

## Workplan for Industrial Decarbonization (25-page limit)

### Section 1: Overall Project Summary and Approach (45 possible points)

#### **Why Heidelberg Materials?**

Heidelberg Materials is a leading supplier of construction materials in the US. Our core activities include the production of cement and construction aggregates, as well as producing ready-mixed concrete, asphalt, and other downstream cement products. Heidelberg Materials is a part of a global organization headquartered in Heidelberg, Germany, spanning operations in 50 countries and employing over 50,000 worldwide. Heidelberg Materials has globally aligned all business practices with the UN Sustainable Development Goals and commitments to 2030 and has also formalized its commitment to and is working diligently toward, achieving net zero concrete by 2050 at the latest. Heidelberg Materials' environmental and sustainability goals include replacement of fossil fuel with low-carbon alternative fuels and reducing clinker substitution rates in the cement to lower carbon intensity of its products. Our initiative aligns with the measures' goals of reducing carbon intensity in cement production to less than 400 kg CO<sub>2</sub>/mt clinker by 2030 through implementation of an Alternative Fuels receiving, handling and dosing system. Heidelberg Materials is also a committed and active member of the US Portland Cement Association (PCA), playing an active and key role in its Roadmap to carbon neutrality. This roadmap was released in October 2021 and lays out the industry plans to accomplish carbon neutrality through the value chain by 2050 at the latest.

#### **Project Objectives**

One of Heidelberg Materials' cement plants is located just east of Birmingham in Leeds, Alabama. It serves the growing Southeast market, including Alabama, Georgia, South Carolina, Tennessee, and Mississippi. This market in this region is conservatively forecast to grow 30% in the next 25 years<sup>1</sup>. The Leeds plant has been producing Portland cement since the early 1900's, starting operations in 1905 as Standard Portland Cement. The plant's rated clinker capacity is 772,000 tons per year, which requires the mining and processing of 1.05 million tons of limestone annually. The plant's current emission intensity measures at 754.5kg per 2.2 MWh, and runs on non-renewable fuel sources, such as coal, PET coke, or natural gas. Greenhouse gas emissions from industry primarily come from burning fossil fuels for energy, as well as greenhouse gas emissions from certain chemical reactions necessary to produce goods from raw materials. If emissions from electricity use are allocated to the industrial end-use sector, industrial activities account for a much larger share (30%) of U.S. greenhouse gas emissions.<sup>2</sup>

Integrating alternative fuels into cement production processes offers several compelling benefits. It contributes to environmental sustainability by reducing greenhouse gas emissions. An analysis conducted by Argonne National Laboratory has provided

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<sup>1</sup> [https://phys.org/news/2021-10-materials-carbon-emissions-theyre.html#google\\_vignette](https://phys.org/news/2021-10-materials-carbon-emissions-theyre.html#google_vignette)

<sup>2</sup> <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions#electricity-end-use>

evidence-based findings that highlight the environmental benefits of substituting gasoline with biofuels. Specifically, the study found that the use of corn-based ethanol in place of gasoline can lead to an average reduction in life cycle greenhouse gas (GHG) emissions by 40%. It has been proven that these types of fuels, derived from sources like waste materials or bio-based feedstocks, emit approximately 50% less CO<sub>2</sub> compared to traditional fossil fuels. Utilizing waste-derived fuels helps manage non-recyclable waste and minimizes landfill usage. Alternative fuels enhance energy security. By diversifying energy sources, cement plants become less reliant on a single type of fuel, which improves resilience against supply disruptions and ensures a more stable energy supply. Although the initial investment in alternative fuel infrastructure may require capital, the long-term cost savings can be significant. Reduced dependence on expensive imported fossil fuels translates to financial benefits over time.

The cement industry alone is responsible for about a quarter of all industry CO<sub>2</sub> emissions, and it also generates the most CO<sub>2</sub> emissions per dollar of revenue.<sup>3</sup> Heidelberg Materials is committed to achieving carbon neutrality by 2050 at the latest within the Science Based Targets Initiative (SBTi) framework. Starting at 760kg CO<sub>2</sub>/metric ton cement in 1990, by 2020 HC has already reduced its CO<sub>2</sub> emissions by 23% compared to 1990. The company's 2025 reduction target foresees to further reduce its specific CO<sub>2</sub> footprint down to 525kg CO<sub>2</sub>/metric ton and by 2030 to below 500kg CO<sub>2</sub>/ton cement. By implementing our measures, we aim to achieve an estimated cumulative reduction totaling approximately 20,280,000 tons CO<sub>2</sub> by 2050. This substantial reduction in GHG emissions will significantly contribute to the goals of the CPRG program by demonstrating effective, innovative strategies for carbon reduction in industrial operations, ensuring that environmental sustainability is advanced in a manner that is economically viable and technologically feasible.

