

# Central Arkansas Energy and Environment Innovation Priority Action Plan Supplement



December 2023



Clean Transportation Choices & Green Corridors

Efficient and Electric Vehicles

Waste Management & Recycling

Net-Zero Buildings



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## Introduction

### Partnership with Arkansas Department of Energy and Environment

Central Arkansas' regional Energy and Environment Innovation (EEI) Priority Action Plan (PAP) Supplement was developed by Metroplan, Central Arkansas' Metropolitan Planning Organization (MPO), and Little Rock Sustainability Office staff (Central Arkansas EEI Planning Team) with the input of many partners. Metroplan entered into a Memorandum of Agreement (MOA) with the Arkansas Department of Energy and Environment, Division of Environmental Quality (DEQ), in September 2023 for regional Climate Pollution Reduction Grant (CPRG) planning in the 6-county Little Rock-North Little Rock-Conway Metropolitan Statistical Area (Central Arkansas MSA). Metroplan's Central Arkansas Transportation Study (CARTS) area encompasses Faulkner, Lonoke, Pulaski, and Saline Counties.

In accordance with the MOA, Central Arkansas' Priority Action Plan Supplement includes a minimum of three measures, such as a policy, pass-through funding program design, or project concept paper. Each measure includes the following:

- Anticipated workforce needs to implement measure
- Review of authority or barriers to implementing measure (laws, ordinances, rules, etc.)
- Information necessary for DEQ to perform the following analyses:
  - GHG and Co-pollutant emission reductions or sequestration
  - LIDAC Benefits Analysis

### Public and Stakeholder Engagement

The Central Arkansas EEI Planning Team focused its first two months of planning on conducting meaningful engagement with stakeholders and the public, with an emphasis on outreach to low income and disadvantaged communities throughout the region. Activities included:

- Community Input Survey
  - Online public survey developed and hosted by Metroplan with input from state and regional partners
  - Launched September 5, 2023
  - 880 statewide responses, 317 from Central Arkansas MSA (as of 11/21/23)
- Transportation Sector Workshop in North Little Rock (9/21/23, 50 participants)
- Metroplan Board & Stakeholder Workshop (10/25/23, 27 participants)
- Presentations to LR Sustainability Commission, Sierra Club, Central Arkansas Planning and Development District (CAPDD), WTS Arkansas
- Television interviews on THV11 The Vine and PBS Arkansas Week
- Tabling at North Pulaski County Community Festival, UA Little Rock Sustainability Day, and Little Rock Cornbread Festival
- Press releases advertising Community Input Survey and Transportation Sector Workshop
- Email newsletters to 112 contacts regionwide
- Distributed information through neighborhood associations
- Social media posts

## Partners

Central Arkansas' planning process has been supported and augmented by a diverse group of partners engaged through one-on-one meetings, workshops, and regular email communication. Partners include:

- Arkansas Department of Energy and Environment
- Arkansas Department of Transportation
- Metroplan (MPO) Board of Directors - 28 mayors and 5 county judges
- Rock Region METRO (transit provider)
- Bill and Hillary Clinton National Airport
- Little Rock Port Authority
- Little Rock Sustainability Commission
- Little Rock Department of Public Works
- Central Arkansas Water
- Central Arkansas Planning and Development District
- Entergy Arkansas (investor-owned utility)
- Entegrity Energy Partners (Little Rock-based sustainability consulting/development firm)
- North Little Rock Electric (municipal utility)
- Arkansas Advanced Energy Association
- Arkansas Apprenticeship Alliance
- Southern Bancorp (local CDFI)
- Little Rock Regional Recycling
- Little Rock Regional Chamber

## Greenhouse Gas (GHG) Emissions Estimation

The following estimation is an approximation of GHG emissions for Central Arkansas' 6-county MSA based on available state and national data. GHG emissions include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (NO<sub>2</sub>). All units were converted into metric tons of carbon dioxide equivalents (CO<sub>2</sub>e).

The "Estimation of Central Arkansas Emissions by Sector" (Chart 1) visualizes sector-specific emissions in Central Arkansas. Because Central Arkansas imports most of its energy and is home to only one power generation facility, the natural gas-fired Oswald Generating Station in Wrightsville, the energy sector represents a smaller estimated share of local emissions as compared to the State's Inventory. Energy used in buildings and local water and wastewater processes are included. Therefore, the Residential, Commercial, and Industrial sectors included in this visualization express only natural gas combustion in buildings and the related process/fugitive emissions.

Chart 1.

### Estimation of Central Arkansas Emissions by Sector

Energy	2493337
Residential	1455859.88
Commercial	2256239.54
Industrial	1057400.58
Transportation	4901620
Agriculture and Land Use	2303345
<i>Estimated Total</i>	<b>14467802 MT CO<sub>2</sub>e</b>

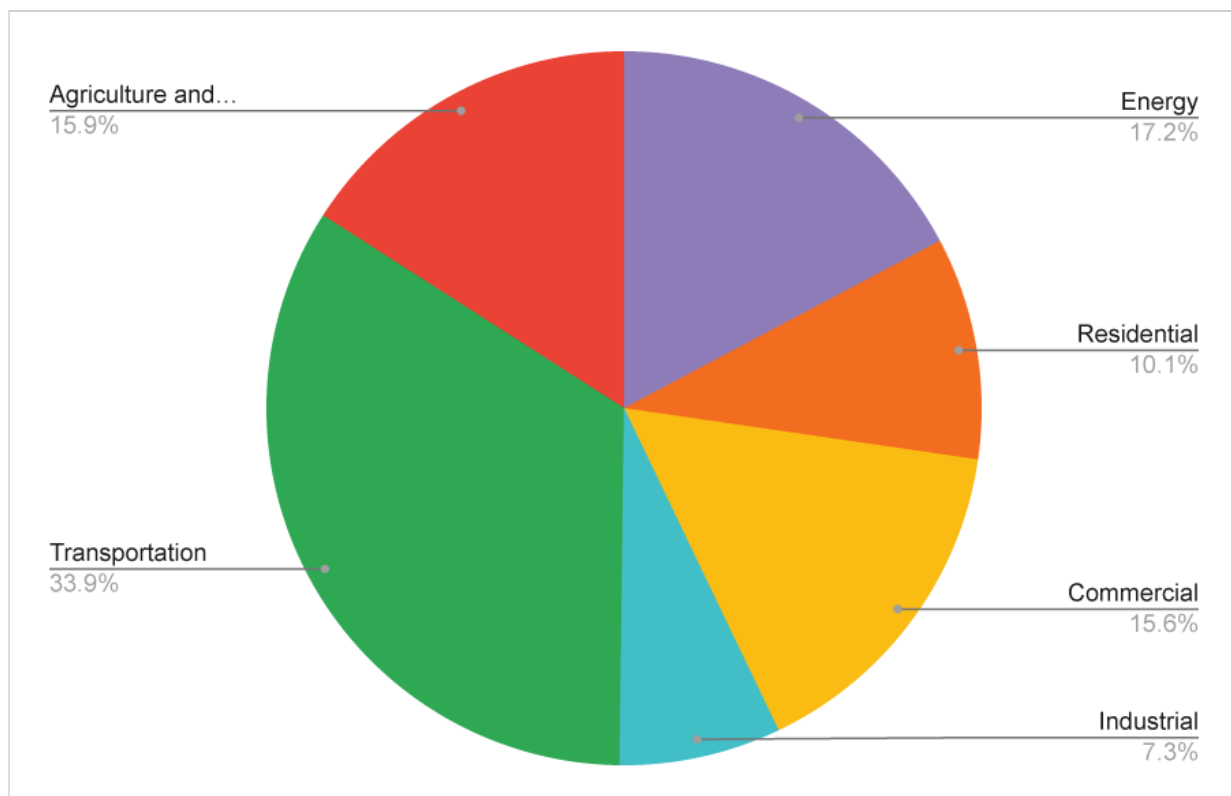
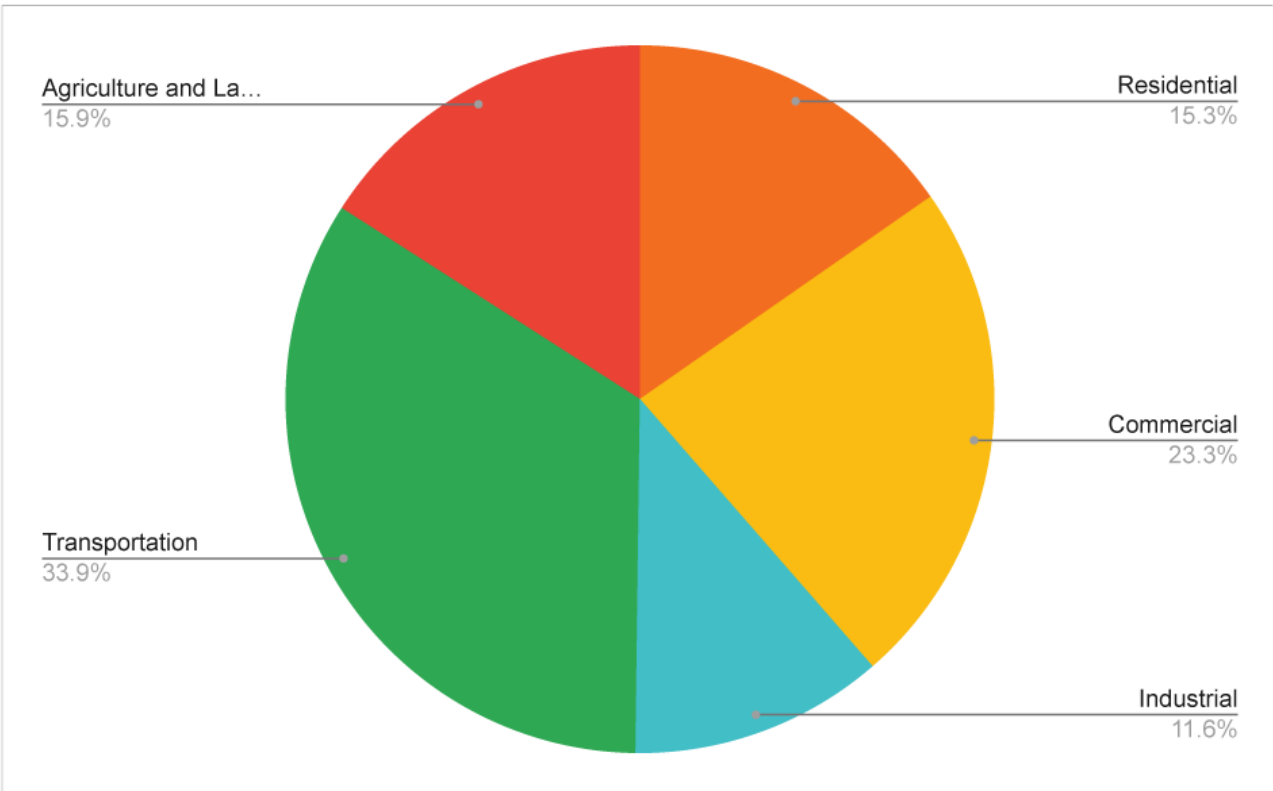


Chart 2, “Estimation of Central Arkansas Emissions by End Use,” visualizes the activities and end users that consume the energy expressed in Chart 1. Transportation activities are estimated to cause the highest portion of emissions (33.9%), followed by Commercial activities (23.3%), which includes the operation of commercial businesses and landfills. The Oswald Generating Station emissions are incorporated below in the Industrial sector.

Chart 2.

