

Steven R. Schell
7335 SW Canyon Lane
Beaverton Oregon 97225
503-291-0162
steveschell@comcast.
April 2, 2019

Re HB 2322 - Testimony of Steve Schell¹ to House Energy and Environment
Committee, 1 PM April 2, 2018

I represent no particular entity but only what I perceive as the public interest. As a former member of the first Land Conservation and Development Commission, I am pleased that HB 2322 has been introduced and is receiving a hearing. The first set of Statewide Planning Goals was adopted in 1974. A comprehensive review to update them is needed. Hence, HB 2322 is timely.

More than Goal 13. I admire the focus on changes to Goal 13, which I helped draft. It needs improvement beyond mere energy conservation. However, HB 2322, either as currently drawn or as with the March 20 revision, is too narrowly focused. The purpose of renewable energy is to avoid producing electricity using fossil fuels because they cause climate change. Rather than focusing just on Goal 13, a program for review and revision of all the goals to address climate change impacts is needed now. A new section 1 is suggested in the Line by Line Amendments attached.

Backup for broader Amendment process. Two other land use–real estate lawyers and I authored a law review article² advocating changes in the Statewide Planning Goals to address climate change adaptation, mitigation and sequestration. An American Bar Association Section summary of What’s Do Be Done is attached along with a Proposal specifying some of the Goal changes.

In its current and suggested forms HB 2322 do not fit. The Clean Energy Jobs bill, HB 2020, is very significant, but its passage alone, particularly with the recent amendments for increases in allowances for Emissions Intensive Trade Exposed goods, will not result in meeting annual emissions reductions sufficient to meet Oregon’s target of reduction from 64 million metric tons (MMT) of greenhouse gases to 11.2 MMT by 2050. Additional action is necessary, and much of this can be had thru changes in the Goals. HB 2020 – 31 and SB 928 will restructure how Oregon is addressing climate change. It is essential that the amendments to the Statewide Planning Goals, including Goal 13, be crafted to fit into the new structure. The overarching concept is that cap and trade as administered by a new agency, the Oregon Climate Authority, will move Oregon closer to its 2050 target for reduced annual emissions.

Sequestration Target Needed. In addition to a change of focus to include all the Goals, what is missing from this first draft of HB 2322 is a requirement for the goal amendments to address sequestration (and carbon capture). Both James Hansen and The IPCC highlight the necessity for sequestration as separate from and in addition to annual emissions reductions. The

¹ Pro bono Land use/environmental attorney. Land Conservation and Development Commissioner 1973-1976; Energy Facility Siting Councilor 1992 -2000; Founding Chair of the Energy Trust of Oregon 2000 -2005

²At <https://scholarsbank.uoregon.edu/xmlui/bitstream/handle/1794/23295/Schell%20--%20final.pdf?sequence=1&isAllowed=y>

Statewide Planning Goals can make a difference in sequestration by dealing with impacts from forestry practices, agricultural practices, and decisions regarding housing densities, subdivision layouts, urban growth boundaries, transportation, conservation, and services delivery. Because of the importance of sequestration, the legislature should require that there be established in the Statewide Planning Goals and by statute, a goal for Oregon's fair share of sequestration.

Collaboration. HB 2322 needs to go beyond the existing Department of Land Conservation and Development model and deliver effective collaboration with the two new policy entities being created, namely and the Oregon Climate Board and ultimately the Joint Committee on Climate Action. The 3/20 proposal attempts to cause coordination by having attendees from various agencies but my judgment is that such coordination is ineffective. What needs to happen is the establishment of joint charges to multiple agencies, joint plans for development of the issues at hand, joint budgets, joint enforcement and ultimately metrics enabling proper program audits.

Timing. Three things are necessary to move the Statewide Planning Goals amendment process along as rapidly as possible. First, the Oregon Climate Authority needs to develop an Oregon 2050 sequestration target, like that currently existing for annual emissions reductions. Second, an effective public involvement and coordination (encompassing joint mandates, budgeting, targets, enforcement and an audit trail) process must be developed as to how the Statewide Planning Goal can be amended effectively. Last, the Statewide Planning Goal amendment process needs to be authorized and funded by the Legislature in the 2021 session.