### Figure 1 – Location Overview of the Leeds Cement Plant

*Below is an aerial overview of the Heidelberg Materials' cement plant in Leeds, along with an overview of our 2 quarries in close proximity.*



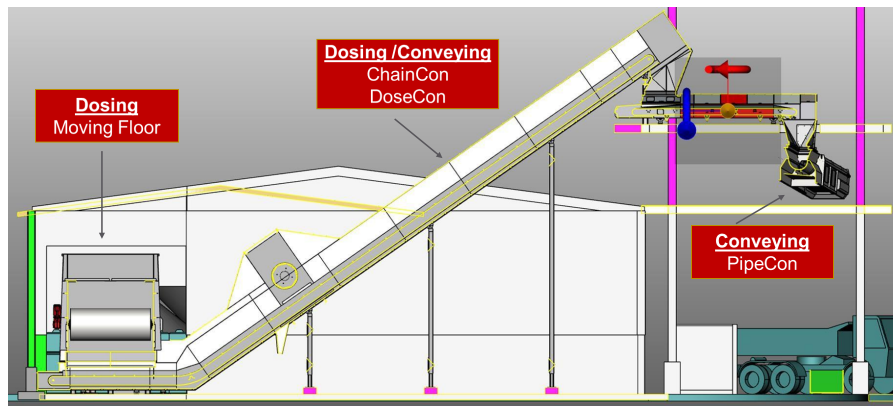
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<https://www.mckinsey.com/industries/chemicals/our-insights/laying-the-foundation-for-zero-carbon-cement>

## Implementation of phases and milestones

The integration of an alternative fuel receiving, handling, and dosing system represents a significant step toward sustainability and environmental responsibility in industrial processes. We aim to enhance the existing kiln operations at Heidelberg Materials' Leeds plants by incorporating low-carbon alternative fuels. This endeavor involves meticulous planning, precise execution, and thorough evaluation of fuel types. By following a structured approach, we can achieve efficient utilization of alternative fuels while ensuring compliance with safety standards and local regulations. In the following table we delve into the details of each phase and the corresponding milestones to successfully implement this eco-friendly solution:

Phases	Goals	Milestones
<b>Phase 1 – Planning &amp; Feasibility Assessment</b>	<ul style="list-style-type: none"> <li>- Assess the feasibility and compatibility of integrating alternative fuels into existing kiln operations.</li> <li>- Conduct a site assessment to evaluate available space, infrastructure, and safety requirements.</li> <li>- Identify specific low-carbon alternative fuels for cement production (e.g., Refuse Derived Fuel, Process Engineered Fuel, Biomass, Tire chips without metal).</li> </ul>	<ul style="list-style-type: none"> <li>- Complete project Kickoff</li> <li>- Identify stakeholders and engage in procurement</li> <li>- Create project schedule</li> <li>- Develop product features</li> <li>- Conduct testing</li> <li>- Monitor progress</li> </ul>
<b>Phase 2 - Installation</b>	<ul style="list-style-type: none"> <li>- Install an alternative fuels receiving hopper for loading fuel.</li> <li>- Connect the hopper to a screw conveyor for material transport.</li> <li>- Install a rotary valve to regulate fuel flow.</li> <li>- Integrate a blower for pneumatic transportation of fuel.</li> </ul>	-Commissioning of System
<b>Phase 3 - Closure</b>	<ul style="list-style-type: none"> <li>- Install an alternative fuels receiving and volumetric dosing unit.</li> <li>- Evaluate maximum alternate fuel substitution rates in the existing kiln.</li> <li>- Demonstrate alternative fuels utilization and ensure a sustainable fuel supply chain.</li> </ul>	<ul style="list-style-type: none"> <li>- Archive project documentation</li> <li>- Conduct lessons learned review</li> <li>- Project Closeout</li> </ul>



**Figure 2 – Drawing of Materials being processed**

*Processed material is conveyed or trucked to the cement kiln for use. A conveying, dosing and feed system will be necessary to move the Alternative Fuels from the conveyor or truck into the kiln.*

### Potential risks and how we intend to Overcome Them

The Heidelberg Materials' Leeds plant has devised targeted standards in each area. Through these focused strategies, our p address key operational challenges, demonstrating its commitment coordination, and continuous improvement:

**Planning & Design:** Balancing design decisions to optimize reliability and performance with a cost-effective project is one of the basic design considerations. Providing additional margin and redundancy can offer a more robust system design potentially improving the overall availability and flexibility of the system, but it often comes at a premium. It is important to understand the goals of the project, project drivers, and tolerance of the application for variability and flexibility. A reliability and maintainability (RAM) analysis can sometimes be useful while performing front end engineering design to evaluate design decisions while comparing the costs and impacts to the project.