Estimation of Central Arkansas Emissions by End-Use

Residential	2214166
Commercial	3371330
Industrial	1677341
Transportation	4,901,620.00
Agriculture and Land Use	2303345
Estimated Total	14467802 MT CO2e

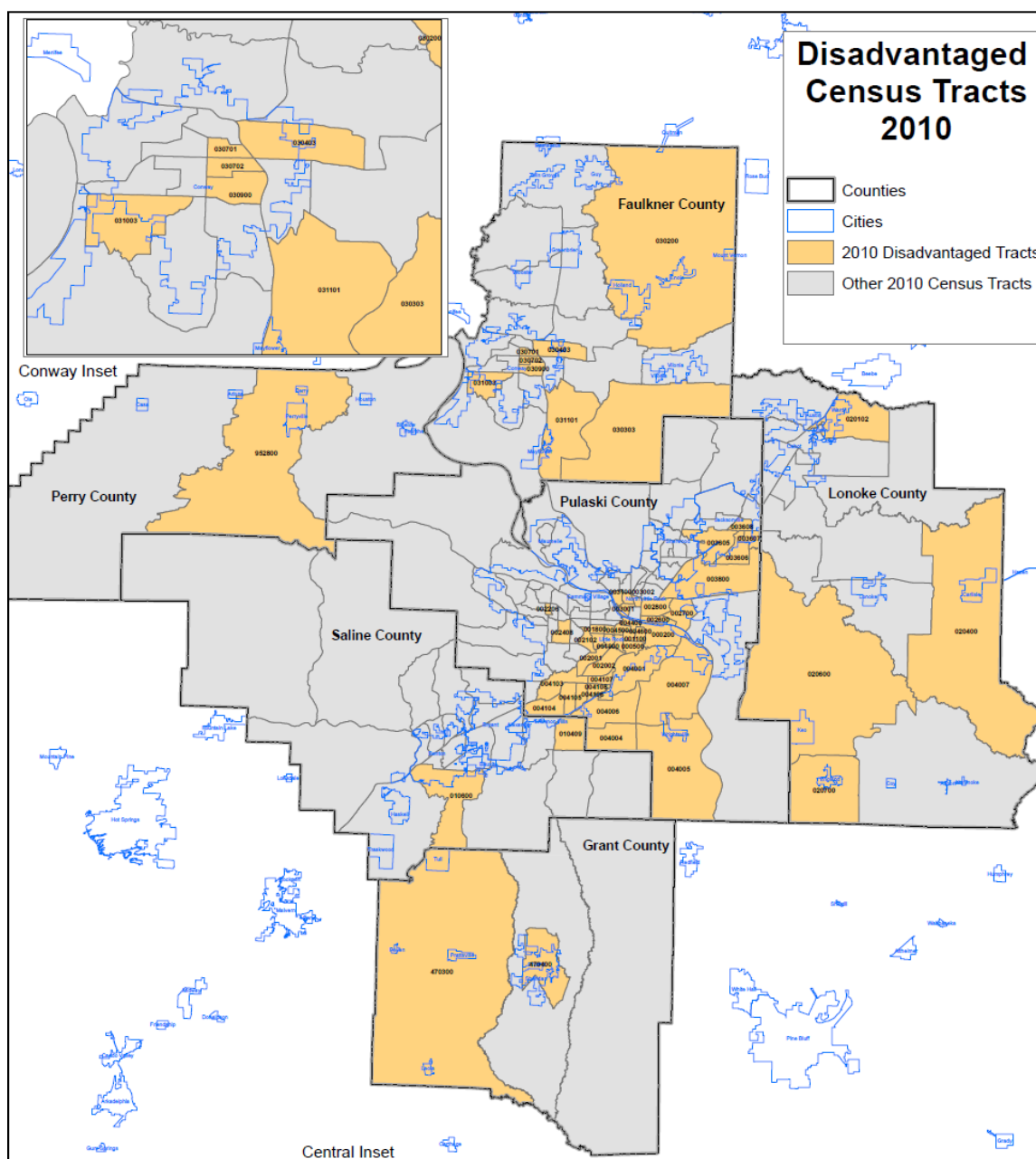


Forestry and other land use in Central Arkansas is a net sink and offsets roughly 27% of these greenhouse gas emissions. The net sink is not shown in the above charts. For more information on these emissions estimates, please see the data sources and calculation methods in the appendix.

## Low-Income and Disadvantaged Community (LIDAC) Analysis

For the first time in our nation's history, the federal government has made it a goal that 40 percent of the overall benefits of certain federal investments flow to disadvantaged communities that are marginalized, underserved, and overburdened by pollution. The Central Arkansas EEI PAP Supplement is designed to advance the goals of Justice40 set forth in Executive Order 14008.

EPA's Climate and Economic Justice screening tool shows that significant portions of the Central Arkansas MSA are underserved and overburdened by pollution. Further analysis showed that 30 percent of residents in the 6-county MSA reside in LIDAC areas (2010 Census tract population data).



## Workforce Analysis

Unemployment in Arkansas is at an historic all-time low of 3.1 percent and labor force participation is 58 percent. A September 2023 report by the U.S. Chamber of Commerce on the worker shortfall across America ranked Arkansas among 16 states with the “most severe” shortages, with only 44 available workers for every 100 open jobs. Given the existing shortage, the emergence of new “green economy” industries, and the evolution of traditional trades towards digital technology and energy efficiency, it is crucial to attract and prepare current businesses, new enterprises, and workers to implement the measures in this Priority Action Plan supplement.

The Central Arkansas EEI Planning Team worked with the Arkansas Advanced Energy Association (AAEA) and the Arkansas Apprenticeship Alliance (ARKAA) to assess workforce needs and training opportunities for the measures included in this plan supplement, which are outlined in each section of the plan. AAEA is an industry organization dedicated to growing Arkansas’s economy through expanded utilization of advanced energy technologies, including energy efficiency, demand response, solar, wind, hydro, nuclear, electric vehicles, alternative fuels, and smart grid. ARKAA is a nonprofit working to grow Arkansas’ skilled talent pipeline in emerging industries using the apprenticeship model. ARKAA’s association with national training vendors, other federal grantees, and industry apprenticeship intermediaries has allowed ARKAA to learn best practices from across the nation and establish relationships that will facilitate national scaling in the near future. In 2022, ARKAA was recognized as an Apprenticeship Ambassador by the Department of Labor (DOL).

ARKAA has been awarded numerous grants from federal agencies, regional authorities, and private foundations. This includes being a sub-recipient of Arkansas Division of Workforce Services’ Arkansas Expanding Apprenticeship (AREA) and Apprenticeship Pathways Initiative grants and Arkansas Department of Education’s Closing the Skills Gap grant. ARKAA has been the direct recipient of multiple grants from Walton Family Foundation, the Delta Regional Authority, and most recently the Workforce Opportunity for Rural Communities (WORC) Initiative grant by the USDOL. These grants have allowed ARKAA to create a track record of successful programs as an industry intermediary for RAP (Registered Apprenticeship Program), as well as expand RAP’s scope over the past three years.

ARKAA has employed an Energy and Environment Sector Director, April Ambrose, to serve as an industry navigator/subject matter expert guiding the development of workforce strategies to grow advanced energy, sustainability, and related jobs in Arkansas using apprenticeship as the main vehicle. The Sector Director’s mission is to develop an equitable pipeline of clean economy career education and skill development: For diverse students and adults to gain equitable, quality, family-sustaining jobs; For employers to access a diverse, qualified workforce pool; For public and private partners to streamline offerings and leverage funding together; and to reduce our collective impact on climate change and human health.

Low-income and disadvantaged individuals and families will benefit from ARKAA’s approach to workforce development. ARKAA has developed a DEIA initiative to provide further outreach to under-served populations, with the goal of having 65% of all apprentices being from under-served populations by the end of 2023. Its goal from the beginning has been to use the apprenticeship model as an equitable opportunity for historically marginalized people and to create career paths that start wherever diverse candidates are. Under the apprenticeship model, employers hire first and then train

on the job. There is no need for a family to sacrifice while a member goes into educational debt to receive required job training, with no promise of future employment. According to ARKAA, a few once a year half-day staff trainings in key sectors and the apprenticeship model could help achieve most of the workforce goals and training necessary to meet the needs outlined in this plan.

The planning team also met with Southern Bancorp, the only Community Development Financial Institution (CDFI) headquartered in Arkansas, to discuss low-interest financing opportunities for local businesses to expand operations in order to meet the needs outlined in this plan. Southern Bancorp has expressed interest in using its private capital to accelerate “green” economic development in the region.

**Reference:** The Worker Shortfall (Lance Turner Editor's Note), *Arkansas Business*, November 20, 2023. Accessed November 29, 2023 at <https://www.arkansasbusiness.com/article/146913/the-worker-shortfall-lance-turner-editors-note#:~:text=A%20report%20a%20couple%20of,100%20open%20jobs%20in%20September>

## Plan Structure

Each Section of this Central Arkansas EEI Priority Action Plan Supplement outlines:

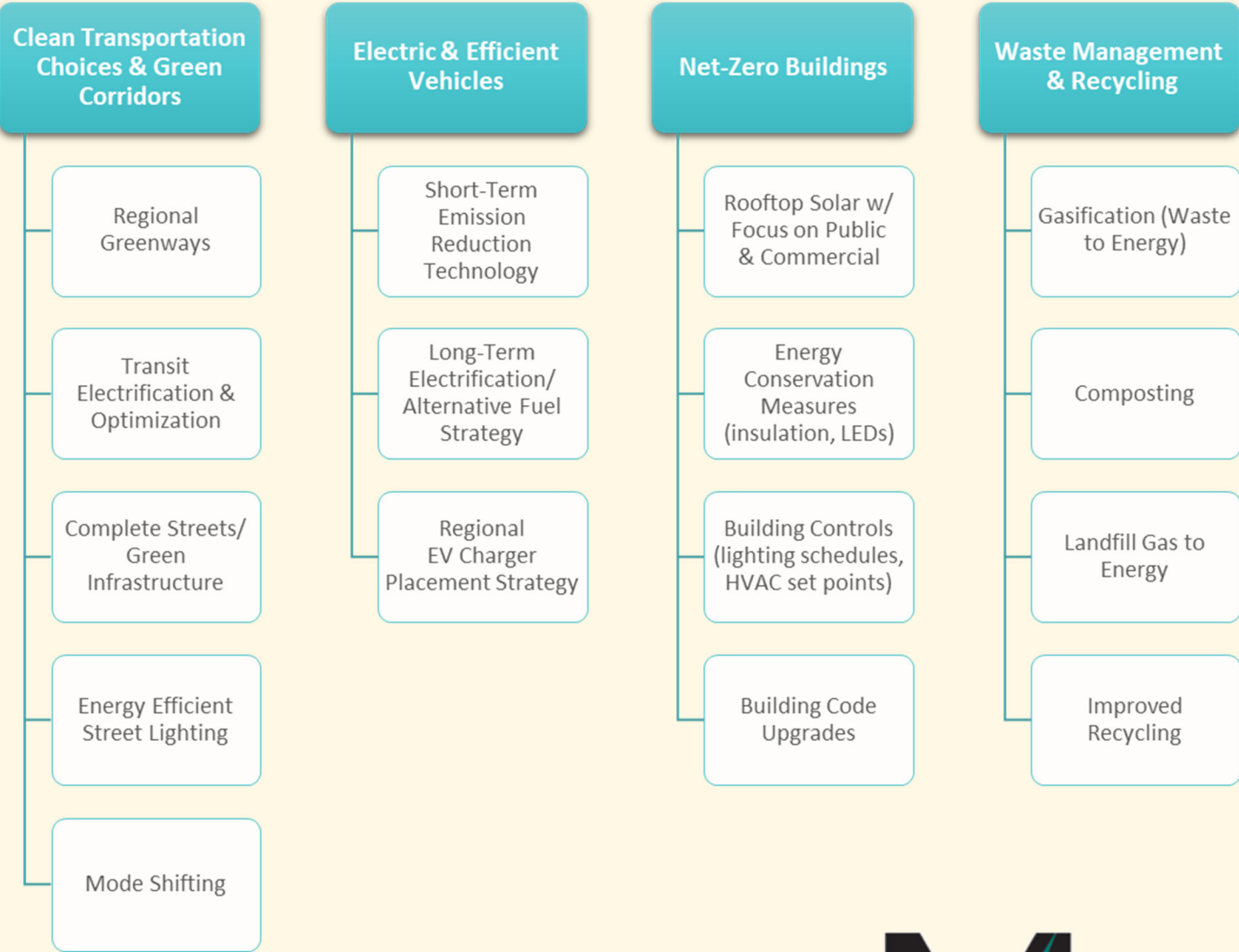
- **Priority Action** measure with proposed implementation projects under each.
- **Rationale** for including each measure:
  - *Community Interest* based on public and stakeholder input.
  - *Benefits to Low-Income and Disadvantaged Communities (LIDAC)*.
  - *Additional Rationale* for each individual project: *Why* it is important to the Central Arkansas plan, its specific *Environmental Impact*, and its implementation readiness considering the project's *Funding Needs and Opportunities*.
- **Workforce Needs** to realize the measure.
- **Implementation Authority & Barriers:** Which organizations can make the decision to implement and what might keep them from doing so.
- **Emissions Reduction or Sequestration** of GHGs and co-pollutants achieved by implementing one of the proposed projects.

