



STATE OF NEW MEXICO

# Zero40

April 1, 2024

United States Environmental Protection Agency

Climate Pollution Reduction Grant Program

Phase 2 Implementation Grant Application



**OKLAHOMA**  
Environmental  
Quality

# 1 COVER PAGE

<b>OPPORTUNITY INFO</b> Agency: Title: Funding Opportunity #: Assistance listing #:	United States Environmental Protection Agency (EPA) Climate Pollution Reduction Grant (CPRG) Program: Implementation Grants General Competition EPA-R-OAR-CPRGI-23-07 66.046
<b>LEAD APPLICANT INFO</b> Application Title: Applicant: Primary Contact Name:  Phone Number: Email Address:	Zero40 New Mexico Environment Department (NMED) Claudia Borchert <i>Climate Change Bureau Chief</i> NMED Climate Change Bureau 505-699-8489 <a href="mailto:claudia.borchert@env.nm.gov">claudia.borchert@env.nm.gov</a>
<b>APPLICATION TYPE</b> Type: Coalition Members:	<input checked="" type="checkbox"/> Lead Applicant for a Coalition: 1. City of Kingman, Arizona (Kingman) 2. City of Winslow, Arizona (Winslow) 3. State of Oklahoma, Department of Environmental Quality (Oklahoma DEQ)
<b>APPLICABLE SECTORS</b>	<input checked="" type="checkbox"/> Transportation <input checked="" type="checkbox"/> Energy
<b>APPLICABLE LOCATION</b>	The Corridor along Interstate-40 in Arizona, New Mexico, and Oklahoma.
<b>SYNOPSIS OF MEASURE</b>	<b>This coalition application proposes one measure:</b> Zero40 is a multi-state effort across the Southwestern US to decarbonize 1,124 miles (or ~50%) of Interstate-40. If awarded, Clean Transportation Centers supporting medium- and heavy-duty zero-emission trucks will be developed in multiple locations along the corridor, each including [1] clean electricity generation, storage, and electric vehicle charging infrastructure and [2] hydrogen refueling infrastructure.
<b>TOTAL REDUCED CLIMATE POLLUTION</b>	<b>Expected Greenhouse Gas (GHG) Emission Reductions</b> <b>Total Cumulative:</b> <ul style="list-style-type: none"> <li>2025-2030: 181,752 metric tons CO<sub>2</sub>e</li> <li>2025-2050: 1,340,508 metric tons CO<sub>2</sub>e</li> </ul> <b>Total Cumulative, Attributable to CPRG Funds:</b> <ul style="list-style-type: none"> <li>2025-2030: 150,067 metric tons CO<sub>2</sub>e</li> <li>2025-2050: 1,168,385 metric tons CO<sub>2</sub>e</li> </ul>
<b>TOTAL FUNDING REQUESTED</b>	\$479,592,564
<b>RELEVANT PRIORITY CLIMATE ACTION PLANS (PCAPs)</b> PCAP, Lead Organization:  PCAP Title: NM PCAP, Direct Link:	<i>Note: all PCAPs are attached in grants.gov and linked below.</i> NMED, with support from the New Mexico (NM) Energy, Minerals, and Natural Resources Department (EMNRD) New Mexico Priority Climate Action Plan (NM PCAP) <a href="#">New Mexico Priority Climate Action Plan</a> , including: <ul style="list-style-type: none"> <li><a href="#">Appendix K.1</a> – Inventory and Quantification Methodology</li> <li><a href="#">Appendix K.2</a> – Emission Reduction Calculations</li> <li><a href="#">Appendix K.3</a> – Quality Assurance Project Plan (QAPP)</li> </ul>

NM Public CPRG Website:	<ul style="list-style-type: none"> <li>• <a href="#">Appendix L</a> – New Mexico Census Tract Block Groups Identified by EPA as LIDAC</li> <li>• <a href="#">Appendix M</a> – Identified Stakeholders List</li> </ul> <a href="https://www.climateaction.nm.gov/climate-pollution-reduction-grant/">https://www.climateaction.nm.gov/climate-pollution-reduction-grant/</a>
<b>OTHER APPLICABLE PCAPS</b>	
PCAP Member Organization (1):	State of Arizona, applicable to the City of Kingman and the City of Winslow <i>The Clean Arizona Plan</i> <a href="https://www.epa.gov/system/files/documents/2024-03/the-clean-arizona-plan.pdf">https://www.epa.gov/system/files/documents/2024-03/the-clean-arizona-plan.pdf</a>
PCAP Member Organization (2):	Oklahoma Department of Environmental Quality <i>Oklahoma’s Priority Action Plan</i> <a href="https://www.epa.gov/system/files/documents/2024-03/oklahoma-cprg-priority-action-plan.pdf">https://www.epa.gov/system/files/documents/2024-03/oklahoma-cprg-priority-action-plan.pdf</a>

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## 2 WORKPLAN

### 2.a. OVERALL PROJECT SUMMARY AND APPROACH

The New Mexico Environment Department (NMED) is leading a bipartisan *Zero40 Coalition* (Coalition) to establish eight clean transportation fueling locations in Arizona, New Mexico, and Oklahoma along Interstate 40 (I-40) to establish a sustainable freight transportation corridor from California's Port of Los Angeles (LA Port) to points east (Figure 1). Each of the Zero40 clean transportation fueling locations – known as Clean Transportation Centers (CTCs) – is specifically designed for Medium- and Heavy-Duty (MHD) Zero Emission Trucks (ZETs) and to provide direct benefits to residents in Low-Income and Disadvantaged Communities (LIDAC) along I-40 who are negatively affected by air pollutants spewing from diesel truck engines. The CTCs will include heavy-duty electric vehicle (EV) charging stations and mobile hydrogen (H2) re-fueling stations utilizing low-greenhouse gas H2 (as explained in section 4.d). These eight Zero40 CTC sites (identified in Figure 1) amplify decarbonization efforts at the LA Port to connect points west to east, while the federal Joint Office of Energy and Transportation (Joint Office) concentrates its efforts on I-40 east to west through 2035.<sup>1,2,3</sup> The Texas Department of Transportation recently designated its section of I-40 as a ZET corridor, priming Amarillo for a potential future CTC.<sup>4</sup>

The objective of Zero40 is to fill a gap along a key section of I-40 by installing and replicating CTCs to provide the infrastructure necessary to fulfill EPA's new final rule, "Greenhouse Gas Emissions Standards for Heavy-Duty Vehicles – Phase 3" and support the clean transportation components of new manufacturing and logistics projects, i.e. "inland ports," currently in early development. Specifically for three of the Zero40 sites: Kingman, Arizona; Winslow, Arizona; and Bernalillo County, New Mexico, the US Department of Transportation (US DOT) considers the I-40 corridor so vital that it has provided initial planning funds for an I-40 TradePort Corridor<sup>5,6</sup> as part of its Regional Infrastructure Accelerator program (RIA; see section 2.a.2.1 for details). Zero40 plans to deploy CTCs at these RIA sites.<sup>7,8,9</sup> The Zero40 site in the Gallup, New Mexico area will leverage New Mexico Department of Transportation (NMDOT) funding allocated for inland port and transportation planning to ensure the installation of a CTC. The Zero40 site in Oklahoma City, Oklahoma will also benefit from the installation of a CTC as the city explores inland port development. Zero40 sites in Tucumcari, New Mexico; Elk City, Oklahoma; and Checotah, Oklahoma will be able to use their CTCs as economic and community development anchors to spur additional investment and cleaner air for LIDAC residents.

Regarding private investment, the Zero40 Coalition application is already attracting key private investment interest. For example, Greenlane Infrastructure, LLC (a joint venture between Daimler Truck North America, LLC, NextEra Energy Resources, LLC, and BlackRock Alternatives) plans to build a 280-mile MHD ZET corridor from Los Angeles to Las Vegas<sup>10</sup> and indicates its interest in responding to requests for proposals to implement portions of Zero40 through a letter of support (attached in grants.gov).

Importantly, Zero40 not only aims to invest in CTC infrastructure but also directly in education and workforce development for residents of the Coalition states – many of whom live in LIDAC (see sections 2.d and 2.e). These programs will provide increased workforce training for needed Zero40 clean transportation jobs, participant support costs for underemployed workers, and "train the trainers" class materials and curricula for local academies, schools, and community colleges as they prepare transportation specialists to support these new transportation technologies. With Zero40, the Coalition anticipates a reduction of Greenhouse Gas (GHG) emissions by 1,340,508 total metric tons of carbon dioxide equivalent (MT CO<sub>2</sub>e) by 2050.

#### **The Zero40 Coalition**

##### **Lead:**

- New Mexico Environment Department

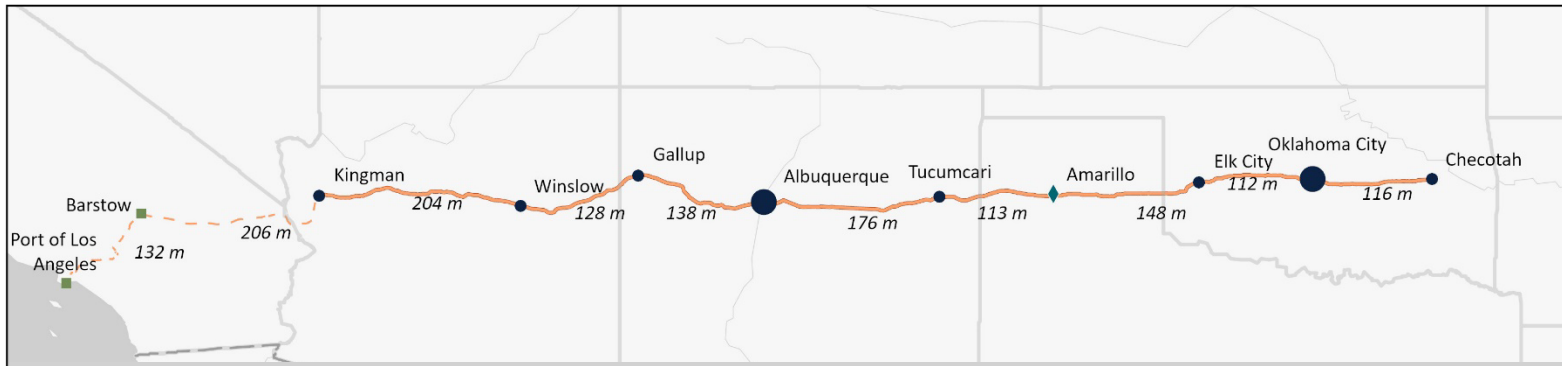
##### **Members:**

- City of Kingman, Arizona
- City of Winslow, Arizona
- Oklahoma Department of Environmental Quality

Figure 1.

## Proposed Zero40 Corridor

### A Multi-State, CPRG Coalition Roadmap



#### Key Infrastructure Proposed for CPRG Funding by Site Size:

**Large CTCs:** 2 mobile H2 refueling lanes and 16 electric charging lanes, powered by roughly 40 GWh of annual renewable energy generation + storage.

**Small CTCs:** 2 mobile H2 refueling lanes and 4 electric charging lanes, powered by roughly 12 GWh of annual renewable energy generation + storage.

#### Clean Transportation Centers (CTCs)

- Large CTC
- Small CTC
- ◆ Potential CTC
- Non-CPRG Funded CTC

#### Zero40 Corridor

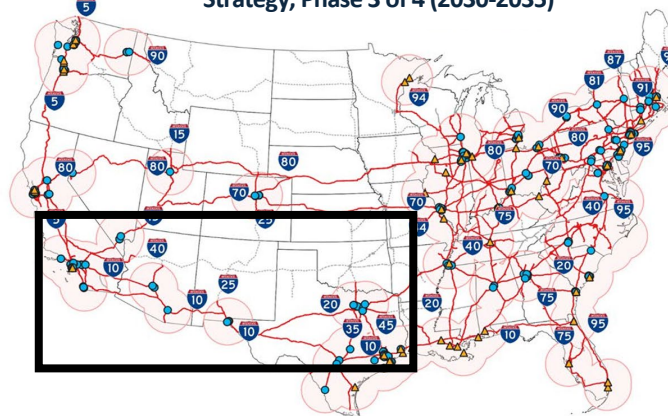
- Proposed Zero40
- - - Non-CPRG Funded Corridor Connection



Map Scale: 1:10,500,500

Data Sources: NMED, Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS, Esri, TomTom, FAO, NOAA, USGS  
Coordinate System: NAD 1983

#### Zero40 Corridor Extent (black rectangle), shown filling a gap in the Joint Office's Zero-Emission Freight Corridor Strategy, Phase 3 of 4 (2030-2035)



- ZEF Network**
- Selected Corridors
  - ▲ Selected Principal Ports
  - Selected Intermodal Freight Facilities
  - ✕ Selected Truck Parking
  - Selected Hubs
  - National Highway Freight Network

### 2.a.1 Description of the GHG Reduction Measure

The Coalition proposes to provide clean energy-powered MHD chargers and low-GHG H2 refueling stations at eight CTC sites along I-40 to facilitate the sustainable transport of goods, either as part of a developing inland port or as a separate anchor location. Demand for clean transportation infrastructure is skyrocketing, as federal and state investments and regulations – such as EPA’s new “Phase 3 GHG Emissions Standards for HD Vehicles” rule and the “Advanced Clean Trucks” rule recently adopted by New Mexico under section 177 of the Clean Air Act (CAA) – set new standards for MHDs and MHD manufacturers, and businesses set sustainability goals and supply chain decarbonization objectives.

At the same time, truck freight mileage is only expected to increase in the coming decades. For example, truck freight mileage is projected to grow by approximately 30 percent (%) over the next 25 years with Texas and California trucking more freight ton-miles<sup>11</sup> than any other state in 2023.<sup>12</sup> If this growth, including between these two states, continues and is not counteracted by successful ZET deployment, then the people living along the corridor will increasingly be exposed to harmful tailpipe emissions.

To counteract this trend, Zero40 aims to build on early planning already underway at four developing inland port locations and fund the CTC infrastructure necessary to reduce emissions at those sites. Specifically, the US DOT’s RIA grant award to the I-40 TradePort Corridor (TradePort) kick-started crucial infrastructure planning in three key locations in Arizona and New Mexico that will lay the basis for Zero40’s success (Kingman, Arizona; Winslow, Arizona; and Bernalillo County, New Mexico). Zero40 leverages the foundational work underway at the TradePort by: (1) providing initial implementation funding at the three planned TradePort sites to rapidly accelerate the deployment of the MHD electric charging and H2 refueling stations, and (2) expanding the corridor through replication of the US DOT RIA model to plan and implement additional CTCs along I-40, maximizing the impact of public funding by attracting private investment. A fourth site, the Greater Gallup area in New Mexico, has received NMDOT funding for similar planning efforts that will help accelerate the development and replication process as well. Zero40’s project-wide critical infrastructure will:

1. Amplify the clean, sustainable transportation of goods underway at the LA Port across the Southwest US to points east along I-40 and south towards the ports of entry between the US and Mexico so that GHG emissions decrease – not increase – in the transportation sector as trade expands;
2. Empower rural and urban communities in the Coalition by strategically placing CTCs to directly create workforce development opportunities for quality jobs, including in LIDAC; and
3. Catalyze tailpipe emission reductions resulting in improved air quality along the I-40 corridor for LIDAC residents and improved public health outcomes.

To decrease GHG in the transportation sector, the Coalition will directly work to support increasing numbers of ZETs along I-40 by installing CTCs at “small” and “large” CTCs in rural and urban areas respectively. The small CTCs ensure 108 ZETs can recharge/refuel per day and successfully traverse the I-40 corridor. Small CTCs are planned for the following Zero40 sites: Kingman, AZ; Winslow, AZ; Gallup, NM; Tucumcari, NM; Elk City, OK; and Checotah, OK. The large CTCs ensure that 252 ZETs can recharge/refuel per day. Large CTCs are planned for the two major urban areas in Zero40 (Bernalillo County, NM, and Oklahoma City, OK).

Upon completion, the eight CTCs collectively will add the following to the Zero40 section of I-40:

1. 56 MHD EV charging lanes;
2. 16 mobile H2 refueling lanes for MHD fuel cell electric vehicles;
3. Renewable energy generation systems at each CTC to produce and store 152 Gigawatt hours (GWh) of clean energy each year that will primarily power the 56 EV lanes.

Although ZET-supporting infrastructure to reduce GHG emissions is critical, Zero40 is also about creating a catalyst for sustainable economic growth, workforce opportunities, environmental protection, and healthier communities in the eight CTC site locations described below.



### 2.a.1.1 Clean Economic Opportunities for LIDAC – A Profile of Proposed CTC Hosts:

**KINGMAN:** The City of Kingman, AZ, is taking part in a groundbreaking initiative to advance the development of the I-40 TradePort Corridor. The proposed CTC fits into this larger TradePort project, which aims to transform the region with innovation, economic growth, and sustainability. Kingman will achieve this by attracting private investments for manufacturing and distribution projects and partnering with public and private investments for strategic development. Current Tradeport Kingman investments total \$974,000. This site was selected because (1) the entire town is designated as LIDAC by the EPA's *IRA Disadvantaged Community* mapping layer from the EPA's EJScreen mapping tool (which is used to identify LIDAC throughout this document),<sup>13</sup> and (2) the US DOT recognizes the TradePort as an RIA, of which Kingman is a key location.



"Historic District in Kingman, Az [sic]" by [Marine 69-71](#), 10 May 2019. [CC BY-SA 4.0 DEED](#).

**WINSLOW:** The City of Winslow, AZ is part of the Tradeport, and "I-40 TradePort Winslow" is a new 3,750-acre advanced manufacturing and logistics park, serviced by the BNSF Railroad, the local Winslow-Lindberg Regional Airport, and the bustling I-40. The proposed CTC fits into this larger TradePort project. With the ability to serve a wide variety of users, this project answers the growing demand for advanced manufacturing, heavy manufacturing, logistics, transportation, manufactured wood products, renewable energy production and storage, semiconductor suppliers, aerospace, and more. This site was selected because (1) the entire town is designated as LIDAC by EPA, and (2) the US DOT recognizes the TradePort as an RIA, of which Winslow is a key location.



"Winslow, Arizona" by [Alan Levine](#), 28 August 2008. [CC BY-SA 2.0 DEED](#).

**GALLUP:** The Greater Gallup Economic Development Corporation (GGEDC) has worked with public and private partners for over 10 years to establish the Greater Gallup area in New Mexico as a functional logistics hub, optimally located along the I-40 and BNSF Railway corridors at the nexus point between the western seaports, logistics centers in the Southwest, and Port Houston in the East. The GGEDC recently received multiple grants through the NMDOT to support studies necessary for planning the envisioned Gallup/McKinley County inland port. One of the studies being conducted focuses on the use of H2 and EV fuel stations within planned transportation centers. CPRG funding is a crucial steppingstone for the Greater Gallup area to take the leap from planning to implementation. With an economy historically built on coal mining and the railroad industry, the Greater Gallup area has a workforce ready and able to make the transition to clean energy and transportation careers. This site was selected because Gallup and the surrounding area, including the Navajo Nation and Zuni Pueblo, are largely populated with residents of LIDAC. These communities and Tribal members will have priority access to the many opportunities and benefits that Zero40 creates, including building a stronger economy, reducing pollution, and providing high-quality jobs.



"Gallup, New Mexico" by [Yesterdays-Paper](#), 6 January 2017. [CC BY 3.0 DEED](#).

**BERNALILLO COUNTY (i.e., ALBUQUERQUE):** Bernalillo County is host to the City of Albuquerque and is New Mexico's most populous county with over 676,000 residents. The Albuquerque area will feature a CTC that will serve electric and H2 trucks, and function as a logistics hub, attracting private investment. These manufacturing and distribution projects will facilitate the flow of trade to and through New Mexico with this value-added, cost-

saving system. The proposed CTC fits into the larger TradePort project. This site was selected because (1) most of the county is designated as LIDAC by EPA (including the census tract where the CTC will be located), (2) the county's residents suffer from air quality problems (primarily Ozone or O<sub>3</sub>) that can be best improved by preventing tailpipe emissions (particularly NO<sub>x</sub>), and (3) the US DOT recognizes the TradePort as an RIA, of which Bernalillo County is a key location.

**TUCUMCARI:** Tucumcari, NM is a small, rural town that saw a rapid population decline when the creation of I-40 bypassed its downtown by about one mile. Over time, the Tucumcari population has decreased from 12,000 residents at its peak to less than 5,000 today, as the bypass depleted "main street" economic opportunities. Yet, Tucumcari hosts the North American Wind Research and Training Center at Mesalands Community College (MCC), which graduates some of the most qualified technicians in the world to help meet the need for an estimated 170,000 new positions in the renewable industry by 2030. This cornerstone of the community positions Tucumcari to revitalize its economy while creating sustainable workforce and training opportunities. This site was selected because (1) the entire town is designated as LIDAC by EPA, (2) New Mexico recognizes that a CTC from Zero40 can be an opportunity to correct Tucumcari's current "bypass" status, and (3) Zero40 "brings great hope to a depressed town," as Dr. Allen Moss, *MCC Interim President*, states in MCC's Zero40 letter of support (attached in grants.gov).