**Quality Assurance:** To guarantee consistent job quality, the plant has implemented quality control checkpoints throughout its operations. By closely monitoring work progress and swiftly addressing any deviations, the plant ensures that high standards are maintained consistently. Effective training and clear communication further support this goal, ensuring all team members are aligned and capable.

**Coordination:** The integration of alternative fuels into existing kiln operations and the feasibility study for carbon sequestration in coal seams pose technical challenges. Acknowledging the importance of seamless collaboration for successful trailer movement, the Leeds plant prioritizes fostering teamwork, establishing clear communication channels, and ensuring efficient resource allocation. These initiatives are designed to streamline operations and enhance overall coordination among laborers, drivers, and supervisors.

**Permitting & Construction:** The process of securing the necessary access, rights of way, and operating permits is a significant hurdle. These regulatory challenges are highlighted by the cost estimates provided in our budget, indicating the complexity and potential time consumption of this process. To combat this risk, the state, and local

government will be contacted for regulatory and permitting needs, and specific engineering firms will be contracted to help plant engineering team.

**Contractor Safety:** Recognizing the critical importance of safety, the Leeds plant is committed to ensuring all contractors adhere to strict safety protocols. This commitment is operationalized through regular safety training sessions, stringent enforcement of safety guidelines, and frequent audits to verify compliance. These measures aim to solidify the plant's status as a leader in safety within the industry.

**Documentation:** The plant places a strong emphasis on maintaining detailed records of work quality, incidents, and corrective actions. By keeping comprehensive logs and analyzing data, the Leeds plant leverages past experiences for continuous process improvement. This approach not only enhances efficiency and quality but also contributes to the plant's long-term operational excellence.

### **Demonstration of Funding Need (10 possible points)**

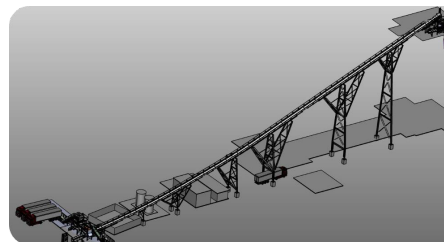
No additional funding, Federal or non-federal, has been received or negotiated. The exploration of other federal and state grants, tax incentives, and funding sources has been thorough and continues. Heidelberg Materials' involvement in federally funded projects demonstrates an active pursuit of federal support for environmentally sustainable initiatives. Despite this, the current funding landscape does not sufficiently cater to the integrated, large-scale decarbonization efforts required by the cement and concrete industry. The unique challenges of this industry, including the high upfront costs of developing and implementing alternative fuel technologies, the need for extensive feasibility studies, and the adaptation of existing infrastructure, exceed the financial support available from targeted grants and incentives.

The need for EPA funding is underscored by a unique confluence of strategic importance, innovation potential, and unmet financial need. While Heidelberg Materials has successfully secured federal funding for various initiatives in the past, including projects funded by the DOE focused on carbon capture and storage feasibility studies, these sources have been specifically targeted and do not fully cover the comprehensive approach required to achieve net-zero carbon concrete by 2050. The projects under consideration are pioneering steps towards this goal, with significant anticipated GHG reductions. The scale and scope of the ambition necessitate financial resources beyond what is currently available through existing grants, tax incentives, and other funding mechanisms. EPA funding would not only address the financial shortfall but also accelerate the deployment of these essential decarbonization technologies. Funding would ensure that the ambitious GHG reduction targets can be met, contributing to the broader goals of the CPRG program and reinforcing the commitment to environmental sustainability at the local, state, and national levels.

## Transformative Impact (15 possible points)

The proposed project sets a precedent for the scalable adoption of GHG reduction technologies in the cement industry. Introducing alternative fuels will have an impact across our Leeds plant. Each type of materials can have totally different characteristics from the current fuels we are utilizing. They can be sticky, fluffy, moist, and fluctuating in size and quality or you may need to switch between different types of fuel with very different characteristics due to availability. They will burn differently, have a different reaction in the kiln and may require you to take other actions to ensure consistent clinker quality.

