rates because they are less likely to have effective strategies to reduce varroa mites. The USDA notes that:

“Many backyard beekeepers don’t have any varroa control strategies in place. We think this results in colonies collapsing and spreading mites to neighboring colonies that are otherwise well-managed for mites.”¹⁶

Rather than listening to beekeepers or the USDA reports, politicians blame pesticides, especially a type of pesticide known as neonics. The evidence linking neonics to hive death, however, is flimsy.

Neonics are primarily an agricultural pesticide. Commercial beekeepers, those with the greatest exposure to agricultural pesticides, have the lowest rates of mortality. Only 13.6 percent of

14 “Honey,” National Agricultural Statistics Service, U.S. Department of Agriculture, February 28, 2001, at <https://downloads.usda.library.cornell.edu/usda-esmis/files/hd76s004z/vm40xv388/hd76s2432/Hone-02-28-2001.pdf>.

15 “Honey, National Agricultural Statistics Service, U.S. Department of Agriculture, May 16, 2019, at <https://downloads.usda.library.cornell.edu/usda-esmis/files/hd76s004z/j098zm46r/d504rv45m/hony0519.pdf>.

16 “Nation’s beekeepers lost 44 percent of bees in 2015-16,” Bee Informed Partnership, May 10, 2016, at <https://beeinformed.org/2016/05/10/nations-beekeepers-lost-44-percent-of-bees-in-2015-16/>.

beekeepers named pesticides of all kinds as a “stressor” during the first quarter of 2019. By way of comparison, 45.6 percent named varroa mites.¹⁷

Studies for the prevalence of neonics in hives finds very low levels. USDA found only 1.9 percent of pollen found in hives tested positive for a common neonic known as *imidacloprid* and only 1.2 percent tested positive for *clothianidin*.¹⁸ Many beekeepers worry that neonics will be replaced with pesticides that are more harmful. Scientist and beekeeper Randy Oliver argues:

“Instead of putting unwarranted lobbying effort against the single insecticide clothianidin, the bee industry would better benefit by going after ... ‘the low-hanging fruit’—the all-too-common bee kills due to spray applications of other pesticides.”¹⁹

Another claim is that climate change is harming bees. This is a strange claim. Honeybees are believed to have originated in Africa and are not native to the United States. There were 530,000 hives in North Dakota in 2018, and 335,000 hives in California, representing the top two states for number of hives. These states have two very different climates, and honeybees thrive in both.²⁰

17 “Honey Bee Colonies,” National Agricultural Statistics Service, U.S. Department of Agriculture, August 1, 2019, at <https://downloads.usda.library.cornell.edu/usda-esmis/files/rn301137d/f7623q868/ft849239n/hcny0819.pdf>.

18 “National Honey bee Survey Pesticide Report, 2011 to 2019” Bee Informed Partnership, accessed October 3, 2019, at https://bip2.beeinformed.org/state_reports/pesticides/

19 “Neonicotinoids: Trying to make sense of the science, Part 2,” by Randy Oliver, September 2012, American Bee Journal (ABJ), Scientificbeekeeping.com, at <http://scientificbeekeeping.com/neonicotinoids-trying-to-make-sense-of-the-science-part-2/>.

20 NASS, U.S. Department of Agriculture, 2019.

Beekeepers and farmers are protecting honeybee populations

Beekeepers and farmers have strong incentives to keep honeybee populations strong. Farmers pay for pollination services, and beekeepers lose income for every hive lost. Although beekeepers have not yet successfully reduced annual mortality, they have compensated by replacing hives faster than they are being lost. Free markets have saved the bees.

Conclusion

The risks to honeybees continue, but blaming pesticides needlessly pits farmers and beekeepers against each other and risks bringing back older pesticides that are more toxic to bees.

