TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

AGENDA ITEM REQUEST

AGENDA REQUESTED: December 19, 2007

DATE OF REQUEST: November 30, 2007

NAME & NUMBER OF PERSON TO CONTACT REGARDING CHANGES TO THIS REQUEST, IF NEEDED: Kerry Howard, (512) 239-0556

CAPTION: Docket No. 2007-1648-RES. Consideration of the adoption of revisions to Texas Emissions Reduction Plan: Guidelines for Emissions Reduction Incentive Grants (RG-388).

The revisions to the guidelines would implement changes to the Texas Emissions Reduction Plan (TERP) as authorized in Senate Bill 12 and House Bill 160, 80th Legislature, 2007. Additional revisions to the Guidelines were also proposed by the Executive Director.

Copies of the draft revised Guidelines were made available for public comment in accordance with the provisions of Texas Health and Safety Code, Section 386.053. The commission received comments on the proposed revisions to the Guidelines. Those comments have been considered and responded to in the Executive Director's Response to Comments. (Steve Dayton, Brad Patterson)

Chief Engineer **Division Director**

Agenda Coordinator

Copy to CCC Secretary? NO X YES____

Texas Commission on Environmental Quality

INTEROFFICE MEMORANDUM

To: Commissioners **Date:** November 30, 2007

Thru: Ms. LaDonna Castañuela, Chief Clerk
Mr. Glenn Shankle, Executive Director

From: Mr. David C. Schanbacher, P.E., Chief Engineer

Docket No.: 2007-1648-RES

Subject: Commission Approval for Adoption of Revisions to
Texas Emissions Reduction Plan: Emissions Reduction Incentive Grants (RG-388)

Scope:

The revisions implement changes to the Texas Emissions Reduction Plan (TERP) grant program criteria as authorized under Senate Bill 12 and House Bill 160, 80th Legislature, 2007, and other revisions proposed by the Executive Director.

Reasons for the changes:

Texas Health and Safety Code § 386.053 directs the commission to adopt guidelines and criteria for the grant programs authorized under the Texas Emissions Reduction Plan (TERP). The current guidelines, *Texas Emissions Reduction Plan - Guidelines for Emissions Reduction Incentive Grants* (RG-388), were adopted by the commission in May 2004. The guidelines establish the detailed criteria and requirements for grant projects funded under the TERP.

Subsequent to the last revision to the guidelines, the commission made a number of decisions and provided direction to staff that more specifically defined some of the grant criteria and requirements. In addition, Senate Bill (SB) 12, sponsored by Senator Averitt, and House Bill (HB) 160, sponsored by Representative Wentworth, enacted by the 80th Texas Legislature, revised some of the program criteria and expanded some of the eligible grant project categories. Revisions to the TERP rules, 30 TAC Chapter 114, Subchapter K, Division 3, to incorporate applicable changes are scheduled for consideration by the commission on December 5, 2007. The guidelines need to be revised to incorporate the statutory and regulatory changes and to update the criteria and requirements.

The proposed revisions to the guidelines are presented in the attached final draft document along with a summary table listing the changes.

Statutory Authority:

The revised guidelines are adopted under Texas Health & Safety Code § 386.053(d), which authorizes the commission to revise the guidelines and criteria for the TERP as necessary to improve the ability of the plan to achieve its goals. The revised guidelines are also adopted as part of the implementation of SB 12 and HB 160, 80th Legislature, 2007.

Re: Docket No. 2007-1648-RES

Potentially controversial matters:

Based on the comments received, one controversial item is the change removing the option that vehicles, equipment, and engines replaced under the program may be removed from the state in lieu of being recycled or scrapped. Several comments were received expressing concerns about this change.

Public comment:

The proposed revisions to the guidelines were made available for public comment in accordance with the provisions of Texas Health & Safety Code § 386.053. Notice of the proposed revisions was published in nine major newspapers within the Texas Emissions Reduction Plan (TERP) eligible counties, posted on the TERP website, sent by electronic mail to the TERP listserv, mailed to the TERP Advisory Board, and mailed to the U.S. Environmental Protection Agency Region 6.

Public meetings on the proposed revisions to the guidelines were held November 5, 2007, at the Houston-Galveston Area Council in Houston, Texas; November 6, 2007, at the North Central Texas Council of Governments in Arlington, Texas; November 13, 2007, at the Alamo Area Council of Governments in San Antonio, Texas; and November 15, 2007, at the Texas Commission on Environmental Quality in Austin, Texas.

The commission received fourteen written and/or oral comments regarding the proposed revisions to the guidelines. Comments were received from Adrianus Resources (Adrianus), BNSF Railway Company (BNSF), Capital Area Council of Governments (CAPCOG), City of Dallas (Dallas), EMISSTAR, Emission Solutions Inc. (ESI), Environmental Defense (EnvDef), U.S. Environmental Protection Agency Region 6 (EPA), Harris County (HarrisC), City of Houston (Houston), North Central Texas Council of Governments (NCTCOG), Port of Houston Authority (POHA), Texas Department of Transportation (TxDOT), and Union Pacific Railroad Company (UP).

A summary of the comments received and the response to the comments is included in the attached Executive Director's Response to Comments.

Significant changes from proposal and recommendations:

No changes from the original proposed revisions to the guidelines are recommended. However, revisions to the TERP rules are scheduled for consideration by the commission on December 5, 2007. Decisions by the commission regarding the rule changes may affect some of the proposed revisions to the guidelines.

The Executive Director recommends adoption of the revised guidelines as proposed, with authorization to make changes as needed to reflect the commission's final decisions on the TERP rules and to make any needed non-substantive changes to formatting or to correct errors.

Agency contacts:

Mr. Steve Dayton, Project Manager, 239-6824, Air Quality Division
Mr. Brad Patterson, Staff Attorney, Environmental Law Division, 239-1201

Re: Docket No. 2007-1648-RES

Attachments

cc: Chief Clerk, 5 copies
Executive Director's Office
Mr. David C. Schanbacher, P.E.
Mr. Daniel Womack
Ms. Ashley K. Wadick
Mr. Zachary Covar
Office of General Counsel
Mr. Steve Dayton
Mr. Brad Patterson
Ms. Kerry Howard

ORDER ADOPTING GUIDELINE REVISIONS

Docket No. 2007-1648-RES

On December 19, 2007, the Texas Commission on Environmental Quality (Commission) adopted revisions to the Texas Emissions Reduction Plan: Guidelines for Emissions Reduction Incentive Grants (Guidelines). The proposed revisions to the Guidelines were made available for public comment in accordance with the provisions of Texas Health & Safety Code § 386.053. Notice of the proposed revisions was published in nine major newspapers within Texas Emissions Reduction Plan (TERP) eligible counties, posted on the TERP website, sent by electronic mail to the TERP listserv, mailed to the TERP Advisory Board, and mailed to the United States Environmental Protection Agency Region 6.

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The Commission received comments on the proposed revisions to the Guidelines. Those comments have been considered and responded to in the Executive Director's Response to Comments.

IT IS THEREFORE ORDERED BY THE COMMISSION the revisions to the Guidelines are hereby adopted. The adopted revisions and the Executive Director's Response to Comments are incorporated by reference in this Order as if set forth at length verbatim in this Order.

The provisions of Texas Health & Safety Code § 386.053 exempts revisions to the Guidelines from the rule-making requirements of Chapter 2001, Government Code. This Order does not constitute an order required by the Administrative Procedure Act, Government Code, Section 2001.033.

If any portion of this Order is for any reason held to be invalid by a court of competent jurisdiction, the invalidity of any portion shall not affect the validity of the remaining portions.

Issued date:

TEXAS COMMISSION ON
ENVIRONMENTAL QUALITY

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Buddy Garcia, Chairman

Texas Emissions Reduction Plan (TERP)
Guidelines for Emissions Reduction Incentive Grants (RG-388)
Executive Director's Response to Comments
Docket No. 2007-1648-RES
November 30, 2007

PUBLIC COMMENT

The proposed revisions to *Texas Emissions Reduction Plan: Guidelines for Emissions Reduction Incentive Grants* (RG-388) were made available for public comment in accordance with the provisions of Texas Health & Safety Code § 386.053. Notice of the proposed revisions was published in nine major newspapers within the Texas Emissions Reduction Plan (TERP) eligible counties, posted on the TERP website, sent by electronic mail to the TERP listserv, mailed to the TERP Advisory Board, and mailed to the U.S. Environmental Protection Agency Region 6.

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The commission received fourteen written and/or oral comments regarding the proposed revisions to the Guidelines. Comments were received from Adrianus Resources (Adrianus), BNSF Railway Company (BNSF), Capital Area Council of Governments (CAPCOG), City of Dallas (Dallas), EMISSTAR, Emission Solutions Inc. (ESI), Environmental Defense (EnvDef), U.S. Environmental Protection Agency Region 6 (EPAR6), Harris County (Harris), City of Houston (Houston), North Central Texas Council of Governments (NCTCOG), Port of Houston Authority (POHA), Texas Department of Transportation (TxDOT), and Union Pacific Railroad Company (UP).

RESPONSE TO COMMENTS

Reformatting of the Guidelines.

Harris, Houston, and EPAR6 supported the changes to make the Guidelines more user friendly.

The commission appreciates the support for these changes.

Increase in cost effectiveness limits from $13,000 to $15,000 per ton of NO_x reduced.
(Appendix 1, pages 33 and 36; Appendix 2, pages 49 and 51; Appendix 3, pages 63 and 66; Appendix 4, pages 79 and 82; Appendix 5, pages 93, 96, and 97; Appendix 6, page 107; Appendix 7, page 115; Appendix 8, page 124; Appendix 9, page 132, and Appendix 10, page 138)

Adrianus, Dallas, EPAR6, ESI, Harris, and Houston commented in support of the increase in the cost effectiveness limits.

The commission appreciates the support for this change.

Adrianus and ESI also recommended that the commission use this maximum limit when setting the cost effectiveness thresholds for the future grant rounds.

This comment is outside of the scope of the revisions to the Guidelines. The commission will make decisions on the cost effectiveness thresholds, within the limits set by the Guidelines, prior to opening the next grant application period.

Revision to allow travel on highways and roadways to count towards the requirement that grant-funded on-road vehicles be operated at least 75 percent of the annual miles in the eligible areas.
(Chapter 3, page 5, and Appendix 1, pages 31, 33, 34, and 35)

EMMISTAR, EPAR6, Harris, Houston, and NCTCOG commented in support of this change.

The commission appreciates the support for this change.

EnvDef and NCTCOG also recommended that the usage and associated emissions reductions on the designated highways and roadways be used in calculating the cost-effectiveness of a project.

Texas Health & Safety Code § 386.105(d), requires that only the reductions in nitrogen oxide (NO_x) emissions that are achieved in the nonattainment areas and affected counties may be used to determine the cost-effectiveness of a project. The commission would not be able to consider the reductions in NO_x emissions occurring on the designated highways and roadways outside of the nonattainment areas and affected counties when calculating the cost-effectiveness of a project.

Harris and Houston commented that language be added to clarify that Interstates and U.S. Highways within nonattainment areas can be used to meet the 75 percent requirement.

The commission does not agree that this clarification is needed. The provisions in the Guidelines state that use within the eligible counties counts towards the requirement.

Revision to specifically include marine vessel infrastructure projects in the list of eligible infrastructure projects.
(Appendix 7, page 113)

EPAR6 and Dallas commented in support of this change.

The commission appreciates the support for this change.

Revision to allow other state agencies to apply to fund idle reduction facilities at rest areas and other public facilities.
(Appendix 7, page 113)

EPAR6 and Dallas commented in support of this change.

The commission appreciates the support for this change.

Dallas, Harris, and Houston commented that this provision could be enhanced by allowing local governments to apply for grants under TERP to fund idle air reduction technologies.

The commission does not agree that additional language is needed. Local governments are already eligible to apply for an idle reduction infrastructure project under the on-site infrastructure category.

POHA requested that Chapter 3 be revised to identify water routes eligible for infrastructure funding. POHA recommended identifying federal and state ship channels and waterways.

The commission does not agree that additional language is needed. Marine vessel infrastructure projects on federal and state ship channels and waterways within the eligible counties are eligible for funding under the on-site infrastructure category.

Addition of a new project category for Rail Relocation and Improvement projects to reduce locomotive engine idling and air pollution.

Dallas, Harris, and Houston commented in support of this change.

The commission appreciates the support for this change.

EMISSTAR commented that it does not support this change as proposed. EMISSTAR expressed concern that the proposed Guidelines do not establish an upper limit to the project costs that may be funded and that a significant portion of the TERP funds could be usurped by a single project.

The commission does not agree with the requested changes. The decision on funding individual projects or types of projects will be made each grant round, based on an evaluation of the project applications received, the cost effectiveness of those projects, and how well those projects will meet the goals of the program.

EMISSTAR also stated that projects under this category should be subject to the same rules as other emission sources, such as the requirement that projects achieve at least a 25 percent reduction in NO_x emissions and that the locomotives involved operate at least 75 percent in the nonattainment areas.

The commission does not agree with this recommendation. The reductions in emissions as a result of this type of project will occur at the location of the improvements, which must be in the eligible counties. The location of use of the locomotives impacted by these improvements, outside of the reduction in engine idling at the site of the improvements, has no bearing on the emission reductions that will be achieved by the project. Regarding the requirement that projects achieve at least a 25 percent reduction in NO_x emissions, all projects involving eliminating engine idling achieve a 100 percent reduction in the NO_x emissions associated with the engine idling operation. In any case, per Texas Health & Safety Code § 386.104(f), the minimum percentage reduction provisions only apply to retrofit, repower, replacement, or add-on projects, and not to infrastructure projects. Including an additional restriction on infrastructure projects is not necessary.

EMISSTAR also commented that a tenet of the TERP program is that grants may not be used to fund improvements to emission sources already regulated that help those sources meet required standards. Because the emissions standards for locomotives will change in 2008, EMISSTAR stated that TERP funds should be used to address legacy emission sources that are not otherwise being regulated.

The commission does not agree with the requested changes. The fact that locomotives are covered by a federal emissions certification requirement is no different from the requirements for on-road and non-road engines. The rail relocation and improvement project category will not help locomotives to meet the federal emissions standards. Similarly, replacement or repower of older locomotives with newer models does not help the manufacturers of new locomotives meet the federal standards in building those new locomotives. In the instances where EPA rules require that locomotives of certain older model years be upgraded to a cleaner standard at the time of a major overhaul, the TCEQ ensures that those requirements have already been met before funding a repower of that model year of locomotive.

EMISSTAR commented that the locomotive sector in general already has access to other funding sources for similar types of projects and that although reducing the effect of emissions from locomotives is important, there are much better ways to do so, without eliminating funding from other cost-effective projects.

The commission does not agree with this recommendation. Locomotive projects are an eligible category under the TERP as established in Texas Health & Safety Code Chapter 386. Locomotive emissions make up a substantial part of the emissions inventory in the nonattainment areas and reduction of those emissions will help address the goals of the TERP.

BNSF, TxDOT, and UP commented that the reductions in vehicle idling emissions should be included in the determination of the emission reductions under this project category. BNSF and UP also commented that the provisions in House Bill (HB) 160 did not limit the determination of emission reductions to just locomotive idling emissions. UP commented that on-road vehicle idling in congestion, with resulting vehicle emissions, is a recognized problem that HB 160 intended to be addressed.

The commission does not agree with this recommendation. Texas Health & Safety Code § 386.109(4), as added by HB 160, directs that the improvements must be at a rail intersection in a nonattainment or near-nonattainment area. Improvements and reductions in congestion at intersections between rail lines and highways or roadways are not included in this provision. The commission understands that, in some cases, improvements to rail intersections to reduce locomotive idling may also reduce vehicle wait time at road crossings near the rail intersection. However, the commission must focus the review and assessment of the project applications on manageable assessment criteria. Determining the reduction in emissions as a result of reducing measurable hours of locomotive engine idle time is relatively straightforward, and the U.S. Environmental Protection Agency (EPA) has established guidelines for determining the idle emission rates and reductions in emissions associated with reducing locomotive engine idling. However, attempting to also assess the associated reductions in vehicle emission idling would be much harder to determine and verify. The commission must make decisions on grant applications very quickly. Attempting to assess a range of traffic studies, with varying degrees of accuracy, would not be possible in the time frame and with the expertise available to review these applications and to make a decision on awarding a grant.

Removal of the option to allow grantees to remove old vehicles and equipment from the state in lieu of scappage.
(Chapter 4, page 15; Chapter 5, page 19; Chapter 6, page 23; and Chapter 7, page 28)

EnvDef and EPAR6 commented in support of this change.

The commission appreciates the support for this change.

EMISSTAR, Harris, Houston, and UP commented that they do not support this change. EMISSTAR stated that it has information that potential TERP participants have been unwilling to participate in TERP for the past few grant rounds because the change in guidelines would not allow transfers or sales of equipment out of the state. EMISSTAR suggested that the commission allow TERP participants the option of either choosing whether to take a salvage value of $1,000 and scrap the engine or equipment, or to transfer or sell the equipment of the state. The TERP participant would be contractually liable for ensuring that the engine or equipment never returns to Texas. Harris and Houston stated that this requirement is overly burdensome and is not required by state or federal law. UP commented that the scrappage requirement is unnecessary for locomotive projects and will jeopardize the future viability of the projects.

The new provisions for scrappage were also included in proposed changes to the TERP rules, 30 TAC § 114.622(c), scheduled for consideration on December 5, 2007. Similar comments were received regarding the rule change and will be considered as part of the rule adoption decision-making process. The final Guidelines will reflect the final rule changes.

The commission understands the concern expressed regarding the effect this change will have on the participation in the TERP program by owners of equipment and locomotives. The commission began not accepting the option to transfer or sell the old equipment and engines outside the state beginning with the fiscal year (FY) 2007 grant rounds. This change to the criteria will make permanent the interim decision by the commission to not accept that option.

This change is based on a number of factors, including a detailed internal review of the program by the commission's audit staff and an evaluation of the risks associated with the grant award decisions. In addition, guidelines published in 2006 by the EPA, entitled *Diesel Retrofits: Quantifying and Using Their Benefits in SIPs and Conformity – Guidance for State and Local Air and Transportation Agencies* (EPA420-B-06-005, June 2006), state that in order to use the emissions reductions from any replacements in a State Implementation Plan (SIP) or in a conformity determination the vehicle, engine, or equipment being replaced should be scraped or the replaced engine returned to the original manufacturer for remanufacturing to a cleaner standard. Under the proposed revisions, the commission would consider the remanufacturing process as a form of scrapping of the old engine.

The commission has very little control over the replaced equipment once it leaves the state. The commission is also limited in its ability to ensure that the old equipment and engines are actually removed from the state. This change is proposed to address the risks associated with the replacement grants as well as the direction in the EPA guidance to ensure that the old equipment and engines are permanently removed from the emissions inventory and that the emissions reductions are creditable to the SIP.

Addition of language to require that vehicles, equipment, and engines replaced under the program be destroyed within 90 days after reimbursement from the TCEQ and that the activity life will start once the verification of destruction is received.
(Chapter 4, page 14; Chapter 5, page 19; Chapter 6, page 23; and Chapter 7, page 28)

Harris and Houston commented in support of this additional language.

The commission appreciates the support for this change.

Provision to limit reimbursements to up to 80 percent of eligible incremental costs for replacement projects.
(Appendix 1, page 33; Appendix 2, page 49; Appendix 3, page 63; Appendix 4, page 79; and Appendix 5, page 93)

EnvDef commented in support of this change.

The commission appreciates the support for this change.

Harris, Houston, and POHA requested that governmental entities be exempt from the reimbursement limits. All three entities commented that governmental entities already have to follow competitive purchasing requirements, ensuring that prices are reasonable.

The commission does not agree with the recommendations. This provision is intended not only to ensure that prices are reasonable, but to ensure that the applicant is committed to the project and has a stake in the success of the purchase and the use of the vehicle or equipment.

Provision to limit reimbursements to up to 50 percent of the total eligible costs for on-site infrastructure projects.
(Appendix 6, page 105; Appendix 7, page 114)

Harris and Houston requested that governmental entities be exempt from the reimbursement limits for on-site infrastructure.

The commission does not agree with the recommendation. This provision is intended not only to ensure that prices are reasonable, but to ensure that the applicant is committed to the project and has a stake in the success of the use of the infrastructure.

Revision to make it clear that the minimum activity life is five years but that the commission may set a longer minimum activity life for particular grant rounds.
(Appendix 1, page 38; Appendix 2, page 53; Appendix 3, page 68; Appendix 4, page 84; Appendix 5, page 97; Appendix 6, page 107; Appendix 7, page 116; Appendix 8, page 126; and Appendix 9, page 133)

Harris, Houston and POHA commented that they support an activity life of five years and not seven, unless the commission intends to proportionately increase the cost-effectiveness rate so that the intent of Senate Bill 12, 80th Texas Legislature, pertaining to the increase in the cost effectiveness limits is fulfilled.

The comments appear to reflect a concern that a longer activity life will negatively impact projects. However, a longer activity life results in a greater amount of emissions reductions to apply to the cost-effectiveness of the project. As a result, a project where the grant recipient agrees to track and report on the use of grant-funded equipment for a longer period of time may be able to count more emission reductions and qualify for a greater amount of funding under the cost-effectiveness provisions. Also, decisions on the length of the activity life will be made by the commission based on the needs of the program, including the target years for reducing emissions in the nonattainment areas under the SIP.

Revision to change the minimum length of lease agreements from 12 months to the length of the activity life.
(Appendix 1, pages 31 and 32; Appendix 2, pages 47 and 48; Appendix 3, page 62; Appendix 4, pages 77 and 78; and Appendix 5, pages 91 and 92)

Harris and Houston commented in support of the change.

The commission appreciates the support for this change.

EMISSTAR did not agree with this change and commented that the change would disallow most leasing agreements. EMISSTAR recommended accepting lease agreements that have a dollar buyout or a commitment to buy where the grantee purchases the equipment at the end of the lease to fulfill the remainder of the activity life.

The commission does not agree with the recommended change. This provision applies to leases under the Purchase or Lease project category. A lease with a commitment to buy at the end of the lease is considered a purchase. However, for leases where there is no commitment to buy, the commission has determined that the risks are too great that the grant recipient may not fulfill the requirements of the grant.

Addition of language to require grant recipients to place a label/sticker on TERP-funded vehicles and equipment.
(Chapter 4, page 14; Chapter 5, page 19; Chapter 6, page 23; and Chapter 7, page 28)

Harris and Houston commented in support of this provision, as long as the commission promptly issues stickers with the reimbursements or in a manner that will not unreasonable affect the City's day-to-day operations.

The commission will not require the placement of the sticker unless and until one is provided to the grantee by the commission.

Addition of language authorizing the TCEQ to establish a default scrappage value in lieu of the applicant determining a value up front.
(Appendix 1, page 33; Appendix 2, page 49; Appendix 3, pages 63 and 64; Appendix 4, page 79; and Appendix 5, page 93)

Harris, Houston, and POHA expressed opposition to this change. POHA commented that efficiency should not supplant accuracy when scrappage values are determined. Houston commented that grant amounts are awarded based on the net costs (replacement minus residual value) and such values are largely market driven. Harris commented that the commission has not provided: (a) the methodology to be used to determine the benchmark values, (b) a schedule for revising the values, and (c) a method by which grant recipients could petition the TCEQ if the benchmark significantly understates or overstates the known or actual scrappage value.

The commission understands the concerns expressed by Harris, Houston, and POHA. However, trying to determine the accurate value of the old vehicle or equipment up front has proven to be very difficult and created administrative problems in efficiently managing the program. In particular, trying to verify the values often delayed and substantially backlogged the reimbursement process. Under this provision, the commission will set default values where appropriate and when doing so will benefit the needs of the program and to ensure that applications can be processed in a timely manner.

Addition of language to clarify that grant recipients must purchase (not lease) on-site or on-vehicle electrification and idle-reduction infrastructure.
(Appendix 5, page 105; Appendix 7, page 114; and Appendix 8, page 124)

Harris and Houston commented in support of the new language, as long as the exceptions as proposed are maintained.

The commission appreciates the support for this change.

Addition of language to explain that administrative/internal costs are not eligible for reimbursement.
(Appendix 1, page 38; Appendix 2, page 54; Appendix 3, page 68; Appendix 4, page 84; Appendix 5, page 98; Appendix 6, page 108; Appendix 7, page 117; Appendix 8, page 126; and Appendix 9, page 133)

Harris and Houston expressed support for this change, if the full incremental costs (100 percent) of replacement equipment is considered eligible.

The commission does not agree with the recommendation to allow the reimbursement of the full incremental costs for replacement projects. That provision is intended not only to ensure that prices are reasonable, but to ensure that the applicant is committed to the project and has a stake in the success of the purchase and the use of the vehicle or equipment.

Addition of language to explain that consultant fees for application preparation and coordination are not eligible for reimbursement.
(Appendix 1, page 38; Appendix 2, page 54; Appendix 3, page 68; Appendix 4, page 84; Appendix 5, page 98; Appendix 6, page 108; Appendix 7, page 117; Appendix 8, page 126; and Appendix 9, page 133)

Harris and Houston commented in support of this additional language.

The commission appreciates the support for this change.

Addition of language regarding the use of Global Positioning System (GPS) units to track and monitor grant-funded vehicles/equipment.
(Chapter 4, page 15; Chapter 5, page 19; Chapter 6, page 23; Chapter 7, page 29; Appendix 1, pages 31, 33, 34, and 35; Appendix 2, pages 47, 49, and 50; Appendix 3, pages 61, 63, 64, and 65; and Appendix 4, pages 77,79, 80, and 81)

POHA requested that the commission consider including operational costs of GPS systems as an incentive for their use.

All reimbursements must be submitted to the Texas Comptroller of Public Accounts within a set time frame after the fiscal year in which the funds were appropriated. In addition, the commission is limited in its ability to make payments for expenses that have not yet been incurred. Therefore, the commission has limited reimbursements under all project categories to direct costs that are incurred and paid within the required time periods and prior to the reimbursement request. The commission does not agree with the recommendation to make an exception to those requirements for the ongoing operational costs of the GPS systems.

Harris and Houston commented in support of this provision only if: (1) grant recipients may voluntarily install these systems, (2) the grant amount is increased by the initial equipment cost, and (3) GPS reports can be used in lieu of the submission of written usage reports. Harris and Houston also requested that the commission not require the use of GPS as a tool to ensure compliance by grant recipients.

The Guidelines provide for voluntary use of the GPS system and for use of the GPS reports in lieu of written reports. The grant request may include the initial costs of the GPS equipment, although the GPS costs are added to the other costs in determining the cost-effectiveness of the project. Also, the commission does not agree with the recommendation that GPS not be used as a tool to ensure compliance by grant recipients. The commission intends to use the installation and use of a GPS system as an option for grant recipients that fail to meet the terms of their agreement with the commission, in lieu of immediate return of grant funds. This allowance will benefit grant recipients by deferring immediate action to recover grant funds if the grant recipient agrees to use GPS to verify to the commission that the grant requirements are being complied with.

Other comments

EMISSTAR and NCTCOG recommended allowing for a monetary incentive for retrofit projects based on the actual emission reductions achieved, irrespective of the cost of the retrofit technology. NCTCOG commented that without an added monetary incentive to install and use retrofit technologies, entities have nothing to gain by participating in the program. EMISSTAR commented that the commission could implement this incentive by allowing certain retrofitted equipment to be applied for as a replacement grant rather than a retrofit grant. Under this scenario, the applicant could purchase a used piece of equipment that has been retrofitted by the dealer.

UP recommended the use of a lump sum contract for a specified amount, rather than making reimbursement on an expense-by-expense basis.

The commission does not agree with these recommendations. Under Texas Health & Safety Code § 386.102(a), the TERP grants are to be used to offset the incremental cost of eligible projects. Providing an additional monetary incentive beyond the incremental costs or using a lump sum contract in lieu of reimbursing actual costs would require a statutory change.

NCTCOG recommended that the commission accept retrofit technologies that have been verified by credible testing programs in other countries, in addition to those verified by EPA or the California Air Resources Board.

The commission does not agree with this recommendation. In order to be creditable to the SIP, the commission must ensure that EPA will accept the emission reductions. However, the commission would appreciate receiving information from NCTCOG regarding the verification programs in other countries.

NCTCOG commented that because of the phase-in period for meeting the new on-road engine standards, there are no engines that will meet the new purchase project category requirements that engines be certified to emit 25 percent less NO_x than the current federal standard for that model year of engine. NCTCOG recommended that the baseline for comparison be the emission rate currently being met by engine manufacturers of 1.2 grams per brake horsepower-hour (g/bhp-hr) of NO_x, rather than the final phase-in standard of 0.2 g/bhp-hr.

The commission does not agree with this recommendation. The program relies on the engine standards established by federal rule so it can be assured that the EPA will accept the emission reductions for credit to the State Implementation Plan. Engine manufacturers will continue to lower the emission rates of engines in order to reach the 0.2 g/bhp-hr standard and it would not be appropriate to set interim limits based on the emission levels that the majority of engines appear to be certified to at a particular point in time.

ESI and Adrianus recommended that the commission account for other emissions, like particulate matter (PM), and that the commission could adopt California's method of calculating emission reductions to include incentives to reduce greenhouse gas and CO_2 emissions.

The commission does not agree with this recommendation. Many areas of the state are currently nonattainment for ground-level ozone. As a precursor to ozone formation, NO_x emissions are the commission's priority.

ESI and Adrianus recommended that lower cost-effectiveness bonuses be given to areas where low-income residents, elderly persons, children, and other population sectors are most susceptible to pollution.

The commission does not agree with this recommendation. Providing cost-effectiveness bonuses would not be consistent with statutory restrictions on reimbursements. Further, most of the vehicles and equipment funded under the TERP are not operated in just one unique local area that could be targeted for special consideration.

ESI and Adrianus commented that the commission should broaden the criteria for using fuel use as the usage factor for calculating the emission reductions of a project to include more stop and go vehicles that stop an average of 100 or more times per day.

Under the Guidelines, fuel use may be used in lieu of miles of operation as the usage factor for those on-road vehicles that have a significant power-take-off operation (PTO) and for which use of the engine in a non-propulsion mode is required to perform the required functions. The commission does not agree with the recommendation to expand the provision to allow fuel use to be considered for on-road vehicle operations with significant idle time not associated with a PTO use. The emission factors developed to determine emission rates per mile of operation account for the stop-and-go duty cycle of some of these vehicle types. In addition, the commission encourages operators to shut off the engine in lieu of idling when the engine is not needed.

Adrianus commented that the commission should adopt the cleanest technology possible, rather than allowing projects using diesel engines to continue to be funded.

The commission does not agree with this recommendation. This program does not specify the technology that must be used. Also, the emission standards for on-road diesel engines are now consistent with the standards for on-road alternative fuel engines.

Adrianus recommended that applications be limited to those projects that show a 60 percent reduction in NO_x emissions rather than the current 25 percent requirement.

The commission does not agree with this recommendation. Making such a change would significantly limit the number of eligible projects, resulting in much of the funding remaining unspent and therefore, less emission reductions from this program.

UP recommended a job assignment grant structure, where the grant would be based on a commitment by the grant recipient to use cleaner locomotives at a particular location, rather than emission reductions based on specific locomotives.

The commission does not agree with this recommendation. Implementing this type of change would require statutory changes.

CAPCOG commented that for the replacement project category, no consideration is given to the fact that use of the new vehicle or equipment may also reduce the use of other vehicles and equipment in that fleet in addition to the vehicle or equipment being replaced.

The commission does not agree with this recommendation. There would not be a feasible way to verify the actual changes in fleet usage as a result of the change to just the one vehicle being replaced.

Dallas commented that the commission should consider additional factors, such as predominate location of emission sources within the region when evaluating which projects should receive monetary incentives.