The implementation of an Alternative Fuels system not only promises to reduce the carbon intensity of Heidelberg Materials' cement products but also serves as a replicable model for other players in the industry, thus broadening the impact beyond a single entity. Cement production is recognized as one of the hard-to-abate sectors due to the intrinsic carbon emissions associated with its manufacturing process. By achieving a reduction in GHG emissions of approximately 780,000 tons of CO<sub>2</sub> per year, with a projected cumulative reduction of approximately 20,280,000 tons by 2050, the project underscores the potential for significant emission reductions in sectors where such measures are not yet widely adopted.



**Figure 3 - Models of an Alternative Fuels Feeding Solution**

*The following slides are real world examples of what the complete system would look like.*

## Section 2: Impact of GHG Reduction Measures (60 possible points)

### Magnitude of both near-term and long-term cumulative GHG emission reductions, the relative cost-effectiveness

Our focus on integrating alternative fuel technologies in the cement production process, demonstrates significant potential for both near-term and long-term cumulative GHG emission reductions. Near-term advancements are expected to yield approximately 780,000 tons of CO<sub>2</sub> reduction per year, with a cumulative reduction of approximately 4,600,000 tons by 2030 and 12,480,000 tons by 2035. Over a longer horizon, leading up to 2050, the project is projected to achieve a cumulative GHG emission reduction totaling approximately 20,280,000 tons of CO<sub>2</sub>.

This magnitude of emission reduction is particularly significant given the cement industry's status as a hard-to-abate sector, showcasing the project's potential to make meaningful impacts in GHG emission reductions through the deployment of existing and innovative technologies. The relative cost-effectiveness of the project is underscored by

its strategic approach to leveraging technology for sustainable industry practices, aligning with Heidelberg Materials' commitment to net-zero carbon concrete by 2050. The investment in such technologies not only addresses immediate GHG reduction goals but also paves the way for longer-term environmental and economic benefits. This balance between upfront costs and long-term sustainability benefits exemplifies the project's cost-effectiveness, making it a compelling candidate for CPRG implementation funding and a model for similar initiatives in other hard-to-abate sectors.

### **An estimate of the cumulative GHG emission reductions from 2025 through 2030/2035 (20 possible points)**

This project is expected to yield a reduction in greenhouse gas (GHG) emissions by an estimated 780,000 tons of CO<sub>2</sub> per year. By projecting forward, we anticipate a cumulative reduction of approximately 4,600,000 tons by 2030, and a further reduction of approximately 12,480,000 tons by 2035.

### **An estimate of the cumulative GHG emission reductions from 2025 through 2050 (10 possible points)**

Cement acts as the binder between aggregates (fine and coarse rocks) in the formation of concrete. While cement makes up only a small percentage of the mix (approximately 12 percent by volume), it is almost exclusively responsible for the resulting CO<sub>2</sub> emissions. This project is expected to achieve an annual reduction in greenhouse gas (GHG) emissions of approximately 780,000 tons of CO<sub>2</sub>. Over a 26-year period leading up to 2050, we anticipate a cumulative reduction totaling approximately 20,280,000 tons.

While the primary focus of the project is on reducing carbon dioxide (CO<sub>2</sub>) emissions, associated with the cement manufacturing process, there are indirect pathways through which the project could potentially impact the reduction of other greenhouse gases such as hydrofluorocarbons (HFCs), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>). While the reduction of Global Warming Potentials (GWP) for these gases are unknown at the time of this submission, the potential of reducing these gases may be measured during the feasibility study.

### **Quantified GHG reductions from CPRG funding**

$\$6,995,290 / \$6,995,290 \times 20,280,000 = 20,280,000$  tons of CO<sub>2</sub> reduction

### **Cost effectiveness of GHG reductions (15 points)**

$20,280,000 \text{ tons of CO}_2 \text{ reductions through 2050} / \$6,995,290 = \$2.89$  per ton of CO<sub>2</sub> reduction