**ELK CITY:** All US Census tracts in and around Elk City, OK are designated as LIDAC by EPA. Elk City is in Beckham County, where total employment has fallen by 25% from 2014 to the first nine months of 2023, compared to 6% growth statewide over this time. In some sectors, like manufacturing, natural resources, and mining, employment fell by more than half over this period. Nearly one-quarter of the county's workforce labors in the natural resources and mining sector, compared to a statewide average of 3.1%. The area's total employment fluctuates heavily with oil prices, dropping significantly alongside the oil price declines of 2016 and 2020-2021. This generates economic volatility not seen elsewhere in the state. From 2019 to 2020, employment in Beckham County fell by 12.9%, compared to 5.1% statewide.<sup>14</sup>

Employment from Zero40 could significantly help Beckham County create more stable support for its economy and workforce. Local jobs to build a fueling and charging station on I-40 will provide a much-needed stimulus to the area. It will also ensure greater volumes of clean vehicle traffic passing through, generating ongoing economic opportunities and employment lasting for years after the project is complete. Beckham County has a low high-school graduation rate (84.8% versus 88.9% statewide), as well as transportation issues for its heavily rural population (24.9 people per square mile, versus 57.7 statewide).<sup>15</sup> Workforce training for the project will address issues of education, including funds targeted to high school programs (see section 2.e.3). Although Beckham County faces unique challenges, locating a CTC there has the potential to enable lasting impacts.

**OKLAHOMA CITY:** Oklahoma City (OKC) is unique among the proposed CTCs located in Oklahoma in that it has experienced rapid economic growth and demographic change. The city is in Oklahoma County, whose



"National Route 66 museum in Elk, Oklahoma [sic]" by [Gorup de Besanez](#), 2017. [CC BY-SA 4.0 DEED](#).



employment has grown by 12.0% from 2014 through the first nine months of 2023, double the 6.0% state average. Natural resources and mining jobs account for only 2.0% of employment in Oklahoma County, less than 50% of the 3.1% state average.<sup>16</sup> However, the city and county's dynamic economy can mask salient inequalities. For instance, although Oklahoma County's median household income of \$62,505 is nearly 2% greater than the state median income, its 16% poverty rate is also nearly 2% greater than the state average. Critically, many of these areas are in the southern portion of OKC running along I-40. Initiatives to provide science, technology, engineering, and mathematics (STEM) high school curricula, as well as training at Oklahoma CareerTech Skills Centers, community colleges, and university-level programs, will thus specifically focus on students and workers from LIDAC in and around OKC (see section 2.e.3).

The OKC CTC will also enable a future inland port opportunity that may have a critical impact on the environmental health of communities in the area. In central OKC, this includes multiple blocks at and above the 90<sup>th</sup> percentile for asthma risk in the Westlawn Gardens, Stockyards City Main Street, and Riverside neighborhoods to the north and south of I-40. On the east side, this includes blocks between the I-235 and I-35 highways intersecting I-40 in the Capitol View, Douglas Park, Riverside, Capitol Hill, and Westlawn Garden neighborhoods with asthma risk levels in the 95-99<sup>th</sup> percentiles. These areas of elevated asthma risk are largely but not exclusively in parts of the city where people have lower incomes, who will benefit from Zero40's improvement in air quality.<sup>17</sup>

**CHECOTAH:** Like Beckham County, McIntosh County – where Checotah, OK is located – is heavily rural (30.6 residents per square mile, versus 57.7 statewide), with workforce education levels that present a unique challenge (13.6% of residents with a bachelor's degree, versus 27.3% statewide).<sup>18</sup> About one in every eight households (12.8%) is headed by an American Indian or Alaska Native.<sup>19</sup> The construction of a charging and fueling station in Checotah will thus be elemental to addressing issues of structural rural poverty, both there and in surrounding portions of McIntosh County. Furthermore, Checotah is at the intersection of I-40 and State Highway 69. At this intersection, four US Census Block communities are in the 99<sup>th</sup> EJ Index percentile for concentrations of fine Particulate Matter (PM<sub>2.5</sub>), the 99<sup>th</sup> percentile for O<sub>3</sub> concentrations, the 99<sup>th</sup> percentile for low life expectancy, and the 93<sup>rd</sup> percentile for asthma among adults.<sup>20, 21</sup> All four of these US census blocks are in Checotah. Thus, it is evident that these communities will benefit not only from the economic prospects of a CTC but also from its numerous health benefits.

Table 1 details the proposed tasks and milestones for Zero40 implementation. Milestones are indicated by asterisks. Overall, the period of performance is October 1, 2024, to September 30, 2029.



*"Automobile Alley in Oklahoma City" by [katsrcool](#), 26 August 2012. [CC BY 2.0 DEED](#).*



*"Kniseley and Long Building, Checotah Oklahoma [sic]" by [John Phelan](#), 10 April 2011. [CC BY 3.0 DEED](#).*

Table 1. Zero40 Tasks and Milestones (included in grants.gov, in the attached Budgetcalcs\_NMED.xlsx)

	Calendar Year	2024				2025				2026				2027				2028				2029					
		Quarter		Quarter		Quarter		Quarter		Quarter		Quarter		Quarter		Quarter		Quarter		Quarter		Quarter					
		Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
		Quarters since award						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Activities and Milestones, indicated by an <sup>1</sup> *																											
1	Submit application	*																									
2	Receive award			*																							
3	Hire internal staff for Zero40 Coalition members and other subawardees and procure necessary staff equipment			*																							
4	Competitively procure third-party grant administrator/auditor			*																							
5	Competitively procure site engineering services			*																							
6	Competitively procure a consultant to track emissions, jobs, and other community benefits			*																							
7	Competitively procure outreach and community engagement consultant				*																						
8	Execute subaward agreements: Oklahoma Department of Environmental Quality, City of Kingman, City of Winslow, Bernalillo County, Greater Gallup Economic Development Corporation, Tucumcari, New Mexico Workforce Solutions Dept.			*																							
9	Confirm CTC site selections			*																							
10	Select institution of higher education (IHE) to develop hydrogen curricula and training opportunities				*																						
11	Onboard third-party grant administrator, develop invoicing and reimbursement systems, track expenditures, submit invoices and budget reports to grant administrator, reimburse expenses, etc.																										
12	Develop 3-state overarching outreach plan and engage communities at all 8 CTC sites					*																					
13	Consultant works with subrecipients to engage communities at all 8 Zero40 sites																										
14	Development and distribution of IHE hydrogen curricula and training opportunities																										
15	Award and deploy funding from NMWSD via local workforce boards to fill workforce development gaps and recruit future workforce					*																					
16	In Oklahoma, develop electrical trade workforce programs and recruit future workforce																										
17	Bernalillo County, Tucumcari, Gallup, Kingman and Winslow work with academies, regional school systems, and IHEs serving underrepresented groups to deploy funding for education and skills development																										
18	Complete CTC engineering, site development, and construction contractor procurement of 4 sites: Bernalillo County, NM: Kingman, AZ; Winslow, AZ; and Gallup, NM						*																				
19	Complete CTC engineering, site development, and construction contractor procurement of 4 sites: OKC; Elk City, OK; Checotah, OK; and Tucumcari, NM							*																			
20	Complete CTC site construction: Bernalillo County, NM: Kingman, AZ; Winslow, AZ; and Gallup, NM								*																		
21	Complete CTC site construction: OKC; Elk City, OK; Checotah, OK; and Tucumcari, NM									*																	
22	Owners operate and maintain CTC sites																										
23	Track and review performance measures																										
24	Submit semiannual report, including performance measures					*		*		*		*		*		*		*		*		*		*		*	
25	Submit final report																									*	

## 2.a.1.2 Coalition Roles and Responsibilities

### Coalition Lead – NMED:

- Issuing subawards to coalition members per EPA's Subaward Policy.
- Coordinating with coalition members on the selection of contractors (e.g., third-party grant administrator) through a competitive procurement process per 2 CFR § 200.
- Overseeing further subrecipients, and/or procurement of contractors.
- Tracking and reporting on project progress on expenditures and purchases.
- Tracking, measuring, and reporting accomplishments on proposed timelines and milestones.
- Submitting (1) semi-annual progress reports on grant implementation and planned activities to EPA and (2) a detailed final report to EPA within 120 calendar days of the completion of the period of performance.
- Community and stakeholder outreach and education within the State of New Mexico.
- Collaborating across states to maximize the corridor's impact by connecting major interstate systems.

**Coalition Members (i.e., subrecipients) – Kingman, Winslow, and Oklahoma DEQ:**

- Complying with subrecipient requirements under EPA’s Subaward Policy, and all applicable federal statutes, regulations, policies, and guidance.
- Assisting NMED with the selection process for a program administrator.
- Tracking and reporting to NMED on project progress on expenditures and purchases.
- Tracking, measuring, and reporting to NMED on accomplishments and proposed timelines and milestones.
- Community and stakeholder outreach and education.
- Collaborating across states to maximize the corridor's impact by connecting major interstate systems.

Table 2 details anticipated risks associated with measure implementation and mitigation strategies for each risk.

*Table 2. Zero40 Risks and Mitigation Strategies*

<b>Risk</b>	<b>Effect on GHG emission reductions</b>	<b>Mitigation Strategy</b>
Delays in program administrator procurement process.	Delays may reduce cumulative GHG emission reductions in the near term (2025 – 2030).	Develop request for proposals documentation between announcements of subrecipients and receipt of assistance agreement to build in more time.
Difficulty in partnering with an Institute of Higher Education (IHE) to participate in Zero40 for H2 train-the-trainer services.	No direct effect. Indirectly, greater coordination would be needed to develop the future clean energy workforce.	Have IHEs along each portion of I-40 develop exchange programs with those located elsewhere to provide trainees with needed background and skills in H2 and EV infrastructure to work on their portions of the Zero40 and have institutions that do offer such training send apprentices to multiple corridor sites to obtain needed work experience.
Lack of resilience in the infrastructure system along the corridor for reliable service.	This could lead to a lack of reliability, which would underserve the intended users and limit GHG reductions.	Infrastructure resilience was built into this program though requiring a minimum of four charging stations and two mobile H2 refueling stations at each site to provide backup infrastructure in the case that one unit fails.
The potential of one or more Zero40 Coalition members withdrawing from the project.	This has the potential of limiting emissions reductions due to the loss of CTCs, therefore breaking up the connectivity of the route and decreasing the ability of drivers to refuel reliably.	In the event a coalition member withdraws, NMED would contact EPA with a proposal to revise the Workplan or Financial Assistance Agreement. Such proposals could be to reallocate funds among remaining coalition members or towards other components of the overall project (e.g., workforce development) or to a specific site (e.g., to expand infrastructure, capacity, or make a site EV-ready), or to redirect funds to an entity that would have otherwise been an eligible applicant/coalition member at the time of applying for implementation grant funds and which can realistically spend the funds implementing a project that would reduce GHG emissions, or fill the gap created by the withdrawn party and encourage private investment.
Lack of, or delay in, availability of H2 at the scaled cleanliness level projected over the 5-year project period.	If Zero40 is unable to pair a clean H2 supply with the scaled emissions standards projected in the emissions reduction calculations, there is potential for a decrease or	All Zero40 Coalition members have put in substantial work to develop relationships with potential H2 suppliers for the project. See the attached letter of support in grants.gov. Coalition members will continue to do so before and throughout the performance period to ensure

	delay in emission reductions throughout the implementation of the measure.	Zero40 has access to the cleanest H2 available on the market. If low GHG H2, below the emissions levels of diesel, is unavailable, the Zero40 Coalition will reconsider how to direct funding to meet CPRG program goals in collaboration with EPA.
Inability to procure infrastructure promptly (e.g., mobile H2 refuelers)	This may result in a delay in emission reductions throughout the performance period.	The Zero40 Corridor will consider various options, including finding other vendors to supplement supply or reallocating funds to other eligible expenses in collaboration with EPA to deliver GHG reductions.

Table 3 demonstrates how Zero40 relates to GHG reduction measures in Coalition member PCAPs. Zero40 was selected as a priority because transportation is the highest source of emissions for Arizona, and the second-highest source in New Mexico and Oklahoma. Other reasons for prioritizing Zero40 include (1) New Mexico recently adopting the “Advanced Clean Trucks” rule under section 177 and passing a Clean Transportation Fuel Standard to create a clean fuels market, (2) communities’ support for making investments in workforce and economic opportunities in rural areas, and (3) the tangible environmental and health benefits delivered to people living in LIDAC along the corridor.

*Table 3. Zero40 Measure Alignment with Coalition Member PCAPs*

Measure	Priority Climate Action Plan (PCAP) Title(s) and Page Numbers
Zero40**	<i>New Mexico Priority Climate Action Plan</i> ; mentioned on pages 5, 7, 16, 20, 26, 33, 48, 72-76, then described in detail on pages 80-87.
	<i>Oklahoma’s Priority Action Plan</i> ; described on page 13.
	<i>The Clean Arizona Plan</i> ; mentioned on pages 16 and 60 and detailed on pages 45-50.

\*\* “Zero40” replaces the former project name, “Clean I-40 Transportation Corridor.”

## 2.a.2 Demonstration of Funding Need

CPRG Phase 2 funding is necessary to fully implement the Zero40 measure based on the Coalition’s evaluation of potential federal and non-federal funding sources.<sup>22</sup> Some Zero40 Coalition members have applied for related opportunities and have active legislation under consideration, such as Oklahoma’s tax incentives for clean transportation infrastructure and vehicles. However, funding for clean transportation infrastructure remains insufficient, and leveraging other dollars is key. The Zero40 initiative will do just this by leveraging existing TradePort plans from RIA to guide the establishment of additional CTCs in Gallup, Tucumcari, Elk City, Oklahoma City, and Checotah. This foundational investment is vital along the corridor, which has a disproportionate number of LIDAC.

### 2.a.2.1 Federal Funding Sources Explored for Zero40

#### **Fixing America's Surface Transportation (FAST) Act of 2015, Further Consolidated Appropriations Act of 2020, and Bipartisan Infrastructure Law (BIL) of 2021:**

1. US DOT Regional Infrastructure Accelerators Program (RIA)<sup>23</sup>
  - a. NM has received \$974,000 (FY2023) for early planning and development of the I-40 TradePort Corridor (including Bernalillo County, Kingman, and Winslow) (see Figure 2). The RIA program accelerates project delivery and clears barriers for credit-worthy projects by funding and encouraging best practices in project planning, studies and analysis, preliminary engineering, and design. Zero40 leverages the RIA funding to directly reduce the total CPRG funds requested here. Zero40 also intends to (1) implement the relevant plans that the TradePort produced under RIA and (2) replicate the planning model across the five non-RIA CTCs.

#### **BIL (only):**

2. US DOT Federal Highway Administration (FHWA) Charging and Fueling Infrastructure Discretionary Grant Program (CFI Program)<sup>24</sup>
  - a. NM has received \$67.8 million (FY2024) for projects in Taos, Santa Fe, and along I-10 in the southern part of the state. These complementary funds strategically deploy EV charging infrastructure and other alternative fueling infrastructure projects along I-10 but are directed to other state agencies for their priorities and scopes of work. The I-10 investment will complement Zero40, enabling even further clean transportation



interconnectivity with major freight networks, including the flow of goods from ports of entry between the US and Mexico.

3. US DOT FHWA Carbon Reduction Program<sup>25</sup>
  - a. NM has received \$61.3 million (FY2022-2026) under this program. These complementary funds are designed to reduce transportation emissions; however, they are awarded to different state agencies for other objectives, none of which are clean transportation corridors.
4. US DOT FHWA Congestion Mitigation & Air Quality Improvement Program (CMAQ)<sup>26</sup>
  - a. NM has received \$64.7 million (FY2022-2026) for this program. These complementary funds are for transportation projects to help meet the requirements of the CAA's National Ambient Air Quality Standards for O<sub>3</sub>, carbon monoxide (CO), or Particulate Matter (PM), but few Zero40 Corridor areas are currently in nonattainment status. That said, Zero40 ensures Criteria Air Pollutant (CAP) reductions as a preventative measure to avoid crossing those thresholds.
5. US DOT FHWA National Highway Freight Program (NHFP)<sup>27</sup>
  - a. NM has received \$66.3 million (FY2022-2026) under this program. These complementary funds can reduce the environmental impacts of freight movement on the National Highway Freight Network (NHFN), but the Zero40 Coalition has not yet applied to this opportunity. Regardless of the outcome of this application, the Zero40 Coalition commits to soliciting additional funds from NHFP to reduce the corridor's environmental impacts.
6. US DOT FHWA Tribal Transportation Program (TTP)<sup>28</sup>
  - a. These complementary funds can reduce transportation emissions within Indian reservations, Indian lands, and Alaska Native Village communities, but the funds do not address multi-state, corridor-wide mobile source emissions. That said, Zero40 can lay the groundwork for further CTC development within these areas.
7. US DOT FHWA National Electric Vehicle Infrastructure Formula ("NEVI Formula") Program<sup>29</sup>
  - a. NM has received \$38.3 million (estimated FY2022-2026). These complementary funds reduce transportation emissions by installing light-duty charging infrastructure but generally do not support MHD EV infrastructure.
8. US DOT Mega Grant Program (i.e., National Infrastructure Project Assistance program)<sup>30</sup>
  - a. These complementary funds support large, complex projects that are difficult to fund by other means and likely to generate national or regional economic, mobility, or safety benefits. However, this proposal prioritizes reducing GHG and CAP emissions while benefiting the residents of LIDAC. Regardless of the outcome of this application, the Zero40 Coalition commits to soliciting additional funds from the Mega Grant Program to enable national economic, mobility, or safety benefits.

**BIL and Energy Independence and Security Act of 2007:**

9. US Department of Energy (US DOE) Smart Grid Grants<sup>31</sup>
  - a. NM has received \$82 million (FY2009-2013) and \$0 (FY2022-2026) under this program. Applications for the recent, first round of funding closed on March 17, 2023. The second opportunity notice is expected in early FY2024. These complementary funds modernize grid infrastructure, deploy smart meters and data networks, integrate renewable energy sources, boost cybersecurity and grid resilience, develop smart grid platforms and analytics, and integrate electric or hybrid-electric vehicles onto the grid. However, Zero40 is not projected to fundamentally alter or play a significant role in utility grid operations, as the proposed CTCs will be powered by on-site, grid-connected renewable generation and storage systems that are likely to yield resilient grid operation benefits, primarily from the energy storage components.

**Inflation Reduction Act (IRA) of 2022:**

10. US Internal Revenue Service (US IRS) Commercial Clean Vehicle Credit (§ 45W)<sup>32</sup>
  - a. An undetermined amount of credits are claimed by Zero40 Coalition members. The US IRS is finalizing a form to claim the credit. These credits synergistically create demand for the technology that will utilize the CTCs along I-40.
11. US IRS Alternative Fuel Vehicle Refueling Property Credit (§ 30C)<sup>33</sup>
  - a. An undetermined amount of credits are claimed by Zero40 Coalition members. These complementary funds assist with the purchase of qualified alternative fueling equipment for installation in qualified locations. As deemed appropriate, Zero40's subrecipients will be required to claim this credit. This credit

may only cover up to 30% (capped at \$100,000) of the cost of equipment, leaving gaps in funds needed to deploy the infrastructure.

12. US IRS Clean Electricity Investment Tax Credit (§ 48E)<sup>34</sup>
    - a. Unavailable until 2025. As deemed appropriate, installers of technologies for the production and storage of clean electricity related to Zero40 must claim the § 48E tax credit.
  13. EPA Clean Ports Program<sup>35</sup>
    - a. NM has received \$0 from the program. These funds reduce GHG and CAP emissions, however, the inland ports referenced in Zero40 are still in the early planning and development phases and are not currently eligible for Clean Ports Program funding per the dry port criteria requirements.
  14. EPA Clean Heavy-Duty Vehicle Program<sup>36</sup>
    - a. NM has received \$0 from the program. The NOFO is set to be released in spring 2024, which will synergistically create demand for the technology that will utilize the CTCs along I-40.
  15. US IRS Clean Hydrogen and Clean Fuel Production (§ 45Z)
    - a. Unavailable until 2025. As deemed appropriate, clean fuel (i.e., electricity) producers associated with Zero40 must claim the § 45Z tax credit. This credit is not modeled in this application due to its complexity.
- Energy Policy Act of 2005, American Recovery and Reinvestment Act of 2009 (ARRA), Diesel Emissions Reduction Act of 2010, and Consolidated Appropriations Act of 2021:**
16. EPA Diesel Emissions Reduction Act (DERA)<sup>37</sup>
    - a. NM has received \$4.4 million (FY2008-2024). This program synergistically stimulates demand for ZETs that will utilize the CTCs along I-40. Yet, \$4.4 million over 16 years, primarily for ZETs (not infrastructure), inadequately transitions the MHD fleet or enables a corridor-style project, especially given new federal and state requirements.

#### **2.a.2.2 State Funding Sources Explored for Zero40**

##### **Income Tax Act (i.e., New Mexico's 2024 House Bill 252 "Adjust Income Tax Brackets"):**

1. "Clean Car Tax Credit Programs" (i.e., Clean Car Income Tax Credit, Clean Car Charging Unit Income Tax Credit, Clean Car Corporate Income Tax Credit, and Clean Car Charging Unit Corporate Income Tax Credit)<sup>38</sup>
  - a. **2024-26** | EVs: \$3,000 (new) or \$2,500 (used); PHEVs and FCEVs: \$2,500 (new) or \$2,000 (used).
  - b. **2027** | EVs: \$2,200 (new) or \$1,850 (used); PHEVs and FCEVs: \$1,850 (new) or \$1,480 (used).
  - c. **2028** | EVs: \$1,470 (new) or \$1,225 (used); PHEVs and FCEVs: \$1,225 (new) or \$980 (used).
  - d. **2029** | EVs: \$960 (new) or \$800 (used); PHEVs and FCEVs: \$800 (new) or \$640 (used).
  - e. **All** | \$25,000 for DC fast chargers, and \$400 for all other chargers.
  - f. The Clean Car Income Tax Credit and Clean Car Corporate Income Tax Credit only apply to light-duty vehicles. The Clean Car Charging Unit Income Tax Credit and Clean Car Charging Unit Corporate Income Tax Credit applies to both light-duty vehicles and light- and MHD infrastructure, however, tax-exempt entities may not be able to claim these funds. As deemed appropriate, subrecipients must claim this credit to receive CPRG funds.