4. Policy Recommendation: Require environmental spending to meet effectiveness benchmarks

Using regulation and direct subsidies, Washington state is spending a significant amount to reduce CO₂ emissions in the state. The justification is that we face a “climate crisis.” Despite that rhetoric, the state does nothing to ensure taxpayer funds are spent to achieve the most CO₂ reduction for every dollar.

Whether climate change is a crisis or a manageable risk, lawmakers should adopt performance standards for climate-related policy and regulation. Such standards not only represent responsible use of taxpayer funds but are environmentally responsible. If activists believe we face a climate crisis, they should be the most vocal demanding that the action we take is effective.

High cost, poor results

The market provides good metrics for the price of effective CO₂

reduction. In 2019, the average market price for reduce one metric ton (MT) of CO₂e²¹ ranges from about \$17 in California’s cap-and-trade system,²² to seven dollars paid by Seattle City Light.²³ Individuals can invest in certified CO₂ reduction projects for about \$10/MT from places like Bonneville Environmental Foundation.²⁴ The price of Washington state climate policy far exceeds these costs.

For example, starting in 2007 the management consultant McKinsey published its “greenhouse gas abatement cost curves,” ranking the most cost-effective approaches to reducing CO₂ emissions.²⁵ The prioritization approach has been recognized as the most effective approach to maximizing the effectiveness of CO₂ policy and was referenced by Governor Inslee’s first climate legislation in 2013.²⁶ Unfortunately, Washington state elected officials and agency staff have not followed this approach, instead choosing projects that have high costs but yield small CO₂ reductions.

Three 2019 policies demonstrate the ineffectiveness of our

21 CO₂e includes not only CO₂ but other greenhouse gases like methane and sulfur hexafluoride.

22 “California cap-and-trade program,” California Air Resources Board, August 2019, at https://ww3.arb.ca.gov/cc/capandtrade/auction/results_summary.pdf.

23 Author interview with Oradona Landgrebe, Environmental Affairs, Seattle City Light, August 22, 2019.

24 “Carbon offset projects,” Projects and Programs, Bonneville Environmental Foundation, accessed October 4, 2019, at <http://www.b-e-f.org/environmental-projects-and-programs/carbon-offset-projects/all/>.

25 “Pathways to a low-carbon economy: Version 2 of the global greenhouse gas abatement cost curve,” McKinsey and Company, September 2013, at <https://www.mckinsey.com/business-functions/sustainability/our-insights/pathways-to-a-low-carbon-economy>.

26 “Evaluation of Approaches to Reduce Greenhouse Gas Emissions in Washington State – Final Report,” prepared for State of Washington Climate Legislative and Executive Working Group (CLEW), Leidos, October 14, 2013, at http://www.governor.wa.gov/sites/default/files/documents/Task_4_Final_Report_10-13-2013.pdf.

current approach. First, the legislature adopted a requirement that 100 percent of Washington’s electricity be CO₂-free by 2045. Analysis by the Low Carbon Prosperity Institute found that approach will cost between \$60 and \$90 per MT of CO₂ reduced.²⁷

Second, the Washington State Department of Ecology provided \$13.3 million to counties for electric buses. Based on the anticipated lifespan of the buses, it costs about \$195 for every metric ton of CO₂ avoided.²⁸

Third, the legislature reinstated subsidies for electric vehicle buyers. These subsidies are extremely ineffective, costing about \$158 to reduce on MT of CO₂.²⁹ If the state followed the lead of Seattle City Light and invested in CO₂ reduction projects available on the market, it would reduce nearly 28 times as much CO₂.

One reason projects are so ineffective is that they are chosen based on politics. As climate researchers Michael Vandenberg and Jonathan Gilligan note in their book, government often “requires other goals to be achieved” unrelated to CO₂ reduction.³⁰ Rather than address the “climate crisis,” politicians reward special interest groups.

27 “Analysis of 100% Clean Bill (SB 5116) Cost Cap,” by Kevin Tempest, Low Carbon Prosperity Institute, March 27, 2019, at <https://www.lowcarbonprosperity.org/2019/03/27/analysis-of-100-clean-bill-sb-5116-cost-cap/>.