### Section 3: Environmental Results – Outputs, Outcomes, and Performance Measures (30 possible points)

#### Expected Outputs and Outcomes (10 possible points)

Our project at the Leeds plant is set to achieve a range of significant expected outputs and outcomes, aimed at enhancing sustainability, operational efficiency, and community engagement. Foremost among the expected outputs is the successful integration of alternative fuels into the cement production process, which based on feasibility could include the use of Tire-Derived Fuel (TDF), plastics, and wood chips, thereby reducing reliance on traditional fossil fuels and lowering greenhouse gas emissions. Additionally, our project anticipates the establishment of robust contractor safety protocols, quality assurance processes, and enhanced coordination mechanisms to improve overall operational safety and efficiency. Heidelberg materials is poised to yield substantial environmental benefits by significantly reducing the carbon footprint of cement production in Alabama, fostering a safer work environment through stringent safety practices, and strengthening the plant's relationship with the Leeds community through educational and engagement initiatives. The following outcomes would not only advance Heidelberg Materials' commitment to sustainability and operational excellence but also contribute positively to the broader community and environmental goals:

- **Reduction in CO<sub>2</sub> Emissions<sup>4</sup>:** Achieve a 20% reduction in carbon dioxide emissions from cement production processes through the substitution of fossil fuels with alternative fuels such as Tire-Derived Fuel (TDF), plastics, and wood chips.
- **Increase in Alternative Fuel Usage:** Increase the use of alternative fuels to comprise at least 30% of the total fuel mix, significantly reducing reliance on traditional fossil fuels.
- **Improvement in Energy Efficiency:** Enhance energy efficiency by 15% through process optimizations and the adoption of energy-efficient technologies.
- **Reduction in Safety Incidents:** Decrease workplace safety incidents by 40% within the first year of implementing enhanced safety training and protocols.
- **Enhancement of Quality Control:** Achieve a 95% compliance rate with internal quality standards for all cement production by implementing rigorous quality assurance checkpoints and regular training sessions.
- **Waste Reduction:** Reduce industrial waste by 25% by 2026 through improved waste management practices and increased recycling of process by-products.

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<sup>4</sup> <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>

- **Water Conservation:** Achieve a 10% reduction in water usage in cement production processes by 2026 through the implementation of water recycling and conservation measures.

These quantified outcomes serve as specific, measurable goals that the project aims to achieve, providing clear targets for evaluating the project's success in enhancing sustainability, safety, and efficiency.

#### Performance Measures and Plan (10 possible points)

Performance Measures	Description of Activities
Install an alternative fuel receiving, handling, and dosing system for low-carbon alternative fuels	Explore and evaluate viable alternative fuel materials, determine maximum substitution rates, and assess feasibility for integration into existing kiln operations.
Conduct a feasibility study for carbon capture in coal seams to reduce carbon intensity	Test a modular carbon capture and handling system via a 3-well pilot (injection, collection, and monitoring), secure necessary permits and rights, and develop a final plan through a FEED Model
Commercial work for project implementation	Manage procurement processes and evaluate project contractors and partners.

#### Authorities, Implementation Timeline, and Milestones (10 possible points)

The City of Leeds acts as prime applicant to the CPRG implementation, under which Heidelberg Materials will become a sub-applicant. If awarded, the City of Leeds become pass-through organization with grant and program management responsibility. The City possesses a broad statutory authority in relation to the application and implementation of grant projects. Generally, exceptions are made when it can be determined that the expenditure of public funds serves a public good or purpose, even if a private entity or individual benefits. This determination was made by the City Council on February 19, 2024, by resolution affirming that a public purpose would indeed be served by the project under consideration. Statutory Authority Under 1975 Code of Alabama, Section 11-81A-2 of the provides another framework for the City's participation in grant programs. This provision facilitates collaboration with federal, state, local, or private entities in various capacities. Heidelberg Materials has a dedicated Grants Management Office that will assist with coordinating the scope of work, filing forms, and creating a budget.

## **Metrics for tracking progress**

The proposed performance measures for tracking progress are designed to ensure effective monitoring, measurement, and reporting of the outcomes and outputs related to each GHG reduction measure outlined in our workplan. Our plan for tracking progress will employ a series of predefined metrics and indicators that align with our project goals and objectives. These metrics will include, but are not limited to, the number of alternative fuels used versus traditional fuels, the volume of CO<sub>2</sub> captured and sequestered, and reductions in carbon intensity in the cement production process. Each metric will be closely monitored through the lifecycle of the project, providing real-time data that can be analyzed to assess performance against our established targets.

For the evaluation of GHG reduction measures, our approach will involve both qualitative and quantitative analyses. Quantitatively, we will measure actual GHG emission reductions, capturing the direct impact of our measures on greenhouse gas emissions. This will include detailed calculations of CO<sub>2</sub> equivalents reduced through each initiative, leveraging established protocols and methodologies for GHG accounting and reporting. Qualitatively, we will assess the broader environmental and societal impacts of our measures, including improvements in air quality and public health associated with reduced Criteria Air Pollutants (CAPs) and Hazardous Air Pollutants (HAPs).

