



OFFICE OF THE GOVERNOR
KATIE HOBBS



The Clean Arizona Plan Priority Climate Action Plan State of Arizona

Prepared by
Arizona State University and Northern Arizona University
for the
Arizona Governor's Office of Resiliency

Table of Contents

Table of Contents	1
Acronyms and Abbreviations	3
Executive Summary	4
Greenhouse Gas Emissions Inventory	6
Priority GHG Reduction Measures	15
Priority Measures Technical Description	17
Building Sector: Resilient Homes and Businesses	17
Measure 1: Expand access to weatherization, energy efficiency upgrades and electrification.	17
Measure 2: Support municipalities and communities statewide in adopting the most up-to-date building energy codes.	21
Electricity Sector: Clean, Reliable Electricity.....	24
Measure 3: Deploy solar-plus-battery systems.....	24
Measure 4: Implement on-site renewables generation and battery storage at public universities and community colleges.....	27
Measure 5: Resilient Local Energy	29
Workforce Development: A Clean Energy Economy for All Arizonans.....	32
Measure 6: Create a clean-tech workforce.	32
Transportation Sector: Clean, Safe Transportation	36
Measure 7: Enable zero-emission fleets.....	36
Measure 8: Public fleet electrification, Public Fleet Charging Infrastructure, and Publicly Available Charging Infrastructure Development	38
Measure 9: Increase publicly accessible electric vehicle charging.	41
Measure 10: Improve roads in rural and tribal communities.	43
Measure 11: Clean I-40 Transportation Corridor	45
Waste, Water, and Sustainable Materials Sector	51
Measure 12: Develop and pilot innovative solutions to reduce greenhouse gas emissions and air pollution from forest management, municipal solid waste, and wastewater processes, and develop local markets for biochar and other products created from liability biomass.	51
Low-Income and Disadvantaged Community Analysis.....	57
Identification of and Engagement with LIDACs	57
Impact of PCAP Implementation on LIDACs	57

Review of Authority to Implement.....	59
Coordination and Outreach	61
Identification of Stakeholders	61
Interagency and Intergovernmental Coordination	61
Outreach Plan	62
Strategies to Overcome Linguistic, Cultural, Institutional, Geographic, and Other Barriers to Participation.....	62
Outreach and Coordination Documentation.....	62

Acronyms and Abbreviations

Acronym or Abbreviation	Definition
ABOR	Arizona Board of Regents
ACA	Arizona Commerce Authority
ADEQ	Arizona Department of Environmental Quality
ADOA	Arizona Department of Administration
ADOT	Arizona Department of Transportation
ASU	Arizona State University
CAIFI	Customer Average Interruption Frequency Index
CCAP	Comprehensive Climate Action Plan
CEJST	Climate and Economic Justice Screening Tool
CFI	Charging and Fueling Infrastructure Discretionary Grant
CPRG	Climate Pollution Reduction Grant
DOE	Department of Energy
EE	Energy Efficiency
EPA	Environmental Protection Agency
GHG	Greenhouse Gas
GRIC	Gila River Indian Community
IRA	Inflation Reduction Act
LIDAC	Low Income/Disadvantaged Communities
LIHEAP	Low-Income Home Energy Assistance Program
MAG	Maricopa Association of Governments
MCCCD	Maricopa County Community Colleges District
NAU	Northern Arizona University
OEO	Office of Economic Opportunity
OOR	Arizona Governor's Office of Resiliency
PCAP	Priority Climate Action Plan
PDEQ	Pima Department of Environmental Quality
QAPP	Quality Assurance Project Plan
SAIDI	System Average Interruption Duration Index
SRPMIC	Salt River Pima Maricopa Indian Community
UA	University of Arizona
WAP	Weatherization Assistance Program

Executive Summary

As funded by the Inflation Reduction Act (IRA), the Climate Pollution Reduction Grant (CPRG) program provided a total of \$250 million in formula grants to states, local governments, tribes, and territories to develop plans to improve air quality and reduce greenhouse gas emissions.

Under the leadership and authority of Arizona Governor Katie Hobbs, the Governor's Office of Resiliency received \$3 million to conduct planning that would identify opportunities and projects that would improve air quality throughout Arizona, with a priority focus on delivering the benefits of improved air quality to low-income and historically underserved communities in the state.

To meet these goals, the Governor's Office of Resiliency partnered with Arizona State University and Northern Arizona University to produce this Priority Climate Action Plan (PCAP) to support investment in policies, practices, and technologies that reduce pollutant emissions, create high-quality jobs, spur economic growth, and enhance the quality of life for all Arizonans.

In coordination with the Governor's Office of Resiliency, Arizona State University and Northern Arizona University hosted 6 community engagement events, and 5 stakeholder roundtables, and engaged with hundreds of Arizonans, including representatives of community-based organizations and industry leaders. These stakeholder conversations directly informed the creation of the Clean Arizona Plan through the identification of key measures, projects, and opportunities that would improve air quality, especially in low-income, historically underserved, rural, and tribal Arizona.

The measures contained herein should be construed as broadly available to any entity in the state eligible for receiving funding under the EPA's Climate Pollution Reduction Implementation Grants (CPRG) and other funding streams, as applicable.

The Governor's Office of Resiliency will prioritize measures that address the two primary sources of greenhouse gas emissions in Arizona: electric generation and transportation. Highlighted measures outlined in the Clean Arizona Plan include:

- Expanding access to weatherization, energy efficiency upgrades and electrification;
- Support for the development and deployment of renewable energy generation projects, such as deploying solar-plus-battery systems;
- Increased access to publicly accessible electric vehicle charging infrastructure;
- Accelerated adoption of electric and zero-emission vehicles; and
- Establishment of partnership programs that provide workforce training and certification for energy efficiency and emerging energy technology contracting.

By prioritizing these measures, the Clean Arizona Plan identifies opportunities totaling a reduction of 8,835,826 metric tons of greenhouse gas emissions reductions and the potential for hundreds of millions of dollars of investment in communities across Arizona.

This PCAP is organized into 5 sections:

1. Executive Summary
2. Greenhouse Gas (GHG) Emissions Inventory
3. Priority Measures including LIDAC and GHG Impact Analyses
4. Review of Authority to Implement
5. Coordination and Outreach

This project has been funded wholly or in part by the United States Environmental Protection Agency (EPA) under assistance agreement 98T67401 to the Arizona Governor's Office of Resiliency. The contents of this document do not necessarily reflect the views and policies of the EPA, nor does the EPA endorse trade names or recommend the use of commercial products mentioned in this document.

Greenhouse Gas Emissions Inventory

Overview

The Governor's Office of Resiliency in conjunction with Northern Arizona University has developed a statewide inventory of GHG emissions across Arizona to support the Priority Climate Action Plan (PCAP). The *Arizona PCAP GHG Inventory* sets a baseline year of 2000 and a reporting year of 2021.¹ The baseline year of 2000 was set to provide continuity from Arizona's previous climate action plan published in 2006. The Arizona Climate Change Advisory Group's *Climate Change Action Plan* provided an overarching recommendation to reduce statewide GHG emissions to 2000 levels by 2020.²

The *Arizona PCAP GHG Inventory* categorizes GHG emissions into sectors that group activities based on how emissions occur. The GHG emissions sectors listed in Table 1 were chosen to provide a comprehensive summary of where and how GHGs are emitted in Arizona. In addition to the major GHGs -- carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O) -- minor GHGs were also inventoried (Table 1).

Table 1. GHG Emissions Sectors and GHGs Inventoried by the Arizona PCAP GHG Inventory

GHG Emissions Sector	Greenhouse Gases (across all sectors)
<ol style="list-style-type: none">1. Transportation2. Electricity generation and/or use3. Natural and working lands4. Industry5. Agriculture6. Commercial and residential buildings7. Waste and materials management8. Water9. Wastewater	<ul style="list-style-type: none">• carbon dioxide (CO₂),• methane (CH₄),• nitrous oxide (N₂O),• hydrofluorocarbons (HFCs),• perfluorocarbons (PFCs),• sulfur hexafluoride (SF₆), and• nitrogen trifluoride (NF₃)

The *Arizona PCAP GHG Inventory* is an initial inventory of GHG emissions across Arizona and will be updated and built out further throughout the Climate Pollution Reduction Grant (CPRG) project, which includes the Comprehensive Climate Action Plan (CCAP) and Status Update phases. The goal of the *Arizona PCAP GHG Inventory* was to develop a uniform and comprehensive approach to estimating GHG emissions across Arizona's diverse 15 counties. Therefore, datasets and methods that enabled the estimation of both statewide and county-level emissions were identified and utilized. These data sources included:

¹ Inventorying more recent years will be considered during the Comprehensive Climate Action Plan (CCAP) phase of this project. The baseline year of 2021 was also chosen to reduce the impact of the COVID-19 pandemic on observed GHG emissions.

² Arizona Climate Change Advisory Group's *Climate Change Action Plan*. August 2006. URL: <https://www.documentcloud.org/documents/4953066-AZ-Climate-Change-Action-Plan-2006>

- State-level GHG inventories prepared by the EPA³
- Data reported to the EPA's Greenhouse Gas Reporting Program
 - Subpart C - General Stationary Fuel Combustion Sources⁴
 - Subpart DD - Use of Electric Transmission and Distribution Equipment
 - Subpart H - Cement Production⁵
 - Subpart HH - Municipal Solid Waste⁶
 - Subpart I - Electronics Manufacturing⁷
 - Subpart Q - Iron and Steel Production⁸
 - Subpart S - Lime Manufacturing⁹
 - Subpart TT - Industrial Waste Landfills¹⁰
 - Subpart V - Nitric Acid Production¹¹
 - Subpart W - Petroleum and Natural Gas Systems¹²
- EPA Facility Level Information on Greenhouse Gas Tool¹³
- EPA National Emissions Inventory¹⁴

GHG emissions factor data were obtained from the following sources:

- EPA GHG Emissions Factor Hub¹⁵
- EPA Emissions & Generation Resource Integrated Database (eGRID)¹⁶

³ EPA (2023) Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2021. U.S. Environmental Protection Agency, EPA 430-R-23-002. <https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2021>.

⁴ EPA (2024). GHG Query Builder. General Stationary Fuel Combustion Sources. URL: <https://enviro.epa.gov/query-builder/ghg/GENERAL%20STATIONARY%20FUEL%20COMBUSTION%20SOURCES>

⁵ EPA (2024). GHG Query Builder. Cement Production: h_subpart_level_information. URL: https://enviro.epa.gov/query-builder/ghg/CEMENT%20PRODUCTION/H_SUBPART_LEVEL_INFORMATION/

⁶ EPA (2024). GHG Query Builder. Municipal Solid Waste Landfills: hh_subpart_level_information. URL: https://enviro.epa.gov/query-builder/ghg/MUNICIPAL%20SOLID%20WASTE%20LANDFILLS/HH_SUBPART_LEVEL_INFORMATION

⁷ EPA (2024). GHG Query Builder. Electronics Manufacture: mv_ef_i_emissions_by_ghg. URL: https://enviro.epa.gov/query-builder/ghg/ELECTRONICS%20MANUFACTURE/MV_EF_I_EMISSIONS_BY_GHG

⁸ EPA (2024). GHG Query Builder. Iron and Steel Production: q_subpart_level_information. URL: https://enviro.epa.gov/query-builder/ghg/IRON%20AND%20STEEL%20PRODUCTION/Q_SUBPART_LEVEL_INFORMATION

⁹ EPA (2024). GHG Query Builder. Iron and Steel Production: q_subpart_level_information. URL: https://enviro.epa.gov/query-builder/ghg/IRON%20AND%20STEEL%20PRODUCTION/Q_SUBPART_LEVEL_INFORMATION

¹⁰ EPA (2024). GHG Query Builder. Industrial Waste Landfills: tt_subpart_ghg_info. URL: https://enviro.epa.gov/query-builder/ghg/INDUSTRIAL%20WASTE%20LANDFILLS/TT_SUBPART_GHG_INFO

¹¹ EPA (2024). GHG Query Builder. Nitric Acid Production: v_subpart_level_information. URL: https://enviro.epa.gov/query-builder/ghg/NITRIC%20ACID%20PRODUCTION/V_SUBPART_LEVEL_INFORMATION

¹² EPA (2024). GHG Query Builder. Petroleum and Natural Gas Systems (RY 2011-2014): w_subpart_level_information. URL: [https://enviro.epa.gov/query-builder/ghg/PETROLEUM%20AND%20NATURAL%20GAS%20SYSTEMS%20\(RY%202011-2014\)/W_SUBPART_LEVEL_INFORMATION](https://enviro.epa.gov/query-builder/ghg/PETROLEUM%20AND%20NATURAL%20GAS%20SYSTEMS%20(RY%202011-2014)/W_SUBPART_LEVEL_INFORMATION)

¹³ EPA (2024). Facility Level Information on Greenhouse Gas Tool. URL: <https://ghgdata.epa.gov/ghgp/main.do>

¹⁴ EPA (2024). Online 2020 NEI Data Retrieval Tool. URL: <https://awsedap.epa.gov/public/single/?appid=20230c40-026d-494e-903f-3f112761a208&sheet=5d3fdda7-14bc-4284-a9bb-cfd856b9348d&opt=ctxmenu,currsel>

¹⁵ EPA Center for Corporate Climate Leadership. GHG Emissions Factors Hub. URL: <https://www.epa.gov/climateleadership/ghg-emission-factors-hub>

¹⁶ EPA eGRID (2024). <https://www.epa.gov/egrid>

- EIA Form EIA-176, "Annual Report of Natural and Supplemental Gas Supply and Disposition"¹⁷
- EIA Form EIA-861, "Annual Electric Power Industry Report"¹⁸
- EIA Form EIA-923¹⁹
- EIA State Energy Data System²⁰
- The National Renewable Energy Laboratory State and Local Planning for Energy (SLOPE) tool.²¹
- Data obtained was reported by Arizona Public Service and Salt River Project to the Edison Electricity Institute ESG Reporting Program and the Climate Registry.

A full listing of datasets identified, and methods utilized for each GHG emitting activity is provided in Appendix E.

The proposed methods and data sources were submitted to EPA in a Quality Assurance Project Plan (QAPP), provided in Appendix J. QAPP approval by the EPA was a prerequisite to beginning the GHG inventory process. Due to project timing for the PCAP phase of the GHG inventory, the natural and working lands, waste and materials management, water production, and wastewater treatment sectors were estimated but will be built out in greater detail during the CCAP phase.

The focus of the *Arizona PCAP GHG Inventory* was to estimate GHG emissions where they occur; these emissions are typically called Scope 1 emissions. The CCAP and Status Updates phases will add additional complexity to the GHG inventory process by including GHG emissions induced by activity within a jurisdiction via activities like electricity consumption or depositing solid waste to regional landfills; these emissions are called Scope 2 (electricity) and Scope 3 (indirect emissions), respectively. Accounting for Scope 2 and Scope 3 GHG emissions provides additional detail on why GHG emissions occur across the state in addition to where and how GHG emissions occur (Scope 1).

¹⁷ Energy Information Administration (2024). Form EIA-176, "Annual Report of Natural and Supplemental Gas Supply and Disposition."

