

Summary of Product and Output Information for the Air and Energy 2019-2022 StRAP

Last Updated: September 23, 2021

This table summarizes the Air and Energy (A-E) Products and Outputs completed and delivered in FY19, FY20, and FY21 supporting the 2019-2022 A-E Strategic Research Action Plan (StRAP).¹ Publicly available Product and Output materials can be accessed via links. Drafts of papers that have been submitted, but not yet published, and internal reports are only available to those within EPA. Related links in the final column contain general, publicly available information related to the Product or Output.

Research Area	Product or Output Number ²	Product or Output Title	Product or Output Materials and Related Links ³
1	AE.1.1	Output: Release of CMAQ v5.3 and Instrumented Versions Supporting Source Apportionment	CMAQ Website ; CMAQ Fact Sheet
1	AE.1.2.1	Product: Evaluation of CMAQv5.3	Appel et al, 2020 (submitted); Presentation, 2019 CMAS ; CMAQ Website ; CMAQ Fact Sheet
1	AE.1.3.1	Development, Evaluation, and Application of a Multi-scale Modeling Platform to Estimate Ozone Concentrations and Source Contributions Over the Greater Denver Area	Matichuk et al. 2020 ; CMAS Presentation (Oct 2020)
1	AE.1.5.1	Product: Development of Algorithm for Solid Noise Barrier for Use in Dispersion Models	Heist et al, 2020 (submitted); AMS 2020 Presentation ; Near Roadway Website ; Science Matters Barriers
1	AE.1.5.6	Product: Spatial Analysis of Volatile Organic Compounds in Rubbertown Area of Louisville, Kentucky using Passive Samplers	Mukerjee et al, 2020 .
1	AE.1.6.2 (formerly AE.4.2.2)	Product: Summary of Implications of VCPs for Ozone and PM in Urban Atmospheres (California and the Northeast US)	Qin et al, 2020 ; Presentation, 2019 CMAS ; CMAQ VCP Webpage
1	1.6.10	Development of a VCP Emission Inventory Methodology and Tool	Seltzer et al, 2021
2	AE.2.1.1	Product: Description of carbonaceous particle emissions from a pellet-burning biomass boiler	Hays et al, 2019
2	AE.2.1.2	ISO-protocol, mutagenicity potential research evaluation of biomass pellet fuels for household energy applications	Champion et al, 2020 ;
2	AE.2.2.1	Product: Comparison of Ozone Measurement Methods in Biomass Burning Plumes	Long et al, 2020

¹ Products and Outputs from the 2016-2019 StRAP are not included here in order to focus on implementation of the existing plans.

² Two-digit numbers identify Outputs and three digit numbers identify Products.

³ Includes Websites, Webpages, Fact Sheets, and/or articles from ORD's public newsletter Science Matters containing related information.