Our results will be disclosed in regular progress reports, which will be made available to stakeholders, including project partners, regulatory bodies, and the public. These reports will detail the progress made towards achieving our workplan's expected outputs and outcomes, providing a clear, comprehensive view of the effectiveness of our GHG reduction measures.

### **Section 4: Low-Income and Disadvantaged Communities (35 possible points)**

Heidelberg Materials has outlined a comprehensive strategy for community engagement, recognizing the crucial role that local residents and institutions play in the success of sustainability initiatives. The engagement plan is designed to foster transparency, support, and collaboration, thereby ensuring that the project progresses smoothly and without significant resistance from the community.

#### *CEJST Census tract IDs or EPA's EJ Screen Census*

Jefferson County and the Northwest portion of Leeds are identified as disadvantaged. It has 2 categories that meet the criteria:

- Climate Change
- Health

### **Community Benefits (25 possible points)**

*Job Creation:* The project will create new employment opportunities during the construction phase and ongoing maintenance, contributing to economic growth in

Leeds. The project will stimulate economic growth through job creation and increased sustainability, making Alabama an attractive location for environmentally conscious industries.

*Environmental Improvement:* The alternative fuels project will help divert materials otherwise destined to landfills, reducing long-term storage/management impacts to surrounding communities, while also reducing potential generation of methane from long-term decomposition if biodegradable fuels are sourced, directly benefiting the health and well-being of the local community in Shelby and Jefferson County. By reducing greenhouse gas emissions through the adoption of cleaner, alternative fuels and the implementation of carbon capture technologies, the project directly contributes to mitigating the local and broader impacts of climate change, including extreme weather events and air quality deterioration. Moreover, the reduction of airborne pollutants associated with traditional cement production methods can lead to notable improvements in public health, particularly by decreasing respiratory and cardiovascular conditions often exacerbated by poor air quality. This initiative not only aims to advance environmental sustainability within the cement industry but also demonstrates a strong commitment to enhancing community well-being by addressing critical health and climate-related vulnerabilities faced by disadvantaged communities in the region.

## **Community Engagement**

Heidelberg Materials actively engages with the City of Leeds and various stakeholders to address community concerns and promote sustainability, partnership, and community relations. The company demonstrates its commitment to environmental protection and sustainability by participating in an Earth Day activity annually, showcasing its dedication to the community, employees, and customers. Heidelberg Materials fosters a dialogue with the Leeds City Chamber of Commerce through monthly lunch meetings where corporate sponsorship and participation allow the company to express opinions, ideas, and insights on community matters and future projects.

In terms of community partnership and land protection, Heidelberg Materials collaborates with the Leeds Fire Department and Leeds Police Department by leasing old quarries for training purposes, enhancing community relations and safety. The company also focuses on nurturing interest in engineering and trades among young people through plant tours offered twice a year to Leeds and Moody High Schools, and three times a year to the University of Alabama at Birmingham (UAB).

Our Leeds' plant staff strengthen community relations by hosting a booth at the Annual Halloween Trunk or Treat and participating in the Leeds Christmas Parade annually. These activities, led by Kristen Roley, Kimberly Rose, Kevin Lang, and under the responsibility of the Plant Manager and Environmental Manager, aim to foster a strong connection between the plant and the Leeds community, emphasizing the company's role in sustainable development and community engagement. Engaging with local residents and securing community support is critical for the smooth progress of the

project. Any resistance or delays in building consensus among stakeholders can result in project delays, affecting the timeline for GHG emission reductions. The project team understands that securing community support is not only about sharing information but also about listening to and addressing the concerns of local residents and stakeholders. Engagement efforts will include stakeholder mapping to identify key community leaders, interest groups, and institutions whose support is crucial for the project.

Heidelberg Materials commits to keeping the local community informed about the project's objectives, benefits, and progress. This will be achieved through regular updates, public meetings, and open forums where residents can ask questions, express concerns, and provide feedback. By fostering an environment of transparency, the company aims to build trust and support among the local population, demonstrating the project's positive impact on environmental sustainability and the local economy. Recognizing the importance of education in promoting sustainable practices, Heidelberg Materials plans to collaborate with local schools, colleges, and universities. This partnership will focus on creating learning opportunities for students and faculty, such as workshops, seminars, and field visits to project sites. These educational initiatives aim to raise awareness of the importance of GHG emission reductions and showcase the practical application of alternative fuels and carbon capture technologies. By engaging with educational institutions, Heidelberg Materials hopes to inspire the next generation of environmental stewards and provide valuable skills and knowledge relevant to the green economy. While aiming to build strong community support, Heidelberg Materials is also prepared to address any resistance or concerns that may arise.

