

2010-11 Grant Proposal Solicitation
Air Quality Improvement Program (AQIP)

**ADVANCED TECHNOLOGY DEMONSTRATION PROJECTS:
ULTRA LOW-EMITTING LOCOMOTIVE EMISSION LEVELS**

**Mobile Source Control Division
California Air Resources Board
April 11, 2011**



**California Air Resources Board
Air Quality Improvement Program (AQIP)**

**Advanced Technology Demonstration Project:
Ultra Low-Emitting Locomotive Emission Levels**

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SUMMARY

The Air Resources Board (ARB or Board) is soliciting a grantee for up to **\$800,000**, encompassing one to four independent projects for demonstration and administration of advanced locomotive engines and/or aftertreatment systems that reduce emissions from locomotives to the Ultra Low-Emitting Locomotive emission level or below. This solicitation is issued under the Assembly Bill 118 (AB 118) AQIP's, Advanced Technology Demonstration Projects and is intended to fund technologies on the cusp of commercialization with the potential for significant reductions in criteria and toxic air pollutants. This competitive solicitation is open to local air districts or other California-based public agencies that demonstrate the requisite technical and administrative expertise. All work must be completed by June 30, 2013. Specific tasks are outlined within this solicitation. The proposal deadline for this solicitation is **May 11, 2011**.

BACKGROUND

In 2007, the *California Alternative and Renewable Fuel, Vehicle Technology, Clean Air, and Carbon Reduction Act of 2007* (AB 118, Statutes of 2007, Chapter 750) was signed into law. The Act created the AQIP, a voluntary incentive program administered by ARB, to fund clean vehicle and equipment projects, air quality research, and workforce training. ARB's appropriation for AQIP projects in the Fiscal Year (FY) 2010-11 State Budget is \$40 million¹. Based on projected revenues for the AQIP in FY 2010-11, ARB estimates approximately \$30 million will be available for grants.

In June 2010, ARB adopted the AQIP Funding Plan for FY 2010-11 (Funding Plan). The AQIP Guidelines establish minimum administrative and implementation requirements for the AQIP, while the Funding Plan serves as the blueprint for expending FY 2010-11 AQIP funds. The Funding Plan focuses AQIP on supporting development and deployment of the advanced technologies needed to meet California's longer-term, post 2020 air quality goals, and directs about 10 percent of FY 2010-11 AQIP funds to Advanced Technology Demonstration Projects.

ARB's goal under the Advanced Technology Demonstration Projects is to fund emerging strategies that are near deployment (less than three years from commercial application and past the initial research and development stage); and that have the potential of providing real and surplus cost effective emission reductions in criteria and toxic air pollutants, with greenhouse gas reductions as

¹ In the *AB118 Air Quality Improvement Program Funding Plan for Fiscal Year 2010-11* the Board approved monies for the Advanced Technology Demonstration Projects based on a \$40 million appropriation for AQIP projects in the State Budget. The Funding Plan included provisions to scale funding targets proportionally based on the final budget allocation. Projected revenue for the AQIP in FY 2010-11 is estimated to be about \$30 million rather than \$40 million.

a desired co-benefit. A significant investment of AQIP funds in the Locomotive category can yield large emission reductions, and accelerate implementation of new cleaner technologies in this sector. The June 2010 Board-approved Funding Plan allows for the following project in the Locomotive category.

- **Demonstrate locomotive engines and/or aftertreatment systems that meet or exceed the Ultra Low-Emitting Locomotive emission level (3.0 g NOx/bhp-hr and 0.1 g PM/bhp-hr)**

This competitive solicitation is the sole grant opportunity to be awarded for locomotive category projects this fiscal year and will be focused on the demonstration of locomotive engines and/or aftertreatment systems that reduce emissions from locomotives to the Ultra Low-Emitting Locomotive emission level (3.0 g NOx/bhp-hr and 0.1 g/bhp-hr PM), or below. Significant progress has been made in reducing emissions of criteria pollutant emissions from locomotive engines below the Low-Emitting Locomotive level (4.0 gNOx/bhp-hr and 0.1 g PM/bhp-hr) that potential projects that can only meet this level will not be considered. Projects that provide additional reductions in oxides of nitrogen (NOx) and particulate matter (PM) emissions, below the ULEL emission level will be scored higher than those that just meet the ULEL emission level. Projects that provide NOx and PM emission reductions will be given priority to those that only reduce NOx emissions. Strategies that require the use of added reactants (e.g. urea), not typically used on locomotives, to reduce NOx emissions will not be considered.