¹⁸ Energy Information Administration (2024). Form EIA-861, "Annual Electric Power Industry Report." URL: <https://www.eia.gov/electricity/data/eia861/>

¹⁹ Energy Information Administration (2024). Form EIA-923, "detailed data with previous form data (EIA-906/920)." URL: <https://www.eia.gov/electricity/data/eia923/>

²⁰ Energy Information Administration (2024). Open Data. State Energy Data System API. URL: <https://www.eia.gov/opendata/browser/seds?frequency=annual&data=value;&facets=stateId;&stateId=AZ;&start=2021&end=2021&sortColumn=period;&sortDirection=desc;>

²¹ National Renewable Energy Laboratory. "Net Electricity and Natural Gas Consumption," State and Local Planning for Energy

Findings

In 2021, Arizona emitted approximately 107.8 million metric tons of CO₂e across all GHG emissions sectors (Table 2). Further, between 2000 and 2021, Arizona's GHG emissions remained relatively flat, notching only a slight increase from the 107.7 million metric tons of CO₂e emitted in 2000.

Table 2. Statewide GHG Emissions by Inventory Sector

GHG Emissions Sector	GHG Emissions (million MT CO ₂ e)			% Change
	2000	2005	2021	
Transportation	34.36	38.98	42.84	24.7%
Electricity Generation	45.80	52.09	34.80	-24.0%
Natural and working lands ¹	2.53	2.70	3.88	53.6%
Industry	8.71	8.90	9.55	9.8%
Agriculture	7.46	7.79	7.53	1.0%
Commercial and residential buildings	4.63	4.72	6.90	49.1%
Waste and Materials Management	3.63	3.68	1.52	-58.1%
Wastewater ¹	0.63	0.68	0.77	21.5%
Total	107.7	119.5	107.8	0.1%

¹GHG Emissions Sectors to be refined during the *Arizona CCAP GHG Inventory*

During 2021, transportation activities were the largest source of GHG emissions in Arizona. This sector encompasses all types of transportation, including on-road vehicles, non-road equipment, aviation, and locomotives. By contrast, electricity generation was the largest statewide source of GHG emissions in 2000. Over the two decades between the baseline year and the 2021 study year, the GHG emissions from transportation increased by 24.7% while electricity generation emissions decreased by 24%. Transportation sector GHG emissions, which are dominated by on-road passenger vehicles (Appendix D), have increased with population, though the rate of increase has decreased due to fuel efficiency gains. GHG emissions from electricity generation have decreased as Arizona's electric utilities have decarbonized their generation fleet. All other GHG emissions sectors increased between 2000 and 2021 except Waste and Material Management, which decreased by 58.1%. Figure 1 shows how Arizona's GHG emissions have changed between 2000 and 2021.

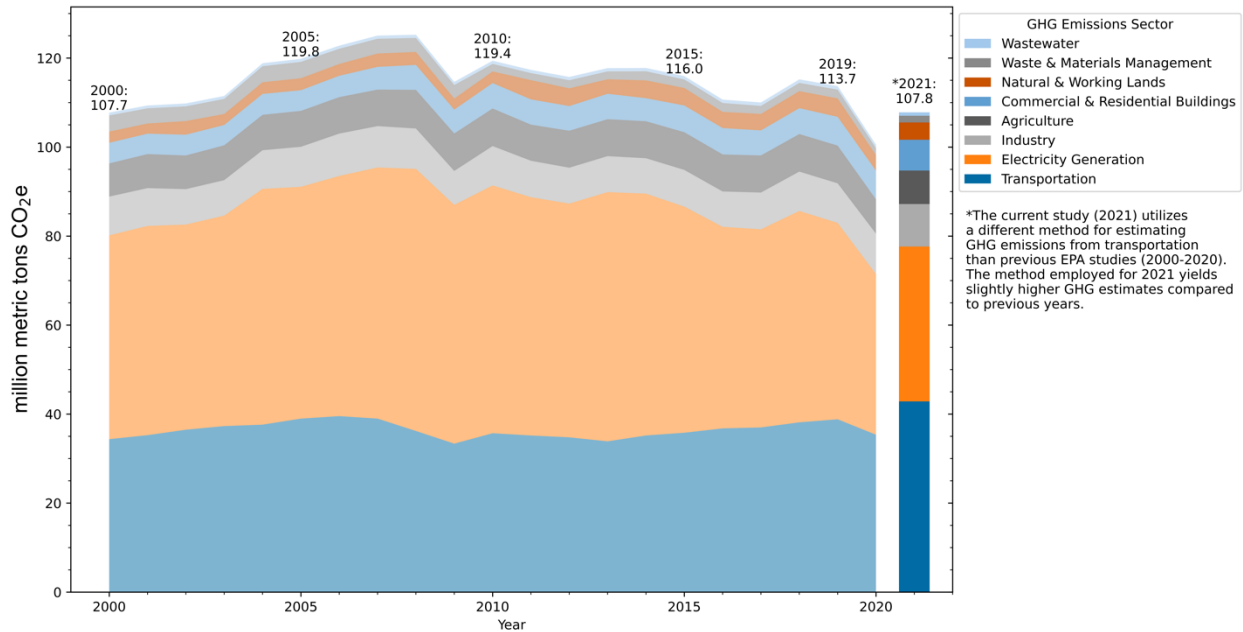


Figure 1. Statewide GHG Emissions Between 2000 and 2021

CO₂ is the primary GHG emitted in the state followed by CH₄ and N₂O (Table 3). Transportation activities and electricity generation are the largest sources of CO₂ emissions. Agricultural activities, which include GHG emissions from livestock operations and soil management, are the largest sources of CH₄ and N₂O emissions in Arizona, respectively. Hydrofluorocarbon (HFC) emissions occur primarily from the substitution (replacement) of ozone-depleting substances in air conditioning and refrigeration equipment. HFCs are also a significant source of GHG emissions.

Table 3. Statewide GHG Emissions by Greenhouse Gas

GHG Inventory Emissions Sector	GHG Emissions (million MT CO ₂ e)							
	CO ₂	CH ₄	N ₂ O	HFCs	PFCs	SF ₆	NF ₃	Total
Transportation	42.07	0.042	0.336	0.392	—	—	—	42.84
Electricity Generation	34.67	0.058	0.078	—	—	—	—	34.80
Natural and working lands ¹	3.872	0.373	—	—	—	—	—	3.882
Industry	7.452	0.351	0.577	0.593	0.329	0.171	0.080	9.555
Agriculture	—	3.181	4.353	—	—	—	—	7.534
Commercial and residential buildings	5.637	0.002	0.004	1.261	—	—	—	6.905
Waste and materials management	—	1.518	—	—	—	—	—	1.518
Wastewater	—	0.312	0.458	—	—	—	—	0.770
Total	93.70	5.838	5.807	2.247	0.329	0.171	0.080	107.8

As noted in Table 2 and Table 3, transportation activities and electricity account for the vast majority (72%) of GHG emissions statewide (Figure 2). Industrial processes, agriculture, and direct combustion at commercial and residential buildings are the next largest sources of statewide GHG emissions. Emissions from natural and work lands, solid waste, and wastewater comprise between 5%-6% of the statewide total.

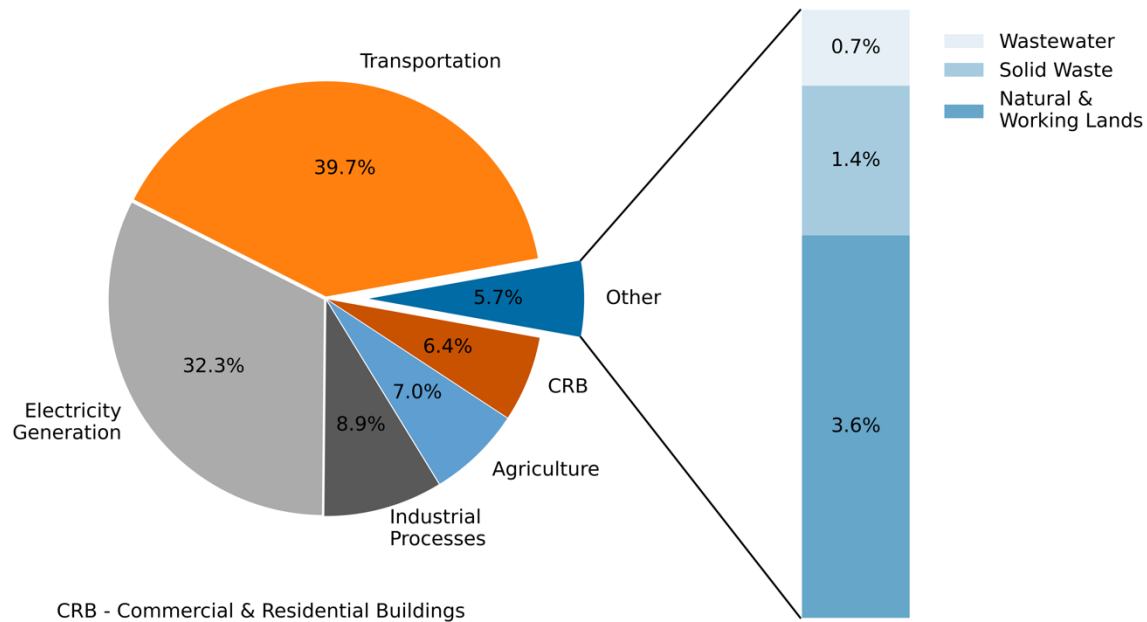


Figure 2. Relative Proportion of Statewide GHG Emissions by Emissions Sector

In 2021, Maricopa County emitted approximately 47% of the State's GHG emissions (Table 4). Transportation-related activities in Maricopa County were the largest county-level source of GHG emissions. Electricity generation was the next largest source of direct GHG emissions at the county level after transportation. Maricopa County and Apache County were the two largest sources of GHG emissions from electricity generation (Table 4). GHG emissions from the natural and working lands emissions sector were estimated only at the state level using approved EPA tools. County-level emissions from the natural working and lands emissions will be tabulated during the CCAP phase of the GHG inventory.

Table 4. Detailed GHG Emissions by Arizona County

County	GHG Emissions (million MT CO ₂ e)								
	Transportation	Electricity Generation	Natural and working lands	Industry	Agriculture	Commercial and residential buildings	Waste and materials management	Wastewater	Total
Apache	0.573	12.31	NE2	0.18	0.135	0.042	0	0.007	13.25
Cochise	0.861	1.612	NE2	0.498	1.086	0.129	0	0.013	4.198
Coconino	1.877	0	NE2	0.486	0.163	0.226	0.108	0.016	2.875
Gila	0.443	0	NE2	0.362	0.054	0.045	0	0.006	0.909
Graham	0.179	0	NE2	0.014	0.275	0.033	0	0.004	0.506
Greenlee	0.07	0	NE2	0.101	0.044	0.009	0	0.001	0.225
La Paz	0.621	0	NE2	0.14	0.399	0.011	0.051	0.002	1.223
Maricopa	25.56	14.55	NE2	4.148	1.631	4.014	0.64	0.476	51.02
Mohave	1.45	2.566	NE2	0.222	0.127	0.169	0.022	0.023	4.578
Navajo	0.938	1.892	NE2	0.094	0.097	0.124	0.108	0.011	3.265
Pima	4.663	0.472	NE2	0.923	0.162	1.184	0.155	0.112	7.672
Pinal	2.246	1.158	NE2	0.872	2.143	0.437	0.2	0.046	7.103
Santa Cruz	0.3	0.003	NE2	0.034	0.06	0.048	0	0.005	0.45
Yavapai	2.157	0	NE2	1.339	0.183	0.297	0.083	0.025	4.085
Yuma	0.903	0.243	NE2	0.144	0.976	0.136	0.152	0.022	2.576
Total	42.84	34.8	3.882	9.555	7.534	6.905	1.518	0.77	107.8

The data in Table 4 are shown in Figure 3 to visualize the relative magnitude of county-level GHG emissions by sector. As shown in Figure 3, transportation-related activities in Maricopa County emit more GHG emissions than any other county in Arizona. GHG emissions from electricity generation in Maricopa County and Apache County are roughly equivalent and the next largest sources of statewide emissions. Pima County and Pinal County are the next largest county-level sources of GHG emissions; transportation-related activities are the largest source of GHG emissions in these counties.

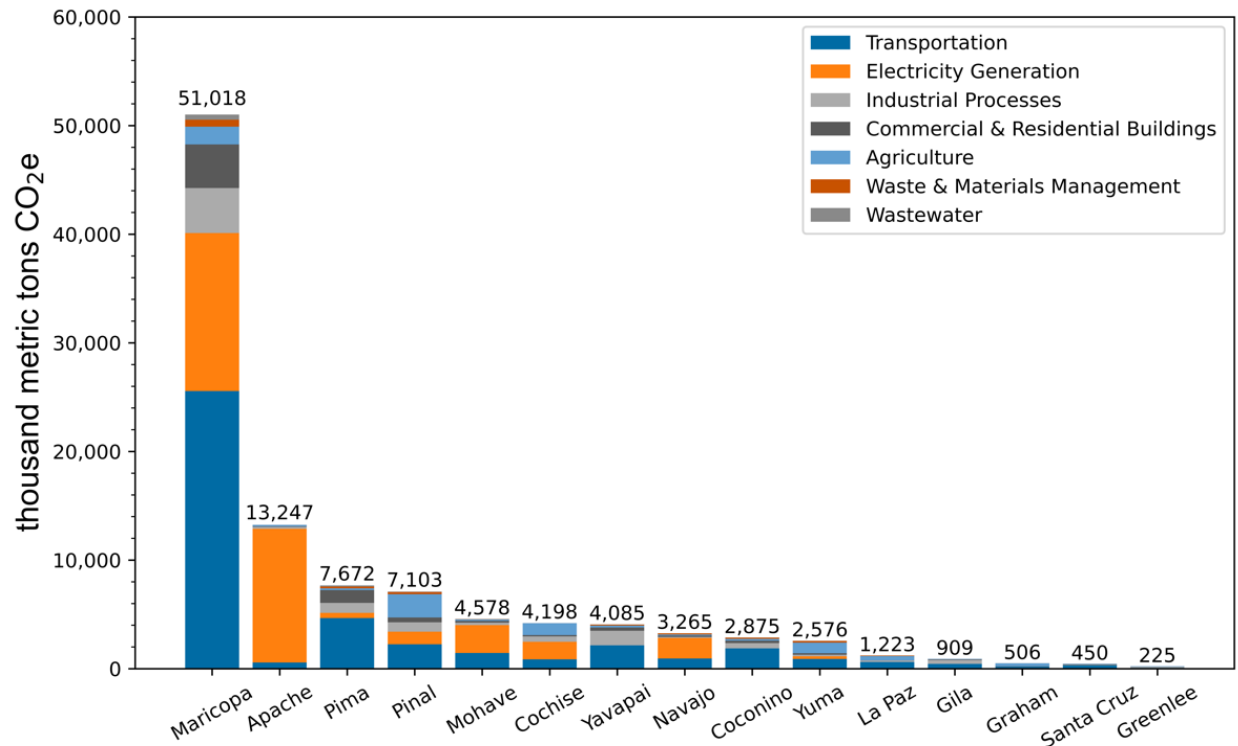


Figure 3. County-Level Direct GHG Emissions (Scope 1) Across Arizona

GHG emissions resulting from electricity generation are directly linked to electricity consumption. The amount of electricity used in a county is closely tied to its population, in addition to commercial and industrial activities. Therefore, when examining GHG emissions resulting from electricity generation compared to electricity consumption, we must look at the difference in emissions attributed to a county under each accounting method (Figure 3 and Figure 4). Figure 4 provides a summary of county-level GHG emissions based on electricity consumption rather than generation. Together, these figures show that while GHGs are emitted in Apache County, these emissions are induced by electricity consumption in Arizona's more densely populated counties – Maricopa County, Pima County, Pinal County, Yavapai County, and Coconino County.

