

CQ2: Science Needs to Understand Climate Change Impacts

The following table lists anticipated Air, Climate, and Energy (ACE) deliverables relevant to Charge Question 2. The Outputs and Products may change as new scientific findings emerge. Completion of Outputs and Products is contingent on appropriate resources being available. ACE will continue to actively engage with EPA Partners to meet their needs and inform the reviews of the NAAQS and implementation strategies.

ID	Research Area, Output, or Product Title
Research Area 1: Approaches to Support Air Quality Management for Multiple Pollutants at Multiple Scales	
AE.1.3.5	Estimated Decadal-scale Changes in Background Pollution Due to Divergent Trends in Global Emissions
Research Area 6: Methods to enable resilience to future environmental stressors	
AE.6.1	Output: Updated and expanded scenario data for population, land use, and extreme events to inform risk communication and management
AE.6.1.1	Updated LASSO Web Application
AE.6.1.2	ICLUS Scenario Data
AE.6.1.3	Dynamically downscaled projections of changes to extreme weather across the CONUS
AE.6.1.4	Projected changes to IDF curves from dynamically downscaled scenarios
AE.6.1.5	Summary of improved high-resolution simulation of extreme weather events
AE.6.2	Output: Summary of Advancements in Interactions of Environmental Changes on PM, Ozone, Wildfires and Associated Human Health Impacts
AE.6.2.1	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
AE.6.2.2	Summary of projected air quality and health impacts of wildfire in the U.S. under different temperature scenarios
AE.6.2.3	Summary of estimated relationship between national temperatures and air quality (O3/PM2.5 concentrations) based on multiple models
AE.6.3	Output: Analysis of environmental impacts and vulnerabilities due to effects of changing conditions and extreme events on water quality and aquatic resources
AE.6.3.1	Summary of coastal water program risk mapping and adaptation analysis for resilient infrastructure
AE.6.3.2	Summary of hydroclimatic change effects on stormwater BMPs in different regions of the U.S.
AE.6.3.3	National Stormwater Calculator Update – informing management of extreme storm events
AE.6.3.4	Summary of the effects of extreme events on and emerging risks to forested watersheds
AE.6.3.5	Summary of impacts to watersheds from wildland fire and extreme events on salmonid refugia and population viability
AE.6.3.6	Identification of resilient watershed BMPs under scenarios of future climate and land-use change: Regions 1, 3, 6, and 7 case studies
AE.6.4	Output: Methods for adaptation planning and decision analysis to improve environmental resilience to changing conditions and extreme events
AE.6.4.1	Report estimating site-specific gains and losses of tidal wetland ecosystem services due to sea level rise and extreme weather events
AE.6.4.2	Report characterizing and assessing the resilience and recovery potential of watersheds challenged by extreme events to identify key refugia
AE.6.4.3	Report on the application of vulnerability assessment results and innovative methods to identify resilient sites and assess trends
AE.6.4.4	Synthetic principles for adaptation planning and decision analysis to improve resilience of natural resources under changing environmental conditions