##### **Other State Programs:**

2. NMDOT granted \$1 million to the City of Gallup for research and planning on Foreign Trade Zones.
3. NMDOT granted (A) \$1.5 million to McKinley County for research and planning an Autonomous Vehicle Test Track, (B) \$1 million for research and planning an H2/multi-fuel hub, and (C) \$1 million for research and development of an inland port/supply chain accelerator.

#### **2.a.3 Transformative Impact**

Zero40 will have transformative impacts that lead to further GHG emission reductions. Deploying CTCs will send a strong statement in an emerging clean transportation market and accelerate the deployment of ZETs, initially with stakeholders in the logistics sector and expanding to others in long- and short-haul services. Zero40 aims to include I-40 communities within this process – by investing in workforce development to train clean transportation specialists and be anchors for economic development – while also improving air quality for residents of LIDAC along this busy interstate highway.

##### **2.a.3.1 Removing Barriers to Zero-Emission Truck Adoption**

The lack of publicly available charging and refueling infrastructure is a barrier to the widespread adoption of MHD ZETs and, thus, to emissions reductions generally in this hard-to-abate sector. High costs and perceived risks

have hindered infrastructure development and, without a reliable network of charging and refueling stations, fleet operators cannot deploy MHD ZETs at scale. Zero40 will lessen the infrastructure bottleneck and provide charging and refueling opportunities to instill confidence in and accelerate the deployment and market adoption of MHD ZETs, both within the Southwest and nationwide.

### 2.a.3.2 Connecting a National Highway Freight Network to a Major Port

As of March 2023, there are only 21 planned or operational MHD-specific public charging sites in the US, six of which are either at or between the LA Port and Barstow, CA.<sup>39</sup> The complete lack of public MHD EV chargers further east on I-40 prohibits zero-emission long-haul freight movement along this corridor. Nationally, the eight proposed CTCs represent a 38% growth rate in publicly available MHD EV chargers, and they are strategically placed to connect to the existing southern California network and extend the distance MHD ZETs can travel to and from the LA Port. Not only are freight ton-miles increasing along this segment of the NHFN, but the Zero40 section passes through many LIDAC who stand to benefit from workforce development and decreased air pollution.

### 2.a.3.3 Coast-to-Coast and Border-to-Border Connection Potential with Future Projects

Zero40 catalyzes the Joint Office's "National Vision" of decarbonizing freight transportation,<sup>40</sup> and meets the ambitious goals of the "US National Blueprint for Transportation Decarbonization"<sup>41</sup> and the "Global Memorandum of Understanding for Zero Emission (MHD) Vehicles"<sup>42</sup>. As other government entities and private capital investors look to achieve these goals and move freight sustainably across the nation, including through the TradePorts (Figure 2), the implementation of Zero40 can activate a key section of the I-40 Coast-to-Coast interstate

*Figure 2. US DOT RIA TradePorts in Relation to I-40's Robust, Interconnected Network*



system by replicating the CTC component of the TradePort initiative to points east and meet the envisioned build-out happening on the eastern half of I-40. At its full potential, a complete zero-emission I-40 system will interconnect with future Border-to-Border (i.e., north-south) clean corridor projects, including along I-25, another primary highway system that helps connect the Paso del Norte Port-of-Entry at the US-Mexico border to points north, and I-35 from Laredo, TX to Duluth, MN. Stakeholders in the "truck stop" industry are engaged and excited to deploy the necessary infrastructure to launch the Zero40 strategy.

### 2.a.3.4 Scalable and Replicable Demonstration Projects

Zero40 serves as a critical project, as it will develop two sizes of CTC (small and large, see Figure 1) that can be replicated along other sections of I-40 and beyond. CTCs will generate much-needed data and insights into planning, installing, and operating successful MHD charging and refueling sites, showcasing the viability of current zero-emission freight technology, and serving as a replicable model for future sites, nationwide. Additionally, CPRG funds secured through this application will facilitate initial planning, workforce, and infrastructure buildout, which will streamline future scalability at these sites. Future expansions of the charging and refueling capacity at proposed CTCs would increase the number of MHD ZETs able to be served, incentivizing further deployment of MHD ZETs.

### 2.a.3.5 Clean Power and Community Impacts

The CTCs present opportunities to advance clean power through the installation of onsite solar energy systems, battery storage, and vehicle-to-grid capabilities. Some stations may provide electric grid services, doubling as energy hubs supporting grid reliability and resilience. Other transformative sustainability and economic growth possibilities fostered through this project include direct and indirect jobs and community

education, which builds awareness and inspires broader adoption of ZETs, and decreases the amount of CAP exposure of residents of LIDAC at the Zero40 locations.

## 2.b. IMPACT OF GHG REDUCTION MEASURES

### 2.b.1 Magnitude of GHG Reductions from 2025 through 2030

GHG reductions from Zero40 are due to emissions avoided from the use of grid power and avoided emissions from diesel trucks. Cumulative GHG emissions reduced from 2025 through 2030 are estimated to be 181,752 MT CO<sub>2</sub>e in total, where 150,067 of those MT CO<sub>2</sub>e are CPRG-attributable. These emissions reductions will be durable and permanent through 2030 because they displace traditional fossil fuel-consuming services – freight hauling and power generation – with zero- or low-emission alternatives.

### 2.b.2 Magnitude of GHG Reductions from 2025 through 2050

A relatively much greater share of emissions reductions will occur post-2030 as the MHD clean vehicle market matures and the CTCs are utilized to their full capacity. Cumulative GHG emissions reduced from 2025 through 2050 are estimated to be 1,340,508 MT CO<sub>2</sub>e in total, where 1,168,385 of those MT CO<sub>2</sub>e are CPRG-attributable. These emissions reductions will be durable and permanent because they displace traditional fossil fuel-consuming services – freight hauling and power generation – with zero- or low-emission alternatives. Durability of emission reductions is also provided by the nature of this measure. Specifically, infrastructure of this type has a typical lifespan of approximately 15 years, and once in place, tends to be replaced with like-kind replacements to keep up with demand. The Coalition expects that once Zero40 supplies ZET infrastructure, continued operational infrastructure will be demanded. Table 4 provides estimates of the emission reductions in metric tons of carbon dioxide equivalent (MT CO<sub>2</sub>e) anticipated from the implementation of Zero40 for three time periods. Assumptions, calculation methods, and totals broken down by CTC location, and by component of this measure are available in section 0 and in GHGcalcs\_NMED.xlsx (attached in grants.gov).

*Table 4. Cumulative GHG Emission Reductions Anticipated from Zero40 Implementation*

	Annual, 2030 (MT CO <sub>2</sub> e/year)	2025–2030 (MT CO <sub>2</sub> e)	2025–2050 (MT CO <sub>2</sub> e)
Total	47,924	181,752	1,340,508
Total CPRG-Attributable	40,442	150,067	1,168,385

### 2.b.3 Cost Effectiveness of GHG Reductions

Early-stage MHD ZETs come with a high price tag, impacting both the vehicles themselves and the infrastructure needed to support them, like charging stations and refueling facilities. A recent study by Roland Berger estimates that electrifying the entire US MHD fleet could require a staggering \$620 billion investment in charging infrastructure alone over the next two decades.<sup>43</sup> This proposal offers a cost-effective way to jumpstart regional efforts through targeted public investment while leveraging other efforts already underway. By focusing on a targeted, regional scale initially, Zero40 can begin building critical infrastructure with a manageable portion of the projected total cost. This public investment also sends a strong signal by demonstrating the nation's commitment to clean freight transportation, which can in turn encourage additional public dollars and private capital to flow into the sector. The true value of the CTCs lies in their ability to accelerate the transition to clean freight hauling. By providing financial incentives, they can push the industry towards zero-emission transportation sooner than market forces alone would likely achieve.

Given the importance of jump-starting clean freight transportation and the relative difficulty of decarbonizing MHD trucking, the implementation of this proposal is relatively cost-effective (Table 5).

*Table 5. Cost-Effectiveness of GHG Reductions Resulting from the Implementation of Zero40*

	2025-2030 (\$/MT CO <sub>2</sub> e)	2025-2050 (\$/MT CO <sub>2</sub> e)
Total Cost Effectiveness	\$2,639	\$358
Total CPRG-attributable Cost Effectiveness	\$3,196	\$410

The measure may be more cost-effective than anticipated as the cost of renewable energy modules, stationary storage batteries, EV supply equipment, and H2 refueling equipment continues to decline. The measure may be less cost-effective than anticipated if the CTCs' chargers and refuelers are utilized less than expected, or if there are construction delays. See section 3 for costs associated with this measure, including those



for recharging and refueling equipment, renewable power generation and storage, additional planning, workforce development, and administration.

## 2.b.4 Documentation of GHG Reduction Assumptions

Emissions reductions from this proposal are calculated based on a reference scenario where the same Vehicle Miles Traveled (VMT) of freight movement would be accomplished through diesel trucks, and the same amount of power generated from conventional sources. Reductions are calculated with a combination of the Alternative Fuel Life-Cycle Environmental and Economic Transportation (AFLEET) Tool, energy savings, and information from the RIA grant application. Due to the anticipated levels of technological readiness and deployment of heavy-duty electric and H2 trucks in the late 2020s, utilization of the chargers and refuelers begins at a low level and then builds to full utilization in the 2030s. Further details on quantification methods, relevant assumptions, annual emission reduction estimates, and any uncertainties associated with the estimates are provided in section 0 and in GHGcalcs\_NMED.xlsx (attached in grants.gov).

## 2.c. ENVIRONMENTAL RESULTS – OUTPUTS, OUTCOMES, AND PERFORMANCE MEASURES

### 2.c.1 Expected Outputs and Outcomes

#### 2.c.1.1 Outputs

##### EQUIPMENT OR TECHNOLOGY INSTALLATIONS:

Table 6. Expected Equipment or Technology Installations Across the Zero40 Corridor

Clean Transportation Centers (CTCs)		Equipment or Technology, Number of...				
CTC Location (subject to final site plans)	CTC Size	MHD Mobile H2 Refueling Lanes	MHD EV Charging Lanes	Renewable Energy Generation Systems	Renewable Energy Storage Systems	Annual GWh Produced from Renewables
Kingman	Small	2	4	1	1	12
Winslow	Small	2	4	1	1	12
Gallup	Small	2	4	1	1	12
Bernalillo County	Large	2	16	1	1	40
Tucumcari	Small	2	4	1	1	12
Elk City	Small	2	4	1	1	12
Oklahoma City	Large	2	16	1	1	40
Checotah	Small	2	4	1	1	12
<b>TOTAL</b>	<b>N/A</b>	<b>16</b>	<b>56</b>	<b>8</b>	<b>8</b>	<b>152</b>

**STAFF HIRED TO IMPLEMENT ZERO40:** To adequately staff the Zero40 over the five-year performance period, the project will be supported by 7 new positions and the dedication of approximately 2 FTEs time in current positions (see BudgetCalcs\_NMED.xlsx).

**SEMI-ANNUAL PROGRESS REPORTS:** NMED will submit semi-annual progress reports to EPA on work plan progress, the status of implementation, preliminary metrics for tracking progress, preliminary metrics for tracking transformative impact, and next steps.

**DETAILED FINAL REPORT:** NMED will submit a detailed final report to EPA with the final status of implementation, metrics for tracking progress, metrics for tracking transformative impact, and next steps.

#### 2.c.1.2 Outcomes

**GHG EMISSIONS REDUCTIONS (CPRG-ATTRIBUTABLE ONLY):** 2025-2030: 150,067 metric tons CO<sub>2</sub>e and 2025-2050: 1,168,385 metric tons CO<sub>2</sub>e.

##### CRITERIA AIR POLLUTANT (CAP) EMISSION REDUCTIONS:

Table 7. CAP Emission Reductions (Corridor-Wide)

Pollutant and Period	Total
Annual 2030 (tons/year)	47.5

Nitrogen Oxides (NOx)	Cumulative 2025 – 2030 (tons)	86.2
	Cumulative 2025-2050 (tons)	1943.7
PM <sub>2.5</sub>	Annual 2030 (tons/year)	0.4
	Cumulative 2025 – 2030 (tons)	0.7
	Cumulative 2025-2050 (tons)	16.4
Sulfur Oxides (SOx)	Annual 2030 (tons/year)	0.2
	Cumulative 2025 – 2030 (tons)	0.4
	Cumulative 2025-2050 (tons)	8.0
Volatile Organic Compounds (VOC)	Annual 2030 (tons/year)	2.1
	Cumulative 2025 – 2030 (tons)	3.7
	Cumulative 2025-2050 (tons)	83.4

**PUBLIC HEALTH AND COMMUNITY BENEFITS:** Diesel exhaust contributes to respiratory disease and premature deaths due to particulate matter (PM). With cleaner air, public health will improve, especially in communities situated along major freight corridors. This creates benefits for people living in LIDAC in areas disproportionately burdened by diesel truck exhaust. Fewer air pollution-related hospitalizations and deaths will save on health costs. Residents will also benefit from reduced noise pollution as quiet zero-emissions trucks supplant noisy diesel models. Cleaner, healthier communities promise not only improved public

health but also higher quality of life and property values. Across the corridor, the potential health savings from this program due to reductions in PM are valued from \$4 million to \$10 million over a decade. Additional value would be expected to accrue due to (1) reductions in O<sub>3</sub> and air toxics and (2) the expected operational life of Zero40's infrastructure, which will be realized over multiple decades (see section 4.g).

**ENVIRONMENTAL BENEFITS:** The proposed measure will have significant environmental benefits, including improvement of air quality, water quality, soil quality, and ecological health. By reducing the use of fossil fuels, the measures decrease the contamination of surface and groundwater throughout the "well to wheel" system. This includes crude oil leaks and spills at production sites, in collection, refining, and distribution pipelines from storage tanks, and the end use in internal combustion engines. Contamination can lead to surface water, groundwater, and soil quality degradation, potentially driving ecological habitats below the standards humans, fish, and wildlife require for health and survival. The measure will decrease harmful air pollution.

**ENERGY SYSTEM RESILIENCE:** The CTCs include onsite solar energy generation coupled with battery storage. These microgrid capabilities will benefit electric grid operations and resilience. Stations can function as special clean power hubs during outages, serving surrounding communities. They also enable smart charging algorithms to modulate demand, plus allow bi-directional power flows for vehicle-to-grid applications. These functionalities aid grid stability and support the renewable energy transition.

**JOBS CREATED:** Zero40 is estimated to create nearly 2,000 direct construction jobs and more than 8,000 indirect jobs related to development facilitated by solar generation.<sup>44</sup> Economic development and increased commercial activity along the corridor will create additional indirect jobs as well.

## 2.c.2 Performance Measures and Plan

The Zero40 Coalition has established the following performance measures to track progress concerning successful processes and output and outcome strategies to evaluate post-project efficacy from the outset:

### 2.c.2.1 Environmental impact

**Reduction in GHG emissions:** Track the total tons of climate pollution avoided annually by MHD ZETs using the stations compared to baseline diesel truck emissions. **Air quality improvement:** Track total tons of avoided air pollutants over time due to ZET charging at CTCs, aiming for reductions over time. **Renewable energy generation:** Measure the amount of clean energy generated by on-site renewable energy projects.

### 2.c.2.2 Economic impact

**Job creation:** Track the number of jobs created directly and indirectly through the project, including construction, station operation, and related industries. **Workforce development:** Track the number of workforce participants in Zero40-supported programs. **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 CTCs.

### 2.c.2.3 Community impact

**Public health:** Track health outcomes related to air pollution, such as asthma rates, in communities near the corridor. **Equity and access:** Monitor the distribution of benefits and ensure CTCs are accessible and developed with community input including people living in LIDAC. **Community engagement:** Track satisfaction and participation of communities in the project through surveys and community meetings.

#### 2.c.2.4 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. **Cost-effectiveness:** Analyze the cost of avoided emissions and other relevant metrics to measure project efficiency.

Coalition members will track progress for each performance measure within their jurisdiction and report such progress to NMED, which will provide a status update for each performance measure to EPA in the semi-annual reports and final report.

#### 2.c.3 Authorities, Implementation Timeline, and Milestones

##### 2.c.3.1 Authorities

Zero40 Coalition members may receive and administer or expend federal grant funds and may implement the measure pursuant to their authority (see Table 8).

*Table 8. Authorities – Grant Funds and Implementation of Zero40*

Coalition Member	Authority Topic	Legal Citation Establishing Authority
NMED	To receive and administer federal grant funds; to make contracts with other state agencies	NMSA 1978, § 74-2-5.1(F); NMSA 1978, §§ 74-1-6(B) & (C)
Oklahoma DEQ	To receive and administer grant funds (federal and state)	27A Okla. Stat. § 2-3-202(A)(7)
City of Kingman	Establishing broad, general powers of common council	A.R.S. § 9-240
City of Winslow	Establishing status as a municipal corporation that may exercise governmental powers, and that City Council may spend and appropriate money, contract with the federal government for construction, maintenance, and operations of a range of public improvements	Art. XIII, Constitution of Arizona; A.R.S. § 9-240; A.R.S. § 9-499.01; Art. I, § 3, City of Winslow Charter
Bernalillo County**	To receive and expend federal funds	NMSA 1978, § 4-36-3

\*\*NMED includes Bernalillo County here as Bernalillo County may ultimately become a Zero40 Coalition member. NMED has included a Letter of Intent from Bernalillo County should Bernalillo County become the fiscal agent for the RIA entities. This structure would allow NMED to pass funds through to Bernalillo County on behalf of each of the RIA entities and simplify grant fund administration. NMED understands this approach is subject to EPA approval.

##### 2.c.3.2 Implementation Timeline & Milestones

Table 1 above details the implementation timeline for Zero40. The grant period will begin when the grant funding is received (expected October 2024) and runs for five years as the EPA has specified.

#### 2.d. LOW-INCOME AND DISADVANTAGED COMMUNITIES

The issue of equity and residents of LIDAC are key components of the project for each of the Zero40 Coalition members. AZ, NM, and OK all fall in the top 15 states with the highest poverty rates in the country. NM has the third-highest percentage of families living below the poverty line out of all 50 states at 13.8%. AZ, NM, and OK rank in the top ten states with the highest percentage of people without health insurance. As such, it was a top priority for the Zero40 Coalition members to identify LIDAC within the Coalition states, conduct targeted outreach and engagement, assess the impacts of the proposed measures, and develop the measures to specifically provide benefits and opportunities to the residents of these communities.

The Coalition members utilized the EPA IRA Disadvantaged Communities layer in EJScreen and the Climate and Economic Justice Screening Tool (CEJST) to analyze and identify which census tracts and block group IDs are categorized as LIDAC in counties in which I-40 passes through. The Coalition identified that most communities along the I-40 corridor are designated as LIDAC. This identification informed and guided the Coalition members'

efforts throughout the community engagement and outreach process, as well as prioritizing benefits from the proposed measures to the communities that need them most. These efforts are detailed below.

## **2.d.1 Community Benefits**

The implementation of the Zero40 measure is anticipated to provide significant benefits to residents of LIDAC (see [AreasAlongI40\\_NMED.xlsx](#) in [grants.gov](#)), including improved air quality and public health, economic development, workforce development, enhanced community health, and environmental justice for historically overburdened communities. Tailpipe emissions have varying deleterious effects on public health, with populations closer to and downstream of the source most impacted. However, the entirety of AZ, NM, and OK will be impacted by the reduction in emissions to some degree. Similarly, workforce and economic development benefits will be primarily seen in the LIDAC areas surrounding the proposed sites along I-40. However, residents of LIDAC will have access to these benefits through targeted workforce development outreach. Thus, this measure's benefits primarily accrue to the LIDAC US Census Tract Block Groups in AZ, NM, and OK counties along the I-40 corridor (provided as an attachment in [grants.gov](#)). Although there are no CPRG-funded CTCs proposed within Texas, the air quality benefits will still accrue to the residents of LIDAC along the I-40 corridor in Texas and are therefore included as well.

### **2.d.1.1 Benefits**

**IMPROVED AIR QUALITY AND PUBLIC HEALTH:** Reduced tailpipe emissions from MHD internal combustion engine trucks will significantly improve air quality for residents in LIDAC along the Zero40 corridor section, leading to a decrease in respiratory illnesses and healthcare costs.

**ECONOMIC DEVELOPMENT:** CTC locations mindfully placed in proximity to people living in LIDAC can offer new job opportunities and attract private investment, boosting local economies, leading to higher wages, and creating better living standards. CTC locations placement in proximity to local businesses within LIDAC can increase business traffic by providing opportunities to drivers waiting for their MHDs to charge.

**WORKFORCE DEVELOPMENT:** The majority of the nearly 2,000 direct jobs funded by Zero40 will be in the construction and building trades. Section 2.e details how work in these fields provides a ladder up to the middle class. This will include electrical work that does not require a post-secondary degree, as well as mid- to upper-management positions requiring a bachelor's or equivalent degree. Some potential charging/fueling station sites are located in LIDAC where community members will directly benefit from the high-paying jobs made available during the building and operations phases. These include, for example, communities directly north of I-40 in northwest New Mexico where the pay from performing such work will greatly assist workers and their families who are seeking financial stability in the aftermath of coal mine and coal power plant closures. Input received at community meetings in New Mexico communities such as Gallup (western New Mexico along I-40) and Tucumcari (eastern New Mexico along I-40) have further underscored interest in the quality job opportunities arising from the infrastructure construction along the corridor that this grant will support.