NEED FOR EMISSIONS REDUCTIONS FROM CATEGORY

Locomotives as a source category are ranked sixth for the levels of contributions to statewide NOx emissions. NOx emissions are important because of their role in the formation of ozone and secondary PM. Ozone and PM contribute to significant respiratory and public health problems and represent the highest priority criteria pollutants in California. As part of the 2007 PM State Implementation Plan (SIP) for the South Coast Air Basin, the ARB identified the need for an additional ten tons per day of locomotive NOx emission reductions by 2014.

In 2008, ARB health risk assessments (HRAs) determined that railyard diesel PM emissions contribute to areas with some of the highest potential cancer risk levels in the state. Even with regulations in place designed to reduce non-locomotive (e.g. drayage trucks, CHE and TRU) railyard emissions by 90 percent in 2015, ARB's HRA still suggest that locomotives will continue to be one of the largest contributors to PM and NOx emissions statewide.

In 2008, the United States Environmental Protection Agency (U.S. EPA) put in place the Tier 4 locomotive emission standards, which provide up to an additional 90 percent reduction as compared to the current model-year Tier 2 locomotives.

However, the Tier 4 standards will not go into effect for new locomotives until 2015. U.S. EPA, which has the authority to regulate locomotive emissions, estimates that the national locomotive fleet will take 30 years or more to turnover to the more stringent U.S. EPA emissions standards. Based on this schedule, a national fleet turnover to Tier 4 locomotives would not occur until 2045 or later.

In August 2009, ARB staff released the updated Technical Options Document which provided detailed analyses on 37 measures to further reduce locomotive and railyard emissions. Staff provided a technical assessment of each measure based on four key criteria: technical feasibility, potential emission reductions, capital costs, and cost-effectiveness. This document has served as the technical and program blue print for prioritizing future efforts to further reduce locomotive and railyard emissions. ARB AQIP staff has taken the Technical Options Document as its baseline for crafting advanced technology demonstration projects in the locomotive category.

ARB staff has verified Tier 3 genset switch (yard) locomotive repowers that emit at or below ultra low emitting switch locomotives (ULESL) NO_x and PM emission levels of 3.0 and 0.1 g/bhp-hr, respectively, which is well below current Tier 2 standards. ARB AQIP funds are currently supporting a field demonstration of an existing genset switch locomotive (UPY 2755) with a diesel particulate filter (DPF). Recent laboratory testing on the retrofitted genset switch locomotive with a prototype DPF showed emissions levels significantly below the U.S. EPA Tier 4 PM standard of 0.03 g/bhphr. Switch locomotives, which operate primarily in and around a railyards, can contribute up to half of the diesel PM emissions and cancer risks around railyards. The ARB is also funding a field demonstration of a medium horsepower (3,200 horsepower) line haul locomotive that has been repowered with a new Tier 2 engine and retrofitted with a diesel oxidation catalyst (DOC) and DPF to also potentially meet the U.S. EPA Tier 4 PM emission level.

The focus for the 2010-11 AQIP grant solicitation is to support demonstration efforts that make progress towards or achieve the U.S. EPA locomotive Tier 4 NO_x emission level of 1.3 g/bhp-hr. There has been concern in the railroad industry about operational issues associated with the use of urea as a reactant with selective catalytic reduction (SCR) aftertreatment systems. Staff has therefore placed a high priority on funding a field demonstration(s) of non-urea based solutions.