The Appendix includes sources for Central Arkansas' regional GHG estimate and emission reduction/sequestration forecasts, as well as a matrix demonstrating each measure's alignment with existing federal, state, regional, and local plans.



# Central Arkansas EEl Priority Action Plan

Based on a combination of public/stakeholder input, data analysis, and competitiveness for implementation funding, Metroplan has identified four priority action areas with projects examples under each:



## 1. Clean Transportation Choices & Green Corridors

**1.1. The Clean Transportation Choices & Green Corridors (CGT)** priority action involves establishing regional greenways, electrifying and optimizing transit systems, creating complete streets, integrating green infrastructure, transitioning to energy-efficient street lighting, and promoting mode shifting. The CGT initiatives collectively aim to transform transportation infrastructure, promote sustainable mobility, and mitigate environmental impacts while enhancing the overall quality of life within Central Arkansas.

### Proposed measure for inclusion in the Arkansas EEI Priority Action Plan

***Provide financial incentives and technical assistance for a regional/statewide Clean Green Transportation program to implement the following projects:***

- A. Mode Shifting: Encourage a shift from single-occupancy vehicles to more energy efficient modes of transportation such as ride-sharing, public transit, biking, or walking, thereby reducing traffic congestion and carbon footprint.
- B. Regional Greenways: Develop interconnected networks of pedestrian and bicycle pathways, fostering alternative and eco-friendly commuting options while enhancing community accessibility and recreational opportunities.
- C. Complete Streets: Design streets for all users, including pedestrians, cyclists, and public transportation, ensuring safety, accessibility, and sustainability in urban planning.
- D. Green Infrastructure: Incorporate natural elements like vegetation, permeable surfaces, and sustainable drainage systems into urban landscapes to sequester carbon and mitigate the impacts of extreme weather such as urban heat islands and flooding.
- E. Transit Electrification and Optimization: Transition public transportation to electric vehicles to reduce carbon emissions and enhance efficiency. Optimize land use, transit routes, and schedules for improved accessibility and convenience.
- F. Energy Efficient Street Lighting: Upgrade street lighting systems to energy-efficient LED technology, reducing energy consumption and contributing to lower greenhouse gas emissions.



## 1.2. Rationale

The Clean Transportation Choices & Green Corridors (CGT) priority action was chosen for its effectiveness in reducing GHG emissions, its speed of implementation, and high level of support indicated through community and stakeholder engagement. The CGT action also aligns with stated federal, state, and local environmental goals and potential funding opportunities at various levels of government and through partnerships with private entities.

### ***Community Interest***

Trees and Natural Areas ranked as the highest priority (4.6 out of 5 stars) by Central Arkansas residents in the Community Input Survey. Stakeholders ranked it the #5 most important measure during the Metroplan board and stakeholder workshop session.

Green Infrastructure & Streets and Sustainable Landscaping ranked in the 88th percentile of priority scoring by Central Arkansas residents in the Community Input Survey. Stakeholders ranked it the #1 most important measure during the Metroplan board and stakeholder workshop session.

Transportation Choice and Connected Communities ranked in the 83rd percentile of priority scoring by Central Arkansas residents in the Community Input Survey. Stakeholders ranked it the #2 most important measure during the Metroplan board and stakeholder workshop session.

## **LIDAC Benefits**

In locations with limited transit access and coverage, access to a motor vehicle carries strong implications for one's ability to reach employment, access healthy foods, and reach basic services. More than 6,700 (8.2%) households in Little Rock do not have access to a motor vehicle, and an additional 34,800 (42.5%) households have only one vehicle available. A diverse multimodal transportation system reduces reliance on cars and provides more equitable access to services. The benefits of the CGT measure to LIDAC communities include:

- Transportation equity: Increased non-motorized and transit access to job opportunities, essential services, and recreation
- Reduced air pollution
- Improved health outcomes
- Lower transportation costs
- Improved safety; fewer roadway fatalities and serious injuries
- Improved neighborhood aesthetics
- Infrastructure resilience to extreme weather (flooding, heat islands, tornadoes)
- Energy cost savings
- Reduced commute times
- Apprenticeship/employment opportunities

## **Additional Rationale by Project**

### **A. Mode Shifting**

- *Why:* Reduces traffic congestion, carbon emissions, and promotes healthier lifestyles through active transportation, transit, and ride-sharing.
- *Environmental Impact:* Decreases greenhouse gas emissions from transportation, contributing to air quality improvements.
- *Funding Needs & Opportunities:*
  - i. Public awareness/education campaigns.
  - ii. Funding for free transit passes.
  - iii. Incentives for ride-sharing or biking sponsored by employers or municipalities.  
For example, the City of Denver, Colorado instituted an e-bike rebate program, and the City of Fort Smith, Arkansas started a Ride 4 SMILIES bike share program offering geared and electric-assist bikes for affordable rental rates at 8 stations across Fort Smith. Both programs include incentives within their structures targeted to LIDAC communities. For instance, the Denver program allows additional rebate amounts for qualified low-income individuals, while the Fort Smith program has education and bike locations in targeted areas, as well as reduced rates for qualified low-income riders.
  - iv. Energy Efficiency and Conservation Block Grant (EECBG): \$1,961,110 formula grant to Arkansas to establish a competitive sub-granting program for local governments to expand EV infrastructure and micromobility, promote clean energy workforce development, and conduct energy audits and retrofits in residential and commercial buildings, plus an additional \$886,780 to cities and counties in the Central Arkansas MSA for formula funding to local governments.

## B. Regional Greenways

- *Why:* Shared-use bike-ped paths, separated from the roadway, offer safer, more accessible pathways for non-motorized travel, reducing traffic congestion, promoting physical activity, and connecting communities.
- *Environmental Impact:* Reduces vehicle miles traveled (VMT) with carbon-emitting vehicles, preserves natural habitats, and fosters biodiversity.
- *Funding Needs & Opportunities:*
  - i. Grants and partnerships with environmental organizations, parks departments, and private donors could fund greenway development.
  - ii. \$55 million in federal USDOT Surface Transportation Block Grant (STBG) and Carbon Reduction Program (CRP) funding has already been committed by the Metroplan Board of Directors to planning and building the Central Arkansas Regional Greenway system.
  - iii. Additional grant funding to expedite project delivery, right-of-way acquisition, and add green infrastructure elements to the project.

## C. Complete Streets

- *Why:* Prioritizes safety and accessibility for all road users, promoting active transportation and reducing accidents.
- *Environmental Impact:* Encourages active transportation modes, reducing VMT and greenhouse gas emissions from cars.
- *Funding Needs & Opportunities:*
  - i. Grants for state and local transportation departments.
  - ii. Partnerships with local businesses for streetscape improvements.

## D. Green Infrastructure

- *Why:* Mitigates environmental impacts by managing stormwater, reducing heat islands, and enhancing urban resilience.
- *Environmental Impact:* Decreases water pollution, mitigates flooding, and enhances biodiversity in urban areas. Reduces GHG by reducing energy to pump water and sequestering carbon.
- *Funding Needs & Opportunities:*
  - i. Stormwater management grants.
  - ii. Partner with environmental organizations.
  - iii. Continue City of Little Rock's Urban Heat Island study.
  - iv. Incentivize private development to integrate green infrastructure.

## E. Transit Electrification and Optimization

- *Why:* Reduces carbon emissions, air pollution, and dependence on fossil fuels while improving public transportation access and efficiency.
- *Environmental Impact:* Significant reduction in greenhouse gas emissions and improved air quality in urban areas.
- *Funding Needs & Opportunities:*
  - i. Federal grants for transit electrification projects.

- ii. Partnerships with private sector companies investing in transit-oriented development.

#### F. Energy Efficient Street Lighting

- *Why:* Reduces energy consumption and saves costs in the long term.
- *Environmental Impact:* Decreases energy use and light pollution, contributing to lower GHG emissions and a more sustainable environment.
- *Funding Needs & Opportunities:*
  - i. Energy efficiency grants.
  - ii. Energy Performance Contracting assistance through the Arkansas Energy Office.
  - iii. Partnerships with utility companies offering incentives for LED conversion.

### 1.3. Workforce Needs

The successful implementation of the Clean Transportation Choices & Green Corridors (CGT) priority action in Central Arkansas necessitates a skilled and diverse workforce equipped with expertise in sustainable urban planning, renewable energy systems, electric fleet maintenance, green infrastructure development, and community engagement.

There is currently very little training available in Central Arkansas for the installation and maintenance of green infrastructure. One-time maintenance staff training events and use of the Arkansas Apprenticeship Alliance (ARKAA) apprenticeship model could assist in providing training on native/adapted trail/landscaping maintenance to ensure environmental mitigation and carbon sequestration goals are achieved.

Collaborations with local educational institutions, trade unions, and job training centers will also be crucial in providing the necessary skills and knowledge for both existing professionals seeking to transition into sustainable fields and for emerging talents eager to contribute to the region's future sustainability.

### 1.4. Implementation Authority & Barriers

The successful implementation of the CGT priority action requires a collaborative approach among various stakeholders, including local government bodies, city planners, transportation authorities, environmental agencies, community organizations, and private sector partners. Supportive policies and financial incentives (grants, rebates, low-interest loans) will reduce barriers to adoption. Alignment with existing policy frameworks is essential to ensure the authority and legitimacy needed to execute these transformative measures. Moreover, fostering public-private partnerships and community involvement will strengthen the authority and collective effort needed to drive meaningful change.

#### **Authority**

- State agencies
- City and county governments
- Transit agencies

## Barriers

- Fiscal constraints
- Conflicting priorities within governmental departments
- Public resistance/lack of understanding of long-term benefits
- Regulatory complexities/bureaucratic hurdles
- Lack of trained workforce
- Supply chain limitations for U.S.-made materials and vehicles

## 1.5. Emissions Reduction or Sequestration

Transit electrification and optimization could significantly cut emissions by replacing traditional fossil fuel-powered vehicles with electric ones, potentially reducing transportation-related emissions by a notable percentage. Similarly, encouraging mode shifting towards more sustainable options like biking, walking, transit, and ride-sharing could further contribute to reducing carbon emissions from individual commuting. For example, if improved bicycle facilities incentivized an increase in ridership over a ten year term and improved modeshare by 1.5% in low to medium density, 2.1% in medium-high density, and 4.4% in high density population areas, Central Arkansas could see the reduction of gasoline vehicle miles traveled (VMTs) by 2,415,800 which avoids 1,040,789 MT CO<sub>2</sub>e by 2030. This calculation was performed in ICLEI ClearPath using the Improved Biking Infrastructure calculator combined with Metroplan statistical data.

The adoption of energy-efficient street lighting and green infrastructure would also have an impact by reducing energy consumption and mitigating urban heat effects, indirectly influencing GHG emissions.

The overall impact would depend on various factors including the scale of implementation, community participation, technological advancements, funding availability, and the effectiveness of policies and regulations put in place to support these initiatives.