EnvDef commented that the commission should target a significant portion of funding during an upcoming round of grants to emission sources within concentrated areas of activity, such as the Port of Houston. EnvDef commented that funding could be targeted to a specific vocation, such as vehicles that make a minimum number of trips to terminals owned or operated by the Port of Houston Authority. EnvDef also urged the commission to relax the cost effectiveness test for this targeted effort.

POHA recommended that the commission recognize the Houston-Galveston-Brazoria nonattainment area as a priority in fiscal years (FY) 2009 through 2013. POHA also commented that the cost per ton limits should not vary between source categories. Harris and Houston also requested that the commission focus on on-road and off-road mobile emission sources in the Houston-Galveston-Brazoria nonattainment area.

EMISSTAR commented that staff should not be allowed to change funding criteria from cost per ton to also consider location of the project in a priority area after applications have been submitted. EMISSTAR also commented that if the Corpus Christi and Victoria areas are excluded from funding in the next grant round, the commission loses the opportunity to fund cost-effective projects in geographic areas that need significant air quality improvements.

Adrianus also recommended that the Corpus Christi and Victoria areas be included in the next funding round.

ESI and Adrianus recommended that funding be offered based on certain types of applications within each emission category, such as funds only for school buses, refuse trucks, transit buses, or municipal fleets. Adrianus also recommended that a bonus of 20 percent be offered for fleets that operate on or near main thoroughfares in major cities to go beyond the minimum requirements. Adrianus suggested that this bonus could be offered to any fleet that switches to a true alternative fuel and cuts NO_x emissions by more than 75 percent would be eligible for the bonus over the standard cost-effectiveness provisions.

ESI and Adrianus recommended that technologies that use clean fuels (CNG, LNG, LPG) get bonus points of at least 20 percent over the cost-effectiveness provisions.

Harris and Houston provided a number of comments regarding the draft funding plan that was discussed with the commission at the October 12, 2007, work session where the commission authorized release of the draft Guidelines for public review and comment. The comments regarding the draft funding plan are summarized below.

a. Harris and Houston requested clarification of the statements regarding emissions reductions in the Dallas-Fort Worth nonattainment area being a priority in the FY 2008-2009 biennium.
b. Harris and Houston recommended that the cost per ton limits for all projects except for locomotive projects be set at the maximum of $15,000 per ton of NO_x reduced. Harris and Houston agreed with a cost per ton limit of $5,000 for locomotive projects.
c. Harris and Houston recommended governmental entities be exempted from any limits on the percentage of the project costs that may be reimbursed under a grant.
d. Harris and Houston expressed support for the allocation of funds for school bus retrofit projects.
e. Harris and Houston recommended that the TCEQ not extend the minimum activity life to seven years, without a proportional increase in the cost-effectiveness limit.
f. Harris and Houston expressed support for the list of areas to be eligible for funding in FY 2008.
g. Harris and Houston recommended that the funding allocation for the Rebate Grants Program be increased from $30 million to $38 million.
h. Harris and Houston expressed support for awarding grants on the basis of (1) cost-effectiveness and (2) the needs of each area, as long as each area's needs are considered.
i. Harris and Houston expressed support for the proposal to exclude qualifying fuel projects, if 100 percent of the net cost of equipment replacement is considered eligible for reimbursement.

j. Harris and Houston expressed support for excluding demonstration projects from the eligible project categories, since demonstration projects may also be funded under the New Technology Research and Development Program.
k. Harris and Houston recommended that the TCEQ extend the opportunity to obtain idle reduction infrastructure grants to municipalities and other governmental agencies in addition to other state agencies.
l. Harris and Houston recommended that limits be placed on the percentage of the costs that may be reimbursed under a rail relocation and improvement project grant.
m. Harris and Houston expressed support for continued funding for third-party grant projects and the TCEQ's evaluation of future proposals for third-party grants.

Comments on cost per ton limits, priorities for areas and types of projects, and other decisions unique to particular funding rounds are outside the scope of these Guideline revisions. Decisions on the funding plan for each grant round will be made by the commission before the opening of each grant round.

Texas Commission on Environmental Quality (TCEQ)
Texas Emissions Reduction Plan
Guidelines for Emissions Reduction Incentive Grants (RG-388)
Summary of Additions and Changes
November 30, 2007

Change	Explanation
Formatting Changes	
Reformatted the Guidelines. *See table of contents for new document format. Appendixes were created for each category of emissions source (on-road, non-road, etc.)*	Chapters were created for each type of grant program and an appendix was developed for each type of emissions source (on-road, non-road, marine, etc.). This change is proposed to make it easier to view the processes for each of the grant programs authorized under the TERP and to then find the criteria specific to each type of emissions source.
Implementation of Senate Bill (SB) 12, 80th Texas Legislature	
Increased the cost-effectiveness from $13,000 to $15,000 per ton of nitrogen oxides (NO_x) emissions reduced. *See Appendix 1, pages 33 and 36; Appendix 2, pages 49 and 51; Appendix 3, pages 63 and 66; Appendix 4, pages 79 and 82; Appendix 5, pages 93, 96, and 97; Appendix 6, page 107; Appendix 7, page 115; Appendix 8, page 124; Appendix 9, page 132; and Appendix 10, page 138.*	Senate Bill 12 amended Texas Health and Safety Code §386.106(a) to raise the maximum cost effectiveness from $13,000 to $15,000 per ton of NO_x reduced.
Added information to allow travel on highways and roadways to count towards the requirement that grant-funded on-road vehicles be operated at least 75 percent of the annual miles in the eligible areas. *See Chapter 3, page 5, and Appendix 1, pages 31, 33, 34. and 35.*	Senate Bill 12 amended Texas Health and Safety Code §386.104(c) to allow travel on highways and roadways designated by the commission to count towards the requirement that grant-funded on-road vehicles be operated at least 75 percent of the annual miles in the nonattainment areas and affected counties.
Included a list of highways and roadways upon which vehicle travel may count towards the requirement that grant-funded on-road vehicles operate 75 percent of the annual miles in the eligible areas or on designated highways and roadways. *See Chapter 3, page 5.*	The proposed change lists the highways and roadways that are designated under the percentage of use requirement explained above.

Change	Explanation
Included marine vessel infrastructure projects to the list of eligible projects. *See Appendix 7, page 113.*	Senate Bill 12 amended Texas Health and Safety Code §386.109(2) to add marine vessels to the list of vehicles and equipment for which an electrification or idle reduction infrastructure project may be funded.
Added project information to allow other state agencies to fund idle reduction facilities at rest areas and other public facilities. *See Appendix 7, page 113.*	Senate Bill 12 amended Texas Health and Safety Code §386.109 to authorize the commission to fund other state agencies to lease, purchase, or install idle reduction infrastructure at rest areas and other public facilities located on major highway transportation routes in eligible nonattainment areas and affected counties.
Implementation of House Bill (HB) 160, 80th Texas Legislature	
Added a project category and appendix for Rail Relocation and Improvement projects to reduce locomotive engine idling and air pollution. *See Chapter 4, page 12, and Appendix 9, page 131.*	House Bill 160 amended Texas Health and Safety Code §386.109 to add a new category to the list of infrastructure projects that may be funded under the TERP. The new project category is to fund rail relocation and improvement projects at major rail intersections in the eligible counties to reduce locomotive engine idling.
Other Proposed Changes	
Deleted the option to allow grantees to remove old vehicles/equipment from the state. *See Chapter 4, page 15; Chapter 5, page 19; Chapter 6, page 23; and Chapter 7, page 28.*	This change is based on an evaluation of the risks associated the option to allow vehicles and equipment being replaced to be removed from the state in lieu of scrapping the vehicle or equipment and the difficulties with ensuring compliance with the removal option. This change was recommended by the TCEQ's Chief Auditor and is consistent with recent guidance for state retrofit and replacement programs published by the U.S. Environmental Protection Agency (EPA), entitled: *Diesel Retrofits: Quantifying and Using Their Benefits in SIPs and Conformity* (EPA420-B-06-005, June 2006). The EPA guidance for replacement programs states that the vehicle or equipment being replaced should be scrapped. Beginning with the FY 2007 grant rounds, the TCEQ has required scrappage only. This change is also included in the proposed revisions to the TERP rules, 30 TAC Chapter 114. The language in the final guidelines will be contingent upon the decision of the commission regarding the rule changes.

Change	Explanation
Added language to require that vehicles, equipment, and engines replaced under the program be destroyed within 90 days after reimbursement from the TCEQ. The activity life for these projects will start once the verification of destruction is received. *See Chapter 4, page 14; Chapter 5, page 19; Chapter 6, page 23; and Chapter 7, page 28.*	In the past, the vehicle or equipment must have been destroyed within 90 days of purchasing the new vehicle or equipment. The start of the activity life was set when the new vehicle or equipment was put into service. However, for many projects there has been an overlap period between when the new vehicle or equipment was received and the old vehicle or equipment was destroyed. This change makes it easier for the TCEQ to track the deadline for when verification of destruction must be received and for when the activity life and the emissions reductions associated with the project should begin. This additional language is consistent with current practice.
Added language to limit reimbursements up to 80 percent of eligible incremental costs for replacement projects. *See Appendix 1, page 33; Appendix 2, page 49; Appendix 3, page 63; Appendix 4, page 79; and Appendix 5, page 93.*	This additional language is consistent with current practice implemented subsequent to the last revision to the guidelines. Requiring a 20 percent cost share in the purchase of the replacement vehicle or piece of equipment helps to ensure that the grant recipient negotiates a reasonable price for the vehicle or equipment.
Added language to limit reimbursements to up to 50 percent of total eligible costs for on-site infrastructure projects. Included language to exclude from this requirement grants to other state agencies for idle reduction infrastructure at rest stops and other public facilities. *See Appendix 6, page 105; and Appendix 7, page 114.*	This additional language is consistent with current practice implemented subsequent to the last revision to the guidelines.
Revised the language to make it clear that the minimum activity life is five years but that the commission may set a longer minimum activity life for particular grant rounds. *See Appendix 1, page 38; Appendix 2, page 53; Appendix 3, page 68; Appendix 4, page 84; Appendix 5, page 97; Appendix 6, page 107; Appendix 7, page 116; Appendix 8, page 126; and Appendix 9, page 133.*	This is consistent with current practice. The minimum activity life is set by the statute but the commission may establish a longer minimum activity life for particular grant rounds.
Changed the length of lease agreements from 12 months to the length of the activity life. *See Appendix 1, pages 31 and 32; Appendix 2, pages 47 and 48; Appendix 3, page 62; Appendix 4, pages 77 and 78; and Appendix 5, pages 91 and 92.*	The current guidelines define a lease agreement as lasting at least 12 months. However, this definition has been inconsistent with the requirement that activities last for at least five years. This change addresses that inconsistency and requires that any lease agreement extend for the designated activity life.

Change	Explanation
Added disposition language to make it clear that the old vehicle/equipment must be rendered non-repairable, to include drilling a hole at least 3 inches in diameter in the engine block. *See Chapter 4, page 15; Chapter 5, page 19; Chapter 6, page 23; and Chapter 7, page 28.*	Grant recipients are required to destroy the old vehicles/equipment. Current disposition requirements include drilling a hole in the engine block. This additional language provides instruction to the grant recipients regarding how to perform the destruction of the vehicle, equipment, and/or engine to ensure that it is permanently disabled.
Added language to require that grant recipients place a label/sticker to be provided by the TCEQ on grant-funded vehicles and equipment. *See Chapter 4, page 14; Chapter 5, page 19; Chapter 6, page 23; and Chapter 7, page 28.*	Grant recipients now receive a label/sticker from the TCEQ to place on the grant-funded equipment as a requirement of the grant contract. The label helps to identify the vehicle or equipment as having been funded under the TERP program.
Added language authorizing the TCEQ to establish a default scrappage value in lieu of the applicant determining a value up-front. *See Appendix 1, page 33; Appendix 2, page 49; Appendix 3, pages 63 and 64; Appendix 4, page 79; and Appendix 5, page 93.*	This change is consistent with current practice. Staff found it difficult to accurately determine a scrap value for many of the old vehicles and equipment at the time the application was submitted. Using a pre-determined default value for on-road vehicles and equipment has helped with processing the applications and completing the reimbursements.
Added language to clarify the current requirement that grant recipients must purchase on-site or on-vehicle electrification and idle-reduction infrastructure, as opposed to leasing it. *See Appendix 5, page 105; Appendix 7, page 114; and Appendix 8, page 124.*	This change is consistent with current practice. Although the application forms stated that the infrastructure must be purchased, there have been some applications submitted where it was not clear until after the application processing was completed that the applicant intended to lease the infrastructure, rather than purchasing the infrastructure. This change will help to clarify the requirement that infrastructure must be purchased and not leased, except where a lease is specifically authorized for that type of infrastructure.
Added language to better explain that administrative and other internal costs, including personnel expenses, internal salaries, indirect costs, and travel will not be eligible for reimbursement. This restriction includes internal costs of the grant recipient to drive or otherwise deliver the grant-funded vehicle or equipment to a final destination. *See Appendix 1, page 38; Appendix 2, page 54; Appendix 3, page 68; Appendix 4, page 84; Appendix 5, page 98; Appendix 6, page 108; Appendix 7, page 117; Appendix 8, page 126; and Appendix 9, page 133.*	This change is consistent with current practice and is intended to make it clear to grant recipients that administrative and other internal costs of the applicant may not be reimbursed under the grant.

Change	Explanation
Added language clarifying that consultant fees for application preparation and coordination of work are not eligible. However, professional engineering and technical work and reasonable and necessary costs incurred by equipment providers or installers may be eligible. *See Appendix 1, page 38; Appendix 2, page 54; Appendix 3, page 68; Appendix 4, page 84; Appendix 5, page 98; Appendix 6, page 108; Appendix 7, page 117; Appendix 8, page 126; and Appendix 9, page 133.*	This change is consistent with current practice. Consultant fees to prepare the application and/or to administer the grant activities have been considered administrative costs and have not been approved for reimbursement.
Added language regarding the use of Global Positioning System (GPS) units to track and monitor grant-funded vehicles/equipment. *See Chapter 4, page 15; Chapter 5, page 19; Chapter 6, page 23; Chapter 7, page 29; Appendix 1, pages 31, 33, 34, and 35; Appendix 2, pages 47, 49, and 50; Appendix 3, pages 61, 63, 64, and 65; and Appendix 4, pages 77, 79, 80, and 81.*	The TCEQ is entering into a contract with a GPS provider to install GPS systems on grant-funded vehicles and equipment. Grant recipients may voluntarily install these systems and may include the initial equipment cost, but not the operational costs, in the grant request. Grant recipients that install the TCEQ-approved system may be allowed to use the reports available to TCEQ as part of the system in lieu of submission of written usage reports. The TCEQ may require the installation and use of GPS as a tool to help ensure compliance by grant recipients that are not be meeting the usage requirements of the grant.

RG-388
Final Draft for Commission Consideration
November 30, 2007

Texas Emissions Reduction Plan:

Guidelines for Emissions Reduction Incentive Grants

(additions and changes in criteria from the current guidelines are highlighted)

Air Quality Division

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

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Texas Emissions Reduction Plan:

Guidelines
for
Emissions Reduction
Incentive Grants

Prepared by
Air Quality Division

RG-388
Final Draft for Commission Consideration
November 30, 2007

Page to be added in final publication

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Chapter 7

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Project Criteria and Emissions Reduction Calculations

Chapter 1
Summary

These guidelines contain the criteria for grants under the Texas Emissions Reduction Plan (TERP), authorized under Chapter 386, Subchapter C of the Texas Health and Safety Code. The Texas Commission on Environmental Quality (TCEQ) has adopted rules to implement this program under 30 Texas Administrative Code (TAC) Chapter 114, Subchapter K.

Purpose

This program was established by the Texas Legislature to provide monetary incentives for projects to improve air quality in the state's nonattainment areas. These areas have been determined to not meet certain air quality standards established by the U. S. Environmental Protection Agency (EPA). Other eligible counties of the state that may face air quality challenges in the future are also eligible for incentives under this program.

Activities eligible for funding under this program are intended to reduce the emissions of nitrogen oxides (NO_x). NO_x is usually a by-product of high-temperature combustion. Everyday functions like driving a motor vehicle or operating heavy equipment contribute to the creation of NO_x. It reacts with volatile organic compounds (VOCs) in the presence of sunlight to form harmful ground-level ozone.

As required under the statute, these guidelines establish the standards and criteria for grants issued under the TERP. Along with the statutory and regulatory provisions applicable to this program, the criteria set forth in these guidelines must be adhered to by recipients of incentive funding.

The TCEQ may also establish more specific criteria, through contracts or other funding mechanisms, consistent with these guidelines.

Funding

This program is funded through revenue deposited into the Texas Emissions Reduction Plan Fund. The fund consists of fees and surcharges established by the Texas Legislature.

The amount of funds available for grants during each year may vary depending on the cash flow to the program and the amount of revenues received, as well as the appropriations made to the program. The TCEQ will periodically issue notices and information regarding the grant programs, including information on the amount of funds available.

Grant Program Descriptions

Several grant programs are administered through the TERP. A description of each program follows.

Emissions Reduction Incentive Grants program. Authorized in Texas Health and Safety Code, §386.102, this program provides grants to cover the incremental costs of projects in the State's 41 air quality nonattainment and near-nonattainment counties.

Rebate Grants program. Texas Health and Safety Code, §386.117, directs the TCEQ to award rebate grants in order to streamline grant applications, contracting, reimbursement, and reporting for project categories designated by the TCEQ.

Small Business Grants program. Per Texas Health and Safety Code, §386.116, businesses that own and operate one or two vehicles or pieces of equipment—one of which must be diesel-powered and a pre–1994 model vehicle—or pieces of non-road equipment with "uncontrolled emissions" are considered small businesses. This program is intended to provide these small businesses greater opportunities to participate in the emissions reduction incentive programs.

Third-Party Grants program. Texas Health and Safety Code, §385.103(a), authorizes the TCEQ to allow a person other than the owner to apply for and receive a grant in order to improve the ability of the program to achieve its goals.

How to Contact Us

For information about the grant programs, interested parties should check the TERP Web site at <**www.terpgrants.org**>. The TERP Web site also contains copies of this guidance document, the *Technical Supplements* to the guidelines, and the application forms, as well as other information that may be helpful to a potential applicant.

Staff at the TCEQ is available to answer questions and provide assistance with the grant programs. If you are unclear about whether a proposed project would qualify for a grant, please feel free to contact TCEQ staff to discuss the project.

Program staff may be reached by calling (800) 919-TERP (8377) between 8:00 a.m. and 5:00 p.m., Monday through Friday, by email at *terp@tceq.state.tx.us*, or by mail at:

Texas Commission on Environmental Quality
Air Quality Division, MC 204
Implementation Grants Section
P.O. Box 13087
Austin, Texas 78711-3087

Chapter 2
Definitions

Terms as they are defined in Texas Health and Safety Code, Chapter 386, and the TCEQ rules (30 TAC §114.620) apply to this program, except as such terms are further defined and have the meanings as explained below.

1. **cost-effectiveness** The total dollar amount expended, adjusted using a discount rate of 3 percent per year, divided by the total number of tons of reductions in nitrogen oxide emissions attributable to that expenditure.

2. **incremental cost** The cost of an applicant's project, less a baseline cost that would otherwise be incurred by an applicant in the normal course of business, and may include added lease or fuel costs, as well as additional capital costs.

3. **motor vehicle** A self-propelled device designed for transporting persons or property on a public highway that is required to be registered under Texas Transportation Code, Chapter 502.

4. **non-road equipment** A piece of equipment, excluding a motor vehicle or on-road heavy-duty vehicle, that is powered by a non-road engine, including: non-road and nonrecreational equipment and vehicles; construction equipment; industrial equipment; mining equipment; locomotives; marine vessels; and other high-emitting engine categories.

5. **non-road engine** An internal combustion engine that is in or on a piece of equipment that is self-propelled or that propels itself and performs another function, excluding a vehicle that is used solely for competition; or a piece of equipment that is intended to be propelled while performing its function; or a piece of equipment designed to be capable of being carried or moved from on location or another. In general, an engine that will stay at a single site for at least a full year will be considered a stationary engine, rather than a non-road engine. The TCEQ will make the final determination of the type of engine.

6. **on-road heavy-duty vehicle** An on-road motor vehicle that has a gross vehicle weight rating (GVRW) of 8,500 pounds or more.

7. **person** An individual, corporation, organization, government or governmental subdivision or agency, business trust, partnership, association, or any other legal entity. This may include a corporation headquartered outside of the state of Texas, but which operates equipment or vehicles primarily in an eligible county in Texas.

8. **qualifying fuel** Any liquid or gaseous fuel or additive that is ultimately dispensed into a motor vehicle, on-road heavy-duty vehicle, non-road equipment, or a stationary engine that provides reductions of nitrogen oxides emissions, as determined by the TCEQ, beyond reductions required by state or federal law.

9. **repower** To replace an old engine with a new engine, a used engine, a re-manufactured engine, or electric motors, drives, or fuel cells.

10. **retrofit** To equip an engine and/or fuel system with new emissions-reducing parts or technology after the manufacture of the original engine and/or fuel system.

11. **stationary engine** An internal combustion engine used either in a fixed application or in a portable (transportable) application in which the engine will stay at a single site for at least a full year (12 consecutive months). The TCEQ will make the final determination of the type of engine.

Chapter 3
Eligible Areas

The counties eligible under this program include those counties within the nonattainment areas designated under the Federal Clean Air Act, §107(d), as well as other "Affected Counties" identified in Texas Health and Safety Code, §386.001(2) and TCEQ rules (30 TAC §114.629). The 41 eligible counties currently located within a nonattainment area or designated as an affected county are listed below. Any change to the list of affected counties in the statute and rules, or changes to the boundaries of the nonattainment areas, are incorporated by reference into this list, without requiring an amendment to these guidelines.

Counties in Texas Eligible for the TERP Program

Bastrop	Bexar	Brazoria	Caldwell
Chambers	Collin	Comal	Dallas
Denton	Ellis	El Paso	Fort Bend
Galveston	Gregg	Guadalupe	Hardin
Harris	Harrison	Hays	Henderson
Hood	Hunt	Jefferson	Johnson
Kaufman	Liberty	Montgomery	Nueces
Orange	Parker	Rockwall	Rusk
San Patricio	Smith	Tarrant	Travis
Upshur	Victoria	Waller	Williamson
Wilson			

The TCEQ may limit funding under a grant period to eligible projects in only some of the eligible counties based on the funding allocation decisions for that period.

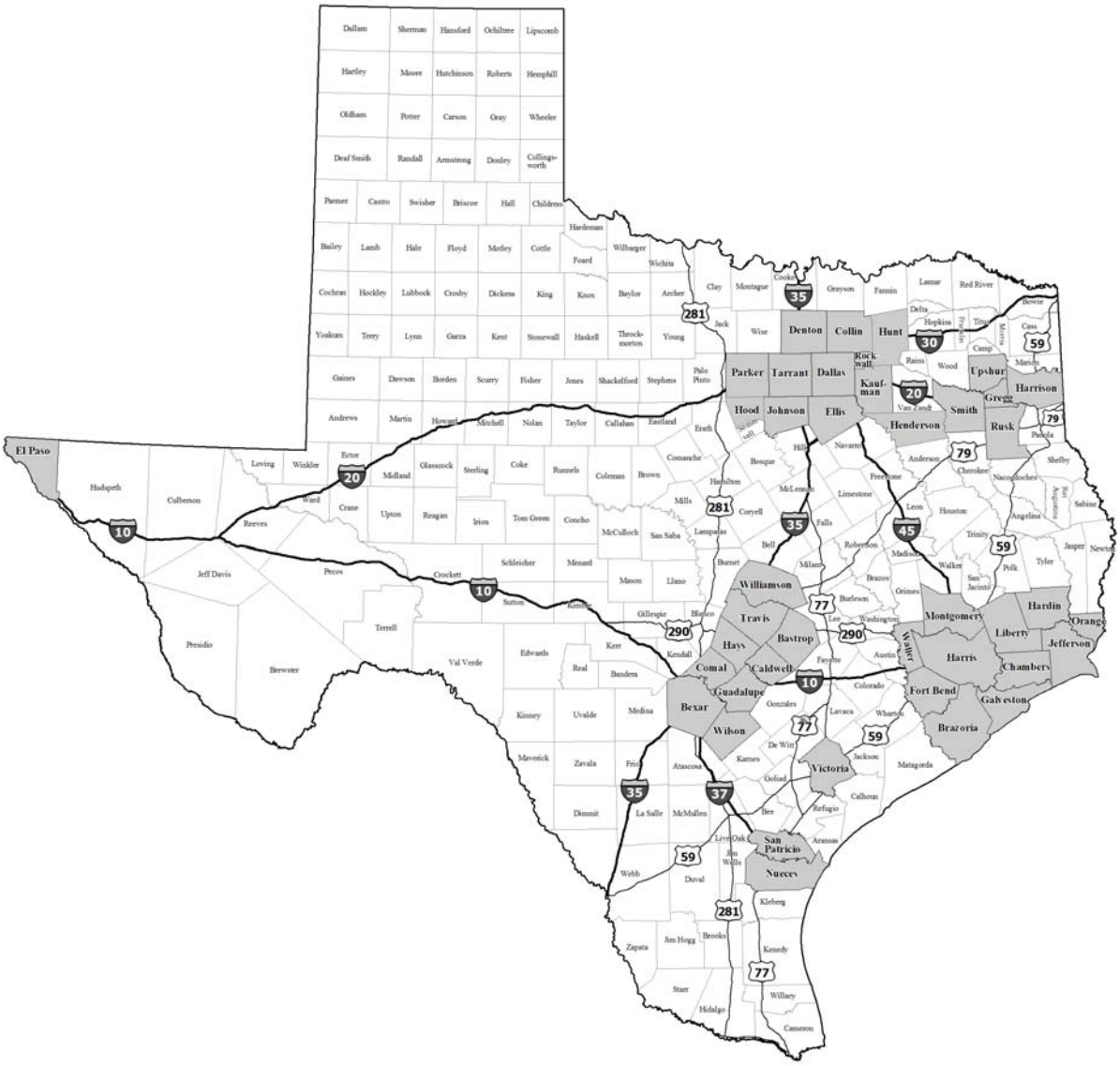
The TCEQ may also designate highways and roadways, or portions of highways and roadways, to count towards requirements outlined later in these guidelines that at least 75 percent of the miles driven by grant-funded on-road vehicles be in the eligible counties. Usage outside of the TERP eligible counties will not count towards emissions reductions used to determine the cost-effectiveness of the project.

The following list indicates portions of highways and roadways that are designated for travel by grant-funded on-road vehicles to meet the 75 percent usage requirement:

- Interstate Highway 10 from the Texas/New Mexico border to the Texas/Louisiana border;
- Interstate Highway 20 from Interstate Highway 10 to the Texas/Louisiana border;
- Interstate Highway 30 from the Rockwall County to the Texas/Arkansas border;
- Interstate Highway 35 from the Texas/Mexico border to the Texas/Oklahoma border;
- Interstate Highway 37 from the Gulf of Mexico to Bexar County;
- Interstate Highway 45 from the Montgomery County to Ellis County;

- U.S. Highway 59 from the Texas/Mexico border to the Texas/Arkansas border;
- U.S. Highway 79 from Williamson County to the Texas/Louisiana border;
- U.S. Highway 281 from the Texas/Mexico border to the Texas/Oklahoma border;
- U.S. Highway 77 from the Texas/Mexico border to Ellis County; and
- U.S. Highway 290 from Interstate Highway 10 to Waller County.

The TCEQ may limit the funding under a grant period to only some of the Interstate Highways or U.S. Highways based on the funding allocation decisions for that period.



TERP Eligible Counties
And
Designated Highways and Roadways

Chapter 4
Emissions Reduction Incentive Grants Program

The Emissions Reduction Incentive Grants (ERIG) program provides grants to fund the incremental costs of projects in the state's eligible ozone nonattainment areas and designated affected counties.

Activities that may be eligible under this program are outlined below. Vehicles and equipment used primarily for competition or recreational purposes are not eligible for funding under any of the project categories. The TCEQ may more narrowly define or limit the types of eligible activities for a particular funding period.

Eligible Applicants

Applicants are potentially eligible for incentive funding if they operate or plan to operate on-road heavy-duty vehicles, non-road equipment, marine vessels, locomotives, or stationary engines primarily in one or more of the nonattainment areas or other affected counties of the state, or who otherwise contribute to the state inventory of NO_x emissions.

For infrastructure activities, persons owning and operating the infrastructure in an eligible county may also be eligible for funding. For demonstration projects, persons may be eligible for funding if they own the technology to be demonstrated in an eligible county, or if they own the vehicles or equipment on which the technology will be demonstrated.

For particular funding periods, the TCEQ may limit eligibility to certain types of applicants. The TCEQ may also allow a person other than the owner or operator of the vehicle or equipment to apply for and receive a grant, as long as the grant-funded project supports activities that meet these guidelines and will help to achieve the goals of the TERP.

Eligible Activities

Activities eligible for incentive funding are intended to reduce NO_x emissions in the designated eligible counties from on-road heavy-duty vehicles, non-road equipment, marine vessels, locomotives, or stationary engines, when compared with a baseline vehicle or piece of equipment. Additional information and criteria on eligible activities and costs are available in the appendixes of these guidelines.

Most of the engines eligible under this program will be powered by diesel-fueled compression-ignition (CI) engines. However, engines powered by other fuels may also be eligible, subject to decisions by the TCEQ for particular funding periods and geographic areas.

The TCEQ may further limit the types of eligible activities, and may more narrowly define eligibility requirements under a particular funding period, as needed to best achieve the goals of the TERP.

On-Road Heavy-Duty Vehicles

On-road heavy-duty vehicles with a gross vehicle weight rating of 8,500 pounds or more are eligible for grants under this program. The activities and eligible costs are explained in *Appendix 1*. Eligible activities include:

- lease or purchase of new on-road vehicles (fleet expansion);
- replacement of on-road vehicles;
- repower of on-road vehicles; and
- retrofit or add-on of emissions-reduction technology.

Non-Road Heavy-Duty Equipment

Non-road equipment powered by an engine 25 horsepower (hp) or greater is eligible for grants under this program. For replacement and repower projects, this requirement refers to the horsepower of the engine being replaced and does not apply to the replacement engine or technology. The activities and eligible costs are explained in *Appendix 2*. Eligible activities include:

- lease or purchase of new non-road vehicles (fleet expansion);
- replacement of non-road vehicles;
- repower of non-road vehicles; and
- retrofit or add-on of emissions-reduction technology.

Marine Vessels

Marine vessels powered by engines of at least 25 hp, and associated auxiliary marine engines of at least 25 hp, are eligible for grants under this program. For replacement and repower projects, the requirement refers to the horsepower of the engine being replaced and does not apply to the replacement engine or technology. The activities and eligible costs are explained in *Appendix 3*. Eligible activities include:

- lease or purchase of new marine vessels (fleet expansion);
- replacement of marine vessels;
- repower of marine vessels; and
- retrofit or add-on of emissions-reduction technology.

Locomotives

Locomotives are eligible projects under this grant program. The activities and eligible costs are explained in *Appendix 4*. Eligible activities include:

- lease or purchase of new locomotives (fleet expansion);
- replacement of locomotives;
- repower of locomotives; and
- retrofit or add-on of emissions-reduction technology.

Stationary Equipment

Activities involving stationary engines of at least 25 hp are eligible for grants under this program. For replacement and repower projects, this requirement refers to the horsepower of the engine being replaced and does not apply to the replacement engine or technology.

An activity is not eligible if the activities and/or emissions-reductions to be funded are already required by any state or federal law, rule, regulation, memorandum of agreement, or other legally binding document. In addition, any emissions reduction credits generated by a project must be transferred to the state for the State Implementation Plan, and permanently retired.

The activities and eligible costs are explained in *Appendix 5*. Eligible activities include:

- lease or purchase of new stationary equipment (fleet expansion);
- replacement of stationary equipment;
- repower of stationary equipment; and
- retrofit or add-on of emissions-reduction technology.