In addition, this project will devote grant funds to ensuring that workforce training is available for job seekers residing in LIDAC, which will provide them with more than a paycheck. It will provide training for skills that are readily transferable following completion of construction in key fields comprising a significant and growing portion of US labor demand. For example, the New Mexico Department of Workforce Solutions (NMDWS) Labor Analysis, Statistics, and Economic Research (LASER) tool shows job openings data and projected growth in New Mexico for Specialty Trade Contractors is almost triple this sector's national rate from 2020-2030.<sup>45,46</sup>

To prime workers from LIDAC seeking to capitalize on opportunities in these growing job fields, grant monies will fund scholarships to students from underserved communities, training centers providing job seekers in LIDAC with training and wrap-around services, and strategic collaborations with high school education programs in these communities, all as approved by EPA. Additionally, Minority Serving Institutions (MSIs, Title I high schools, community colleges, and Tribal colleges and organizations) will be included in training programs at a selected IHE in Oklahoma that will administer a program that is designed to "train the trainer." This grant award will increase staff ability at the selected IHE to design curricula and workshops to provide students and job seekers with learning and training to support the large-scale integration of H2 and EVs into truck transportation infrastructure.

**ENHANCED COMMUNITY HEALTH:** Improved air quality, access to training programs and high-quality jobs, and economic development can contribute to overall well-being for people living in LIDAC, potentially leading to 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. As planned in activity number 13 of *Table 1. Zero40 Tasks and Milestones* (included in grants.gov, in the attached Budgetcalcs\_NMED.xlsx), community engagement at each CTC will ensure that these inequities are recognized and then addressed in site-by-site development.

### 2.d.1.2 Disbenefits and Mitigation Strategies

**DISPLACEMENT:** CTC development could potentially lead to gentrification and displacement of residents with lower incomes. **Mitigation:** Meaningful community engagement, while prioritizing local workforce development and hiring will prevent displacement and ensure people living in LIDAC benefit from the project.

**LIMITED ACCESS TO BENEFITS:** Residents living in LIDAC may face barriers to accessing new jobs or training opportunities. **Mitigation:** Targeted outreach, training programs with financial assistance, and community engagement will help overcome these barriers and ensure equitable access to opportunities.

Overall, the measure has the potential to significantly improve the lives of people living in LIDAC along the Zero40 corridor. (A list of all LIDAC census tracts affected by this proposal is included as an attachment to this application, see AreasAlongI40\_NMED.xlsx.) However, careful planning and implementation are necessary to ensure that the program delivers its benefits equitably and avoids unintended negative consequences. Zero40 Coalition members will assess, quantify, and report a more thorough analysis of associated community benefits based on actual data collected during implementation. They will also track the deployment of CTCs in and near identified LIDAC census tracts to quantify reductions in GHG emissions and CAP emissions and other identified community impacts and report the results of these assessments to EPA and make the information publicly available.

## 2.d.2 Community Engagement

### 2.d.2.1 Summary Community Engagement and Outreach by Coalition Members

The Zero40 Coalition members performed extensive community outreach, including to community members in LIDAC, during the PCAP development process.

**NMED** used the following strategies for engagement with community leaders, residents, and business owners in LIDAC to seek their input on creation of the measures included in this proposal:

- Developing an [NM CPRG website](#);
- Engaging the Center for Civic Policy (CCP) as a community outreach contractor to work with NM Prospera for PCAP outreach. NM Prospera is “a coalition of grassroots economic, social and environmental justice organizations...working to diversify the state’s economy while creating thousands of jobs for communities most impacted by climate change;”
- With CCP, NMED hosted an [online survey](#) for collecting feedback on PCAP priorities;
  - Available in English and Spanish, CCP encouraged survey participation through targeted outreach to member community-based organizations, social media, push cards, and flyers,
  - CCP released an alert to its 3,000+ listserv subscribers,
  - On February 9, 2024, NM Prospera, CCP, and NMED spoke to the public and distributed push cards at Environment Day during the 2024 Legislative Session, and
  - CCP attended community events to disseminate information on how community members can provide input;
- With CCP, NMED hosted a phone and text survey to collect feedback on PCAP priorities;
  - Available in English and Spanish, the phone universe consisted of 164,000 New Mexico residents including both cell phone and landline numbers. 50,705 contacts were made from that list after multiple attempts at each number.
- Engaging with people living in rural New Mexico LIDAC at CCP-organized in-person community meetings in Bayard, Gallup, and Tucumcari, NM. Gallup and Tucumcari are proposed Zero40 CTCs in NM, so specific feedback relevant to the implementation of the proposed program at these sites was collected;
- Presenting at and participating in a statewide virtual meeting organized by CCP;
- Holding recurring and ongoing monthly meetings with Tribes, Nations, and Pueblos that received Phase-1 CPRG funding;
- Meeting with all Tribes, Nations, and Pueblos that were not awarded Phase-1 CPRG funding, with one-on-one follow-up meetings with those interested in continuing the CPRG discussion;
- Discussing opportunities and overlap with metropolitan and rural transportation planning organizations;

- State agency outreach including NMDOT, NMDWS, NM Economic Development Department, NM Public Education Department, NM Mortgage Finance Authority, and others;
- Presenting to local city, town, and county governments through meetings with the Coalition of Sustainable Communities NM (cities of Las Cruces, Albuquerque, Santa Fe, and counties of Los Alamos and Santa Fe), the New Mexico Municipal League, and other NM counties; and,
- Collaborating in a workshop with the NM Sustainable Economy Advisory Council, which is comprised of representatives of disproportionately impacted communities or organizations and representatives from Tribal governments.

**Oklahoma DEQ** used the following strategies for engagement with community leaders and members in LIDAC to seek their input on the creation of the measure included in this proposal:

- Developing an [OK CPRG website](#) and publishing the [Oklahoma Hydrogen Permitting Flowchart](#).
- Engaging the University of Oklahoma (OU) as a community outreach contractor to work with Oklahoma DEQ for PAP (Priority Action Plan) outreach;
- Holding nine in-person public meetings in nine cities across the state to explain CPRGOK and seek input. One of the meetings was also held virtually on Zoom for anyone across the state to participate;
- Holding an in-person meeting with a virtual option for Tribal Partners;
- Engaging with people living in Oklahoma LIDAC at OU and organized in-person community meetings in ten communities, including one meeting conducted in Spanish;
- Oklahoma DEQ and OU used a [survey](#) for collecting feedback on PCAP priorities that was distributed in hard copy and electronically in the public meetings;
- Presenting at and participating in a statewide virtual meeting on August 30 and November 28, 2023, organized by Oklahoma DEQ;
- Soliciting PAP project ideas through an online survey
  - Encouraged survey participation through an alert to 2,500+ listserv subscribers, Targeted email and phone calls with Tribes, industry, city council, economic development authorities, and Prominent placement on the CPRGOK website.
- Discussing opportunities and overlap with metropolitan planning organizations ACOG and INCOG;
- State agency outreach including SOEE, ODOT, ODOC, ODAFF, OCC, and others.

**Bernalillo County** used the following strategies for engagement with community leaders and members in LIDAC. The TradePort business plan stems from a study and stakeholder interviews with Global Logistics Development Partners in 2019. The proposed site has already gone through extensive public process and neighborhood engagement with the Planned Communities Criteria in the development of the zoning and entitlements. An extensive TradePort Consortium of private partners is engaged and meets regularly, together with the University of California-Berkeley PATH team, Mohave Community College, University of New Mexico, and Laguna Pueblo.

- Development of [TradePort website](#) and [Bernalillo County Economic Development website](#)
- Ongoing Meetings and updates to: Albuquerque Chamber of Commerce, Rio Rancho Chamber of Commerce, Mid-Region Council of Governments, Albuquerque City Council, Village of Los Lunas City Council, Bernalillo County Board of County Commissioners, Sandoval County, NMDOT, State Transportation Board, New Mexico Partnership and Albuquerque Regional Economic Alliance, Public Service Company of NM, local and regional press coverage, and local public access television.

In **Kingman**, a community engagement strategy has been implemented for addressing new and updated road infrastructure and upgrades to utility infrastructure in and around TradePort Kingman via the Transportation Master Plan. The following is an overview of public engagement efforts by Kingman:

- Public Engagement Round 1: This round of public engagement aimed to gather public opinion on existing conditions, future projections, and needs and deficiencies throughout Kingman's transportation system. The first round of public engagement took place from May 3, 2022, to June 8, 2022. Notifications about the opportunity and means to provide input were made via utility bill inserts, social media posts, a project website, and a press release. The public engagement tools used in the first round included an online interactive map, an online survey, a project website forum, and a project email.
- Public Engagement Round 2: The second round of public engagement for the Kingman Transportation Master Plan was conducted during the improvement refinement and prioritization process to share the TMP project scoring results with the public and obtain input as the TMP moves into the final recommendation phase. A variety of advertisements, including utility bill inserts and email notifications, were implemented to

inform the public of this second round of engagement and the opportunity to comment on the prioritized projects.

- Development of [TradePort website](#) and [City of Kingman Economic Development website](#)
- Meetings: Kingman Chamber of Commerce, Mohave County Board of Supervisors, Kingman City Council, Western Arizona Council of Governments, local and regional press coverage, local public access television

**Winslow** used the following strategies for engaging with community leaders and members in LIDAC:

- Winslow Community Outreach Initiative Development:
    - A dedicated effort to bring the voices of Winslow to the forefront of the TradePort Winslow Project. An initiative that reflects the collective aspirations, needs, and values of the Winslow community.
    - Through collaboration, teamwork, and open dialogue, the initiative aims to ensure the development of TradePort Winslow drives economic growth and enriches the community.
  - Development of TradePort website and Winslow TradePort Private Developer Site
  - Meetings: Winslow Chamber of Commerce, Navajo County Board, Winslow City Council, Northern Arizona Council of Governments, local and regional press coverage, local public access television
- See each relevant PCAP for additional details on the results of these engagement efforts.

## 2.d.2.2 Summary of Input Collected

NMED worked with the CCP and the NM Prospera Coalition to meaningfully engage the communities of NM on the proposed project. An online survey, phone survey, and four public meetings were conducted to ensure engagement efforts reached all parts of the state. All efforts showed that community members across the state are supportive of the proposed measures. A summary of these results is below. Please see NMED's PCAP, Appendix N, for additional details on the results of this engagement effort. Note: "Zero40" replaces the former project names, "Clean I-40 Transportation Corridor" or "Clean I-40 Tradeport Corridor," the latter of which was in use by the Coalition before the term was registered for trademark on February 26, 2024 (see ENDNOTE 5).

**Online Survey Results:** 435 Community members responded to the online survey, deployed January 25 - February 17, 2024. The survey was offered in both English and Spanish. The survey requested the respondents to rank their support for the proposed measure from one to five, with one being the least supportive and five being the most supportive. Zero40 received a mean support rating of 3.7 out of 5, with 62% of participants responding supportively (Table 9).

*Table 9. Online Survey Results for Support of Proposed Measures*



**Phone Survey Results:** 1,229 Community members responded to the phone survey. The phone universe consisted of 164,000 New Mexico residents including both cell phone and landline numbers. 50,705 contacts were made from that list after multiple attempts to each number. Both English and Spanish language scripts were used. The survey requested the respondents to rank their support for the proposed measures from one to five, with one being the least supportive and five being the most supportive. Zero40 received a mean support rating of 3.7 out of 5, with 63% of participants responding supportively (Table 10).

*Table 10. Phone Survey Results for Support of Proposed Measure*



**Public Meeting Results:** NMED convened four public meetings in collaboration with the NM Prospera Coalition, to solicit input on the proposed measures for the State of New Mexico's Priority Climate Action Plan. One meeting was held virtually and the other three were held in-person in Bayard, Gallup, and Tucumcari. The numbers of participants were: Bayard (7), virtual statewide meeting (103), Gallup (34), and Tucumcari (28), totaling 172 attendees. Participants were requested to list potential benefits, questions, or challenges associated with the proposed transportation measures in the PCAP during an in-person or virtual gallery walk after the presentation. The results of this activity for the transportation measures are shown in Table 11.

Specific concerns were noted through verbal and written feedback about these measures, which were taken into consideration during the development of the proposed measures and will be further addressed through community engagement and planning in the implementation phase. Please see the [PCAP Public Meeting Full](#)

Table 11. Public Meeting Results for Support of Proposed Measures



[Report](#) for details on specific comments participants had for each proposed measure. The Tucumcari meeting was not held in time for that feedback to be included in the PCAP report, however it is included here. Community input informed the development of the measures in this application and will continue to inform our program implementation. Continued engagement is detailed below.

Oklahoma DEQ worked with the University of Oklahoma to meaningfully engage the communities of OK on CPRG, environmental concerns, and potential projects. In particular, a public survey was used to collect environmental concerns from Oklahomans. These surveys were distributed online and in the 20 public meetings that were conducted to ensure engagement efforts reached all parts of the state. More than 90% of Oklahomans consider at least one time per week how environmental challenges impact their communities. And, when asked which municipal or regional activities the respondent supports to lessen the impact of climate change, most respondents supported the transition from diesel to a renewable fuel source. Please see Oklahoma DEQ's priority action plan (PAP) for additional details on the results of this engagement effort.

The Yale Program on Climate Change Communication conducted a survey on nationwide climate opinions in 2023. One of the survey questions estimated the percentage of adults who support tax rebates for people who purchase energy-efficient vehicles or solar panels. AZ, NM, and OK saw approval rates of 72%, 71%, and 68%, respectively.<sup>47</sup> This high level of support for utilizing government resources to transition to energy-efficient vehicles and renewable energy in states along the proposed Zero40 corridor shows general support of the proposed project by the communities impacted.

### 2.d.2.3 Continued Meaningful Engagement

As described in this Workplan and the Budget Narrative, the Coalition members will contract a third-party administrator to organize and facilitate continued meaningful engagement with residents of LIDAC throughout and following implementation. The third-party administrator will work with the site leads across the corridor to tailor the approach to the unique communities we will be serving. The third-party administrator will seek input from community leadership and members that represent LIDAC and Tribes, Nations, and Pueblos during development of promotional materials, guidance, and other materials. The contractual assistance will also aid in developing, organizing, and implementing the following engagement efforts throughout the implementation period of the proposed measures:

1. Developing education efforts and disseminating information and resources in advance of and during the application period of the pass-through grants outlined in each proposed measure;
2. Developing an outreach and engagement strategy that uses a wide variety of techniques to create early, frequent, and continuing opportunities for community engagement, which ensures inclusion of various linguistic, cultural, institutional, geographic, and other perspectives;
3. Creating a transparent planning process that also provides opportunity for early risk mitigation;
4. Holding community consultations or public input meetings;
5. Creating a plan for targeted outreach and recruitment of job seekers from LIDAC for the workforce opportunities created through this project;
6. Providing a publicly accessible list of all upcoming community engagement opportunities (e.g., listening sessions, outreach, questions and answers sessions, door-to-door visits, and community meetings); and,
7. Soliciting input from residents of LIDAC on how the program application and implementation processes are going and adjusting strategies as appropriate to minimize disbenefits.

## 2.e. JOB QUALITY

The workforce component of this grant reimagines how learning and training can support the large-scale integration of ZETs into transportation infrastructure. Components include training for engineers, electricians, technicians, trade workers, those in H2-related logistics, management, environmental and community monitoring, safety and quality control specialists, and other sector-specific specialists. A workforce with the required capabilities, skills and knowledge can grow from within higher education systems, vocational training programs, and industry training programs. By aligning the respective H2 and EV education and training goals of



industry, job training centers, IHEs, and the communities they serve, Coalition members will create training pathways that deliver quality, consistent, and appropriately contextualized education and training.

### **2.e.1 Job creation**

Based upon an estimated 3.8 jobs created for every \$1 million spent, this grant will create 1,900 direct jobs in building new infrastructure.<sup>48,49</sup> The following types of jobs will be created from the measure: certified construction workers, heavy equipment operators, engineers, project managers, GIS specialists, CDL drivers that will need to be retrained to drive EVs and H2 trucks, and above all certified electricians for the installation of EV charging infrastructure. The Coalition will focus on recruiting students from LIDAC to the apprenticeship and training programs as well as mid-career retraining and new EV/H2 apprenticeships, with an incentive that encourages a percentage of all positions and hours worked be apprentices.

### **2.e.2 Compensation and Benefits**

Anticipated grant spending results include decreased unemployment rates and an increase in median earnings of the local workforce via jobs that meet or exceed prevailing wage requirements under the Davis-Bacon Related Acts. Coalition members will strongly encourage grant-receiving employers (contractors) to provide full health and retirement benefits to their workforce, with health and safety plans developed in conjunction with workers represented under collective bargaining agreements. A robust model of workforce impact will ascertain detailed job creation for construction and maintenance phases across the various components of grant-funded project spending. The workers and drivers will benefit from increased quality due to quieter and safer electric and H2 vehicles compared to their internal combustion engine vehicle counterparts.

The anticipated jobs are high paying. In New Mexico, average weekly wages for the construction sector are 11.5% higher than the state average.<sup>50</sup> They are also 9.8% higher than the Oklahoma state average, and 15.3% higher and 24.0% higher than the averages for Mojave and Navajo County, Arizona (counties for Kingman, AZ and Winslow, AZ, respectively).<sup>51,52,53</sup> Anticipated jobs will offer Oklahomans, New Mexicans, and residents of Kingman and Winslow, Arizona a more stable and reliable ladder to the middle class with skills that are readily transferable across pay grades, organizations, and industries. For example, the US DOE Office of Energy Efficiency and Renewable Energy (DOE-EERE) Hydrogen and Fuel Cells Career Map shows that an entry-level construction worker in the field has access to work in research and development jobs (Advanced Manufacturing Technician, Instrumentation and Electronics Technician) as well as mid-level career positions (Electrical Engineer, Logistician).<sup>54</sup> Where the Construction Worker position requires only a high school diploma or equivalent, the Electric Engineer and Logistician positions require a Bachelor's degree or certification.<sup>55</sup> This makes the educational component of this application critical to its success in providing a road up to the middle class.

### **2.e.3 Education**

Strategic collaborations between state, Tribal and local education and training systems at the high school, job training center, community college, and university level will fulfill these targeted workforce development objectives. These collaborations will create an integrated network to design and develop the curriculum and physical infrastructure for workforce training as the H2 economy emerges and the EV infrastructure expands over the next decade. An immediate area for collaboration is in the creation of new infrastructure, facilities, and equipment for hands-on, experiential learning. Zero40 dedicates \$100,000 to Bernalillo County, Gallup, Tucumcari, Kingman, and Winslow to leverage this funding against other opportunities or to build on existing educational organizations.

One pathway could involve growing centers of training excellence, which could house leading-edge EV and H2 vehicle equipment used for technical training, while also providing opportunities for student-led innovation in the design, optimization, and testing of next-generation equipment and sensors. With Zero40, IHEs along I-40 (e.g. UNM-Gallup, Navajo Technical University, Diné College, or San Juan College, UNM, UNM-West, CNM) will be primed to seek funding for advanced curricula that will teach/train students the necessary EV/H2 technology skills and provide certifications to carry out the construction and operation of fueling stations in their respective locations. These skills will include but are not limited to electrical wiring and line installation, heavy equipment and machinery operation, engineering, project management, and oversight, emergency response and prevention training, pipefitting, architecture, HVAC contracting, facilities management, and multiple other relevant construction and building trades.

NMDWS signed a Letter of Commitment to assist NMED with workforce development under CPRG. NMDWS oversees New Mexico's four Local Workforce Development Boards (LWDBs), of which three (North, Central, and East) cover territory that includes one of New Mexico's proposed EV/H2 fueling station locations along I-40. NMED proposes to make a \$1,000,000 subaward to NMDWS, which will administer the funds under all applicable statutes and regulations and distribute them to the three LWDBs. NMED proposes that the LWDBs then pass through grant funds in the form of Participant Support Costs (PSCs) to students and jobseekers from LIDAC looking to enroll in the EV/H2 training programs at one of the IHEs. Funds will be braided with existing federal and state resources to provide "wrap-around services" that fill unique service gaps faced by workers and trainees from LIDAC on a case-by-case basis. These could include but are not limited to transportation stipends, childcare stipends, outreach, case management, resume and application assistance, testing fees, life skills training, workplace attire, and rental, utility, and/or other cost-of-living assistance, all as approved by EPA.

Oklahoma will lead efforts at the high school level, leveraging scientific expertise and networks to develop a new, innovative learning program to improve STEM education focusing on the EV/H2 economy. The proposed budget for this component (\$518,600) includes training, workshops, and month-long trainings focusing on basics of EV/H2 science and technology to prepare students to enter training programs at Oklahoma CareerTech Skills Centers, as well as other community college or university-level programs. This will include month-long trainings in New Mexico with teachers at participating institutions trained via workshops and seminars held in coordination with Oklahoma's educational outreach programs.

For their part, the cities of Kingman, AZ and Winslow, AZ will leverage Zero40 grant funding to grow skills academies to train workers to work on their portions of the I-40 corridor by collaborating with regional school systems and institutions of higher learning to offer specialized training programs tailored to I-40 corridor workforce needs in fields that include green energy field operations and high-efficiency logistics systems. These curricula will embed a culture of continuous learning and adaptability to develop a workforce in Northern Arizona that remains competitive in a rapidly evolving global economy. Other local Arizona organizations will assist job seekers from LIDAC in taking full advantage of the EV and H2 courses and trainings. These include the City of Kingman Economic Development Department, the Mohave County Economic Development Department, the Economic Collaborative of Northern Arizona, the Northeastern Arizona Local Workforce Development Board, and the Mohave/La Paz Workforce Development Board. Such coordinated efforts will create robust pathways into high-skill jobs with quality long-term career prospects.

At the post-secondary level, Zero40 will grant a \$500,000 subaward to focus on training in H2 technology at job training centers and community colleges. Training curricula will focus on supporting logistics, operations, maintenance, and environmental quality monitoring. First responder and safety training coursework will support the incorporation of worksite health and safety plans for all Zero40 sites.