28 “How Washington’s new electric bus is like a \$616 latte,” by Todd Myers, Washington Policy Center, June 18, 2019, at <https://www.washingtonpolicy.org/publications/detail/how-washingtons-new-electric-bus-is-like-a-616-latte>.

29 “Tax breaks for wealthy electric vehicle buyers won’t reduce CO₂ emissions,” by Todd Myers, Washington Policy Center, February 28, 2019, at <https://www.washingtonpolicy.org/publications/detail/tax-breaks-for-wealthy-electric-vehicle-buyers-wont-reduce-co2-emissions>.

30 “Beyond Politics: The Private Governance Response to Climate Change,” by Michael Vandenberg and Jonathan Gilligan, Cambridge University Press, 2017, page 250.

Set standards for effectiveness

Legislators should adopt metrics of effectiveness for all climate policy to ensure we maximize CO₂ reduction. First, Washington state should not spend more than \$20 per metric ton of CO₂.

Second, all state funds related to reducing CO₂, including subsidies for electric vehicles, renewable energy, and the Clean Energy Fund, should instead be used to invest in CO₂-reduction projects on the open market. These policies are appropriate no matter how large or small the risk from climate change is.

Conclusion

Washington could do more to reduce CO₂ emissions and mitigate the impact of climate change by setting some basic standards and following a trend that has been recognized as the gold standard for more than a decade.

5. Policy Recommendation: Three steps to help salmon in the near term

When the Puget Sound Partnership (PSP) was created in 2007, it set a target to, “Stop the overall decline and start seeing improvements in wild Chinook abundance” by 2020.³¹ Populations, however, have not recovered, and progress toward this goal has been slow.

The real work to recover salmon will take time and rely on incremental improvements. With the need to increase salmon populations in the near term, legislators should prioritize projects that help salmon today.

³¹ “Chinook Salmon Population Abundance,” Puget Sound Vital Sign, Puget Sound Partnership, July 11, 2019, at <https://vitalsigns.pugetsoundinfo.wa.gov/VitalSignIndicator/Detail/4>.

Salmon populations are not increasing

This year, PSP updated its assessment of Chinook recovery, noting the population is “not improving,” and is below the 2020 target. They noted, “None of the populations of Puget Sound Chinook salmon are currently meeting recovery goals for abundance of natural-origin spawners.”

Three salmon recovery strategies

Reduce competition from seals and sea lions

Seal and sea lion populations have increased and they are eating Chinook salmon that could be available as a food source for orca. A 2018 study found “significant negative correlations between seal densities and productivity of Chinook salmon for 14 of 20 wild Chinook populations in the Pacific Northwest.”³²

A law to amend the Marine Mammal Protection Act and allow states and Indian tribes to kill predatory sea lions at the mouth of the Columbia River passed Congress with bipartisan support in 2018.³³ Expanding the authority to reduce populations elsewhere would immediately increase prey availability for Puget Sound orca.

Increase hatchery production

Hatchery production has steadily declined for more than two decades. Puget Sound hatchery production has fallen from about 110 million in the late 1990s, down to under 80 million in 2017.

32 “Wild Chinook salmon productivity is negatively related to seal density and not related to hatchery releases in the Pacific Northwest,” by Benjamin W. Nelson, Carl J. Walters, Andrew W. Trites, and Murdoch K. McAllister, *Canadian Journal of Fisheries and Aquatic Sciences*, 2019, 76(3), pages 447-462, at <https://doi.org/10.1139/cjfas-2017-0481>.

33 “House passes bill to cull predatory Columbia River sea lions,” by George Plaven, *Capital Press*, June 28, 2018, at https://www.capitalpress.com/nation_world/ap_nation_world/house-passes-bill-to-cull-predatory-columbia-river-sea-lions/article_359dcccc-8b82-5f73-85ec-1e07bf2709c2.html.