Refueling Infrastructure

An eligible activity may include the purchase and installation of stationary or mobile on-site infrastructure for refueling motor vehicles, on-road heavy-duty vehicles, non-road equipment, marine vessels, locomotives, and stationary engines with a qualifying liquid or gaseous fuel. In some cases, the TCEQ may accept applications for refueling infrastructure related to stationary equipment. The applicant will need to provide information to show that the infrastructure is needed and will be used in an eligible county.

A qualifying fuel is a liquid or gaseous fuel or additive that is ultimately dispensed into a motor vehicle, on-road heavy-duty vehicle, non-road equipment, locomotive, marine vessel, or stationary engine that provides reductions of NO_x emissions, as determined by the TCEQ, beyond reductions required by state or federal law.

On-Site Electrification and Idle Reduction Infrastructure

An eligible activity may include the purchase and installation of on-site infrastructure, including auxiliary power units, designed to dispense electricity to motor vehicles, on-road heavy-duty vehicles, non-road equipment, marine vessels, locomotives, and stationary engines. The electricity may be provided to replace the power normally supplied by the engine while the vehicle or equipment is parked (idle reduction) or to recharge electric vehicles or equipment being used in lieu of vehicles or equipment powered by an internal combustion engine. The applicant will need to provide information to show that the infrastructure is needed and will be used in an eligible county.

The TCEQ may also provide funds to other state agencies to implement infrastructure projects at rest areas and other public facilities on major highway transportation routes within eligible areas. Projects may also be funded for marine vessels operating in eligible waterways. Funding may be used for initial start-up and proper operation of the idle reduction technologies.

The activities and eligible costs are explained in *Appendix 7*.

On-Vehicle Electrification and Idle Reduction Infrastructure

An eligible activity may include the purchase and installation of equipment that enables an on-road vehicle, non-road equipment, marine vessel, locomotive, or stationary engine to use electric power to operate, while the vehicle or equipment is parked, the systems normally supplied power by the propulsion engine or another on-board internal combustion engine that emits NO_x.

The activities and eligible costs are explained in *Appendix 8*. Eligible equipment may include:

- the add-on of devices to enable acceptance of electricity from an external power source; and
- the purchase and installation on the vehicle or equipment of an auxiliary power unit (APU) to generate electricity.

Rail Relocation and Improvements

Eligible activities may include rail line relocation and improvements at rail intersections that will result in the reduction in emissions of NO_x by reducing locomotive idle time at those intersections.

The activities and eligible costs are explained in *Appendix 9*.

Use of Qualifying Fuel

The incremental costs associated with the purchase and use of a qualifying fuel or fuel additive in a motor vehicle, on-road heavy-duty vehicle, non-road equipment, marine vessels, locomotives, or stationary engines may be eligible for funding under this

program. The incremental cost is the difference in cost between the qualifying fuel and a baseline fuel. For the purchase of fuel additives, the incremental costs include the full cost of the additive.

To determine an incremental cost for fuel purchases, the cost per gallon of the baseline fuel should be compared with the cost for an equivalent amount of the qualifying fuel. Equivalency between the qualifying fuel and the baseline fuel should be determined based on the energy content of the fuel, as measured by the use for mile or hour, or other method.

The activities and eligible costs are explained in *Appendix 10*.

Demonstration of New Technology

Projects under this category must demonstrate practical low-emissions retrofit technologies, repower options, and advanced technologies for on-road heavy-duty diesel vehicles and diesel-powered non-road equipment. Projects under this category may include:

- use of retrofit, repower, and add-on technologies to reduce NO_x emissions from the existing stock of heavy-duty diesel vehicles and non-road diesel equipment; and
- use of advanced technologies, including use of qualifying fuels, for new engines and vehicles that produce very-low or zero emissions of NO_x ―including stationary and mobile fuel cells―which could replace the use of higher-emitting diesels.

The activities and eligible costs are explained in *Appendix 11*.

Grant Program Procedures

This section contains the general procedures that will be used for the application, award, and administration of grants provided under this program. The TCEQ may adjust these procedures and develop more detailed procedures, as needed, to ensure the effectiveness of the program.

Project Solicitation

Grant projects will be solicited through periodic or open-ended Requests for Applications (RFAs) and through other mechanisms to solicit grant applications. Copies of the RFAs and the necessary application forms will be made available on the TCEQ's TERP Web site and directly from the TCEQ.

The TCEQ encourages potential applicants, as well as vendors and manufacturers of eligible technologies, to consult with the TCEQ at any time prior to submitting an application, to determine if a project would be eligible and the amount of grant funding that could be awarded for that project. The TCEQ particularly encourages the pre-

assessment of classes of technologies and projects as a tool for marketing a technology and a type of project to potential applicants.

Application Review and Selection

Grant applications will be reviewed and evaluated according to criteria established in these guidelines and the RFAs. When a competitive process is used, project selections will be made using ranking and scoring procedures that will be explained in the RFAs. In general, the selection priorities may include allocation of the funding among each nonattainment area and other near-nonattainment areas, as well as allocation among the various types of project categories. Grants may also be selected on a first-come, first-served basis or other selection mechanism.

The TCEQ may also establish a cost-effectiveness threshold for particular funding periods and geographic areas.

Application Verification Visits

Upon receipt of a grant application, the TCEQ may check the vehicle and equipment for condition, engine identification, and vehicle identification.

Grant Award and Contracting

Projects selected for funding will be awarded a grant through the development and execution of a grant contract that is signed by the grant recipient and by the TCEQ. Grant contracts may contain additional and more specific requirements than those contained in these guidelines. Grant recipients should review the contract language carefully before accepting and signing the contract.

Because the funding for this program is provided by revenue that is received throughout the year, all grant awards and contracts will be contingent upon the receipt of sufficient revenue to cover the grant. Grant contracts may be issued on a contingency basis, subject to a follow-up Notice to Proceed (NTP) being provided by the TCEQ, once sufficient funds are received.

Reimbursement

Grant payments will be provided on a reimbursement basis, meaning that payment will be made after the eligible expense has been incurred by the grant recipient. Grant recipients will also have the option to assign their grant payments directly to the dealer or service provider. The TCEQ will provide reimbursement request and reporting forms for use by the grant recipient.

In some cases, particularly for large and lengthy projects, the TCEQ may also authorize advance payments, based on a percentage of the expected final costs. The grant contract and the reimbursement forms will include requirements for documentation of expenses.

Upon completion of all grant-funded purchases, the grant recipient will need to submit a final request for reimbursement of all remaining unreimbursed expenses. The final reimbursement request must include a completed and signed release of claims.

The grant recipient must also agree to place a label/sticker on the grant-funded vehicles and equipment, as may be provided by the TCEQ.

Vehicle, Equipment, and Engine Disposition Verification

The applicant must agree to destroy the old vehicle and equipment (including the engine) within 90 days of being reimbursed by the TCEQ. A hole, large enough to prevent repairs (usually at least 3 inches in diameter), will need to be drilled through the engine block, and the frame rails will need to be cut so that repairs are not possible. A certification of the disposition of the old vehicle must be provided, using forms provided by the TCEQ. The TCEQ may require a certified or duplicate Texas Salvage Vehicle Title or Non-Repairable Vehicle Title as evidence that the vehicle has been scrapped. Grantees may be required to return grant funds if the disposition requirements are not met.

Monitoring and Reporting

The grant recipient must agree to monitor and track the use of grant-funded vehicles, equipment, infrastructure, and/or qualifying fuel for the activity life designated in the grant contract. The activity life is used to determine the total NO_x emissions reductions and cost-effectiveness of the activities and the project.

Monitoring reports must be submitted to the TCEQ on a semi-annual basis. These reports will include the usage information over the required reporting period. The TCEQ may require applicants to use Global Positioning System (GPS) units to monitor grant funded equipment or the use of a GPS unit may be voluntarily used in lieu of filing the required reports. All applicants using the GPS monitoring will be required to use a vendor selected by the TCEQ.

Emissions Reduction Commitment

Over the activity life of each grant-funded activity, the grant recipient commits the generated emissions reductions to the State Implementation Plan. The grant recipient is responsible for achieving the annual and total NO_x emissions reductions within the eligible areas as defined in the grant recipient's contract with the TCEQ. Grant recipients will be required to return either the entire grant amount or a pro rata share of the grant funds to the TCEQ if the emissions reductions are not achieved.

Chapter 5
Rebate Grants Program

The Rebate Grants program provides grants to fund the incremental costs of projects in the state's eligible ozone nonattainment areas and designated affected counties.

Activities that may be eligible under this program are outlined below. Vehicles and equipment used primarily for competition or recreational purposes are not eligible for funding under any of the project categories. The TCEQ may more narrowly define or limit the types of eligible activities for a particular funding period. The TCEQ may also establish more than one Rebate Grants program to include various project categories and types of projects, such as replacements, repowers, and retrofits.

Eligible Applicants

Applicants are potentially eligible for incentive funding if they operate or plan to operate on-road heavy-duty vehicles, non-road equipment, marine vessels, locomotives, or stationary engines primarily in one or more of the nonattainment areas or other affected counties of the state, or who otherwise contribute to the state inventory of NO_x emissions.

For particular funding periods, the TCEQ may limit eligibility to certain types of applicants. The TCEQ may also allow a person other than the owner or operator of the vehicle or equipment to apply for and receive a grant, as long as the grant-funded project supports activities that meet these guidelines and will help to achieve the goals of the TERP.

Eligible Activities

Activities eligible for rebate grants are intended to reduce NO_x emissions in the designated eligible counties from on-road heavy-duty vehicles, non-road equipment, marine vessels, locomotives, or stationary engines.

Most of the engines eligible under this program will be powered by diesel-fueled compression-ignition engines. However, engines powered by other fuels may also be eligible, subject to decisions by the TCEQ for particular funding periods and geographic areas.

All project categories and types of activities, such as replacements, repowers, and retrofits, listed under the Emissions Reduction Incentive Grants program in *Chapter 4* of these guidelines may be eligible for funding in the Rebate Grants program. The TCEQ may limit the types of activities that may be funded under a rebate grant for particular funding periods.

Grant Program Procedures

This section contains the general procedures that will be used for the application, award, and administration of grants provided under this program. The TCEQ may adjust these procedures and develop more detailed procedures, as needed, to ensure the effectiveness of the program.

Project Solicitation

Project grants will be solicited through periodic or open-ended Notice of Rebate Grants (NRG) and through other mechanisms to solicit rebate grant applications. Copies of the NRG and the necessary application forms will be made available on the TCEQ's TERP Web site and directly from the TCEQ.

The TCEQ encourages potential applicants, as well as vendors and manufacturers of eligible technologies, to consult with the TCEQ at any time prior to submitting an application, to determine if a project would be eligible and the amount of grant funding that could be awarded for that project. The TCEQ particularly encourages the pre-assessment of classes of technologies and projects as a tool for marketing a technology and a type of project to potential applicants.

The TCEQ may also establish a cost-effectiveness threshold for particular funding periods and geographic areas.

Application Review and Selection

Grant applications will be reviewed and evaluated according to criteria established in these guidelines and the NRGs. In general, the selection priorities may include allocation of the funding among each nonattainment area and other near-nonattainment areas, as well as allocation among the various types of project categories.

Rebate grant applications will be reviewed on a first-come, first-served basis. Projects will be funded as funds are available.

Application Verification Visits

Upon receipt of a grant application, the TCEQ may check the vehicle and equipment for condition, engine identification, and vehicle identification number.

Grant Award and Contracting

Projects selected for funding will be awarded a grant through the development and execution of a grant contract that is signed by the grant recipient and by the TCEQ. Grant contracts may contain additional and more specific requirements than those contained in these guidelines. Grant recipients should review the contract language carefully before accepting and signing the contract.

Because the funding for this program is provided by revenue that is received throughout the year, all grant awards and contracts will be contingent upon the receipt of sufficient revenue to cover the grant.

Reimbursement

Grant payments will be provided on a reimbursement basis, meaning that payment will be made after the eligible expense has been incurred by the grant recipient. Grant recipients will also have the option to assign their grant payments directly to the dealer or service provider. The TCEQ will provide reimbursement request and reporting forms for use by the grant recipient.

In some cases, particularly for large and lengthy projects, the TCEQ may also authorize advance payments, based on a percentage of the expected final costs. The grant contract and the reimbursement forms will include requirements for documentation of expenses.

Upon completion of all grant-funded purchases, the grant recipient will need to submit a final request for reimbursement of all remaining unreimbursed expenses. The final reimbursement request must include a completed and signed release of claims.

The grant recipient must also agree to place a label/sticker on the grant-funded vehicles and equipment, as may be provided by the TCEQ.

Vehicle, Equipment, and Engine Disposition Verification

The applicant must agree to destroy the old vehicle and equipment (including the engine) within 90 days of being reimbursed by the TCEQ. A hole, large enough to prevent repairs (usually at least 3 inches in diameter), will need to be drilled through the engine block, and the frame rails will need to be cut so that repairs are not possible. A certification of the disposition of the old vehicle must be provided, using forms provided by the TCEQ. The TCEQ may require a certified or duplicate Texas Salvage Vehicle Title or Non-Repairable Vehicle Title as evidence that the vehicle has been scrapped. Grantees may be required to return grant funds if the disposition requirements are not met.

Monitoring and Reporting

The grant recipient must agree to monitor and track the use of grant-funded vehicles and equipment for the activity life designated in the grant contract. The activity life is used to determine the total NO_x emissions reductions and cost-effectiveness of the activities and the project.

Monitoring reports must be submitted to the TCEQ on a semi-annual basis. These reports will include the usage information over the required reporting period. The TCEQ may require applicants to use Global Positioning System (GPS) units to monitor grant funded equipment or the use of a GPS unit may be voluntarily used in lieu of filing a the required reports. All applicants using the GPS monitoring will be required to use a vendor selected by the TCEQ.

Emissions Reduction Commitment

Over the activity life of each grant-funded activity, the grant recipient commits the generated emissions reductions to the State Implementation Plan. The grant recipient is responsible for achieving the annual and total NO_x emissions reductions within the eligible areas as defined in the grant recipient's contract with the TCEQ. Grant recipients will be required to return either the entire grant amount or a pro rata share of the grant funds to the TCEQ if the emissions reductions are not achieved.

Chapter 6
Small Business Grants Program

In accordance with Texas Health and Safety Code, §386.116, the TCEQ is required to establish and administer a grant program targeted at small businesses and other entities that operate only a limited number of eligible vehicles and equipment.

Eligible Applicants

Applicants are potentially eligible for incentive funding if they operate or plan to operate on-road heavy-duty vehicles, non-road equipment, marine vessels, locomotives, or stationary engines primarily in one or more of the nonattainment areas or other affected counties of the state, or who otherwise contribute to the state inventory of NO_x emissions.

For particular funding periods, the TCEQ may limit eligibility to certain types of applicants. The TCEQ may also allow a person other than the owner or operator of the vehicle or equipment to apply for and receive a grant, as long as the grant-funded project supports activities that meet these guidelines and will help to achieve the goals of the TERP.

Under this program, a "small business" is defined as a person who:

- owns and operates not more than two vehicles or pieces of equipment, one of which is:
  - an on-road diesel heavy-duty vehicle with a pre-1994 engine model; or
  - a non-road diesel-powered piece of equipment with an engine with uncontrolled emissions; and
- has owned the vehicle or equipment previously described for more than one year.

Eligible Activities

Activities eligible for small business grants are intended to reduce NO_x emissions in the designated eligible counties from on-road heavy-duty vehicles, non-road equipment, marine vessels, locomotives, or stationary engines.

Most of the engines eligible under this program will be powered by diesel-fueled compression-ignition engines. However, engines powered by other fuels may also be eligible, subject to decisions by the TCEQ for particular funding periods and geographic areas.

All project categories listed under the Emissions Reduction Incentive Grants program in *Chapter 4* of these guidelines may be eligible for funding in the Small Business Grants program. At a minimum, the Small Business Grants program will be available for the replacement or repower of an on-road heavy-duty vehicle with a pre-1994 engine, and for the replacement or repower of non-road equipment with an engine with uncontrolled emissions.

Grant Program Procedures

This section contains the general procedures that will be used for the application, award, and administration of grants provided under this program. The TCEQ may adjust these procedures and develop more detailed procedures, as needed, to ensure the effectiveness of the program.

Project Solicitation

The TCEQ will make information available on times when applications may be filed for Small Business Grants, based on the expected availability of funding for the program. To the extent possible, the TCEQ will keep dealers and installers informed of the availability of funds for the program. The TCEQ may also limit the grants to certain geographic areas, based on the needs of the program. Small business grants may be funded through another grant program, such as the Rebate Grants program. Information and funds available for small business grants will be posted in the Requests for Applications (RFAs) or Notice of Rebate Grants (NRGs).

The TCEQ encourages potential applicants, as well as vendors and manufacturers of eligible technologies, to consult with the TCEQ at any time prior to submitting an application, to determine if a project would be eligible and the amount of grant funding that could be awarded for that project. The TCEQ particularly encourages the pre-assessment of classes of technologies and projects as a tool for marketing a technology and a type of project to potential applicants.

The TCEQ may also establish a cost-effectiveness threshold for particular funding periods and geographic areas.

Application Review and Selection

Grant applications will be reviewed and evaluated according to criteria established in these guidelines and the RFAs or NRGs. In general, the selection priorities may include allocation of the funding among each nonattainment area and other near-nonattainment areas, as well as allocation among the various types of project categories.

Application Verification Visits

Upon receipt of a grant application, the TCEQ may check the vehicle and equipment for condition, engine identification, and vehicle identification number.

Grant Award and Contracting

Projects selected for funding will be awarded a grant through the development and execution of a grant contract that is signed by the grant recipient and by the TCEQ. Grant contracts may contain additional and more specific requirements than those contained in these guidelines. Grant recipients should review the contract language carefully before accepting and signing the contract.

Because the funding for this program is provided by revenue that is received throughout the year, all grant awards and contracts will be contingent upon the receipt of sufficient revenue to cover the grant.

Reimbursement

Grant payments will be provided on a reimbursement basis, meaning that payment will be made after the eligible expense has been incurred by the grant recipient. Grant recipients will also have the option to assign their grant payments directly to the dealer or service provider. The TCEQ will provide reimbursement request and reporting forms for use by the grant recipient.

In some cases, particularly for large and lengthy projects, the TCEQ may also authorize advance payments, based on a percentage of the expected final costs. The grant contract and the reimbursement forms will include requirements for documentation of expenses.

Upon completion of all grant-funded purchases, the grant recipient will need to submit a final request for reimbursement of all remaining unreimbursed expenses. The final reimbursement request must include a completed and signed release of claims.

The grant recipient must also agree to place a label/sticker on the grant-funded vehicles and equipment, as may be provided by the TCEQ.

Vehicle, Equipment, and Engine Disposition Verification

The applicant must agree to destroy the old vehicle and equipment (including the engine) within 90 days of being reimbursed by the TCEQ. A hole, large enough to prevent repairs (usually at least 3 inches in diameter), will need to be drilled through the engine block, and the frame rails will need to be cut so that repairs are not possible. A certification of the disposition of the old vehicle must be provided, using forms provided by the TCEQ. The TCEQ may require a certified or duplicate Texas Salvage Vehicle Title or Non-Repairable Vehicle Title as evidence that the vehicle has been scrapped. Grantees may be required to return grant funds if the disposition requirements are not met.

Monitoring and Reporting

The grant recipient must agree to monitor and track the use of grant-funded vehicles and equipment for the activity life designated in the grant contract. The activity life is used to determine the total NO_x emissions reductions and cost-effectiveness of the activities and the project.

Monitoring reports must be submitted to the TCEQ on a semi-annual basis. These reports will include the usage information over the required reporting period. The TCEQ may require applicants to use Global Positioning System (GPS) units to monitor grant funded equipment or the use of a GPS unit may be voluntarily used in lieu of filing a the required reports. All applicants using the GPS monitoring will be required to use a vendor selected by the TCEQ.

Emissions Reduction Commitment

Over the activity life of each grant-funded activity, the grant recipient commits the generated emissions reductions to the State Implementation Plan. The grant recipient is responsible for achieving the annual and total NO_x emissions reductions within the eligible areas as defined in the grant recipient's contract with the TCEQ. Grant recipients will be required to return either the entire grant amount or a pro rata share of the grant funds to the TCEQ if the emissions reductions are not achieved.

Chapter 7
Third-Party Grants Program

The Texas Health and Safety Code, §385.103(a), authorizes the TCEQ to allow a person other than the owner to apply for and receive a grant in order to improve the ability of the program to achieve its goals.

Eligible Applicants

Public agencies, such as those able to coordinate local and regional projects, are eligible to apply for third-party grants. Third-party applicants will need to be able to pass-through money to eligible applicants. The TCEQ may limit eligible applicants, areas, and projects. Applicants will be considered on a case-by-case basis.

Eligible Activities

Activities eligible for third-party grants are intended to reduce NO_x emissions in the designated eligible counties from on-road heavy-duty vehicles, non-road equipment, marine vessels, locomotives, or stationary engines.

Most of the engines eligible under this program will be powered by diesel-fueled compression-ignition engines. However, engines powered by other fuels may also be eligible, subject to decisions by the TCEQ for particular funding periods and geographic areas.

All project categories listed under the Emissions Reduction Incentive Grants program in *Chapter 4* of these guidelines may be eligible for funding in the Third-Party Grants program. In some cases, the TCEQ may require that a third-party have already identified the projects to be funded prior to submitting an application.

Grant Program Procedures

This section contains the general procedures that will be used for the application, award, and administration of grants provided under this program. The TCEQ may adjust these procedures and develop more detailed procedures, as needed, to ensure the effectiveness of the program.

Project Solicitation

The TCEQ will make information available on times when applications may be filed for third-party grants, based on the expected availability of funding for the program. The TCEQ encourages potential applicants to consult with the TCEQ at any time to determine if a project would be eligible and the amount of grant funding that could be awarded for that project.

The TCEQ may also establish a cost-effectiveness threshold for particular funding periods and geographic areas.

Application Review and Selection

Grant applications will be reviewed and evaluated according to the ability to meet and support the goals of the TERP. In general, the selection priorities may include allocation of the funding among each nonattainment area and other near-nonattainment areas, as well as allocation among the various types of project categories.

Potential applicants will work with the TCEQ to determine the goals and priorities of the third-party grants.

Grant Award and Contracting

Projects selected for funding will be awarded a grant through the development and execution of a grant contract that is signed by the third-party grant recipient and by the TCEQ. Grant contracts may contain additional and more specific requirements than those contained in these guidelines. Grant recipients should review the contract language carefully before accepting and signing the contract.

Because the funding for this program is provided by revenue that is received throughout the year, all grant awards and contracts will be contingent upon the receipt of sufficient revenue to cover the grant.

Grant contracts will include the minimum requirements for use of the funds, including the pass-through of funding by the recipient. Administrative costs of the third-party grant recipient will not be eligible for funding under this program.

To the extent needed to ensure compliance with the program requirements, the TCEQ may require preapproval authority over the funding decisions of the grant recipient and over the contracts and agreement used by the recipient as part of a pass-through program.

Any pass-through agreements and other contracts used by the grant recipient must ensure compliance with these guidelines and other requirements imposed by the TCEQ.

Reimbursement

The TCEQ will establish the payment and reporting processes on a case-by-case basis. Payments may be provided on a reimbursement basis, meaning that payment will be made after expenses are incurred by the grant recipient. In some cases, the TCEQ may also authorize advance payments, based on the expected or final selection of pass-through projects or other projects.

The grant contract and the payment forms will include requirements for documentation of expenses. The TCEQ may also require approval authority over the payment processes used by the grant recipient to fund a pass-through project or other project.

Monitoring and Reporting

The grant recipient will be required to establish a mechanism to monitor and track the use of grant-funded on-road heavy-duty vehicles, non-road equipment, marine vessels, locomotives, or stationary engines.

A project status and completion report must also be submitted quarterly, for the period designated by the TCEQ in the grant contract, and upon final completion of all grant-funded purchases.

Emissions Reduction Commitment

Over the activity life of each grant-funded activity, the grant recipient commits the generated emissions reductions to the State Implementation Plan. The grant recipient is responsible for achieving the annual and total NO_x emissions reductions within the eligible areas as defined in the grant recipient's contract with the TCEQ. Grant recipients will be required to return either the entire grant amount or a pro rata share of the grant funds to the TCEQ if the emissions reductions are not achieved.

Sub-Grant Program Procedures

This section contains the general procedures that will be used for the application, award, and administration of pass-through grants. The TCEQ may adjust these procedures and develop more detailed procedures, as needed, to ensure the effectiveness of the program.

Project Solicitation

Solicitations for projects will be announced in accordance with the third-party grant contract between the TCEQ and the third-party grant recipient.

The third-party grant recipient will make information available on times when applications may be filed for grants, based on the expected availability of funding for the program. To the extent possible, the third-party grant recipient will keep dealers and installers informed of the availability of funds for the program.

Application Review and Selection

Grant applications will be reviewed and evaluated according to criteria established in these guidelines and the Requests for Applications (RFAs). Project selections will be made using ranking and scoring procedures that will be explained in the RFAs or on a first-come, first-served basis. The RFA will explain the procedure for application review and selection.

A cost-effectiveness threshold may be established for particular funding periods and geographic areas. Projects with a cost-effectiveness below the threshold may be processed and awarded on a first-come-first-served basis.

Application Verification Visits

Upon receipt of a grant application, the third-party grant recipient may check the vehicle and equipment for condition, engine identification, and vehicle identification.

Grant Award and Contracting

Projects selected for funding will be awarded a grant through the development and execution of a grant contract that is signed by the sub-grant recipient and by the third-party grantee. Grant contracts may contain additional and more specific requirements than those contained in these guidelines. Grant recipients should review the contract language carefully before accepting and signing the contract.

Because the funding for this program is provided by revenue that is received throughout the year, all grant awards and contracts will be contingent upon the receipt of sufficient revenue to cover the grant.

Reimbursement

Grant payments will be provided on a reimbursement basis, meaning that payment will be made after the eligible expense has been incurred by the grant recipient. Grant recipients will also have the option to assign their grant payments directly to the dealer or service provider. The third-party grantee will provide reimbursement request and reporting forms for use by the grant recipient.

In some cases, particularly for large and lengthy projects, the TCEQ may also authorize advance payments, based on a percentage of the expected final costs. The grant contract and the reimbursement forms will include requirements for documentation of expenses.

Upon completion of all grant-funded purchases, the grant recipient will need to submit a final request for reimbursement of all remaining unreimbursed expenses. The final reimbursement request must include a completed and signed release of claims.

The grant recipient must also agree to place a label/sticker on the grant-funded vehicles and equipment, as may be provided by the TCEQ.

Vehicle, Equipment, and Engine Disposition Verification

The applicant must agree to destroy the old vehicle and equipment (including the engine) within 90 days of being reimbursed by the third-party grantee. A hole, large enough to prevent repairs (usually at least 3 inches in diameter), will need to be drilled through the engine block, and the frame rails will need to be cut so that repairs are not possible. A certification of the disposition of the old vehicle must be provided, using forms provided by the third-party grantee. The third-party grantee may require a certified or duplicate Texas Salvage Vehicle Title or Non-Repairable Vehicle Title as evidence that the vehicle has been scrapped. Grantees may be required to return grant funds if the disposition requirements are not met.

Monitoring and Reporting

The grant recipient must agree to monitor and track the use of grant-funded vehicles, equipment, infrastructure, and/or qualifying fuel for the activity life designated in the grant contract. The activity life is used to determine the total NO_x emissions reductions and cost-effectiveness of the activities and the project.

Monitoring reports must be submitted to the third-party grantee on a semi-annual basis. These reports will include the usage information over the required reporting period. The third-party grantee may require applicants to use Global Positioning System (GPS) units to monitor grant funded equipment or the use of a GPS unit may be voluntarily used in lieu of filing the required reports. All applicants using the GPS monitoring will be required to use a vendor selected by the TCEQ.

Emissions Reduction Commitment

Over the activity life of each grant-funded activity, the grant recipient commits the generated emissions reductions to the State Implementation Plan. The grant recipient is responsible for achieving the annual and total NO_x emissions reductions within the eligible areas as defined in the grant recipient's contract with the third-party grantee. Grant recipients will be required to return either the entire grant amount or a pro rata share of the grant funds to the third-party grantee if the emissions reductions are not achieved.

Appendix 1
On-Road Heavy-Duty Diesel

The methods for calculating the NO_x emissions reductions for an on-road vehicle project are included in this section. Most of the calculations will require input of a NO_x emissions factor applicable to the engine and/or vehicle. The emissions standards and emissions factors applicable to this program are provided in a *Technical Supplement*, which will be made available in conjunction with these guidelines. Examples of the calculations will also be available in the supplement, along with other materials prepared by the TCEQ. Potential grant applicants should contact the TCEQ for copies of the supplement and for questions about the applicable emissions standards and emissions factors.

Activities and Eligible Costs

The activities and eligible costs under each project category are explained in this section. The TCEQ may further limit the types of eligible activities, and may more narrowly define eligibility requirements, under a particular funding period, as needed to best achieve the goals of the TERP.

Purchase or Lease of On-Road Heavy-Duty Vehicles

This category is for the purchase or lease of *new* on-road heavy-duty vehicles. The cost may also include the purchase and installation of a Global Positioning System (GPS), subject to approval by the TCEQ. For this category, the TCEQ does not consider whether the applicant is replacing an existing vehicle, and the baseline for comparison of emissions is the current federal NO_x emissions standard for that vehicle.

To be eligible for funding, the new vehicle must be certified to emit at least 25 percent less NO_x than required under the current federal standard for that vehicle. Certification means approved by the U.S. EPA, the California Air Resources Board (CARB), or otherwise accepted by the TCEQ.

A *lease* is considered the use and control of a new on-road heavy-duty vehicle, in accordance with a lease contract for a period of five or more years. The TCEQ will reimburse the incremental costs of the lease. The incremental costs are those costs that are above the costs that would otherwise have been paid for the lease of a baseline vehicle.

A *purchase* is considered buying a new on-road heavy-duty vehicle. The TCEQ will reimburse the incremental cost of the purchase. The incremental cost is the difference between the manufacturer's suggested retail price (MSRP), the documented dealer price of a baseline vehicle, or other appropriate baseline cost established by the TCEQ, and the actual cost of the cleaner vehicle.

For new purchases, not less than 75 percent of the annual use of the vehicle projected for the activity life must be projected to take place in one or more of the eligible counties and

designated highways or roadways. The TCEQ will establish the required activity life for each grant period. Leases must be for the length of the activity life, and 75 percent of the annual use over the lease period must be projected to take place in one or more of the eligible counties and designated highways or roadways. Annual use will be measured by either miles of operation or fuel consumption.

Replacement of On-Road Heavy-Duty Vehicles

This category is for the replacement of an on-road heavy-duty vehicle with a new or newer on-road heavy-duty vehicle. For a replacement project, the TCEQ will evaluate whether the vehicle being replaced would have otherwise been used in the eligible counties for the period within which the emissions reductions will be claimed. Standards that apply include **all** of the following:

1. The applicant must have owned the vehicle for a minimum of two years immediately preceding the grant application;
2. Unless otherwise approved by the TCEQ, the vehicle must have been registered and used in Texas for the preceding two years;
3. The vehicle must be in operating condition; and
4. The vehicle must have a current safety inspection (if a safety inspection is required for that vehicle and use).

The TCEQ may waive the two-year ownership requirement on a case-by-case basis in instances where the ownership of the company has changed, the assets of the company have been purchased by another company, or the company has changed names or incorporation status. The use of the vehicles being replaced may not have changed.

On-road vehicles used exclusively for off-road purposes, and therefore not subject to state vehicle registration requirements, may be considered by the TCEQ on a case-by-case basis.

Additional documentation to verify that the vehicle would have been used within the eligible counties may be required.