**IF 8% MORE CHILDREN LIVING WITHIN 2 MILES OF A SCHOOL WERE TO BIKE or WALK TO SCHOOL, the air pollution reduced from not taking a car would be EQUIVALENT TO REMOVING 60,000 CARS FROM THE ROAD for one year, nationally.\***

Pedroso, 2008, SRTS



**BIKING 2 MILES, rather than driving, AVOIDS EMITTING 2 lbs OF POLLUTANTS, which would take 1.5 months for one tree to sequester.**

(EPA, 2000 and NC State, 2001)



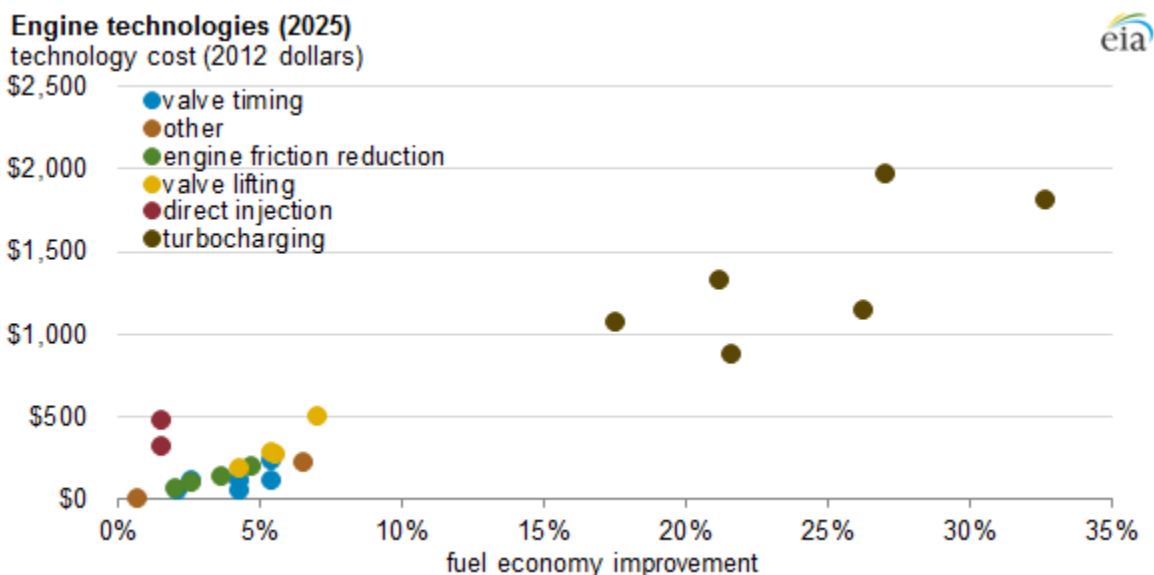
## 2. Efficient and Electric Vehicles

**2.1. The Efficient and Electric Vehicles (EEV)** priority action involves deploying short-term emission reduction technology, implementing a long-term electrification plan, and devising a regional strategy for optimal placement of electric vehicle chargers. These strategies collectively aim to provide immediate and long-term solutions for reducing emissions, promoting electrification, and strategically placing EV charging infrastructure to benefit the community while fostering a sustainable and equitable transportation ecosystem.

### Proposed measure for inclusion in the Arkansas EEI Priority Action Plan

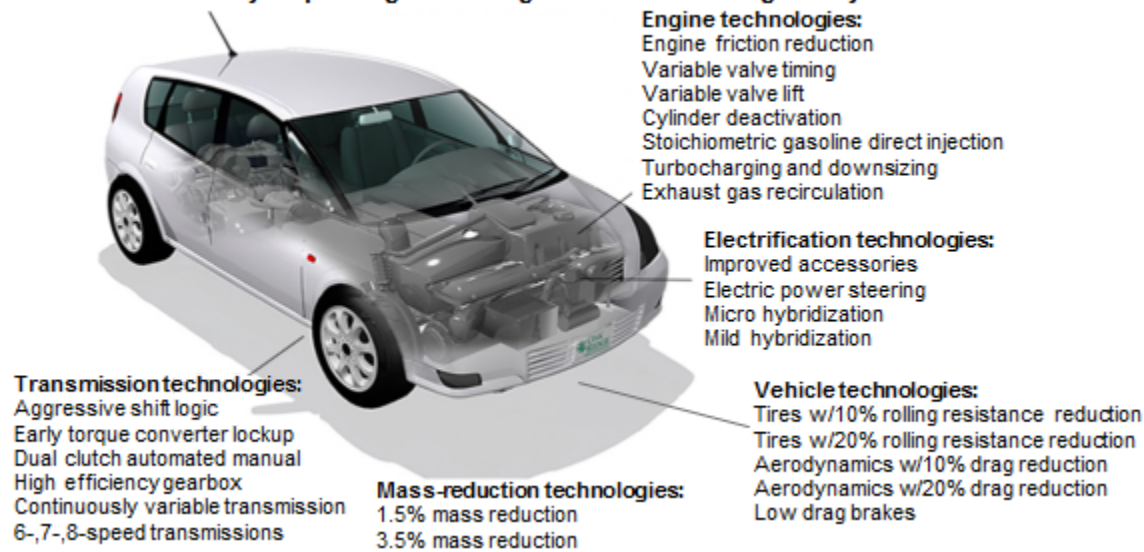
***Provide financial incentives and technical assistance for a regional/statewide Efficient and Electric Vehicles program to implement the following projects:***

- A. Short-Term Emission Reduction: Implement fleet emission reduction technologies with a focus on diesel vehicles, encourage emissions-reducing individual driver behavior changes, and provide technical assistance to local governments to utilize telematics data for fleet usage and efficiency analysis, and promote efficient transportation technologies and practices.
- B. Long-Term Electrification Strategy: Provide EV readiness planning to local partners, including life-cycle cost analysis to guide a transition to electric vehicles. Examples: Cash for Clunkers - trade in current vehicles for an EV or other transportation mode. Rebates for fleet conversion and replacement of inefficient vehicles with more efficient ICE (internal combustion engine) vehicles, hybrid, or BEVs (battery electric vehicles).
- C. Regional EV Charger Placement Strategy: Strategically position EV Charging Stations based on factors like air quality, community development, and demand, aiming for optimal accessibility and equitable distribution across Central Arkansas. Assist fleet owners transitions to EVs to install chargers to meet the needs of their new fleet.





## Select fuel economy-improving technologies available for light-duty vehicles



## 2.2. Rationale

The initiatives in the Efficient and Electric Vehicles (EEV) priority action not only confront the urgent challenge of curbing transportation emissions but also align with community priorities, environmental objectives, and diverse funding avenues across governmental and private sectors.

### **Community Interest**

The Efficient and Electric Vehicles (EEV) action ranked in the 47th percentile of priority scoring by Central Arkansas residents in the Community Input Survey. Stakeholders ranked it the #4 most important measure during the Metroplan board and stakeholder workshop session.

While interest in electric vehicles varies, its potential impact on reducing GHG emissions is sufficiently significant to warrant its inclusion in the PAP. Instead of wholesale replacement, however, stakeholders expressed a preference for a gradual approach to electrification as vehicles reach the end of their useful life and power generation becomes cleaner. A regional action plan can help guide this gradual transition while recommending immediate efficiency improvements to existing fleets.

### **LIDAC Benefits**

Recognizing the higher upfront costs associated with electric and hybrid vehicles, this measure aims to explore avenues for financial incentives, subsidies, or innovative financing options to mitigate the initial expense barrier, ensuring equitable access to cleaner transportation choices for all communities, including those with lower incomes.

Additionally, strategic placement of charging infrastructure in these areas fosters accessibility, providing equitable opportunities for low-income residents to transition towards cleaner transportation alternatives. By prioritizing access to efficient vehicles and infrastructure, these initiatives work towards leveling the transportation playing field, enhancing economic mobility, and

creating a more sustainable and healthier environment for all. The benefits of the EEV measure to LIDAC communities include:

- Health benefits due to improved air quality
- Clean, efficient transportation options
- Long-term lower transportation costs due to fuel and maintenance savings
- Apprenticeship/employment opportunities

### ***Additional Rationale by Project***

#### **A. Short-Term Emission Reduction**

- *Why:* Implementing these technologies and practices offers immediate emission reductions, promoting a more sustainable transportation landscape.
- *Environmental Impact:* Reduces carbon emissions and air pollutants, improving air quality and mitigating the environmental impact of transportation.
- *Funding Needs & Opportunities:*
  - i. Grants, subsidies, and incentives to offset initial investment.
  - ii. Arkansas Volkswagen Settlement Programs: Alternative fuel bus program (ABC Transportation Program), an alternative fuels funding assistance program for repower/replacement of heavy-duty and medium-duty diesel local freight and drayage trucks and diesel buses (Clean Fuels Program), a rebate for light duty electric vehicle charging infrastructure (EVSE Program), and a funding assistance program for Arkansas state agencies (SAFER) to repower/replace medium and heavy-duty diesel local freight and drayage trucks and diesel buses.
  - iii. Public education and outreach.

#### **B. Long-Term Electrification Strategy**

- *Why:* Embracing long-term electrification aligns with future-focused sustainable transportation solutions, reducing reliance on fossil fuels.
- *Environmental Impact:* Shifts transportation toward cleaner energy sources, significantly reducing greenhouse gas emissions and air pollutants.
- *Funding Needs & Opportunities:*
  - i. Incentive programs for qualified individuals to purchase hybrids and/or EVs (model programs exist at city, regional, state, and national levels).
  - ii. Energy Efficiency and Conservation Block Grant (EECBG): \$1,961,110 formula grant to Arkansas to establish a competitive sub-granting program for local governments to expand EV infrastructure and micromobility, promote clean energy workforce development, and conduct energy audits and retrofits in residential and commercial buildings, plus an additional \$886,780 to cities and counties in the Central Arkansas MSA for formula funding to local governments.
  - iii. Public education and outreach.

#### **C. Regional EV Charger Placement Strategy**

- *Why:* Strategically placing EV charging stations ensures convenient, equitable access, encouraging electric vehicle adoption and reducing range anxiety.

- *Environmental Impact:* Facilitates the shift to electric vehicles, reducing emissions and promoting cleaner transportation options.
- *Funding Needs & Opportunities:*
  - i. Public-private partnerships.
  - ii. Incentives for private charging infrastructure installation.
  - iii. Public education and outreach.
  - iv. Government grants, including NEVI, CFI, and Arkansas Volkswagen Settlement EVSE Program.

### **2.3. Workforce Needs**

As these initiatives drive forward to decarbonize transportation, the demand for a skilled workforce proficient in innovative technologies and sustainable practices becomes imperative. Workforce development programs geared towards training in electric vehicle technology, emission reduction methodologies, and sustainable transportation practices are essential. Collaborations with vocational institutions, trade schools, and industry partners can equip individuals with the necessary expertise to support the implementation and maintenance of advanced transportation systems.

Currently there is no standardized training program or credentials for EV maintenance in Arkansas. EVs require less maintenance, but they still require specialized knowledge of electric systems, combined with some standard vehicle maintenance. Dealers must have qualified maintenance staff in order to sell the vehicles, but the curriculum is not standardized, so they are claiming qualification with minimal manufacturer training.

There is a need for standardized curricula for different manufacturers and users, i.e. school/municipal maintenance teams, dealer maintenance, first responders, etc. with customized training to address different types of vehicles. Bus maintenance training for public transit and school bus mechanics is particularly needed. The national credentials that exist via ASE (National Institute for Automotive Service Excellence) require significant training in gas/diesel vehicles first. Vehicle maintenance for EVs (school/government/corporate fleets, dealers for consumers) is an apprenticeable role.

Charger installation is mostly done by electricians, but requires some training. EV charger installation is not an apprenticeable role as it only takes a few hours for an existing electrician to learn how to install them. However, this professional development curricula needs to be developed and training rolled out across the state. A state operation and maintenance plan must be developed for EV chargers across the state to ensure they function appropriately. There is already an organization seeking to create a call center (with those call techs and maintenance techs trained via the apprenticeship model) to address those deficiencies. Other one-time professional development opportunities include sales training and first responder training for lithium battery discharge.