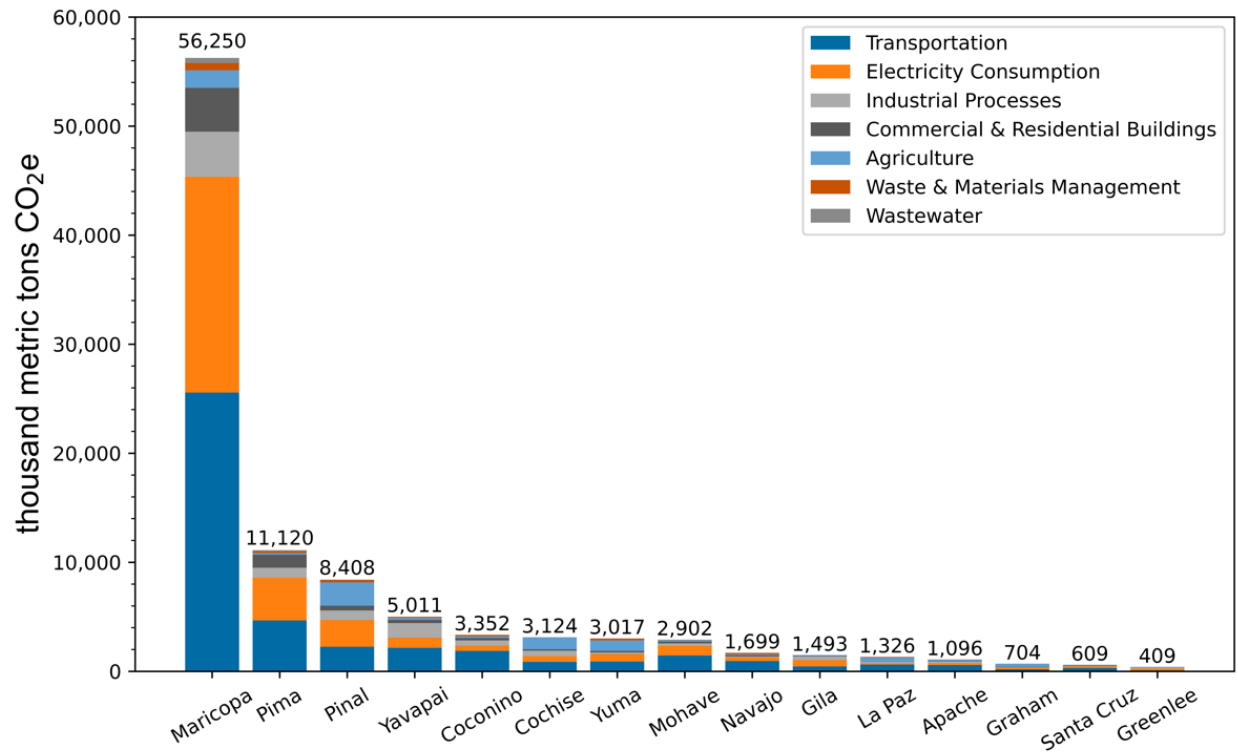


Figure 4. County-Level Direct and Indirect GHG Emissions (Scope 1 + Scope 2) Across Arizona

Priority GHG Reduction Measures

The measures in this section have been identified as “priority measures” to pursue funding through CPRG implementation grants. This list is not exhaustive of Arizona’s priorities. Instead, the selected priority measures included in this PCAP meet the following criteria:

- The measure is implementation-ready, meaning that the design work for the policy, program, or project is complete enough that a full scope of work and budget can be included in a CPRG implementation grant application.
- The measure can be completed in the near term, meaning that all funds will be expended, and the project completed, within the five-year performance period for the CPRG implementation grants.
- The measure reduces greenhouse gas emissions while advancing one of the following state priority areas:
 - Improving the resiliency of Arizona homes and businesses;
 - Growing the clean energy economy with the clean energy transition;
 - Increasing access to clean, safe transportation;
 - Restoring Arizona forests as carbon sinks and economic engines.

Table 5 Provides a summary of the measures in the PCAP including cumulative GHG emissions reductions, implementing agency, and geographic scope. Following Table 5 is a detailed description of each measure organized by state priority area.

Table 5. Arizona PCAP Measures

Priority Measure	Cumulative GHG emission reductions (mT CO2e)		Implementing Agency or Agencies	Geographic Scope
	2025–2035	2025–2050		
Building Sector: Resilient Homes and Businesses				
1. Expand access to weatherization, energy efficiency upgrades and electrification.	914	3,124	OOR	Arizona
2. Support municipalities and communities statewide in adopting the most up-to-date building energy codes.	644,928	2,682,476	OOR	Arizona
Electricity Sector: Clean, Reliable Electricity				
3. Deploy solar-plus-battery systems.	20,989	191,200	OOR	Arizona
4. Implement on-site renewables generation and battery storage at public universities and community colleges.	210,078	1,288,434	ABOR, ASU, NAU, UA	Arizona
5. Resilient Local Economy	30,453	152,266	OOR	Arizona

Workforce Development: A Clean Energy Economy for All Arizonans				
6. Create a clean tech workforce.	N/A	N/A	OOR, OEO, ASU, NAU, UA, MCCCCD, ABOR, ACA	Arizona
Transportation Sector: Clean, Safe Transportation				
7. Enable zero-emission fleets.	453	19,738	ASU, UA, NAU, Eligible entities statewide	Arizona
8. Public fleet electrification and publicly available charging infrastructure development.	60,000	208,000	State of Arizona, local and county governments, Tribal nations	Arizona
9. Increase publicly accessible electric vehicle charging.	53,436	2,721,256	ASU, UA, NAU, MCCCCD, Eligible entities statewide	Arizona
10. Improve roads in rural and tribal communities.	7.68	25.68	ADOT, county governments, TCROs, RTPOs	Arizona
11. Clean I-40 Transportation Corridor	205,063	1,025,320	NMED with coalition members from southwestern states and municipalities	Southwest US, along the I-40 corridor
Waste, Water, and Sustainable Materials Sector				
12. Develop and pilot innovative solutions to reduce greenhouse gas emissions and air pollution from forest management, municipal solid waste, and wastewater processes, and develop local markets for biochar and other products created from liability biomass.	84,063	543,986	City of Flagstaff, Eligible entities statewide	Arizona

For each priority measure, the technical description section of this PCAP provides additional details about the following information:

- An estimate of the cumulative GHG emission reductions from 2025 through 2035;
- An estimate of the cumulative GHG emission reductions from 2025 through 2050;
- Measure-specific LIDAC Benefits Analysis
- Key implementing agency or agencies;
- Review of authority to implement;
- Geographic scope;
- Metrics for tracking progress;

Further details on the Priority Measures appear in the appendix, including:

- Appendix B – LIDAC Benefits Analysis Census Tracts and References
- Appendix C – Implementation Schedule and Milestones

Priority Measures Technical Description

Building Sector: Resilient Homes and Businesses

Measure 1: Expand access to weatherization, energy efficiency upgrades and electrification.

Measure Description

The Governor's Office of Resiliency will establish the Whole Home Health/Clean Green Affordable Homes Program in Arizona, which will be structured to provide a streamlined and accessible pathway for Arizonans to enhance the energy efficiency, indoor air quality, and renewable energy generation potential of their homes and businesses. The Whole Home Health/Clean Green Affordable Homes Program will be responsible for implementing the Inflation Reduction Act's HOPE for Homes and High-Energy Electric Home Rebate Programs to support residential energy efficiency upgrades and electrification at low or no upfront cost to low-income households. The program will leverage redevelopment tools and the Greenhouse Gas Reduction Fund to increase private capital support and capacity for these upgrades.

Building on the HOPE program, the Whole Home Health/Clean Green Affordable Homes Program will:

Provide funding for:

- Needed health and safety funding for homes before weatherization, energy efficiency, and other upgrades. Examples of eligible health and safety measures may include mold remediation and fire safety, including wiring upgrades.
- Enhancing energy efficiency and distributed generation incentives provided by municipalities, counties, and utilities.
- Low-interest loans, grants, or subsidies for energy-efficient improvements, with a focus on assisting households from low-income and historically underserved communities.

Collaboration with Utilities:

The OOR will work with utilities to provide additional financial incentives or rebates for energy-efficient appliances and systems and increase the uptake of existing assistance programs by utility customers. The program would also work to establish a more efficient program to verify income to determine eligibility for basic utility bill pay assistance, utilizing best practices developed during the COVID-19 pandemic and the implementation of the ERAP program.

Public Awareness and Education:

Develop independent studies on:

- Energy efficiency as a resource to increase the reliability and resilience of the electrical grid;

- Whole home retrofit costs and benefits to consumers, the electric grid, and the environment;
- Tax credit and DOE Loan Program Office opportunities;
- Demand Side Management;

Online Platform:

Development of a user-friendly, multilingual online platform where residents can access information about available programs, check their eligibility, and apply for assistance.

Home Energy Audits:

Provide funding to existing home energy audit programs, to help homeowners identify specific areas for improvement.

Contractor Training and Certification:

Provide funding to existing programs that train and certify local contractors in energy-efficient retrofitting, distributed solar, and pre-weatherization and weatherization implementation to ensure quality upgrades and create job opportunities within the community.

Monitoring and Evaluation:

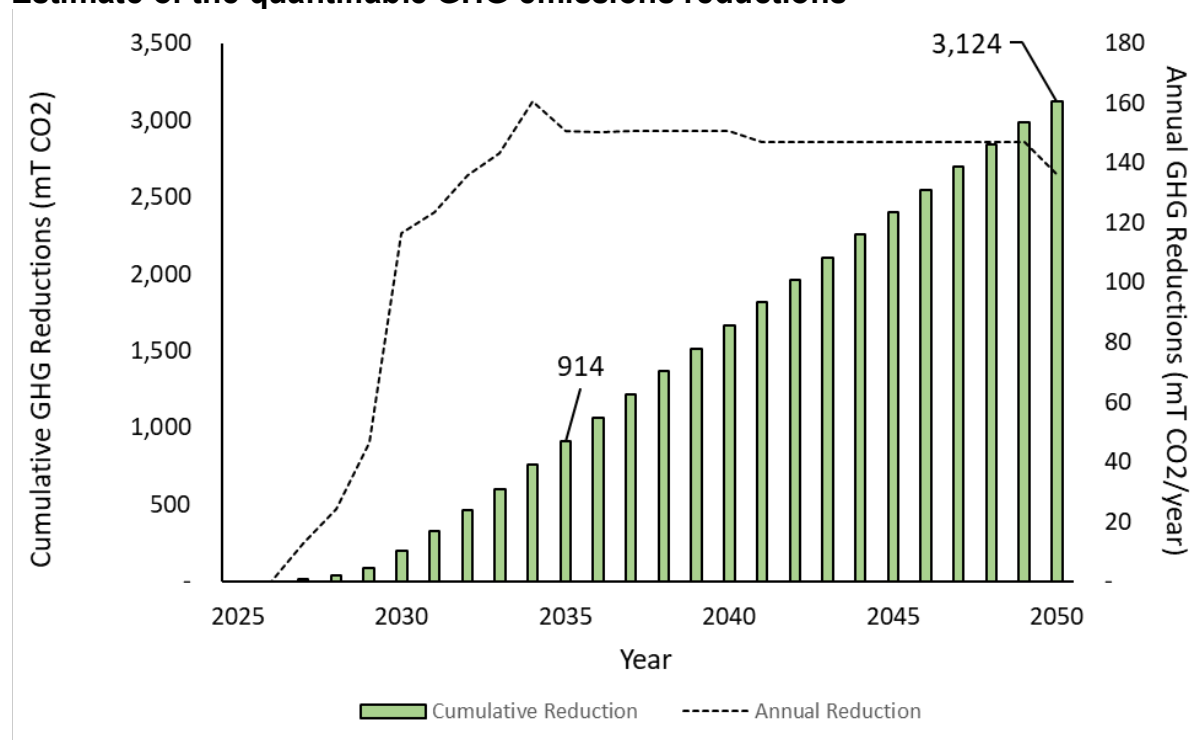
Regular, third-party, monitoring and evaluation of the program's effectiveness to make data-driven improvements and adjustments as needed.

Community Engagement:

Engagement with local communities to ensure that the program is responsive to unique needs and encourages broad participation.

By integrating these elements, the Whole Home Health/Clean Green Affordable Homes Program aims to be a comprehensive and collaborative initiative, facilitating home energy improvements across Arizona homes while ensuring accessibility, effectiveness, and sustainability.

Estimate of the quantifiable GHG emissions reductions



Anticipated Benefits for LIDAC Residents²²:

- Increased access for low-income Arizonians to funding for EE and solar technologies through federal government programs such as the Low-Income Home Energy Assistance Program (LIHEAP) and the Weatherization Assistance Program (WAP).
- Reduced energy bills due to properly weatherized buildings and adoption of rooftop solar, and thus decreased energy burden.
- Reduced carbon emissions from utilities due to increased use of EE and solar systems. (Kerby et al. 2024).
- Increased access to energy-efficient homes in new and existing low-income housing developments that are designed with energy efficiency and electrification technologies that can be powered through on-site solar.
- Developed market for residential energy efficiency and electrification technologies like heat pumps, electric cooking, water heating, and other electric appliances in Arizona resulting in reduced energy costs for residents. This in turn can benefit equitable outcomes and higher rates of adoption of high-efficiency and no/low-carbon technologies. (Leventis, Kramer, and Schwartz 2017).
- Increased resiliency of low-income households to extreme heat events.

²² Census Tract ID Assumptions: Since this measure will be enacted state-wide, all LIDAC residents will benefit from its implementation.

Implementing agency or agencies

- Governor's Office of Resiliency

Review of Authority to Implement

The implementing agency has the authority to implement the measure as proposed. No additional review is required.

Geographic location

Statewide

Funding sources:

- HOMES Rebate Program (Full Award: \$76.9 million)
- High-Efficiency Electric Homes Rebate Program (Full Award: \$76.4 million)
- Energy Efficiency and Conservation Block Grant Program (not awarded yet)

Metrics for tracking progress

- Web traffic
- Attendance at open houses
- Number of energy audits conducted

Measure 2: Support municipalities and communities statewide in adopting the most up-to-date building energy codes.