Public Involvement. By focusing on "stakeholders" the public interest is simply ignored. Yet for the cap and trade system and Goal amendments to be enduring, it is essential to develop and maintain public interest and participation. Without extensive public involvement and understanding of the issues and legislation, a skilled campaign for a vote can undermine even the best and most creative legislative acts. One key to Oregon's ability to sustain the Statewide Planning Goals against several challenges was the 200 meetings involving more than 10,000 Oregonians, multiple circulations of proposed changes, 14 technical advisory committee recommendations, and mandated 11 hearings around the state. Both versions of HB 2322 cut this process short. I submit that trying to limit the Goal amendment hearings to one or treating the Goals as merely additional administrative rules weakens public understanding and increases the chances of a successful repeal initiative.

Thank you.

Atch:

Line by Line Amendments to HB 2322

Change Planning in Oregon To Address Climate Change (Proposal 1)

Climate Change and Oregon Law: What is to be Done (ABA summary)

Line by Line Amendments for HB 2322 (as introduced)

(Steve Schell 4/2/2019)

1. On Page 1, Section 1, delete lines 5 thru 8 and replace it with the following:

SECTION 1. In collaboration with the Oregon Climate Authority and approval by its Oregon Energy and Climate Board, by June 30, 2020 The Land Conservation and Development Commission shall plan and submit to the Governor and the Joint Committee on Climate Action a program to review and revise the Statewide Planning Goals to contribute of Greenhouse gas emissions targets and deal with Climate Change impacts involving adaptation, mitigation and sequestration of global warming gasses. The program shall include, but not be limited to a scope, timeline, suggested budget, and public outreach process and changes to the existing goal adoption process found in ORS 197.235.

2. On page 1, line 24, delete the word ~~and~~.
3. On page 1, after line 24 add the following: (e) Cause the sequestration and carbon capture of greenhouse gas currently present in the atmosphere; and
4. On pages 1 and 2, delete SECTION 3.

Add a referral to Ways and Means and request a budget note for the program development.

Proposal 1

Change Planning In Oregon To Address Climate Change

Proposal: Add a provision requiring LCDC to propose a program for amending the Statewide Planning Goals as necessary to meet the mitigation, adaptation, and sequestration-carbon capture challenges of climate change.

Giant fires, bark beetle damage, sea level rise-storm surge, and rapid snowpack runoff, all result from climate change, and together they pose an existential threat to Oregon as we know it. Proper land use can be a significant response to this threat. Further, currently Oregonians are adding CO₂e from land uses, rather than causing them to decline. The Statewide Planning Goals can and should provide major guidance and enforceable standards for Oregon to address land uses, but they are now more than 45 years old, and they have not been updated to address the climate change threat. The current goal amendment process provides an excellent way for Oregonians to meet the threat and decide what more should be done. A recently published law review article* provides opening suggestions as to how the Goals can be changed to address the three aspects of the climate change threat and what process amendments will advance Oregon's response. Some of the proposed changes follow:

To address mitigation:

1. Establish eco-districts and climate smart planning strategies for them (Goals 9 and 10)
2. Integrate emissions reduction targets into the land use planning process (Goal 13)
3. Tie transportation objectives to measurable CO₂e reductions (Goal 12)
4. Address impacts from climate refugees (Goal 14)

To address adaptation:

1. Coordinate climate impact requirements of other agencies (Goal 6)
2. Articulate and update Hazard response planning and objectives (Goal 7)
3. Add rolling easement planning to address sea level rise (Goals 16, 17, 18)
4. Provide a 50 year planning horizon for movement of shorelands lines (Goal 17)
5. Recognize a moving elevation line for Oregon's beaches (Goal 18)
6. Address acidification, oxygen depletion and habitat change in the 3 mile zone (Goal 19)
7. Plan for more rapid runoff in the Willamette River (Goal 15) and elsewhere (Goal 5)

To address sequestration-carbon capture:

1. Establish a measurable forest sequestration requirement (Goal 4)
2. Provide incentives for climate friendly farming practices (Goal 3)
3. Identify basalt formations and other critical areas for sequestration (Goal 5)

Oregon can use its current institutions, if their responsibilities are clear and they are adequately funded. The proposal here made would express that responsibility.

*<https://scholarsbank.uoregon.edu/xmlui/bitstream/handle/1794/23295/Schell%20--%20final.pdf?sequence=1&isAllowed=y>

Climate Change and Oregon Law: What Is to Be Done?