The replacement vehicle must be certified to emit at least 25 percent less NO_x than the vehicle being replaced. The baseline for comparison of emissions is the difference between the emissions of the equipment being replaced and the emissions of the equipment being purchased. Certification means approved by the EPA, the CARB, or otherwise accepted by the TCEQ.

The replacement vehicle must be of the same type and should be intended for use in the same application or vocation (for example, regional delivery) as the vehicle being replaced.

The grant recipient may be eligible for reimbursement of up to 80 percent of the eligible incremental costs for the purchase or lease of the replacement vehicle, not to exceed an incentive amount that results in a cost-effectiveness of $15,000 or less per ton of NO_x reduced. The TCEQ may further limit the incentive amount to a cost-effectiveness lower than $15,000 per ton for particular funding periods, as needed to best achieve the goals of the TERP.

Costs may include the invoice price, including taxes and delivery charges included in the price of the replacement vehicle, or the cash basis for the lease charges. The cost may also include the purchase and installation of a Global Positioning System (GPS), subject to approval by the TCEQ. Delivery charges from a third party, not included in the invoice price from the vehicle or equipment vendor, may be included, subject to approval by the TCEQ.

The total incentive amount also must not exceed the cost of the replacement vehicle minus the scrappage value received for the old vehicle. The TCEQ may establish a default scrappage value.

Not less than 75 percent of the annual usage projected for the activity life must be projected to take place in one or more of the eligible counties and designated highways or roadways. Annual usage will be measured by either miles of operation or fuel consumption.

Repower of On-Road Heavy-Duty Vehicles

This category is for the replacement of an existing engine on an on-road heavy-duty vehicle with a new, rebuilt, or remanufactured engine. The engine must be certified to emit 25 percent less NO_x than the engine being replaced, based on the federal standard for that engine. Certification means approved by the EPA, the CARB, or otherwise accepted by the TCEQ.

Repowers resulting in any alteration from an original configuration of a vehicle or engine must comply with the provisions of EPA Memorandum 1A (Memo 1A), related to ensuring that altered vehicles and engines continue to meet required emissions standards. Copies of Memo 1A are available from the EPA and the TCEQ, and will be made available on the TCEQ Web site.

Eligible rebuilt or remanufactured engines must use original engine manufacturer (OEM) components only and be purchased from the OEM or its authorized dealers and distributors. The TCEQ may accept engines provided by other entities not connected with the OEM, subject to a case-by-case determination.

The TCEQ will reimburse the incremental cost of the purchase and installation of the replacement engine. The incremental cost is the cost to purchase and install the replacement engine and associated equipment minus the scrappage value received for the old vehicle. The TCEQ may establish a default scrappage value. The total incentive amount also must not exceed the cost of the replacement engine.

Costs that may be reimbursed, subject to approval by the TCEQ, include:

- invoice cost of the new engine, including sales tax and delivery charges;
- invoice cost of additional equipment that must be installed with the new engine;
- associated supplies directly related to the installation of the engine;
- costs to remove and dispose of the old engine;
- installation costs;
- reengineering costs, if the vehicle or equipment must be modified for the new engine to fit; and
- other costs directly related to the project, including the purchase and installation of a Global Positioning Systems (GPS), subject to approval by the TCEQ.

Not less than 75 percent of the annual usage of the vehicle projected for the activity life must be projected to take place in one or more of the eligible counties and designated highways or roadways. Annual usage will be measured by either miles of operation or fuel consumption.

Retrofit or Add-On of Emissions-Reduction Technology

This category is for the retrofit of an existing engine on an on-road heavy-duty vehicle, or adding on devices to the vehicle. To be eligible for funding, the retrofit or add-on systems must be certified or verified to emit at least 25 percent less NO_x than the engine prior to the retrofit or add-on. Certification or verification means approved by the EPA, the CARB, or otherwise accepted by the TCEQ.

Retrofits and add-on activities resulting in any alteration from an original configuration of a vehicle or engine must comply with the provisions of EPA Memorandum 1A, related to ensuring that altered vehicles and engines continue to meet required emissions standards. Importantly, aftermarket systems for converting a vehicle and engines to alternative fuel operation must comply with EPA certification requirements under Memo 1A. Copies of Memo 1A are available from the EPA and the TCEQ, and will be made available on the TCEQ Web site.

The TCEQ will reimburse the incremental cost of the purchase and installation of the retrofit and/or add-on technology. If the engine is to be rebuilt to install the emissions-reduction devices, the incremental cost is the difference between the cost of rebuilding the existing engine and the cost of rebuilding the engine to include the retrofit or add-on technology. If the engine does not need to be rebuilt in conjunction with installing the new technology, then the incremental cost will be the full cost of purchasing and installing the technology.

Costs that may be reimbursed, subject to approval by the TCEQ, include:

- invoice cost of the retrofit kit or add-on devices, including sales tax and delivery charges;
- associated supplies directly related to the installation of the devices;
- installation costs;
- reengineering costs, if the vehicle or equipment must be modified for the retrofit or add-on devices to be installed and used; and
- other costs directly related to the project, including the purchase and installation of a Global Positioning System (GPS), subject to approval of the TCEQ.

Not less than 75 percent of the annual usage of the vehicle projected for the activity life must be projected to take place in one or more of the eligible counties and designated highways or roadways. Annual usage will be measured by either miles of operation or fuel consumption.

Project Criteria

In addition to the eligibility criteria previously presented, the following list of criteria applies to projects involving on-road heavy-duty vehicle activities. The TCEQ may impose additional criteria, and may more narrowly define the criteria established in this guide, under a particular funding period, as needed to best achieve the goals of the TERP.

- One or more eligible *activities* of the same project type (i.e., on-road, non-road, locomotive, etc.) and that will occur in the same primary area may be included under one project application.

- Vehicles and equipment used primarily for competition or recreational purposes are not eligible for funding under any of the project categories.

- On-road heavy-duty vehicle activities must provide a NO_x emissions reduction compared to baseline NO_x emissions. The NO_x emissions of vehicles, engines, and retrofit/add-on devices used to achieve the emissions reductions must be certified or verified by the EPA, the CARB, or otherwise accepted by the TCEQ. In situations where the model year of the vehicle and the model year of the existing engine are different, such as a vehicle that has already had the engine replaced with a newer engine, the model year of the engine must be used to determine the baseline emissions standard for emissions-reduction calculations. The application of the 25 percent reduction criteria for each type of activity is explained below.

  Purchases and leases. Purchases and leases are allowed based on what year the purchase or lease is completed. At a minimum, the vehicle and engine being purchased or leased must be certified to emit at least 25 percent less NO_x than the current federal NO_x emissions standard for that vehicle.

  Replacements. The replacement vehicle and engine must have been certified to emit

at least 25 percent less NO_x than the vehicle being replaced. For example, if you want to replace a 1989 bus with a 1999 bus, the replacement bus and engine must have been certified to emit 25 percent less NO_x than the 1989 emissions standard.

Repowers. The replacement engine must be certified to emit at least 25 percent less NO_x than the engine being replaced.

Retrofits and add-ons. Emissions standards for retrofit and add-on activities are based on the year of the engine being retrofitted. The retrofit or add-on technology must be certified or verified to emit at least 25 percent less NO_x than the standard for the vehicle and engine being retrofitted. For example, if you want to retrofit the engine on your bus in 2002, and the bus engine was originally manufactured in 1996, then the retrofit kit must have been certified or verified to result in NO_x emissions that are 25 percent less than the original (1996) certified emissions level of the vehicle and engine.

Combined technologies. In instances where two technologies are combined on the same vehicle and/or engine (for example, repower plus retrofit), the TCEQ may consider the combined reductions from the two technologies in meeting the 25 percent requirements. This decision will be solely at the discretion of the TCEQ, and will be based on a determination that the combination of the two technologies will result in a permanent reduction in emissions of at least 25 percent.

- The cost-effectiveness of a project, other than a demonstration project, must not exceed $15,000 per ton of NO_x emissions reduced in the eligible counties for which the project is proposed. Individual activities included under a single project application may exceed this amount, but the combined project must meet the cost-effectiveness standard.

- Infrastructure activities—including infrastructure costs that are part of a broader repower, retrofit, replacement or add-on project—are excluded from the cost- effectiveness limit of $15,000 per ton.

- An activity is not eligible if it is required by any state or federal law, rule, regulation, memorandum of agreement, or other legally binding document. However, this restriction does not apply to an otherwise qualified activity—regardless of the fact that the state implementation plan assumes that the change in equipment, vehicles, or operations will occur—if, on the date the grant is awarded, the change is not required by any state or federal law, rule, regulation, memorandum of agreement, or other legally binding document. This restriction also does not apply to the purchase of vehicles or equipment that is required only by local law or regulation, or by corporate or controlling board policy of a public or private entity. Demonstration projects used to demonstrate a technology that may be used to comply with an emissions reduction requirement may be funded, as long as the reductions directly attributable to the demonstration project are not used to comply with those requirements.

- The incremental cost of the proposed activity must be reduced by the value of any existing financial incentive that directly reduces the cost of the proposed activity, including tax credits or deductions, other grants, or any other public financial assistance.

- In the areas of the state where Texas Low Emission Diesel (TxLED) must be provided by suppliers beginning April 1, 2005, the baseline and reduced emissions rate calculations, for diesel engine usage after March 2005 must be adjusted using a correction factor, in addition to any other calculation adjustments.

Figure 1-1

Correction Factor for TxLED

The TCEQ has adopted rules (30 TAC §114.312 to §114.319) requiring that beginning on April 1, 2005, diesel fuel sold or supplied for use in compression-ignition engines in certain counties in Texas must meet new low emission diesel (TxLED) standards.

The counties affected by the new TxLED requirements currently include all of the counties eligible for TERP incentive funding, as listed in Chapter 3, except for El Paso County.

The new requirements set a maximum aromatic hydrocarbon content standard of 10 percent by volume per gallon. The requirements also set a minimum cetane number for TxLED of 48.

The TxLED requirements are intended to result in reductions in NOx emissions from diesel engines. Currently, reduction factors of **5.7 percent** (0.057) for on-road use and **7.0 percent** (0.07) for non-road use have been accepted as estimates for use of TxLED. However, this reduction estimate is subject to change, based on the standards accepted by the EPA for use in the Texas State Implementation Plan (SIP). The TCEQ will identify the appropriate reduction factor to use in the *Technical Supplement* prepared to support these guidelines.

For activities in the applicable counties, a correction factor will need to be applied when calculating the baseline and/or reduced emissions for diesel engines.

On-road:
TxLED Correction Factor = 1 - 0.057, which is a TxLED Correction Factor of 0.943
Non-road:
TxLED Correction Factor = 1 - 0.070, which is a TxLED Correction Factor of 0.93

- An activity involving a new emissions-reduction measure that would otherwise generate marketable credits under state or federal emissions reduction credit averaging, banking, or trading programs is not eligible for funding under this program unless:

    - the activity includes the transfer of the reductions that would otherwise be marketable credits to the state implementation plan or the owner or operator as provided under §386.056, Texas Health and Safety Code; and
    - the reductions are permanently retired.

- For repower activities, eligible rebuilt or remanufactured engines must use original engine

manufacturer (OEM) components only and be purchased from the OEM or its authorized dealers and distributors. The TCEQ may accept engines and components provided by other entities not connected with the OEM, subject to a case-by-case determination.

- For all activities, the activity life must be for a minimum of five years. The TCEQ may establish longer activity life requirements for each grant period. Not less than 75 percent of the annual usage of the vehicle projected for the activity life must be projected to take place in one or more of the eligible counties and designated highways or roadways. Leases must be for the length of the activity life, and 75 percent of the annual usage over the lease period must be projected to take place in one or more of the eligible counties and designated highways or roadways.

- For most on-road vehicles, annual usage will be measured using miles of operation. For refuse vehicles and street sweepers operating in stop-and-go applications, fuel consumption normally should be used as the usage factor. The TCEQ may consider using either miles of operation or fuel consumption for particular applications on a case-by-case basis.

- Applicants should refer to the *Technical Supplement* to these guidelines for the maximum acceptable activity life established by the TCEQ for each type of activity.

- Applicants must agree to monitor the use of the grant-funded vehicles, equipment, infrastructure, and/or fuel, and to report to the TCEQ for the life of each grant-funded activity.

- Applicants must also agree to notify the TCEQ of any changes during the life of the following activities: termination of use; change in use, sale, transfer, or accidental or intentional destruction of grant-funded vehicles or equipment; or change in use of the qualifying fuel.

- Administrative costs and other internal costs of the grant recipient, including but not limited to personnel expenses, internal salaries, indirect costs, and travel will not be eligible. This restriction also applies to situations where the grant recipient acts as a transportation provider for delivery of the grant-funded vehicle or equipment before or after acceptance of the vehicle or equipment.

- Consultant fees for the preparation of a grant application, either directly or as an addition of the cost basis of the grant-funded vehicle, equipment, or engine, are not eligible for reimbursement by the TCEQ.

- Fees for a third-party consultant hired by the grant recipient to manage and administer the grant-funded activities, including coordination of the work and submission of reports and paperwork to the TCEQ for the grant recipient will not be eligible. This restriction is not intended to limit the ability of the vehicle or equipment provider or installer to include reasonable and necessary costs for managing the work to be performed in the price of the vehicle, equipment, or installation services. The costs for professional services, including

engineering and technical work, required for completion of the activity may be included, subject to the restrictions pertaining to that type of project. Per the Uniform Grant Management Standards (UGMS), the cost plus a percentage of cost methods of contracting for professional services shall not be used.

- The TCEQ may impose additional criteria for certain projects and funding periods, consistent with these guidelines.

NO_x Emissions Standards

The baseline NO_x emissions standards for this program will be the federal standard for NO_x emissions applicable to the type of engine and model year of vehicle. The federal NO_x emissions standards for on-road (highway) heavy-duty engines are listed in the *Technical Supplement* available from the TCEQ. Potential grant applicants should consult with the TCEQ to ensure that the appropriate baseline standards are used.

Calculating NO_x Emissions Reductions

In general, the emissions-reduction benefit represents the difference in the emissions level of a baseline vehicle/engine and a reduced-emissions vehicle/engine. In situations where the model year of the vehicle chassis and the model year of the existing engine are different, the model year of the engine must be used to determine the baseline emissions for benefit calculations.
The emissions level is calculated by multiplying an emissions factor, an activity level, and a conversion factor, if necessary. Because conversion factors and the activity levels may be expressed in different units for the existing and replacement engines, the emissions levels for the baseline and reduced-emissions vehicles/engines should be calculated separately and then differences taken to determine emissions reductions.

Different types of on-road vehicles operate very differently. For most on-road applications, the activity level should be established by the annual mileage. Refuse haulers, street sweepers, and other on-road vehicles with significant power take-off (PTO) operations are an exception to this, and the activity level may be determined based on annual fuel consumption. Emissions-reduction calculations should be consistent with the type of records maintained over the life of each activity.

Calculation of NO_x Emissions Reductions Using Annual Mileage

The calculation of emissions and emissions reductions using annual mileage as the usage factor is determined by the steps in Table 1-1.

Table 1-1

The TxLED Correction Factor

The counties affected by the TxLED requirements currently include all of the counties eligible for TERP incentive funding, as listed in Chapter 3, except for El Paso County.	
TxLED Correction Factor for On-Road: *1 - 0.057*	0.943

Step 1. Determine the NO_x Emissions Factor

Determine Baseline NO_x Emissions Factor (g/mile)	
Baseline NO_x emissions standard (g/bhp-hr)	
x TxLED correction factor (*diesel engines only*)	
= correction g/bhp-hr	
x conversion factor (bhp-hr/mi)	
= baseline NO_x emissions factor (g/mile)	
Determine Reduced NO_x Emissions Factor (g/mile)	
Option A. Reduced-emissions technology certified/verified to achieve a percentage reduction from the baseline	
Baseline NO_x emissions factor (g/mile)	
x certified/verified percentage reduction from baseline	
= reduced NO_x emissions factor (g/mile)	
Option B. Reduced-emissions engine certified to a specific emissions standard (g/bhp-hr)	
Certified NO_x emissions (g/bhp-hr)	
x TxLED correction factor (*diesel engines only*)	
= corrected g/bhp-hr	
x conversion factor (bhp-hr/mile)	
= reduced NO_x emissions factor (g/mile)	

Step 2: Calculate the NO_x Emissions Reduction Using Annual Mileage

Baseline		Reduced Emissions	
NO_x emissions factor (g/mile)		NO_x emissions factor (g/mile)	
Baseline g/mile - reduced emissions g/mile			
x annual miles of operation			
x percent within affected counties (%)			
= grams per year reduced (g/yr)			
		divided by 907,200 grams per ton	
= estimated annual NO_x emissions reduction (tons/yr)			
x activity life (years)			
= estimated activity life NO_x emissions reduction (tons)			

The applicable NO_x emissions standards are included in the *Technical Supplement* available from the TCEQ.

For retrofit and add-on activities, as well as other activities, where the emissions reductions are based on a percentage reduction from the baseline, the certified/verified percentage reduction factor can be applied to the applicable emissions factor to determine the reduced NO_x emissions factor.

Alternatively, for activities where the emissions of the new or replacement engine are certified at a specific emissions level (g/bhp-hr), such as purchases or repowers, a conversion factor is needed to determine an appropriate emissions factor in grams per mile. Appropriate conversion factors, to convert g/bhp-hr to g/mile, are included in the *Technical Supplement* available from the TCEQ.

Calculation of NO_x Emissions Reductions Using Annual Fuel Use

Refuse vehicles, street sweepers, and other on-road vehicles with significant power take-off operations accrue low mileage, yet intermittently operate at high load during compaction or sweeping mode. Therefore, annual fuel use is a more appropriate emissions factor to use for these vehicles. Alternatively, an applicant may base the emissions reductions on annual mileage for these types of vehicle uses, provided sufficient supporting documentation is submitted as determined by the TCEQ.

If annual fuel consumption is the basis for the emissions reductions, an energy consumption factor is used to convert g/bhp-hr to g/gal of fuel used. There are two ways of calculating an engine-specific energy consumption factor:

1. divide the hp of the engine by the fuel economy in units of gal/hr; or
2. divide the density of the fuel by the brake-specific fuel consumption of the engine.

While actual fuel receipts or other documentation may support the annual fuel consumption for a baseline engine, the annual fuel consumption of the new vehicle or engine is an estimated proportion to the change in the energy consumption factor.

Heavy-duty diesel engines typically have a brake-specific energy consumption of 6,500 to 7,000 Btu (British thermal unit) per hp-hour on the certification cycle. Diesel fuel has an energy density of about 18,000 Btu/lb and a mass density of 7.0 lb/gallon. This results in an energy consumption factor of about 18.5 hp-hour/gallon of fuel consumed, which should be used as the default for vehicles.

Default fuel consumption rate factors may be included in the *Technical Supplement* to these guidelines.

Table 1-2

The TxLED Correction Factor

The counties affected by the TxLED requirements currently include all of the counties eligible for TERP incentive funding, as listed in Chapter 3, except for El Paso County.	
TxLED Correction Factor for On-Road: *1 - 0.057*	0.943

Step 1. Determine the Reduced NO_x Emissions Factor

Option A. Reduced-emissions technology certified/verified to achieve a percentage reduction from the baseline	
Baseline NO_x emissions standard (g/bhp-hr)	
x certified/verified percentage reduction from baseline	
= reduced NO_x emissions factor (g/bhp-hr)	
Option B. Reduced-emissions engine certified to a specific emissions standard (g/bhp-hr)	
Certified NO_x emissions (g/bhp-hr)	

Step 2. Calculate the NO_x Emissions Reduction Using Annual Fuel Use

Baseline		Reduced Emissions	
NO_x emissions factor (g/bhp-hr)		NO_x emissions factor (g/bhp-hr)	
x TxLED correction factor (*diesel engines only*)		x TxLED correction factor (*diesel engines only*)	
= corrected NO_x emissions factor (g/bhp-hr)		= corrected NO_x emissions factor (g/bhp-hr)	
x energy consumption factor (hp-hr/gal)		x energy consumption factor (hp-hr/gal)	
x annual fuel consumption (gal/yr)		x annual fuel consumption (gal/yr)	
= grams per year (g/yr)		= grams per year (g/yr)	
Baseline g/yr - reduced emissions g/yr =			
x percent within affected counties (%)			
= grams per year reduced (g/yr)			
		divided by 907,200 grams per ton	
= estimated annual NO_x emissions reduction (tons/yr)			
x activity life (years)			
= estimated activity life NO_x emissions reduction (tons)			

Calculating Cost-Effectiveness

Only the amount of incentive funds requested under the program can be used in the cost-effectiveness calculation for on-road heavy-duty vehicles. The incremental costs for each activity must be reduced by the value of any existing financial incentive that directly reduces the cost of the proposed activity, including tax credits or deductions, other grants, or any other public financial assistance.

To determine the cost-effectiveness of an activity—with the exception of qualifying fuel activities—the incentive amount for the activity included in the project must be amortized over the activity life designated by the applicant, with a discount rate of 3 percent.

The following amortization formula yields a *capital recovery factor* (CRF).

$$\text{capital recovery factor (CRF)} = \mathbf{[(1 + \mathit{i})^n (\mathit{i})] \ / \ [(1 + \mathit{i})^n - 1]}$$

where, i = discount rate (3 percent)
n = activity life

The discount rate of 3 percent reflects the opportunity cost of public funds. This is the level of earning that reasonably could be expected by investing state funds in various financial instruments, such as U.S. Treasury securities.

The incentive amount should be multiplied by the incremental cost, or incentive amount requested to determine the annualized cost.

Incremental Cost x CRF = Annualized Cost

The cost-effectiveness calculations are presented in Table 1-3. Capital recovery factors for use in calculations for up to 20 years are presented in Table 1-4.

Table 1-3

Calculating Cost-Effectiveness

Step 1. Determine the Capital Recovery Factor (CRF)	
$CRF = [(1+i)^n (i)] / [(1+i)^n - 1]$ i = discount rate (.03) n = activity life	
Capital recovery factor:	
Step 2. Determine the annualized cost	
Incentive amount x CRF = Annualized cost	
Annualized cost ($/year):	
Step 3. Determine cost-effectiveness	
Annualized cost ($/year) / Annual NO_x emissions reduction (tons/year) = Cost-effectiveness ($/ton)	
Cost-effectiveness ($/ton):	$

Table 1-4

Capital Recovery Factors (CRFs) Using a Discount Rate of 0.03

Activity Life	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
CRF	1.00	.5226	.3535	.2690	.2184	.1846	.1605	.1425	.1284	.1172
Activity Life	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
CRF	.1081	.1005	.0940	.0885	.0838	.0796	.0760	.0727	.0698	.0672

For projects that include more than one activity, the total project incentive amount must be used to determine the cost-effectiveness of the project. The applicant may request an incentive amount that is less than the full incremental costs, in order to meet the cost-effectiveness criteria.

The cost-effectiveness must be determined by first adding all of the annualized costs for the activities included in the project. The annual emissions reductions of each activity should also be added together to determine an annual emissions reduction for the project.

The cost-effectiveness of the projects is then determined by dividing the combined annualized costs for all activities included in the project application, by the total annual NO_x emissions reductions for the combined project activities.

Total Annualized Cost / Total Annual NO_x Reductions = Project Cost-Effectiveness

Appendix 2
Non-Road Equipment

The methods for calculating the NO_x emissions reductions for a non-road equipment project are included in this section. The emissions standards and emissions factors applicable to this program are provided in a *Technical Supplement*, which will be made available in conjunction with these guidelines. Examples of the calculations will also be available in the supplement, along with other materials prepared by the TCEQ. Potential grant applicants should contact the TCEQ for copies of the supplement and for questions about the applicable emissions standards and emissions factors.

Activities and Eligible Costs

The activities and eligible costs under each project category are explained in this section. The TCEQ may further limit the types of eligible activities, and may more narrowly define eligibility requirements, under a particular funding period, as needed to best achieve the goals of the TERP. Administrative costs, in-house labor costs, and travel costs are not eligible expenses.

Purchase or Lease of Non-Road Equipment

This category is for the purchase or lease of new non-road equipment. The cost may also include the purchase and installation of a Global Positioning System (GPS), subject to approval by the TCEQ. For this category, the TCEQ does not consider whether the applicant is replacing an existing piece of equipment, and the baseline for comparison of emissions is the current federal NO_x emissions standard for a non-road engine of that horsepower.

To be eligible for funding, the engine on the new piece of equipment must be certified to emit at least 25 percent less NO_x than required under the current federal standard for that horsepower of a non-road engine. Certification means approved by the EPA, the CARB, or otherwise accepted by the TCEQ.

A *lease* is considered the use and control of a new piece of non-road equipment in accordance with a lease contract for a period of five or more years. The TCEQ will reimburse the incremental costs of the lease. The incremental costs are those costs that are above and beyond the costs that would otherwise have been paid for the lease of a baseline vehicle.

A *purchase* is considered buying a new piece of non-road equipment. The TCEQ will reimburse the incremental cost of the purchase. The incremental cost is the difference between the documented dealer price of a baseline piece of equipment, or other appropriate baseline cost established by the TCEQ, and the actual cost of the cleaner equipment.

For new purchases, not less than 75 percent of the annual use of the equipment projected for the activity life must be projected to take place in one or more of the eligible counties. Leases must be for the length of the activity life, and 75 percent of the annual use over the lease period must be projected to take place in one or more of the eligible counties. Annual use will be measured by either hours of operation or fuel consumption.

Replacement of Non-Road Equipment

This category is for the replacement of non-road equipment with a new or newer piece of non-road equipment. For this category, the applicant must be replacing a piece of equipment with a minimum of five years of remaining useful life. The TCEQ may establish longer activity life requirements for each grant period. The baseline for comparison of emissions is the difference between the emissions of the equipment being replaced and the emissions of the equipment being purchased.

For a replacement project, the TCEQ will evaluate whether the equipment being replaced would have otherwise been used in the eligible counties for the period within which the emissions reductions will be claimed. Standards that apply include **all** of the following:

1. The owner must have owned the equipment for a minimum of two years immediately preceding the grant application;
2. Unless otherwise approved by the TCEQ, the equipment must have been located and used in Texas over the preceding two years; and
3. The equipment must be in operating condition.

The TCEQ may waive the two-year ownership requirement on a case-by-case basis in instances where the ownership of the company has changed, the assets of the company have been purchased by another company, or the company has changed names or incorporation status. The use of the equipment being replaced may not have changed.

Additional documentation to verify that the equipment would have been used within the eligible counties may be required.

The engine on the replacement equipment must be certified to emit at least 25 percent less NO_x than the engine being replaced. Certification means approved by the EPA, the CARB, or otherwise accepted by the TCEQ.

The replacement equipment must be of the same type and should be intended for use in the same application or vocation (for example, excavator, compactor, grader) as the equipment being replaced.

The grant recipient may be eligible for reimbursement of up to 80 percent of the eligible incremental costs for the purchase or lease of the replacement equipment, not to exceed an incentive amount that results in a cost-effectiveness of $15,000 or less per ton of NO_x reduced. The cost may also include the purchase and installation of a Global Positioning System (GPS), subject to approval by the TCEQ. The TCEQ may further limit the incentive amount to a cost-effectiveness lower than $15,000 per ton for particular funding periods, as needed to best achieve the goals of the TERP.

Costs may include the invoice price, including taxes and delivery charges included in the price of the replacement equipment, or the cash basis for the lease charges. Delivery charges from a third party, not included in the invoice price from the vehicle or equipment vendor, may be included, subject to approval by the TCEQ.

The total incentive amount also must not exceed the cost of the replacement equipment minus the scrappage value received for the old equipment. The TCEQ may establish a default scrappage value. Not less than 75 percent of the annual usage projected for the activity life must be projected to take place in one or more of the eligible counties. Annual usage will be measured by either hours of operation or fuel consumption.

Repower of Non-Road Equipment

This category is for the replacement of an existing engine on a non-road piece of equipment with a new, rebuilt, or remanufactured engine. The engine must be certified to emit at least 25 percent less NO_x than the engine being replaced. Certification means approved by the EPA, the CARB, or otherwise accepted by the TCEQ.

Eligible rebuilt or remanufactured engines must use original engine manufacturer (OEM) components only and must be purchased from the OEM or its authorized dealers or distributors. The TCEQ may accept engines provided by other entities, not connected with the OEM, subject to a case-by-case determination.

The TCEQ will reimburse the incremental cost of the purchase and installation of the replacement engine. The incremental cost is the cost to purchase and install the replacement engine and associated equipment minus the scrappage value received for the old engine. The TCEQ may establish a default scrappage value.

Expenses for salaries, travel, and overhead, including indirect costs, will not be covered. Costs that may be reimbursed, subject to approval by the TCEQ, include:

- invoice cost of the new engine, including sales tax and delivery charges;
- invoice cost of additional equipment that must be installed with the new engine;
- associated supplies directly related to the installation of the engine;
- costs to remove and dispose of the old engine;
- installation costs;
- reengineering costs, if the vehicle or equipment must be modified for the new engine to fit; and
- other costs directly related to the project, subject to approval by the TCEQ.

Not less than 75 percent of the annual usage of the equipment projected for the activity life must be projected to take place in one or more of the eligible counties. Annual usage will be measured by either hours of operation or fuel consumption.

Retrofit or Add-On of Emissions-Reduction Technology

This category is for the retrofit of an existing engine on non-road piece of equipment, or adding on devices to the equipment.

To be eligible for funding, the retrofit or add-on systems must be certified or verified to emit at least 25 percent less NO_x than the engine prior to the retrofit or add-on. Certification means approved by the EPA, the CARB, or otherwise accepted by the TCEQ.

The TCEQ will reimburse the incremental cost of the purchase and installation of the retrofit and/or add-on technology. If the engine is to be rebuilt to install the emissions-reduction devices, the incremental cost is the difference between the cost of rebuilding the existing engine and the cost of rebuilding the engine to include the retrofit or add-on technology. If the engine does not need to be rebuilt in conjunction with installing the new technology, then the incremental cost will be the full cost of purchasing and installing the technology.

Expenses for salaries, travel, and overhead, including indirect costs, will not be covered. Costs that may be reimbursed, subject to approval by the TCEQ, include:

- invoice cost of the retrofit kit or add-on devices, including sales tax and delivery charges;
- associated supplies directly related to the installation of the devices;
- installation costs;
- re-engineering costs, if the vehicle or equipment must be modified for the retrofit or add-on devices to be installed and used; and
- other costs directly related to the project, including the purchase and installation of a Global Positioning System (GPS), subject to approval by the TCEQ.

Not less than 75 percent of the annual usage of the equipment projected for the activity life must be projected to take place in one or more of the eligible counties. Annual usage will be measured by either hours of operation or fuel consumption.

Project Criteria

In addition to the eligibility criteria previously presented, the following list of criteria applies to projects involving non-road equipment activities. The TCEQ may impose additional criteria, and may more narrowly define the criteria established in this guide, under a particular funding period, as needed to best achieve the goals of the TERP.

- One or more eligible *activities* of the same project type (i.e., on-road, non-road, locomotive, etc.) and that will occur in the same primary area may be included under one project application.

- Vehicles and equipment used primarily for competition or recreational purposes are not eligible for funding under any of the project categories.

- Non-road equipment activities must provide a NO_x emissions reduction compared to baseline NO_x emissions. The NO_x emissions of equipment, engines, and retrofit/add-on devices used to achieve the emissions reductions must be certified or verified by the EPA, the CARB, or otherwise accepted by the TCEQ. In situations where the year of manufacture of the equipment and the year of manufacture of the existing engine are different—such as equipment that has already had the engine replaced with a newer engine—the year of manufacture of the engine must be used to determine the baseline emissions standard for emissions-reduction calculations. The application of the 25 percent reduction criteria for each type of activity is explained below.

  Purchases and leases. Purchases and leases are allowed based on what year the purchase or lease is completed. At a minimum, the equipment and engine being purchased or leased must be certified to emit at least 25 percent less NO_x than the current federal NO_x emissions standard for that engine.

