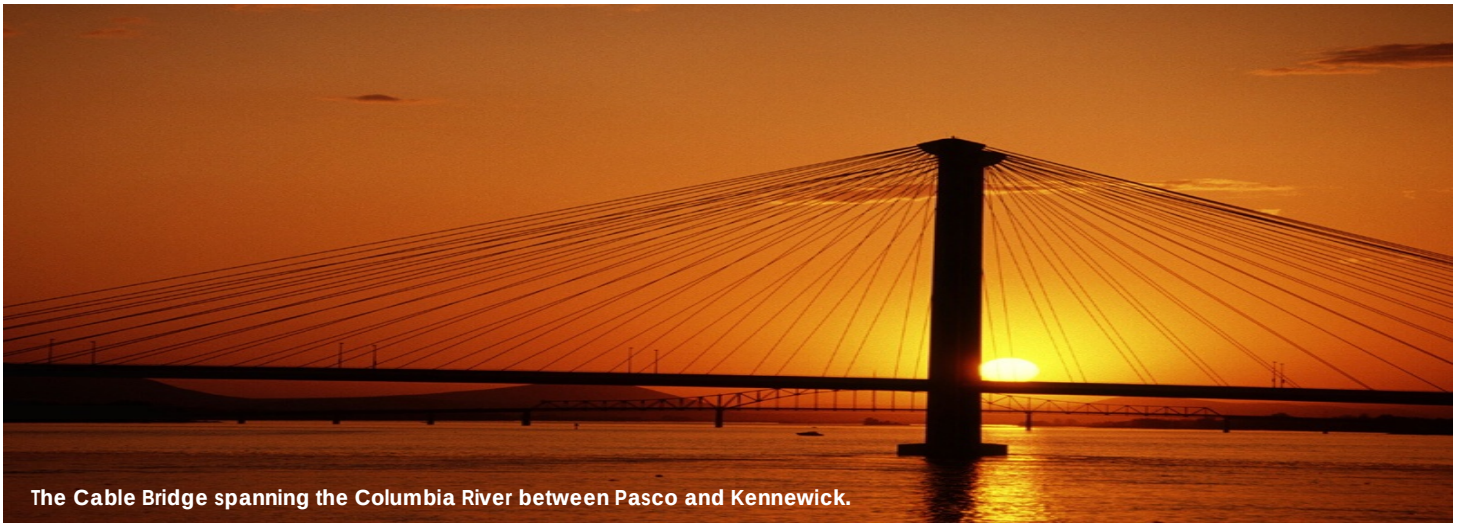
Focus on: Tri-Cities Ozone Precursor Study



The Cable Bridge spanning the Columbia River between Pasco and Kennewick.

More information

Visit Ecology's webpage on the Tri-Cities Ozone Precursor Study (TCOPS), including a story map and the full report.

www.ecology.wa.gov/AQstudies

Contact information

Washington Dept. of Ecology
Air Quality Program

Ranil Dhammapala, PhD
Atmospheric Scientist
ranil.dhammapala@ecy.wa.gov
360-407-6807

Kari Johnson
Community Outreach Specialist
kari.johnson@ecy.wa.gov
509-329-3502

Special ADA accommodations

Visual help: 360-407-6800
Relay service: 711
TTY: 877-833-6341

High ozone in the Tri-Cities

Ground level ozone (not to be confused with "good" ozone in the earth's upper atmosphere that shields us from harmful ultraviolet radiation) is toxic to human health. Exposure to ozone irritates the eyes, nose, throat and the respiratory system. It is especially bad for people with chronic heart and lung disease, pregnant women, children, and the elderly.

The Department of Ecology monitors air quality in Washington to ensure it meets federal health-based standards. Recent monitoring data collected by Ecology and our local partner, the Benton Clean Air Agency show elevated levels of ozone in the Tri-Cities. Ozone levels in Kennewick are about as high as those downwind of the Seattle area.

If ozone levels exceed federal standards, the entire community must bear the health consequences and financial burden of reducing ozone. This also makes it more difficult for industries to expand.