By Alan K. Brickley, Steven R. Schell, and Edward J. Sullivan

Editor's Note: *This excerpt is adapted with permission from the authors' article "Climate Change and Oregon Law: What Is to Be Done?" published in 33 J. Envtl. L. & Litig. 235 (2018).*

In this second decade of the twenty-first century, climate change is an irrefutable fact.¹ The world is becoming hotter² and, in many areas, drier.³ Sea level rise as a result of melting glaciers threatens to inundate islands and change existing shorelines.⁴ Moreover, the hypoxia found in "dead zones" off the Oregon Coast threatens the vitality of the state's fishing industry.⁵ For Oregon, which has a temperate weather pattern with sufficient rain in the western part of the state and a relatively small population for the size of its land area, the prospect of climate change may have diffuse impacts. These impacts may manifest in such forms as congressional decisions regarding national allocation of water and the necessity of dealing with "climate refugees" from states that are less environmentally well-off. The question is whether the state is prepared to do so. It is difficult to overstate the immediate threat posed by climate change to Oregon,⁶ the United States,⁷ and the world. James Hansen⁸ suggests that the world is on the brink of a "tipping point," after which the harms wrought by climate change will be irreversible.⁹

This article accepts the fact of climate change and attempts to set out some practical considerations and tools by which Oregon may respond to climate change.¹⁰ We examine two aspects of that response. The first concerns planning and regulation of land, and the second concerns the effects of climate change on property law. We suggest that traditional property law doctrines, such as reliction, avulsion, property boundaries, and public easements, should be reexamined in the light of this crisis.

Oregon's planning law is now over 40 years old and is characterized by mandatory, binding planning by local governments, which provides the basis for land use regulation, state participation in local planning in the form of mandatory policies ("goals") which must be incorporated into local plans, and complex systems of procedural safeguards and review

of decisions involving land use.¹¹ Thus, an administrative structure is in place to respond to climate change, assuming policies and tools can be fashioned. In addition, local governments have weighed in on their own to deal with climate change issues.¹² Nevertheless, there is still much to be done.¹³

Limitations and Obligations

Oregon property law is a mixture of British common law modified by statutes. However, the power to modify property law by statute may be limited by constitutional considerations.¹⁴ Nevertheless, the state may address climate change through the administration of its public trust responsibilities,¹⁵ as well as in its interpretation of common law property doctrines.¹⁶ While there is not presently a case on point, it is likely that improvements by property owners will increase the resiliency of the response to climate change and its effects.¹⁷

What Must Be Done

Assuming the responses are reasonable and there is a sense of urgency within the community, it is likely that Oregon has the tools under its planning and property law regimes to meet the challenges of climate change. Some areas where we believe increased responses will be needed include the following:

- *Rural and natural resource areas:* One expected result of changing weather patterns is an overall reduction of rainfall, which will have impacts on the state's agricultural and forest industries.¹⁸ Agricultural practices may have to change, and tree-planting patterns may require alteration.
- *Urban areas:* Climate change will also cause a shift in urban transportation patterns. Energy consumption in residential and commercial buildings will be affected, and energy generation will move from fossil fuel to renewables. Less land may be available for ornamental gardens, and plant varieties used in bioswales and urban greenways may change to those that require less water.¹⁹ In addition, Oregon's relatively cooler weather may attract "climate refugees" from other states, due to fires, heat, drought, and water shortages, thereby changing population projections and land needs for the 20-year period on which local plans are based.²⁰ Moreover, climate change will alter a city's ability to provide economic and efficient public services to residents, and will likely give rise to more compact urban development.²¹
- *Potential hazards:* Changing weather patterns will add to the catalogue of potential hazards

Alan K. Brickley is a semi-retired attorney in private practice who has spent over 58 years in the real estate industry, including acting as counsel for title companies. Steven R. Schell is a pro bono lawyer with prior public service on Oregon's Land Conservation and Development Commission and Energy Facility Siting Council. Edward J. Sullivan is past Chair of the Section of State & Local Government Law and an adjunct professor at Portland State University, Willamette University College of Law, and Lewis & Clark Law School.

