



**EAST-WEST GATEWAY
Council of Governments**

Creating Solutions Across Jurisdictional Boundaries

**AGENDA
AIR QUALITY ADVISORY COMMITTEE*
TUESDAY, August 29th, 2023
10:00 – 11:30 a.m.
In Person at East-West Gateway and Virtual**

Please join my meeting from your computer, tablet or smartphone.
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Access Code: 420-910-037

- I. Call to Order**
 - Carol Lawrence, Chair, East-West Gateway Council of Governments
 - A. Minutes of the June 27, 2023 Meeting
- II. 2023 Ozone Season Since June**
 - Maureen McCarthy, East-West Gateway Council of Governments
- III. Proposed Missouri State Implementation Plan Revision: St. Louis Moderate Non-Attainment Area Plan for the 2015 Ozone Standard**
 - Wesley Fitzgibbons, Missouri Department of Natural Resources
- IV. St. Louis Region Urban Heat Island Research**
 - Aaron Young, East-West Gateway Council of Governments
- VI. Update Activities of the States**
 - Illinois Environmental Protection Agency
 - Missouri Department of Natural Resources
- VII. Other Business & Adjournment**
 - Next meeting will be on October 24, 2023

* Please note that this meeting will serve as a part of the Inter-Agency Consultation Process as detailed in the Missouri Transportation Conformity SIP.

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Illinois Department of Transportation
Vacant
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Gateway Tower
One Memorial Drive, Suite 1600
St. Louis, MO 63102-2451
314-421-4220
618-274-2750
Fax 314-231-6120
webmaster@ewgateway.org
www.ewgateway.org

MINUTES
AIR QUALITY ADVISORY COMMITTEE
Tuesday, June 27, 2023
10:00 am – 11:30 am
VIRTUAL AND IN-PERSON MEETING

Members Present:

Carol Lawrence, Chair – East-West Gateway Council of Governments
Mike Henderson – Missouri Department of Transportation
Kevin Jemison – Illinois Department of Transportation
Susannah Fuchs – American Lung Association
Rory Davis – Illinois Environmental Protection Agency
Francisco Cortalezzi- Missouri Department of Natural Resources
Aaron Cadman – St. Louis County Department of Health
Travis Wood – Citizens for Modern Transit

Others Present:

Stacy Allen - Ameren
Michael Hutcheson – Ameren
Tom Caldwell – Illinois Department of Transportation
Ken Anderson – Ameren
Alicia Daniels
Teresa Lee – Boonslick RPC, MO
Tom Wilson - ARA
Jason Heitman – Environmental Protection Agency Region 7
Rita Buechter
Kym Brown
Mark Leath – Missouri Department of Natural Resources
Kevin Herdler – Clean Cities
Mike Zlatic - Citizen

Staff:

Mary Grace Lewandowski, Aaron Young, Jennifer Vuitel, Anna Chott, Maureen McCarthy

1. Call to Order

- Carol Lawrence, Chair, East-West Gateway Council of Governments

The meeting of the Air Quality Advisory Committee (AQAC) was called to order by Chair Carol Lawrence, East-West Gateway Council of Governments (EWG). The minutes of the May 30, 2023 AQAC meeting were approved as circulated.

2. 2023 Ozone Season So Far

- Maureen McCarthy, East-West Gateway Council of Governments

The ozone monitoring network comprises six monitors in Missouri and four in Illinois within the non-attainment area. The ozone non-attainment area comprises seven counties in the EWG region and Bowles Township in Franklin County, MO. The monitors just outside that area are called transport tracking monitors.

When comparing the current ozone season to those in past years, it is clear that 2023 has the highest ozone levels since 2012. From March 1st to June 25th, 2023 there have been 126 exceedances of the 2015 ozone standard over 17 days. During the same period, there were 11 exceedances over six days in 2022, four exceedances over four days in 2021, and six exceedances over four days in 2020. On May 24th, all the monitors except Bonne Terre recorded an exceedance. This was the first day of the 2023 season with exceedances, but usually, the first exceedance is recorded later in the season. Using the EPA's Air Quality Index (AQI) scale, a color-coded scale that indicates different levels of health concerns associated with air quality is another way to examine the ozone season so far. March had mostly green days, April had green and yellow days, May had green, yellow, and orange days, and June had mostly yellow, orange, and red days.

3. The Launch of TEMPO (Tropospheric Emissions: Measurement of Pollution), April 7, 2023: NASA's First Mission Primarily Devoted to the Improvement of U.S. Air Quality

- Dr. Jack Fishman, Saint Louis University

In the late 1990s, there was an emphasis on bringing together federal agencies to use satellite data to help improve air quality forecasts. In 2004 Dr. Fishman gave a talk on a 2002 case study on combining the assets of NASA, NOAA, and EPA to improve air quality assessment, management, and prediction by infusing NASA satellite measurements into EPA and NOAA analyses for public benefit. This project would help provide better information about emissions and transport mechanisms on regional to international scales. It would also provide important information to help the public avoid harmful exposures and to help air quality management better manage air pollution.