Staff believes that locomotive and engine manufacturers can employ advanced combustion engines or use exhaust gas recirculation (EGR) to further reduce locomotive NO_x emissions. The non-urea based approaches could make progress below current ARB NO_x ULEL levels and ultimately achieve or be below the U.S. EPA Tier 4 locomotive NO_x emission level of 1.3 g/bhp-hr. However, staff believes that further locomotive NO_x reductions, for any proposed AQIP approach, must be achieved while maintaining the progress made to date

with PM (i.e., ARB's below ULEL PM level of 0.1 g/bhp-hr). The ideal AQIP proposal would be to make progress towards or achieve the U.S. EPA Tier 4 NOx level of 1.3 g/bhp-hr and make similar progress towards meeting the Tier 4 PM level of 0.03 g/bhp-hr.

ELIGIBILITY

The ARB is soliciting proposals for a Grantee to administer and implement the demonstration of technologies to meet or exceed the Ultra Low-Emitting Locomotive emission level. This competitive solicitation is open to local air districts or other California based public entities to act as the lead agency providing administration and oversight for the demonstration project. Interested private sector parties, i.e. technology demonstrators, must partner with an air district or other California based public entity in submitting a demonstration project application.

An air district or other public entities can request demonstration project funds, without an identified technology demonstrator, with a commitment to solicit for a project once funds are secured from ARB via this competitive solicitation process. However, projects that already have all the needed participants, such as railroad, technology demonstrator and eligible grantee will score higher than those that do not have team members identified in advance.

If a public agency is selected as the Grantee, it will be required to submit a resolution of the agencies Governing Board prior to execution of the Grant Agreement that commits the agency to comply with the Advanced Technology Demonstration Project requirements and authorizes the agency to accept the grant funds from ARB. If a match is committed, the board resolution shall authorize the Air Pollution Control Officer or other legally authorized official to supply sufficient funding to meet the stated match commitment. Signed grant agreements and approved board resolutions need to be in place before the cut-off date shown in the Application Process section of this solicitation.

Only applications from eligible applicants will be scored.

This solicitation covers the use of technologies, engines, engine components or aftertreatment technologies that can meet or exceed the Ultra Low-Emitting Locomotive emission level. Projects funded under this solicitation must be within three years of commercialization.

RESPONSIBILITIES OF GRANTEE AND TECHNOLOGY DEMONSTRATOR

The Grantee will be responsible for administration of the demonstration project and its major roles will include:

- Submission of Demonstration Project Application to ARB

- Administration of the Project
- Oversight of Technology Demonstrator
- Report to ARB on Project Status and Grant Performance
- Submission of Periodic Reports and Grant Disbursement Requests to ARB
- Coordinate periodic project status update meetings

The Technology Demonstrator's major roles in the demonstration project will include:

- Team with Air District or other Public Agency to Develop Demonstration Project Application
- Provide the Technical Expertise in Performance of the Demonstration
- Timely Achievement of Stated Demonstration Project Goals
- On-Time Reporting to the Grantee on Project Status and Grant Performance

Progress reports from the Technology Demonstrator shall be submitted, at a minimum of three month intervals, to the Grantee. The Grantee is responsible to forward the progress reports unaltered to the ARB within 7 business days. Additionally, every grant disbursement request shall be accompanied by a progress report that documents the time interval seeking disbursement for and the completion of specific project milestones including any specific deliverables as defined for that milestone.

A final report will be required to be submitted from the Grantee and Technology Demonstrator at the conclusion of the demonstration project. The demonstration project will not be complete until the final report has been accepted by the ARB. The contents of the final report will be agreed to in advance by the grantee, the Technology Demonstrator, and the ARB. The final report will include, but will not be limited to, a summary of the progress reports, provide any deliverables that were committed to in the project proposal, and will detail the results from any emission testing performed.

Additional reporting requirements are detailed in the Reporting and Monitoring Requirements section of this solicitation.