### Section 5: Job Quality (5 possible points)

Our proposal offers an excellent opportunity to create high-quality jobs that adhere to the principles of the Good Jobs Initiative by the Department of Labor (DOL). Drawing from the Good Jobs Toolkit, this project is positioned to exemplify the Biden-Harris Administration's commitment to enhancing job quality and equity, particularly in the context of federal investments in infrastructure, clean energy, and manufacturing. By engaging with the local community and educational institutions, Heidelberg Materials ensures equitable pathways into the job opportunities created by this project. This project emphasizes creating 4-5 jobs that are not just plentiful but also of high quality. According to the toolkit, quality jobs offer fair wages, safe working conditions, predictable schedules, and career advancement opportunities. Here are some job titles that will be created by implementing this project:

#### **1. Operational Laborers:**

- o Operational laborers play a crucial role in executing tasks related to the shank system and trailer movement. Their job quality impacts overall project efficiency and safety.
- o Responsibilities include handling equipment, ensuring proper alignment, and following safety protocols.

- o Quality expectations for operational laborers involve precision, adherence to procedures, and effective communication with other team members.
- 2. **Truck Drivers:**
  - o Truck drivers are essential for transporting trailers within the construction site.
  - o Job quality expectations for truck drivers include:
    - Safe operation of vehicles.
    - Timely delivery of trailers.
    - Proper handling of loads.
    - Compliance with traffic rules and site-specific guidelines.
- 3. **Supervisors:**
  - o The supervisor oversees the entire process, ensuring smooth coordination and adherence to quality standards.
  - o Key responsibilities:
    - Monitoring work progress.
    - Addressing any issues promptly.
    - Ensuring compliance with safety regulations.
    - Providing guidance to laborers and drivers.
    - Quality expectations for supervisors involve effective leadership, problem-solving, and maintaining a positive work environment.

Heidelberg Materials' commitment to sustainability and environmental compliance naturally complements the promotion of labor agreements and union participation, ensuring that the jobs created are not only sustainable for the environment but also for the workers involved. This aligns with the toolkit's guidance on fostering community support to mitigate resistance and delays, thereby ensuring that the project not only meets its GHG emission reduction goals but also contributes to the social and economic upliftment of the community. Our proposal stands as a model for how federal investments can be leveraged to create high-quality jobs that are equitable, sustainable, and supportive of the community's long-term growth. By embodying the principles outlined in the Good Jobs Initiative, this project demonstrates a forward-thinking approach to industrial sustainability, workforce development, and community engagement.

#### Section 6: Programmatic Capability and Past Performance (30 possible points)

With over 150 years of experience in the cement and concrete industry, Heidelberg Materials has demonstrated a profound ability to innovate and lead in the provision of heavy building materials across 29 states, showcasing their capacity to manage projects of significant risk and complexity. The proposed project team, led by Heidelberg

Materials, is exceptionally qualified and possesses the comprehensive expertise required to successfully execute the project.

The Principal Investigator (PI), **George Garcia, serving as the Director of Cement Operations** for Heidelberg Materials Leeds plant, brings an unparalleled depth of expertise and knowledge to the table, with a distinguished career spanning over 40 years in the cement industry. His journey through various pivotal roles, including Plant Engineer, Maintenance Manager, Director of Engineering, Project Manager, Plant Manager, and ultimately VP Operations, has endowed him with a comprehensive understanding of cement production's intricacies and challenges. George's extensive experience is not limited to traditional operational leadership; he has been at the forefront of integrating innovative practices within the industry. He possesses specialized expertise in Alternative Fuels, having worked extensively with Tire-Derived Fuel (TDF), both whole tire and shredded tires, plastics, and wood chips. This experience underscores his commitment to sustainability and environmental stewardship, making him a key asset in driving Heidelberg's Leeds plant towards greener and more efficient production processes. His ability to oversee complex projects from conception to completion, coupled with his adeptness in maintenance management and engineering, positions him as a leader who not only understands the technical aspects of cement manufacturing but also values innovation and sustainability. George Garcia's leadership at the Leeds plant is instrumental in maintaining high standards of operational excellence, environmental responsibility, and continuous improvement, reflecting Heidelberg's commitment to being at the industry's cutting edge.