  Replacements. The replacement equipment and engine must have been certified to emit at least 25 percent less NO_x than the engine being replaced.

  Repowers. The replacement engine must be certified or verified to emit at least 25 percent less NO_x than the engine being replaced.

  Retrofits and add-ons. Emissions standards for retrofit and add-on activities are based on the engine being retrofitted. The retrofit or add-on technology must be certified or verified to emit at least 25 percent less NO_x than the standard for the engine being retrofitted.

  Combined technologies. In instances where two technologies are combined on the same equipment and/or engine (for example, repower plus retrofit), the TCEQ may consider the combined reductions from the two technologies in meeting the 25 percent requirements. This decision will be solely at the discretion of the TCEQ, and will be based on a determination that the combination of the two technologies will result in a permanent reduction in emissions of at least 25 percent.

- The cost-effectiveness of a project, other than a demonstration project, must not exceed $15,000 per ton of NO_x emissions reduced in the eligible counties for which the project is proposed. Individual activities included under a single project application may exceed this amount, but the combined project must meet the cost-effectiveness standard.

- Infrastructure activities—including infrastructure costs that are part of a broader repower,

retrofit, replacement or add-on project—are excluded from the cost-effectiveness limit $15,000 per ton.

- In the areas of the state where Texas Low Emission Diesel (TxLED) must be provided by suppliers, beginning April 1, 2005, the baseline and reduced emissions rate calculations for diesel engine usage after March 2005 must be adjusted using a correction factor, in addition to any other calculation adjustments.

Figure 2-1

Correction Factor for TxLED

The TCEQ has adopted rules (30 TAC §114.312 to §114.319) requiring that beginning on April 1, 2005, diesel fuel sold or supplied for use in compression-ignition engines in certain counties in Texas must meet new low emission diesel (TxLED) standards.

The counties affected by the new TxLED requirements currently include all of the counties eligible for TERP incentive funding, as listed in Chapter 3, except for El Paso County.

The new requirements set a maximum aromatic hydrocarbon content standard of 10 percent by volume per gallon. The requirements also set a minimum cetane number for TxLED of 48.

The TxLED requirements are intended to result in reductions in NO_x emissions from diesel engines. Currently, reduction factors of **5.7 percent** (0.057) for on-road use and **7.0 percent** (0.07) for non-road use have been accepted as estimates for use of TxLED. However, this reduction estimate is subject to change, based on the standards accepted by the EPA for use in the Texas State Implementation Plan (SIP). The TCEQ will identify the appropriate reduction factor to use in the *Technical Supplement* prepared to support these guidelines.

For activities in the applicable counties, a correction factor will need to be applied when calculating the baseline and/or reduced emissions for diesel engines.

On-road:
TxLED Correction Factor = 1 - 0.057, which is a TxLED Correction Factor of 0.943
Non-road:
TxLED Correction Factor = 1 - 0.070, which is a TxLED Correction Factor of 0.93

- An activity is not eligible if it is required by any state or federal law, rule, regulation, memorandum of agreement, or other legally binding document. However, this restriction does not apply to an otherwise qualified activity—regardless of the fact that the state implementation plan assumes that the change in equipment, vehicles, or operations will occur—if, on the date the grant is awarded, the change is not required by any state or federal law, rule, regulation, memorandum of agreement, or other legally binding document. This restriction also does not apply to the purchase of vehicles or equipment that are required only by local law or regulation, or by corporate controlling board policy of a public or private entity. Demonstration projects used to demonstrate a technology that may be used to comply with an emissions-reduction requirement may be funded, as long as the reductions directly attributable to the demonstration project are not used to comply with those requirements.

- An activity involving a new emissions reduction measure that would otherwise generate marketable credits under state or federal emissions-reduction credit averaging, banking, or trading programs is not eligible for funding under this program unless:

    - the activity includes the transfer of the reductions that would otherwise be marketable credits to the state implementation plan or the owner or operator, as provided under §386.056, Texas Health and Safety Code; and
    - the reductions are permanently retired.

- The incremental cost of the proposed activity must be reduced by the value of any existing financial incentive that directly reduces the cost of the proposed activity, including tax credits or deductions, other grants, or any other public financial assistance.

- For repower activities, eligible rebuilt or remanufactured engines must use original engine manufacturer (OEM) components only, and must be purchased from the OEM or its authorized dealers and distributors. The TCEQ may accept engines and components provided by other entities that are not connected with the OEM, subject to a case-by-case determination.

- For all activities, the activity life must be for a minimum of five years. The TCEQ may establish longer activity life requirements for each grant period. For new purchases, not less than 75 percent of the annual usage of the equipment projected for the activity life must be projected to take place in one or more of the eligible counties. Leases must be for the length of the activity life, and 75 percent of the annual usage over the lease period must be projected to take place in one or more of the eligible counties. Annual usage will be measured by either hours of operation or fuel consumption.

- For most non-road equipment, annual usage will be measured using hours of operation. For equipment without an hour meter installed, and no viable mechanism for measuring the hours of operation, fuel consumption will be used as the usage factor.

- Applicants should refer to the *Technical Supplement* to these guidelines for the maximum acceptable activity life established by the TCEQ for each type of activity.

- Applicants must agree to monitor the use of the grant-funded vehicles, equipment, infrastructure, and/or fuel, and to report to the TCEQ for the life of each grant-funded activity.

- Applicants must also agree to notify the TCEQ of any changes during the life of the following activities: termination of use; change in use, sale, transfer, or accidental or intentional destruction of grant-funded vehicles or equipment; or change in use of the qualifying fuel.

- Administrative costs and other internal costs of the grant recipient, including but not limited to personnel expenses, internal salaries, indirect costs, and travel will not be eligible. This restriction also applies to situations where the grant recipient acts as a transportation provider for delivery of the grant-funded vehicle or equipment before or after acceptance of the vehicle or equipment.

- Consultant fees for the preparation of a grant application, either directly or as an addition of the cost basis of the grant-funded vehicle, equipment, or engine, are not eligible for reimbursement by the TCEQ.

- Fees for a third-party consultant hired by the grant recipient to manage and administer the grant-funded activities, including coordination of the work and submission of reports and paperwork to the TCEQ for the grant recipient will not be eligible. This restriction is not intended to limit the ability of the vehicle or equipment provider or installer to include reasonable and necessary costs for managing the work to be performed in the price of the vehicle, equipment, or installation services. The costs for professional services, including engineering and technical work, required for completion of the activity may be included, subject to the restrictions pertaining to that type of project. Per the Uniform Grant Management Standards (UGMS), the cost plus a percentage of cost methods of contracting for professional services shall not be used.

- The TCEQ may impose additional criteria for certain projects and funding periods, consistent with these guidelines.

NO_x Emissions Standards

The baseline NO_x emissions standards for this program will be the federal standards for NO_x emissions applicable to the type of engine and year of manufacture. The federal NO_x emissions standards for non-road engines are listed in the *Technical Supplement* available from the TCEQ. Potential grant applicants should consult with the TCEQ to ensure that the appropriate baseline standards are used.

Calculating NO_x Emissions Reductions

In general, the emissions-reduction benefit represents the difference in the emissions level of a baseline engine and a reduced-emissions engine. In situations where the year of manufacture of the equipment and the year of manufacture of the current engine are different, the year of the engine must be used to determine the baseline emissions for benefit calculations.

The emissions level is calculated by multiplying an emissions factor, an activity level, and a conversion factor, if necessary. Because conversion factors and the activity levels may be expressed in different units for the existing and replacement engines, the emissions levels for the baseline and reduced-emissions engines should be calculated separately, and then differences taken to determine emissions reductions.

For most non-road applications, the activity level should be established by the annual hours of operation. For equipment without an hour meter installed, and no other mechanism to track hours of operation, the activity level should be determined based on annual fuel consumption. Emissions-reduction calculations should be consistent with the type of records maintained over the life of each activity.

Calculation of NO_x Emissions Reductions Using Annual Hours of Operation

The calculation of emissions and emissions reductions using annual hours of operation as the usage factor is determined by the steps in Table 2-1.

Table 2-1

The TxLED Correction Factor

The counties affected by the TxLED requirements currently include all of the counties eligible for TERP incentive funding, as listed in Chapter 3, except for El Paso County.	
TxLED Correction Factor for Non-Road: *1 - 0.07*	0.93

Step 1. Determine the Reduced NO_x Emissions Factor

Option A. Reduced-emissions technology certified/verified to achieve a percentage reduction from the baseline	
Baseline NO_x emissions factor (g/bhp-hr)	
x certified/verified percentage reduction from baseline	
= reduced NO_x emissions factor (g/bhp-hr)	
Option B. Reduced-emissions engine certified to a specific emissions standard (g/bhp-hr)	
Certified NO_x emissions (g/bhp-hr)	

Step 2. Calculate the NO_x Emissions Reduction Using Annual Hours of Operation

Baseline		**Reduced Emissions**	
NO_x emissions factor (g/bhp-hr)		NO_x emissions factor (g/bhp-hr)	
x TxLED correction factor (*diesel engines only*)		x TxLED correction factor (*diesel engines only*)	
= corrected NO_x emissions factor (g/bhp-hr)		= corrected NO_x emissions factor (g/bhp-hr)	
x load factor		x load factor	
x horsepower		x horsepower	

= grams per hour (g/hr)		= grams per hour (g/hr)	
Baseline g/hr - reduced emissions g/hr =			
x annual hours of operation			
x percent within affected counties (%)			
= grams per year reduced (g/year)			
		divided by 907,200 grams per ton	
= estimated annual NO_x emissions reduction (tons/yr)			
x activity life (years)			
= estimated activity life NO_x emissions reduction (tons)			

Appropriate baseline NO_x emissions factors and default load factors are included in the *Technical Supplement* to these guidelines. Use the emissions factors associated with engine horsepower and year of manufacture. Use the load factor associated with the type of equipment. Potential grant applicants should consult with the TCEQ to ensure that the appropriate factors are used.

For retrofit and add-on activities, as well as other activities where the emissions reductions are based on a percentage reduction from the baseline, the certified or verified percentage reduction factor can be applied to the baseline emissions factor to determine the reduced NO_x emissions factor.

Alternatively, for activities where the emissions of the new or replacement engine are certified at a specific emissions level (g/bhp-hr), such as purchases or repowers, that emissions level should be used as the emissions factor.

Calculation of NO_x Emissions Reductions Using Annual Fuel Use

If the annual fuel consumption is used, the activity level should be based on actual annual fuel receipts or other available documentation to estimate the expected annual fuel use of the equipment. An energy consumption factor must also need to be calculated. The energy consumption factor converts the emissions factor in terms of g/bhp-hr to g/gal of fuel used. There are two ways of calculating the energy consumption factor:

1. by dividing the hp of the engine by the fuel economy in units of gal/hr; or
2. by dividing the density of the fuel by the brake-specific fuel consumption of the baseline engine.

Check with your equipment dealer to confirm the fuel economy or fuel consumption of the

equipment for the type of application.

Default fuel consumption rate factors may be included in the *Technical Supplement* to these guidelines.

The calculation of NO_x emissions reductions using annual fuel use is outlined in Table 2-2 that follows. Applicants should consult with the TCEQ for the appropriate calculations for projects involving nondiesel engines.

Table 2-2

The TxLED Correction Factor

The counties affected by the TxLED requirements currently include all of the counties eligible for TERP incentive funding, as listed in Chapter 3, except for El Paso County.	
TxLED Correction Factor for Non-Road: *1 - 0.07*	0.93

Step 1. Determine the Reduced NO_x Emissions Factor

Option A. Reduced-emissions technology certified/verified to achieve a percentage reduction from the baseline	
Baseline NO_x emissions factor (g/bhp-hr)	
x certified/verified percentage reduction from baseline	
= reduced NO_x emissions factor (g/bhp-hr)	
Option B. Reduced-emissions engine certified to a specific emissions standard (g/bhp-hr)	
Certified NO_x emissions (g/bhp-hr)	

Step 2. Calculate the NO_x Emissions Reduction Using Annual Fuel Use

Baseline		Reduced Emissions	
NO_x emissions factor (g/bhp-hr)		NO_x emissions factor (g/bhp-hr)	
x TxLED correction factor *(diesel engines only)*		x TxLED correction factor *(diesel engines only)*	
= corrected NO_x emissions factor (g/bhp-hr)		= corrected NO_x emissions factor (g/bhp-hr)	
x energy consumption factor (hp-hr/gal)		x energy consumption factor (hp-hr/gal)	
x annual fuel consumption (gal/yr)		x annual fuel consumption (gal/yr)	
= grams per year (g/yr)		= grams per year (g/yr)	
Baseline g/yr - reduced emissions g/yr =			
x percent within affected counties (%)			
= grams per year reduced (g/yr)			
		divided by 907,200 grams per ton	
= estimated annual NO_x emissions reduction (tons/yr)			
x activity life (years)			
= estimated activity life NO_x emissions reduction (tons)			

Calculating Cost-Effectiveness

Only the amount of incentive funds requested under the program can be used in cost-effectiveness calculations. The incremental costs for each activity must be reduced by the value of any existing financial incentive that directly reduces the cost of the proposed activity, including tax credits or deductions, other grants, or any other public financial assistance.

To determine the cost-effectiveness of an activity—with the exception of qualifying fuel activities—the incentive amount for the activity included in the project must be amortized over the activity life designated by the applicant, with a discount rate of 3 percent.

The following amortization formula yields a *capital recovery factor* (CRF).

capital recovery factor (CRF) = $\mathbf{[(1 + \mathit{i})^n (\mathit{i})] \ / \ [(1 + \mathit{i})^n - 1]}$

where, i = discount rate (3 percent)
n = activity life

The discount rate of 3 percent reflects the opportunity cost of public funds. This is the level of earning that reasonably could be expected by investing state funds in various financial instruments, such as U.S. Treasury securities.

The incentive amount should be multiplied by the incremental cost or incentive amount requested to determine the annualized cost.

Incremental Cost x CRF = Annualized Cost

The cost-effectiveness calculations are presented in Table 2-3 that follows. For use in the calculations, capital recovery factors for up to 20 years are presented in Table 2-4.

Table 2-3

Calculating Cost-Effectiveness

Step 1. Determine the Capital Recovery Factor (CRF)	
$CRF = [(1+i)^n (i)] / [(1+i)^n - 1]$ i = discount rate (.03) n = activity life	
Capital Recovery Factor:	
Step 2. Determine the annualized cost	
Incentive amount x CRF = Annualized cost	
Annualized cost ($/year):	
Step 3. Determine cost-effectiveness	
Annualized cost ($/year) / Annual NO_x emissions reduction (tons/year) = Cost-effectiveness ($/ton)	
Cost-effectiveness ($/ton):	$

Table 2-4

Capital Recovery Factors (CRFs) Using a Discount Rate of 0.03

Activity Life	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
CRF	1.00	.5226	.3535	.2690	.2184	.1846	.1605	.1425	.1284	.1172
Activity Life	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
CRF	.1081	.1005	.0940	.0885	.0838	.0796	.0760	.0727	.0698	.0672

For projects that include more than one activity, the total project incentive amount must be used to determine the cost-effectiveness of the project. The applicant may request an incentive amount that is less than the full incremental costs, in order to meet the cost-effectiveness criteria.

The cost-effectiveness will be determined by first adding all of the annualized costs for the activities included in the project. The annual emissions reductions of each activity should also be added together to determine an annual emissions reduction for the project.

The cost-effectiveness of the projects is then determined by dividing the combined annualized costs for all activities included in the project application, by the total annual NO_x emissions reductions for the combined project activities.

Total Annualized Cost / Total Annual NO_x Reductions = Project Cost-Effectiveness

Appendix 3
Marine Vessels

The methods for calculating the NO_x emissions reductions for a marine vessel project are included in this section. Most of the calculations will require input of a NO_x emissions factor applicable to the engine. The emissions standards and emissions factors applicable to this program are provided in a *Technical Supplement*, which will be made available in conjunction with these guidelines. Examples of the calculations will also be available in the supplement, along with and other materials prepared by the TCEQ. Potential grant applicants should contact the TCEQ for copies of the supplement and for any questions about the emissions standards and factors to use.

Activities and Eligible Costs

The types of vessels that may be eligible for funding are diverse, and may include both ocean-going vessels and harbor craft. However, to be eligible for funding, a vessel must operate at least 75 percent of the annual use in the bays adjacent to an eligible county, or in the Texas Intracoastal Waterway. Therefore, it is expected that there will be few projects involving large ocean-going vessels.

The TCEQ may also consider, on a case-by-case basis, vessels that operate in coastal or international waters, where it can be definitively shown that the emissions from those vessels operating in the subject area are included by the TCEQ in the inventory of emissions for an eligible county or area made up of eligible counties. This decision will be solely at the discretion of the TCEQ. It is recommended that potential applicants contact the TCEQ to discuss this type of project prior to submitting an application.

In addition, many marine vessels will have one or more propulsion engines, as well as one or more auxiliary engines. In most cases, for lease/purchase and replacement projects, the combined NO_x emissions for both the propulsion and the auxiliary engine will be used to determine the NO_x emissions reductions for the project. For engine repower, retrofit, and add-on projects, the NO_x emissions reductions will be based on the individual engines being replaced or retrofitted.

The eligible activities and costs under each project category are explained in this section. The TCEQ may further limit the types of eligible activities, and may more narrowly define eligibility requirements under a particular funding round, or by geographic area, as needed to best achieve the objectives of the TERP. Administrative costs, in-house labor costs, and travel costs are not eligible expenses.

Purchase or Lease of Marine Vessels

This category is for the purchase or lease of new marine vessels. The cost may also include the purchase and installation of a Global Positioning System (GPS), subject to approval by the TCEQ. For this category, the TCEQ does not consider whether the

applicant is replacing an existing piece of equipment, and the baseline for comparison of emissions is the current NO_x standard for a marine engine of that horsepower and use.

To be eligible for funding, the engine on the new piece of equipment must be certified to emit at least 25 percent less NO_x emissions than required under the current standard for that engine. Certification means approved by the EPA, the CARB, or otherwise accepted by the TCEQ.

A *lease* is considered the use and control of a new marine vessel in accordance with a lease contract for a period of five or more years. The TCEQ will reimburse the incremental costs of the lease. The incremental costs are those costs that are above and beyond the costs that would otherwise have been paid for the lease of a baseline vehicle.

A *purchase* is considered buying a new marine vessel. The TCEQ will reimburse the incremental cost of the purchase. The incremental cost is the difference between the documented dealer price of a baseline vessel or other appropriate baseline cost established by the TCEQ and the actual cost of the cleaner vessel.

For new purchases, not less than 75 percent of the annual use of the marine vessel projected for the activity life must be projected to take place in the Texas Intracoastal Waterway or in bays adjacent to an eligible county. Leases must be for for the length of the activity life, and 75 percent of the annual use over the lease period must be projected to take place in the Texas Intracoastal Waterway or in bays adjacent to an eligible county. Annual use will be measured by either hours of operation or fuel consumption.

Replacement of Marine Vessels

This category is for the replacement of marine vessels with a new or newer marine vessel. For this category, the applicant must be replacing a vessel with a minimum of five years of remaining useful life. The TCEQ may establish longer activity life requirements for each grant period. The baseline for comparison of emissions is the difference between the emissions standard (or in some cases, the certified emissions level) for the engine(s) on the vessel being replaced, and the certified emissions level of the engine(s) installed on the vessel being purchased.

For a replacement project, the TCEQ will evaluate whether the vessel being replaced would have otherwise been used in the bays adjacent to the eligible counties or in the Texas Intracoastal Waterway for the period within which the emissions reductions will be claimed. Standards that apply include **all** of the following:

1. The owner must have owned the vessel for a minimum of two years immediately preceding the grant application;
2. Unless otherwise approved by the TCEQ, the vessel must have been located and used in Texas over the preceding two years; and
3. The vessel must be in operating condition.

The TCEQ may waive the two-year ownership requirement on a case-by-case basis in

instances where the ownership of the company has changed, the assets of the company have been purchased by another company, or the company has changed names or incorporation status. The use of the vessels being replaced may not have changed.

Additional documentation to verify that the vessel would have been used within the bays adjacent to the eligible counties or in the Texas Intracoastal Waterway may be required.

The combined NO_x emissions of the engines on the replacement vessel must be certified to be at least 25 percent less than the combined NO_x emissions of the engines on the vessel being replaced, based on the emissions standard for those engines. Certification means approved by the EPA, the CARB, or otherwise accepted by the TCEQ.

The replacement vessel must be of the same type and should be intended for use in the same application or vocation (for example, tug, fireboat, pusher) as the vessel being replaced.

The grant recipient may be eligible for reimbursement of up to 80 percent of the eligible incremental costs for the purchase or lease of the replacement vessel, not to exceed an incentive amount that results in a cost-effectiveness of $15,000 or less per ton of NO_x reduced. The TCEQ may further limit the incentive amount to a cost-effectiveness lower than $15,000 per ton for particular funding periods, as needed to best achieve the goals of the TERP.

Costs may include the invoice price, including taxes and delivery charges included in the price of the replacement vessel, or the cash basis for the lease charges. The cost may also include the purchase and installation of a Global Positioning System (GPS), subject to approval by the TCEQ. Delivery charges from a third party, not included in the invoice price from the vehicle or equipment vendor, may be included, subject to approval by the TCEQ.

The total incentive amount also must not exceed the cost of the replacement vessel minus the scrappage value received for the old vessel. The TCEQ may establish a default scrappage value.

Not less than 75 percent of the annual use of the marine vessel projected for the activity life must be projected to take place in the Texas Intracoastal Waterway or in bays adjacent to an eligible county. Annual use will be measured by either hours of operation or fuel consumption.

Repower of Marine Vessels

This category is for the replacement of an existing engine on a marine vessel with a new, rebuilt, or remanufactured engine. The engine must be certified to emit at least 25 percent less NO_x emissions than the engine being replaced, based on the standard for that engine. Certification means approved by the EPA, the CARB, or otherwise accepted by the TCEQ.

If the engine being installed is rebuilt or remanufactured, the engine must have been certified to emit at least 25 percent less NO_x emissions than the standard for the engine being replaced. Certification means approved by the EPA, the CARB, or otherwise accepted by the TCEQ.

Eligible rebuilt or remanufactured engines must use original engine manufacturer (OEM) components only and be purchased from the OEM or its authorized dealers or distributors. The TCEQ may accept engines provided by other entities not connected with the OEM, subject to a case-by-case determination.

The TCEQ will reimburse the incremental cost of the purchase and installation of the replacement engine. The incremental cost is the cost to purchase and install the replacement engine and associated equipment minus the scrappage value received for the old engine. The TCEQ may establish a default scrappage value.

Expenses for salaries, travel, and overhead, including indirect costs, will not be covered. Costs that may be reimbursed, subject to approval by the TCEQ, include:

- invoice cost of the new engine, including sales tax and delivery charges;
- invoice cost of additional equipment that must be installed with the new engine;
- associated supplies directly related to the installation of the engine;
- costs to remove and dispose of the old engine;
- installation costs;
- reengineering costs, if the vessel must be modified for the new engine to fit; and
- other costs directly related to the project, including the purchase and installation of a Global Positioning System (GPS), subject to approval by the TCEQ.

Not less than 75 percent of the annual use of the marine vessel projected for the activity life must be projected to take place in the Texas Intracoastal Waterway and/or in bays adjacent to an eligible county. Annual usage will be measured by either hours of operation or fuel consumption.

Retrofit or Add-On of Emissions-Reduction Technology

This category is for the retrofit of an existing engine on a marine vessel, or for adding on devices to the vessel. To be eligible for funding, the retrofit or add-on systems must be certified or verified to emit at least 25 percent less NO_x emissions than engine(s) prior to the retrofit or add-on. Certification means approved by the EPA, the CARB, or otherwise accepted by the TCEQ.

The TCEQ will reimburse the incremental cost of the purchase and installation of the retrofit and/or add-on technology. If the engine is to be rebuilt to install the emissions-reduction devices, the incremental cost is the difference between the cost of rebuilding the existing engine and the cost of rebuilding the engine to include the retrofit or add-on technology. If the engine does not need to be rebuilt in conjunction with installing the new technology, then the incremental cost will be the full cost of purchasing and installing the technology.

Expenses for salaries, travel, and overhead, including indirect costs, will not be covered. Costs that may be reimbursed, subject to approval by the TCEQ, include:

- invoice cost of the retrofit kit or add-on devices, including sales tax and delivery charges;
- associated supplies directly related to the installation of the devices;
- installation costs;
- reengineering costs, if the marine vessel must be modified for the retrofit or add-on devices to be installed and used; and
- other costs directly related to the project, including the purchase and installation of a Global Positioning System (GPS), subject to approval by the TCEQ.

Not less than 75 percent of the annual use of the equipment projected for the activity life must be projected to take place in the Texas Intracoastal Waterway or in bays adjacent to an eligible county. Annual use will be measured by either hours of operation or fuel consumption.

Project Criteria

In addition to the eligibility criteria previously presented, the following list of criteria applies to projects involving marine vessels. The TCEQ may impose additional criteria, and may more narrowly define the criteria established in this guide, under a particular funding round, or by geographic area, as needed to best achieve the goals of the TERP.

- One or more eligible *activities* of the same project type (i.e., on-road, non-road, locomotive, etc.) and that will occur in the same primary area may be included under one project application.

- Marine vessels used primarily for competition or recreational purposes are not eligible for funding.

- Marine vessel activities must provide at least a 25 percent NO_x emissions reduction compared to baseline NO_x emissions. The NO_x emissions of engines and retrofit/add-on devices used to achieve the emissions reductions must be certified or verified by the EPA, the CARB, or otherwise accepted by the TCEQ. In situations where the year of manufacture of the marine vessel and the year of manufacture of the existing engine are different—such as a vessel that has already had the engine replaced with a newer engine—the year of manufacture of the engine must be used to determine the baseline emissions standard for emissions-reduction calculations. The application of the 25 percent reduction criteria for each type of activity is explained below.

  Purchases and leases. Purchases and leases are allowed based on what year the purchase or lease is completed. At a minimum, the combined NO_x emissions of the vessel being purchased or leased must be certified to be at least 25 percent less than the NO_x emissions would have been if the engine(s) only met the minimum standard.

Replacements. The replacement combined certified NO_x emissions of the replacement marine vessel must be at least 25 percent less than the combined NO_x emissions of the vessel being replaced, based on the emissions standards for those engines.

Repowers. The replacement engine must be certified to emit at least 25 percent less NO_x than the engine being replaced, based on the federal standard for that engine.

Retrofits and add-ons. Emissions standards for retrofit and add-on activities are based on the engine being retrofitted. If you want to retrofit or add on a device, the technology must be certified to emit at least 25 percent less NO_x than the standard for the engine being retrofitted.

Combined technologies. In instances where two technologies are combined on the same vessel or engine (for example, repower plus retrofit), the TCEQ may consider the combined reductions from the two technologies in meeting the 25 percent requirements. This decision will be solely at the discretion of the TCEQ, and will be based on a determination that the combination of the two technologies will result in a permanent reduction in emissions of at least 25 percent.

- The cost-effectiveness of a project, other than a demonstration project, may not exceed $15,000 per ton of NO_x emissions reduced in the eligible counties for which the project is proposed. Individual activities included under a single project application may exceed this amount, but the combined project must meet the cost-effectiveness standard.

- Infrastructure activities—including infrastructure costs that are part of a cost-effectiveness limit of broader repower, retrofit, replacement or add-on project—are excluded from the $15,000 per ton.

- An activity is not eligible if it is required by any state or federal law, rule, regulation, memorandum of agreement, or other legally binding document. However, this restriction does not apply to an otherwise qualified activity—regardless of the fact that the state implementation plan assumes that the change in equipment, vehicles, or operations will occur—if, on the date the grant is awarded, the change is not required by any state or federal law, rule, regulation, memorandum of agreement, or other legally binding document. This restriction also does not apply to the purchase of vehicles or equipment that is required only by local law or regulation or by corporate or controlling board policy of a public or private entity. Demonstration projects used to demonstrate a technology that may be used to comply with an emissions reduction requirement may be funded, as long as the reductions directly attributable to the demonstration project are not used to comply with those requirements.
- In the areas of the state where Texas Low Emission Diesel (TxLED) must be provided by suppliers beginning April 1, 2005, the baseline and reduced emissions rate calculations for diesel engine usage after March 2005 must be adjusted using a correction factor, in addition to any other calculation adjustments.

Figure 3-1

Correction Factor for TxLED

The TCEQ has adopted rules (30 TAC §114.312 to §114.319) requiring that beginning on April 1, 2005, diesel fuel sold or supplied for use in compression-ignition engines in certain counties in Texas must meet new low emission diesel (TxLED) standards.

The counties affected by the new TxLED requirements currently include all of the counties eligible for TERP incentive funding, as listed in Chapter 3, except for El Paso County.

The new requirements set a maximum aromatic hydrocarbon content standard of 10 percent by volume per gallon. The requirements also set a minimum cetane number for TxLED of 48.

The TxLED requirements are intended to result in reductions in NO_x emissions from diesel engines. Currently, reduction factors of **5.7 percent** (0.057) for on-road use and **7.0 percent** (0.07) for non-road use have been accepted as estimates for use of TxLED. However, this reduction estimate is subject to change, based on the standards accepted by the EPA for use in the Texas State Implementation Plan (SIP). The TCEQ will identify the appropriate reduction factor to use in the *Technical Supplement* prepared to support these guidelines.

For activities in the applicable counties, a correction factor will need to be applied when calculating the baseline and/or reduced emissions for diesel engines.

On-road:
TxLED Correction Factor = 1 - 0.057, which is a TxLED Correction Factor of 0.943
Non-road:
TxLED Correction Factor = 1 - 0.070, which is a TxLED Correction Factor of 0.93

- An activity involving a new emissions-reduction measure that would otherwise generate marketable credits under state or federal emissions reduction credit averaging, banking, or trading programs is not eligible for funding under this program unless:
    - the activity includes the transfer of the reductions that would otherwise be marketable credits to the state implementation plan or the owner or operator as provided under §386.056, Texas Health and Safety Code; and
    - the reductions are permanently retired.

- The incremental cost of the proposed activity must be reduced by the value of any existing financial incentive that directly reduces the cost of the proposed activity, including tax credits or deductions, other grants, or any other public financial assistance.

- For repower activities, eligible rebuilt or remanufactured engines must use original engine manufacturer (OEM) components only, and must be purchased from the OEM or its authorized dealers or distributors. The TCEQ may accept engines and components provided by other entities not connected with the OEM, subject to a case-by-case determination.

- For all activities, the activity life must be for a minimum of five years. The TCEQ may

establish longer activity life requirements for each grant period. Not less than 75 percent of the annual use of the marine vessel projected for the activity life following the purchase must be projected to take place in the Texas Intracoastal Waterway or in bays adjacent to an eligible county.

- For most marine vessels, annual use must be measured using hours of operation. For vessels with no viable mechanism for measuring the hours of operation, fuel consumption normally should be used as the usage factor.

- Applicants should refer to the *Technical Supplement* to these guidelines for the maximum acceptable activity life established by the TCEQ for each type of activity.

- Applicants must agree to monitor the use of the grant-funded vehicles, equipment, infrastructure, and fuel, and to report to the TCEQ for the life of each grant-funded activity.

- Applicants must also agree to notify the TCEQ of any changes during the life of the following activities: termination of use; change in use, sale, transfer, or accidental or intentional destruction of grant-funded vehicles or equipment; or change in use of the qualifying fuel.

- Administrative costs and other internal costs of the grant recipient, including but not limited to personnel expenses, internal salaries, indirect costs, and travel will not be eligible. This restriction also applies to situations where the grant recipient acts as a transportation provider for delivery of the grant-funded vehicle or equipment before or after acceptance of the vehicle or equipment.

- Consultant fees for the preparation of a grant application, either directly or as an addition of the cost basis of the grant-funded vehicle, equipment, or engine, are not eligible for reimbursement by the TCEQ.