In this project, aerosol optical depth was measured using instruments on a polar-orbiting satellite to calculate the Cloud Optical Thickness (COT) so clouds could be differentiated from haze and other parts of satellite images. The MODIS satellite took near-real-time images and provided a once-daily pseudo-synoptic view of aerosol loading across North America. It was able to show the influence of regional transport, natural events, and re-circulation. The data collected from the satellite was used to predict PM_{2.5} levels in the Midwest on September 8 – 12, 2003. The models predicted unhealthy air quality for sensitive groups during that period. Utilizing satellite and surface observations in combination with trajectory analysis, it was

determined that the poor air quality in the Midwest during that period was caused by wildfires in Oregon. This case study was the beginning of the PM_{2.5} air quality forecasts we have today.

As part of his research at NASA Langley in 1990, Dr. Fishman developed the global datasets for tropospheric ozone. One thing to remember is that satellites do not see surface concentrations. Dr. Fishman derived the tropospheric ozone residual (TOR) using data from two satellites concurrently. The TOMS satellite provided the total column ozone, and the SAGE satellite provided the stratospheric ozone profile. These satellites provide global data, but only once per day. Dr. Fishman used about 20 years of tropospheric ozone residual data to create maps that show the extent of global pollution. Two maps were produced: a global map during the summer season in the Northern Hemisphere and a global map during the spring season in the Southern Hemisphere. The data and maps revealed that the pollution from biomass burning in the tropics is nearly as large as the pollution from Northern Hemisphere industrial emissions. The maps also showed a large concentration of ozone over the middle of nothing in the southern Atlantic Ocean.

Satellites provide tools to see the extent of global pollution. The International Global Atmospheric Chemistry Project (IGAC) was very interested in Dr. Fishman's findings. IGAC developed a field project called the South Tropical Atlantic Regional Experiment (STARE) in which more than 300 scientists and technicians from 13 countries participated. The 1992 STARE campaign was developed to validate Dr. Fishman's findings from 1990 that there was a large ozone maximum over the southern Atlantic Ocean. Dr. Fishman continued to research the relationship between ozone at the surface and what can be seen from a satellite. In 1985 Fred Vukovich, a researcher in North Carolina, published a paper on producing synoptic scale maps of ozone derived from surface measurements. He found a huge pollution episode in the southern United States in 1980. During this episode, there were ozone concentrations of 100 parts per billion. A subsequent paper was published in 1990 that showed how the total ozone signal can be separated from the atmospheric ozone signal. Two maps were produced using data from a 1988 pollution event over the eastern United States. The first map utilized the tropospheric ozone residual data, and the second used the analysis of the average daily surface maximum ozone concentration. It was found that there was a strong correlation between the two maps, which showed the promise of using satellite data in addition to surface data.

The best method to observe pollution is from a satellite in geostationary orbit which would be able to provide hourly data. Sensors must be launched into geostationary orbit to obtain high enough resolution for air quality studies. Dr. Fishman and other researchers from NASA Langley published a paper in 1996 that provided a concept for geostationary air quality measurements. Their concept proposed launching the sensors on a commercial satellite, which had never been done before, and NASA chose not to pursue that option at that time. The researchers proposed similar concepts in 2001 and 2004 called GeoTRACE to map air pollution emissions and transport from space, and NASA agreed with the science. As a result, they formed a working

group to study a mission called Geo-CAPE. Geo-CAPE was recommended for study as a future mission by NRC's Decadal study in 2007. The only problem was the cost of the mission, which would be \$1.5 - \$2 billion. The research team then proposed that the mission could be launched in pieces renting space for the instruments on commercial communication satellites.

In 2012 NASA approved the funding for the Tropospheric Emissions: Measurement of Pollution (TEMPO) mission, centered around one of the instruments from the Geo-CAPE mission. TEMPO was launched on April 7th, 2023, and is NASA's first mission primarily devoted to improving U.S. air quality. After calibration, it is anticipated that data should be available for analysis starting in the fall. The European Space Agency and South Korean Space Agency have also launched satellites containing similar instruments.

4. St. Louis Regional Clean Air Partnership 2023 Activities

- Susannah Fuchs, American Lung Association

The St. Louis Regional Clean Air Partnership began in the mid-1990s with the idea of creating a public-private partnership that would provide education and outreach on voluntary measures that could be taken to reduce air pollution. Many different partners were involved in its creation, including East-West Gateway, Bi-State, the St. Louis Science Center, and more. A central part of the Clean Air Partnership is preparing the air quality forecast produced every afternoon. The forecast starts on May 1st each year and goes through the end of September, the period with the worst air quality. The partnership also promotes the Missouri Department of Transportation's Gateway Guide, a tool for reducing road congestion by helping people find different routes and locate traffic build-up to reduce road congestion. Reducing congestion helps in the reduction of air pollution precursors.