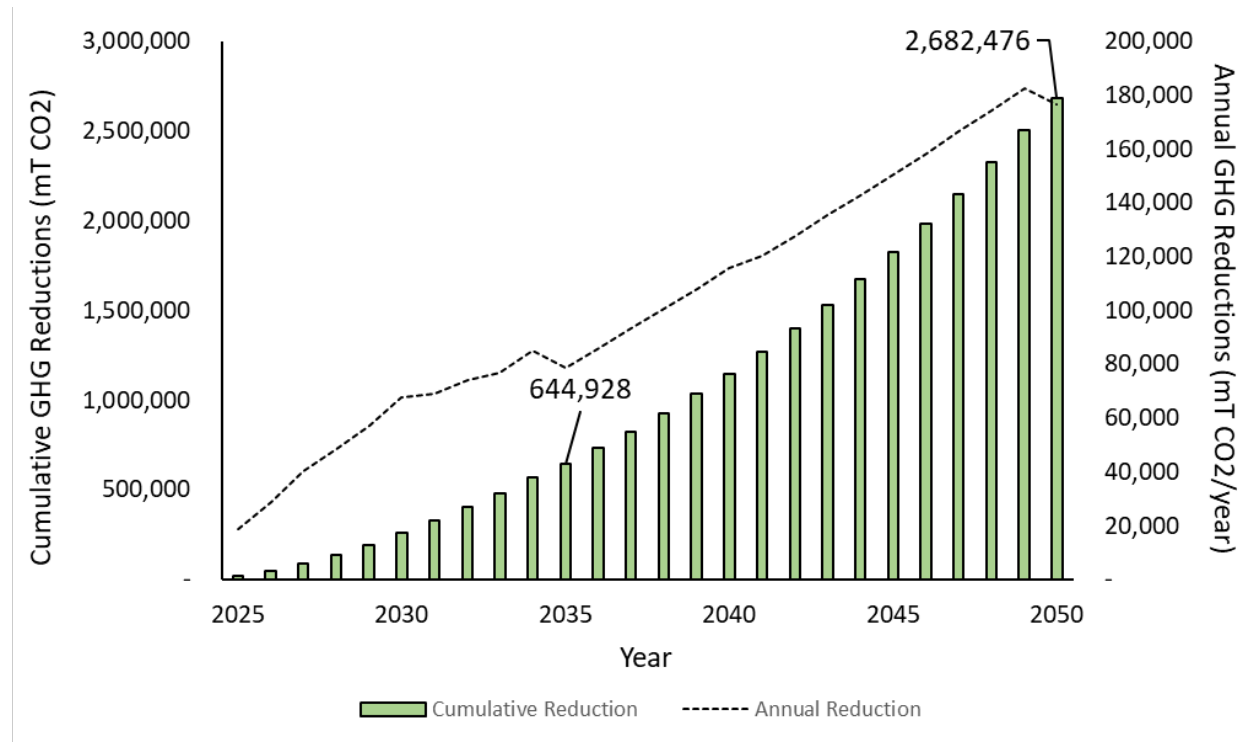
Measure Description

This measure would establish the Arizona Building Codes Advancement Initiative (ABCAI), a targeted program designed to catalyze the adoption of updated building codes by municipalities throughout the state. Arizona is a home-ruled state, and this initiative works within those parameters to support municipalities that wish to update building codes. Recognizing the critical role of energy-efficient construction in ensuring safe and livable indoor environments for Arizonans, reducing greenhouse gas emissions, and ensuring the long-term resilience of our communities, ABCAI focuses on streamlined initiatives to educate, incentivize, and support municipalities in implementing modern building codes, to reduce emissions from buildings and increase the resiliency of homes, businesses, and communities in Arizona.

Proposed program elements to be led by the Governor's Office of Resiliency:

- **Engagement:** Convene semi-annual meetings of interested municipalities to discuss code improvements and share best practices. Through this process, the state can recommend one or a set of preferred building codes for interested municipalities to adopt.
- **Online Hub:** Establish an online platform with resources on updating building codes and the economic benefits of modern building codes.
- **Code Compliance Grants:** Introduce grants to incentivize municipalities to actively update and enforce building codes aligned with the latest energy efficiency standards.
- **Technical Support:** Work with state universities and local nonprofits to provide municipalities with access to technical support for guidance on code interpretation and implementation challenges.
- **Basic Modeling Tools:** Equip municipalities with basic modeling tools or connect them with researchers who can conduct energy performance modeling to facilitate the initial stages of optimizing energy performance in construction projects.
- **Industry Liaison Program:** Facilitate partnerships between municipalities and construction industry associations to ensure a seamless transition to updated building codes.
- **Basic Performance Metrics:** Develop straightforward performance metrics to measure the initial impact of the program on energy savings and emissions reduction.
- **Policy Guidance Sessions:** Provide municipalities with concise guidance on aligning local policies with state-level initiatives for building code updates.

Estimate of the quantifiable GHG emissions reductions:



Anticipated Benefits to LIDAC Residents²³:

- Reduced tax burden on Arizona residents and businesses, as government buildings show energy savings and therefore cost savings that are passed onto residents.
- Increased access to energy efficiency for residents of multi-family housing units.
- Reduced GHG emissions from electricity generation.
- Improved occupant comfort through enhanced thermal regulation and consistent temperatures inside buildings.

Implementing Agency

Governor's Office of Resiliency

Review of Authority to Implement

The implementing agency has the authority to implement the measure as proposed. No additional review is required.

²³ Census Tract ID Assumptions: Since this measure will be enacted state-wide, all LIDAC residents will benefit from its implementation.

Geographic location

Statewide

Funding sources

- Assistance for Latest and Zero Building Energy Code Adoption Grant (to be submitted)

Metrics for tracking progress

- Number of municipalities represented at workshops
- Number of municipalities who update zoning code

Electricity Sector: Clean, Reliable Electricity

Measure 3: Deploy solar-plus-battery systems.

Measure Description

This measure provides grants to communities, multi-family residences, and homeowners to install solar-plus-battery systems on residences and community buildings to increase electricity access and support Arizonans' resilience in the event of power outages and in areas that lack grid connectivity. This measure will develop a grant program administered by the Governor's Office of Resiliency, in partnership with an Arizona-based green bank, to provide loans and grants for residential solar-plus-battery systems generating on average 6,100 kWh of solar per year per system and community-serving microgrid and mini-grid systems to generate 1-5 MW of solar energy. Here, microgrids are defined as grid-connected systems, and mini-grids are defined as off-grid isolated systems.

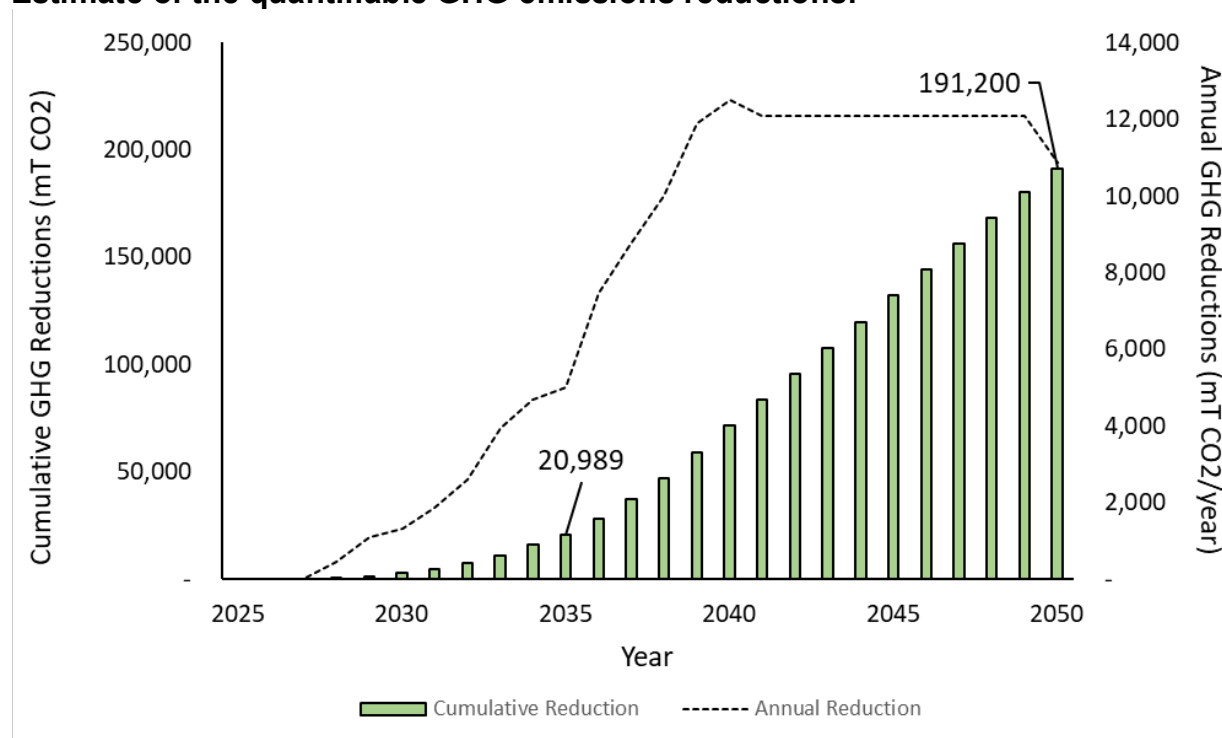
Rooftop Solar-plus Battery:

This measure will establish a program out of the Governor's Office of Resiliency and in partnership with an Arizona-based green bank that will provide loans and grants for distributed rooftop solar photovoltaic plus battery installations for homeowners, business owners, and public and community-serving entities (e.g. community centers, religious facilities) located in geographically dispersed, Tribal, and CEJST communities. In 2023, the average household utility bill in Arizona's low-income communities is \$1,690 to \$2,080 per year (SRP and APS respectively), based on electricity usage of 9,283 kWh per year. A household that installs a 7kW system is likely to produce 6,100 kWh per year. Depending on the utility and their specific electricity usage pattern, we estimate solar alone will reduce a household's bill by 25% to 55% annually, exceeding the EPA minimum of 20%. Adding battery storage will additionally save households 25% to 30% beyond standalone solar rooftop systems, based on the use of 10 to 13.6 kWh of battery storage (charging with solar and using stored electricity during on-peak hours to amplify savings).

Microgrid and Mini-grid Installations:

This measure also builds neighborhood solar projects, which are 1 to 5 MW distributed solar installations built with grant funding and owned by nonprofits or public agencies. Partnering utilities who choose to participate will provide bill discounts to low-income households (both owners and renters). This program will be offered through utilities' existing low- and middle-income (LMI) LMI utility discount programs or equivalent programs designed for this grant. An example is SRP's Economy Price Plan (EPP), which currently serves 78,000 customers who earn up to 150% of the federal poverty level. While the average annual bill for these residents is \$1,690 (based on 9,283 kWh consumption), EPP participants receive a \$23/month discount and thus have an annual bill of \$1,414. The neighborhood solar program will provide a projected additional \$30.57 monthly discount for EPP participants who also participate in a neighborhood solar project, providing a further 25% savings over their currently reduced bill resulting in an annual bill of \$1,047.00.

Estimate of the quantifiable GHG emissions reductions:



Anticipated Benefits to LIDAC Residents²⁴:

- Increased job opportunities for the construction of solar + storage projects.
- Increase in the number of residents with electricity access due to solar + storage connections.
- Improved reliability of electricity for residents measured by power reliability metrics (System Average Interruption Duration Index, Customer Average Interruption Frequency Index, etc.)
- Reduces exposure of communities GHG due to electricity being provided by solar + storage energy technologies, instead of their fossil-fuel counterpart.
- Increased reliable access to electricity that incentivizes economic activity.
- Reduced migration out of Tribal and rural areas to urban centers (Riva et al. 2018).
- Improved reliability of electricity to public services, thereby improving resident health, education, wellness, and fulfillment.
- Reduced energy costs for customers that have a high burden of energy costs relative to income.

²⁴ Census Tract ID Assumptions: For this measure, LIDAC residents who qualify as Rural or Energy Burdened [2] are included as beneficiaries. Rural Census Tract is determined by guidance provided by the Office of Rural Health Policy of the United States Department of Health and Human Services, specifically using the Rural Commuting Areas (RUCA) Codes to determine rural communities [1]. RUCA Codes can also pertain to less populated regions of metro areas.

Implementing agency or agencies

Arizona Governor's Office of Resiliency

Review of authority to implement

The implementing agency has the authority to implement the measure as proposed. No additional review is required.

Geographic location

Priority will be given to geographically dispersed, Tribal and CJEST communities.

Funding Sources

- Solar for All (not yet funded)

Metrics for tracking progress

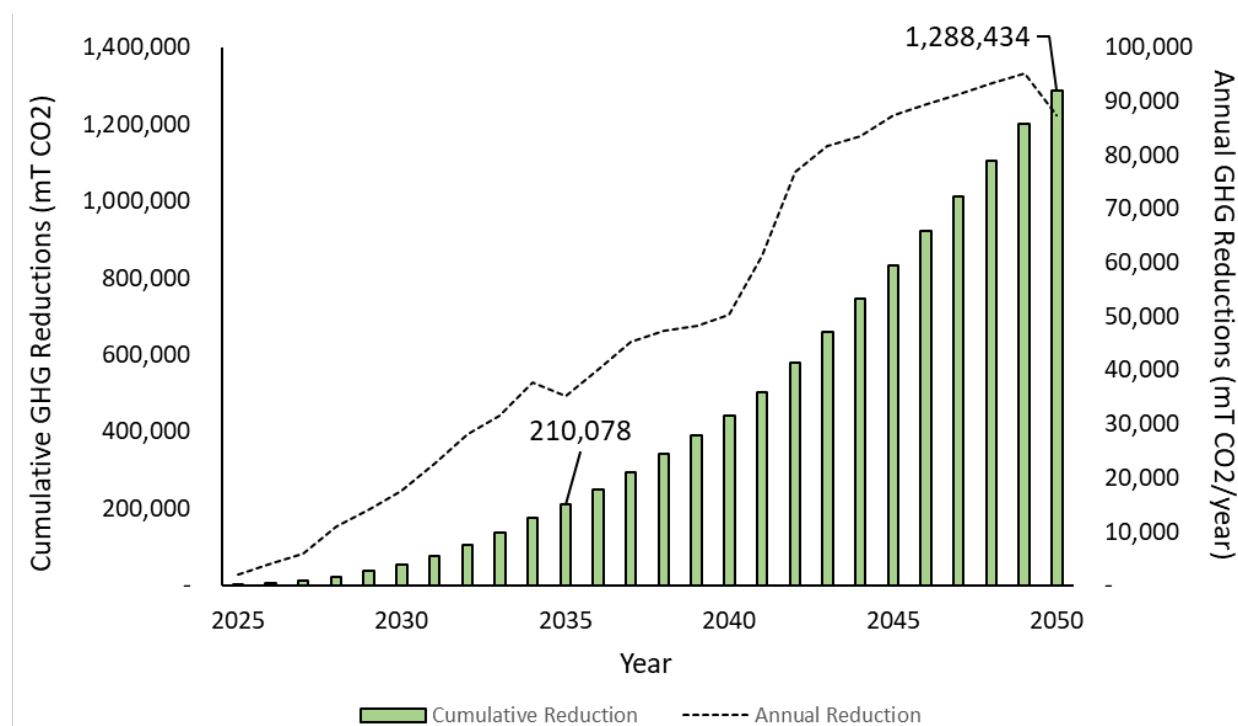
- Number of loans given
- Distribution of loans among rural, Tribal, and CEJST communities
- Average annual customer savings
- MW of solar-generated

Measure 4: Implement on-site renewables generation and battery storage at public universities and community colleges.

Measure Description

This measure serves to bolster and grow existing university renewable energy programs that site renewable energy on university campuses and university-owned land. Arizona State University, The University of Arizona, and Northern Arizona University as well as community colleges throughout the state have plans to reduce carbon emissions and take advantage of the ample rooftop, parking garage, and other land available to produce renewable energy and reduce the universities' reliance on fossil-generated electricity for operations. This measure would allow universities to access CPRG funds to expand renewable energy development on campuses including battery storage to increase the long-term resilience of universities' energy systems.

Estimate of the quantifiable GHG emissions reductions:



Anticipated Benefits to LIDAC Residents²⁵:

- Reduced exposure of communities to GHG due to electricity being provided by solar + storage energy technologies, instead of their fossil-fuel counterpart.

²⁵ Census Tract ID Assumptions: For this measure, LIDAC Census Tracts whose residents enrollment in higher education exceeding 20% are considered to be beneficiaries. As a result, all LIDAC communities benefit using this criteria.