## **2.f. PROGRAMMATIC CAPABILITY AND PAST PERFORMANCE**

### **2.f.1 Past Performance and Reporting Requirements**

NMED and the Coalition members have successfully implemented other federal grants within their jurisdictions. NMED currently manages 111 federal grants worth over \$165 million. All the federal financial reports (SF-425s) for NMED's federal grants have been filed on time for the last five years. Federally funded assistance agreements that NMED is performing or has performed within the last three years include:

#### **2.f.1.1 Project Title: Reaching New Mexico's Climate Pollution Reduction Targets**

**Funding Agency:** EPA; **Assistance Listing Number:** 66.046; **Description:** NMED and EMNRD, with outreach to and collaboration from numerous entities that these agencies have involved, including Tribes, Nations, and Pueblos, built on progress already made to develop a PCAP while focusing on LIDAC. These agencies will continue to build on this progress to produce a Comprehensive Climate Action Plan (CCAP), update GHG emissions inventories, and quantify the GHG reductions the plans will achieve while continuing to focus on LIDAC and analyze benefits to them and the entire state population.; **Funding Agency Contact:** Mariama Mitchell, 214-665-6778, [Mitchell.Mariama@epa.gov](mailto:Mitchell.Mariama@epa.gov); **Status:** Ongoing. NMED and EMNRD have hired staff, developed and submitted a PCAP with extensive outreach and collaboration as indicated above, filed timely quarterly reports, quantified the GHG reductions the PCAP will achieve, continued tribal engagement, and focused on and analyzed benefits to LIDAC and to the entire population of New Mexico.; **Reporting History:** NMED has submitted timely quarterly reports to EPA about progress toward achieving the expected outputs and outcomes, challenges to

meeting expected outputs and outcomes during the reporting period, and strategies to address such challenges. This grant has been in place for less than a year; there is no history of annual reports yet.

#### **2.f.1.2 Project Title: Hazardous Waste Management State Program Support: RCRA Subtitle C Program for the State of New Mexico**

**Funding Agency:** EPA; **Assistance Listing Number:** 66.801; **Description:** This grant supports the administration of the RCRA program implemented under the Hazardous Waste Act. The State of New Mexico was authorized by EPA to issue RCRA permits in 1985 and to implement the corrective action requirements of the RCRA Hazardous and Solid Waste Amendments in 1996, and the grant supports these activities, which include updating regulations, complying with Environmental Justice requirements, maintaining the RCRA Info database, compliance evaluation, and enforcement.; **Funding Agency Contact:** Faybia Clayborne, 214-665-6534, [clayborne.faybia@epa.gov](mailto:clayborne.faybia@epa.gov); **Status:** The project is complete. Tasks described above were completed with funds from the grant and a 25% state match supporting payroll tied to the employees performing the work.; **Reporting History:** NMED met its reporting requirements and included information in the reports about progress toward achieving the expected outputs and outcomes, challenges to meeting expected outputs and outcomes during the reporting period, and strategies to address such challenges.

#### **2.f.1.3 Project Title: EPA Brownfields Assessment Coalition Grant (10/01/2019 - 03/30/2023)**

**Funding Agency:** EPA; **Assistance Listing Number:** 66.818; **Assistance agreement number – Grant Number (FAIN):** 01F67601; **Description:** NMED partnered with the Southwest New Mexico Council of Governments (SWCOG) and Northwest New Mexico Council of Governments (NWCOG) to form a coalition to engage community members, identify, assess, and plan for the cleanup and redevelopment of brownfield sites within Target Areas.; **Funding Agency Contact:** Marsha Lay, 214-665-7562, [lay.marsha@epa.gov](mailto:lay.marsha@epa.gov); **Status:** Complete; **Reporting History:** NMED's Brownfields Program successfully managed and completed this \$500,000 grant. Seven Phase I Environmental Site Assessments and ten Phase II Environmental Site Assessments have been completed with grant funds totaling \$499,945.00. Program staff submitted all quarterly reports and the final report in accordance with all deadlines.

#### **2.f.1.4 Project title: EPA Brownfields Cleanup Revolving Loan Fund (9/14/2009 – 9/30/2024) \$2,755,326**

**Funding Agency:** EPA; **Assistance Listing Number:** 66.818; **Assistance agreement number – Grant Number/Cooperative Agreement Number:** BL 96691801; **Brief description of the agreement:** NMED Brownfields Cleanup Revolving Loan Fund offers low-interest loans with favorable terms for remediating contamination at eligible brownfield sites.; **Funding Agency Contact:** Emily Jimenez, 214-665-2176, [jjimenez.emily@epa.gov](mailto:jjimenez.emily@epa.gov); **Reporting History:** NMED Brownfields Program staff has submitted all quarterly reports by all deadlines. The NMED Brownfields Program successfully managed and executed the revolving loan fund. Loans have been executed for the following private redevelopment projects: Homewood Suites, Albuquerque (\$951,385), Las Cruces Community Farms, Berino (\$300,000), and Winrock Town Center, Albuquerque (\$378,700). Numerous subgrants for cleanup have also been awarded to governmental entities and non-profits.

#### **2.f.1.5 Project title: Clean Water State Revolving Loan Fund Capitalization Grants**

**Funding Agency:** EPA; **Assistance Listing Number:** EPA 66.458; **Assistance agreement number:** CS-350002-16 -0 through CW-350002-21-0; **Brief description of the agreement:** The purpose of these agreements was to provide funds to the NM CWSRF to support providing low-interest financing to the planning, design, and construction of eligible water quality improvements and protection projects.; **Funding Agency Contact:** Thomas F. Cooney III, 214-665-6580, [cooney.thomas@epa.gov](mailto:cooney.thomas@epa.gov); **Status:** The project is complete.; **Reporting History:** NMED submitted acceptable interim and final reports, adequately and timely reported on its progress toward achieving the expected outputs and outcomes under this grant, and has expeditiously drawn down the grants.

### **2.f.2 Staff Expertise**

NMED is an agency of the State of New Mexico whose staff has extensive education, training, expertise, and decades of experience in environmental protection and restoration. NMED's Climate Change Bureau (CCB) currently has six committed staff members: a bureau chief, two program managers, three environmental scientists (one position will be filled soon), and a climate economist (Figure 3) and is currently adding five more positions, in addition to the staff proposed under this grant (see attachment in grants.gov for resumes with qualifications of current staff and Zero40 Budget Table and Section 3 Budget Narrative for an organizational chart of the existing and Zero40-proposed staff). CCB staff have extensive experience in air quality, including GHG,

emissions inventory, program and staff development, economic analysis, staff supervision, grant and financial management, data collection and analysis, procurement, and oversight of contractors.

In addition, CCB has a financial manager and an attorney administratively attached to other bureaus who exclusively support CCB. Governor Michelle Lujan Grisham's office and NMED's leadership provide expert guidance, support, and review of grant applications and major deliverables. NMED's Human Resources, Financial Services, and other departments of state government also support CCB's work by assisting with procurement, grant management, and other services. Together, this staff has decades of experience in environmental protection and restoration. NMED financial managers and staff collectively have decades of extensive successful grant and financial management experience and skill. Bill Lane of NMED's Financial Services Bureau has over 10 years of experience managing federal grants for the department and has maintained a perfect record of timely federal financial reporting for the past five years. This knowledge, expertise, and extensive experience will be employed to successfully achieve the GHG reduction measures and other goals of the Enacting Solutions to Reduce Transportation-Related Climate Pollution project.

Oklahoma DEQ is an agency of the State of Oklahoma and has a proven history of meeting grant requirements, program goals and priorities, and submitting both technical and financial reports as required for all grants received from EPA. Oklahoma DEQ has successfully managed the agency's Performance Partnership Agreement since its inception, completing all Air Quality program priorities and reporting as required by EPA. Oklahoma DEQ Air Quality Division has managed grants to implement and maintain our PM<sub>2.5</sub> program since 1998 and received NATTS funds to operate a toxics site through the National Ambient Toxics Trends program. The division uses Diesel Emission Reduction Act grants to fund the retrofits and replacement of school buses across the state through its Clean Diesel Program since 2007. Oklahoma DEQ offers the equivalent of 1.4 FTE to the success of Zero40.

Two staff members in Kingman, Arizona, each with over a decade of experience in local economic development, will hire and coordinate city efforts with the new FTE funded by this grant to oversee of all aspects of the project, including workforce development, site selection, project planning, and procurement for the construction contractor who will install the relevant site components. Since 2018, City of Kingman Economic Development Director Bennett Brantley has been instrumental in developing the Kingman Airport and Industrial Park, including multiple land sale and development negotiations that have led to company expansions and openings, and a 755-acre Phase 2 expansion master plan. Kingman's Terri Curtis brings experience in grant application, grant administration, meticulous tracking and reporting of funds from federal programs, and collaboration with developers of apartment complexes.

In Winslow, Arizona, Economic Development Director Jack Fitchett brings experience creating and implemented three new economic development incentive programs, valued over \$400 million, led the attraction of the largest company to locate in Flagstaff in the last five decades with over 350 new jobs and \$65 million in capital investment.

The resumes of the Oklahoma DEQ staff, City of Kingman staff, and City of Winslow staff, are included in attachments. The Cities of Kingman and Winslow will each receive one additional FTE to coordinate city staff, oversee efforts to build their cities' respective charging and fueling stations and work closely with consultants hired for all Zero40 sites, especially the third-party grant administrator.



### 3 BUDGET NARRATIVE

#### 3.a. DETAILED BUDGET NARRATIVE

The Zero40 proposed budget to design and construct eight clean transportation centers along the I-40 corridor from Arizona to Oklahoma is **\$479,592,564**. The attached CPRG Zero40 Grant Budget Table (BudgetCalcs\_NMED.xlsx) includes worksheets with detailed budgets from Coalition Members: ‘NMED Budget’, ‘Oklahoma DEQ Budget’, ‘Kingman AZ Budget’, and ‘Winslow AZ Budget’. The ‘Oklahoma DEQ Budget’ worksheet includes the construction costs for the three Zero40 sites in Oklahoma. The Budget Table also includes detailed budget worksheets for the additional three Zero40 sites: ‘Bernalillo Co NM Budget’, ‘Gallup NM Budget’, and ‘Tucumcari NM Budget’, which are included under the ‘Other’ category in the ‘NMED Budget’ worksheet. For the NMED Budget and each Zero40 site, the Zero40 Budget Table presents the costs associated with implementation of Zero40 into the given categories in the EPA budget template and the EPA grant guidance documents: Personnel, Fringe Benefits, Travel, Equipment, Supplies, Contractual, Other, and Indirect. For the grant application in grants.gov, NMED only included the budget categories cost detail from the ‘NMED Budget’ worksheet. Where appropriate, a 3% annual increase in costs is included to account for inflation.

##### 3.a.1 Consolidated Budget

In the Consolidated Budget in the Zero40 Budget Table, Coalition members’ budgets are added in an individual row, while other subrecipients are included in NMED’s budget in the ‘Other’ category, and as summarized in Table 12.

*Table 12. Zero40 Budget Distribution Among Coalition Members*

	Year 1	Year 2	Year 3	Year 4	Year 5	Total
NMED DIRECT	\$47,064,744	\$171,918,206	\$28,157,437	\$4,959,733	\$4,735,108	<b>\$256,835,197</b>
NMED INDIRECT	\$63,451	\$111,449	\$114,793	\$118,237	\$121,784	<b>\$529,714</b>
Oklahoma, DEQ	\$320,411	\$334,022	\$133,942,974	\$15,195,373	\$372,783	<b>\$150,165,562</b>
Kingman AZ	\$158,832	\$31,729,770	\$3,725,755	\$205,355	\$211,335	<b>\$36,031,046</b>
Winslow AZ	\$158,832	\$31,729,770	\$3,725,755	\$205,355	\$211,335	<b>\$36,031,046</b>
<b>TOTAL</b>	<b>\$47,128,195</b>	<b>\$172,029,655</b>	<b>\$28,272,229</b>	<b>\$5,077,969</b>	<b>\$4,856,892</b>	<b>\$479,592,564</b>

The Zero40 budget can also be considered in the following high-level groups (Table 13):

*Table 13. Zero40 Budget within Project Categories.*

Project Groups	Total
Grant and Project Management by Subawardees	\$8,135,858
Third-Party Grant Administrator	\$18,200,000
Outreach and Community Engagement	\$1,000,000
Technical Analyses	\$220,000
Workforce Development (i.e., Job Quality)	\$2,518,600
Zero40 Site Engineering	\$82,601,643
Zero40 Construction less anticipated federal tax credits	\$366,916,463
<b>TOTAL</b>	<b>\$479,592,564</b>

##### 3.a.2 NMED Zero40 Budget

###### 3.a.2.1 Personnel and Fringe

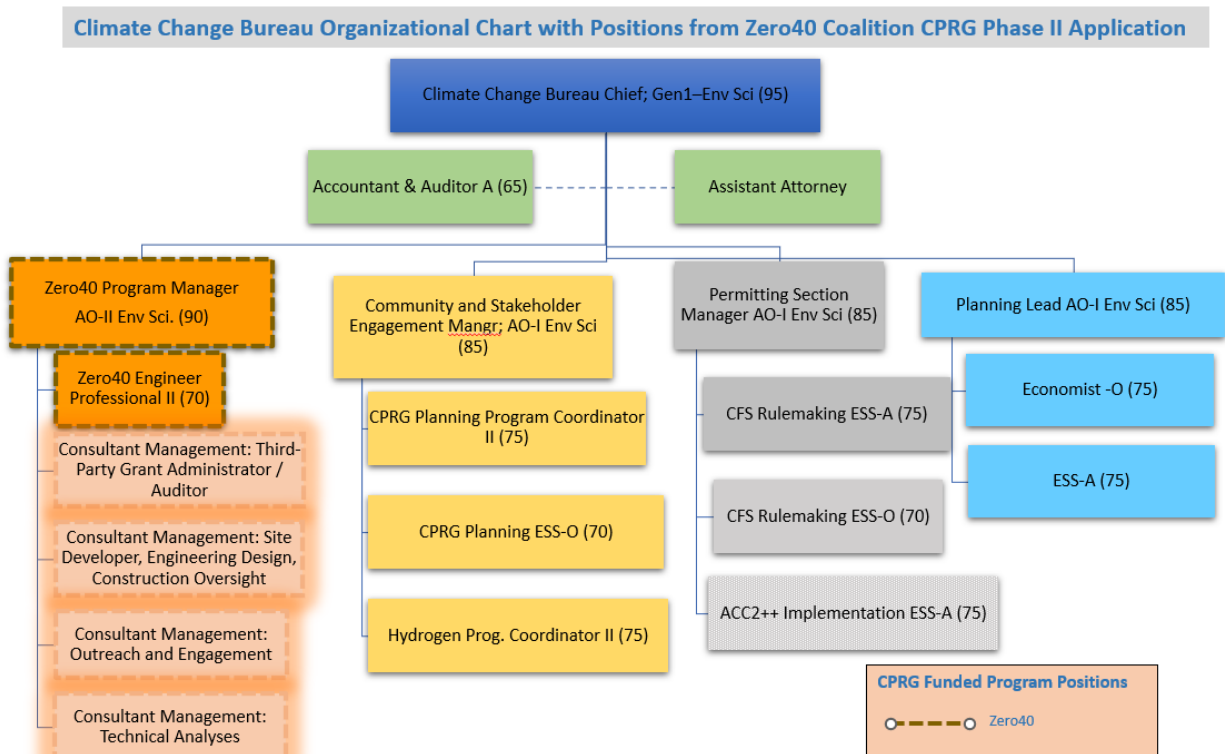
NMED will dedicate two new FTEs with 100% of their time to Zero40. The Program Manager (A/O II – Env Science) will earn a calculated salary plus fringe benefits of \$710,201 over five years and report directly to the Climate Change Bureau Chief as illustrated in the Climate Change Bureau organizational chart (Figure 3). The

Program Manager will oversee all aspects of Zero40. The Zero40 Program Manager will coordinate with Coalition members to select the needed consultants through a competitive procurement process in accordance with 2 CFR § 200; oversee the third-party grant administrator; oversee the outreach and community engagement consultant; oversee the technical analyses; support NMED financial staff to manage Zero40 grant funds, including financial processing, reimbursements, budgets, contracts, and subawards; develop agreements with subrecipients; work with NMDWS on workforce development opportunities; assist with tracking, measuring, and reporting accomplishments on proposed timelines and milestones; submit semi-annual progress reports on measure implementation to EPA; and submit a detailed final report to EPA within 120 calendar days of the completion of the performance period. The Zero40 Program Manager will supervise the Engineering Professional II and other NMED staff, if needed.

The new Zero40 Engineer Professional II will coordinate with coalition members to select the engineering services through a competitive procurement process in accordance with 2 CFR § 200; monitor/supervise the work of the engineering consultant; assist with monitoring the work performed by the technical analysis consultant; assist with tracking, measuring, and reporting accomplishments on proposed timelines and milestones; and assist with writing semi-annual progress reports on measure implementation and final report to EPA. The Engineering Professional II will earn a calculated salary with fringe benefits of \$641,386 over five years.

The existing Climate Change Bureau Chief (Gen I – Env Sci) will be spending 10% of their time, which is calculated to total \$90,237 (salary plus fringe benefits) for the five-year grant period. They will create positions, hire staff, and manage the workload, assisted by the existing Accountant and Auditor (one position) and the two existing Program Managers (A/O I – Env Sci). The existing Accountant and Auditor (one position) will spend 10% of their time, which is calculated to total \$49,657 over five years, on the Zero40 measure accounting for and monitoring expenditures. The two existing Program Managers will spend a total of 10% of their time in year 1 of the grant on Zero40, for a total of \$13,387, assisting with creating positions, hiring staff, and performing other initial work needed.

*Figure 3. Organizational Structure of the Climate Change Bureau within NMED.*



Costs for existing NMED staff are based on current salaries with a 3% yearly increase to allow for raises to keep pace with inflation. Costs for new staff are based on the midpoint of salaries from the New Mexico State Personnel Office's website with a 3% yearly increase to allow for pay raises based on inflation. Fringe benefits are calculated by multiplying the position's salary by 38.8% for NMED; the fringe benefit varies for other

governmental agencies. The fringe benefit percentage is the average that the agency spends for each employee's medical, dental, and vision insurance, retirement, FICA, worker's compensation, unemployment insurance, employment liability, and retiree healthcare. Fringe benefits also include all forms of leave (sick, family-related, annual, holidays, etc.) Fringe benefits for all existing and new NMED staff for the Zero40 measure total \$420,669 over the five-year grant period.

#### **3.a.2.2 NMED Travel**

NMED expects the Zero40 Program Manager and Engineering Professional II to use the new electric vehicle consistent with NMED policies to implement the incentive programs established through this grant. NMED staff will travel to CTCs as appropriate, and to other locations to promote and implement the Zero40 measure, taking approximately 12 of these trips per year each. In addition, NMED anticipates that the Zero40 NMED staff will take longer trips for training and/or presentations requiring airfare and hotel stays three times per year each. Mileage for in-state and out-of-state travel, \$50,458 over the five years, represents 24 trips total per year averaging 600 miles/trip at the current New Mexico mileage reimbursement rate of 66 cents per mile, adjusted yearly for inflation. Per Diem fees are based on 24 in-state trips for 20 days total and 11 out-of-state travel days total per year, adding up to \$13,156 over the five years. Considering the distances between CTCs, the proposed travel distances are reasonable estimates for round trips and the amount of travel needed for overseeing and doing community outreach on Zero40 and attending training and conferences. Airfare over the five years, \$26,015 for the two FTEs, is based on conservative current costs for one medium- and two long-range trips, considering the frequency and types of training classes and conferences offered at those distances that staff would be likely to need to attend to be well-trained for this work. Luggage fees totaling \$1,327 for the grant period are based on conservative luggage fees. Hotel fees are based on realistic in-state and out-of-state rates and total \$37,907 for the five-year period, based on the above assumptions for the number of trips. Amounts for local travel and parking when flying, including car rental for site visits, total \$8,303 over the 5-year period, assuming \$50/day for car rental, which was obtained by an internet search.

#### **3.a.2.3 NMED Equipment**

NMED plans to purchase an American-made ZEV appropriate for the travel required for Zero40, like the quote that the Climate Change Bureau obtained of \$62,657 for a 2023 Ford Mach-E Premium from a qualified vendor for the State of New Mexico. Zero40 staff can use this vehicle, other Climate Change Bureau vehicles, and other NMED bureaus' vehicles for in-state travel. No additional equipment needs are anticipated for Zero40.

#### **3.a.2.4 NMED Supplies**

The two new Zero40 measure staff will need laptop computers and peripherals for office work and to enable them to work while traveling as well as take notes while meeting in locations other than their offices. Computers and peripherals wear out and require periodic replacement. Zero40 staff will need meeting supplies, paper for outreach meetings, and materials and webcams for virtual meetings. Zero40 staff will need mail and copy services, office supplies, and occasionally fax service, for outreach materials, mailings, office work, and transmittals. NMED used prices for laptops, docking stations, monitors, keyboards, etc., from recent NMED purchase records and adjusted for inflation. Total cost over five years with replacement and inflation is projected to be \$9,122. The total cost of iPhones with quality cameras needed for documenting the installation of chargers and purchase of vehicles for two staff over five years comes out to \$2,565. The total cost of meeting supplies, paper supplies, and communication supplies such as tables, banners, outreach materials, and mail is \$5,730 for the 5-year period.

#### **3.a.2.5 NMED Contractual**

As shown in the table below, contractual funds in the 'NMED Budget' will be used for third-party grant administration (\$18,200,000), outreach and community engagement (\$1,000,000), and technical analyses of GHG emissions and community benefits (\$220,000), and engineering services (\$56,812,064).

Table 14. Zero40 Budget for Consultants.