How ozone forms

Ozone is not released directly from sources but formed in the air when certain gases react together on hot summer days (see Figure 1). These gases are known as ozone precursors, and include oxides of nitrogen (NOx) which mostly comes from engine exhaust, and volatile organic compounds (VOCs), which come from natural and manmade sources.

TCOPS main findings:

- VOCs and NOx appear to be present in the right proportions to produce ozone efficiently within the airshed.
- There does not appear to be one single source responsible for the bulk of ozone precursors. Rather it is the net sum of all emissions within the airshed that contribute toward ozone formation.
- NOx emissions from industrial sources likely contribute somewhat.
- Agrochemicals containing horticultural oils could worsen ozone formation if sprayed during summer months.
- However, there is no evidence to suggest that either of the above are *solely* responsible for elevated ozone in the airshed.

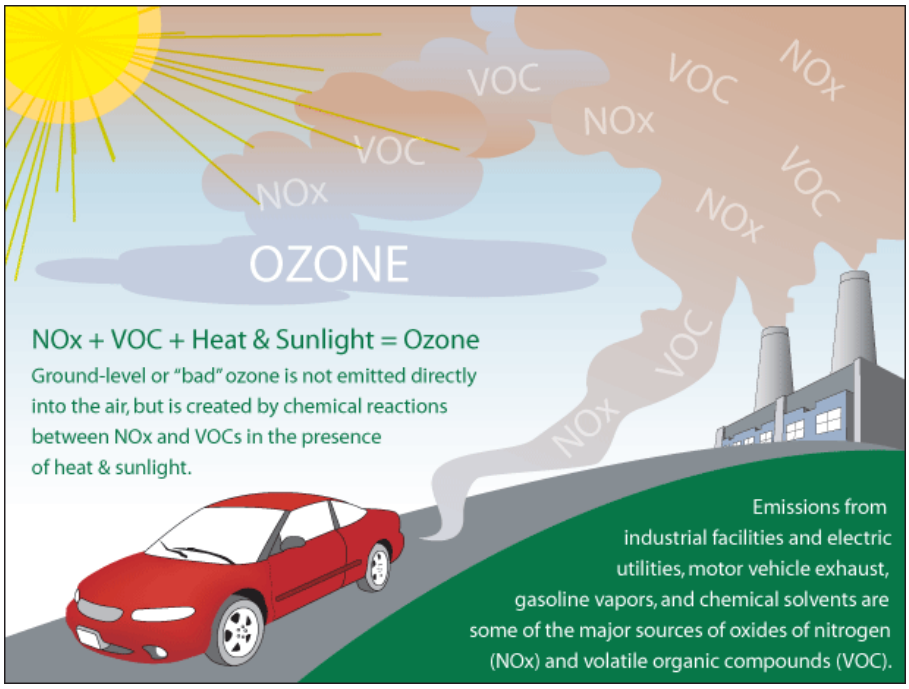


Figure 1: Diagram of ozone formation. Source: EPA www.airnow.gov/index.cfm?action=aqibasics.ozone

OK … so go and fix it!

Before we can control ozone, we need to know where the ozone precursors are coming from. Most of the ozone precursors are "local," meaning it's caused from emissions released within the Tri-Cities airshed itself, not transported from other areas. Because the Tri-Cities don't have the topography and traffic volumes that commonly contribute to high ozone areas, the source of the high ozone was a mystery at first. The Tri-Cities Ozone Precursor Study (TCOPS) began as a way to identify the sources of ozone precursors in the Tri-Cities.

Ecology contracted with Washington State University and RJ Lee Group Inc. to study several measurements within the Tri-Cities metropolitan area for three weeks during the summer of 2016, aimed at understanding the main precursor sources. The study's findings will give us some idea where to target the focus for ozone reduction.

What happens next?

Ecology has dedicated funds to reduce NOx and VOCs in the area. We're partnering with the Benton Clean Air Agency, Benton-Franklin Council of Governments, the Ben Franklin Transit Authority, and other stakeholders to identify sources, implement reduction measures, and raise public awareness. Meanwhile, you can take helpful steps to reduce ozone pollution in the community. Visit www.ecology.wa.gov/ozone.