### **2.4. Implementation Authority & Barriers**

#### ***Authority***

- State agencies

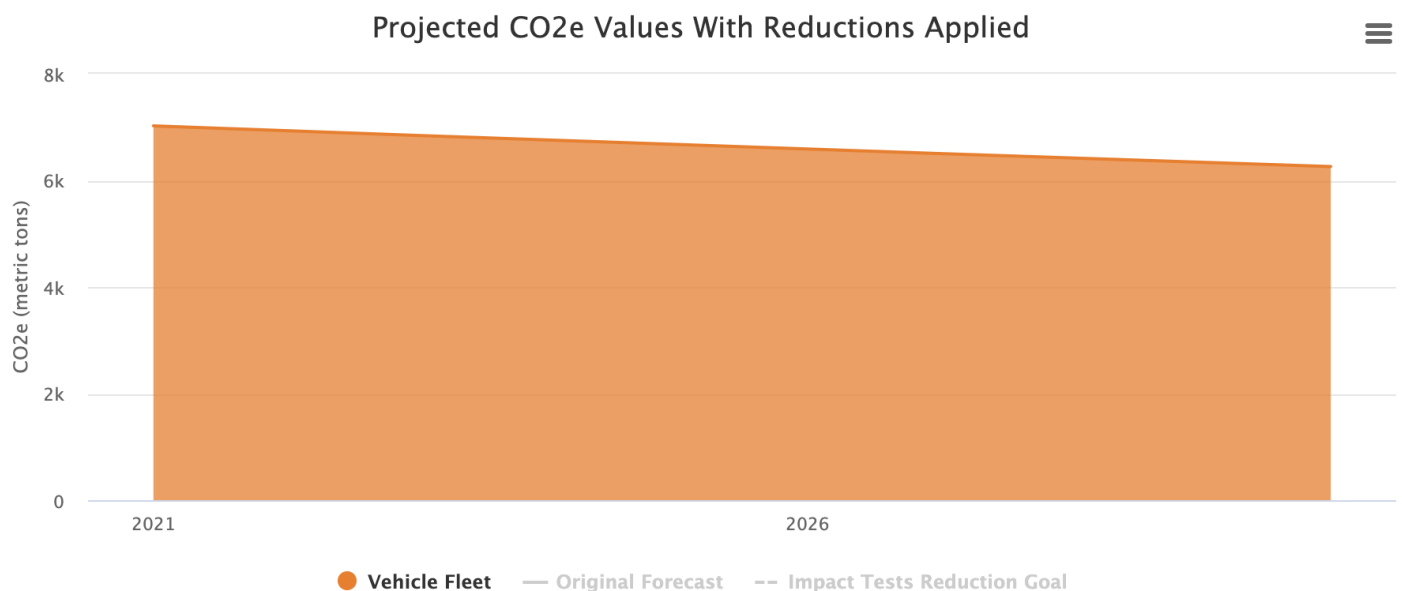
- Transit agencies
- Counties and cities
- Public fleet owners
- Private fleet owners

### **Barriers**

- Fiscal constraints for fleet conversion
- Personal budget limitations for new vehicle purchase
- Public resistance/lack of understanding of long-term benefits
- Lack of trained workforce
- Supply chain limitations for U.S.-made materials and vehicles

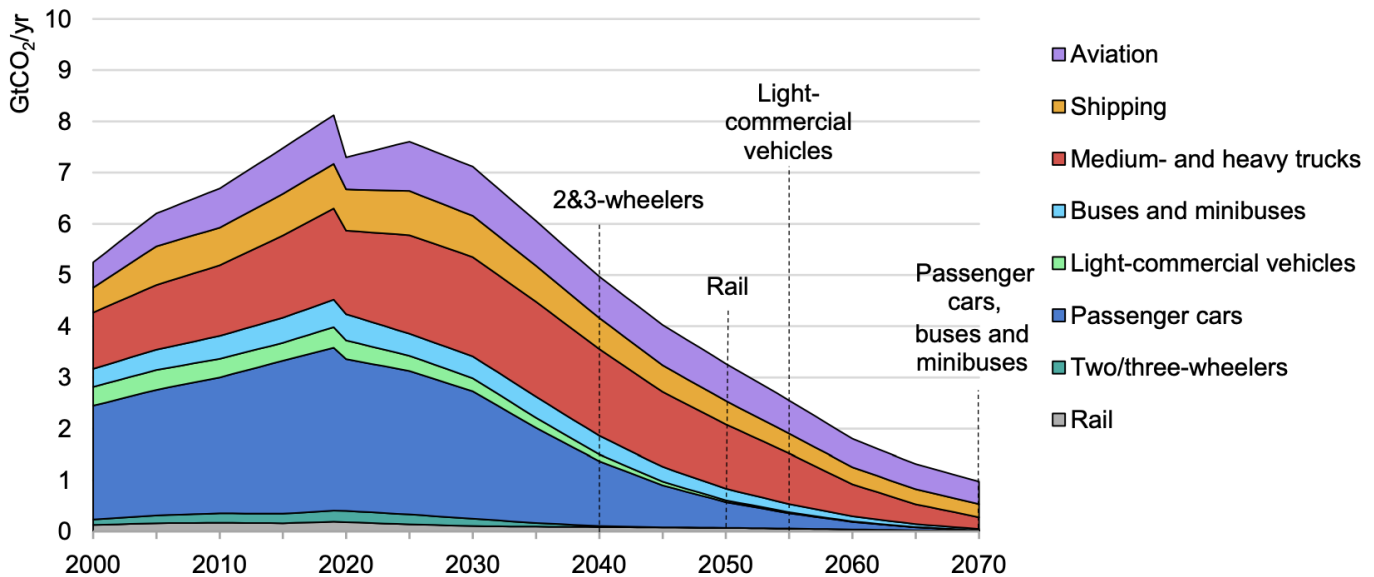
## **2.5. Emissions Reduction or Sequestration**

By significantly increasing electric car ownership and adopting fuel-saving technologies in trucks, we can make substantial strides in reducing carbon emissions from transportation. Transitioning to electric vehicles and implementing technologies that improve fuel efficiency can lead to significant reductions in greenhouse gas emissions associated with conventional transportation. While initial costs may be a factor, the long-term benefits in terms of emission reductions and potential fuel cost savings demonstrate the potential for impactful and sustainable transportation solutions. The City of Little Rock has a goal to convert its Fleet to 50% Electric Vehicles by 2030. If realized, the amount of light-duty gasoline engine emissions would be reduced by 12%. This calculation was created using ICLEI ClearPath's Fuel Switching Calculator and ran against the City of Little Rock's 2021 Local Government Operations Inventory.



Additionally, the strategic placement of EV charging infrastructure can encourage the adoption of electric vehicles, leading to further reductions in GHG emissions associated with traditional combustion engine vehicles. Realizing substantial GHG reductions by 2030 will likely depend on the scale and efficiency of adoption, technological advancements, supportive policies, and community engagement.

**Figure 3.16 Global CO<sub>2</sub> emissions in transport by mode in the Sustainable Development Scenario, 2000-70**



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Notes: Dotted lines indicate the year in which various transport modes have largely stopped consuming fossil fuels and hence no longer contribute to direct emissions of CO<sub>2</sub> from fossil fuel combustion. Residual emissions in transport are compensated by negative emissions technologies, such as BECCS and DAC, in the power and other energy transformation sectors.

## References / Resources:

[https://westernresourceadvocates.org/wp-content/uploads/2022/04/Overview-of-Utility-Transportation-Electrification-Plans\\_Final.pdf](https://westernresourceadvocates.org/wp-content/uploads/2022/04/Overview-of-Utility-Transportation-Electrification-Plans_Final.pdf)

<https://www.adeg.state.ar.us/air/planning/gored/>

<https://www.adeg.state.ar.us/air/planning/vw.aspx>

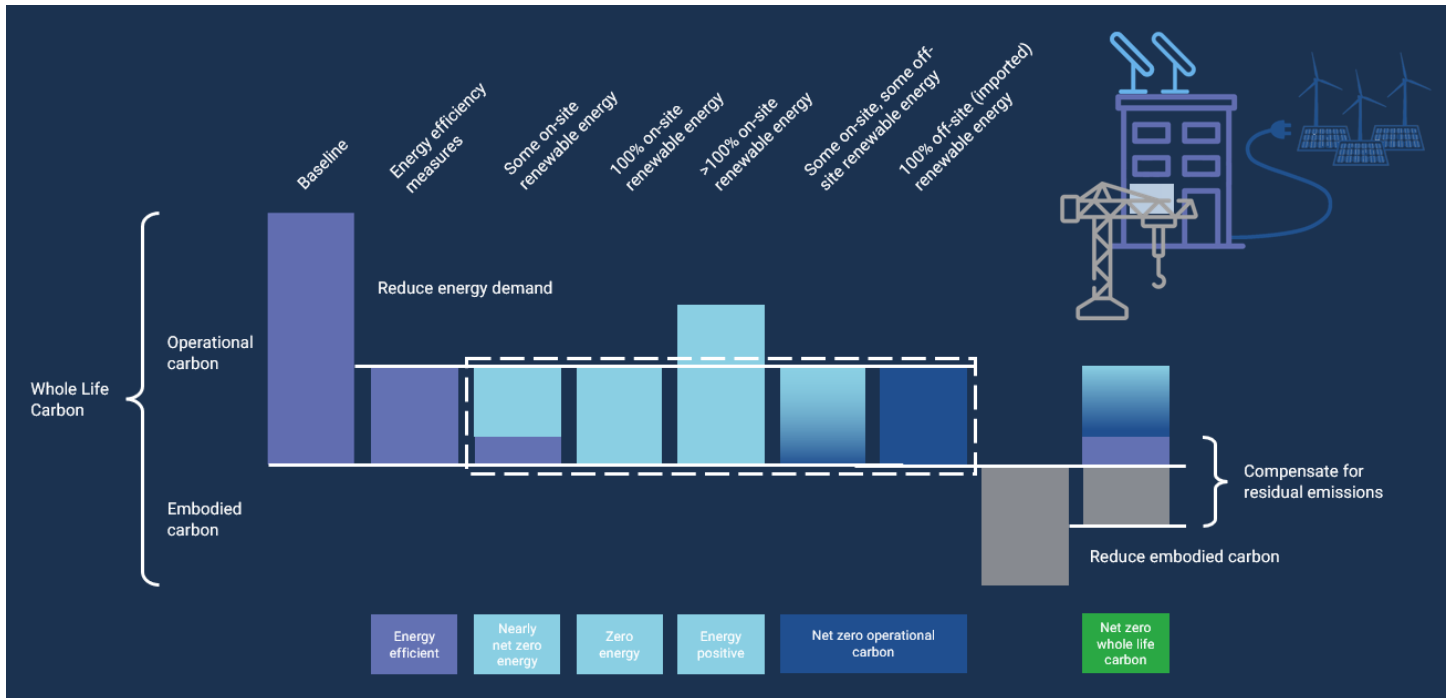
### 3. Net-Zero [Carbon] Buildings

**3.1. The Net-Zero Buildings (NZB)** priority action encompasses installing rooftop solar primarily in public and commercial buildings, implementing energy conservation measures such as insulation and LED conversions, integrating building controls like lighting schedules and HVAC set points, and upgrading Building Codes to align with energy efficiency standards.

#### Proposed measure for inclusion in the Arkansas EEI Priority Action Plan

***Provide financial incentives and technical assistance for a regional/statewide Net-Zero Buildings program to implement the following projects:***

- A. *Rooftop Solar, Focus on Public and Commercial Buildings:* Implementation of rooftop solar systems primarily in public and commercial buildings aims to reduce dependence on conventional energy sources, facilitating a transition toward renewable energy. This initiative seeks to lower carbon footprints in these sectors, promoting sustainability and potentially offering cost-saving opportunities through reduced reliance on grid-based electricity.
- B. *Energy Conservation Measures:* Incorporating energy conservation measures, such as enhancing insulation and transitioning to LED lighting, aims to bolster overall building efficiency. By minimizing energy waste and optimizing usage, these measures contribute to reduced energy consumption and operational costs, aligning with sustainable practices while potentially enhancing indoor comfort and lowering utility expenses.
- C. *Building Controls and Automation:* The integration of sophisticated building controls, encompassing optimized lighting schedules and refined HVAC set points, is designed to streamline energy utilization within structures. This approach aims to curtail unnecessary energy usage, thereby reducing environmental impact through lowered emissions. Simultaneously, it promotes a balance between energy efficiency, occupant comfort, and potential long-term cost savings.
- D. *Building Code Upgrades:* Upgrading building codes to meet modern efficiency standards serves to align construction practices with contemporary sustainability goals. These upgrades advocate for the implementation of energy-efficient building designs and materials, aiming to reduce overall energy consumption in new constructions and renovations. By setting higher efficiency benchmarks, these codes foster safer and more sustainable buildings while encouraging the adoption of innovative construction practices.