and disasters that face the state—for example, coastal storms are more likely.²² Drought will be a likely concomitant of climate change, especially in the southern and eastern regions of the state.²³ Moreover, climate change will have impacts on the economy of the state outside of the natural resource area. For example, the availability of water has allowed the silicon industry to expand, but water may become less available in the near future.²⁴ Additionally, overfishing practices may add to changes in currents and obstacles to access to spawning areas to reduce the fishing industry.²⁵ One possible change that the state may consider is to use the basalt formations along the Columbia River for carbon sequestration.²⁶

- *Energy:* Water scarcity caused by climate change may affect the electrical grid system that supports the state's aluminum industry, potentially prompting the state to review more expensive energy alternatives.²⁷ While Oregon does not have a nuclear energy facility, it is part of a system that relies on nuclear energy and may need to plan for such facilities in the future. While a major coal-fired generation facility will close in 2020, there remains the question as to what combination of conservation and substitute energy sources will be used.²⁸ Solar and wave energy are viable alternative prospects for the state.²⁹
- *Coastal areas:* The impacts of climate change along the coastal areas of the state are also of concern as sea level rise occurs and impacts the delicate mix of saline and fresh water in estuaries, on which estuarine fauna and flora depend.³⁰ There is also a call for beachfront protective devices to be implemented in order to stabilize coastal dunes and shorelands.³¹

Assuming climate change is inevitable, measurable impacts on Oregon will include: less snowfall, faster and earlier runoff, increased summer water shortages, a higher likelihood of bark beetle infestation in Oregon's forests, sea level rise, bigger storm surge impacts, and more frequent forest and range fires.³² Like King Canute facing the tide, we cannot command away these physical phenomena. Realistically, there are only two responses to climate change: mitigation and adaptation.

Endnotes

1. See NAT'L ACAD. OF SCI. & ROYAL SOC'Y, CLIMATE CHANGE: EVIDENCE & CAUSES (2014), <http://dels.nas.edu/resources/static-assets/exec-office-other/climate-change-full.pdf> (explaining that notwithstanding the skeptics, the National Academy of Sciences strongly supports the evidence that climate change is real and profound in its effects); *Climate Change: How Do We Know?*, NASA GLOBAL CLIMATE CHANGE, <http://climate.nasa.gov/evidence/> (last visited Feb. 27, 2019).

2. See, e.g., U.S. ENVTL. PROT. AGENCY, CLIMATE CHANGE INDICATORS IN THE UNITED STATES 18 (4th ed. 2016), https://www.epa.gov/sites/production/files/2016-08/documents/climate_indicators_2016.pdf (describing warmer temperatures as "one of the most direct signs that the climate is changing"); *GISS Surface Temperature Analysis (GISTEMP)*, NASA GODDARD INST. FOR SPACE STUD., <http://data.giss.nasa.gov/gistemp/> (last visited Feb. 27, 2019) (providing an "estimate of global surface temperature change").

3. *Extreme Dry*, UNION CONCERNED SCIENTISTS, <http://www.climatehotmap.org/global-warming-effects/drought.html> (last visited Feb. 27, 2019); *Water and Climate Change*, UNION CONCERNED SCIENTISTS, <http://www.ucsusa.org/>

global_warming/science_and_impacts/impacts/water-and-climate-change.html (last visited Feb. 27, 2019).

4. See *How Is Sea Level Rise Related to Climate Change?*, NAT'L OCEAN SERV., <http://oceanservice.noaa.gov/facts/sealevelclimate.html> (last updated June 25, 2018) (describing how sea level rise can increase global temperatures and add more water to the ocean); *Sea Level*, NASA GLOBAL CLIMATE CHANGE, <http://climate.nasa.gov/vital-signs/sea-level/> (last visited Feb. 27, 2019) (showing a rate of change in sea level of 3.2 mm per year, due to glacial melting and the "expansion of sea water as it warms").

5. *Dead Zones of the Pacific Northwest*, OCEAN TODAY, <https://oceantoday.noaa.gov/deadzonespacnw/> (last visited Feb. 27, 2019); *News Ways of Taking the Pulse of Oregon's "Dead Zones"*, NAT'L SCI. FOUND., https://www.nsf.gov/news/special_reports/deadzones/glider.jsp (last visited Feb. 27, 2019).