ELIGIBLE PROJECTS/SCOPE OF WORK

This solicitation covers administration and demonstration of projects for locomotive engines and/or aftertreatment systems that reduce emissions of NOx primarily and PM secondarily from locomotives at a minimum to the ULEL emission level. It is anticipated that projects funded under this solicitation will reduce emissions to the ULEL emission level (3.0 g NOx/bhp-hr and 0.1 g PM/bhp-hr) or below and make progress toward achieving Tier 4 emission levels. Significant progress reducing emissions from locomotive engines has been made

since the public release of the Technical Options Document and the Board approval of the Funding Plan. Seizing this opportunity to demonstrate cutting edge technology at or below the ULEL emission level is a fundamental goal of the Advanced Technology Demonstration Projects and demonstrates the need to be agile in setting goals for emission reducing technology in the near-commercial sphere. Potential projects that reduce emissions from locomotive engines to the Low-Emitting Locomotive level (4.0 gNO_x/bhp-hr and 0.1 g PM/bhp-hr) or above will not be considered. Projects that reduce NO_x emissions without the use of added reactants will be given first priority while projects that reduce emissions of PM will be given second priority. Projects that reduce emissions of NO_x without added reactant and provide PM emission reductions by using exhaust aftertreatment will be considered NO_x projects.

This solicitation may fund such activities as pilot demonstrations, the construction and deployment of prototypes, emissions testing, and practical demonstrations of technologies with a high potential to be commercialized. It may not be used to fund basic research, design-only projects, or commercial production. Field applications as demonstrations of practical utility are required.

The demonstration of technologies that achieve the ULEL emission level or below must have an identifiable potential market and reasonable economics, and its commercialization should provide economic benefits to California.

Reproducible emission testing to verify the emission benefits from the demonstration of technologies funded under this solicitation will be required to be performed and described in the final report, including the anticipated cost effectiveness of the project once introduced into the market place. If NO_x emissions are being measured the result will be shown as NO_x and NO plus NO₂. The emission testing procedure used to verify emission reductions should be cited in the application's project narrative. If the proposed project is for an aftertreatment system, describe in the Project Narrative if ARB verification will be sought and the plan to achieve ARB verification. The final emission testing procedure will be subject to ARB approval.

Data collected from emission testing as part of a selected demonstration project and included in the application's submitted workplan and proposed projects scope of work can be applied toward ARB or U.S. EPA certification or verification. However, AQIP Advanced Technology Demonstration Projects funds can not be used directly to fund formal ARB and U.S. EPA verification or certification processes.

If the proposed project uses any vehicle, engine, retrofit or piece of equipment that has been funded in whole or part by the Carl Moyer Memorial Air Quality Standards Attainment Program or other public incentive programs and is still under contractual obligations, its incentive program status must be identified in the project narrative. Additionally, the project narrative must include a plan to

ensure that emission reductions required by any incentive program's contract are made whole for the piece of equipment that is proposed to be used in the technology demonstration.

AVAILABLE FUNDING

The total funding available through this solicitation for the Advanced Technology Demonstration Projects to reduce emissions from locomotives to the ULEL emission level is up to \$800,000 depending on the availability of State funds. The estimated number of projects selected for funding is expected to be between one and four projects. Administrative costs may not exceed 10 percent of the total cost budget for the proposal and only 10 percent of AQIP funds may be used for administrative purposes.

REQUIRED MATCHING FUNDS

The applicant match is required to be a minimum of 50 percent of the total project budget. Of the 50 percent required match, 10 percent of funds must be cash committed by the applicant or technology demonstrator (exclusive of providing in-kind contribution). Match funding must be provided in the following manner:

1. A minimum of 10 percent cash from the applicant or demonstrator
2. Up to 40 percent through some combination of in-kind contributions such as labor, equipment, materials, equipment transportation, private financing and federal or state funds.

Project facilities, laboratories, or property will not be considered as part of a proposed in-kind match whether owned or leased by the grantee or technology demonstrator.

If a third party, (i.e., a party other than the grantee or technology demonstrator) proposes to provide any part of the required match, the applicant must include a letter from each third party stating that it is committed to providing a specific dollar value of cost sharing and the source of such funds. An applicant and its partners must demonstrate technical and fiscal resources sufficient to meet their cost share commitment and complete the proposed project.