Chapter 3: Environmental Policy

In some watersheds, like the Elwha River on the Olympic Peninsula where hatchery fish represent 96 percent of all salmon, hatcheries are critical to maintaining viable populations.³⁴

The legislature increased funding for hatcheries in the 2019-21 state budget, which is encouraging. Although it takes several years for hatchery fish to return and become available to orca and sport and tribal fishers, the timeline is shorter than other approaches.

Make farmers partners in habitat recovery

Farmland can play an important part in salmon recovery. Too often, however, the financial burden of salmon recovery on farmland is placed on the farmer. Costs should be borne by everyone, not just farmers providing ecosystem services that city-dwellers cannot.

The work of conservation districts and the Conservation Reserve Enhancement Program (CREP) are important parts of the effort to reward farmers who create salmon habitat while maintaining a variable farm.³⁵ Several improvements, however, are necessary.

The legislature should fund pilot projects that provide incentives to match that value in a one-time incentive that provides equivalent net income for producers of high-value crops such as cranberries, blueberries and orchards. Lawmakers should offer a cumulative impact incentive to reward agricultural producers who enroll 50% of farmland along a stream with a one-time bonus.

Conclusion

34 “Age Structure and Hatchery Fraction of Elwha River Chinook Salmon: 2017 Carcass Survey Report,” by Josh Weinheimer, Joseph Anderson, Randy Cooper, Scott Williams, Mike McHenry, Patrick Crain, Sam Brenkman, and Heidi Hugunin, Washington State Department of Fish and Wildlife Fish Program Science Division, FPA 18-05, June 2018.

35 “Conservation Reserve Enhancement Program (CREP),” Washington State Conservation Commission, at <https://scc.wa.gov/crep/>.

In the near term we need to take steps that can produce increases in the next few years. Reducing predation, increasing hatchery production, and making farmers partners will offer near-term environmental improvements until longer-term efforts begin to show results.

6. Policy Recommendation: The wasteful ineffectiveness of a low-carbon fuel standard

Transportation accounts for the largest portion of Washington’s CO₂ emissions, accounting for about 40% of the total, so, policymakers have focused on reducing transportation emissions. The key, however, is to reduce CO₂ emissions in ways that are effective.

A low-carbon fuel standard (LCFS) is an expensive way to reduce CO₂ emissions and air pollution. It is also extremely ineffective at reducing traditional forms of air pollution, like particulate matter.

High cost to reduce CO₂

The primary justification for the LCFS is that it reduces the carbon-intensity of transportation fuels. The legislation previously offered in Olympia sets a goal to reduce the carbon intensity of gasoline by 20 percent by 2035.

Ultimately, the costs to meet those goals are borne by drivers. We have a good idea of what those costs will be based on real-world experience in California and Oregon.

In California, the price to reduce one metric ton (MT) of CO₂ has hovered around \$190 since early 2018. That price translates to about 34 cents per gallon when the LCFS reaches its goal of reducing the carbon-intensity of gasoline by 20 percent. In

Oregon, the price doubled from 2018 to mid-2019, when the credit price for one MT of CO₂ jumped to \$156.20.³⁶

These prices are extremely high. The Bonneville Environmental Foundation offers projects that reduce one MT of CO₂ for \$10.³⁷ Seattle City Light, which invests in projects that reduce CO₂ emissions to offset emissions from electricity generated by natural gas, pays about seven dollars per MT of CO₂ avoided.³⁸

No reduction in particulate matter

The advocates of the LCFS in Washington state argue it will also reduce particulate matter (PM). The Department of Ecology found the LCFS would reduce PM 2.5 by about one percent ten years after it was implemented.³⁹

Some argue that an LCFS would benefit communities near roads that may be more exposed to PM from cars. The claim is that asthma, and other illnesses, would be reduced by an LCFS. No data, however, has been offered to back up this claim.