6. *Juliana v. United States*, 217 F. Supp. 3d 1224 (D. Or. 2016). Young environmental activists in Oregon have filed a case against the United States, alleging that continuing to ignore the realities of climate change will damage them, future generations, and the environment. *Id.* at 1233. The case has gained national attention. Ciara O'Rourke, *The 11-Year-Old Suing Trump over Climate Change*, ATLANTIC (Feb. 9, 2017), <https://www.theatlantic.com/science/archive/2017/02/trump-climate-lawsuit/516054/>. Thus far, the defendants' motions to dismiss have been denied and the case is proceeding to trial. *Juliana v. U.S.—Climate Lawsuit*, OUR CHILDREN'S TR., <https://www.ourchildrenstrust.org/us/federal-lawsuit/> (last visited Feb. 27, 2019). After the district court's decision in *Juliana*, the United States petitioned for a writ of mandamus ordering the district court to dismiss the case on the grounds that it would be burdensome and threaten the separation of powers. On March 7, 2018, in *United States v. U.S. District Court for the District of Oregon*, No. 17-71692, a panel of the Ninth Circuit Court of Appeals denied the petition without prejudice, thus causing the parties to proceed to discovery and trial.

7. See 1 U.S. GLOB. CHANGE RESEARCH PROGRAM, CLIMATE SCIENCE SPECIAL REPORT: FOURTH NATIONAL CLIMATE ASSESSMENT 12–34 (Donald J. Wuebbles et al. eds., 2017). True to his campaign promises, President Trump has ordered reviews of administrative rules to limit federal environmental regulation of the "waters of the United States" (WOTUS) and the Clean Power Plan rules promulgated by the Obama administration. See *Waters of the United States (WOTUS) Rulemaking*, U.S. ENVTL. PROT. AGENCY, <https://www.epa.gov/wotus-rule> (last updated Feb. 14, 2019); see also *Rapanos v. United States*, 547 U.S. 715 (2006) (showing the particular importance of the WOTUS actions, given the federal jurisdictional limits by the U.S. Supreme Court); *Complying with President Trump's Executive Order on Energy Independence*, U.S. ENVTL. PROT. AGENCY, <https://www.epa.gov/Energy-Independence> (last updated June 18, 2018) (explaining the executive order that calls for a review of the Clean Power Plan).

8. James Hansen is a respected climatologist and former head of the NASA Goddard Institute for Space Studies.

9. James Hansen, *Tipping Point: Perspective of a Climatologist*, in *STATE OF THE WILD: A GLOBAL PORTRAIT OF WILDLIFE, WILDLANDS, AND OCEANS 9* (Eva Fearn ed., 2008).

The crystallizing science points to an imminent planetary emergency. The dangerous level of carbon dioxide, at which we will set in motion unstoppable changes, is at most 450 parts per million (ppm), but it may be less.

Carbon dioxide has already increased from a preindustrial level of 280 ppm to 383 ppm in 2007, and it is now increasing by about 2 ppm per year. We must make significant changes within a decade to avoid setting in motion unstoppable climatic change.

Id. at 11–12 (endnote omitted); see also Katherine Bagley, *For James Hansen, the Science Demands Activism on Climate*, YALE ENV'T 360 (Apr. 12, 2016), http://e360.yale.edu/features/james_hansen_science_demands_action (detailing how Hansen continues to advocate for change in the climate change debate).

10. With the exception of potential liability of public officials who fail to take action to deal with climate change, the issues of liability and apportionment of risk are left to legislative and judicial bodies, noting however that there is a case to be made for recovering damages for past pollution. See Mary Christina Wood & Dan Galpern, *Atmospheric Recovery Litigation: Making the Fossil Fuel Industry Pay to Restore a Viable Climate System*, 45 ENVTL. L. 259 (2015) (proposing atmospheric recovery litigation, a legal strategy that would "hold the major fossil fuel corporations liable for funding" the drawdown of atmospheric carbon dioxide). Wood's work further rethinks notions of liability and responsibility for pollution. See generally MARY CHRISTINA WOOD, *NATURE'S TRUST: ENVIRONMENTAL LAW FOR A NEW ECOLOGICAL AGE* (2014).

11. See generally Edward J. Sullivan, *The Quiet Revolution Goes West: The Oregon Planning Program 1961–2011*, 45 J. MARSHALL L. REV. 357 (2012) (describing the Oregon planning program).