This year the Clean Air Partnership has done a lot of partner outreach to get different constituencies to help promote the awareness air quality forecasts to their constituents. The Partnership utilizes social media and blogs which focus on clean air champions and particular municipalities that are working to improve air quality. In addition to online promotion the Partnership has also been doing interviews with media outlets to inform more people about air quality and the effect it has on health.

In the past fliers would be given out at schools twice a year with air quality information but now that information is sent electronically to parents. This information is provided to 20 school districts which is about 100,000 families. In addition to expanding school outreach the partnership also expanding its municipal outreach and it will focus on idle reduction. In the near future, the Clean Air Partnership will conduct an evaluation to determine the public perception of air quality in our region.

5. American Fuels Report

- Kevin Herdler, St. Louis Regional Clean Cities Program

Motor Week was in St. Louis on June 20th to conduct interviews and film a segment on the SILVERS Program, which provides transportation using electric vehicles for senior citizens in the north part of the City of St. Louis. The piece will be released sometime in the Fall. On July 26th there will be a Lunch and Learn about electric school buses with Lion Electric at Rockwood Summit High School. On August 11th the Green Drives Conference and Expo will be held at SIUE.

6. Update Activities of the States

- Rory Davis, Illinois Environmental Protection Agency

The Illinois Environmental Protection Agency (IEPA) is working on getting its Attainment Demonstration plan for the Metro East St. Louis moderate nonattainment area out for public notice as soon as possible. They are also working on getting their Regional Haze State Implementation Plan to federal land managers for consultation.

Most of the monitors in both the St. Louis and Chicago non-attainment areas will have violations for the 2015 ozone standard based on the ozone levels so far this season. Shortly USEPA is going to put out for public comment a proposed rule redesignating the Alton SO₂ non-attainment area to attainment. This is the last SO₂ non-attainment area in the state.

- Francisco Cortalezzi, Missouri Department of Natural Resources

On June 26th Missouri DNR posted the proposed Missouri State Implementation Plan (SIP) for the St. Louis moderate non-attainment area. This SIP revision addresses the moderate non-attainment area SIP requirements of the Clean Air Act. The plan includes five consent agreements as part of the Reasonably Available Control Technology (RACT) demonstration for industries in the area that emit precursors to ozone. The plan also includes an Attainment Demonstration based on a photochemical model analysis demonstration of reasonable further progress toward emission reduction. There is also an update to the non-regulatory SIP component of the St. Louis Vehicle Emission Inspection and Maintenance Program.

The Missouri Air Conservation Commission (MACC) will hold a public hearing on the SIP revision at their meeting on Thursday, July 27th, 2023 in Jefferson City. The public comment period will close on August 3rd. In addition to the public hearing, the department plans to hold two virtual and in-person community outreach meetings in the St. Louis area to discuss the plan and take questions. These are tentatively scheduled for July 18th and 19th but the department plans to send out the meeting details in the near future.

There was a MACC meeting on May 25th and there were no items for public hearing or up for adoption. The MACC meeting on July 27th has no items up for adoption.

About Diesel Emissions Reduction Act (DERA) program, MoDNR receives federal grant money every year for statewide emissions reduction projects. Using funds from the VW Trust, MoDNR had a total of \$908,000 for the DERA program for FY 2022. The department accepted applications for emission reduction projects in January and selected projects in February via lottery. Projects selected for this round include 12 school buses, three medium heavy-duty highway trucks, one piece of off-road, heavy equipment, one 40-ton truck, and one diesel-electric conversion project. The department anticipates the next round of applications to open later this year.

Work on the planning phase of the state Climate Pollution Reduction Grant will begin in July. The Air Pollution Control Program plans to hold stakeholder meetings across Missouri to gather input and solicit ideas for potential projects to include in the plan. The program will solicit sub-grant applications to municipalities across the state to aid in the public outreach effort needed to develop the plan. There will be an informational webinar to explain the path forward on this work and to spread the word about the plans and grant opportunities. MoDNR is developing a new web page to include all future meeting information and to share progress on the milestones included in the grant.

7. Other Business

There is a OneSTL Sustainability Lab today, June 27th. The lab will feature a discussion with the communities that are part of the Mid-County Climate Collaborative about what they are doing to coordinate sustainability efforts.

East-West Gateway will work on the Climate Pollution Reduction Grant for the MSA of St. Louis, similar to what Missouri will do for the rest of the state. It is anticipated that EPA will finalize the grant in August, and work will begin in September or October at the latest. There will most likely be a webinar to introduce everyone to it.

Tomorrow the East-West Gateway Board of Directors will take action on the Air Quality Conformity Determination and Connected 2050, the Long-Range Transportation Plan. The comment period for the FY 2024 – 2027 TIP and Conformity Determination begins on Friday, June 30th.

8. Adjournment

The next meeting will be on August 29th, 2023. There being no other business, the meeting was adjourned.