PROPRIETARY INFORMATION AND INTELLECTUAL PROPERTY

ARB will not make any claims as to ownership of equipment funded by Advanced Technology Demonstration Projects funds. The technology demonstrator and grantee will make available information and data generated as part of the project that is described in the proposed work plan and scope of work which will be included in the grant application. Additionally, the technology demonstrator and grantee will make available any information and data needed to satisfy the

requirements discussed in the Reporting and Monitoring Requirements section of this solicitation.

ARB can keep confidential only certain types of information provided in proposals that have been submitted in response to solicitations. Data gathered on actual emissions to the air, as part of this demonstration project cannot be protected from disclosure. Any information determined to be a trade secret or otherwise exempt from disclosure under the Public Records Act or other provisions of law must be labeled “confidential.” Review Appendix A, Attachment 4 for procedures for handling confidential information. If you wish to include confidential information, you must:

- Complete the Confidentiality Provision (Appendix A, Attachment 4) and attach it to your proposal
- Separate confidential pages from the other elements of the proposal (do not include any confidential information in the main proposal)
- Clearly label every confidential page as “CONFIDENTIAL”

Proposals will be reviewed by ARB staff and may include reviewers outside the ARB associated with public universities in California and other State government agencies as needed, all of which can protect confidential information according to confidentiality agreements with ARB. In the proposal, at the point where the information would appear if it were not confidential, please indicate its existence under the separate cover. Please provide the name, address, and telephone number of the individual to be contacted if ARB receives a request for disclosure of the information claimed as confidential.

APPLICATION REQUIREMENTS

Eligible applicants must meet all applicable requirements of State law, AQIP Guidelines, Funding Plan, and this solicitation. To be considered for the grant award, applicants must complete the project application and demonstrate that they meet the required solicitation elements. ARB may request clarification regarding application responses during the application review process. Only applications that contain all the required elements as described in the Application Content and Organization section and Appendix A of this Solicitation will be scored.

Please enclose with your proposal any documents (or pertinent excerpts) that you cite in support of performance claims in your proposal. However, do not include materials that are not needed to supply the information requested in these instructions. ARB will not review patent documents, engineering drawings and specifications, or promotional materials.

Include in your application package letters of support from project partners that describe the nature of their contribution to the project.

The application package must include four signed original copies and one compact disk containing the application package, including, as a single electronic file, all the required documents in MS Word 2003 or PDF format. Applications that do not meet the above file requirements may not be scored.

APPLICATION PROCESS

The application packet contains the application and information necessary for submittal of a complete application. ARB shall select the Grantee in compliance with the AQIP Guidelines, this solicitation and applicable State law. Demonstration project Grantee selection will be based upon the scoring criteria identified in this solicitation.

If you need this document in an alternate format or language, please contact Grace Garcia at (916) 323-2781 or ggarcia@arb.ca.gov. TTY/TDD/Speech to Speech users may dial 711 for the California Relay Service.

Four signed original copies and one CD of the application must be received at the Air Resources Board headquarters at 1001 I Street, Sacramento, CA 95812.

Applications must be mailed to the following address:

Grace Garcia
Air Resources Board
Mobile Source Control Division
1001 I Street, P.O. Box 2815
Sacramento, CA 95812

Applications must be received by Grace Garcia by May 11, 2011 5:00 PM. Please provide enough time to allow for delivery to ensure that the above application submittal deadline is met. Applications received after submittal deadline shall not be scored.

Please send an email to Grace Garcia at ggarcia@arb.ca.gov identifying that you have submitted an application. ARB will confirm with the applicant that the application was received.

No applications may be submitted by fax or email.

Solicitation Timelines

Public Release of Solicitation	April 11, 2011
Applicant Workshop	April 19, 2011
Application Deadline	May 11, 2011 5:00 PM
Review/Rating of Applications	May 12 – May 26, 2011
Grantee Selected	May 27, 2011

Signed Grant Agreement and
Board Resolution Returned to ARB **June 22, 2011**

Timelines are subject to change at ARB's sole discretion.