**Samuel Justice** serves as the **Environmental Manager** at Heidelberg Materials, based at the Leeds Cement Plant. With a robust 12 years of experience as an Environmental Specialist and Manager within cement plants, Samuel has established a significant track record in the field. His expertise encompasses the successful permitting of numerous alternative fuel materials and systems, both for trial use and permanent adoption. This experience highlights Samuel's profound understanding of environmental regulations and his ability to implement sustainable practices within the cement industry, showcasing his dedication to environmental stewardship and innovative resource management.

**G. Ray Nobles** brings a wealth of experience and expertise to his role as the **Alternative Fuel Manager** for Heidelberg Materials in the South Region, with a solid background spanning over a decade in the cement kiln alternative fuel and raw materials (AFR) industry. With roles that have evolved from technical sales and customer service coordination to leading the North American alternative fuel management for Heidelberg Materials, Nobles has demonstrated a profound understanding of the cement manufacturing process and the alternative fuel market. His career is marked by significant achievements in business development, P&L

management, and the successful implementation of non-hazardous and RCRA (hazardous) regulated waste programs, transforming waste into valuable coal and natural gas substitutes for cement operations across the United States. Under his leadership, the Logansport, Indiana, hazardous waste operation saw record volumes and revenue in 2022, with a continual annual increase in both volume and revenue since his start in 2018, despite minor material shortages. Nobles' comprehensive skill set includes P&L management, strategy development and implementation, and a strong focus on health and safety initiatives. Additionally, his academic background, with an MBA from Chadron State College and a BS in Organizational Leadership from Pennsylvania State University, complements his professional experience. Nobles is recognized for his ability to develop strategic alliances, optimize pricing methodologies, and drive growth, making him an invaluable asset to Heidelberg Materials and a key driver in advancing the company's sustainability and alternative fuel utilization goals.

**Lydia Vollmann, Director of Grants** within the Environment & Sustainability practice, holds an MBA and a BS in Business Administration, and is a Certified Grants Management Specialist (CGMS). With 16 years of experience in Federal funding administration, managing over \$45 billion in funding, Lydia's expertise ensures the project aligns with federal compliance and funding administration standards, providing a strong foundation for managing the project's financial and regulatory aspects.

Heidelberg Materials has experience in providing detailed briefings to the US Department of Energy (DOE) Project Managers either at face-to-face meetings or through virtual means. Our Mitchell, Indiana facility earlier this year completed a substantial multi-year modernization project with over \$700 million invested in an upgrade that has resulted in the most advanced, state-of-the-art cement plant in North America. We have made presentations at project kick-off meetings as well as quarterly and annual briefings explaining the plans, progress, and results of the financial and technical effort. We are currently participating in three Federally funded projects through the DOE, and are the prime on two:

Awarding Agency	DOE OCED	DOE FECM	DOE FECM
<b>Project Name</b>	Mitchell Cement Integrated FEED Study for CO <sub>2</sub> Capture & Storage	Mitchell Cement Plant FEED for Initial Capture	Subrecipient to CarbonSAFE Phase II – Sequestration Site Development

Heidelberg Materials has adequate access to the equipment and facilities necessary to accomplish the project, supported by their extensive network and resources across North America. Where additional resources are required, the team has clearly

demonstrated the capability to secure access to necessary equipment and facilities, ensuring the project's objectives are met efficiently and effectively.

#### Section 7: Budget (45 possible points)

Based on the provided budget line items and the shared contributions between the Federal share and Heidelberg Materials' share, we have developed a detailed budget for the project (please see budget justification and SF-424). This budget outlines the financial contributions towards various critical components of the project, including a feasibility study and the integration of alternative fuels, to include construction of receiving, handling, and dosing system. Additionally, it accounts for project management costs, ensuring comprehensive coverage of all necessary expenses for the successful execution of the project.

Budget Line Item	Federal Share	Heidelberg Share	Total Project Cost
Alternative Fuels Integration – Feasibility Study	\$600,000	\$216,320	\$816,320
Alternate Fuels Integration – Project Implementation	\$5,000,000	\$291,325	\$5,291,325
Community Engagement and Project Management by City of Leeds*	\$455,000	\$0	\$455,000
<b>Totals</b>	<b>\$6,055,000</b>	<b>\$507,645</b>	<b>\$6,562,645</b>

#### *Budget Assumptions:*

As a subrecipient, Heidelberg Materials commits to an 8% of in-kind to the cost share of the \$6.5M project total.

\*As a pass-through, City of Leeds would implement the administrative grant regulations.