

State of Oregon
Department of Environmental Quality

Date: March 8 2021

To: Members of the Senate Committee on Natural Resources and Wildfire Recovery

From: Oregon Department of Environmental Quality

Subject: Health Systems for Smoke and Consideration for SB 287 and SB 248

As a consequence of wildfires in Oregon and the western states, we are experiencing poor air quality events of increasing intensity and duration. In the last five years, communities across Oregon have experienced more unhealthy days from wildfire smoke than they did in the 35 years-prior.¹

Intent of the bill

It is Department of Environmental Quality's understanding that the intent of the Health Systems for Smoke section of SB 287, in particular section 16 of the bill, is to:

1. Ensure there is a robust system in place to monitor the air quality impacts of wildfires,
2. Ability to quickly evaluate the public health impacts, with a focus on impacts to vulnerable populations; and
3. To have systems in place to communicate those impacts in a timely manner

These goals and associated recommendations are identified as "very high priority" in the Governor's Wildfire Council final report.² Section 16 of SB 287 as introduced directs the DEQ, and Environmental Quality Commission to establish and implement a program to:

- Detect and measure the levels of wildfire smoke through a system of air quality monitors
- Identify and evaluate the health impacts associated with levels of smoke being experienced
- Make the monitoring data and health alerts available for local public health authorities
- Communicate wild fire smoke and public health risk information available to the public in a timely manner and through electronic means

The bill also directs certain air quality modeling activities [See Section 16 (3)]. We have flagged technical issues with the drafting of that subsection and are working with Senator Golden to resolve those issues.

¹ Wildfire Smoke Trends and the Air Quality Index. Available at: [report on wildfire smoke trends](#)

² Oregon Wildfire Council Final Report. Available at:

https://www.oregon.gov/policy/Documents/FullWFCReport_2019.pdf

Air Quality Monitoring and Communication Systems

Today DEQ operates a network over 60 monitors across the states. About 20 of those monitors are a new low cost “SensOR” technology developed in-house by DEQ and allow the collection of very high-quality data at a much cheaper cost than previously available. This project was authorized and funded by the legislature in 2017. The state also benefits from monitors operated by the Lane Regional Air Protection Agency and those that federal agencies deploy during the wildfire season to monitor conditions in areas near specific events.

Data we collect is incorporated into a communication tool called that Air Quality Index. The tool translates ambient concentration data collected by our monitors into a color-coded scale that communicates potential health impacts. We use this tool, along with forecasting and information from those on the ground to call Air Quality Advisories, which we send to media organizations and our public health partners. These advisories also include information on smoke impacts and actions the public can take to protect their health.

The monitored data, and air quality index information is available directly to the public in real-time on our webpage³ and on a free smart phone app called “OregonAIR.”

During the wildfire season DEQ partners with Oregon Health Authority, Oregon Department of Forestry, Oregon Occupational Health and Safety Administration, Oregon Department of Emergency Management, LRAPA, tribal governments, and federal partners to track smoke events and implement the state’s protocol for responding to severe smoke events from wildfire. Key activities include tracking air quality impacts, issuing air quality advisories, updating the state’s smoke-blog⁴ on a daily basis, and issuing public health guidance for communities across Oregon.

Opportunities to Improve

While our system is well equipped to detect smoke impacts in areas of the state most prone to wildfire, there are opportunities to enhance our monitoring capacity and to improve communication systems. Following is a description of key improvement that service to more fully meet the intent of SB 287 and the vision of the governor’s wildfire council.

Improve communication and support for local communities

Despite the use of one, consistent communication framework – the Air Quality Index – the public is often confused about air quality impacts and the appropriate protective measures to take. Today, DEQ is forced into a reactionary position during events, balancing our responsibility to maintain the monitoring system with responding to community questions.

This challenge is amplified by the proliferation of low-cost monitors like “Purple Air” sensors that individuals can purchase and use, however the agency cannot verify their accuracy. More importantly, we do not have the capacity to advise the public and partners at the front-end on the best installation and use of these devices.

Additional staff resources would allow the agency to proactively engage with local communities in advance of wildfire season, improving their understanding of the air quality index, strengthening their

³ DEQ Air Quality Index Interactive Map: <https://oraqi.deq.state.or.us/home/map>

⁴ Oregon Smoke Blog: <http://oregonsmoke.blogspot.com/>

resilience for smoke events, and positioning us all to benefit from data being collected directly by the community.

Close gaps in the Monitoring Network

There are gaps in the state's monitoring network – and those are becoming apparent as the wildfire season lengthens and intensifies. Expanding our network with additional low-cost SenseOR monitors presents an opportunity to provide quality/real-time information in areas where traditionally we did not see impacts but increasingly are. The most notable example is along is in coastal communities inundated with smoke in recent years.

Upgrade aging equipment

The state's monitoring includes older equipment that is aging out. The department has capital expenditures budget, that among other things, is used to repair or replace failing monitors however that replacement cycle is slow moving. Updating some of our older filter-based equipment to continuous monitoring equipment will provide more and higher-quality data.

Improve the Breadth and Accuracy of Smoke Forecasting

Increasing our ability to measure mixing height in key areas around the state and interpret meteorological data will greatly improve the department's ability to forecast smoke events. Mixing height is directly related to the density of smoke expected from a fire. Forecasting smoke density is important in predicting impacts from wildfire events, but also in working with ODF to ensure we are maximizing the use of prescribed fire while minimizing smoke impacts to nearby communities.

Smoke Mitigation Grants

DEQ spoke with the committee in February about a Smoke Mitigation Grant Program funded by the legislature in 2019. This one-time funding allowed five of the state's 23 Smoke Sensitive Communities (technically referred to as smoke sensitive receptor areas) to develop Community Response Plans and to implement some smoke mitigation programs – for example the city of Ashland developed a no-cost HEPA-filter loan program for its most vulnerable residents.

While the focus of these plans is to prepare communities for increased prescribed fire, they also improve community resilience and readiness for wildfire smoke events. The plans include identification of vulnerable populations, community-specific communication strategies, and inventory community assets such as public spaces with effective air filtration systems.

Continuation of this program will ensure more Oregon communities have Community Response Plans in place and that communities are resourced to implement strategies identified in their plans.

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