12. See, e.g., CITY OF PORTLAND, OR. & MULTNOMAH COUNTY, CLIMATE ACTION PLAN (2015), <https://www.portlandoregon.gov/bps/article/531984> (describing how the plan deals with baseline emissions and provides practical policies ranging from consumption to carbon sequestration).

13. See generally OR. GLOB. WARMING COMM'N, BIENNIAL REPORT TO THE LEGISLATURE (2017), <https://static1.squarespace.com/static/59e554e0f99ca40655ca6eb0/t/59dd4984a8b2b090a38f07a1/1507674513035/2017-OGWC-Legislative-Report.pdf> (explaining a bleak picture of the current state of the climate environment in Oregon and strenuously arguing for immediate action).

14. See U.S. CONST. amend. V (significant limitations on the regulation of real property); U.S. CONST. amend. XIV (due process clause); OR. CONST. art. I, §§ 18, 20 (takings and equality of privileges and immunities clauses).

15. The Oregon Department of State Lands, which largely administers public trust properties, describes the public trust doctrine as follows:

The rules controlling public use of the submerged and submersible land underlying state-owned waterways are simple. The Public Trust Doctrine gives you the right to use state-owned (or what are also termed "navigable") waterways (including submerged and submersible lands) for a wide variety of authorized uses including navigation, fisheries, recreation and commerce.

Navigability, OREGON.GOV, <http://www.oregon.gov/OSMB/boater-info/Pages/Navigability.aspx> (last visited Feb. 27, 2019); see also Oregon *ex rel.* State Land Bd. v. Corvallis Sand & Gravel Co., 429 U.S. 363 (1977) (discussing the state of Oregon); Or. Op. Att'y Gen. 8281 (Apr. 21, 2005); Michael C. Blumm & Erika Doot, *Oregon's Public Trust Doctrine: Public Rights in Waters, Wildlife, and Beaches*, 42 ENVTL. L. 375 (2012); Michael B. Huston & Beverly Jane Ard, *The Public Trust Doctrine in Oregon*, 19 ENVTL. L. 623 (1989) (exploring the extent to which the public trust doctrine remains controversial and somewhat unexplored).

16. State *ex rel.* Thornton v. Hay, 462 P.2d 671, 673-75 (Or. 1969) (using the British doctrine of custom to reserve the dry sand areas of beaches for public use). The U.S. Supreme Court denied certiorari, over the dissents of Justices Scalia and O'Connor, to a related challenge. See Stevens v. City of Cannon Beach, 854 P.2d 449 (Or. 1993), *cert. denied*, 510 U.S. 1207 (1994). The Court has also shown regard for state property law, though its most recent opinion shows an aversion to change that may have constitutional implications. Stop the Beach Renourishment, Inc. v. Fla. Dept. of Envtl. Prot., 560 U.S. 702, 742 (2010).

17. See Borough of Harvey Cedars v. Karan, 70 A.3d 524 (N.J. 2013) (allowing an offset to an eminent domain award for an easement to construct a beachfront protective structure to safeguard the condemned property by the value of the structure to that land). There appears to be no impediment for the use of this method to finance local improvements. See OR. REV. STAT. §§ 223.205-295.

18. See BARBARA BENTZ & KIER KLEPZIG, U.S. FOREST SERV., BARK BEETLES AND CLIMATE CHANGE IN THE UNITED STATES (2014) (linking climate change to the recent infestations of bark beetles, which have had a profound effect on one of Oregon's major industries).

19. Renee Cho, *How Plants Could Impact Global Warming*, COLUM. UNIV. EARTH INST. (Feb. 12, 2011), <http://blogs.ei.columbia.edu/2011/02/12/how-plants-could-impact-global-warming/>.

20. See OR. ADMIN. R. 660-015-0000(14) (requiring that urban planning be based on a 20-year forecast for each urban area).

21. Compact urban development is an objective of Goal 14. *Id.* Establishment of an urban growth boundary requires "local governments [to] demonstrate that needs cannot reasonably be accommodated on land already inside the urban growth boundary." *Id.* Moreover, expansion of an urban growth boundary under the Goal requires, inter alia, "[e]fficient accommodation of identified land needs" and "[o]rderly and economic provision of public facilities and services." *Id.* Efficient provision of public services and facilities is also a principal theme of Oregon Statewide Planning Goal 11, Public Facilities and Services. OR. ADMIN. R. 660-015-0000(11). See generally Edward J. Sullivan, *A Timely, Orderly, and Efficient Arrangement of Public Facilities and Services—The Oregon Approach*, 49 WILLAMETTE L. REV. 411 (2013).