- Fees for a third-party consultant hired by the grant recipient to manage and administer the grant-funded activities, including coordination of the work and submission of reports and paperwork to the TCEQ for the grant recipient will not be eligible. This restriction is not intended to limit the ability of the vehicle or equipment provider or installer to include reasonable and necessary costs for managing the work to be performed in the price of the vehicle, equipment, or installation services. The costs for professional services, including engineering and technical work, required for completion of the activity may be included, subject to the restrictions pertaining to that type of project. Per the Uniform Grant Management Standards (UGMS), the cost plus a percentage of cost methods of contracting for professional services shall not be used.

- The TCEQ may impose additional criteria for certain projects and funding periods, consistent with these guidelines.

NO_x Emissions Standards

Until recently, the emissions of marine vessels have been unregulated. However, both the International Maritime Organization (IMO) and the EPA have recently adopted standards for regulating marine engine emissions.

International Maritime Organization (IMO) Regulations

The IMO established NO_x emissions standards in Annex VI to the International Convention for the Prevention of Pollution from Ships in 1997. The standards apply to diesel engines over 130 kilowatt (kW) (174 hp) installed on new vessels (ocean-going ships). The NO_x standards range from 9.8 to 17 g/kW-hr, depending on the rated engine speed.

The IMO standards do not become enforceable until ratified by 15 countries that represent at least 50 percent of the gross tonnage of the world's merchant shipping. To date, the standards have not been ratified by the United States and other countries. However, the standards are retroactive to January 1, 2000, if ratified, so engine manufacturers have generally produced IMO-compliant engines since that date.

EPA Standards for Marine Engines

The EPA adopted exhaust emissions standards for new marine diesel engines, effective April 29, 2004. These standards apply to the following:

- **Marine diesel engines with per-cylinder displacement at or above 30 liters.** These engines are also known as Category 3 marine diesel engines. They range in size from about 2,500 to 70,000 kilowatts (3,000 to 100,000 hp). These are very large marine diesel engines used for propulsion power on ocean-going vessels such as container ships, oil tankers, bulk carriers, and cruise ships.

- **Marine diesel engines with per-cylinder displacement between 2.5 and 30 liters**. These engines are also known as Category 1 and Category 2 marine diesel engines. They range in size from about 500 to 8,000 kilowatts (700 to 11,000 hp). These engines are used to provide propulsion power on many kinds of vessels, including tugboats, pushboats, supply vessels, fishing vessels, and other commercial vessels in and round U.S. ports. They are also used as stand-alone generators for auxiliary power on many types of vessels.

For purposes of this program, the EPA standards for marine engines will be used for propulsion engines, where applicable. These standards are included in the *Technical Supplement* to these guidelines. To determine the emissions levels for engines manufactured before the EPA standards apply to that engine, the TCEQ will work with the grant applicant to determine the most appropriate emissions level to use for that engine, based on information provided by the manufacturer and from other sources.

For new leases and purchases, where the vessel's NO_x emissions must be at least 25 percent less than the current minimum standards, and where the EPA standards do not yet apply to the engines installed on the vessel, the TCEQ will work with the grant applicant to determine whether the engines meet the requirements for this program.

In most cases, the EPA standards for non-road engines will be used for determining the emissions of auxiliary engines on marine vessels.

For activities involving ocean-going vessels, the TCEQ will work with the grant applicant to determine the appropriate standards to use, on a case-by-case basis.

Calculating NO_x Emissions Reductions

In general, the emissions-reduction benefit represents the difference in the emissions level of a baseline engine and a reduced-emissions engine. In situations where the year of manufacture of the marine vessel and the year of manufacture of the current engine are different, the year of the engine must be used to determine the baseline emissions for benefit calculations.

The emissions level is calculated by multiplying an emissions factor and an activity level. Because conversion factors and the activity levels may be expressed in different units for the existing and replacement engines, the emissions levels for the baseline and reduced-emissions engines should be calculated separately, and then differences taken to determine emissions reductions.

For most marine applications, the activity level should be established by the annual hours of operation. For engines without an hour meter installed, and no other mechanism to track hours of operation, the activity level should be determined based on annual fuel consumption. Emissions-reduction calculations should be consistent with the type of records maintained over the life of each activity.

Calculation of NO_x Emissions Reductions Using Annual Hours of Operation

The calculation of emissions and emissions reductions using annual hours of operation as the usage factor is determined by the steps shown in Table 3-1.

Table 3-1

The TxLED Correction Factor

The counties affected by the TxLED requirements currently include all of the counties eligible for TERP incentive funding, as listed in Chapter 3, except for El Paso County.	
TxLED Correction Factor for Non-Road: *1 - 0.07*	0.93

Step 1. Determine the Reduced NO_x Emissions Factor

Option A. Reduced-emissions technology certified/verified to achieve a percentage reduction from the baseline	
Baseline NO_x emissions factor (g/bhp-hr)	
x certified/verified percentage reduction from baseline	
= reduced NO_x emissions factor (g/bhp-hr)	
Option B. Reduced-emissions engine certified to a specific emissions standard (g/bhp-hr)	
Certified NO_x emissions (g/bhp-hr)	

Step 2. Calculate the NO_x Emissions Reduction Using Annual Hours of Operation

Baseline		**Reduced Emissions**	
NO_x emissions factor (g/bhp-hr)		NO_x emissions factor (g/bhp-hr)	
x TxLED correction factor (*diesel engines only*)		x TxLED correction factor (*diesel engines only*)	
= corrected NO_x emissions factor (g/bhp-hr)		= corrected NO_x emissions factor (g/bhp-hr)	
x horsepower		x horsepower	
= grams per hour (g/hr)		= grams per hour (g/hr)	
Baseline g/hr - reduced emissions g/hr =			
x annual hours of operation			
x percent within affected counties (%)			
= grams per year reduced (g/year)			
		divided by 907,200 grams per ton	
= estimated annual NO_x emissions reduction (tons/yr)			
x activity life (years)			
= estimated activity life NO_x emissions reduction (tons)			

Appropriate baseline NO_x emissions factors are included in the *Technical Supplement* available from the TCEQ. Use the emissions factors associated with engine horsepower and year of manufacture. Potential grant applicants should consult with the TCEQ to ensure that the appropriate factors are used.

For retrofit and add-on activities, and other activities, where the emissions reductions are based on a percentage reduction from the baseline, the certified/verified percentage reduction factor can be applied to the baseline emissions factor to determine the reduced NO_x emissions factor.

Alternatively, for activities where the emissions of the new or replacement engine are certified at a specific emissions level (g/bhp-hr), such as purchases or repowers, that emissions level should be used as the emissions factor.

Calculation of NO_x Emissions Reductions Using Annual Fuel Use

If annual fuel consumption is the basis for the emissions reductions, an energy consumption factor is used to convert g/bhp-hr to g/gal of fuel used. There are two ways of calculating an engine-specific energy consumption factor:

1. divide the hp of the engine by the fuel economy in units of gal/hr;
   or
2. divide the density of the fuel by the brake-specific fuel consumption of the engine.

While actual fuel receipts or other documentation may support the annual fuel consumption for a baseline engine, the annual fuel consumption of the new vehicle or engine is an estimated proportion to the change in the energy consumption factor. Check with your equipment dealer to confirm the fuel economy or fuel consumption of the equipment for the type of application.

Otherwise, there are two ways of calculating an engine-specific energy consumption factor:

1. divide the hp of the engine by the fuel economy in units of gal/hr;
   or
2. divide the density of the fuel by the brake-specific fuel consumption of the engine.

While actual fuel receipts or other documentation may support the annual fuel consumption for a baseline engine, the annual fuel consumption of the new vehicle or engine is an estimated proportion to the change in the energy consumption factor. For example, a reduced-emissions engine having an energy consumption factor of 18.5, which replaces a baseline engine that uses 5,000 gallons/year, and that has an energy consumption factor of 17.8, would have an estimated annual fuel consumption of 5,197 gal/yr.

Default fuel consumption rate factors may be included in the *Technical Supplement* to these guidelines.

The calculation of NO_x emissions reductions using annual fuel use is outlined in Table 3-2. Applicants should consult with the TCEQ for the appropriate calculations for projects involving non-diesel engines.

Table 3-2

The TxLED Correction Factor

The counties affected by the TxLED requirements currently include all of the counties eligible for TERP incentive funding, as listed in Chapter 3, except for El Paso County.	
TxLED Correction Factor for Non-Road: *1 - 0.07*	0.93

Step 1. Determine the Reduced NO_x Emissions Factor

Option A. Reduced-emissions technology certified/verified to achieve a percentage reduction from the baseline	
Baseline NO_x emissions factor (g/bhp-hr)	
x certified/verified percentage reduction from baseline	
= reduced NO_x emissions factor (g/bhp-hr)	
Option B. Reduced-emissions engine certified to a specific emissions standard (g/bhp-hr)	
Certified NO_x emissions (g/bhp-hr)	

Step 2. Calculate the NO_x Emissions Reduction Using Annual Fuel Use

Baseline		**Reduced Emissions**	
NO_x emissions factor (g/bhp-hr)		NO_x emissions factor (g/bhp-hr)	
x TxLED correction factor (*diesel engines only*)		x TxLED correction factor (*diesel engines only*)	
= corrected NO_x emissions factor (g/bhp-hr)		= corrected NO_x emissions factor (g/bhp-hr)	
x energy consumption factor (hp-hr/gal)		x energy consumption factor (hp-hr/gal)	
x annual fuel consumption (gal/yr)		x annual fuel consumption (gal/yr)	
= grams per year (g/yr)		= grams per year (g/yr)	
Baseline g/yr - reduced emissions g/yr =			
x percent within affected counties (%)			
= grams per year reduced (g/yr)			
		divided by 907,200 grams per ton	
= estimated annual $_{NOx}$ emissions reduction (tons/yr)			
x activity life (years)			

= estimated activity life NO_x emissions reduction (tons)	

Calculating Cost-Effectiveness

Only the amount of incentive funds requested under the program will be used in cost-effectiveness calculations for marine vessels. The incremental costs for each activity must be reduced by the value of any existing financial incentive that directly reduces the cost of the proposed activity, including tax credits or deductions, other grants, or any other public financial assistance.

To determine the cost-effectiveness of an activity—with the exception of qualifying fuel activities—the incentive amount for the activity included in the project must be amortized over the activity life designated by the applicant, with a discount rate of 3 percent.

The following amortization formula yields a *capital recovery factor* (CRF).

$$\text{capital recovery factor (CRF)} = \mathbf{[(1 + \mathit{i})^{n} (\mathit{i})] \ / \ [(1 + \mathit{i})^{n} - 1]}$$

where, i = discount rate (3 percent)
n = activity life

The discount rate of 3 percent reflects the opportunity cost of public funds. This is the level of earning that reasonably could be expected by investing state funds in various financial instruments, such as U.S. Treasury securities.

The incentive amount should be multiplied by the incremental cost or incentive amount requested to determine the annualized cost.

Incremental Cost x CRF = Annualized Cost

The cost-effectiveness calculations are presented in the Table 3-3. For use in the calculations, capital recovery factors for up to 20 years are presented in Table 3-4.

Table 3-3

Calculating Cost-Effectiveness

Step 1. Determine the Capital Recovery Factor (CRF)	
$CRF = [(1+i)^n (i)] / [(1+i)^n - 1]$ i = discount rate (.03) n = activity life	
Capital Recovery Factor:	
Step 2. Determine the annualized cost	
Incentive amount x CRF = Annualized cost	
Annualized cost ($/year):	
Step 3. Determine cost-effectiveness	
Annualized cost ($/year) / Annual NO_x emissions reduction (tons/year) = Cost-effectiveness ($/ton)	
Cost-effectiveness ($/ton):	$

Table 3-4

Capital Recovery Factors (CRFs) Using a Discount Rate of 0.03

Activity Life	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
CRF	1.00	.5226	.3535	.2690	.2184	.1846	.1605	.1425	.1284	.1172
Activity Life	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
CRF	.1081	.1005	.0940	.0885	.0838	.0796	.0760	.0727	.0698	.0672

For projects that include more than one activity, the total project incentive amount must be used to determine the cost-effectiveness of the project. The applicant may request an incentive amount that is less than the full incremental costs, in order to meet the cost-effectiveness criteria.

The cost-effectiveness must be determined by first adding all of the annualized costs for the activities included in the project. The annual emissions reductions of each activity should also be added together to determine an annual emissions reduction for the project.

The cost-effectiveness of the projects is then determined by dividing the combined annualized costs for all activities included in the project application, by the total annual NO_x emissions reductions for the combined project activities.

Total Annualized Cost / Total Annual NO_x Reductions = Project Cost-Effectiveness

Appendix 4
Locomotives

The methods for calculating the NO_x emissions reductions for a locomotive project are also included in this section. The emissions standards and emissions factors applicable to this program are provided in a *Technical Supplement*, which will be made available in conjunction with these guidelines. Examples of the calculations will also be available in the supplement, along with other materials prepared by the TCEQ. Potential grant applicants should contact the TCEQ for copies of the supplement and for questions about the emissions standards and factors to use.

Activities and Eligible Costs

Locomotives are eligible for grants under this program. Most of the engines eligible under this program will be powered by diesel-fueled compression-ignition engines. However, engines powered by other fuels may also be eligible, subject to decisions by the TCEQ for particular funding periods. The eligible activities and costs under each project category are explained in this section. The TCEQ may further limit the types of eligible activities, and may more narrowly define eligibility requirements under a particular funding round or by geographic area, as needed to best achieve the goals of the TERP. Administrative costs, in-house labor costs, and travel costs are not eligible expenses.

Purchase or Lease of Locomotives

This category is for the purchase or lease of new locomotives. The cost may also include the purchase and installation of a Global Positioning System (GPS), subject to approval by the TCEQ. For this category, the TCEQ does not consider whether the applicant is replacing an existing locomotive, and the baseline for comparison of emissions is the current federal NO_x emissions standard for that locomotive.

To be eligible for funding, the engine on the new locomotive must be certified to emit at least 25 percent less NO_x emissions than required under the current federal standard for that engine. Certification means approved by the EPA, the CARB, or otherwise accepted by the TCEQ.

A *lease* is considered the use and control of a new locomotive in accordance with a lease contract for a period of five or more years. The TCEQ will reimburse the incremental costs of the lease. The incremental costs are those costs that are above and beyond the costs that would otherwise have been paid for the lease of a baseline locomotive.

A *purchase* is considered buying a new locomotive. The TCEQ will reimburse the incremental cost of the purchase. The incremental cost is the difference between the documented dealer price of a baseline locomotive or other appropriate baseline cost established by the TCEQ, and the actual cost of the cleaner locomotive.

For new purchases, not less than 75 percent of the annual use of the locomotive projected for the activity life must be projected to take place in one or more of the eligible counties. Leases must be for the length of the activity life, and 75 percent of the annual use over the lease period must be projected to take place in one or more of the eligible counties. Annual use will be measured by fuel consumption.

Replacement of Locomotives

This category is for the replacement of a locomotive with a new or newer locomotive. For this category, the applicant must be replacing a locomotive with a minimum of five years of remaining useful life. The TCEQ may establish longer activity life requirements for each grant period. The baseline for comparison is the emissions of the locomotive being replaced and the emissions of the locomotive being purchased.

For a replacement project, the TCEQ will evaluate whether the locomotive being replaced would have otherwise been used in the eligible counties for the period within which the emissions reductions will be claimed. Standards that apply include **all** of the following:

1. The owner must have owned the locomotive for a minimum of two years immediately preceding the grant application;
2. Unless otherwise approved by the TCEQ, the locomotive must have been located and used in Texas over the preceding two years; and
3. The locomotive must be in operating condition.

The TCEQ may waive the two-year ownership requirement on a case-by-case basis in instances where the ownership of the company has changed, the assets of the company have been purchased by another company, or the company has changed names or incorporation status. The use of the locomotives being replaced may not have changed.

Additional documentation to verify that the locomotive would have been used within the eligible counties may be required.

The engine on the replacement locomotive must be certified to emit at least 25 percent less NO_x than the engine being replaced. Certification means approved by the EPA, the CARB, or otherwise accepted by the TCEQ.

The replacement locomotive must be of the same type and should be intended for use in the same application or vocation (for example, switcher) as the locomotive being replaced.

The grant recipient may be eligible for reimbursement of up to 80 percent of the eligible incremental costs for the purchase or lease of the replacement locomotive, not to exceed an incentive amount that results in a cost-effectiveness of $15,000 or less per ton of NO_x reduced. The cost may also include the purchase and installation of a Global Positioning System (GPS), subject to approval by the TCEQ. The TCEQ may further limit the incentive amount to a cost-effectiveness lower than $15,000 per ton for particular funding periods, as needed to best achieve the goals of the TERP.

Costs may include the invoice price, including taxes and delivery charges included in the price of the replacement locomotive, or the cash basis for the lease charges. Delivery charges from a third party, not included in the invoice price from the vehicle or equipment vendor, may be included, subject to approval by the TCEQ.

The total incentive amount also must not exceed the cost of the replacement locomotive minus the scrappage value received for the old locomotive. The TCEQ may establish a default scrappage value.

Not less than 75 percent of the annual use projected for the activity life must take place in one or more of the eligible counties. Annual use will be measured by fuel consumption.

Repower of Locomotives

This category is for the replacement of an existing engine on a locomotive with a new, rebuilt, or remanufactured engine. The engine must be certified to emit at least 25 percent less NO_x than the engine being replaced, based on the federal standard for that engine. Certification means approved by the EPA, the CARB, or otherwise accepted by the TCEQ.

Eligible rebuilt or remanufactured engines must use original engine manufacturer (OEM) components only, and must be purchased from the OEM or its authorized dealers and distributors. The TCEQ may accept engines provided by other entities not connected with the OEM, subject to a case-by-case determination.

The TCEQ will reimburse the incremental cost of the purchase and installation of the replacement engine. The incremental cost is the cost to purchase and install the replacement engine and associated equipment minus the scrappage value received for the old engine. The TCEQ may establish a default scrappage value.

Expenses for salaries, travel, and overhead, including indirect costs, will not be covered. Costs that may be reimbursed, subject to approval by the TCEQ, include:

- invoice cost of the new engine, including sales tax and delivery charges;
- invoice cost of additional equipment that must be installed with the new engine;
- associated supplies directly related to the installation of the engine;
- costs to remove and dispose of the old engine;
- installation costs;
- reengineering costs, if the locomotive must be modified for the new engine to fit; and
- other costs directly related to the project, including the purchase and installation of a Global Positioning System (GPS), subject to approval by the TCEQ.

Not less than 75 percent of the annual usage of the locomotive projected for the activity life must be projected to take place in one or more of the eligible counties. Annual use must be measured by fuel consumption.

Retrofit or Add-on of Emissions-Reduction Technology

This category is for the retrofit of an existing engine on a locomotive, or for adding on devices to the locomotive.

To be eligible for funding, the retrofit or add-on systems must be certified or verified to emit at least 25 percent less NO_x than engine prior to the retrofit or add-on. Certification means approved by the EPA, the CARB, or otherwise accepted by the TCEQ.

The TCEQ will reimburse the incremental cost of the purchase and installation of the retrofit and/or add-on technology. If the engine is to be rebuilt to install the emissions-reduction devices, the incremental cost is the difference between the cost of rebuilding the existing engine and the cost of rebuilding the engine to include the retrofit or add-on technology. If the engine does not need to be rebuilt in conjunction with installing the new technology, then the incremental cost will be the full cost of purchasing and installing the technology.

Expenses for salaries, travel, and overhead, including indirect costs, will not be covered. Costs that may be reimbursed, subject to approval by the TCEQ, include:

- invoice cost of the retrofit kit or add-on devices, including sales tax and delivery charges;
- associated supplies directly related to the installation of the devices;
- installation costs;
- reengineering costs, if the vehicle or equipment must be modified for the retrofit or add-on devices to be installed and used; and
- other costs directly related to the project, including the purchase and installation of a Global Positioning System (GPS), subject to approval by the TCEQ.

Not less than 75 percent of the annual use of the locomotive projected for the activity life must be projected to take place in one or more of the eligible counties. Annual use must be measured by fuel consumption.

Project Criteria

In addition to the eligibility criteria previously presented, the following list of criteria applies to projects involving locomotives. The TCEQ may impose additional criteria, and may more narrowly define the criteria established in this guide, under a particular funding round or by geographic area, as needed to best achieve the objectives of the TERP.

- One or more eligible *activities* of the same project type (i.e., on-road, non-road, locomotive, etc.) and that will occur in the same primary area may be included under one project application.
- Locomotives used primarily for competition or recreational purposes are not eligible for funding.

- An activity must provide a NO_x emissions reduction compared to baseline NO_x emissions. The NO_x emissions of locomotives, engines, and retrofit/add-on devices used to achieve the emissions reductions must be certified or verified by the EPA, the CARB, or otherwise accepted by the TCEQ. In situations where the year of manufacture of the locomotive and the year of manufacture of the existing engine are different—such as a locomotive that has already had the engine replaced with a newer engine—the year of manufacture of the engine must be used to determine the baseline emissions standard for emissions-reduction calculations. The application for the 25 percent reduction criteria for each type of activity is explained below.

  Purchases and leases. Purchases and leases are allowed based on what year the purchase or lease is completed. At a minimum, the locomotive and engine being purchased or leased must be certified to emit at least 25 percent less NO_x than the current federal NO_x emissions standard for that locomotive.

  Replacements. The replacement locomotive and engine(s) must have been certified to emit at least 25 percent less NO_x than the locomotive being replaced.

  Repowers. The replacement engine must be certified to emit at least 25 percent less NO_x than the engine being replaced.

  Retrofits and add-ons. Emissions standards for retrofit and add-on activities are based on the engine being retrofitted. If you want to retrofit or add on a device, the technology must be certified to emit at least 25 percent less NO_x than the standard for the engine being retrofitted.

Combined technologies. In instances where two technologies are combined on the same locomotive and/or engine (for example, repower plus retrofit), the TCEQ may consider the combined reductions from the two technologies in meeting the 25 percent requirements. This decision will be solely at the discretion of the TCEQ, and will be based on a determination that the combination of the two technologies will result in a permanent reduction in emissions of at least 25 percent.

- The cost-effectiveness of a project, other than a demonstration project, must not exceed $15,000 per ton of NO_x emissions reduced in the eligible counties for which the project is proposed. Individual activities included under a single project application may exceed this amount, but the combined project must meet the cost-effectiveness standard.

- Infrastructure activities—including infrastructure costs that are part of a broader repower, retrofit, replacement, or add-on project—are excluded from the cost-effectiveness limit of $15,000 per ton.

- An activity is not eligible if it is required by any state or federal law, rule, regulation, memorandum of agreement, or other legally binding document. However, this restriction does not apply to an otherwise qualified activity—regardless of the fact that the state implementation plan assumes that the change in equipment, vehicles, or operations will occur—if, on the date the grant is awarded, the change is not required by any state or federal law, rule, regulation, memorandum of agreement, or other legally binding document. This restriction also does not apply to the purchase of vehicles or equipment that is required only by local law or regulation, or by corporate or controlling board policy of a public or private entity. Demonstration projects used to demonstrate a technology that may be used to comply with an emissions-reduction requirement may be funded, as long as the reductions directly attributable to the demonstration project are not used to comply with those requirements.

- In the areas of the state where Texas Low Emission Diesel (TxLED) must be provided by suppliers beginning April 1, 2005, the baseline and reduced emissions rate calculations for diesel engine usage after March 2005 must be adjusted using a correction factor, in addition to any other calculation adjustments.

Figure 4-1

Correction Factor for TxLED

The TCEQ has adopted rules (30 TAC §114.312 to §114.319) requiring that beginning on April 1, 2005, diesel fuel sold or supplied for use in compression-ignition engines in certain counties in Texas must meet new low emission diesel (TxLED) standards.

The counties affected by the new TxLED requirements currently include all of the counties eligible for TERP incentive funding, as listed in Chapter 3, except for El Paso County.

The new requirements set a maximum aromatic hydrocarbon content standard of 10 percent by volume per gallon. The requirements also set a minimum cetane number for TxLED of 48.

The TxLED requirements are intended to result in reductions in NO_x emissions from diesel engines. Currently, reduction factors of **5.7 percent** (0.057) for on-road use and **7.0 percent** (0.07) for non-road use have been accepted as estimates for use of TxLED. However, this reduction estimate is subject to change, based on the standards accepted by the EPA for use in the Texas State Implementation Plan (SIP). The TCEQ will identify the appropriate reduction factor to use in the *Technical Supplement* prepared to support these guidelines.

For activities in the applicable counties, a correction factor will need to be applied when calculating the baseline and/or reduced emissions for diesel engines.

On-road:
TxLED Correction Factor = 1 - 0.057, which is a TxLED Correction Factor of 0.943
Non-road:
TxLED Correction Factor = 1 - 0.070, which is a TxLED Correction Factor of 0.93

- An activity involving a new emissions-reduction measure that would otherwise generate marketable credits under state or federal emissions-reduction credit averaging, banking, or trading programs is not eligible for funding under this program unless:
    - the activity the activity includes the transfer of the reductions that would otherwise be marketable credits to the State Implementation Plan or the owner or operator, as provided under §386.056, Texas Health and Safety Code; and
    - the reductions are permanently retired.

- The incremental cost of the proposed activity must be reduced by the value of any existing financial incentive that directly reduces the cost of the proposed activity, including tax credits or deductions, other grants, or any other public financial assistance.

- For repower activities, eligible rebuilt or remanufactured engines must use original engine manufacturer (OEM) components only, and must be purchased from the OEM or its authorized dealers and distributors. The TCEQ may accept engines and components provided by other entities not connected with the OEM, subject to a case-by-case determination.

- For all activities, the activity life must be for a minimum of five years. The TCEQ may establish longer activity life requirements for each grant period. For new purchases, not less than 75 percent of the annual usage of the locomotive projected for the activity life must take place in one or more of the eligible counties. Leases must be for for the length of the activity life, and 75 percent of the annual use over the lease period must be projected to take place in one or more of the eligible counties.

- Annual use normally should be measured using fuel consumption.

- Applicants should refer to the *Technical Supplement* to these guidelines for the maximum acceptable activity life established by the TCEQ for each type of activity.

- Applicants must agree to monitor the use of the grant-funded vehicles, equipment, infrastructure, and/or fuel, and to report to the TCEQ for the life of each grant-funded activity.

- Applicants must also agree to notify the TCEQ of any changes during the life of the following activities: termination of use, change in use; sale, transfer, or accidental or intentional destruction of grant-funded vehicles or equipment; or change in use of the qualifying fuel.

- Administrative costs and other internal costs of the grant recipient, including but not limited to personnel expenses, internal salaries, indirect costs, and travel will not be eligible. This restriction also applies to situations where the grant recipient acts as a transportation provider for delivery of the grant-funded vehicle or equipment before or after acceptance of the vehicle or equipment.

- Consultant fees for the preparation of a grant application, either directly or as an addition of the cost basis of the grant-funded vehicle, equipment, or engine, are not eligible for reimbursement by the TCEQ.

- Fees for a third-party consultant hired by the grant recipient to manage and administer the grant-funded activities, including coordination of the work and submission of reports and paperwork to the TCEQ for the grant recipient will not be eligible. This restriction is not intended to limit the ability of the vehicle or equipment provider or installer to include reasonable and necessary costs for managing the work to be performed in the price of the vehicle, equipment, or installation services. The costs for professional services, including engineering and technical work, required for completion of the activity may be included, subject to the restrictions pertaining to that type of project. Per the Uniform Grant Management Standards (UGMS), the cost plus a percentage of cost methods of contracting for professional services shall not be used.

- The TCEQ may impose additional criteria for certain projects and funding periods, consistent with these guidelines.

NO_x Emissions Standards

The EPA adopted emissions standards for locomotives in December 1997. The standards took effect in the year 2000. Federal standards apply to locomotives originally manufactured in 1973 and later, and any time they are rebuilt or remanufactured. Not regulated are electric locomotives, historic steam-powered locomotives, and locomotives originally manufactured before.

The baseline NO_x emissions standards for this program will be the federal standards for NO_x emissions applicable to the type of locomotive and year of manufacture or remanufacture. The federal NO_x emissions standards for locomotives are listed in the *Technical Supplement* to these guidelines. Potential grant applicants should consult with the TCEQ to ensure that the appropriate baseline standards are used.

Calculating NO_x Emissions Reductions

In general, the emissions-reduction benefit represents the difference in the emissions level of a baseline engine and a reduced-emissions engine. In situations where the year of manufacture of the locomotive and the year of manufacture of the current engine are different, the year of the engine must be used to determine the baseline emissions for benefit calculations.

The emissions level is calculated by multiplying an emissions factor, an activity level, and a conversion factor, if necessary. Because conversion factors and the activity levels may be expressed in different units for the existing and replacement engines, the emissions levels for the baseline and reduced-emissions engines should be calculated separately and then differences taken to determine emissions reductions.

For most locomotive applications, the activity level should be based on annual fuel consumption. Emissions-reduction calculations should be consistent with the type of records maintained over the life of each activity.

Calculation of NO_x Emissions Reductions Using Annual Fuel Use

If the annual fuel consumption is used, the activity level should be based on actual annual fuel receipts or other available documentation to estimate the expected annual fuel use of the equipment. An energy consumption factor will also need to be calculated. The energy consumption factor converts the emissions factor in terms of g/bhp-hr to g/gal of fuel used. There are two ways of calculating the energy consumption factor:

1. by dividing the hp of the engine by the fuel economy in units of gal/hr; or
2. by dividing the density of the fuel by the brake-specific fuel consumption of the baseline engine.

Check with your equipment dealer to confirm the fuel economy or fuel consumption of the equipment for the type of application.

For most locomotive applications, a default fuel consumption rate factor of 20.8 bhp-hr/gal should be used. The *Technical Supplement* to these guidelines will include the appropriate emissions factors, as well as any alternative fuel consumption factors.

The calculation of NO_x emissions reductions using annual fuel use is outlined in Table 4-1. Applicants should consult with the TCEQ for the appropriate calculations for projects involving nondiesel engines.

Table 4-1

The TxLED Correction Factor

The counties affected by the TxLED requirements currently include all of the counties eligible for TERP incentive funding, as listed in Chapter 3, except for El Paso County.	
TxLED Correction Factor for Non-Road: *1 - 0.07*	0.93

Step 1. Determine the Reduced NO_x Emissions Factor

Option A. Reduced-emissions technology certified/verified to achieve a percentage reduction from the baseline	
Baseline NO_x emissions factor (g/bhp-hr)	
x certified/verified percentage reduction from baseline	
= reduced NO_x emissions factor (g/bhp-hr)	
Option B. Reduced-emissions engine certified to a specific emissions standard (g/bhp-hr)	
Certified NO_x emissions (g/bhp-hr)	

Step 2. Calculate the NO_x Emissions Reduction Using Annual Fuel Use

Baseline		Reduced Emissions	
NO_x emissions factor (g/bhp-hr)		NO_x emissions factor (g/bhp-hr)	
x TxLED correction factor (*diesel engines only*)		x TxLED correction factor (*diesel engines only*)	
= corrected NO_x emissions factor (g/bhp-hr)		= corrected NO_x emissions factor (g/bhp-hr)	
x energy consumption factor (hp-hr/gal)		x energy consumption factor (hp-hr/gal)	
x annual fuel consumption (gal/yr)		x annual fuel consumption (gal/yr)	
= grams per year (g/yr)		= grams per year (g/yr)	
Baseline g/yr - reduced emissions g/yr =			
x percent within affected counties (%)			
= grams per year reduced (g/yr)			
		divided by 907,200 grams per ton	
= estimated annual NO_x emissions reduction (tons/yr)			
x activity life (years)			
= estimated activity life NO_x emissions reduction (tons)			

Calculating Cost-Effectiveness

Only the amount of incentive funds requested under the program can be used in cost-effectiveness calculations for locomotives. The incremental costs for each activity must be reduced by the value of any existing financial incentive that directly reduces the cost of the proposed activity, including tax credits or deductions, other grants, or any other public financial assistance.