### 3.2. Rationale

The Net-Zero Building (NZB) priority action was chosen for its effectiveness in reducing GHG emissions, its speed of implementation, and high level of support indicated through community and stakeholder engagement. The NZB action also aligns with stated federal, state, and local environmental goals and potential funding opportunities at various levels of government and through partnerships with private entities.

#### Community Interest

Energy Efficiency and Green Buildings ranked in the 72nd percentile of priority scoring by Central Arkansas residents in the Community Input Survey. Stakeholders ranked it the #7 most important measure during the Metroplan board and stakeholder workshop session.

Solar Power ranked in the 64th percentile of priority scoring by Central Arkansas residents in the Community Input Survey. Stakeholders ranked it the #3 most important measure during the Metroplan board and stakeholder workshop session.

#### LIDAC Benefits

The Net-Zero Buildings initiatives hold substantial promise for Low-Income Disadvantaged Communities (LIDAC), aiming to alleviate energy burdens and enhance living conditions. By implementing energy-efficient measures such as insulation and building controls, these initiatives seek to mitigate energy costs, potentially alleviating financial strain on residents in low-income areas. Additionally, the integration of rooftop solar, particularly in public and commercial buildings, not only

contributes to reduced energy expenses but also offers opportunities for community empowerment through access to renewable energy sources.

Furthermore, these initiatives prioritize improvements in indoor comfort and air quality, which are particularly beneficial for communities facing challenges related to substandard housing conditions. By focusing on Net-Zero Buildings, these measures aspire to not only mitigate environmental impact but also address socio-economic disparities, fostering a more sustainable and equitable future for all. The benefits of the NZB measure to LIDAC communities include:

- Energy cost savings
- Improved air quality
- Higher indoor comfort level due to well-insulated homes
- Apprenticeship/employment opportunities

### ***Additional Rationale by Project***

#### **A. Rooftop Solar in Public and Commercial Buildings**

- *Why:* Deploying rooftop solar systems helps reduce reliance on traditional energy sources, promoting renewable energy adoption and reducing carbon emissions.
- *Environmental Impact:* Solar installations contribute to cleaner energy production, mitigating greenhouse gas emissions and reducing the carbon footprint of buildings.
- *Funding Needs & Opportunities:*
  - i. Grants, incentives, and financing programs to offset initial investment for solar installations.
  - ii. Energy Performance Contracting assistance through the Arkansas Energy Office.

#### **B. Energy Conservation Measures (Insulation, LED Conversion)**

- *Why:* Implementing energy conservation measures enhances building efficiency, reducing energy consumption and associated environmental impacts.
- *Environmental Impact:* Improved insulation and LED lighting reduce energy waste, lowering carbon emissions and promoting energy efficiency.
- *Funding Needs & Opportunities:*
  - i. Grants or incentives to offset initial investment for energy-efficient upgrades.
  - ii. Energy Performance Contracting assistance through the Arkansas Energy Office.

#### **C. Building Controls (Lighting Schedules, HVAC Set Points)**

- *Why:* Integrating building controls optimizes energy usage, reducing waste and improving overall building efficiency.
- *Environmental Impact:* Efficient use of lighting and HVAC systems lowers energy consumption, contributing to reduced carbon emissions.
- *Funding Needs & Opportunities:*
  - i. Grants or incentives to offset initial investment for energy-efficient upgrades.
  - ii. Energy Performance Contracting assistance through the Arkansas Energy Office.

#### **D. Building Code Upgrades**



- *Why:* Upgrading building codes aligns with modern energy efficiency standards, ensuring new construction meets higher efficiency requirements.
- *Environmental Impact:* Improved codes promote sustainable building practices, leading to reduced energy consumption and lower environmental impact.
- *Funding Needs & Opportunities:*
  - i. Incentives or tax credits for code compliance to offset higher construction costs.

### **3.3. Workforce Needs**

As these initiatives reform building practices to mitigate emissions, the demand for skilled professionals adept in sustainable construction and energy-efficient technologies becomes pivotal. Workforce development programs aimed at training individuals in green building practices, renewable energy systems installation, and building automation technology are essential. Collaborations with technical institutions and vocational training centers can equip the workforce with the necessary expertise to support the implementation and maintenance of sustainable building practices. Additionally, fostering diversity and inclusivity within this workforce ensures a broad spectrum of skills, enriching the effectiveness and adaptability of these transformative initiatives.

#### ***Rooftop Solar***

Currently, Arkansas is experiencing an electrician shortage from the confluence of the growth of our current construction and solar markets. Electricians are required for solar installation, EV charger installation, and related maintenance. Additionally, electricians hired to install solar are being paid higher wage rates, which further diminishes their availability for other construction and maintenance.

ARKAA can currently offer approximately \$3,000/apprentice for training reimbursed through the employers, though some programs cost up to \$12k. Additionally, ARKAA can only provide reimbursement to employers for training programs that are not already subsidized by the Arkansas Office of Skills Development (OSD). One of the biggest needs in the industry is electricians, but these trainers are already subsidized by OSD. Additional grant funding could assist in providing training incentives for the development of new electricians for solar and EV deployment.

Since Arkansas' current electrician licensure pathway includes a 4-year electrician apprenticeship, the state will need to ensure that all electrician training schools are providing adequate training for these new industries, or provide additional training beyond that initial 4-year apprenticeship.

#### ***Energy Conservation Measures***

Energy Auditors are a key need within this industry and must be trained differently between residential, commercial and industrial applications. This role is apprenticeable. Some economic development studies have shown that there is more potential here than there is in energy generation.

There is great need in this area for employment, training, and credential alignment. ARKAA has been working with the Arkansas Energy Office on workforce related to residential energy audits, but there needs to be additional focus on developing commercial and industrial energy auditors. One approach could be training on top of existing trades, and another could be training energy auditors as a stand-alone career.

There are some credentials, but they don't perfectly match the industry. For example, there are no specific credentials for ASHRAE Level 1/Level 2 audits, but that is mostly what the industry uses.

## **HVAC**

Standards and curricula for the HVAC training should be standardized across the state. Training is needed on equipment of all sizes: commercial, industrial, boilers, chillers, campus hot/cold water loops, etc. No commercial HVAC training currently exists at Arkansas colleges. Contractors are asking for training on energy efficiency to learn how to quote appropriate systems. Additional training is needed on new technologies, like heat pumps and VRFs.

## **Building Controls**

The installation of building controls used to be performed by plumbers. However, now that role more closely resembles the work of an IT professional or electrician. Accordingly, the entire industry needs to collaborate to develop a systemic training program.

There is no building controls training program in the state. What limited opportunities do exist are related to industrial motor controls or residential HVAC controls. There needs to be a path for building controls that is tangentially related to both of the above. Not all building controls are related to HVAC or industrial uses. Modern controls could be for building security, window tint/coverings, lighting, solar, etc. Most are currently getting training from manufacturers, but that knowledge doesn't always transfer between brands and skills learned are difficult to communicate without industry recognized credentials.

ARKAA is developing a 2.5-year Instrumentation and Controls Apprenticeships for a few companies, but that is too long to be tacked on to a 3 year HVAC apprenticeship. There is likely significant overlap. One of these apprenticeships is run through the UA (plumbers and pipefitters union) so that workers can keep the benefits associated with union membership.

## **Building Code Upgrades**

Green Building Specialists are needed to verify net-zero achievement. There are a variety of building certification programs on the market (i.e. LEED, WELL, Energy Star, Living Building, Net Zero, etc.) and apprenticeships are being developed to facilitate this training and help people get appropriate credentials. However, there are no training programs in the state currently. However, some of the soft skills could be provided by Arkansas institutions, like project management. Entegrity is launching the first apprenticeship to provide LEED credentials in the country.

### 3.4. Implementation Authority & Barriers

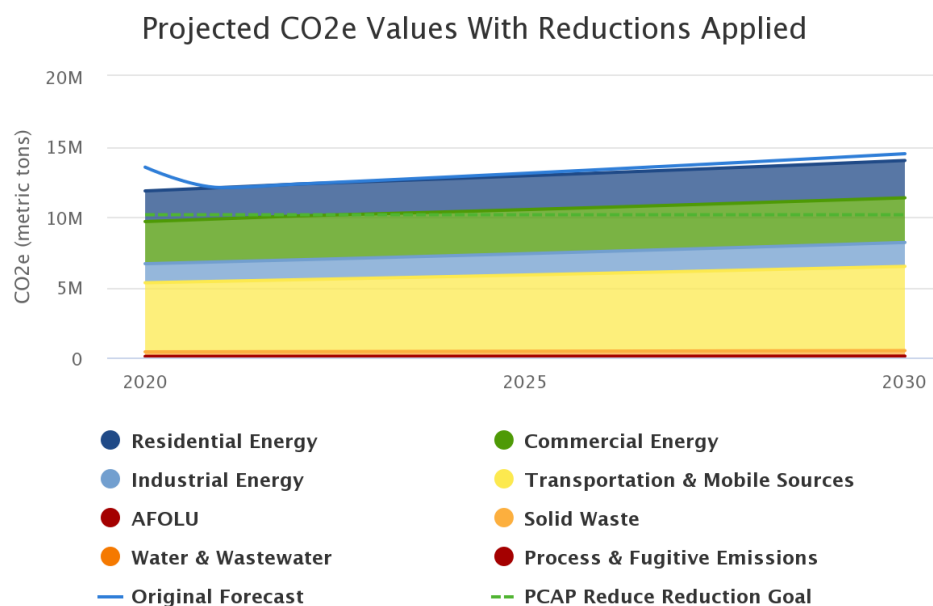
#### Authority

- State legislature
- State agencies
- Counties and cities
- Public and nonprofit organizations
- Private developers/landlords
- Homeowners

#### Barriers

- Limited budget for appliance conversion/higher building standards
- Regulatory hurdles
- Public resistance/lack of understanding of long-term benefits
- Lack of trained workforce
- Supply chain limitations for U.S.-made materials
- Net-metering changes to state law: Act 278 (2023) changed the current 1:1 rate structure. Under the upcoming compensation policy (starting Sept. 2024), net energy billing, or banking of site-generated electricity within a billing cycle to offset future consumption, will not be allowed any more. A system owner can consume electricity generated by their PV systems in real time and export any generation in excess of on-site consumption to the utility grid and be compensated (credited) by the dollar values based on the avoided costs, which are much lower than the typical retail prices charged to electric ratepayers. This lower compensation rate changes the cost-benefit calculation for solar customers and reduces the incentive to install solar panels.

### 3.5. Emissions Reduction or Sequestration

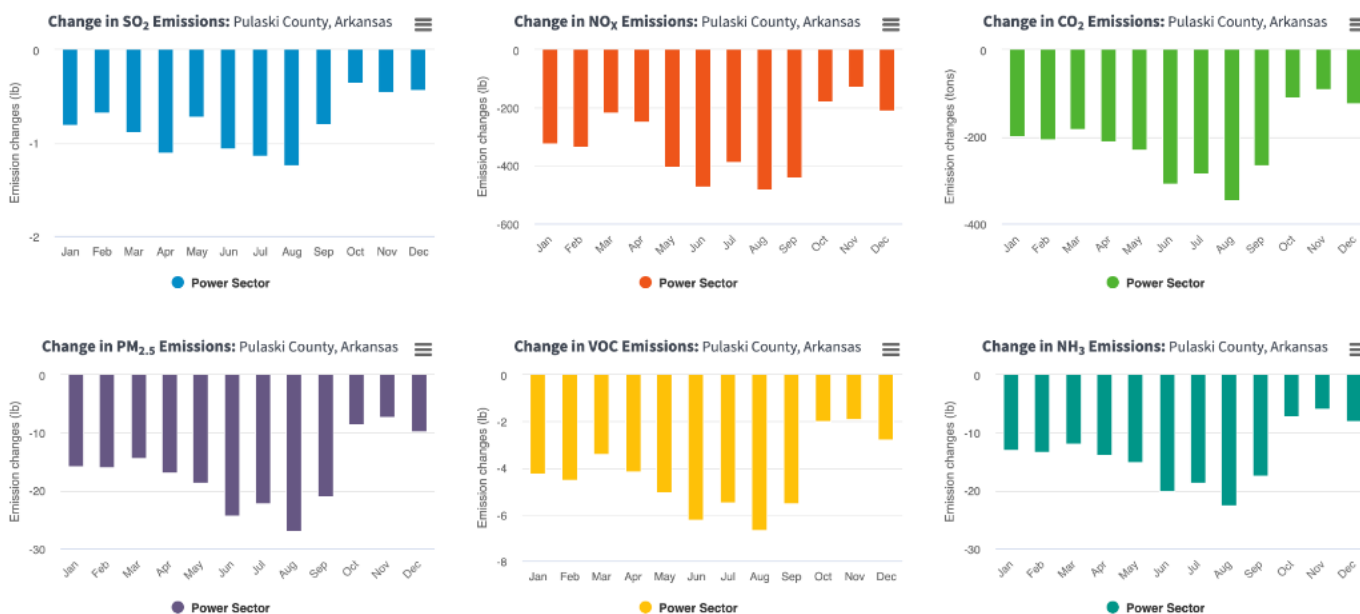


If adopted on a significant scale by 2030, the implementation of building emission reduction measures, including retrofitting with insulation and widespread adoption of distributed solar photovoltaics, holds promising potential to significantly curtail greenhouse gas emissions. Similar initiatives globally have showcased substantial emission reductions and cost savings.