Consultants	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Third-Party Grant Manager	\$4,000,000	\$3,550,000	\$3,550,000	\$3,550,000	\$3,550,000	\$18,200,000
Outreach and Comm. Engagement	\$300,000	\$250,000	\$200,000	\$150,000	\$100,000	\$1,000,000
Technical Analyses	\$0	\$55,000	\$55,000	\$55,000	\$55,000	\$220,000
Engineering	\$28,406,032	\$22,724,825	\$5,681,206	\$0	\$0	\$56,812,064
<b>Total</b>	<b>\$32,706,032</b>	<b>\$26,579,825</b>	<b>\$9,486,206</b>	<b>\$3,755,000</b>	<b>\$3,705,000</b>	<b>\$76,232,064</b>

The Zero40 Coalition respectfully proposes to procure all four contractors on behalf of all Coalition members in accordance with all applicable federal statutes, regulations, and policies, and pursuant to an anticipated intergovernmental agreement signed by the Coalition. If approved, all Zero40 sites will use the services of the first three contracts listed in Table 14, while the engineering services will only be used at the sites without other consultant engineers (specifically, Tucumcari, Elk City, Oklahoma City, and Checotah).

### 3.a.2.6 NMED Other

Included in the NMED 'Other' category are subawards to Zero40 site subrecipients within New Mexico:

- **\$97,500,787 to Bernalillo County:** for the engineering and construction costs (including cost reductions from applicable federal tax credits) at for a large CTC in the Albuquerque Metro area; one FTE with fringe benefits, supplies, and travel budget to manage the project; \$100,000 for local workforce development.
- **\$43,786,667 to Gallup** (likely to be awarded to the non-profit Greater Gallup Economic Development Corporation): for the engineering and construction costs (including cost reductions from applicable federal tax credits) at for a small CTC in the Gallup area; one FTE with fringe benefits, supplies, and travel budget to manage the project; \$100,000 for local workforce development.
- **\$36,031,046 to Tucumcari:** for the construction costs (including cost reductions from applicable federal tax credits) at for a small CTC in Tucumcari; one FTE with fringe benefits, supplies, and travel budget to manage the project; \$100,000 for local workforce development.

Infrastructure construction costs included in each Zero40 site includes the acquisition and installation of heavy-duty electric vehicle charging equipment, heavy-duty hydrogen vehicle refueling equipment, and renewable energy generation and storage to supply electricity for electric vehicle charging. Total costs for each small site, anticipating federal tax credits, is \$42,767,686; details on site costs are included in the Zero40 Budget Table tab 'Small CTC Costs'. Total costs for each large site, anticipating federal tax credits, are \$96,455,994; details on site costs are included in the Zero40 Budget Table tab 'Large CTC Costs'. The embedded \$100,000 for each site is for the local Zero40 site entity to subaward to a local trade academy, regional school or IHE to provide workshops, training, scholarships, fellowships, or other programs of student aid to current students, including to provide PSCs to allow students to attend workshops, conferences, or trainings, as approved by EPA (see Section 2.e.3). All administration and expenditure of these grant funds would be managed by the procured third-party grant administrator.

Also included in the NMED 'Other' category is a \$1,000,000 subaward to the NMDWS for workforce development related to the Zero40 sites in New Mexico, as described in section 2.3. To assure that the granted funds are spent as intended, NMED and NMDWS would enter into an intergovernmental agreement elaborating on the administration of funds, including that NMDWS passed the funds through to the three New Mexico's LWDBs that serve the locations of the three New Mexico CTC sites. The LWDBs will provide tailored support to job seekers and workers in the respective regions. Subject to EPA approval, NMED proposes that the funds then be administered by and from the LWDBs to jobseekers and workers, as Participant Support Costs (PSCs), as



approved by EPA (see additional detail in Section 2.e.3). As will be the case for all funding under this grant, the procured third-party grant administrator will manage the distribution, expenditures, reimbursement, and documentation of this NMDWS subaward.

NMED further proposes to make a subaward to a to-be-selected IHE to develop H2 curriculum and provide “train the trainer” services. (see Section 2.d.1). All administration and expenditure of these grant funds would be managed by the procured third-party grant administrator.

### 3.a.2.7 NMED Indirect Costs

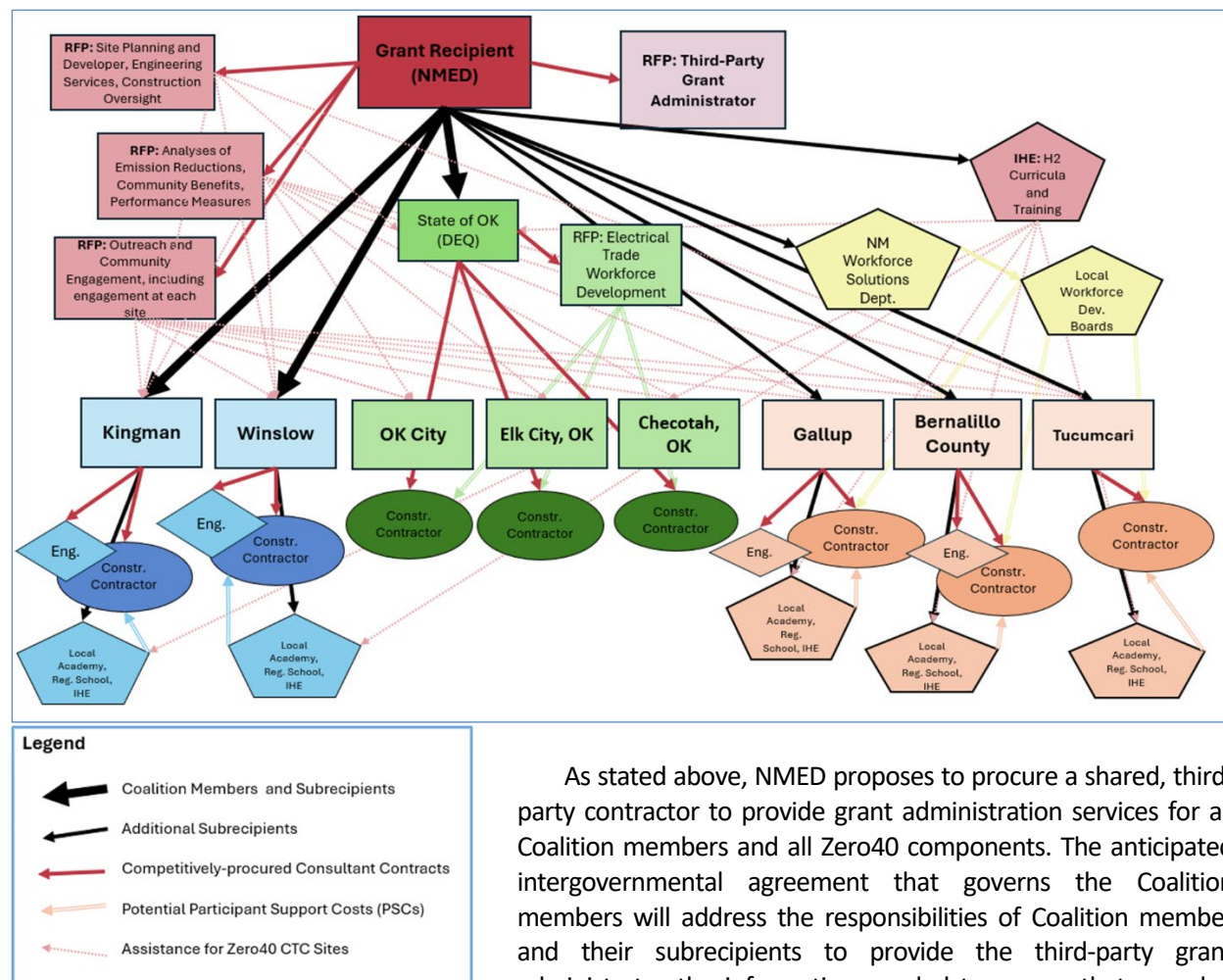
NMED’s indirect cost rate, negotiated with EPA, on personnel salary and fringe benefits, but not other costs, is 35.2%. For Zero40, NMED’s indirect cost for two new FTEs and a small portion of four existing FTEs is \$529,714 (details in ‘NMED Budget’ tab in the Zero40 Budget Table).

## 3.b. DISTRIBUTION AND EXPENDITURE OF AWARDED FUNDS

In the event Zero40 is selected for this CPRG implementation funding, the NMED, as lead applicant of the Coalition and grant recipient, and the Coalition members and subrecipients would distribute and expend funds in accordance with EPA’s Subaward Policy, National Term and Condition for Subawards, General Terms and Conditions, Financial Assistance Agreement, and all other applicable federal statutes, regulations, and policies.

Figure 4, included in the ‘Consolidated Zero40 Budget’ worksheet in the Zero40 Budget Table also for better legibility, illustrates the flow of funding from the Coalition Lead to the Coalition members, other subawards, competitively procured consultants. The diagram illustrates how the funding will then continue to be distributed, either through subawards or through receiving services as approved by the EPA. The different types of arrows indicate different types of relationships and are described in the legend.

Figure 4.



As stated above, NMED proposes to procure a shared, third-party contractor to provide grant administration services for all Coalition members and all Zero40 components. The anticipated intergovernmental agreement that governs the Coalition members will address the responsibilities of Coalition member and their subrecipients to provide the third-party grant administrator the information needed to ensure that awarded grant funds will be expended in a timely and efficient manner within the grant period. This administrator would provide oversight of all pass-through and expenditure of grant funds, monitor performance, and ensure all

entities' compliance with all applicable federal statutes, regulations, and policies, including EPA's Subaward Policy and Best Practice Guide for Procuring Services, Supplies, and Equipment under EPA Assistance Agreements.

NMED would enter into a subaward agreement with each Coalition member prior to disbursement of any subaward funds, as well. These agreements would also include all requirements for subrecipients in accordance with EPA's Subaward Policy and EPA's National Term and Condition for Subawards, and all other applicable federal statutes, regulations, and policies.

Each Coalition member would also be responsible for following its own applicable state and local procurement and other fiscal processes. The semi-annual reports and final report from each Coalition member, submitted by NMED on each Coalition member's behalf, will include a breakdown of expenditures associated with implementation of this proposal.

NMED would expend and account for awarded funds in accordance with New Mexico state laws and procedures for expending and accounting for the state's own funds allocated under the Coalition. The financial management system for NMED with the requirements of 2 CFR § 200.302(b).

### **3.c. REASONABLENESS OF COST**

The project team has researched and outlined the costs for the measures included in this application and included specifics in the Zero40 Budget Table (attached in grants.gov), using as a guidance the principles contained in 2 CFR § 200.404, Reasonable Costs:

In nature and amount, the costs do not exceed "that which would be incurred by a prudent person under the circumstances prevailing at the time the decision was made to incur the cost" with consideration given to: (a) Whether the cost is of a type generally recognized as ordinary and necessary for NMED operations and the proper and efficient performance of the proposed award, (b) The restraints or requirements imposed by such factors as: sound business practices; arm's-length bargaining; Federal, state, local, tribal, and other laws and regulations; and terms and conditions of the proposed award, (c) Market prices for comparable goods or services for the project geographic area, and (d) Prudence proposed to be exercised in the implementation of the grant considering responsibilities to NMED, its employees, the public at large, and the Federal government. To the extent possible, NMED will not significantly deviate from its established practices and policies regarding the incurrence of costs.

#### **3.c.1 Cost Estimates – Third-Party Grant Administrator**

The third-party grant administrator is key to the success of Zero40. This consultant provides all the grant administration services required by the grant agreement, as well as services to the Coalition members and their subrecipients to ensure that awarded grant funds will be expended in a timely and efficient manner within the grant period. The grant administrator will also map and follow flow paths to assure that reimbursements are available to subawardees and consultants as quickly as possible. The Zero40 Coalition estimated the consultant budget for the third-party grant administrator assuming 6 FTEs working for 5 years, with an average billed rate of \$290 per hour. The Coalition derived third-party grant administrator costs by using rate sheets from Eastern Research Group, Inc. and estimating the level of effort to administer a grant of this magnitude, across three states, with 4 Coalition members, and at 8 different locations. Getting this grant administrator on board will be a high priority for the Zero40 Coalition members.

#### **3.c.2 Cost Estimates – Outreach and Community Engagement Consultant**

A competitively procured Outreach and Community Engagement consultant will ensure that continued meaningful engagement – with people across the project area, especially those near the proposed CTC sites – remains a high priority for Zero40 implementation. At the outset, this consultant will meet with site representatives and develop an outreach and engagement plan, with a focus on community benefits including workforce development gaps. The consultant will then, working with local community organizations, set up public meetings, stakeholder interviews, focus groups, and workshops to engage the community in ways best tailored to each. Zero40 anticipates that 20-30% of the \$1,000,000 for the consultant will be subcontracted to trusted local community organizations and provide participant support costs. Funding will also be spent on outreach material like flyers, fact sheets, web content, social media content, and surveys. The Zero40 Coalition received a cost estimate and description of services from the Metropolitan Group, a national firm well versed in community engagement.

### **3.c.3 Cost Estimates – Performance Measures Analyst Consultant**

Zero40 will use a consultant to conduct the technical analyses necessary to evaluate the project's efficacy as described in section 2.c.2 *Performance Measures and Plan*. The cost estimate of \$220,000 (\$55,000 per year for Years 2-5 for approximately 137 hours per year) stems from NMED's existing experience with Energy and Environmental Economics, Inc. (E3), who has been working on the CPRG Phase 1 grant to develop New Mexico's GHG inventory. E3 has also been helping NMED with estimating the GHG emission reductions, the criteria air pollution reductions, and the other community benefits that would result from the measures included in the NM PCAP.

### **3.c.4 Cost Estimates – Site Planner and Developer, Engineering Services, and Construction Oversight Contractor**

To deploy infrastructure expeditiously and robustly, Zero40 will employ corridor-wide engineering services to manage site planning and development, engineering services, and construction oversight, estimated at a total of \$82,601,643. A corridor-wide contractor ensures consistency across the CTCs, which is critical for successful transit between the sites. These costs reflect industry standards shared with NMED by transportation and other engineers. The Zero40 team includes 2.5% of construction cost for site development including the geotechnical, environmental, and archeological analysis; drone and ground site surveys; and a mark up from the engineers for supervising and reviewing the work products estimated at \$0.9 million for each small CTC sites and \$2.3 million for each large CTC. As calculated in the 'Small CTC Costs' and 'Large CTC Costs' tabs of the Budget Table, Engineering Services are estimated at 10% of construction costs for delivering 30%, 60%, 90%, and 100% designs construction documents, preparing bidding documents, and managing the bidding process. These costs are estimated as \$3.8M and \$9.0M for the small and large CTCs respectively. The engineering services, estimated at 6% of construction costs, will also be used to oversee and administer the construction process, including reviewing and approving submittals; reviewing and responding to information requests; reviewing and approving pay applications; conducting site observations; preparing record drawings; managing regularly scheduled (likely biweekly) and progress meetings. These services, estimated at \$2.3M and \$5.4 for the small and large sites respectively, are especially critical for the small CTCs, where these services can supplement a local community's capacity. While the Zero40 Coalition recognizes that sales tax will vary depending on the location of the engineering consultant, the CTC cost sites estimate an 8% gross receipt tax for the engineering services at all sites.

The timelines and milestones in Table 1 illustrate that the Zero40 team anticipates the engineering services will be procured in the first quarter of the grant, and that the engineering of some of the CTC will be completed by the third quarter of 2025, and the rest by the fourth quarter of 2025.

### **3.c.5 Cost Estimates – Infrastructure**

The estimated construction costs including sales tax for the eight CTC included in Zero40 total \$413,421,635, not applying the estimated \$46,505,171 in federal tax credits for which these clean energy and transportation projects will likely be eligible. The Zero40 team considers these costs reasonable considering that each site includes MHD EV charging and H2 fueling, onsite renewable energy generation, and battery energy storage.

Infrastructure construction cost estimates originated from Global Logistics Development Partners (GLDPartners), the Bernalillo County contractor for the TradePort, and were vetted through technical assistance provided by Atlas Public Policy, the Rocky Mountain Institute (RMI), and Zero40's expert team. Specifically, GLDPartners estimated costs for solar generation and storage using the National Renewable Energy Laboratory's (NREL) estimation tools, and system outputs were modeled via the HelioScope Solar Software. Cost information for EV supply equipment was provided by CALSTART, Inc. via the Infrastructure Insite Tool. Mobile H2 fueling cost information was supplied by a global hydrogen supplier, with whom GLDPartners retains a Non-Disclosure Agreement. The mobile H2 refueler costs were also vetted with two private companies with whom Oklahoma DEQ retains relations. Again, Atlas Public Policy and RMI cross-examined these estimates with the best-available industry information and the Zero40 Coalition adjusted these valuations as necessary.

Following team discussions with transportation engineers, the Zero40 Coalition added a reasonable 20% contingency to all construction estimates, given that the cost estimates will improve once the sites are designed and given that the infrastructure costs may increase by the time the projects are installed, roughly two to three years from award. The final construction cost estimate, including taxes and the anticipated federal tax credit, is \$35,012,065 for the small CTCs and \$78,422,036 for the large CTCs.

The timelines and milestones in Table 1 illustrate that the Zero40 team anticipates the construction contractors will be selected at some CTCs by the third quarter of 2025, and the rest by the fourth quarter of 2025, and that the projects will be completed by the third quarter of 2026.

### **3.c.6 Cost Estimates – Workforce Development**

As highlighted in section 2.e JOB QUALITY , workforce development is key to the success of Zero40 and the clean energy transition in general. The \$2,518,600 devoted to high-quality job development in this grant application reasonably integrates with existing opportunities and systems to ensure appropriate gap-filling, warranting the reasonableness of these expenditures. The funding will be available for state agencies, LWDBs, schools, apprenticeship programs, community colleges, academies, and participants to braid with other options, so that agencies and seekers of jobs can best benefit.



## 4 TECHNICAL APPENDIX

### 4.a. EMISSION REDUCTIONS ESTIMATE METHOD AND MODELS USED

GHG and CAP emission reductions are due to a combination of avoided diesel truck emissions and avoided use of grid electricity. Reductions are calculated with a combination of AFLEET and energy savings.

The grant would support planning and construction of eight clean transportation centers (CTCs) to be built in New Mexico, Oklahoma, and Arizona. Each small CTC (in Winslow AZ, Kingman AZ, Gallup NM, Tucumcari NM, Elk City OK, and Checotah OK) will have four 350kW EV chargers, two mobile H2 refueling stations, renewable energy production modules producing ~12 GWh per year (modeled here as solar photovoltaics [PV]), and stationary battery storage providing four hours of power. Each large CTC (in Bernalillo County – Albuquerque NM, and Oklahoma City, OK) will have sixteen 350kW EV chargers, two mobile H2 refueling stations, renewable energy production modules producing ~40 GWh per year, and stationary battery storage providing four hours of power.

The attached workbook model (GHGcalcs\_NMED.xlsx) was developed by E3 for New Mexico's PCAP and updated by NMED for this application with technical consultation provided by the Rocky Mountain Institute (RMI) and Clean Air Task Force (CATF). The workbook uses information from AFLEET, energy estimates from US DOE, and site information from the RIA grant application. Technological readiness and implementation schedules were adjusted according to projections from RMI reports and expertise from Atlas Public Policy. The workbook includes a summary, and spreadsheets for each component of the CTCs: (1) Renewable Energy Production, (2) MHD EV charging, and (3) H2 fueling of long-range, heavy-duty fuel cell electric vehicles (FCEVs).

### 4.b. RENEWABLE ENERGY PRODUCTION

#### 4.b.1 Measure Implementation Assumptions:

The following key assumptions regarding measure implementation were used to quantify emission reductions:

- Onsite renewable energy production construction will be complete by July 1, 2025.
- EV charging will use renewable energy generated on-site, but for the purposes of GHG calculation the EVs use grid power. The emission reductions for power displaced is calculated separately.
- Each large CTC has a solar microgrid used to produce 39.96 GWh of renewable power.
- Each small CTC has a solar microgrid used to produce 11.87 GWh of renewable power.
- Each large CTC has 24 x 600kW (kilowatt) batteries to provide 4 hours of power storage.
- Each small CTC has 8 x 600kW batteries to provide 4 hours of power storage.