- With universities utilizing more solar + batteries, the inflation of energy cost is avoided due to the Levelized Cost of Energy of those technologies. Subsequently, costs are reduced for the university, helping to offset tuition increases from increases in university operating expenditures.

Implementing agency or agencies

- Public universities
- Community colleges

Review of Authority to Implement

The stated agencies have the authority to implement the measure as proposed. No additional review is required.

Geographic location

- Any state university campus located within the territorial boundaries of the State of Arizona.

Funding sources

- IRA - Direct pay tax credits
- CPR

Metrics for tracking progress

- MTCDE GHG emissions offset per year based on the latest e-grid emissions factor and an assumed solar capacity/ capacity factor of all expected projects; and
- Number of square feet of shade offered as a result of initiative; or
- Anticipated MWh of backup/off-grid power per “blackout” event (this will need to be better defined because the frequency and duration of an event would play into how many MWh of backup); or
- Anticipated demand reduction to the grid during “peak hours”

Measure 5: Resilient Local Energy

Measure Description

Arizona will support deployment of renewable energy and storage systems for local government buildings to reduce energy costs and provide resilience in case of an electric grid outage. This support will include additional incentives to complement newly available “direct pay” options for local governments to receive energy tax credits and technical assistance for such projects. Such support is contingent on securing funding for this measure. Arizona will select projects on a competitive basis. This measure could be utilized by any sub-state government actor, including without limitation cities, counties, and school districts within Arizona.

Near-term cumulative GHG emission reductions (2025 - 2030): 30,453 mtCO₂e

$\leq 0.7 \times (30,000,000.00 / 817,154) \times 237 \times 5 >$ mt CO₂e

Long-term cumulative GHG emission reductions (2025 - 2050): 152,266 mtCO₂e

$\leq 0.7 \times (30,000,000 / 817,154) \times 237 \times 25 >$ mt CO₂e

Should a revolving loan fund model be utilized, emissions reductions would increase.

Criteria Emissions Reductions (metric tons)			
	NOx	SO ₂	PM _{2.5}
Annual Emissions Reductions	1.06 mt $\leq 0.17 \times (30,000,000 / 817,154) >$	1.06 mt $\leq 0.17 \times (30,000,000 / 817,154) >$.367 mt $\leq 0.01 \times (30,000,000 / 817,154) >$

Methods and Assumptions

The emissions reduction estimates are based on a case evaluation using the National Renewable Energy Lab's PVWatts and ReOpt Tools. For the evaluated case, a 387 kW rooftop solar installation with 60 kW battery power and 153 kWh battery capacity were assumed.

Implementing Agency

Governor's Office of Resiliency

Review of Authority to Implement

The implementing agency has the existing authority necessary to implement this measure.

Implementation Schedule and Milestones

Tentative program schedule:

October 2024	End 2024	Early 2025	Late 2025	Early 2026
Award received from EPA	Third-party administrator selected	Local governments apply for and receive funding.	Projects installed.	Projects placed in service. Emissions reductions begin.

Should a revolving loan fund model be utilized, additional projects would be financed and installed in subsequent years.

Geographic Location

Statewide implementation.

Intersection with Other Funding Availability

This measure intends to leverage the complementary funding available through elective pay (sometimes called direct pay) of certain clean energy tax credits (§45Y, §48E). These tax credits only cover up to 30% of the projects contemplated under this measure, which may be insufficient for some local government buildings to achieve a return on investment through cost-savings from energy bills. In addition to directly supporting projects through technical assistance and deployment of renewable energy and storage systems, this measure will also serve to educate local governments on the available tax credits and provide technical assistance to local governments in designing such systems. As a result, this measure will catalyze widespread adoption of renewable energy and storage systems by local governments. The following additional funding sources were identified as available for the purpose of installing solar plus storage projects but are not believed to be duplicative due to different program foci: Department of Energy “Energy Efficiency and Conservation Block Grant”, EPA “Greenhouse Gas Reduction Fund”, and Federal Emergency Management Agency “Building Resilient Infrastructure and Communities.”

Metrics to Track Progress

For this measure, the state intends to use the following metrics to track progress: number of facilities installing renewable energy and storage, number of kilowatts of installed renewable energy, number of kilowatts of battery power installed, number of kilowatt hours battery capacity installed, the expected lifespan of projects, and number of performance years to quantify lifetime pollution reductions.

LIDAC Benefits/Analysis

A local resilient energy program would be open to all communities in the state and funding could be prioritized to LIDAC areas in the state. Many parts of the state are identified as disadvantaged according to the IRA Disadvantaged Communities [map](#). Implementation of this measure will reduce local government energy costs allowing these agencies to

divert funding they were spending on energy to provide additional services to communities. Implementing this measure will reduce emissions of pollutants from power plants, resulting in improved health outcomes. Because LIDAC communities frequently bear a disproportionate burden of environmental harms and adverse health outcomes from pollution, such communities will receive the greatest health benefits from implementation of this measure.

Workforce Development: A Clean Energy Economy for All Arizonans

Measure 6: Create a clean-tech workforce.

Measure Description

This measure will create education programs across universities and community colleges statewide to build a clean-tech workforce that transforms climate action and the clean energy transition into a vehicle for economic growth among diverse Arizona communities. Arizona has one of the highest growth rate projections for clean energy jobs according to the National Renewable Energy Laboratory (NREL).²⁶ NREL data also reflects the outstanding potential for the state to expand its 'just economy' by integrating clean energy workforce development into its priority imperatives of ensuring equitable futures for low-income populations and addressing climate change impacts. As such, Arizona could become a leader in enhancing population health, societal and climate well-being, and personal and societal equitable wealth attainment through a statewide clean energy workforce coalition.

Formalizing a state-led public/private coalition provides an unprecedented opportunity to leverage the breadth and depth of the state's expansive industry sector (e.g., Advanced Manufacturing and Semiconductors, Autonomous and Electric Vehicles, Data Centers, and Integrated Energy Management); nationally recognized private and public companies; and higher education entities that are leading the country in sustainability, innovation, and galvanizing sustainable growth. Moreover, our economic and workforce development agencies, vibrant innovation and start-up culture, and public and private expertise in cross-sector energy management and climate change adaptation and mitigation offer critical support for developing a national model of excellence.

ASU and the Maricopa County Community College District (MCCCD) in alliance with the Arizona Technology Council Foundation dba SciTech Institute will coordinate with the Sustainable Cities Network, economic and workforce development entities, industry associations, community agencies, Maricopa Association of Governments, and the Arizona Department of Environmental Quality to define workforce development needs based on equity and access to support implementation of clean energy workforce across the state. This consortium will engage with the National Clean Energy Workforce Alliance led by Bank of America for which MCCCD has a Bank of America Executive on Loan for Financial Services and could leverage Bank of America support for this partnership. This Alliance shares our state's value for equitable workforce opportunities in clean energy. In addition, the Office of Economic Opportunity (OEO) will be a key stakeholder in this clean workforce and access to WIOA funding to support equity and access to these high-paying jobs is a central premise of workforce development. The City of Phoenix, Maricopa County, Pinal County WIOA, and other development entities have been coalescing as a regional workforce development partnership and will also be a key regional partner in the proposed program. The Maricopa Community Colleges have engaged with the Arizona Community

²⁶ <https://www.nrel.gov/docs/fy22osti/82177.pdf>

College Coordinating Council (AC4) Workforce Development and Tribal Nation representatives to support the future expansion of clean energy workforce training statewide. Northland Pioneer College is partnering with the Tribal Nations - Navajo, Hopi, and White Mountain Apache, industry partners, and Dine College to create phase one of a regional energy education center with Department of Energy funding that will serve five Counties most impacted by climate change and socio-economic hardship. This is an example of an integrated approach with Tribal Nations, higher education, workforce and economic development agencies, and industry partners to revitalize communities through clean energy.

The Maricopa Community Colleges have had great success recruiting and retaining diversity for our future clean energy workforce pipeline. All ten colleges are Hispanic Serving Institutions (HSIs). The current student enrollment of 99,229 for fall 2023 includes 47% first-generation college students, with 40% identifying as Hispanic, 6% Black, 5% Asian, and 2% Native American. Women comprise 57% of the student population and 72% of our students attend part-time reflecting many are working one or more jobs or have family caretaking needs. The Maricopa Community Colleges provide the highest number of workforce program graduates at the technician level in the state of Arizona. The Broadband Initiative and use of the REN (Research Education Network) would also serve as equity and access to virtual training state-wide and regionally.

The proposed program complements current Arizona industry, civic, and higher education sustainability and clean energy workforce initiatives, which have the capacity to add \$660m in financial and \$1B in-kind support. First is the ASU-led National Science Foundation (NSF) Regional Innovation Engine in Sustainability (\$160m) in which MCCCDC is the Workforce Development lead. The second is the Direct Air Capture (DAC) Hub through the Department of Energy (DOE) with ASU as the lead institution (\$500m). In addition, LG is partnering with Arizona Public Service on their Data Center campus (\$1B) in the East Valley to create the country's most sustainable, clean energy-based Data Center campus in late 2024. The Center will serve as a regional model that can be replicated across Arizona and the US.

Estimate of the quantifiable GHG emissions reductions

This measure does not have GHG reductions associated with it but is an enabling measure for the other measures in the priority climate action plan. To meet the reduction potential laid out in this plan, Arizona must have a clean-tech workforce to perform energy audits, implement energy efficiency upgrades, install heat pumps and electric stoves and fireplaces, install and maintain solar-plus-battery systems and microgrids, install and maintain electric vehicle charging infrastructure, and maintain electric vehicles.

Anticipated Benefits to LIDAC Residents²⁷:

- Increase job opportunities and flexibility when jobs are lost due to the energy transition.
- Disadvantaged workers who participate in WFD programs receive increased wages, on average (Holzer, 2008, Hollenbeck et. al., 2017)

Implementing agency or agencies

- This program would be administered through a shared governance model with ABOR (ASU, NAU, UA), MCCCCD, OEO, and SciTech Institute in the initial phases. Reporting authority to the Governor's Office or Governor's designee.
- State agencies included in this public-private partnership may include OEO, MAG, and ADEQ. Local and Tribal governments would be integrated into this program through the Sustainable Cities Network which includes many local and Tribal governments.

Review of Authority to Implement

The stated agencies have the authority to implement the measure as proposed. No additional review is required.

Implementation schedule and milestones

We anticipate a two-year timeline to assess and implement training infrastructure for a clean workforce in Arizona. Longer-term implementation would require a two to five-year plan.

The estimated cost for the plan is \$10.0m to include limited program management staff; stakeholder outreach and engagement workshops and activities; educator professional development (PD); training infrastructure costs at regional locations for equitable access to training and education; and certification costs. This budget estimate is based on the similarity of the three designated hubs for advanced manufacturing.

The training would be developed from an equity and growth mindset to ensure learning technologies are available to every interested learner despite their zip code or employment, and justice status to ensure we uphold equity and access.

Geographic location

- Apache County
- Navajo County
- Navajo Nation
- Hopi Nation
- Maricopa County
- White Mountain Apache Nation

²⁷ Census Tract ID Assumptions: This measure is to be applied using resources at Arizona State University and the Maricopa County Community College District, LIDAC residents located in Maricopa County will benefit from its implementation.

Funding sources

This program would include braided funding from the Governor's Office (non-legislative funding), TREC funding, WIOA, NSF Regional Innovation Engine and DOE grants, in-kind part-time staff support from the educational institutions, and industry partner investments in training infrastructure costs and subject-matter expertise to co-create training programs, in addition to serving as adjunct professors in the programs.

Metrics for tracking progress

- Program enrollment
- Degrees and certificates awarded
- Student and graduate diversity, representativeness of the state population

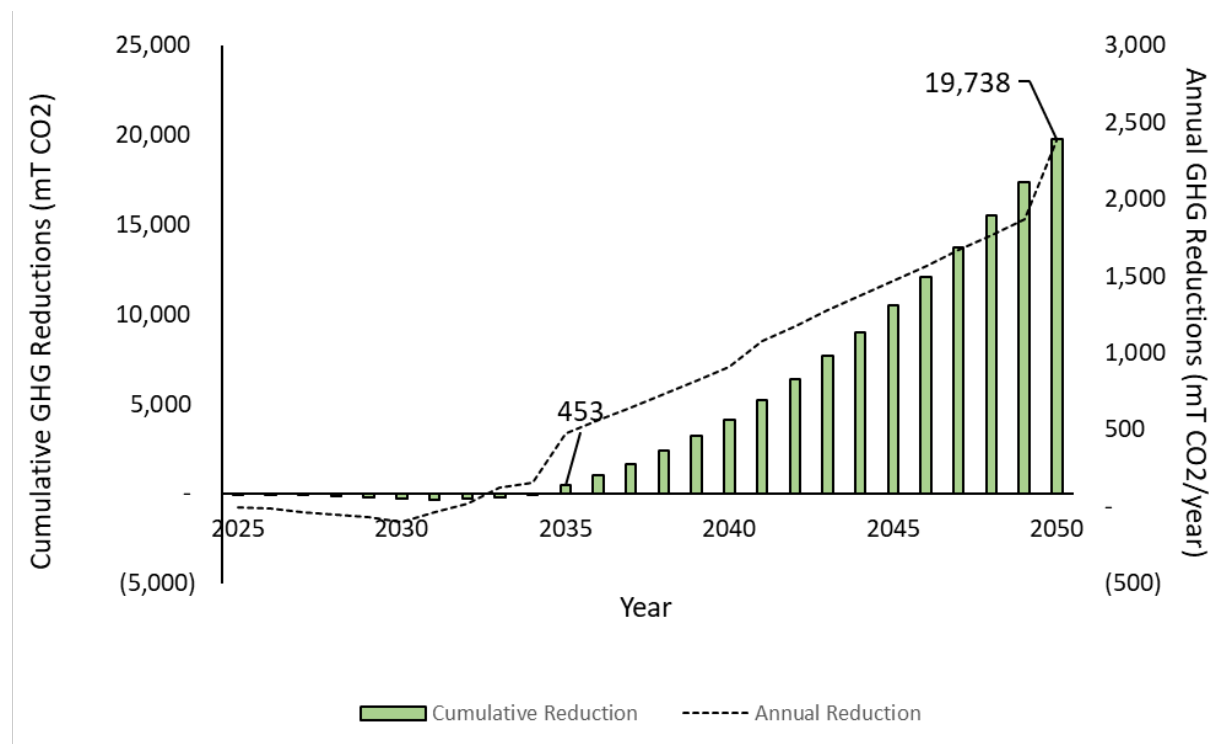
Transportation Sector: Clean, Safe Transportation

Measure 7: Enable zero-emission fleets.

Measure Description

This measure promotes the adoption of light, medium, and heavy-duty zero-emission vehicles for State, municipal, county, Tribal, university, and community college fleets through procurement and other such programs to purchase zero-emission vehicles and install electric vehicle charging at applicable fleet facilities.

Estimate of the quantifiable GHG emissions reductions:



Anticipated Benefits to LIDAC Residents²⁸:

- Increased demand for and purchase of zero-emission vehicles promotes the development of the Arizona market, thereby reducing prices overall and improving accessibility and access for LIDAC Arizonans.
- Increased demand for and purchase of zero-emission vehicles promotes the development of supporting infrastructure providing alternative fuels.

²⁸ Census Tract ID Assumptions: Since this measure will be enacted state-wide, all LIDAC residents will benefit from its implementation.