Applicants Workshop

ARB will hold an Applicants Workshop at which time staff will be available to answer questions potential applicants may have regarding eligibility, application completion and other issues.

The Applicant Workshop and conference call will be at:

Date: April 19, 2011
Time: 1:30 PM to 3:00 PM
Place: Cal/EPA Headquarters
 1001 I Street, Sacramento
 Conference Room 720

Call-in Number: **1-888-790-1889**
Passcode: **50503**

The workshop will be open to all interested entities. A call-in phone number is provided for those unavailable to attend in person. The intent of the workshop is to provide potential applicants with an opportunity to ask clarifying questions regarding general application, applicant requirements or terminology definitions. Written questions submitted before the workshop will be given priority.

Questions may be e-mailed to Mr. Earl Landberg at elandber@arb.ca.gov and may be submitted by 5 p.m. up to two days prior to the workshop. The questions and answers from the workshop and any questions received via e-mail by 5 p.m. on April 18, 2011 will be posted on the ARB website no later than 5 p.m. on April 26, 2011, ARB will not answer questions regarding this solicitation after the Applicant Workshop. Any verbal communication with an ARB employee concerning this solicitation is not binding on the State and shall in no way alter a specification, term or condition of the solicitation.

APPLICATION CONTENT AND ORGANIZATION

The ARB strongly encourages applications to be accurate, brief and clear. Applications will be initially screened for completeness. The application packet for this solicitation is included in Appendix A, and includes the following elements:

- A. Applicant Information and Qualifications
- B. Project Description

- C. Proposed Budget
- D. Confidentiality Provision
- E. Letters of Commitment

Completed applications should be assembled in the above order when submitted.

EVALUATION AND SCORING

The ARB will evaluate each application based on the criteria described below, the maximum score is 100 points. The qualified applicant with the highest overall score will be selected for funding. Up to four independent projects will be funded under this solicitation and the total amount funded will not exceed \$800,000. If no agreement can be reached, ARB may negotiate with the next highest scored proposal until an agreement is reached. If no agreement can be reached, ARB reserves the right, in its sole discretion throughout this process to not award a grant and redirect the funds to other AQIP projects or demonstration project categories.

The successful applicant will be required to sign a grant agreement with ARB to fulfill the administrative duties and technical duties associated with the project (see Appendix B for a Sample Draft Grant Agreement). Signed grant agreements and approved Board resolutions must be returned to ARB no later the deadline described in the Application Process section of this solicitation. If project grant agreements and approved Board resolutions are not returned by the deadline, the ARB, in its sole discretion, may rescind the grant award and can redirect funds to another submitted application to this solicitation or to another project in the Funding Plan as needed.

If, in the ARB's sole discretion, no submitted proposal meets the goals of this solicitation, Funding Plan or AQIP Guidelines, no selection of a Grantee or Technology Demonstrator will be required to be made and funding can be directed to another project in the Funding Plan as needed.

If two or more applications are submitted for the same project those applications will be scored separately and the highest scoring project will then compete against the remaining individual projects

Summary of Scoring Criteria for Demonstration Projects

	Scoring Criteria	Points
1	Relevance to the Solicitation Objective and Potential Emission Reduction Benefits	20
2	Match Funding and Financial Capabilities	15
3	Project Objective and Work Plan	10
4	Technology and Innovation	15
5	Application Completeness	10
6	Potential for Market Penetration and Commercialization of the Technology	10
7	Environmental Justice	5
8	Project Team Capabilities and Degree of Industry Collaboration	10
9	Timeline for Project Completion	5
	TOTAL	100

The **PROJECT NARRATIVE** must separately address each of the scoring criteria listed below, with the exception of Scoring Criteria number 5, see instructions for the project narrative in Appendix A, Attachment 2.