22. *National Climate Assessment: Northwest: Coastal Vulnerabilities*, U.S. GLOBAL CHANGE RES. PROGRAM (2014), <https://nca2014.globalchange.gov/report/regions/northwest#statement-17000>.

23. *Id.*

24. *Water Resources*, OR. CLIMATE CHANGE RES. INST., <http://www.ocri.net/pnw-impacts/water-resources/> (last visited Feb. 27, 2019). Oregon State University's

Oregon Climate Change Research Institute, in its assessment of climate change on Pacific Northwest water resources, has projected less water available for all uses as a result of climate change:

The most visible and direct effect of a warmer world on our region's hydrological cycle will be on the snowpack. For basins whose winter snowpacks are historically near the melting point of water, such as those in Cascades, the consequences are greater: increased and more variable streamflow in winter, and decreased streamflow in late spring and summer.

Id.

25. *Climate Impacts in the Northwest*, U.S. ENVTL. PROT. AGENCY, <https://19january2017snapshot.epa.gov/climate-impacts/climate-impacts-northwest.html> (last visited Feb. 27, 2019) (reflecting the EPA website as it existed on January 19, 2017).

26. If we are to reach and maintain protection from climate change, we must limit CO₂e in the atmosphere to 350 ppm. As we are now passing 400 ppm, we have to take out some of it and put it back in the ground.

27. *Climate and the Aluminum Industry*, GREENBIZ, <https://www.greenbiz.com/research/report/2006/02/27/climate-and-aluminum-industry> (last visited Apr. 9, 2018) (explaining that in addition to its own air quality impacts, the aluminum industry uses large amounts of electricity, which is connected to its location in Oregon because of the water power resources of the Pacific Northwest; if those flows are reduced, the industry becomes less viable).

28. Stacy Feldman, *Early Closure of Oregon's Only Coal-Fired Power Plant Has National Implications*, INSIDE CLIMATE NEWS (Jan. 18, 2010), <https://insideclimatenews.org/news/20100118/early-closure-oregons-only-coal-fired-power-plant-has-national-implications>.

29. Alicia Healey, *Clean Energy Developments in Oregon*, NW ENERGY COALITION (Jan. 7, 2016), <http://nwenergy.org/news/clean-energy-developments-in-oregon/> (explaining that these solutions are part of an overall plan to pry the state off its dependence on coal).

30. Peter Ruggiero et al., *Impacts of Climate Change on Oregon's Coasts and Estuaries*, in OREGON CLIMATE ASSESSMENT REPORT (2011), https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=231987&simpleSearch=&searchAll=climate%20change; Rick Cooper, *How Will Climate Change Impact Oregon Estuaries?*, OR. ST. UNIV., <http://seagrant.oregonstate.edu/feature/how-will-climate-change-impact-oregon-estuaries> (last visited Feb. 27, 2019).

31. OR. COASTAL MGMT. PROGRAM, CLIMATE READY COMMUNITIES: A STRATEGY FOR ADAPTING TO IMPACTS OF CLIMATE CHANGE ON THE OREGON COAST 14 (2009). The state's policy of generally not allowing further beachfront protective structures is justified as follows:

Shore protection improvements: Some portions of Oregon's ocean shorelines have been armored against erosion from ocean waves, primarily in front of properties developed before 1977. As shorelines erode landward in response to higher sea level and storms, armored properties are at risk of becoming peninsulas, then islands, and then overtopped. An increase in significant wave heights is likely to damage or cause failure of some hardened shorelines, potentially resulting in damage to nearby unprotected property and infrastructure.

Id.

32. See Hal Bernton, *Northwest Forests Will Get More and Bigger Wildfires with Climate Change*, SEATTLE TIMES (Sept. 11, 2017), <https://phys.org/news/2017-09-northwest-forests-bigger-wildfires-climate.html>.

STATE & LOCAL LAW

NEWS

The Section serves as a collegial forum for its members, the profession, and the public to provide leadership and educational resources in urban, state, and local government law and policy.