- Reduced GHG emissions of fine particulate matter (PM2.5) and other tailpipe pollutants, such as SO₂, NO_x, NH₃, and volatile organic compounds from internal combustion engines (Choma et al. 2020).
- An increased number of people with positive health outcomes resulting from improved air quality (Choma et al. 2020)

Implementing agency or agencies:

- ASU
- NAU
- UA
- Other counties and municipalities

Review of Authority to Implement

The implementing agencies have the authority to implement the measure as proposed. No additional review is required.

Funding sources

- Direct Pay
- Loan Program Office, Low interest loans
- CPRG
- CFI, round two

Metrics for tracking progress

- Number of vehicles transitioned to EVs
- Chargers installed
- Electricity used from charging stations

Measure 8: Public fleet electrification, Public Fleet Charging Infrastructure, and Publicly Available Charging Infrastructure Development

Measure Description

This measure incentivizes the installation of electric vehicle (EV) charging infrastructure for public fleets and publicly available charging and funds the transition of public fleets from fossil fuel-powered vehicles to EVs. Projects include the procurement of light-, medium-, and heavy-duty service municipal and other public entity vehicles along with public transit vehicles, like the bus fleet. Workforce development will be included in this measure with the development of programs to address EV maintenance and charging station installation, beginning with current employees.

For 2020, the mobile combustion source sector generated 25,446,411 MTCO₂e, or 47.7% of total Maricopa-Pinal County regional GHG emissions. For 2020, Native nation mobile combustion source sector generated 133,155 MTCO₂e or 56.4% of total 2020 Maricopa-Pinal County regional Native nation GHG emissions.

Estimate of Near-term and Long-term GHG and Criteria Pollutant Emission Reductions

	CO ₂ e Emission Reductions (MT)	CAP Emission Reduction (MT)
2025-2030	60,000	560
2030-2050	208,000	1,500

Implementing Agency or Agencies

State of Arizona, local jurisdictions, counties, and Tribal nations and communities.

Implementation Schedule and Milestones

Year 1	Year 2	Year 3	Year 4	Year 4
Planning phase: Finalize fleet electrification plans for each government agency that identifies appropriate vehicles, fleet and/or publicly accessible charging locations, infrastructure requirements, workforce training requirements, and implementation schedules	Continue vehicle procurement, charging infrastructure construction, and workforce development.	Continue vehicle procurement, charging infrastructure construction, and workforce development.	Continue vehicle procurement, charging infrastructure construction, and workforce development.	Procurement, construction, and workforce development phase complete and 100% implementation.

Review of Authority to Implement

The implementing agencies have the authority to implement the measure as proposed. No additional review is required.

Geographic Location

- Maricopa - Pinal County region.

Metrics for Tracking Progress

- Electricity used for charging stations (kWh);
- Number of vehicles that are transitioned to electric vehicles;
- Vehicle miles traveled by electric vehicles;
- Number of charging stations installed;
- Number of employees trained.

LIDAC Benefits

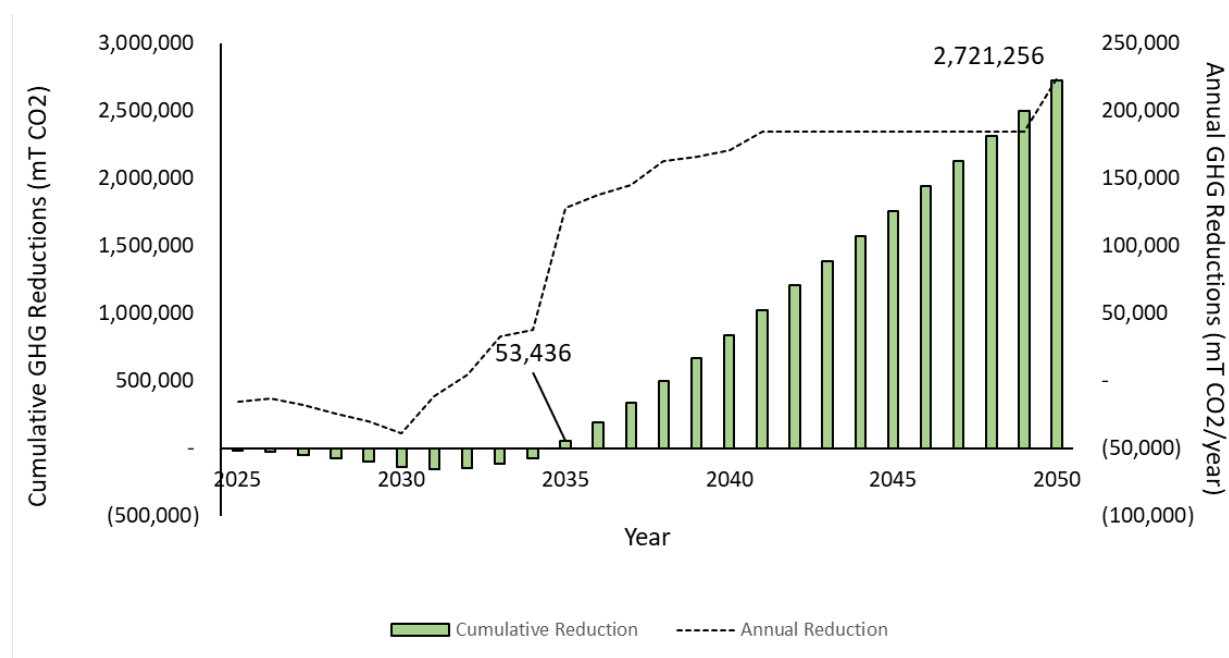
- Improved air quality and improved public health due to reduced air pollution.
 - CEJST Health Burden: Asthma, Diabetes, Heart Disease, Low Life Expectancy.
 - Justice40 Climate Change: Reductions of local air pollutants.

- Decreased vehicle tailpipe emissions.
 - CEJST Transportation Burden: Diesel Particulate Matter Exposure, Traffic Proximity.
 - Justice40 Clean Transportation: Reduction of exposure to harmful transportation related emissions.
- Increased public access to electric vehicle chargers.
 - Justice40 Clean Transportation: Access to affordable electric vehicles, charging stations, and purchase programs.
- Access to clean, high-frequency bus transportation.
 - Justice40 Clean Transportation: Access to clean, high-frequency transportation.
- Reduced noise pollution.
 - CPRG LIDAC Technical Guidance – Reduced noise pollution.
- Creation of high-quality jobs and workforce development opportunities.
 - CEJST Workforce Development Burden.
 - Justice40 Training and Workforce Development.

Measure 9: Increase publicly accessible electric vehicle charging.

This measure would make funds available to municipalities, counties, tribes, state agencies, and public universities to install publicly accessible electric vehicle charging and to implement programs that promote daytime charging. Eligible agencies will submit plans to expand public electric vehicle charging and plans to promote daytime charging to the State of Arizona.

Estimate of the quantifiable GHG emissions reductions:



Anticipated Benefits to LIDAC Residents²⁹:

- Increased access of Arizonans to electrified transportation.
- Reduction of emissions of fine particulate matter (PM2.5) and other tailpipe pollutants, such as SO2, NOx, NH3, and volatile organic compounds from internal combustion engines. This can be measured by air quality monitors (Choma et al. 2020).
- Increased number of people with health outcomes (Choma et al. 2020)
- Reduction in range anxiety because of increased access to public charging infrastructure, thereby compounding other benefits associated with EVs. (Delacretaz, Lanz, and van Dijk 2021; Chakraborty et al. 2022).

²⁹ Census Tract ID Assumptions: Since this measure will be enacted state-wide, all LIDAC residents will benefit from its implementation.

Implementing agency or agencies:

- ASU
- NAU
- UA
- Other counties and municipalities

Review of Authority to Implement

The implementing agencies have the authority to implement the measure as proposed. No additional review is required.

Geographic Location

Statewide on publicly owned land.

Funding sources

- CPRG
- NEVI
- CFI, round two

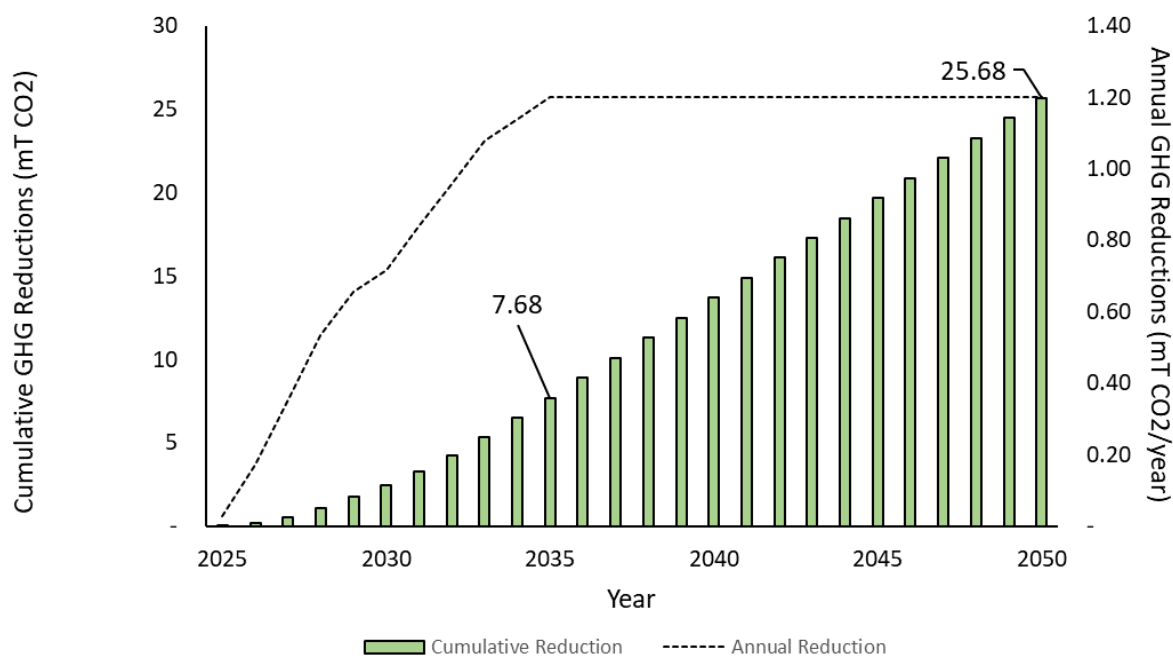
Metrics for tracking progress

- Number of public EV chargers installed as part of the program

Measure 10: Improve roads in rural and tribal communities.

This measure would incentivize ADEQ, ADOT, County DOTs, TCROs, and regional transportation planning partners to prioritize road improvements in rural and Tribal communities through paving and maintenance programs to reduce dust pollution and increase the fuel-efficiency of vehicle travel where this presents a significant barrier to healthy, thriving communities. Priority will be given to non-attainment areas in rural LIDAC and Tribal communities. This measure will give priority access to road paving and improvement funds to communities where road quality compromises public health. Eligibility would include developing a maintenance plan to reduce dust. The program will also prioritize those roads that feed state and national highways where EV infrastructure is planned to ensure that rural communities have equitable access to EV infrastructure along highways.

Estimate of the quantifiable GHG emissions reductions:



Anticipated Benefits to LIDAC Residents³⁰:

- Increased community access to safe and reliable transportation infrastructure.
- Improved vehicle fuel efficiency from driving on paved roads versus unpaved roads (Gregory et al. 2021; AzariJafari, Gregory, and Kirchain 2020).
- Improvement in economic activity through increased access to the communities and businesses.

³⁰ Census Tract ID Assumptions: For this measure, LIDAC residents who qualify as both Rural and Tribal are included as beneficiaries. Rural Census Tract is determined by guidance provided by the Office of Rural Health Policy of the United States Department of Health and Human Services, specifically using the Rural Commuting Areas (RUCA) Codes to determine rural communities. RUCA Codes can also CEJST to less populated regions of metro areas. Additionally, CEJEST indicates which communities are classified as Tribal.

- Increased employment opportunities for residents where road improvements are implemented.
- Improved access to public services, thereby improving resident health, education, wellness, and fulfillment.
- Improved access for service providers (e.g., home health, home repairs) to access communities.

Implementing agency or agencies

- ADOT
- County DOTs
- TCROs
- Regional transportation planning organizations

Review of Authority to Implement

The implementing agencies have the authority to implement the measure as proposed. No additional review is required.

Geographic location

Rural and Tribal areas statewide

Funding sources

- General Fund
- Highway User Revenue Fund (HURF)

Metrics for tracking progress

Miles of road improvement

Reduction of dust emissions (PM10 and PM2.5) associated with travel on unpaved roads

Measure 11: Clean I-40 Transportation Corridor

Measure Description

Arizona and New Mexico sit at the heart of one of the largest east-west freight corridors nationwide – Interstate 40 (I-40). To showcase how transportation and logistics can be cleaner and less polluting, the New Mexico Environment Department (NMED) intends to lead a coalition of state agencies along I-40 in a bold proposal for CPRG Phase 2 funding.

The Clean I-40 Transportation Corridor: The New Mexico-led coalition's transformative vision centers on establishing a network of electric charging and hydrogen refueling stations specifically designed for medium- and heavy-duty (MHD) zero emission trucks (MHD ZETs) along I-40. This infrastructure will:

- A. Facilitate the clean, sustainable transportation of goods between California's Port of Los Angeles and Arizona, New Mexico, Texas, Oklahoma, and beyond.
- B. Empower communities by strategically placing clean transportation complexes to deliver access to a clean energy economy, directly creating workforce development opportunities and improving air quality, particularly for residents in LIDAC along the corridor.
- C. Catalyze tailpipe emission reductions that translate to improved public health, fewer pollution-related illnesses and deaths, and a significant contribution to local, state, and national climate goals.

Aligned with national momentum: Demand for clean transportation infrastructure is skyrocketing, fueled by corporate sustainability goals and federal and state investments and regulations. Recognizing this critical need, the U.S. Department of Transportation (USDOT) designated the Port of Los Angeles to Albuquerque, NM corridor as a national priority for clean transportation.

Building on existing momentum: The USDOT's 2021 Regional Infrastructure Accelerator (RIA) Grant award to Bernalillo County, NM, Kingman, AZ, and Winslow, AZ kick-started crucial infrastructure planning in these key locations. This CPRG proposal leverages this foundational work by:

- A. Providing initial implementation funding at these three planned sites, rapidly accelerating the deployment of electric charging and hydrogen refueling stations.
- B. Expanding the corridor through replication of the RIA model to plan and implement six additional sites along I-40, maximizing the impact of public funding by attracting private investment and building economic opportunities.

Focused on MHD ZETs, CPRG implementation funds will directly support:

- A. Installation of electric vehicle (EV) charging stations,
- B. Deployment of stationary and mobile hydrogen refueling stations,
- C. On-site renewable energy generation with storage (primarily for battery-electric ZETs), and
- D. Planning and implementation of six additional sites beyond the initial three RIA locations.

The Clean I-40 Transportation Corridor is not just an infrastructure project; it's a catalyst for sustainable economic growth, environmental protection, and healthier communities.

Key Implementing Agencies

NMED will lead this coalition, composed of key stakeholders committed to the Clean I-40 Transportation Corridor's success. This robust coalition represents a powerful synergy of governments, united in their pursuit of a cleaner, more prosperous future for the I-40 corridor.

Authority to Implement:

The implementing agencies have the authority to implement the measure as proposed. No additional review is required.