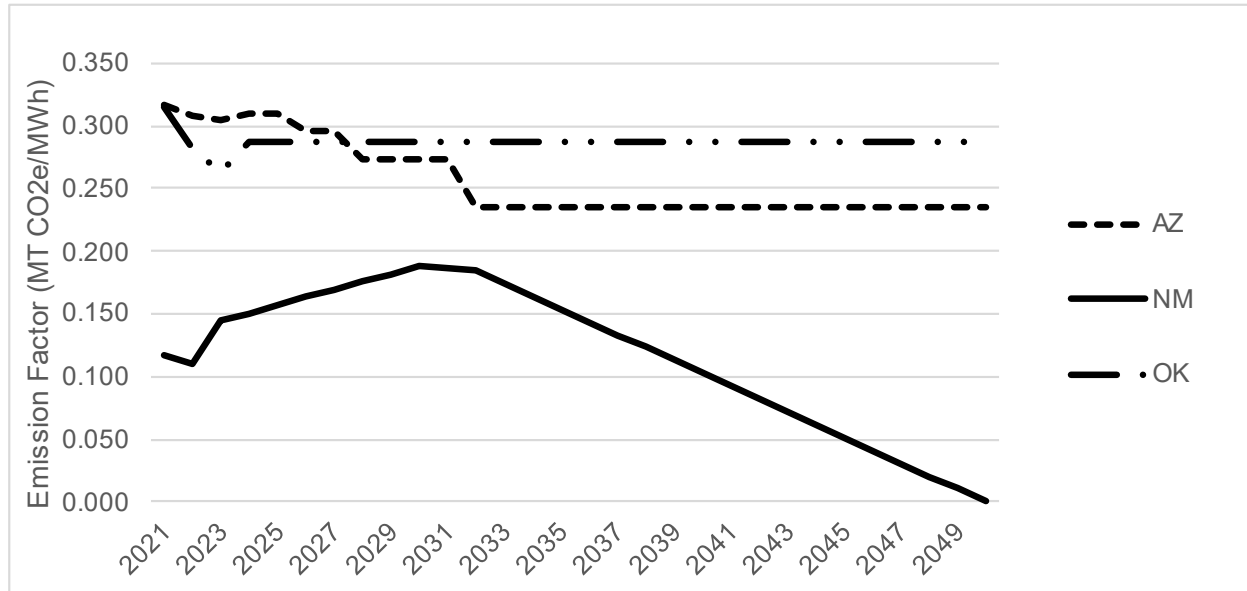
#### 4.b.2 Emission Reduction Estimate Assumptions:

The following key assumptions regarding renewable energy production and storage were used to quantify emission reductions for this measure:

- CAP emission reductions were not calculated for renewable energy production.
- The microgrid performance ratio was assumed to be 85% for all CTCs.
- Time-varying, state specific power generation emission factors were calculated for each state as follows:
  - Power generation emission factors for coal and natural gas were calculated using US EPA CO<sub>2</sub> emission factors<sup>56</sup> and US DOE heat rates.<sup>57</sup>
  - The % of power generation of each type of fuel in each state was estimated as follows:
    - 2021-2023 was sourced from US DOE EIA.<sup>58</sup>
    - In New Mexico:
      - Renewable power generation was assumed to increase linearly to 50% from 2024-2030 to comply with New Mexico's Energy Transition Act.
      - Coal power generation was assumed to decrease linearly to 0% in 2032 due to the closure of the last coal power plant in New Mexico, San Juan Generating Station, in 2031.
      - Combined Cycle natural gas power generation makes up the remainder of New Mexico power generation.
    - In Arizona and Oklahoma:
      - For future years the percentage of each fuel was assumed to be the average of 2021-2023.

- Planned closures of coal power plants were applied to the year after the planned closure by decreasing the % of coal power by the ratio of the planned closure production to the total coal power production in that state.<sup>59</sup>
- Decreases in the % of power production by coal were made up of an even split of increases in renewable and combined cycle natural gas power generation percents.

Figure 5. State-specific electric generation emission factors.



#### 4.b.1 Emission Reduction Calculations:

Power generation emission factors were calculated as follows<sup>65,66</sup>:

$$\text{Coal EF} = 10689 \frac{\text{Btu}}{\text{KWh}} * \frac{1 \text{ mmBtu}}{10^6 \text{ Btu}} * \frac{1000 \text{ KWh}}{\text{MWh}} * 95.52 \frac{\text{kg CO}_2\text{e}}{\text{mmBtu}} * \frac{1 \text{ MT}}{1000 \text{ kg}} = 1.02 \frac{\text{MT CO}_2\text{e}}{\text{MWh}}$$

$$\text{Nat. Gas EF} = 7740 \frac{\text{Btu}}{\text{KWh}} * \frac{1 \text{ mmBtu}}{10^6 \text{ Btu}} * \frac{1000 \text{ KWh}}{\text{MWh}} * 53.06 \frac{\text{kg CO}_2\text{e}}{\text{mmBtu}} * \frac{1 \text{ MT}}{1000 \text{ kg}} = 0.41 \frac{\text{MT CO}_2\text{e}}{\text{MWh}}$$

$$\text{Generation EF}_{Y,\text{State}} = \text{Nat. Gas EF} * \% \text{Natural Gas}_{Y,\text{State}} + \text{Coal EF} * \% \text{Coal}_{Y,\text{State}}$$

$$\text{GHG Emission Reduction}_{Y,\text{State}} = \text{Power Generation} * \text{Generation EF}_{Y,\text{State}}$$

GHG emission reductions were then scaled to reflect federal tax credits:

$$\text{CPRG GHG Reduction} = \text{GHG Reduction} * \left( \frac{\text{CPRG Budget}}{\text{Total Budget}} \right)$$

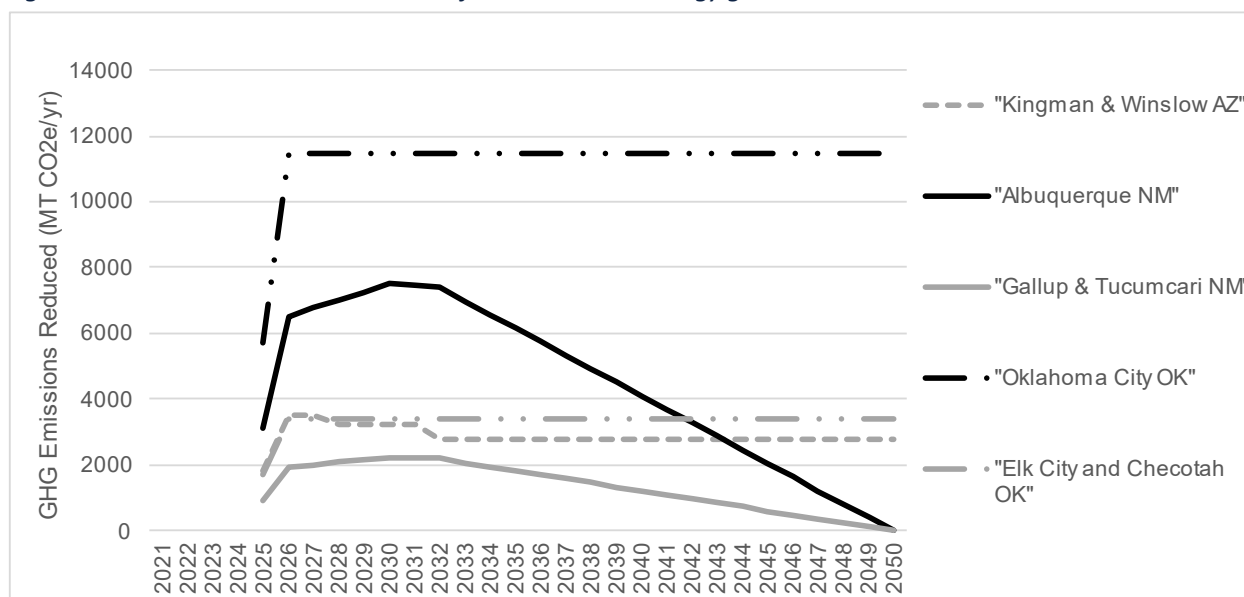
#### 4.b.2 Reference Case Scenario:

For renewable energy production, the reference case is the use of energy generated in the state.

#### 4.b.3 GHG Emissions Reduced

Annual GHG emission reductions due to renewable energy production are shown in, Figure 6 below.

Figure 6. Annual GHG emissions reduced from renewable energy generation.



The implementation of the renewable energy generation is anticipated to reduce the following amounts of GHGs:

Table 15. GHG emission Reductions from Renewable Energy Production

CTC	Total GHG Emission Reductions			Total CPRG-Attributable GHG Reductions		
	Annual 2030 (MT CO <sub>2</sub> e/yr.)	Cumulative 2025 – 2030 (MT CO <sub>2</sub> e)	Cumulative 2025 – 2030 (MT CO <sub>2</sub> e)	Annual 2030 (MT CO <sub>2</sub> e/yr.)	Cumulative 2025 – 2030 (MT CO <sub>2</sub> e)	Cumulative 2025 – 2030 (MT CO <sub>2</sub> e)
Kingman	3,237	15,324	74,980	2,622	12,414	60,740
Winslow	3,237	15,324	74,980	2,622	12,414	60,740
Gallup	2,230	9,117	34,399	1,807	7,386	27,866
Bernalillo County	7,508	30,693	115,804	6,092	24,906	93,969
Tucumcari	2,230	9,117	34,399	1,807	7,386	27,866
Elk City	3,406	15,327	86,854	2,759	12,416	70,359
Oklahoma City	11,466	51,598	292,391	9,304	41,870	237,261
Checotah	3,406	15,327	86,854	2,759	12,416	70,359
<b>Total (Energy Production Only)</b>	<b>36,720</b>	<b>161,829</b>	<b>800,661</b>	<b>29,772</b>	<b>131,207</b>	<b>649,162</b>

## 4.c. MEDIUM AND HEAVY-DUTY EV CHARGING

### 4.c.1 Measure Implementation Assumptions:

The following key assumptions about measure implementation were used to quantify emission reductions:

- EV charging infrastructure construction will be complete by January 1, 2027.
- All infrastructure will continue to operate through 2050.
- EV charging utilization will be 20% in 2027, 40% in 2028, 60% in 2029 and 80% in 2030. In 2031 and the following years utilization will be 100%.
- EV charging will use renewable energy generated and stored on-site, but for the purposes of GHG calculation the EVs use the same state specific power generation as calculated in section 4.b.
- The maximum number of trucks charged each day is 192 at large CTCs and 48 at small CTCs.
- The maximum number of truck type charged at each site is shown in Table 16, below.

Table 16. The number of each truck type at maximum utilization at each size CTC.

	Single Short Haul	Combo Short Haul	Combo Long Haul
Large CTC	115	48	29
Small CTC	13	6	29

#### 4.c.2 Emission Reduction Estimate Assumptions:

The following key assumptions about the EV truck charging were used to quantify emission reductions:

- A diesel emission factor of 10.2 kg CO<sub>2</sub>e per gallon of diesel.<sup>60</sup>
- Each hub is equipped with chargers to serve a mixture of vehicles, as shown in Table 17.

Table 17. Assumptions for each vehicle type efficiency and VMTs

Type of Vehicle	VMTs (miles/year)	Diesel Efficiency (MPGDE)	EV Efficiency (MPGDE)
Combination Long-Haul	170,000	7.2	12.7
Combination Short-Haul	65,000	7.2	12.7
Single Unit Short Haul	16,500	6.5	26.1

#### 4.c.3 Emission Reduction Calculations:

The following equation was used to calculate the GHG reductions from each vehicle type at each CTC:

$$\Delta GHG_Y = \sum_{Y_1}^{Y_2} \Delta EV_Y * CAPEX_Y$$

Where:

$Y, Y_1, Y_2$  = The years considered (e. g. 2030, 2025 – 2030, 2025 – 2050)

$\Delta EV_Y$  = The  $\Delta GHG_Y$  for the applicable vehicle type at that CTC

$$= 365 \frac{\text{days}}{\text{year}} * \sum_{Y_1}^{Y_2} \#T_Y * ((GDC * DEF) - (GDE * EVEF_Y))$$

$$CAPEX_Y = \frac{\text{The capital expenditure ratio for chargers to vehicles}}{\text{EV Charging Budget}} = \frac{\text{EV Charging Budget} + \#T_Y * \text{EV Cost}}{\text{EV Charging Budget}}$$

$\#T_Y$  = The number of trucks by vehicle type charged at the site per day in year Y

$GDC$  = The gallons of diesel consumed by the ICE vehicle

$DEF$  = The diesel emission factor ( $10.2 \frac{\text{kg CO}_2\text{e}}{\text{gallon}}$ )

$GDE$  = The gallons of diesel equivalent consumed by the EV truck

$$EVEF_Y = \text{The EV emission factor} = \frac{\text{Generation } EF_Y}{24.8 \frac{\text{MWh}}{\text{gallons diesel equivalent}}}$$

GHG emission reductions were then scaled to reflect federal tax credits:

$$\Delta GHG_Y \text{ CPRG Attributable} = \Delta GHG_Y * \left( \frac{\text{CPRG Budget}}{\text{Total Budget}} \right)$$

#### 4.c.4 Reference Case Scenario:

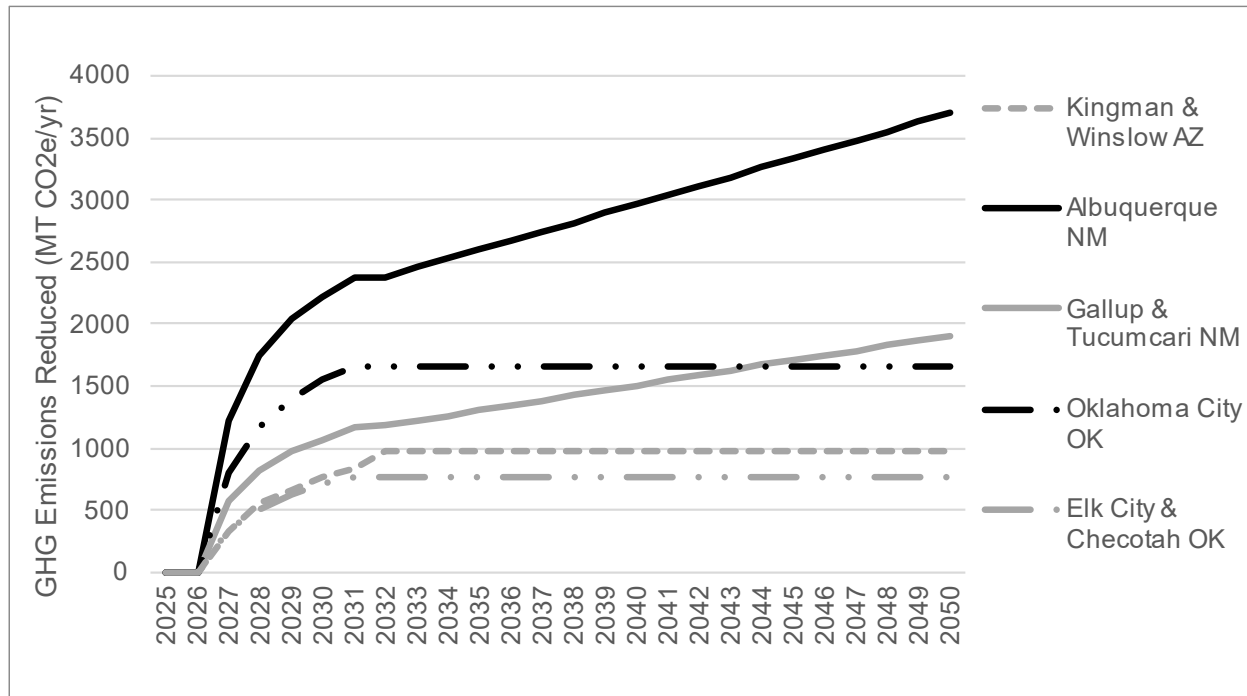
For vehicle emissions, the reference case is the utilization of diesel medium and heavy- duty vehicles for the same number of VMTs.



#### 4.c.5 GHG and CAP Emissions Reduced

Annual GHG emission reductions due to EV medium- and heavy-duty truck charging are shown in Figure 7, below.

Figure 7. Annual GHG Emissions Reduced from EV Truck Charging



The implementation of the EV medium- and heavy-duty truck charging is anticipated to reduce the following amounts of GHGs and CAPs:

Table 18. GHG Emission Reductions from EV Truck Charging.

CTC	Total GHG Emission Reductions			CPRG Attributable GHG Reductions		
	Annual 2030 (MT CO <sub>2</sub> e /yr.)	Cumulative 2025 – 2030 (MT CO <sub>2</sub> e)	Cumulative 2025 – 2030 (MT CO <sub>2</sub> e)	Annual 2030 (MT CO <sub>2</sub> e /yr.)	Cumulative 2025 – 2030 (MT CO <sub>2</sub> e)	Cumulative 2025 – 2030 (MT CO <sub>2</sub> e)
Kingman	757	1,549	21,639	735	1,503	20,997
Winslow	757	1,549	21,639	735	1,503	20,997
Gallup	1,068	2,363	33,850	1,036	2,293	32,845
Bernalillo County	2,206	4,998	67,128	2,015	4,566	61,318
Tucumcari	1,068	2,363	33,850	1,036	2,293	32,845
Elk City	705	1,478	17,629	684	1,435	17,106
Oklahoma City	1,544	3,367	37,870	1,410	3,076	34,592
Checotah	705	1,478	17,629	684	1,435	17,106
<b>Total (EV Truck Charging Only)</b>	<b>8,809</b>	<b>19,146</b>	<b>251,235</b>	<b>8,335</b>	<b>18,102</b>	<b>237,804</b>

Table 19. Co-Pollutant Emission Reductions from EV Truck Charging.

Pollutant	Annual Reductions (tons/yr.)	2025-2030 Reductions (tons)	2025-2050 Reductions (tons)
CO (Carbon Monoxide)	19.53	42.83	481.27
NOx (Nitrogen Oxides)	32.34	71.04	796.81
PM <sub>10</sub> (Particulate Matter, ≤ 10 microns)	0.30	0.65	7.29
PM <sub>2.5</sub> (Particulate Matter, ≤ 2.5 microns)	0.27	0.59	6.64
VOC (Volatile Organic Compounds)	1.42	3.11	35.15
SOx (Sulfur Oxides)	0.15	0.32	3.74

#### 4.d. HYDROGEN FUELING OF LONG-RANGE HEAVY-DUTY FUEL CELL VEHICLES

##### 4.d.1 Measure Implementation Assumptions:

The following key assumptions about measure implementation were used to quantify emission reductions:

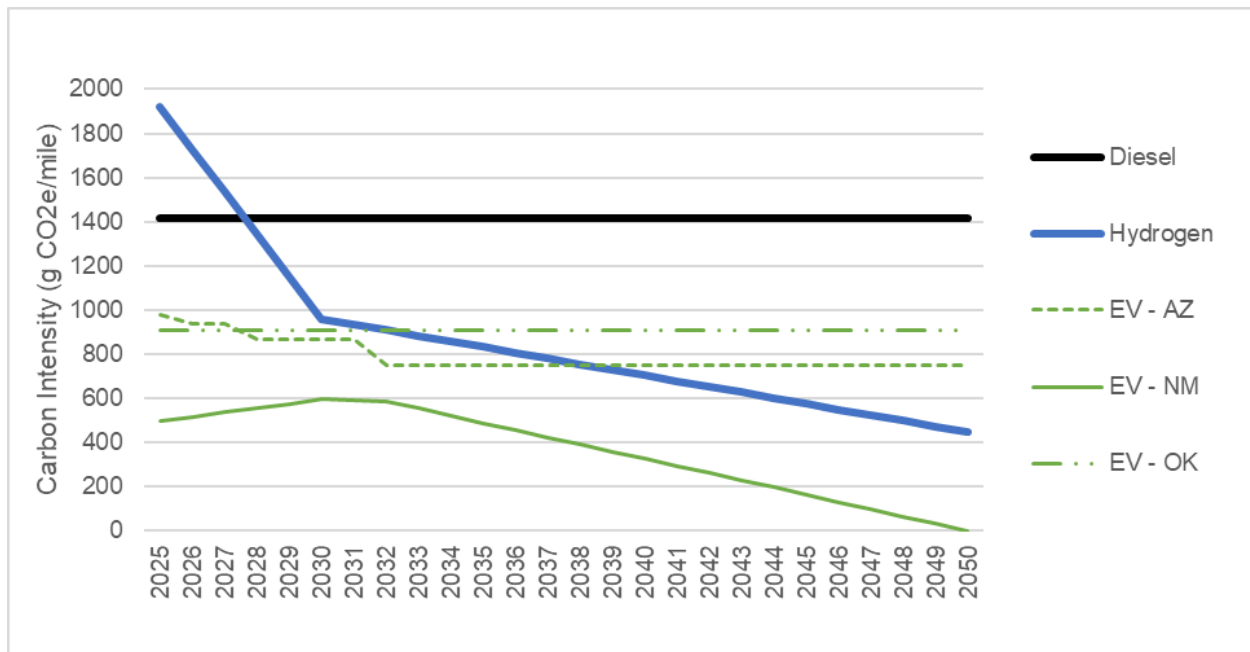
- H2 (hydrogen) fueling infrastructure construction will be complete by January 1, 2027.
- All infrastructure will continue to operate through 2050.
- H2 charging utilization will be 1% in 2027, 2% in 2028, 4% in 2029, 8% in 2030, 16% in 2031, 32% in 2032, 64% in 2033, and 90% in 2034. In 2035 and the following years utilization will be 100%.

##### 4.d.2 Emission Reduction Estimate Assumptions:

The following key assumptions about the H2 trucks fueling were used to quantify emission reductions:

- H2 is only used for Combination Long-Haul Trucks.
- All CTCs have 60 fuel cell electric vehicle (FCEV) trucks per day at full utilization.
- Combination Long-Haul Trucks travel 170,000 miles/year.
- The Diesel Efficiency is 7.2 MPGDE and the FCEV efficiency is 7.9 MPGDE.
- A diesel emission factor of 10.2 kg CO<sub>2</sub>e per gallon of diesel.<sup>61</sup>
- H2 used on site will have a decreasing carbon intensity over time:
  - 17.2 kg CO<sub>2</sub>e / kg H2 in 2025, based on the lookup table carbon intensity of liquid H2 produced from North American Fossil Natural Gas from CARB.<sup>62</sup>
  - A linear decrease to a 50% carbon intensity reduction by 2030.<sup>63</sup>
  - Continued linear decrease to 4 kg CO<sub>2</sub>e / kg H2 in 2050.
- Carbon intensity for combination long-haul trucks using various fuels, as assumed in the emission reduction calculations are shown in Figure 8 below:

Figure 8. Carbon Intensity for Long-Haul Trucks



#### 4.d.3 Emission Reduction Calculations:

Emission reduction calculations were done in the same manner as for EV charging. See Section 4.c.3 for full details.