Summary of Product and Output Information for the Air and Energy 2019-2022 StRAP

Last Updated: September 23, 2021

Research Area	Product or Output Number ²	Product or Output Title	Product or Output Materials and Related Links ³
2	AE.2.2.2	Evaluation of Small Form Factor, Battery Powered, Filter Based PM Samplers for Use in Community Monitoring during Wildland Fire Smoke Events	
2	AE.2.2.4	Product: FY20 Activity Report of ORD's Reference and Equivalent Methods Designation Program	Internal Report; AMTIC Website ; Criteria Pollutants Webpage
2	2.2.6	FY21 Activity Report of ORD's Reference and Equivalent (R&E) Methods Designation Program	Fiscal Year 2021 Activity Report for the Reference and Equivalent Methods Designation Program
2	AE.2.4	Output: Summary of research advancements to characterize emissions, exposures, and related health and environmental impacts associated with solid-fuel combustion for household energy needs (cooking, heating, and lighting) and outline of priorities for future research	State-of-the-Science Webinar ⁴ ; Household Energy Webpage
2	AE.2.6.1	Product: Summary of Temporal Patterns and Biophysical Controls on Methane Emissions from Reservoirs	Waldo et al, 2020 (submitted)
2	AE.2.2.8	Recommendations for Nationwide Approval of Nafion™ Dryers Upstream of UV-Absorption Ozone Analyzers	Public EPA Report
2	2.2.9	Evaluation of Two Collocated Federal Equivalent Method PM2.5 Instruments, Including Under High Particle Concentrations	Hagler et al, 2021 (draft)
2	AE.2.3.3	FY20 Annual Summary of Next Generation Emission Measurements (NGEM) and Fugitive, Area Source, and Fenceline Research	FY20 Annual Summary of NGEM and Fugitive, Area Source, and Fenceline Research; Mukerjee et al, 2020 ; Brantley et al, 2019 ; Stovern et al, 2020 ; Zimmerle et al, 2020
2	AE.2.3.8	Emission Sampling from Wildland Fires to Inform Improved Emission Factors	Aurell et al. 2021 ; AirNow Sensor Data Pilot Webinar (Jan 2021) ; EPA Tools and Resources Webinar (May 2021) ; Website
3	AE.3.1/3.1.1	Output and Product: Synthesis of progress to improve characterization of deposition budgets for North America and identification of remaining critical knowledge gaps related to nitrogen deposition and assessments of critical loads	Walker et al., 2019

⁴ Slides are not posted but were made available to webinar participants upon request.

Summary of Product and Output Information for the Air and Energy 2019-2022 StRAP

Last Updated: September 23, 2021

Research Area	Product or Output Number ²	Product or Output Title	Product or Output Materials and Related Links ³
4	AE.4.1.10	Product: Summary of Modeling PFAS Air Emissions, Chemistry, and Deposition	D'Ambro et al, 2020 ; PFAS Webpage
4	AE.4.1.13	PFAS Literature Review Paper - Air Sources and Pathways for Perfluorinated Compounds	Owens 2021
4	AE.4.1.15	Other Test Method 45 (OTM-45) Measurement of Selected Per- and Polyfluorinated Alkyl Substances from Stationary Sources	Test Method Document
4	AE.4.3.3	Product: Summary of Field Evaluation of Current EPA Method TO-15A Analysis for Ambient Monitoring of Ethylene Oxide	Internal Report
5	AE.5.2.1	Product: Technical Input White Papers for de novo analyses for the Third Biofuels Report to Congress	Internal Literature Review; Internal Attribution White Paper; Biomass Scenario Model; Second Biofuels Report to Congress
5	AE5.3.1	Analysis of the energy and emission implications of deploying low-emission hydrogen fuels in the transportation sector	Presentation
6	AE.6.2.1	Product: Summary of changes in air quality and health impacts in the U.S. at 2050 and 2090 projected using multiple earth system models and emission scenarios	Nolte et al, 2020 (submitted); Fann et al, 2020 (submitted)
7	AE.7.2.1	Product: Report on Stakeholder Needs Assessment for Air Sensors	Presentation ; Internal Report
7	AE.7.3.1	Product: Air Sensor Performance Targets and Test Protocols for PM _{2.5} and Ozone	Ozone Internal Report; PM Internal Report; ASIC 2020 Presentation ; Air Sensor Toolbox
7	AE.7.3.5	Product: EPA Wildland Fire Air Sensor Challenge: Summary of Performance and Evaluation of Submitted Sensor Pods	Landis et al, 2020 (submitted); Science Matters: Challenge Winners
7	AE.7.4.1	Product: Summary and Evaluation of MPAS Retrospective Meteorology Applied to Global Air Quality Modeling	Gilliam et al, 2020 (submitted); Advance Air Quality Models Webpage
7	7.4.4	Software tools for the Generation of MPAS Horizontal Meshes to Support Global to Regional Coupled Meteorology and Air Quality Modeling	Combination of Fortran and C++ code and Linux and Python scripts encapsulated into one gzipped tar file currently located on the Atmos compute server: mesh code [ORD-043249]
9	AE.9.1.7	Product: A Framework for Assessing Trade-Offs in Wildland Fire Management	Hall et al, 2020 (submitted)