Retrofitting buildings with insulation, estimated to reduce energy needs for heating and cooling, has the potential to avoid significant emissions while generating considerable savings in operational costs. If 5% of existing commercial buildings in Central Arkansas were retrofitted with energy conservation measures that achieve 20% energy savings and new building construction abiding by the Draft 2021 Arkansas Energy Code requirements achieves 37% energy savings (as compared to the 2014 Arkansas Energy Code), then 479,152 MT CO<sub>2</sub>e can be avoided by 2030. This measure was modeled using ICLEI's ClearPath software and includes MSA population growth rates. Adopting high impact actions for energy efficiency in the commercial sector can reduce sector emissions by 13%.

Similarly, the increased adoption of distributed solar photovoltaics in the commercial sector could substantially reduce operation and maintenance costs associated with traditional fossil fuel-based electricity generation, contributing to considerable emissions reductions as well. If 542 MW of rooftop and on-site solar systems are installed, Pulaski County can achieve 349,780 tons of avoided annual emissions and pollutants (as modeled by the AVERT Tool below).

### Annual Emissions Change in Tons = -349,780



Emissions reduction estimates for Pulaski County, Arkansas.

## References / Resources

<https://www.energy.gov/eere/buildings/zero-energy-building-project-types>

[https://forms.ashrae.org/Forms/C\\_PDFdownload\\_BuildingPerformanceStandards](https://forms.ashrae.org/Forms/C_PDFdownload_BuildingPerformanceStandards)

<https://www.ashrae.org/about/ashrae-task-force-for-building-decarbonization>

<https://www.uaex.uada.edu/environment-nature/energy/solar/net-metering.aspx>

<https://www.adeq.state.ar.us/energy/initiatives/performance.aspx>

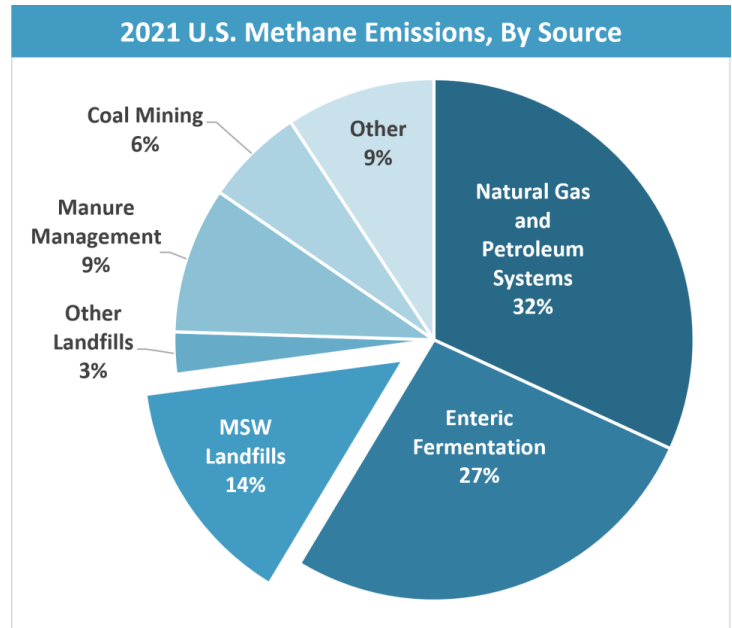
## 4. Waste Management & Recycling

**4.1. The Waste Management and Recycling (WMR)** priority action encompasses gasification (Waste to Energy), improved recycling and composting programs, and the utilization of landfill gas to produce energy.

### Proposed measure for inclusion in the Arkansas EEI Priority Action Plan

***Provide financial incentives and technical assistance for a regional/statewide Net-Zero Buildings program to implement the following projects:***

- A. Gasification (Waste to Energy): Involves the conversion of waste materials into usable energy sources such as electricity or heat, significantly reducing the volume of waste that would typically end up in landfills. It serves as a method of harnessing energy from waste while contributing to sustainable energy production and aligning with goals for reducing landfill waste and contributing greenhouse gas emissions.
- B. Composting Program: Focuses on converting organic waste into nutrient-rich soil conditioner, reducing the amount of organic waste deposited in landfills. This process not only supports soil health by enriching it with organic matter but also promotes sustainability by diverting waste from landfills, aligning with initiatives aimed at enhancing environmental and soil health.
- C. Improved Recycling: Involves the collection and processing of materials for reuse, effectively reducing the consumption of raw materials and minimizing landfill waste. These programs play a vital role in waste reduction efforts, emphasizing resource conservation and supporting environmental sustainability by promoting a circular economy.
- D. Landfill Gas to Energy: Utilizing gasses emitted from landfills for energy production serves as a method to reduce methane emissions, a potent greenhouse gas, while harnessing renewable energy sources. Converting landfill gasses into energy contributes to waste reduction efforts, aligning with objectives to mitigate GHG emissions and meet renewable energy targets.



### 4.2. Rationale

Each of these initiatives not only responds to the urgent demand for innovation in landfill emissions management but also resonates with community needs, environmental objectives, and diverse funding avenues across governmental and private sectors.

## **Community Interest**

Recycling is well-established in Central Arkansas and enjoys a high level of community buy-in that could be expanded upon to increase its emission reduction impact. Curbside recycling service is available to Pulaski County and Conway residents, and recycling dropoff is available region wide.

Waste Management and Recycling ranked in the 83rd percentile of priority scoring by Central Arkansas residents in the Community Input Survey. Stakeholders ranked it the 9th most important measure during the Metroplan board and stakeholder workshop session.

## **LIDAC Benefits**

- Alternative energy source
- Improved air quality
- Reduced public health burden of poorly managed waste
- Lower energy costs
- Improved local soil quality
- Apprenticeship/employment opportunities

## **Additional Rationale by Project**

### **A. Gasification (Waste to Energy)**

- *Why:* Gasification converts waste into usable energy, reducing reliance on non-renewable energy sources and minimizing landfill waste.
- *Environmental Impact:* Reduces landfill waste volume, mitigating environmental pollution and emissions.
- *Funding Needs:*
  - i. Grants for initial investment in technology and infrastructure for waste-to-energy facilities.

### **B. Composting Program**

- *Why:* Composting transforms organic waste into nutrient-rich soil, reducing landfill organic waste and enhancing soil health.
- *Environmental Impact:* Reduces methane emissions from organic waste in landfills, enriches soil quality, and promotes natural fertilizer use.
- *Funding Needs:*
  - i. Grants for investment in composting infrastructure.
  - ii. Educational programs on composting practices.

### **C. Improved Recycling**

- *Why:* Recycling programs aim to reuse materials, reducing raw material consumption and landfill waste.
- *Environmental Impact:* Reduces the need for virgin materials, conserving natural resources and decreasing pollution associated with material extraction.
- *Funding Needs:*
  - i. Grants for investment in recycling infrastructure.
  - ii. Public awareness campaigns on proper recycling practices.

#### D. Landfill Gas to Energy

- *Why:* Utilizes landfill gasses for energy, reducing methane emissions and creating renewable energy sources.
- *Environmental Impact:* Mitigates greenhouse gas emissions, reduces reliance on fossil fuels, and promotes cleaner energy generation.
- *Funding Needs:*
  - i. Grants for gas collection and energy generation infrastructure at landfill sites.

### 4.3. Workforce Needs

As these waste management and recycling initiatives gain momentum, the need for a skilled workforce proficient in sustainable waste management practices becomes increasingly critical. Workforce development programs are needed geared toward training individuals in waste-to-energy technologies, composting techniques, recycling methodologies, and landfill gas utilization. Collaborations with educational institutions and vocational training centers will be vital to equip the workforce with the necessary expertise to support the implementation and management of these initiatives effectively. Moreover, ensuring inclusivity and diversity within this workforce not only fosters innovation but also enhances the adaptability and efficiency of these transformative waste management practices. The apprenticeship model could be used for some of this training.

### 4.4. Implementation Authority & Barriers

#### **Authority**

- State agencies
- Solid Waste/Recycling Districts
- Counties and cities
- Private industry

#### **Barriers**

- High upfront investment
- Technological limitations
- Regulatory hurdles
- Public resistance/lack of understanding of long-term benefits
- Lack of trained workforce
- Supply chain limitations

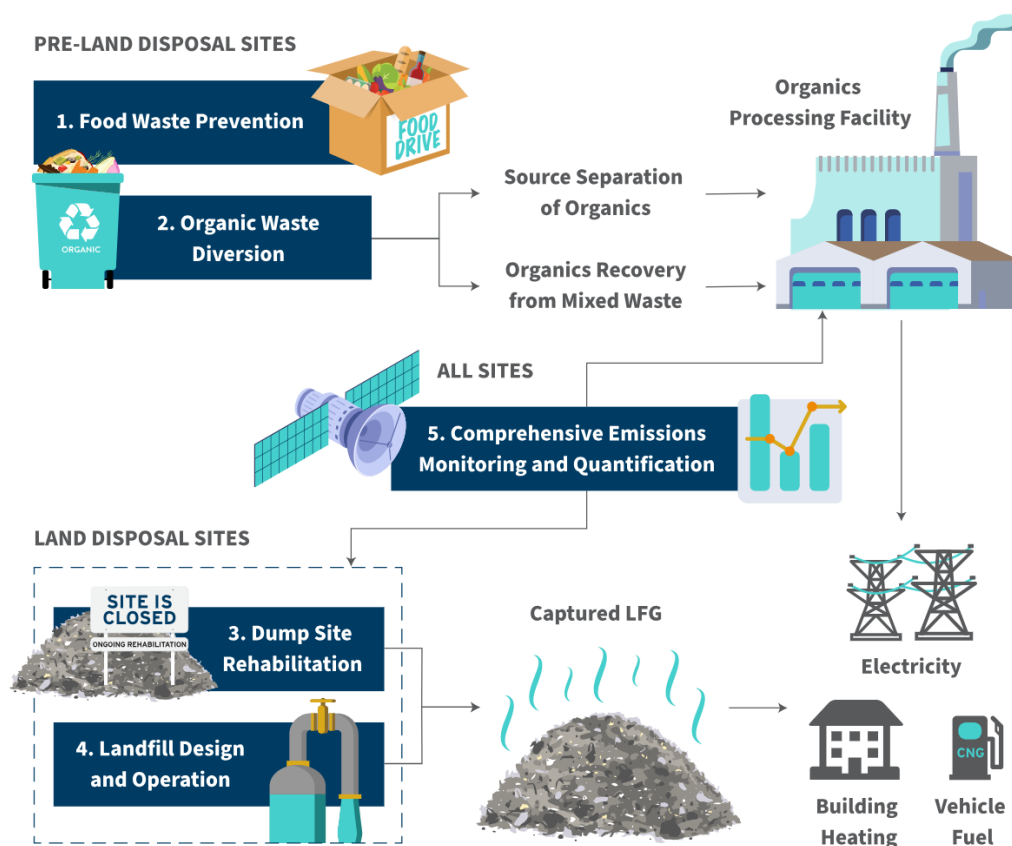
### 4.5. Emissions Reduction or Sequestration

Widespread adoption of effective waste management and recycling initiatives by 2030 could result in substantial reductions in greenhouse gas emissions. For instance, initiatives such as gasification (Waste to Energy), composting, recycling programs, and landfill gas utilization have demonstrated the potential to significantly mitigate methane emissions, a potent greenhouse gas, from decomposing waste in landfills. If we look at state examples like the Landfill Gas to Energy facility in Northwest Arkansas operated by WM, we find that these systems have the potential to reduce an estimated 40,000 tons annually. In Central Arkansas, we see the City of Little Rock setting



recycling participation goals and hope to increase recycling rates by 20% over the next few years. By diverting 10% of recyclable and compostable materials and decreasing overall wet tons of solid waste (cardboard, paper products, and food scraps) entering the 4 landfills in Central Arkansas, we can make an impact on the massive amount of methane emissions attributed to these items in the waste stream. EPA's publication "Quantifying Methane Emissions from Landfilled Food Waste" outlines the complexity of calculating avoided emissions from these materials, but insists diversion of food waste (which accounts for roughly 58% of landfill methane emissions) is a necessary tactic to reducing harmful emissions from conventional landfill operations.