To determine the cost-effectiveness of an activity, the incentive amount for the activity ─with the exception of qualifying fuel activities─included in the project must be amortized over the activity life designated by the applicant, with a discount rate of 3 percent.

The following amortization formula yields a *capital recovery factor* (CRF).

capital recovery factor (CRF) = $\mathbf{[(1 + i)^n (i)] / [(1 + i)^n - 1]}$

where, i = discount rate (3 percent)
n = activity life

The discount rate of 3 percent reflects the opportunity cost of public funds. This is the level of earning that reasonably could be expected by investing state funds in various financial instruments, such as U.S. Treasury securities.

The incentive amount should be multiplied by the incremental cost or incentive amount requested to determine the annualized cost.

Incremental Cost x CRF = Annualized Cost

The cost-effectiveness calculations are presented in Table 4-2. For use in the calculations, capital recovery factors for up to 20 years are presented in Table 4-3.

Table 4-2

Calculating Cost-Effectiveness

Step 1. Determine the Capital Recovery Factor (CRF)	
$CRF = [(1+i)^n (i)] / [(1+i)^n - 1]$ i = discount rate (.03) n = activity life	
Capital Recovery Factor:	
Step 2. Determine the annualized cost	
Incentive amount x CRF = Annualized cost	
Annualized cost ($/year):	
Step 3. Determine cost-effectiveness	
Annualized cost ($/year) / Annual NO_x emissions reduction (tons/year) = Cost-effectiveness ($/ton)	
Cost-effectiveness ($/ton):	$

Table 4-3

Capital Recovery Factors (CRFs) Using a Discount Rate of 0.03

Activity Life	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
CRF	1.00	.5226	.3535	.2690	.2184	.1846	.1605	.1425	.1284	.1172
Activity Life	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
CRF	.1081	.1005	.0940	.0885	.0838	.0796	.0760	.0727	.0698	.0672

For projects that include more than one activity, the total project incentive amount must be used to determine the cost-effectiveness of the project. The applicant may request an incentive amount that is less than the full incremental costs, in order to meet the cost-effectiveness criteria. The cost-effectiveness must be determined by first adding all of the annualized costs for the activities included in the project. The annual emissions reductions of each activity should also be added together to determine an annual emissions reduction for the project.

The cost-effectiveness of the projects is then determined by dividing the combined annualized costs for all activities included in the project application, by the total annual NO_x emissions reductions for the combined project activities.

Total Annualized Costs / Total Annual NO_x Reductions = Project Cost-Effectiveness

Appendix 5
Stationary Equipment

The methods for calculating the NOx emissions reductions for a stationary engine project are included in this section. Most of the calculations will require input of a NOx emissions factor applicable to the engine. The emissions standards and emissions factors applicable to this program are provided in a *Technical Supplement*, which will be made available in conjunction with these guidelines. Examples of the calculations will also be available in the supplement and other materials prepared by the TCEQ. Potential grant applicants should contact the TCEQ for copies of the supplement and for questions about the emissions standards and factors to use.

Activities and Eligible Costs

The eligible activities and costs under each project category are explained in this section. The TCEQ may further limit the types of eligible activities, and may more narrowly define eligibility requirements, under a particular funding round or by geographic area, as needed to best achieve the goals of the TERP. Administrative costs, in-house labor costs, and travel costs are not eligible expenses.

Purchase or Lease of Stationary Equipment

This category is for the purchase or lease of new stationary equipment. For this category, the TCEQ does not consider whether the applicant is replacing an existing piece of equipment, and the baseline for comparison of emissions is the current NO_x emissions standard for an engine of that horsepower.

To be eligible for funding, the engine on the new piece of equipment must be certified to emit at least 25 percent less NO_x than required under the current standard for that horsepower of engine. Certification means approved by the EPA, the CARB, or otherwise accepted by the TCEQ.

A *lease* is considered the use and control of a new piece of equipment in accordance with a lease contract for a period of five or more years. The TCEQ will reimburse the incremental costs of the lease. The incremental costs are those costs that are above and beyond the costs that would otherwise have been paid for the lease of a baseline vehicle.

A *purchase* is considered buying a new piece of equipment. The TCEQ will reimburse the incremental cost of the purchase. The incremental cost is the difference between the documented dealer price of a baseline piece of equipment or other appropriate baseline cost established by the TCEQ and the actual cost of the cleaner equipment.

For new purchases, not less than 75 percent of the annual use of the equipment projected for the activity life must be projected to take place in one or more of the eligible counties. Leases must be for the length of the activity life, and 75 percent of the annual use over the lease period must be projected to take place in one or more of the eligible counties. Annual use will be measured by either hours of operation or fuel consumption.

Replacement of Stationary Equipment

This category is for the replacement of stationary equipment with a new or newer piece of equipment. For this category, the applicant must be replacing a piece of equipment with a minimum of five years of remaining useful life. The TCEQ may establish longer activity life requirements for each grant period. The baseline for comparison of emissions is the difference between the emissions of the equipment being replaced and the equipment being purchased.

For a replacement project, the TCEQ will evaluate whether the equipment being replaced would otherwise have been used in the eligible counties for the period within which the emissions reductions will be claimed. Standards that apply include **all** of the following:

1. The owner must have owned the equipment for a minimum of two years immediately preceding the grant application;
2. Unless otherwise approved by the TCEQ, the equipment must have been located and used in Texas over the preceding two years; and
3. The equipment must be in operating condition.

The TCEQ may waive the two-year ownership requirement on a case-by-case basis in instances where the ownership of the company has changed, the assets of the company have been purchased by another company, or the company has changed names or incorporation status. The use of the equipment being replaced may not have changed.

Additional documentation to verify that the equipment would have been used within the eligible counties may be required.

The engine on the replacement equipment must be certified to emit at least 25 percent less NO_x than the engine being replaced. Certification means approved by the EPA, the CARB, or otherwise accepted by the TCEQ.

The replacement equipment must be of the same type and should be intended for use in the same application or vocation (for example, well pump, generator) as the equipment being replaced.

The grant recipient may be eligible for reimbursement of up to 80 percent of the eligible incremental costs for the purchase or lease of the replacement equipment, not to exceed an incentive amount that results in a cost-effectiveness of $15,000 or less per ton of NO_x reduced. The TCEQ may further limit the incentive amount to a cost-effectiveness lower than $15,000 per ton for particular funding periods, as needed to best achieve the goals of the TERP.

Costs may include the invoice price, including taxes and delivery charges included in the price of the replacement equipment, or the cash basis for the lease charges. Delivery charges from a third party, not included in the invoice price from the vehicle or equipment vendor, may be included, subject to approval by the TCEQ.

The total incentive amount may also not exceed the cost of the replacement equipment, minus the scrappage value received for the old equipment. The TCEQ may establish a default scrappage value.

Not less than 75 percent of the annual use projected for the activity life must be projected to take place in one or more of the eligible counties. Annual use will be measured by either hours of operation or fuel consumption.

Repower of Stationary Equipment

This category is for the replacement of an existing engine on a piece of stationary equipment with a new, rebuilt, or remanufactured engine.

The engine must be certified to emit at least 25 percent less NO_x than the engine being replaced, based on the federal standard for that engine. Certification means approved by the EPA, the CARB, or otherwise accepted by the TCEQ.

Eligible rebuilt or remanufactured engines must use original engine manufacturer (OEM) components only and must be purchased from the OEM or its authorized dealers and distributors. The TCEQ may accept engines provided by other entities not connected with the OEM, subject to a case-by-case determination.

The TCEQ will reimburse the incremental cost of the purchase and installation of the replacement engine. The incremental cost is the cost to purchase and install the replacement engine and associated equipment, minus the scrappage value received for the old engine. The TCEQ may establish a default scrappage value.

Expenses for salaries, travel, and overhead, including indirect costs, will not be covered. Costs that may be reimbursed, subject to approval by the TCEQ, include:

- invoice cost of the new engine, including sales tax and delivery charges;
- invoice cost of additional equipment that must be installed with the new engine;
- associated supplies directly related to the installation of the engine;
- costs to remove and dispose of the old engine;
- installation costs;
- reengineering costs, if the vehicle or equipment must be modified for the new engine to fit; and
- other costs directly related to the project, subject to approval by the TCEQ.

Not less than 75 percent of the annual use of the equipment projected for the activity life must be projected to take place in one or more of the eligible counties. Annual use will be measured by either hours of operation or fuel consumption.

Retrofit or Add-On of Emissions-Reduction Technology

This category is for the retrofit of an existing engine on a stationary piece of equipment, or for adding on devices to the equipment.

To be eligible for funding, the retrofit or add-on systems must be certified or verified to emit at least 25 percent less NO_x emissions than the engine prior to the retrofit or add-on. Certification means approved by the EPA, the CARB, or otherwise accepted by the TCEQ.

The TCEQ will reimburse the incremental cost of the purchase and installation of the retrofit and/or add-on technology. If the engine is to be rebuilt to install the emissions-reduction devices, the incremental cost is the difference between the cost of rebuilding the existing engine and the cost of rebuilding the engine to include the retrofit or add-on technology. If the engine does not need to be rebuilt in conjunction with installing the new technology, then the incremental cost will be the full cost of purchasing and installing the technology.

Expenses for salaries, travel, and overhead, including indirect costs, will not be covered. Costs that may be reimbursed, subject to approval by the TCEQ, include:

- invoice cost of the retrofit kit or add-on devices, including sales tax and delivery charges;
- associated supplies directly related to the installation of the devices;
- installation costs;
- reengineering costs, if the vehicle or equipment must be modified for the retrofit or add-on devices to be installed and used; and
- other costs directly related to the project, subject to approval by the TCEQ.

Not less than 75 percent of the annual usage of the equipment projected for the activity life must be projected to take place in one or more of the eligible counties. Annual usage will be measured by either hours of operation or fuel consumption.

Project Criteria

In addition to the eligibility criteria previously presented, the following list of criteria applies to projects involving stationary engines. The TCEQ may impose additional criteria, and may more narrowly define the criteria established in this guide, under a particular funding period, as needed to best achieve the goals of the TERP.

- One or more eligible *activities* of the same project type (i.e., on-road, non-road, locomotive, etc.) and that will occur in the same primary area may be included under one project application.

- Stationary equipment used primarily for competition or recreational purposes, or used primarily to support those types of activities, are not eligible for funding.

- Stationary equipment activities must provide at least a 25 percent NO_x emissions reduction compared to baseline NO_x emissions. The NO_x emissions of equipment, engines, and retrofit/add-on devices used to achieve the emissions reductions must be certified or verified by the EPA, the CARB, or otherwise accepted by the TCEQ. In situations where the year of manufacture of the equipment and the year of manufacture of the existing engine are different—such as equipment that has already had the engine replaced with a newer engine—the year of manufacture of the engine must be used to determine the baseline emissions standard for emissions-reduction calculations. The application of the 25-percent reduction criteria for each type of activity is explained as follows.

  Purchases and leases. Purchases and leases are allowed based on what year the purchase or lease is completed. At a minimum, the equipment and engine being purchased or leased must be certified to emit at least 25 percent less NO_x than the current standard for that engine.

  Replacements. The replacement equipment and engine must have been certified to emit at least 25 percent less NO_x than the standard for the engine installed on the equipment being replaced.

  Repowers. The replacement engine must be certified to emit at least 25 percent less NO_x than the engine being replaced, based on the standard for that engine.

  Retrofits and add-ons. Emissions standards for retrofit and add-on activities are based on the engine being retrofitted. If you want to retrofit or add on a device, the technology must be certified to emit at least 25 percent less NO_x than the standard for the engine being retrofitted.

Combined technologies. In instances where two technologies are combined on the same equipment and/or engine (for example, repower plus retrofit), the TCEQ may consider the combined reductions from the two technologies in meeting the 25-percent requirements. This decision will be solely at the discretion of the TCEQ, and will be based on a determination that the combination of the two technologies will result in a permanent reduction in emissions of at least 25 percent.

- In the areas of the state where Texas Low Emission Diesel (TxLED) must be provided by suppliers, beginning April 1, 2005, the baseline and reduced emissions rate calculations for diesel engine use after March 2005 must be adjusted using a correction factor, in addition to any other calculation adjustments.

Figure 5-1

Correction Factor for TxLED

The TCEQ has adopted rules (30 TAC §114.312 to §114.319) requiring that beginning on April 1, 2005, diesel fuel sold or supplied for use in compression-ignition engines in certain counties in Texas must meet new low emission diesel (TxLED) standards.

The counties affected by the new TxLED requirements currently include all of the counties eligible for TERP incentive funding, as listed in Chapter 3, except for El Paso County.

The new requirements set a maximum aromatic hydrocarbon content standard of 10 percent by volume per gallon. The requirements also set a minimum cetane number for TxLED of 48.

The TxLED requirements are intended to result in reductions in NO_x emissions from diesel engines. Currently, reduction factors of **5.7 percent** (0.057) for on-road use and **7.0 percent** (0.07) for non-road use have been accepted as an estimate for use of TxLED. However, this reduction estimate is subject to change, based on the standards accepted by the EPA for use in the Texas State Implementation Plan (SIP). The TCEQ will identify the appropriate reduction factor to use in the *Technical Supplement* prepared to support these guidelines.

For activities in the applicable counties, a correction factor will need to be applied when calculating the baseline and/or reduced emissions for diesel engines.

On-road:
TxLED Correction Factor = 1 - 0.057, which is a TxLED Correction Factor of 0.943
Non-road:
TxLED Correction Factor = 1 - 0.070, which is a TxLED Correction Factor of 0.93

- The cost-effectiveness of a project, other than a demonstration project, must not exceed $15,000 per ton of NO_x emissions reduced in the eligible counties for which the project is proposed. Individual activities included under a single project application may exceed this amount, but the combined project must meet the cost-effectiveness standard.

- Infrastructure activities—including infrastructure costs that are part of a broader repower, retrofit, replacement, or add-on project—are excluded from the cost-effectiveness limit of $15,000 per ton.

- An activity is not eligible if it is required by any state or federal law, rule, regulation, memorandum of agreement, or other legally binding document. However, this restriction does not apply to an otherwise qualified activity—regardless of the fact that the state implementation plan assumes that the change in equipment, vehicles, or operations will occur—if, on the date the grant is awarded, the change is not required by any state or federal law, rule, regulation, memorandum of agreement, or other legally binding document. This restriction also does not apply to the purchase of vehicles or equipment that is required only by local law or regulation or by corporate or controlling board policy of a public or private entity. Demonstration projects used to demonstrate a technology that may be used to comply with an emissions-reduction requirement may be funded, as long as the reductions directly attributable to the demonstration project are not used to comply with those requirements.

- An activity involving a new emissions-reduction measure that would otherwise generate marketable credits under state or federal emissions reduction credit averaging, banking, or trading programs is not eligible for funding under this program unless:

    - the activity includes the transfer of the reductions that would otherwise be marketable credits to the state implementation plan or the owner or operator as provided under §386.056, Texas Health and Safety Code; and
    - the reductions are permanently retired.

- The incremental cost of the proposed activity must be reduced by the value of any existing financial incentive that directly reduces the cost of the proposed activity, including tax credits or deductions, other grants, or any other public financial assistance.

- For repower activities, eligible rebuilt or remanufactured engines must use original engine manufacturer (OEM) components only, and must be purchased from the OEM or its authorized dealers and distributors. The TCEQ may accept engines and components provided by other entities not connected with the OEM, subject to a case-by-case determination.

- For all activities, the activity life must be for a minimum of five years. The TCEQ will establish the required activity life for each grant period. For new purchases, not less than 75 percent of the annual use of the equipment projected for the activity life must be projected to take place in one or more of the eligible counties. Leases must be for the length of the activity life, and 75 percent of the annual use over the lease period must be projected to take place in one or more of the eligible counties. Annual use will be measured by either hours of operation or fuel consumption.

- For most equipment, annual use normally will be measured using hours of operation. For equipment without an hour meter installed, and no viable mechanism for measuring the hours of operation, fuel consumption normally should be used as the usage factor.

- Applicants should refer to the *Technical Supplement* to these guidelines for the maximum acceptable activity life established by the TCEQ for each type of activity.

- Applicants must agree to monitor the use of the grant-funded vehicles, equipment, infrastructure, and/or fuel, and to report to the TCEQ for the life of each grant-funded activity.

- Applicants must also agree to notify the TCEQ of any changes during the life of the following activities: termination of use; change in use, sale, transfer, or accidental or intentional destruction of grant-funded vehicles or equipment; or change in use of the qualifying fuel.

- Administrative costs and other internal costs of the grant recipient, including but not limited to personnel expenses, internal salaries, indirect costs, and travel will not be eligible. This restriction also applies to situations where the grant recipient acts as a transportation provider for delivery of the grant-funded vehicle or equipment before or after acceptance of the vehicle or equipment.

- Consultant fees for the preparation of a grant application, either directly or as an addition of the cost basis of the grant-funded vehicle, equipment, or engine, are not eligible for reimbursement by the TCEQ.

- Fees for a third-party consultant hired by the grant recipient to manage and administer the grant-funded activities, including coordination of the work and submission of reports and paperwork to the TCEQ for the grant recipient will not be eligible. This restriction is not intended to limit the ability of the vehicle or equipment provider or installer to include reasonable and necessary costs for managing the work to be performed in the price of the vehicle, equipment, or installation services. The costs for professional services, including engineering and technical work, required for completion of the activity may be included, subject to the restrictions pertaining to that type of project. Per the Uniform Grant Management Standards (UGMS), the cost plus a percentage of cost methods of contracting for professional services shall not be used.

- The TCEQ may impose additional criteria for certain projects and funding periods, consistent with these guidelines.

NO_x Emissions Standards

The baseline NO_x emissions standards for this program normally should be the federal standards for NO_x emissions applicable to the type of engine involved. For most agricultural irrigation pump activities, the standards applicable to non-road engines will apply. The federal NO_x emissions standards for non-road engines are listed in the *Technical Supplement* available from the TCEQ. Potential grant applicants should consult with the TCEQ to ensure that the appropriate baseline standards are used.

Calculating NO_x Emissions Reductions

In general, the emissions-reduction benefit represents the difference in the emissions level of a baseline engine and a reduced-emissions engine. In situations where the year of manufacture of the equipment and the year of manufacture of the current engine are different, the year of the engine must be used to determine the baseline emissions for benefit calculations.

The emissions level is calculated by multiplying an emissions factor, an activity level, and a conversion factor, if necessary. Because conversion factors and the activity levels may be expressed in different units for the existing and replacement engines, the emissions levels for the baseline and reduced-emissions engines should be calculated separately, and then differences taken to determine emissions reductions.

For most stationary engine applications, the activity level should be established by the annual hours of operation. For equipment without an hour meter installed, and no other mechanism to track hours of operation, the activity level should be determined based on annual fuel consumption. Emissions-reduction calculations should be consistent with the type of records maintained over the life of each activity.

Calculation of NO_x Emissions Reductions Using Annual Hours of Operation

The calculation of emissions and emissions reductions using annual hours of operation as the usage factor is determined by the steps shown in Table 5-1.

Table 5-1

The TxLED Correction Factor

The counties affected by the TxLED requirements currently include all of the counties eligible for TERP incentive funding, as listed in Chapter 3, except for El Paso County.	
TxLED Correction Factor for Non-Road: *1 - 0.07*	0.93

Step 1. Determine the Reduced NO_x Emissions Factor

Option A. Reduced-emissions technology certified/verified to achieve a percentage reduction from the baseline	
Baseline NO_x emissions factor (g/bhp-hr)	
x certified/verified percentage reduction from baseline	
= reduced NO_x emissions factor (g/bhp-hr)	
Option B. Reduced-emissions engine certified to a specific emissions standard (g/bhp-hr)	
Certified NO_x emissions (g/bhp-hr)	

Step 2. Calculate the NO_x Emissions Reduction Using Annual Hours of Operation

Baseline		Reduced Emissions	
NO_x emissions factor (g/bhp-hr)		NO_x emissions factor (g/bhp-hr)	
x TxLED correction factor (*diesel engines only*)		x TxLED correction factor (*diesel engines only*)	
= corrected NO_x emissions factor (g/bhp-hr)		= corrected NO_x emissions factor (g/bhp-hr)	
x load factor		x load factor	
x horsepower		x horsepower	
= grams per hour (g/hr)		= grams per hour (g/hr)	
Baseline g/hr - reduced emissions g/hr =			
x annual hours of operation			
x percent within affected counties (%)			
= grams per year reduced (g/year)			
		divided by 907,200 grams per ton	
= estimated annual NO_x emissions reduction (tons/yr)			
x activity life (years)			
= estimated activity life NO_x emissions reduction (tons)			

Appropriate baseline NO_x emissions factors and default load factors are included in the *Technical Supplement* to these guidelines. Use the emissions factors associated with engine horsepower and year of manufacture. Use the load factor associated with the type of equipment. Potential grant applicants should consult with the TCEQ to ensure that the appropriate factors are used.

For retrofit and add-on activities, and other activities, where the emissions reductions are based on a percentage reduction from the baseline, the certified or verified percentage reduction factor can be applied to the baseline emissions factor to determine the reduced NO_x emissions factor.

Alternatively, for activities where the emissions of the new or replacement engine are certified at a specific emissions level (g/bhp-hr), such as purchases or repowers, that emissions level should be used as the emissions factor.

Calculation of NO_x Emissions Reductions Using Annual Fuel Use

If the annual fuel consumption is used, the activity level should be based on actual annual fuel receipts or other available documentation to estimate the expected annual fuel use of the equipment. An energy consumption factor must also be calculated. The energy consumption factor converts the emissions factor in terms of g/bhp-hr to g/gal of fuel used. There are two ways of calculating the energy consumption factor:

1. by dividing the hp of the engine by the fuel economy in units of gal/hr; or
2. by dividing the density of the fuel by the brake-specific fuel consumption of the baseline engine.

Check with your equipment dealer to confirm the fuel economy or fuel consumption of the equipment for the type of application.

Default fuel consumption rate factors may be included in the *Technical Supplement* to these guidelines.

The calculation of NO_x emissions reductions using annual fuel use is outlined in Table 5-2. Applicants should consult with the TCEQ for the appropriate calculations for projects involving nondiesel engines.

Table 5-2

The TxLED Correction Factor

The counties affected by the TxLED requirements currently include all of the counties eligible for TERP incentive funding, as listed in Chapter 3, except for El Paso County.	
TxLED Correction Factor for Non-Road: *1 - 0.07*	0.93

Step 1. Determine the Reduced NO_x Emissions Factor

Option A. Reduced-emissions technology certified/verified to achieve a percentage reduction from the baseline	
Baseline NO_x emissions factor (g/bhp-hr)	
x certified/verified percentage reduction from baseline	
= reduced NO_x emissions factor (g/bhp-hr)	
Option B. Reduced-emissions engine certified to a specific emissions standard (g/bhp-hr)	
Certified NO_x emissions (g/bhp-hr)	

Step 2. Calculate the NO_x Emissions Reduction Using Annual Fuel Use

Baseline		Reduced Emissions	
NO_x emissions factor (g/bhp-hr)		NO_x emissions factor (g/bhp-hr)	
x TxLED correction factor *(diesel engines only)*		x TxLED correction factor *(diesel engines only)*	
= corrected NO_x emissions factor (g/bhp-hr)		= corrected NO_x emissions factor (g/bhp-hr)	
x energy consumption factor (hp-hr/gal)		x energy consumption factor (hp-hr/gal)	
x annual fuel consumption (gal/yr)		x annual fuel consumption (gal/yr)	
= grams per year (g/yr)		= grams per year (g/yr)	
Baseline g/yr - reduced emissions g/yr =			
x percent within affected counties (%)			
= grams per year reduced (g/yr)			
		divided by 907,200 grams per ton	
= estimated annual NO_x emissions reduction (tons/yr)			
x activity life (years)			
= estimated activity life NO_x emissions reduction (tons)			

Calculating Cost-Effectiveness

Only the amount of incentive funds requested under the program will be used in cost-effectiveness calculations. The incremental costs for each activity must be reduced by the value of any existing financial incentive that directly reduces the cost of the proposed activity, including tax credits or deductions, other grants, or any other public financial assistance.

To determine the cost-effectiveness of an activity—with the exception of qualifying fuel activities—the incentive amount for the activity included in the project must be amortized over the activity life designated by the applicant, with a discount rate of 3 percent.

The following amortization formula yields a *capital recovery factor* (CRF).

capital recovery factor (CRF) = $\mathbf{[(1 + i)^n (i)] \ / \ [(1 + i)^n - 1]}$

where, i = discount rate (3 percent)
n = activity life

The discount rate of 3 percent reflects the opportunity cost of public funds. This is the level of earning that reasonably could be expected by investing state funds in various financial instruments, such as U.S. Treasury securities.

The incentive amount should be multiplied by the incremental cost or incentive amount requested to determine the annualized cost.

Incremental Cost x CRF = Annualized Cost

The cost-effectiveness calculations are presented in Table 5-3. Capital recovery factors for up to 20 years are presented in Table 5-4, for use in the calculations.

Table 5-3

Calculating Cost-Effectiveness

Step 1. Determine the Capital Recovery Factor (CRF)	
$CRF = [(1+i)^n (i)] / [(1+i)^n - 1]$ i = discount rate (.03) n = activity life	
Capital Recovery Factor:	
Step 2. Determine the annualized cost	
Incentive amount x CRF = Annualized cost	
Annualized cost ($/year):	
Step 3. Determine cost-effectiveness	
Annualized cost ($/year) / Annual NO_x emissions reduction (tons/year) = Cost-effectiveness ($/ton)	
Cost-effectiveness ($/ton):	$

Table 5-4

Capital Recovery Factors (CRFs) Using a Discount Rate of 0.03

Activity Life	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
CRF	1.00	.5226	.3535	.2690	.2184	.1846	.1605	.1425	.1284	.1172
Activity Life	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
CRF	.1081	.1005	.0940	.0885	.0838	.0796	.0760	.0727	.0698	.0672

For projects that include more than one activity, the total project incentive amount will be used to determine the cost-effectiveness of the project. The applicant may request an incentive amount that is less than the full incremental costs, in order to meet the cost-effectiveness criteria.

The cost-effectiveness will be determined by first adding all of the annualized costs for the activities included in the project. The annual emissions reductions of each activity should also be added together to determine an annual emissions reduction for the project.

The cost-effectiveness of the projects is then determined by dividing the combined annualized costs for all activities included in the project application, by the total annual NO_x emissions reductions for the combined project activities.

Total Annualized Costs / Total Annual NO_x Reductions = Project Cost-Effectiveness

Appendix 6
Refueling Infrastructure

This section contains the project criteria for refueling infrastructure that provides qualifying fuel. The emissions reductions should be estimated using the applicant's information on the type of vehicles and equipment using the fuel. The emissions reduction for the activity will be the difference in the emissions level in tons of NO_x expected to be produced by baseline vehicles and equipment, and the emissions level in tons of NO_x expected to be produced through the use of the qualifying fuel by the vehicles and equipment, within the eligible counties.

The emissions standards and emissions factors applicable to this program are provided in a *Technical Supplement*, which will be made available in conjunction with these guidelines. Potential grant applicants should contact the TCEQ for copies of the supplement and for questions about the emissions standards and factors to use.

Activities and Eligible Costs

The TCEQ may further limit the types of eligible activities, and may more narrowly define eligibility requirements, under a particular funding round or by geographic area, as needed to best achieve the objectives of the TERP.

The grant recipient may be eligible for reimbursement up to 50 percent of the total eligible costs for the purchase and installation of the infrastructure. However, expenses for salaries, travel, land purchases, and overhead, including indirect costs, will not be covered. Costs that may be reimbursed by the TCEQ include:

- invoice cost of the infrastructure equipment, including sales tax and delivery charges;
- associated supplies directly related to the installation of the infrastructure;
- installation costs;
- design and engineering work directly necessary for the installation of the infrastructure; and
- reengineering and construction costs, if the existing site must be modified to allow for installation of the infrastructure.

All grant-funded infrastructure will be required to be purchased and not leased.

Project Criteria

In addition to the eligibility criteria previously presented, the following list of criteria applies to projects involving non-road equipment activities. The TCEQ may impose additional criteria, and may more narrowly define the criteria established in the guide, under a particular funding round or by geographic area, as needed to best achieve the objectives of the TERP.

- One or more eligible *activities* of the same project type (i.e., on-road, non-road, locomotive, etc.) and that will occur in the same primary area may be included under one project application.

- Infrastructure for fueling vehicles and equipment used primarily for competition or recreational purposes is not eligible for funding.

- The infrastructure project must result in new, surplus emissions reductions that will then be available to the TCEQ for use in the State Implementation Plan. In general, the TCEQ will not accept as a new emissions reduction, the conversion of a vehicle or equipment fleet that occurred earlier than 12 months before the grant application deadline.

- An activity is not eligible if it is required by any state or federal law, rule, regulation, memorandum of agreement, or other legally binding document. However, this restriction does not apply to an otherwise qualified activity—regardless of the fact that the State Implementation Plan assumes that the change in equipment, vehicles, or operations will occur—if, on the date the grant is awarded, the change is not required by any state or federal law, rule, regulation, memorandum of agreement, or other legally binding document. This restriction also does not apply to the purchase of vehicles or equipment that is required only by local law or regulation, or by corporate or controlling board policy of a public or private entity. Demonstration projects used to demonstrate a technology that may be used to comply with an emissions-reduction requirement may be funded, as long as the reductions directly attributable to the demonstration project are not used to comply with those requirements.

- An activity involving a new emissions-reduction measure that would otherwise generate marketable credits under state or federal emissions reduction credit averaging, banking, or trading programs is not eligible for funding under this program unless:

    - the activity includes the transfer of the reductions that would otherwise be marketable credits to the state implementation plan or the owner or operator as provided under §386.056, Texas Health and Safety Code; and
    - the reductions are permanently retired.

- The incremental cost of the proposed activity must be reduced by the value of any existing financial incentive that directly reduces the cost of the proposed activity, including tax credits or deductions, other grants, or any other public financial assistance.

- In the areas of the state where Texas Low Emission Diesel (TxLED) must be provided by suppliers, beginning April 1, 2005, the baseline and reduced emissions rate calculations for diesel engine use after March 2005 must be adjusted using a correction factor, in addition to any other calculation adjustments.

Figure 6-1

Correction Factor for TxLED

The TCEQ has adopted rules (30 TAC §114.312 to §114.319) requiring that beginning on April 1, 2005, diesel fuel sold or supplied for use in compression-ignition engines in certain counties in Texas must meet new low emission diesel (TxLED) standards.

The counties affected by the new TxLED requirements currently include all of the counties eligible for TERP incentive funding, as listed in Chapter 3, except for El Paso County.

The new requirements set a maximum aromatic hydrocarbon content standard of 10 percent by volume per gallon. The requirements also set a minimum cetane number for TxLED of 48.

The TxLED requirements are intended to result in reductions in NO_x emissions from diesel engines. Currently, reduction factors of **5.7 percent** (0.057) for on-road use and **7.0 percent** (0.07) for non-road use have been accepted as estimates for use of TxLED. However, this reduction estimate is subject to change, based on the standards accepted by the EPA for use in the Texas State Implementation Plan (SIP). The TCEQ will identify the appropriate reduction factor to use in the *Technical Supplement* prepared to support these guidelines.

For activities in the applicable counties, a correction factor will need to be applied when calculating the baseline and/or reduced emissions for diesel engines.

On-road:
TxLED Correction Factor = 1 - 0.057, which is a TxLED Correction Factor of 0.943
Non-road:
TxLED Correction Factor = 1 - 0.070, which is a TxLED Correction Factor of 0.93

- Infrastructure activities—including infrastructure costs that are part of a broader repower, retrofit, replacement, or add-on project—are excluded from the statutory cost-effectiveness limit of $15,000 per ton. However, the TCEQ may limit the cost-effectiveness for each grant round.