The market alternative to an LCFS

Support for a low-carbon fuel standard is based on the argument

36 “Monthly CFP Credit Transfer Report for July 2019,” Oregon Department of Environmental Quality, August 6, 2019, at <https://www.oregon.gov/deq/FilterDocs/CFPCreditTransferActivityReport.xlsx>. The measurement refers to airborne particles 2.5 microns in size.

37 “Carbon offset project portfolio,” Projects and Programs, Bonneville Environmental Foundation, accessed October 4, 2019, at <http://www.b-e-f.org/environmental-projects-and-programs/carbon-offset-projects/all/>

38 Author interview with Oradona Landgrebe, Environmental Affairs, Seattle City Light, August 22, 2019.

39 “A Clean Fuel Standard in Washington State: Revised Analysis with Updated Assumptions,” by Jennifer Pont, Stefan Unnasch, et al., Final Report, LCA 8056.98.2014, Life Cycle Associates LLC, December 12, 2014, at https://www.ofm.wa.gov/sites/default/files/public/legacy/reports/Carbon_Fuel_Standard_evaluation_2014_final.pdf.

that Washington must reduce transportation-related CO2 emissions. The goal should be to provide the greatest CO2 reduction for the least cost. An LCFS fails that test.

To effectively reduce CO2 emissions, the state should follow the lead of Seattle City Light and others who invest in carbon reduction projects on the market. Many organizations offer projects that have been independently certified to be effective by organizations like Green-e.⁴⁰ According to state estimates, implementing the low-carbon fuel standard would cost about \$750,000 per year.⁴¹ At the rate paid by Seattle City Light – about seven dollars per MT of CO2 – that would remove the CO2 from nearly 27,000 cars annually.

Conclusion

If Washington state or other jurisdictions adopt an LCFS rule, lawmakers should allow the use of certified CO2 reductions to meet the requirements of the rule. This would cut the cost by about 95 percent, while achieving the same CO2 reduction goals.

Among the many strategies to reduce CO2 emissions, a low-carbon fuel standard is one of the most expensive and least effective. Washington should reject this approach, which is bad for the economy and for the environment.

40 “A global third-party certification program for carbon offsets,” Certified products and companies, Green-e Climate, accessed October 4, 2019, at <https://www.green-e.org/programs/climate>.

41 “Multiple Agency Fiscal Note Summary: SB 5412, Greenhouse gases, transportation fuels,” Office of Financial Management, Washington State Legislature, January 30, 2019, at <https://fortress.wa.gov/FNSPublicSearch/GetPDF?packageID=53932>. Fiscal Note shows two-year cost of \$1.5 million.

Additional resources

“The costs and impacts of three carbon tax bills,” by Todd Myers, Legislative Memo, Washington Policy Center, April 2019

“The false promises and high cost of the low-carbon fuel mandate,” by Todd Myers, Washington Policy Center, April 23, 2019

“With billions more in the state budget, it’s time to fully fund salmon recovery,” by Todd Myers, guest editorial, *The Seattle Times*, April 11, 2019

The high environmental cost of proposed 2019 climate legislation, by Todd Myers, Washington Policy Center, April 8, 2019

“Scientific priorities (not Marx) should guide orca recovery,” by Todd Myers, Washington Policy Center, February 4, 2019

“Could removing Snake River dams increase fish kill?” by Todd Myers, Washington Policy Center, December 18, 2018

“How smartphones can reduce our carbon footprint,” by Todd Myers, TED Talk San Juan Islands, Washington Policy Center, January 31, 2018

“The Environmental trade-offs of removing the Snake River dams, by Todd Myers, Idaho Law Review, Volume 53, 2017, pages 209-238

“Beekeepers agree: The biggest threat to honeybees isn’t pesticides,” by Todd Myers, Washington Policy Center, May 18, 2017

“Is climate change killing honeybees?” by Todd Myers, Washington Policy Center, June 24, 2014