Additionally, these measures could contribute to the reduction of carbon dioxide emissions by reducing the need for energy derived from fossil fuels through waste-to-energy projects and promoting resource conservation via recycling and composting. The cumulative impact could be substantial in curbing greenhouse gas emissions, contributing positively to overall environmental mitigation efforts.



## References / Resources

<https://www.energy.gov/eere/fuelcells/articles/waste-energy-technologies-and-project-development>

<https://rmi.org/top-strategies-to-cut-dangerous-methane-emissions-from-landfills/>

## Conclusion

The Central Arkansas Energy and Environment Initiative (EEI) Priority Action Plan (PAP) Supplement presents a robust and integrated strategy to address critical environmental challenges, reduce greenhouse gas emissions, and foster sustainable development across various sectors. The plan encapsulates a holistic vision for the region, covering Clean Green Transportation (CGT), Efficient and Electric Vehicles (EEV), Net-Zero Buildings (NZB), and Waste Management and Recycling (WMR) priorities, each tailored to align with community needs, environmental goals, and the imperative for a skilled and inclusive workforce.

### ***Community-Centric Approach***

The Central Arkansas EEI PAP Supplement reflects a comprehensive understanding of the region's needs, as evidenced by its community-centric approach. The alignment of each priority with community interests, as highlighted in the Community Input Survey and stakeholder workshops, ensures that the proposed initiatives resonate with the diverse perspectives and preferences of Central Arkansas residents.

A noteworthy aspect of the plan is its explicit attention to Low-Income and Disadvantaged Communities (LIDAC). By integrating LIDAC benefits into each priority area, such as health improvements, economic opportunities, and equitable access to sustainable solutions, the plan aims to address socio-economic disparities and ensure that the benefits of environmental initiatives reach all segments of the population.

### ***Workforce Development Imperative***

Recognizing that successful implementation hinges on a skilled workforce, the PAP Supplement places a strong emphasis on workforce development. Through partnerships with educational institutions, vocational training centers, and apprenticeship programs, the plan envisions a workforce adept in innovative technologies, sustainable practices, and green job opportunities, thereby fostering local talent and expertise.

### ***Challenges and Opportunities***

While the plan identifies barriers such as financial constraints, technological limitations, regulatory hurdles, public resistance, and workforce gaps, it also presents these challenges as opportunities for collaboration, innovation, and strategic planning. Overcoming these obstacles will require concerted efforts from government agencies, private sectors, educational institutions, and the community.

### ***Emissions Reduction and Sustainable Future***

The PAP Supplement envisions a future where Central Arkansas significantly reduces its carbon footprint and achieves substantial emissions reductions by 2030. Through the adoption of sustainable transportation, electric vehicles, net-zero buildings, and advanced waste management practices, the plan strives to create a more sustainable, resilient, and environmentally conscious region. This plan recommends that Central Arkansas measure its progress towards GHG reduction by creating a protocol to inventory regional GHG emissions every 4 years.

The Central Arkansas EEI PAP Supplement demonstrates a forward-thinking and community-driven approach to environmental sustainability. By addressing the unique challenges of the region, considering the needs of LIDAC communities, and fostering a skilled and inclusive workforce, the plan sets the stage for a more resilient and environmentally friendly future for Central Arkansas. The success of this initiative will not only contribute to mitigating the impacts of climate change but also position the region as a model for sustainable development and innovation.

## Appendix

### **Sources for Regional Greenhouse Gas Estimation**

1. NEI - EPA National Emissions Inventory
2. SLOPE - National Renewable Energy Laboratory State and Local Planning for Energy
3. SIT - EPA State Inventory Tool
4. eGRID - Emissions & Generation Resource Integrated Database

### **Tools for Reduction Calculations**

5. EPA [Quantified Climate Action Measures Directory](#)
6. ESIST - EPA Energy Savings and Impacts Scenario Tool
7. GLIMPSE - EPA 2050 Modeling Tool (tech and policy impact on renewables, ev, and ee)
8. AVERT - AVOIDed Emissions and geneRation Tool
9. [COBRA](#) - Co-Benefits Risk Analysis Health Impacts Screening and Mapping Tool
10. SLOPE - National Renewable Energy Laboratory State and Local Planning for Energy
11. [Energy Policy Simulator](#) (Arkansas)
12. Non-CO2 Projections and Mitigation Assessment Model
13. TEAM - EPA Travel Efficiency Assessment Method
14. EPA Green Vehicle Guide
15. EPA DEQ - Diesel Emission Quantifier
16. National Port Strategy Assessment and Port Emissions Inventory Guidance
17. MOVES - EPA's MOtor Vehicle Emission Simulator
18. Fuel Economy (.gov)
19. ALU - Ag and Land Use GHG Inventory Software
20. ICLEI - ClearPath
21. ICLEI - LEARN Tool (Land Emissions And Removals Navigator)

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*\*Notes on emission calculations, investment dollars, and net savings*

All emission reductions are calculated at the global scale.

Net first cost to implement – the difference between the implementation cost of a solution and the implementation cost of the conventional technology/practice it replaces during the full period of analysis (e.g., the cost of installing a certain number of solar panels around the world compared with the cost of installing conventional energy technologies and practices between 2020 and 2050).

Net lifetime operating cost / savings – the cost to operate the conventional technology or practice over its lifetime minus the lifetime operational costs of the solution for all implementation units installed during the analysis period.

**Alignment with Existing Plans** *[full matrix under development]*

<b>Federal</b>	<p><b>EPA Strategic Plan</b> The FY 2022-FY 2026 Strategic Plan communicates the roadmap for accomplishing EPA's environmental priorities over the next four years. This plan deepens EPA's commitment to protecting human health and the environment for all people, with an emphasis on historically overburdened and underserved communities. <a href="https://www.epa.gov/planandbudget/strategicplan">https://www.epa.gov/planandbudget/strategicplan</a></p>
<b>State</b>	<p><b>We Move Arkansas—Transportation 2040</b> (ARDOT, 2017) Arkansas' Long Range Intermodal Transportation Plan.</p> <p><b>Full Steam Ahead</b> (ARDOT, 2023) 2023-2028 strategic plan to deliver a modern transportation system to enhance safety and quality of life.</p> <p><b>Arkansas Bicycle and Pedestrian Transportation Plan</b> (ARDOT, 2017) Identifies strategies to improve safety of and access to bicycling for transportation and recreation.</p> <p><b>Carbon Reduction Strategy</b> (ARDOT, 2023) Documents projects and strategies to reduce CO2 emissions from on-road highway sources.</p> <p><b>Complete Streets Policy</b> (ARDOT, under development) Will outline ARDOT's commitment to planning, designing, and funding the construction of safe places for people to bike, walk, and use transit as part of the transportation system.</p> <p><b>Arkansas Energy Efficiency Resource Standard</b> (APSC, 2010) Establishes specific, long-term targets for energy savings that utilities or non-utility program administrators must meet through customer EE programs. <a href="http://www.apscservices.info/pdf/08/08-144-U_153_1.pdf">http://www.apscservices.info/pdf/08/08-144-U_153_1.pdf</a></p> <p><b>NAAQS State Implementation Plan</b> (AR Dept. of E&amp;E, 2023) The State Implementation Plan (SIP) is a collection of regulations and documents used by a state, territory, or local air district to implement, maintain, and enforce the National Ambient Air Quality Standards, or NAAQS, and to fulfill other requirements of the Clean Air Act. <a href="https://www.adeg.state.ar.us/air/planning/sip/">https://www.adeg.state.ar.us/air/planning/sip/</a></p>

Regional/Local	<p><b>CARTS Multimodal Infrastructure Guidelines</b> (Metroplan, 2022) Establishes an approach to street design that prioritizes all modes and offers the opportunity to implement design decisions with consistency, providing predictability in costs and regional uniformity in function and style.</p> <p><b>Central Arkansas Regional Greenways Plan</b> (Metroplan, 2023) Details six regionally significant active transportation corridors connecting the region, a 222-mile system of separated pathways to increase mobility for non-motorized travelers.</p> <p><b>Central Arkansas Transforming Mobility</b> (DRAFT, Metroplan, 2023) The Central Arkansas Transportation Study (CARTS) long-range metropolitan transportation plan through 2050. Identifies core regional transportation policies, transportation goals, forecasts available revenue, and prioritizes projects.</p> <p><b>Central Arkansas Safety Action Plan</b> (Metroplan, under development)</p> <p><b>R.I.D.E. 2020</b> (Rock Region METRO, 2020) A comprehensive budget-neutral operational analysis to improve transit service in Central Arkansas.</p> <p><b>Annual Service Enhancements</b> (Rock Region METRO, 2023) <a href="https://rrmetro.org/annual-service-enhancements/">https://rrmetro.org/annual-service-enhancements/</a></p> <p><b>Little Rock Sustainability Goals</b> (City of Little Rock, 2023) <a href="https://www.littlerock.gov/city-administration/city-departments/public-works/sustainability/">https://www.littlerock.gov/city-administration/city-departments/public-works/sustainability/</a></p> <p><b>Little Rock Complete Streets: Bicycle Plan</b> (City of Little Rock, 2022) <a href="https://www.littlerock.gov/media/16896/lrcompletestreets_3722.pdf">https://www.littlerock.gov/media/16896/lrcompletestreets_3722.pdf</a></p> <p><b>Little Rock Parks Master Plan</b> (City of Little Rock, 2001) <a href="https://www.littlerock.gov/residents/parks-and-recreation/more-information/contact/master-plan-map/">https://www.littlerock.gov/residents/parks-and-recreation/more-information/contact/master-plan-map/</a></p> <p><b>Achieving Strategic Sustainability at the Little Rock Port Authority</b> (2017) <a href="https://ualr.edu/publicaffairs/files/2016/06/LRPA-Sustainability-Strategy-Final-2017-Spring.pdf">https://ualr.edu/publicaffairs/files/2016/06/LRPA-Sustainability-Strategy-Final-2017-Spring.pdf</a></p> <p><b>Clinton National Airport Sustainability Management Plan</b> (2023)</p> <p><b>Central Arkansas Water “Net Zero by 2050” Climate Action Plan Draft</b> (2021)</p> <p><b>University of Arkansas at Little Rock Sustainability Report</b> (2022-2023)</p>
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## ***Metroplan Members***

### Faulkner County

- Conway
- Greenbrier
- Guy
- Mayflower
- Vilonia
- Wooster

### Grant County

- Sheridan

### Lonoke County

- Austin
- Cabot
- England
- Keo
- Lonoke
- Ward

### Pulaski County

- Alexander
- Cammack Village
- Jacksonville
- Little Rock
- Maumelle
- North Little Rock
- Sherwood
- Wrightsville

### Saline County

- Alexander
- Bauxite
- Benton
- Bryant
- Haskell
- Shannon Hills
- Traskwood

### Transportation Members

- Arkansas Department of Transportation
- Rock Region METRO
- Little Rock Port Authority
- Bill and Hillary Clinton National Airport