1. Relevance to the Solicitation Objective and Potential Emission Reduction Benefits 20 Points

- Describe how the project meets ARB's goal under the Locomotive Category for the Advanced Technology Demonstration Projects as described in this solicitation and the Funding Plan.
- Describe the estimated cost effectiveness of the technology in dollars per ton of criteria pollutant reduced using the current Carl Moyer Program cost effectiveness methodology during the demonstration and when deployed into the marketplace. This methodology, relevant tables and instructions are included in Appendix C of this solicitation. Provide a clear and concise description of the methodology employed in determining any potential greenhouse gas emission reductions. Show all math used for in calculations.
- Describe the utility of the innovative technology to help California achieve its air quality goals with the objective of significantly reducing criteria pollutant and greenhouse gas emissions from the Locomotive Category.

2. Match Funding and Financial Capabilities 15 Points

- Provide a clear and concise project budget that lists all expenditures for the project in a logical sequence that leads to on-time completion of the project. See sample budget in Appendix A Attachment 3.

- Demonstrate that the applicant and/or technology demonstrator will be financially capable of providing the minimum 50 percent match requirement of the total project budget (including the 10 percent cash requirement exclusive of in-kind contributions). Higher match pledges will be scored higher.
- Describe each financial contribution to the project, in addition to describing other current and pending funding sources for the required cost share match. Identify if all or a portion of the match funding is dependent upon successful grant award under any other solicitation.
- Attach Letter(s) of Commitment from each third party (i.e., a party other than the organization submitting the application) stating that it is committed to providing a specific minimum dollar amount of cost sharing. Letters must be signed by the person authorized to commit the expenditure of funds by the entity.

3. Project Objectives and Work Plan

10 Points

- Provide a concise statement of the specific goals and objectives of the proposed project.
- In a logical sequence, describe the tasks necessary to prepare for and conduct a practical demonstration of the innovative technology. Tasks should be divided into the phases of the project, as appropriate, and described in enough detail for reviewers to understand the scope of the work.
- Provide quantitative milestones for each budget period of the project, and identify them with a title and planned completion date. The general duration for each task should be specified.
- Identify the test sites, data to be collected, the conditions under which they will be collected, and the test methods.
- Indicate the budget and source of funding for each task and what entity (applicant or industry partner) will perform the task.
- Identify the resources (e.g., equipment, machine and electronic shops, field and laboratory facilities, materials, etc.) to be used at each performance site listed. Describe only those resources that are directly applicable to the proposed work. List important items of equipment already available for this project. If proposing an equipment acquisition, describe comparable equipment, if any, already at your organization and explain why it cannot be used.

4. Technology and Innovation

15 Points

- Identify and describe the technological innovation that is the basis for the proposal. If the innovation is a component of a device or process, also describe the device or process. Descriptions should be understandable to

reviewers who are not expert in the field. Cite (but do not include) patents if needed. Describe exactly what part of the technology is innovative, how it is innovative, and how it works.

- Explain the technical advantages of the innovation and document performance claims.
- Describe what type of emission testing has already been done on the proposed technology.
- Project provides additional reductions in oxides of nitrogen (NO_x) and particulate matter (PM) emissions, below the ULEL emission level.

5. Application Completeness 10 Points

- Applications that are clear, concise, and include all the requested information will be scored higher than those that are unclear or missing information. Do not make a declaration as to application completeness in your submittal.

6. Potential for Market Penetration and Commercialization of the Technology 10 Points

- Define target markets and explain why the targeted industries would buy the innovation after a successful demonstration project. Both markets within and outside of California should be considered.
- Describe the recent and expected growths of the targeted industries.
- Identify the specific market niche for the proposed technology and describe its size and potential for growth.
- Describe any specific barriers to entry or expansion.
- Describe any special training that will be required for installation and maintenance personnel.

7. Environmental Justice 5 Points

- Explain how the proposed project, and the expected commercialized outcome of the project technology, will benefit at risk communities or populations in environmental justice areas. Proposed projects with the potential to benefit environmental justice communities that can demonstrate how the potential project would address the ARB's Environmental Justice policy will be scored higher. The ARB's Environmental Justice policies can be found at: <http://www.arb.ca.gov/ch/programs/ej/ejpolicies.pdf> .