Geographic Scope

The geographic scope of the measure spans Interstate-40, across the southwest United States, including through additional states such as California, Arizona, Texas, and Oklahoma.

Metrics for Tracking Progress

To evaluate the post-project efficacy of the Clean I-40 Transportation Corridor, the following metrics will be monitored from the outset of the project:

Environmental impact

- **Reduction in GHG emissions:** Track the total tons of climate pollution avoided annually by MHD ZETs using data from the charging stations compared to baseline diesel truck emissions.
- **Reduction in co-pollutant emissions:** Track the total tons of climate pollution avoided annually by MHD ZETs using data from the charging stations compared to baseline diesel truck emissions.
- **Renewable energy generation:** Measure the amount of clean energy generated by on-site renewable energy projects.

Economic impact

- **Job creation:** Track the number of jobs created directly and indirectly through the project, including construction, station operation, and related industries.
- **Private investment:** Monitor the amount of private investment attracted to the corridor due to the project's infrastructure.

- **Economic development:** Measure changes in economic indicators like business growth and tax revenue in communities near clean transportation complexes.

Community Impact

- **Equity and access:** Monitor the distribution of benefits and ensure stations are accessible to all communities, including LIDAC.
- **Community engagement:** Track satisfaction and participation of communities in the project through surveys and community meetings.

Project implementation

- **Station utilization:** Monitor the usage rates of charging and refueling stations to assess project demand and optimize resource allocation.
- **Project completion rates:** Track the timely completion of planned infrastructure and ensure adherence to budgets and timelines.

Implementation Schedule and Milestones

To implement this measure, there are two primary stages. Stage 1 involves implementing the RIA plans to begin construction at the three shovel-ready locations. Stage 2 includes planning and then construction of additional sites. The timelines below (1) indicate the expected schedules for full implementation, and (2) are presented as time to complete from the date of award.

Stage 1

- Construction: 2-3 years
 - Permitting and Infrastructure
 - Technology Integration
 - Testing and Commissioning
 - Testing various components of the infrastructure

Stage 2

- Siting / Feasibility Assessments, Planning, and Design: 2 years
 - Conducting feasibility studies for potential locations
 - Engaging in community outreach
 - Developing a comprehensive project plan
 - Developing architectural and engineering designs
 - Issuing RFPs and finalizing contracts and arrangements
 - Implementing funding and application structure
- Construction: 2-3 years
 - Permitting and Infrastructure
 - Technology Integration
 - Testing and Commissioning
 - Testing various components of the supercenter

Benefits

Primary Benefits

GHG Emission Reductions

Estimate of Cumulative GHG Emission Reductions in Arizona

CATEGORY	GHG EMISSION REDUCTIONS 2025 – 2030 (MT CO ₂ E)	GHG EMISSION REDUCTIONS 2025 – 2050 (MT CO ₂ E)
Small transportation complex (e.g., Kingman)	102,386.9	511,934.4
Small transportation complex (e.g., Winslow)	102,677.3	513,386.4
<i>Total</i>	<i>205,063.3</i>	<i>1,025,320.8</i>

Co-benefits

Health Benefits

Emissions from gasoline and diesel vehicles are major contributors to air pollution, including harmful pollutants like nitrogen oxides (NO_x), ozone, and particulate matter (PM_{2.5}). These pollutants are linked to a range of health problems, including respiratory illnesses, heart disease, and even cancer. Both EVs and hydrogen fuel cell vehicles produce zero tailpipe emissions, meaning they wouldn't contribute to air pollution along the I-40 corridor. This measure would lead to improved air quality in nearby communities, especially around densely populated areas and major intersections, and subsequently a reduction in respiratory illness, heart disease, and cancer in the communities along the I-40 corridor.

Environmental Benefits

Air Quality Benefits

Air quality benefits from this measure are being calculated and will be available soon.

Land and Soil Benefits

In addition to water quality degradation, oil leakage from ICE vehicles can contaminate land and soil along roadways and lots. Soil degradation due to pollution can lead to a reduction in the ecosystem's functions and services, decline in soil fertility, and adverse changes in chemical composition, which can lead to excessive erosion and, subsequently, flooding. Providing the infrastructure necessary to fuel ZEVs and transition away from the use of ICE vehicles will reduce contamination of land and soil and minimize these harmful effects.

Ecological Benefits

Aside from the ecological benefits associated with improving soil quality listed above, providing the infrastructure necessary to fuel ZEVs and transition away from the use of ICE will result in a reduction of noise pollution. Noise pollution is an invisible threat to the health and well-being of wildlife. It can affect communication, distribution, foraging, or homeostasis of organisms. A reduction in noise pollution will not only create a better

environment for the communities along the I-40 corridor, but also the wildlife we share the environment with.

Economic Benefits

This measure promises a clean economic win-win for the Southwest, stimulating trade with its Port of Los Angeles connection, sparking regional infrastructure upgrades, and igniting economic opportunity in LIDAC. Regional economic benefits include new clean energy jobs and transportation complexes, increased private investment, and healthier, more productive workforces, all fueled by cleaner, more efficient freight transportation. This measure is not just about infrastructure, it's a strategic investment in a cleaner, more prosperous future for the entire region.

Low-Income and Disadvantaged Communities Benefits Analysis

Tailpipe emissions have varying deleterious effects on public health, with populations closer to and downstream of the source most impacted. However, the entire state is impacted by these emissions to some degree. Thus, this measure's benefits accrue to all US Census Tract Block Groups in Arizona and along the I-40 Corridor

Benefits

Improved air quality

Reduced tailpipe emissions from MHD ICE trucks will significantly improve air quality for residents in LIDAC along the I-40 corridor, leading to a decrease in respiratory illnesses and healthcare costs.

Economic development

Clean transportation complexes mindfully placed in proximity to people living in LIDAC can offer new job opportunities and attract private investment, boosting local economies and potentially leading to higher wages and better living standards.

Workforce development

Programs tailored to training residents from LIDAC for jobs in the clean energy sector (e.g., installation and maintenance of charging stations) can provide valuable career pathways and upward mobility.

Enhanced community health

Improved air quality and economic opportunities can contribute to overall well-being for people living in LIDAC, potentially leading to lower crime rates, better educational outcomes, and stronger social cohesion.

Environmental justice

Focusing infrastructure development and economic benefits towards residents in LIDAC can help address historical inequities and ensure a more just distribution of environmental and economic benefits.

Overall, the measure has the potential to significantly improve the lives of people living in LIDAC along the I-40 corridor. However, careful planning and implementation are necessary to ensure that the program delivers its benefits equitably and avoids unintended negative consequences.

Waste, Water, and Sustainable Materials Sector

Measure 12: Develop and pilot innovative solutions to reduce greenhouse gas emissions and air pollution from forest management, municipal solid waste, and wastewater processes, and develop local markets for biochar and other products created from liability biomass.

Measure Description

This measure would support local governments in developing and piloting innovative, sustainable, and scalable solutions for reducing emissions from liability biomass including:

1. Advanced pyrolysis of forest byproducts from hazardous fuels reduction treatments.
2. Advanced pyrolysis of biosolids from municipal wastewater treatment plants, and
3. Industrial-scale composting of or advanced pyrolysis of organic materials from municipal landfills.
4. Distribution of firewood (forest treatment byproduct) and funding wood stove retrofits to EPA-certified clean burning wood stoves for in-need communities.

Local municipalities need support for designing, developing, and testing solutions such as advanced pyrolysis, wood vaulting, and composting. Local and regional governments seek eligibility to use CPRG implementation grant funding to offset prohibitively high startup costs, aid in local workforce development, implement research and demonstration projects, and catalyze the development of regional markets for biochar and other sustainable products resulting from the implementation of these pilots. This measure aims to reduce the risk of catastrophic wildfires, create local solutions to local climate problems, and promote cleaner air, with an emphasis on benefitting low-income and disadvantaged communities.

The City of Flagstaff is seeking to implement pilot projects to reduce emissions from each of the three liability biomass sources (forests, wastewater, and solid waste) by diverting material to advanced pyrolysis and composting processes and testing electric refuse trucks for organic waste collection. The City plans to collaborate with other local jurisdictions, academic institutions, and nonprofits to spur innovation, catalyze local markets, test the efficacy of carbon capture strategies, and provide workforce training to support and scale these pilots over time.

Estimate of the Quantifiable Greenhouse Gas (GHG) Emissions Reductions

Total Estimated GHG Emissions Reductions		
Technology	GHG Emissions reduction estimate through 2030	GHG Emissions reduction estimate through 2050
Advanced pyrolysis processing of byproducts of forest treatment	77,813 tons of MTCO ₂ e	504,141 tons of MTCO ₂ e
Advanced pyrolysis processing of biosolids	2,890 tons of MTCO ₂ e	15,733 tons of MTCO ₂ e
Green and Food Waste Composting	3,360 tons of MTCO ₂ e	24,112 tons of MTCO ₂ e
TOTAL	84,063 tons of MTCO₂e GHG emissions reduction estimate through 2030	543,986 tons of MTCO₂e GHG emissions reduction estimate through 2050

Note: The final greenhouse gas (GHG) emissions reductions will depend on the total funding received through the Climate Pollution Reduction Grant.

See below for emissions reduction estimates based on the three technologies above.

Advanced Pyrolysis of Forest Byproducts from Hazardous Fuels Reduction Treatments Preliminary GHG emissions reduction estimates					
Technology	Time period	Amount	Assumptions	GHG Emissions Reduction Estimates (MTCO ₂ e)	
				through 2030	through 2050
Advanced pyrolysis processing of byproducts from 6,000 acres of forest treatment	Over the 5-year grant period (2025-2029)	150,000 tons of wood chips and other waste over 5 years	1 ton of finished biochar leads to 3 tons of MTCO ₂ e stabilized. Assume 1% degradation per year, in each of the first 10 years. Assume biochar processing is	54,609	50,625

			operational in 2026.		
Advanced pyrolysis processing of byproducts from 52,500 acres of forest treatment	2030 - 2050	1,312,500 tons of wood chips and other waste, years 6 - 26	[Same as above]	23,203	453,516
Total Emissions Reductions				77,813	504,141

Note: The calculations above assume that the infrastructure and capital investments put in place through the CPRG grant remain operational through 2050, with continual funding from the City or other sources, for operations and maintenance.

Advanced Pyrolysis of Biosolids from Municipal Wastewater Treatment Plants Preliminary GHG emissions reduction estimates					
Technology	Amount	Assumptions	GHG Emissions Reduction Estimates (tons of MTCO ₂ e)		
			through 2030	through 2050	
Advanced Pyrolysis processing of biosolids	4,000 lbs per day	This only takes into account the GHG reductions from reduced energy use at the treatment plant – not reductions from anaerobic processing (e.g., methane avoided)	2,890	15,733	
Total Emissions Reductions			2,890	15,733	

Note: The calculations above assume that the infrastructure and capital investments put in place through the CPRG grant remain operational through 2050, with continual funding from the City or other sources, for operations and maintenance.

Industrial-scale composting of or advanced pyrolysis of organic materials from municipal landfills.

Preliminary GHG emissions reduction estimates

Technology	Total Amount Composted 2027 - 2050	Assumptions	GHG Emissions Reduction Estimates (tons of MTCO ₂ e)	
			through 2030	through 2050
Green waste diverted from landfill and composted	37,116 tons	Utilizes EPA estimates for green waste sent to landfills. Assumes composting 10% of all green waste in year 3, increasing to 15% in year 4, to 20% in year 5 and beyond	562	4,083
Food waste diverted from landfill and composted	133,529 tons	Utilizes EPA estimates for food waste sent to landfills. Assumes composting 10% of all food waste in year 3, increasing to 15% in year 4, to 20% in year 5 and beyond	2,798	20,029
Total Emissions Reductions			3,360	24,112

Note: The calculations above assume that the infrastructure and capital investments put in place through the CPRG grant remain operational through 2050, with continual funding from the City or other sources, for operations and maintenance.

Anticipated Benefits to LIDAC Residents:

- Reduced risk of catastrophic wildfires that threaten lives and property, release significant GHG emissions, disrupt ecosystem functions, and negatively impact the local quality of life and tourism. Low-income neighborhoods and disadvantaged communities are already experiencing greater impacts due to climate change and extreme weather events. The Southside neighborhood in Flagstaff, for example, is a designated disadvantaged community in the 95th percentile for projected wildfire risk.
- Improved local air quality from the reduced incidence of prescribed forest burning following hazardous fuels reduction treatments. Smoke is a significant source of local particulate matter in some parts of the state, and a serious health concern for those with asthma and other respiratory illnesses. The percentage of people suffering from asthma is disproportionately higher in Flagstaff's disadvantaged communities. The Sunnyside community on the east side of Flagstaff is in the 68th percentile for the share of people with asthma (Tract 04005000300,

CEJST); while the Southside community is in the 87th percentile (Tract 04005000800, CEJST). Neighboring Native communities are located downwind from wildfires and prescribed burns, affected by smoke, and disproportionately impacted by environmental and health burdens including asthma rates in the 98th percentile. (Tract 04005945100, CEJST). Reducing the number of prescribed burns will contribute to better public health.

- Reduced risk of flooding in communities that lie in floodplains (e.g., Southside and Sunnyside neighborhoods in Flagstaff), communities that have experienced redlining and disinvestment, and that lack adequate infrastructure to handle the flooding that has intensified due to the intensity of wildfires (Southside and Sunnyside neighborhoods). Sunnyside is in the 90th percentile for projected flood risk, while Southside is in the 92nd percentile (CEJST). Both low-income communities have a history of flooding and infrastructure-related issues. Sunnyside experienced devastating post-wildfire flooding of homes, buildings, and an elementary school due to the Museum Fire in the summer of 2021. Concentrating full fiber removal operations on the San Francisco Peaks would reduce the impacts of flooding on the Rio de Flag, which would positively affect these communities.
- Clean wood-burning stove retrofits will be provided to residents in census-designated tracts and will result in emissions reductions while improving the indoor air quality and health of the members in such households. The retrofits will be EPA-certified clean burning stoves.
- A free source of firewood for community members who rely on wood for home heating and/or cooking through public wood banks, with an emphasis on supporting rural community members and Tribal Nations.
- Improved public awareness of EPA's smart burning resources through the distribution of handouts highlighting safe and clean burning practices and providing free moisture meters to low-income residents in Flagstaff and nearby Native communities will result in improved indoor air quality. Approximately 80% of residents surveyed in Hopi villages and Navajo chapters depend on firewood for heating and/or cooking. (Wood for Life Needs Assessment conducted by Ecological Restoration Institute, preliminary results, Feb. 2024).
- Diverting biosolids from the current wastewater treatment and land application process in Flagstaff to an advanced pyrolysis process will reduce the risk of contaminating groundwater supplies while improving the environmental health and overall well-being of residents through land remediation where biomass solids (sludge) currently are located at the wastewater treatment plant. Ecological restoration benefits the whole community, especially the Southside neighborhood (Tract 04005000800), which is in the 94th percentile for projected risk of wastewater discharge and 92nd percentile for projected flood risk (CEJST).
- This measure will support entrepreneurial growth and expanded job creation opportunities through an innovation marketing grants program and partnership with Coconino Community College. Microgrants will support entrepreneurs in developing markets for biochar and other products created from liability biomass while a certification program will train a local workforce.

- The pilot projects may provide a free source of compost and/or biochar for low-income community members and community gardens and school gardens in census-designated tracts. A partnership with Northern Arizona University will prioritize scientific research concerning carbon removal strategies including pyrolysis, wood vaulting, and composting. Soil health and productivity will be monitored, and the results will help inform the project, which may positively impact soil health in the communities receiving free compost and/or biochar.
- Reduced air and noise pollution by utilizing electric refuse trucks for residential and/or commercial compost pickup instead of conventional diesel refuse trucks.