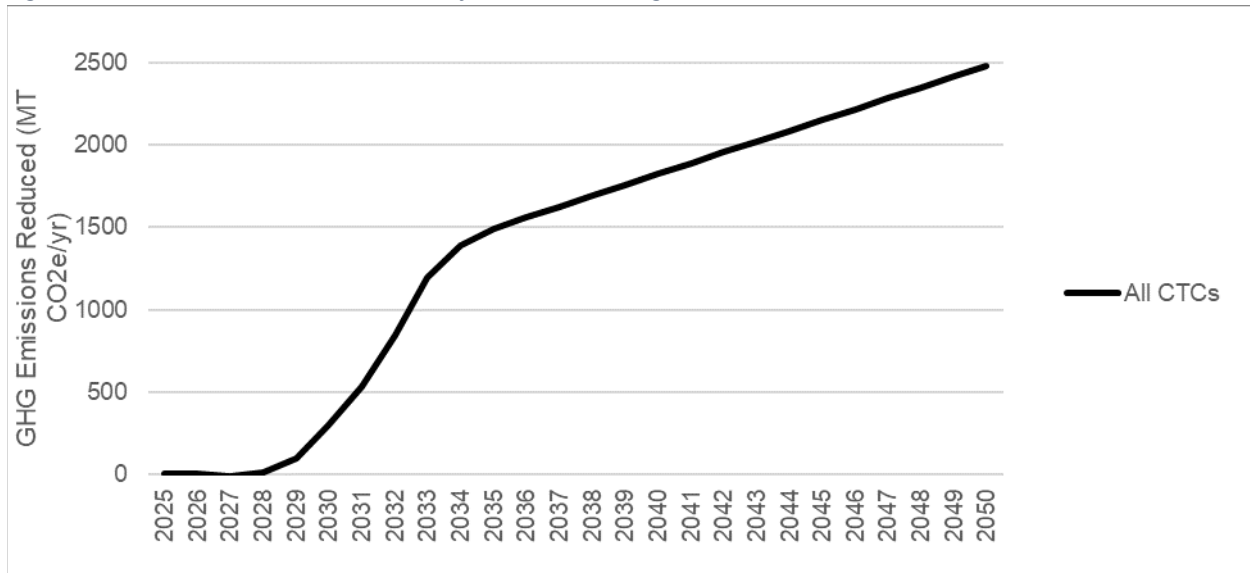
#### 4.d.4 Reference Case Scenario:

For vehicle emissions, the reference case is the utilization of diesel MHD vehicles for the same number of VMTs.

#### 4.d.5 GHG and CAP Emissions Reduced

Annual GHG emission reductions due to FCEV fueling are shown in Figure 9.

Figure 9. Annual Avoided GHG Emissions from FCEV Fueling



The implementation of the heavy-duty FCE truck charging is anticipated to reduce the following amounts of GHGs and CAPs:

Table 20. GHG Emission Reductions from FCEV Fueling

CTC	Total GHG Emission Reductions			CPRG Attributable GHG Reductions		
	Annual 2030 (MT CO <sub>2</sub> e /yr.)	Cumulative 2025 – 2030 (MT CO <sub>2</sub> e)	Cumulative 2025 – 2030 (MT CO <sub>2</sub> e)	Annual 2030 (MT CO <sub>2</sub> e /yr.)	Cumulative 2025 – 2030 (MT CO <sub>2</sub> e)	Cumulative 2025 – 2030 (MT CO <sub>2</sub> e)
Each CTC	299	97	36,076	292	95	35,177
<b>Totals (FCEV Fueling Only)</b>	<b>2,397</b>	<b>777</b>	<b>289,395</b>	<b>2,337</b>	<b>758</b>	<b>282,210</b>

Table 21. Co-Pollutant Emission Reductions from FCEV Fueling

Pollutant	Annual Reductions (tons/yr.)	2025-2030 Reductions (tons)	2025-2050 Reductions (tons)
CO (Carbon Monoxide)	9.10	9.07	687.18
NOx (Nitrogen Oxides)	15.19	15.13	1,146.85
PM <sub>10</sub> (Particulate Matter, ≤ 10 microns)	0.14	0.14	10.64
PM <sub>2.5</sub> (Particulate Matter, ≤ 2.5 microns)	0.13	0.13	9.75
VOC (Volatile Organic Compounds)	0.64	0.64	48.21
SOx (Sulfur Oxides)	0.06	0.06	4.29

#### 4.e. ACTIVITY DATA AND IMPLEMENTATION TRACKING METRICS

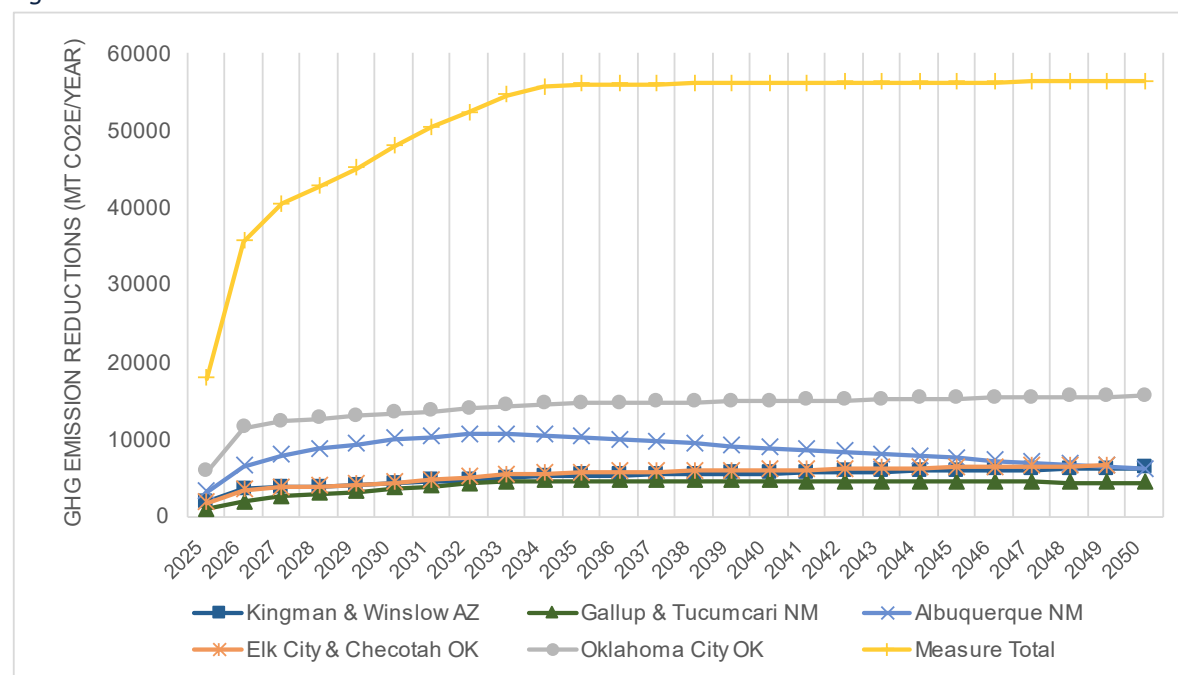
Measure specific activity data and implementation tracking metrics include:

- Number, type, class, and weight of vehicles fueled,
- Amount of electricity generated,
- Amount of electricity used for charging EVs, and
- Amount, source, and carbon intensity of H2 delivered.

#### 4.f. TOTAL GHG AND CAP EMISSIONS REDUCED

Total annual GHG emission reductions for each CTC and for the whole measure are shown in Figure 10 below:

Figure 10. Annual GHG Emissions Reduced at each CTC and total.





The implementation of this measure is anticipated to reduce the following amounts of GHGs, broken down by component:

Table 22. GHG Emission Reductions from Implementation, By Component.

Component	Total GHG Emission Reductions			CPRG Attributable GHG Reductions		
	Annual 2030 (MT CO <sub>2</sub> e /yr.)	Cumulative 2025 – 2030 (MT CO <sub>2</sub> e)	Cumulative 2025 – 2030 (MT CO <sub>2</sub> e)	Annual 2030 (MT CO <sub>2</sub> e /yr.)	Cumulative 2025 – 2030 (MT CO <sub>2</sub> e)	Cumulative 2025 – 2030 (MT CO <sub>2</sub> e)
Renewable Energy Production	36,720	161,829	800,661	29,772	131,207	649,162
MHD EV Charging	8,809	19,146	251,235	8,335	18,102	237,804
H2 Fueling	2,395	777	288,612	2,335	758	281,419
<b>Totals</b>	<b>47,924</b>	<b>181,752</b>	<b>1,340,508</b>	<b>40,442</b>	<b>150,067</b>	<b>1,168,385</b>

The implementation of the MHD EV charging is anticipated to reduce the following amounts of CAPs:

Table 23. Cumulative Tons of CAP Emission Reductions from Implementation.

Component	NOx (tons)		PM <sub>2.5</sub> (tons)		SOx (tons)		VOC (tons)	
	2025 - 2030	2025- 2050	2025 - 2030	2025- 2050	2025 - 2030	2025- 2050	2025 - 2030	2025- 2050
Renewable Energy Production	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MHD EV Charging	71.04	796.81	0.59	6.64	0.32	3.74	3.11	35.15
H2 Fueling	15.13	1,146.85	0.13	9.75	0.06	4.29	0.64	48.21
<b>Totals</b>	<b>86.18</b>	<b>1,943.66</b>	<b>0.72</b>	<b>16.39</b>	<b>0.38</b>	<b>8.04</b>	<b>3.75</b>	<b>83.36</b>

#### 4.g. COBRA METHODOLOGY

EPA’s CO-Benefits Risk Assessment Health Impacts Screening and Mapping Tool (COBRA) desktop version 4.1 was employed for the health benefits analysis of reduced exposure to PM derived from reductions in direct and precursor emissions resulting from Zero40. Precursors modeled include sulfur dioxide, nitrogen oxide, and volatile organic compounds. These pollutants contribute to ambient concentrations of fine PM (PM<sub>2.5</sub>) – an air pollutant that has been linked to a variety of serious health effects, including asthma attacks, chronic bronchitis, hospital admissions, and premature mortality. COBRA estimates the health impacts from exposure to PM<sub>2.5</sub> pollution.

COBRA was developed in 2002 to support assessments of the human health damages from air pollution and their associated monetized economic damages by Abt Associates, which for years has served as EPA’s air quality benefits consultant. The model has been updated periodically, with version 4.1 reflecting base-year emissions and calibrations for 2016 and a projection inventory for 2023 and 2028. This analysis used the projection year 2028 baseline emissions and 2028 population and incidence projections. The emission control file was edited to reflect anticipated reductions in emissions in 2030 to estimate an annual health benefit.

#### 4.h. US EPA’S PHASE 3 GHG EMISSIONS STANDARDS FOR HEAVY-DUTY VEHICLES

On March 29, 2024, EPA announced a final rule, [“Greenhouse Gas Emissions Standards for Heavy-Duty Vehicles – Phase 3,”](#) that sets stronger standards to reduce GHG emissions from heavy-duty (HD) vehicles beginning in model year (MY) 2027. The new standards will be applicable to HD vocational vehicles (such as delivery trucks, refuse haulers, public utility trucks, transit, shuttle, school buses, etc.) and tractors (such as day cabs and sleeper cabs on tractor-trailer trucks).

Given the final rule’s announcement date (Friday, March 29, 2024) and the CPRG Phase 2 application deadline date (Monday, April 1, 2024), the Coalition did not have time to evaluate the final rule’s effects on this

proposal, or vice versa. Nonetheless, the Coalition believes Zero40 will foundationally support the efficacy of EPA's final rule by deploying infrastructure supporting (what the rule refers to as) "plug-in hybrid electric vehicles, battery electric vehicles, and H2 fuel cell vehicles."

## 5 ENDNOTES

- <sup>1</sup> The Port of Los Angeles, a “sea port,” operates two heavy-duty H2 refueling stations; Galvin, Mike. “Port of Los Angeles Overview.” Port of Los Angeles, 2023.
- <sup>2</sup> The Port of Long Beach, a “container port” immediately adjacent to the Port of Los Angeles, operates 26 heavy-duty electric truck DC fast charging ports with plans to add another 169 charging ports in the area; Port of Long Beach. “Port, Partners Power Ahead with Truck Charging Stations.” 2024.
- <sup>3</sup> In Barstow, CA, the Victor Valley Transit Authority (VVTa) received \$12 million to build a H2 fueling station and six DC fast charging stations for VVTa’s fleet and the public’s fueling needs. The H2 fueling station will support light, medium, and heavy duty-vehicles and has a storage capacity of 18,000-25,000 gallons; Federal Highway Administration, USDOT. “Charging and Fueling Infrastructure Discretionary Grants Program, FY 2022-FY 2023 Grant Selections.” Accessed March 14, 2024.
- <sup>4</sup> Texas Department of Transportation. “[Statewide Planning Map](#),” 2024.
- <sup>5</sup> The term “I-40 Tradeport Corridor” is trademarked (Status: pending; U.S. Serial Number: 98421781), and is owned by Bernalillo County, New Mexico. Commonly referred to as “TradePort” herein, it means, “Promoting economic development, efficiency in trade and logistics, coast-to-coast transportation and the development of renewable energy systems powering said transportation, for the benefit of the nation and the Albuquerque regional hub located in Bernalillo County, New Mexico.” U.S. Patent and Trademark Office. “[Trademark Status & Document Retrieval](#),” 2024.
- <sup>6</sup> US DOT. “(US DOT) Advances America’s Infrastructure with Expanded Regional Grants,” 2023.
- <sup>7</sup> Bernalillo County, Economic Development Department. “I-40 TradePort Corridor,” November 28, 2023.
- <sup>8</sup> US DOT. “[National Highway Freight Network Map - FHWA Freight Management and Operations](#),” 2024.
- <sup>9</sup> Joint Office of Energy and Transportation. “[National Zero-Emission Freight Corridor Strategy](#),” 2024.
- <sup>10</sup> Greenlane Infrastructure, LLC. “[Drive Greenlane | Commercial Vehicle Charging Network Solutions](#),” 2024.
- <sup>11</sup> Ton-miles is the primary physical measure of freight transportation output. A ton-mile is defined by US DOT as one ton of freight shipped one mile and, therefore, reflects both the volume shipped (tons) and the distance shipped (miles). Ton-miles provides the best single measure of the physical volume of freight transportation services. This, in turn, reflects the overall level of activity in the economy.
- <sup>12</sup> Oak Ridge National Laboratory, Center for Transportation Analysis. “[Freight Analysis Framework Data Tabulation Tool \(FAF4\)](#),” 2023.
- <sup>13</sup> US EPA. [EJ Screen, Version 2.2](#). Accessed March 27, 2024.
- <sup>14</sup> US Department of Labor, Bureau of Labor Statistics. [Quarterly Census of Employment and Wages](#). 2024.
- <sup>15</sup> US Census Bureau. [QuickFacts](#). 2024.
- <sup>16</sup> See endnote 10.
- <sup>17</sup> See endnote 8.
- <sup>18</sup> See endnote 10.
- <sup>19</sup> US Census Bureau. [2021 American Community Survey 5-Year Estimates. Table DP02: Selected Social Characteristics in the United States](#). Accessed March 27, 2024.
- <sup>20</sup> These four US Census Blocks are 400917797001, 400917797002, 400917797003, and 400917797004.
- <sup>21</sup> See endnote 8.
- <sup>22</sup> As the lead applicant, NMED explores (non-)federal funding opportunities as primarily applicable to the State of New Mexico. Other Zero40 Coalition members have received similar funds as New Mexico.
- <sup>23</sup> US DOT Build America Bureau. “[Regional Infrastructure Accelerators Program](#),” 2023.
- <sup>24</sup> US DOT FHWA. “[Fact Sheet: Charging and Fueling Infrastructure Discretionary Grant Program](#),” 2024.
- <sup>25</sup> US DOT FHWA. “[Fact Sheet: Carbon Reduction Program](#),” 2021.
- <sup>26</sup> US DOT FHWA. “[Fact Sheet: Congestion Mitigation and Air Quality \(CMAQ\) Improvement Program](#),” 2022.
- <sup>27</sup> US DOT FHWA. “[Fact Sheet: National Highway Freight Program \(NHFP\)](#),” 2022.
- <sup>28</sup> US DOT FHWA. “[Fact Sheet: Tribal Transportation Program \(TTP\)](#),” 2022.
- <sup>29</sup> US DOT FHWA. “[Fact Sheet: National Electric Vehicle Infrastructure Formula Program](#),” 2022.
- <sup>30</sup> US DOT. “[The Mega Grant Program](#),” 2024.

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- <sup>31</sup> US DOE. [“Smart Grid Grants,”](#) 2023.
- <sup>32</sup> US Internal Revenue Service. [“Internal Revenue Code \(IRC\) 45W,”](#) 2024.
- <sup>33</sup> US Internal Revenue Service. [“Alternative Fuel Vehicle Refueling Property Credit,” 26 US Code 30C, 30D, 38, and 6417 and Public Law 117-169. More details.](#) 2024.
- <sup>34</sup> US Internal Revenue Service. [“Clean Energy Tax Incentives: Elective Pay Eligible Tax Credits,”](#) 2023.
- <sup>35</sup> EPA. [“Clean Ports Program,”](#) 2024.
- <sup>36</sup> EPA. [“Clean Heavy-Duty Vehicles Program,”](#) 2024.
- <sup>37</sup> EPA. [“Diesel Emissions Reduction Act \(DERA\) Funding,”](#) 2024.
- <sup>38</sup> State of New Mexico, 56<sup>th</sup> Legislature. [“House Bill 252: Adjust Income Tax Brackets,”](#) 2024.
- <sup>39</sup> Atlas Public Policy. Electric Freight Dashboard, Atlas EV Hub, accessed March 6, 2024.
- <sup>40</sup> See endnote 3.
- <sup>41</sup> US DOE, Office of Energy Efficiency & Renewable Energy. [“The US National Blueprint for Transportation Decarbonization: A Joint Strategy to Transform Transportation,”](#) 2022.
- <sup>42</sup> US DOE. [“US Secretary of Energy Advances America’s Commitment to Reaching Net Zero Global Emissions and Combatting Climate Change at COP27,”](#) 2022.
- <sup>43</sup> Roland Berger. [“Forecasting a Realistic Electricity Infrastructure Buildout for Medium- & Heavy-Duty Battery Electric Vehicles,”](#) 2024.
- <sup>44</sup> The additional jobs estimate is based on data from the Energy Information Administration’s Commercial Building Energy Consumption Survey (CBECS) and the Manufacturing Energy Consumption Survey (MECS).
- <sup>45</sup> <https://www.dws.state.nm.us/en-us/Researchers/Data/Employment-Projections>.
- <sup>46</sup> For North American Industrial Classification System (NAICS) code 238 - Specialty Trade Contractors, there is 11.7% projected job growth in New Mexico versus 4.2% for the whole United States.
- <sup>47</sup> Yale University, Program on Climate Change Communication. [“Yale Climate Opinion Maps,”](#) 2023.
- <sup>48</sup> Based upon estimates for the Construction sector from Table 3.3A. One job-year equals one full-time job for one year; Zero Carbon Consortium. “America’s Zero Carbon Action Plan.” Sustainable Development Solutions Network. 2020.
- <sup>49</sup> One full-time for one year is assumed to equal one job, given the one-year average duration for the construction/installation phase for EV chargers and H2 fueling stations. For EV charging stations, the equipment procurement and installation phase can take [“several weeks to a few months,”](#) whereas the construction period for hydrogen fueling stations that opened in 2016 ranged from [“18 to 24 months.”](#) A one-year midpoint average between the two is assumed, such that job-year estimates are assumed to equal the number of jobs created.
- <sup>50</sup> Average weekly wage in the Construction sector (North American Industrial Classification System or NAICS code 23) of \$1,210 versus \$1,085 for all private industry sectors; US Bureau of Labor Statistics. *Quarterly Census of Employment and Wages*. “Private, NAICS 6-Digit Industries, New Mexico 2023 Second Quarter, All Establishment Sizes.”
- <sup>51</sup> Average weekly wage in the Construction sector (North American Industrial Classification System or NAICS code 23) of \$1,166 versus \$1,062 for all private industry sectors; US Bureau of Labor Statistics. *Quarterly Census of Employment and Wages*. “Private, NAICS 6-Digit Industries, Oklahoma 2023 Second Quarter, All Establishment Sizes.”
- <sup>52</sup> Average weekly wage in the Construction sector (North American Industrial Classification System or NAICS code 23) of \$1,015 versus \$880 for all private industry sectors; US Bureau of Labor Statistics. *Quarterly Census of Employment and Wages*. “Private, NAICS 6-Digit Industries, Mohave County, AZ 2023 Second Quarter, All Establishment Sizes.” Mohave County includes Kingman, AZ.
- <sup>53</sup> Average weekly wage in the Construction sector (North American Industrial Classification System or NAICS code 23) of \$955 versus \$770 for all private industry sectors; US Bureau of Labor Statistics. *Quarterly Census of Employment and Wages*. “Private, NAICS 6-Digit Industries, Navajo County, AZ 2023 Second Quarter, All Establishment Sizes.” Navajo County includes Winslow, AZ.
- <sup>54</sup> US DOE. <https://www.energy.gov/eere/fuelcells/H2-and-fuel-cells-career-map>.
- <sup>55</sup> US DOE. <https://www.energy.gov/eere/fuelcells/career-map-construction-worker>, <https://www.energy.gov/eere/fuelcells/career-map-electrical-engineer>, and

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<https://www.energy.gov/eere/fuelcells/career-map-logistician>.

<sup>56</sup> US EPA. [“Emission Factors for Greenhouse Gas Inventories”](#), modified September 2023.

<sup>57</sup> US DOE EIA. [“Table 8.1 Average Operating Heat Rate for Selected Energy Sources”](#).

<sup>58</sup> US DOE EIA. [“Electricity Data Browser”](#).

<sup>59</sup> Note: no coal fired power plants in Oklahoma currently have closure dates.

<sup>60</sup> US DOE EIA. [“Carbon Dioxide Emission Coefficients”](#).

<sup>61</sup> Ibid.

<sup>62</sup> California Air Resources Board. [“LCFS Pathway Certified Carbon Intensities”](#).

<sup>63</sup> US DOE IEA [“Breakthrough Agenda Report 2023: Hydrogen”](#).