8. Project Team Capabilities and Degree Industry Collaboration

10 Points

- Describe the roles and the work to be performed by each of the project's key participants, including project administration, project planning, field testing, and data collection and reporting.
- Describe the administrative and technical qualifications and capabilities of key personnel, such as education and training, research and professional experience, publications (patents, copyrights, and software systems may be provided in addition to or substituted for publications), and ability to administer similar air quality programs.
- Describe the applicant's relationship and degree of collaboration with Locomotive industry partners on the proposed project. Describe what business alliances and partnerships will be involved in commercialization.
- Performance of the Grantee with previous AQIP projects will be considered.

9. Timeline for Project Completion

5 Points

- Provide a project schedule including the milestones as described in the "Project Narrative and Workplan" section of Appendix A. Both a tabular and graphic display (such as a Gantt chart) of the project schedule is preferred, but at a minimum a tabular display is required. Information must include task duration, start and completion dates, in addition to the milestones.
- Demonstrate that work will be accomplished by June 30, 2013.

IMPLEMENTATION PROCESS

Meetings

Before work begins, a kick-off meeting will be held in Sacramento between the grantee, the technology demonstrator, and the ARB project management staff. The purpose of this meeting will be to discuss the work plan, details of task performance, the project schedule, any changes to the project team, and any issues that may need resolution before the ARB-funded work begins. Meetings to discuss progress will be held at least quarterly, with telephone conference calls being acceptable upon approval of the ARB grant liaison. Site visits by ARB staff may be required at ARB's sole discretion. A final meeting, or conference call pending ARB grant liaison approval, will be held at the conclusion of the project to review the results and discuss the status of commercialization plans.

Project Funding Procedure

In order to receive a disbursement, the Grantee must submit a grant disbursement request to ARB. The grant disbursement request form must be signed by the party authorized and designated in Grant Agreement and include all information to substantiate the eligibility of costs to be reimbursed. AQIP grant funds will only be issued for equipment and services that are identified in the Scope of Work and Workplan included in the application package and have already been rendered. A detailed invoice will be required. The advance of grant funds will not be allowed.

Disbursements will be made following the procedure described in the Reporting and Monitoring Requirements section of this solicitation and the signed grant agreement.

Reporting and Monitoring Requirements

To ensure that public funds are being used prudently, reporting on project status and monitoring the project will be required. The selected Grantee must submit status reports accompanying grant disbursement requests to ARB at least every three months, but may be provided on a monthly basis if necessary for more frequent invoicing, with prior approval from ARB. These reports should contain the following information, at a minimum in either MS Word 2003 or PDF formats if submitted electronically as a single electronic file:

- Summary of work completed since the last progress report, noting progress toward completion of tasks and milestones identified in the work plan
- Statement of work expected to be completed by the next progress report
- Notification of problems encountered and an assessment of their effects on the project's outcome
- Itemized invoice showing all costs for which reimbursement is being requested

A final report is required at the end of the project and must include:

- A description of the project's goals and objectives, methods, results of the demonstration, and future application of the technology
- An update on the commercialization prospects

Requests for additional information may be required by ARB, at its sole discretion, to evaluate reports and to determine if a quarterly or final report is complete.

Any change in the project budget, re-definition of deliverables, or extension of the project schedule must be approved in advance by the ARB grant liaison in writing.

Once a grant is in place, minor changes to the work to be done or other project scope changes may be considered by ARB, in consultation with the grantee or technology demonstrator. ARB will not terminate a grant because of minor technical difficulties or minor under-accomplishment of stated project objectives, in ARB's sole discretion. However, ARB reserves the right to terminate a grant if ARB determines, in its sole discretion, that the objectives cannot be reached or that the grantee, technology demonstrator or its subcontractors cannot perform the required work or as specified in Section 6 of the grant agreement.

The grantee and technology demonstrator must allow ARB, the California Department of Finance, the California Bureau of State Audits, or any authorized designee access, during normal business hours, to conduct reviews and fiscal audits, or other evaluations. Granting of access includes, but is not limited to, reviewing project records, site visits, and other evaluations as needed. Project evaluations or site visits may occur unannounced as ARB staff or its designee deem necessary.