Implementing Agency or Agencies

Arizona local governments, including the City of Flagstaff.

Review of Authority to Implement

The implementing agencies have the authority to implement the measure as proposed. No additional authority is required.

Budget

The total anticipated budget to implement pilot projects led by the City of Flagstaff is \$49M.

Geographic Location

This measure will significantly impact the treatment, processing, and emissions of liability biomass in the Greater Flagstaff Region. It pertains especially to forested areas of Northern Arizona that are susceptible to catastrophic wildfires, including the City of Flagstaff and the greater Coconino County area.

Funding Sources

- EPA's Climate Pollution Reduction Grant

Metrics for tracking progress

- Number of advanced pyrolysis reactor units deployed at regional facilities.
- Number of industrial-scale composting facilities created.
- Annual volume of biomass (in tons) diverted from business-as-usual forest management processes to advanced pyrolysis processing.
- Annual volume of biomass (in tons) diverted from business-as-usual wastewater management processes to advanced pyrolysis processing.
- Annual volume of forest byproducts provided to low-income and disadvantaged communities for space heating.
- Annual volume (in tons) of waste diverted from the landfill.
- Annual number of technicians certified to operate pyrolysis equipment.
- Annual volume (in tons) of biochar created.
- Annual volume (in tons) of compost created.

Low-Income and Disadvantaged Community Analysis

The implementation of the measures included in this PCAP is anticipated to provide significant benefits to low-income and disadvantaged communities (LIDACs). This section identifies each LIDAC within the jurisdiction covered by this PCAP, how Arizona meaningfully engaged with LIDACs in the development of this PCAP, and how Arizona will continue to engage in the future.

Identification of and Engagement with LIDACs

The OOR identified LIDACs using the Climate and Economic Justice Screening Tool (CEJST). The OOR created an engagement plan for seeking feedback on community priorities during the development of this PCAP. See the Coordination and Outreach section of this PCAP for the engagement plan, a record of outreach activities, and a summary of input received during the engagement process. Strategies for engagement with LIDACs are summarized below:

- Online resources:
 - State CPRG webpage: <https://resilient.az.gov/resiliency-programs/energy-programs/climate-pollution-reduction-grant-cprg/climate-pollution>;
 - Social media;
 - Portal for submitting ideas:
<https://docs.google.com/forms/d/e/1FAIpQLSdhKf0hokFae2HyHezLGOctTYWAZGCdcHneu39KopGBigAY3A/viewform>.
- Community meetings across the state with options for in-person and online participation in English and Spanish;
- Targeted outreach to known community-based organizations; and
- Attendance at known community events to disseminate information about how to provide input.

Impact of PCAP Implementation on LIDACs

A discussion of the benefits to LIDACs associated with the implementation of Priority Measures is included with the technical description of the Priority Measures. In those sections, the benefits are described along with the assumptions of how Census Tract IDs are selected from CEJST. In Appendix B, the list of affected Census Tract IDs is shown along with references with supporting information for the anticipated benefits.

The Office of Resiliency will perform culturally appropriate, community-based stakeholder engagement activities with LIDAC communities every other month throughout the grant funded period. Information gathered from these engagement activities shall directly inform future work.

The Office of Resiliency will actively invite, engage, and work with Tribal nations and communities in Arizona in all stakeholder engagement processes. OOR will ensure that Tribal and LIDAC priorities, thoughts, and concerns are respected and incorporated into all future work.

Review of Authority to Implement

The Governor's Office of Resiliency has reviewed existing statutory and regulatory authority to implement each priority measure continued in this PCAP. For any priority measure where authority must still be obtained, this section contains a schedule of milestones for actions needed by key entities (e.g, legislature, administrative agency, etc.) for obtaining any authority needed to implement such measure(s)

Priority Measure	Implementing Agency	Review of Authority to Implement
Resilient Homes and Businesses		
1. Expand access to weatherization, energy efficiency upgrades and electrification.	OOR	The implementing agency has the authority to implement the measure as proposed. No additional review is required
2. Support municipalities and communities statewide in adopting the most up-to-date building energy codes.	OOR	The implementing agency has the authority to implement the measure as proposed. No additional review is required
Electricity Sector: Clean, Reliable Electricity		
3. Deploy solar-plus-battery systems.	OOR	The implementing agencies have the authority to implement the measure as proposed. No additional review is required
4. Implement on-site renewables generation and battery storage at public universities and community colleges.	ABOR, ASU, NAU, UA	The implementing agencies have the authority to implement the measure as proposed. No additional review is required
5. Resilient Local Economy	OOR	The implementing agency has the authority to implement the measure as proposed. No additional review is required
Workforce Development: Clean Energy Economy for All Arizonans		
6. Create a clean tech workforce.	OOR, OEO, ASU, NAU, UA, MCCC, ABOR, ACA	The implementing agencies have the authority to implement the measure as proposed. No additional review is required
Transportation Sector: Clean, Safe Transportation		
7. Enable zero-emission fleets.	ASU, UA, NAU, Eligible entities statewide	The implementing agencies have the authority to implement the measure as proposed. No additional review is required
8. Public fleet electrification and publicly available charging infrastructure development.	State of Arizona, local and county governments, Tribal nations	The implementing agency has the authority to implement the measure as proposed. No additional review is required.

9. Increase publicly accessible electric vehicle charging.	ASU, UA, NAU, MCCCDC, Eligible entities statewide	The implementing agencies have the authority to implement the measure as proposed. No additional review is required.
10. Improve roads in rural and tribal communities.	ADOT, county governments, TCROs, RTPOs	The implementing agencies have the authority to implement the measure as proposed. No additional review is required.
11. Clean I-40 transportation Corridor	NMED with coalition members from southwestern states and municipalities	The implementing agencies have the authority to implement the measure as proposed. No additional review is required.
Waste, Water and Sustainable Materials Sector		
12. Develop and pilot innovative solutions to reduce greenhouse gas emissions and air pollution from forest management, municipal solid waste, and wastewater processes, and develop local markets for biochar and other products created from liability biomass.	City of Flagstaff, Eligible entities statewide	The implementing agencies have the authority to implement the measure as proposed. No additional review is required.

Coordination and Outreach

The Governor's Office of Resiliency (OOR) conducted extensive intergovernmental coordination and outreach in the development of this PCAP. This section describes the framework OOR used to support robust and meaningful engagement strategies to ensure comprehensive stakeholder representation and overcome obstacles to engagement, including linguistic, cultural, institutional, geographic, and other barriers.

Identification of Stakeholders

Arizona State Office of Resiliency identified stakeholders representative of the entities, groups, and individuals who may be impacted by the implementation of this PCAP. Stakeholders included:

- Other state agencies;
- Metropolitan planning organizations;
- Economic development organizations;
- Environmental advocates;
- Utilities;
- Agricultural associations;
- Waste management organizations;
- Consumer advocates;
- Local elected officials;
- Community-based organizations;
- Other interested organizations; and
- Residents of Arizona.

To identify stakeholders, OOR contacted local elected officials, community organizations, and advocacy organizations known to be interested in clean energy infrastructure and practices. OOR will update this list of stakeholders as needed.

Interagency and Intergovernmental Coordination

OOR hosted biweekly coordination meetings with MAG, Pima County DEQ, Navajo Nation, Hopi Tribe, San Carlos Apache, Gila River Indian Community, and Salt River Pima Maricopa Indian Community. Additionally, OOR engaged with key state agencies including ADOT and ADEQ on a weekly basis.

The purpose of these coordination meetings was to ensure feedback from key inter-agency and community partners was incorporated.

No sub-awards outside of contracts with ASU and NAU were issued.

Outreach Plan

The Governor's Office of Resiliency contracted with Arizona State University to develop an outreach plan that could contribute to the development of the Priority Climate Action Plan. A two-pronged strategy was identified, including a focus on stakeholder engagement and public engagement. Stakeholder engagement involved targeted conversations with other PCAP recipients, potential implementation partners, non-profits, and businesses and community groups already working to advance resilience and climate action across the State of Arizona. During stakeholder engagement, conversations focused on where the state and other implementation grant-eligible entities have the capacity to implement actions that reduce greenhouse gas emissions and improve quality of life for Arizonans, particularly low-income and disadvantaged communities. These conversations resulted in a set of action areas that reflect both the need for climate action and where action can be taken across the state in a timeline that fits with that required by the implementation grants competition. Public engagements were held to gather public input on these action areas. The results of the public engagements appear in Appendix A. Table 4 provides a log of the outreach and coordination efforts.

Strategies to Overcome Linguistic, Cultural, Institutional, Geographic, and Other Barriers to Participation

- Two meetings were held virtually for statewide participation, one in the evening and one in the afternoon. Recordings of all virtual and hybrid meetings are available [here](#).
- All virtual meetings were held in English with live subtitles provided in English and Spanish.
- Meetings held in predominantly Spanish-speaking areas were held in both Spanish and English with materials provided in both languages. The website was launched by the State's Office of Resiliency to provide a link to a form for collecting feedback in both English and Spanish: <https://resilient.az.gov/resiliency-programs/energy-programs/climate-pollution-reduction-grant-cprg/climate-pollution>
- Events were posted on ASU's Event website: <https://asuevents.asu.edu/>

Outreach and Coordination Documentation

Table 4 provides a log of interagency and intergovernmental coordination and stakeholder and public engagement efforts associated with the development of this PCAP.

Table 4. Outreach and Coordination Log

Date	Topic	Organizations Involved	Outreach Method	Location	Outcome(s) and Next Steps	Notes/Links
9/25/23	Rural Engagement in Climate Action Plan	Local First Arizona	Zoom	Virtual	Work together to distribute information to rural counties	
10/19/23	Community Engagement with PCAP	Chispa and Unlimited Potential	Zoom	Virtual	Agreed to share outreach materials about the PCAP	
10/24/23	Input on the Arizona PCAP	SciTech Innovation Council	Tabling and Keynote Speech	Arizona Science Center, Phoenix, Maricopa County, AZ	Partnership with AZ Sci Tech for high school engagement on CCAP	
10/24/23	Sharing resources in developing PCAP	San Carlos Apache	Zoom	Virtual	Further collaboration on CCAP with San Carlos	
10/26/23	Collaboration on Outreach events	Maricopa County Association of Governments	Zoom	Virtual	Agree to participate in MAG outreach events and share resources	
10/27/23	Pima County's interest in PCAP measures	Pima County, Pima Environmental Quality District	Zoom	Virtual	Discuss engaging agriculture stakeholders in the CAP process.	
10/5/23	Rural Engagement in Climate Action Plan	Local First Arizona	Zoom	Virtual	Develop a plan to expand public engagement with the LFA network	
11/1/23	Coconino's interest in PCAP measures	Coconino County, City of Flagstaff, City of Sedona	Zoom	Virtual	Plan public engagements in Coconino County	
11/1/23	AZ Dept. of Air Quality's interest in measures	ADEQ	Zoom	Virtual	ASU to work with ADEQ on public engagements	
11/2/23	Implementation Grants and the Communities' interest in PCAP measures	Salt River Pima Indian Community, Gila River Indian Community	Zoom	Virtual	Continue conversations on CAP collaboration	
11/2/23	Implementation Grants and the Communities' interest in PCAP measures	Hopi Nation	Zoom	Virtual	Offer technical assistance, explore shared measures for PCAP	

11/3/23	Yuma County Implementation grant	Yuma County, Town of Somerton	Zoom	Virtual	Yuma County will talk among its municipalities about the highest priority implementation projects.	
11/3/23	Arizona Department of Transportation Involvement in PCAP	ADOT, ASU, Governor's Office of Resiliency	Zoom	Virtual	Identifying ADOT projects to include in measures for PCAP	
11/30/23	Community Forum on Clean Arizona Plan	Unlimited Potential, Chispa	Public Meeting/Public Engagement	South Phoenix, Maricopa County, AZ	Provided feedback on proposed measures in the state's priority climate action plan	
12/4/23	Northern Arizona Business Leaders Roundtable on Clean Arizona Plan	Arizona Forward Northern Arizona members	Roundtable	Virtual	Provided feedback on proposed measures in the state's priority climate action plan	
12/4/23	Clean Arizona Plan	Maricopa Association of Governments	Tabling	West Phoenix, Maricopa County, AZ	Gathered input from the public on proposed measures in the state's priority climate action plan	Clean AArizonaPlan Input Form-4.pdf https://forms.gle/PmhKWojLUaSjaG2N9
12/7/23	Clean Arizona Plan Town Hall	ASU, OOR	Public Meeting/Public Engagement	Virtual	Gathered input from the public on proposed measures in the state's priority climate action plan via polls and unstructured feedback	Virtual Engagement CAP slides.pptx-1.pdf
12/7/23	Maricopa County Healthcare Workers Forum on Clean Arizona Plan	Unlimited Potential	Stakeholder Engagement	Virtual	Gathered input from healthcare workers on proposed measures in the state's priority climate action plan	
12/11/23	Clean Arizona Plan	Maricopa Association of Governments	Tabling	South Phoenix, Maricopa County, AZ	Gathered input from the public on proposed measures in the state's priority climate action plan	https://forms.gle/PmhKWojLUaSjaG2N9 Clean Arizona Plan Input Form-4.pdf
12/12/23	Clean Arizona Plan Town Hall	Coconino County, City of Sedona and Flagstaff, ASU, ASU, Governor's Office of Resiliency	Public Meeting /Public Engagement	Flagstaff, Coconino County, AZ	Gathered input from the public on proposed measures in the state's priority climate action plan	Virtual Engagement CAP slides.pptx-1.pdf Appendix A, Section 2

12/12/23	Clean Arizona Plan Town Hall	Coconino County, Flagstaff, ASU, ASU, Governor's Office of Resiliency	Public Meeting/Public Engagement	Flagstaff, Coconino County, AZ	Gathered input from the public on proposed measures in the state's priority climate action plan	Virtual Engagement CAP slides.pptx-1.pdf Appendix A, Section 2
12/13/23	Clean Arizona Plan	Maricopa Association of Governments	Tabling / Public Engagement	Eloy Town Hall, Pinal County, AZ	Gathered input from the public on proposed measures in the state's priority climate action plan	
12/15/23	Clean Arizona Plan Town Hall	ASU, Governor's Office of Resiliency	Public Meeting/Public Engagement	Virtual	Gathered input from the public on proposed measures in the state's priority climate action plan	
12/16/23	Clean Arizona Plan	Maricopa Association of Governments	Tabling/Public Engagement	Mesa Community College	Gathered input from the public on proposed measures in the state's priority climate action plan	
1/9/2024	Virtual Small Business Roundtable	Local First Arizona	Roundtable	Virtual	Asking local business owners across the state for their input on the state's climate action plan	Appendix A, Section 3
1/18/2024	Verde Valley Roundtable	Local First Arizona	Roundtable	Cottonwood, Yavapai County, AZ	Gathered input for PCAP from Yavapai County residents	Appendix A, Section 3
1/24/2024	Statewide Tribal Leader Roundtable	Local First Arizona	Roundtable	Virtual	Gathered input for PCAP from tribal leaders	Appendix A, Section 3
1/25/2024	Yuma County Roundtable	Local First Arizona	Roundtable	San Luis, Yuma County, AZ	Gathered input for PCAP from Yuma County	Appendix A, Section 3