- For all activities, the activity life must be for a minimum of five years. The TCEQ may establish longer activity life requirements for each grant period. Not less than 75 percent of the annual usage of the qualifying fuel dispensed from the infrastructure projected for the activity life must be projected to take place in one or more of the eligible counties. For infrastructure activities to provide fuel for marine vessels, not less than 75 percent of the annual usage of the qualifying fuel dispensed from the infrastructure projected for the activity life must be projected to take place in bays adjacent to one or more of the eligible counties, or in the Texas Intracoastal Waterway.

- Annual usage normally should be measured using fuel consumption by the vehicles or equipment being provided the fuel from the infrastructure. Therefore, a grant recipient must have a viable mechanism for tracking and reporting on the use of the fuel dispensed from the infrastructure.

- The TCEQ will determine an acceptable activity life for infrastructure activities on a case-by-case basis.

- Applicants must agree to monitor the use of the grant-funded vehicles, equipment, infrastructure, and/or fuel, and to report to the TCEQ for the life of each grant-funded activity. If the grant recipient does not own or operate the vehicles or equipment to be provided fuel from the infrastructure, the grant recipient will need to explain what mechanism will be used to ensure that the vehicles and equipment are operated within the eligible counties for the time period required as a condition of the grant.

- Applicants must also agree to notify the TCEQ of any changes during the life of the following activities: termination of use; change in use, sale, transfer, or accidental or intentional destruction of grant-funded vehicles, equipment, or infrastructure; or change in use of the qualifying fuel.

- Administrative costs and other internal costs of the grant recipient, including but not limited to personnel expenses, internal salaries, indirect costs, and travel will not be eligible. This restriction also applies to situations where the grant recipient acts as a transportation provider for delivery of the grant-funded vehicle or equipment before or after acceptance of the vehicle or equipment.

- Consultant fees for the preparation of a grant application, either directly or as an addition of the cost basis of the grant-funded vehicle, equipment, or engine, are not eligible for reimbursement by the TCEQ.

- Fees for a third-party consultant hired by the grant recipient to manage and administer the grant-funded activities, including coordination of the work and submission of reports and paperwork to the TCEQ for the grant recipient will not be eligible. This restriction is not intended to limit the ability of the vehicle or equipment provider or installer to include reasonable and necessary costs for managing the work to be performed in the price of the vehicle, equipment, or installation services. The costs for professional services, including engineering and technical work, required for completion of the activity may be included, subject to the restrictions pertaining to that type of project. Per the Uniform Grant Management Standards (UGMS), the cost plus a percentage of cost methods of contracting for professional services shall not be used.

- The TCEQ may impose additional criteria for certain projects and funding periods, consistent with these guidelines.

NO_x Emissions Standards

The baseline NO_x emissions standards for this program normally should be the federal standards for NO_x emissions applicable to the engines being provided the fuel from the infrastructure. The federal NO_x emissions standards for various categories of engines are listed in the *Technical Supplement* available from the TCEQ. Potential grant applicants should consult with the TCEQ

to ensure that the appropriate baseline standards are used.

Calculating NO_x Emissions Reductions

In general, the emissions-reduction benefit represents the difference in the emissions level of a baseline engine and a reduced-emissions engine. For refueling infrastructure activities, the NO_x emissions reductions should be calculated based on information regarding the type of vehicles and equipment using the fuel.

NO_x emissions reductions may be claimed for a verified fuel or fuel additive, the purchase and use of alternative fueled vehicles or equipment, or an upgrade or conversion of vehicles or equipment. The TCEQ may limit the types of eligible activities for a particular grant period.

Emissions reductions for the use of a fuel or fuel additive must be verified by the EPA to achieve the reductions when used in lieu of a baseline fuel or an additive mixed with a baseline fuel. The verified fuel or additive may only be used in vehicles and equipment owned and/or operated by the applicant.

In some cases, the TCEQ may accept a claim of NO_x emissions reductions based on the purchase and use of alternative-fueled vehicles or equipment that are certified to a NO_x emissions rate that is less than the federal standard for that engine. In general, the vehicles and equipment using the qualifying fuel should be owned and/or operated by the applicant. However, the TCEQ will consider situations where the fuel will be provided to upgraded fleets owned and/or operated by another entity. A letter of agreement with a third-party indicating a willingness to use the qualifying fuel and report on the use will need to be provided to the TCEQ.

For vehicle or fleet upgrades or conversions a reduction of NO_x emissions must occur when compared to an equivalent baseline engine. The upgraded vehicle or equipment engines must be certified to a NO_x emissions rate that is less than the standard for that type of engine under the test cycle used. The NO_x emissions reductions are based on the difference in the emissions rates. In general, the baseline for comparison for natural gas vehicles certified under the diesel cycle will be the diesel engine standard applicable to that type of engine. Similarly, for propane, natural gas, and other fueled vehicles and equipment certified under the otto-cycle standard, the baseline for comparison will be the federal otto-cycle standard applicable to that type of engine.

The TCEQ may also consider, at its discretion, the use of NO_x emissions reductions achieved through the replacement of conventionally-powered vehicles or equipment with new or newer vehicles powered by alternative fuels and to be serviced by the refueling infrastructure. The emissions reductions under this approach will be based on the same methodology and requirements as apply to a replacement category project involving the same type of vehicle or equipment. If the grant recipient does not own the vehicles or equipment being replaced, the grant recipient will be responsible for securing necessary agreements from the vehicle or equipment owner to destroy the vehicle or equipment being replaced and to use the replacement vehicle or equipment in the eligible counties for the percentage of annual usage and for the annual and total usage amounts required for the activity life.

Calculating Cost-Effectiveness

Only the amount of incentive funds requested under the program will be used in cost-effectiveness calculations. The incremental costs for each activity must be reduced by the value of any existing financial incentive that directly reduces the cost of the proposed activity, including tax credits or deductions, other grants, or any other public financial assistance.

To determine the cost-effectiveness of an activity—with the exception of qualifying fuel activities—the incentive amount for the activity included in the project must be amortized over the activity life designated by the applicant, with a discount rate of 3 percent.

The following amortization formula yields a *capital recovery factor* (CRF).

capital recovery factor (CRF) = $\mathbf{[(1 + i)^n (i)] \ / \ [(1 + i)^n - 1]}$

where, i = discount rate (3 percent)
n = activity life

The discount rate of 3 percent reflects the opportunity cost of public funds. This is the level of earning that reasonably could be expected by investing state funds in various financial instruments, such as U.S. Treasury securities.

The incentive amount must be multiplied by the incremental cost or incentive amount requested to determine the annualized cost.

Incremental Cost x CRF = Annualized Cost

The cost-effectiveness calculations are presented in Table 6-1. Capital recovery factors for up to 20 years are presented in Table 6-2, for use in the calculations.

Table 6-1

Calculating Cost-Effectiveness

Step 1. Determine the Capital Recovery Factor (CRF)	
$CRF = [(1+i)^n (i)] / [(1+i)^n - 1]$ i = discount rate (.03) n = activity life	
Capital Recovery Factor:	
Step 2. Determine the annualized cost	
Incentive amount x CRF = Annualized cost	
Annualized cost ($/year):	
Step 3. Determine cost-effectiveness	
Annualized cost ($/year) / Annual NO_x emissions reduction (tons/year) = Cost-effectiveness ($/ton)	
Cost-effectiveness ($/ton):	$

Table 6-2

Capital Recovery Factors (CRFs) Using a Discount Rate of 0.03

Activity Life	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
CRF	1.00	.5226	.3535	.2690	.2184	.1846	.1605	.1425	.1284	.1172
Activity Life	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
CRF	.1081	.1005	.0940	.0885	.0838	.0796	.0760	.0727	.0698	.0672

For projects that include more than one activity, the total project incentive amount will be used to determine the cost-effectiveness of the project. The applicant may request an incentive amount that is less than the full incremental costs, in order to meet the cost-effectiveness criteria.

The cost-effectiveness should be determined by first adding all of the annualized costs for the activities included in the project. The annual emissions reductions of each activity should also be added together to determine an annual emissions reduction for the project.

The cost-effectiveness of the projects is then determined by dividing the combined annualized costs for all activities included in the project application, by the total annual NO_x emissions reductions for the combined project activities.

Total Annualized Costs / Total Annual NO_x Reductions = Project Cost-Effectiveness

Appendix 7
On-Site Electrification and Idle Reduction Infrastructure

This section contains the project criteria for on-site electrification and idle reduction infrastructure. The emissions reductions should be estimated using the applicant's information on the type of vehicles and equipment being provided the electricity or serviced by the idle reduction infrastructure. The emissions reduction for the activity will be the difference in the emissions level in tons of NO_x expected to be produced by baseline vehicles and equipment, and the emissions level in tons of NO_x expected to be produced through the electrification or reduction in idling of the vehicles and equipment, within the eligible counties.

The emissions standards and emissions factors applicable to this program are provided in a *Technical Supplement*, which will be made available in conjunction with these guidelines. Potential grant applicants should contact the TCEQ for copies of the supplement and for questions about the emissions standards and factors to use.

Eligible Activities and Costs

An eligible activity may include the purchase and installation of on-site infrastructure—including auxiliary power units—designed to dispense electricity to motor vehicles, on-road heavy-duty vehicles, non-road equipment, stationary equipment, locomotives and marine vessels. The electricity may be provided to replace the power normally supplied by the engine while the vehicle or equipment is parked (idle reduction), or to recharge electric vehicles or equipment being used in lieu of vehicles or equipment powered by an internal combustion engine. The applicant will need to provide information to show that the infrastructure is needed and will be used in an eligible county.

Subject to approval of the TCEQ, the on-site infrastructure may also include other services, in addition to providing electricity, as part of an idle reduction program. These other services may include air conditioning and heating, phone and cable TV access, and other "hotel" services directly related to reducing vehicle idling.

In some cases, the TCEQ may also accept applications for infrastructure related to electrification of stationary equipment, in lieu of equipment powered by an internal combustion engine.

State agencies may apply for grants to fund the lease, purchase, or installation of idle reduction technologies and facilities at rest areas and other public facilities on major highway transportation routes in eligible areas and on eligible water routes. Operational costs may be approved by the TCEQ for the initial set up and to ensure proper operation of the infrastructure at these facilities. Idle reduction facilities are encouraged at the state's ports and border crossings.

Note that in some areas of the state, idling operation of on-road vehicles may be limited by state regulations. Accordingly, the project emissions reductions used to determine the cost-effectiveness for infrastructure activities in an area with such a requirement may not include the replacement of idling hours of operation for on-road vehicles. Non-road equipment and other eligible uses of the electricity by on-road vehicles are not covered by this restriction.

The TCEQ may further limit the types of eligible activities, and may more narrowly define eligibility requirements, under a particular funding round or by geographic area, as needed to best achieve the objectives of the TERP.

Projects Other Than Idle Reduction Infrastructure Installed by Other State Agencies

The grant recipient may be eligible for reimbursement up to 50 percent of the total eligible costs for the purchase and installation of the infrastructure. However, expenses for salaries, travel, land purchases, and overhead, including indirect costs, will not be covered. Costs that may be reimbursed by the TCEQ include:

- invoice cost of the infrastructure equipment, including sales tax and delivery charges;
- associated supplies directly related to the installation of the infrastructure;
- installation costs;
- design and engineering work directly necessary for the installation of the infrastructure;
- reengineering and construction costs, if the existing site must be modified to allow for installation of the infrastructure; and
- other costs directly related to the project, subject to approval of the TCEQ.

All grant-funded idle reduction equipment and infrastructure must be purchased and not leased.

Idle Reduction Infrastructure Installed by Other State Agencies at Rest Stops and Other Public Facilities

Up to the full cost of idle reduction infrastructure installed at rest stops and other public facilities by another state agency may be eligible for funding under the grant. In addition, the cost of leasing or contracting for the infrastructure installation and start-up operation of the infrastructure may be included in the grant subject to limitations on the length of time the funds are available under the grant contract.

Project Criteria

In addition to the eligibility criteria previously presented, the following list of criteria applies to projects involving electrification infrastructure. The TCEQ may impose additional criteria, and may more narrowly define the criteria established in this guide, under a particular funding round or by geographic area, as needed to best achieve the objectives of the TERP.

- One or more eligible *activities* of the same project type (i.e., on-road, non-road, locomotive, etc.) and that will occur in the same primary area may be included under one project application.

- Infrastructure used to service vehicles and equipment used primarily for competition or recreational purposes is not eligible for funding.

- The infrastructure project must result in new, surplus emissions reductions that will then be available to the TCEQ for use in the State Implementation Plan. In general, the TCEQ will not accept as a new emissions reduction, the conversion of a vehicle or equipment fleet that occurred earlier than 12 months prior to the grant application deadline.

- In the areas of the state where Texas Low Emission Diesel (TxLED) must be provided by suppliers, beginning April 1, 2005, the baseline and reduced emissions rate calculations for diesel engine usage after March 2005 must be adjusted using a correction factor, in addition to any other calculation adjustments.

Figure 7-1

Correction Factor for TxLED

The TCEQ has adopted rules (30 TAC §114.312 to §114.319) requiring that beginning on April 1, 2005, diesel fuel sold or supplied for use in compression-ignition engines in certain counties in Texas must meet new low emission diesel (TxLED) standards.

The counties affected by the new TxLED requirements currently include all of the counties eligible for TERP incentive funding, as listed in Chapter 3, except for El Paso County.

The new requirements set a maximum aromatic hydrocarbon content standard of 10 percent by volume per gallon. The requirements also set a minimum cetane number for TxLED of 48.

The TxLED requirements are intended to result in reductions in NO_x emissions from diesel engines. Currently, reduction factors of **5.7 percent** (0.057) for on-road use and **7.0 percent** (0.07) for non-road use have been accepted as estimates for use of TxLED. However, this reduction estimate is subject to change, based on the standards accepted by the EPA for use in the Texas State Implementation Plan (SIP). The TCEQ will identify the appropriate reduction factor to use in the *Technical Supplement* prepared to support these guidelines.

For activities in the applicable counties, a correction factor will need to be applied when calculating the baseline and/or reduced emissions for diesel engines.

On-road:
TxLED Correction Factor = 1 - 0.057, which is a TxLED Correction Factor of 0.943
Non-road:
TxLED Correction Factor = 1 - 0.070, which is a TxLED Correction Factor of 0.93

- Infrastructure activities—including infrastructure costs that are part of a broader repower, retrofit, replacement, or add-on project—are excluded from the statutory cost-effectiveness of $15,000 per ton. However, the TCEQ may limit the cost-effectiveness for each grant round.

- An activity is not eligible if it is required by any state or federal law, rule, regulation, memorandum of agreement, or other legally binding document. However, this restriction does not apply to an otherwise qualified activity—regardless of the fact that the State Implementation Plan assumes that the change in equipment, vehicles, or operations will occur—if, on the date the grant is awarded, the change is not required by any state or federal law, rule, regulation, memorandum of agreement, or other legally binding document. This restriction also does not apply to the purchase of vehicles or equipment that is required only by local law or regulation, or by corporate or controlling board policy of a public or private entity. Demonstration projects used to demonstrate a technology that may be used to comply with an emissions-reduction requirement may be funded, as long as the reductions directly attributable to the demonstration project are not used to comply with those requirements

- An activity involving a new emissions-reduction measure that would otherwise generate marketable credits under state or federal emissions-reduction credit averaging, banking, or trading programs is not eligible for funding under this program unless:

    - the activity includes the transfer of the reductions that would otherwise be marketable credits to the state implementation plan or the owner or operator as provided under §386.056, Texas Health and Safety Code; and
    - the reductions are permanently retired.

- The incremental cost of the proposed activity must be reduced by the value of any existing financial incentive that directly reduces the cost of the proposed activity, including tax credits or deductions, other grants, or any other public financial assistance.

- For infrastructure activities, the activity life must be for a minimum of five years. The TCEQ will establish the required activity life for each grant period. Not less than 75 percent of the annual use of the electricity dispensed from the infrastructure— or the idling operation reduced, projected for the activity life—must be projected to take place in one or more of the eligible counties. For infrastructure activities involving marine vessels, not less than 75 percent of the annual use of the electricity dispensed from the infrastructure projected for the activity life must be projected to take place in bays adjacent to one or more of the eligible counties, or in the Texas Intracoastal Waterway.

- Annual use will normally be measured using hours of operation by the vehicles or equipment being provided the electricity from the infrastructure. Therefore, a grant recipient must have a viable mechanism for tracking and reporting on the use of the vehicles or equipment provided electricity from the infrastructure.

- For all activities, the activity life must be for a minimum of five years. The TCEQ will determine an acceptable activity life for infrastructure activities on a case-by-case basis.

- Applicants must agree to monitor the use of the grant-funded vehicles, equipment, infrastructure, and/or fuel, and to report to the TCEQ for the life of each grant-funded activity. If the grant recipient does not own or operate the vehicles or equipment to be provided electricity from the infrastructure, the grant recipient will need to explain what mechanism will be used to ensure that the vehicles and equipment are operated within the eligible counties for the time period required as a condition of the grant.

- Applicants must also agree to notify the TCEQ of any changes during the life of the following activities: termination of use; change in use, sale, transfer, or accidental or intentional destruction of grant-funded vehicles, equipment, or infrastructure; or change in use of the qualifying fuel.

- Administrative costs and other internal costs of the grant recipient, including but not limited to personnel expenses, internal salaries, indirect costs, and travel will not be eligible. This restriction also applies to situations where the grant recipient acts as a transportation provider for delivery of the grant-funded vehicle or equipment before or after acceptance of the vehicle or equipment.

- Consultant fees for the preparation of a grant application, either directly or as an addition of the cost basis of the grant-funded vehicle, equipment, or engine, are not eligible for reimbursement by the TCEQ.

- Fees for a third-party consultant hired by the grant recipient to manage and administer the grant-funded activities, including coordination of the work and submission of reports and paperwork to the TCEQ for the grant recipient will not be eligible. This restriction is not intended to limit the ability of the vehicle or equipment provider or installer to include reasonable and necessary costs for managing the work to be performed in the price of the vehicle, equipment, or installation services. The costs for professional services, including engineering and technical work, required for completion of the activity may be included, subject to the restrictions pertaining to that type of project. Per the Uniform Grant Management Standards (UGMS), the cost plus a percentage of cost methods of contracting for professional services shall not be used.

- The TCEQ may impose additional criteria for certain projects and funding periods, consistent with these guidelines.

NO_x Emissions Standards

The baseline NO_x emissions standards for this program normally should be the federal standards for NO_x emissions applicable to the engines being provided the electricity from the infrastructure. The federal NO_x emissions standards for various categories of engines are listed in the *Technical Supplement* available from the TCEQ. Potential grant applicants should consult with the TCEQ to ensure that the appropriate baseline standards are used.

Calculating NO_x Emissions Reductions

In general, the emissions-reduction benefit represents the difference in the emissions level of a baseline engine and a reduced-emissions engine. For electrification infrastructure activities, the NO_x emissions reductions should be calculated based on information regarding the type of vehicles and equipment using the electricity.

Electrification of Vehicles and Equipment

Electrification infrastructure may be purchased to support the purchase of new electric vehicles or equipment, in lieu of vehicles or equipment powered by internal combustion engines. Infrastructure may also be purchased to support the electrification of existing vehicles or equipment.

The NO_x emissions reductions should be calculated based on the difference between the baseline emissions and the emissions from the electric-powered engine. In most cases, electric engines will be considered zero-emissions sources.

Grant applicants should refer to the chapter of these guidelines pertaining to the type of vehicle or equipment being purchased, repowered, or retrofitted, for information on the methodology that should be used to determine the NO_x emissions reductions attributable to the use of the electric-powered engines, in lieu of an internal combustion engine. The applicable emissions factors for use in the calculations will be provided in the *Technical Supplement* to these guidelines. Activities for which appropriate emissions factors are not provided should be discussed with the TCEQ.

The usage factor for electrification of on-road vehicles normally should be miles of operation, while the usage factor for non-road and stationary equipment normally should be hours of operation.

Normally, the NO_x emissions that may be attributable to the generation of the electricity should not be considered in determining the NO_x emissions reductions, if the electricity is provided through the central power grid or other central power supply.

However, if the electricity will be provided by a local generating source, any NO_x emissions from the generating source may need to be included in the calculations. As part of the grant application, the grant applicant will need to explain the source of the electricity to be provided.

Note that, if the vehicle or equipment purchases or conversions are included in the grant application as part of a combined project, the NO_x emissions reductions attributable to the overall project will only be counted once, in conjunction with the purchase or conversion activities.
Alternatively, if the purchases or conversions are to be funded from another source, the NO_x emissions reductions attributable to the electrification of the vehicles or equipment should be used to determine the NO_x emissions reductions for the infrastructure project. The grant

recipient must ensure that the NO_x emissions reductions are surplus and available to apply to this program, and are not already being claimed by the other funding program or for another purpose.

Idle Reduction

On-site electrification of truck stops, rest stops, and other areas may also be funded under this program, in support of idle reduction programs to reduce NO_x emissions in the eligible counties. The NO_x emissions reductions will be calculated based on the reduction in idling NO_x emissions for the engine.

In general, the emissions-reduction benefit represents the NO_x emissions that would have normally been generated by the engine at idle. The idling emissions level is calculated by multiplying an emissions factor, an activity level, and a conversion factor, if necessary.

For most applications, the idling activity level should be established by the annual hours of idle operation. The calculation of emissions and emissions reductions using annual hours of operation as the usage factor is determined by the steps shown in Table 7-1.

Table 7-1

The TxLED Correction Factor

The counties affected by the TxLED requirements currently include all of the counties eligible for TERP incentive funding, as listed in Chapter 3, except for El Paso County.	
TxLED Correction Factor for On-Road: *1 - 0.057*	0.943

Calculate the NO_x Idling Emissions Reduction Using Annual Hours of Operation

NO_x idling emissions factor (g/hr)	
x TxLED correction factor *(diesel engines only)*	
= grams per hour (g/hr)	
x annual hours of idling reduced (within the eligible county)	
= grams per year reduced (g/year)	
	divided by 907,200 grams per ton
= estimated annual NO_x emissions reduction (tons/yr)	
x activity life (years)	
= estimated activity life NO_x emissions reduction (tons)	

Appropriate baseline NO_x idling emissions factors are included in the *Technical Supplement* to these guidelines. Use the emissions factors most closely associated with the vehicle or engine. Potential grant applicants should consult with the TCEQ to ensure that the appropriate factors are used.

Normally, the NO_x emissions that may be attributable to the generation of the electricity should not be considered in determining the NO_x emissions reductions, if the electricity is provided through the central power grid or other central power supply. However, if the electricity will be provided by a local generating source, any NO_x emissions from the generating source may need to be included in the calculations. As part of the grant application, the grant applicant will need to explain the source of the electricity to be provided.

Note that if the vehicle or equipment purchases or conversions are included in the grant application as part of a combined project, the NO_x emissions reductions attributable to the overall project should only be counted once, in conjunction with the purchase or conversion activities.

Alternatively, if the purchases or conversions are to be funded from another source, the NO_x emissions reductions attributable to the electrification of the vehicles or equipment should be used to determine the NO_x emissions reductions for the infrastructure project. The grant recipient must ensure that the NO_x emissions reductions are surplus and available to apply to this program, and are not already being claimed by the other funding program or for another purpose.

Calculating Cost-Effectiveness

Only the amount of incentive funds requested under the program should be used in cost-effectiveness calculations. The incremental costs for each activity must be reduced by the value of any existing financial incentive that directly reduces the cost of the proposed activity, including tax credits or deductions, other grants, or any other public financial assistance.

To determine the cost-effectiveness of an activity—with the exception of qualifying fuel activities—the incentive amount for the activity included in the project must be amortized over the activity life designated by the applicant, with a discount rate of 3 percent.

The following amortization formula yields a *capital recovery factor* (CRF).

$$\text{capital recovery factor (CRF)} = \mathbf{[(1 + \mathit{i})^{n} (\mathit{i})] \ / \ [(1 + \mathit{i})^{n} - 1]}$$

where, i = discount rate (3 percent)
n = activity life

The discount rate of 3 percent reflects the opportunity cost of public funds. This is the level of earning that reasonably could be expected by investing state funds in various financial instruments, such as U.S. Treasury securities.

The incentive amount should be multiplied by the incremental cost or incentive amount requested to determine the annualized cost.

Incremental Cost x CRF = Annualized Cost

The cost-effectiveness calculations are presented in Table 7-2. Capital Recovery Factors for up to 20 years are presented in Table 7-3, for use in the calculations.

Table 7-2

Calculating Cost-Effectiveness

Step 1. Determine the Capital Recovery Factor (CRF)	
$CRF = [(1+i)^n (i)] / [(1+i)^n - 1]$ i = discount rate (.03) n = activity life	
Capital Recovery Factor:	
Step 2. Determine the annualized cost	
Incentive amount x CRF = Annualized cost	
Annualized cost ($/year):	
Step 3. Determine cost-effectiveness	
Annualized cost ($/year) / Annual NO_x emissions reduction (tons/year) = Cost-effectiveness ($/ton)	
Cost-effectiveness ($/ton):	$

Table 7-3

Capital Recovery Factors (CRFs) Using a Discount Rate of 0.03

Activity Life	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
CRF	1.00	.5226	.3535	.2690	.2184	.1846	.1605	.1425	.1284	.1172
Activity Life	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
CRF	.1081	.1005	.0940	.0885	.0838	.0796	.0760	.0727	.0698	.0672

For projects that include more than one activity, the total project incentive amount should be used to determine the cost-effectiveness of the project. The applicant may request an incentive amount that is less than the full incremental costs, in order to meet the cost-effectiveness criteria.

The cost-effectiveness should be determined by first adding all of the annualized costs for the activities included in the project. The annual emissions reductions of each activity should also be added together to determine an annual emissions reduction for the project.

The cost-effectiveness of the projects is then determined by dividing the combined annualized costs for all activities included in the project application, by the total annual NO_x emissions reductions for the combined project activities.

Total Annualized Costs / Total Annual NO_x Reductions = Project Cost-Effectiveness

Appendix 8
On-Vehicle Electrification and Idle Reduction Infrastructure

This section contains the project criteria for on-vehicle electrification and idle reduction infrastructure. The emissions reductions should be estimated using the applicant's information on the type of vehicles or equipment on which the infrastructure is being installed. The emissions reduction for the activity will be the reduction in the idling emissions level in tons of NO_x expected to be produced by baseline vehicles, within the eligible counties.

The emissions standards and emissions factors applicable to this program are provided in a *Technical Supplement*, which will be made available in conjunction with these guidelines. Potential grant applicants should contact the TCEQ for copies of the supplement and for questions about the emissions standards and factors to use.

Eligible Activities and Costs

An eligible activity may include the purchase and installation of equipment that enables a vehicle or equipment to use electric power to operate while the vehicle or equipment is parked, the systems normally supplied power by the propulsion engine, or another on-board internal combustion engine that emits NO_x.

Eligible equipment may include: (1) the add-on of devices to enable acceptance of electricity from an external power source, or (2) the purchase and installation on the vehicle or equipment of an auxiliary power unit (APU) to generate electricity.

The TCEQ may also accept, on a case-by-case basis, idle-limiting devices for locomotives, as well as other types of idle reduction devices.

Note that in some areas of the state, idling operation of on-road vehicles may be limited by state regulations. Accordingly, the project emissions reductions used to determine the cost-effectiveness for infrastructure activities in an area with such a requirement may not include the replacement of idling hours of operation for on-road vehicles. Non-road equipment and other eligible uses of the electricity by on-road vehicles are not covered by this restriction.

The TCEQ may further limit the types of eligible activities, and may more narrowly define eligibility requirements, under a particular funding round or by geographic area, as needed to best achieve the objectives of the TERP.

The grant recipient may be eligible for reimbursement of the cost for the purchase and installation of the infrastructure. However, expenses for salaries, travel, land purchases, and overhead, including indirect costs, will not be covered. Costs that may be reimbursed by the TCEQ include:

- invoice cost of the infrastructure equipment, including sales tax and delivery charges;
- associated supplies directly related to the installation of the infrastructure;
- installation costs;
- reengineering costs, if the vehicle or equipment must be modified to allow for installation of the infrastructure; and
- other costs directly related to the project, subject to approval of the TCEQ.

All vehicles and equipment must be owned by the grant applicant, including the vehicle and equipment that will benefit from the add-on or idle reduction infrastructure. All grant-funded add-on devices, APUs, and other idle reduction equipment must be purchased and not leased.

Project Criteria

In addition to the eligibility criteria previously presented, the criteria listed below apply to projects involving electrification infrastructure. The TCEQ may impose additional criteria, and may more narrowly define the criteria established in the guide, under a particular funding round or by geographic area, as needed to best achieve the objectives of the TERP.

- One or more eligible *activities* of the same project type (i.e., on-road, non-road, locomotive, etc.) and that will occur in the same primary area may be included under one project application.

- Infrastructure used to service vehicles and equipment used primarily for competition or recreational purposes is not eligible for funding.

- Infrastructure activities—including infrastructure costs that are part of a broader repower, retrofit, replacement, or add-on project—are excluded from the statutory cost-effectiveness limit of $15,000 per ton. However, the TCEQ may limit the cost-effectiveness for each grant round.

- An activity is not eligible if it is required by any state or federal law, rule, regulation, memorandum of agreement, or other legally binding document. However, this restriction does not apply to an otherwise qualified activity—regardless of the fact that the state implementation plan assumes that the change in equipment, vehicles, or operations will occur—if, on the date the grant is awarded ,the change is not required by any state or federal law, rule, regulation, memorandum of agreement, or other legally binding document. This restriction also does not apply to the purchase of vehicles or equipment that is required only by local law or regulation, or by corporate or controlling board policy of a public or private entity. Demonstration projects used to demonstrate a technology that may be used to comply

with an emissions reduction requirement may be funded, as long as the reductions directly attributable to the demonstration project are not used to comply with those requirements.

- In the areas of the state where Texas Low Emission Diesel (TxLED) must be provided by suppliers, beginning April 1, 2005, the baseline and reduced emissions rate calculations for diesel engine use after March 2005 must be adjusted using a correction factor, in addition to any other calculation adjustments.

Figure 8-1

Correction Factor for TxLED

The TCEQ has adopted rules (30 TAC §114.312 to §114.319) requiring that beginning on April 1, 2005, diesel fuel sold or supplied for use in compression-ignition engines in certain counties in Texas must meet new low emission diesel (TxLED) standards.

The counties affected by the new TxLED requirements currently include all of the counties eligible for TERP incentive funding, as listed in Chapter 3, except for El Paso County.

The new requirements set a maximum aromatic hydrocarbon content standard of 10 percent by volume per gallon. The requirements also set a minimum cetane number for TxLED of 48.

The TxLED requirements are intended to result in reductions in NO_x emissions from diesel engines. Currently, reduction factors of **5.7 percent** (0.057) for on-road use and **7.0 percent** (0.07) for non-road use have been accepted as estimates for use of TxLED. However, this reduction estimate is subject to change, based on the standards accepted by the EPA for use in the Texas State Implementation Plan (SIP). The TCEQ will identify the appropriate reduction factor to use in the *Technical Supplement* prepared to support these guidelines.

For activities in the applicable counties, a correction factor will need to be applied when calculating the baseline and/or reduced emissions for diesel engines.

On-road:
TxLED Correction Factor = 1 - 0.057, which is a TxLED Correction Factor of 0.943
Non-road:
TxLED Correction Factor = 1 - 0.070, which is a TxLED Correction Factor of 0.93

- An activity involving a new emissions-reduction measure that would otherwise generate marketable credits under state or federal emissions reduction credit averaging, banking, or trading programs is not eligible for funding under this program unless:
    - the activity includes the transfer of the reductions that would otherwise be marketable credits to the state implementation plan or the owner or operator as provided under §386.056, Texas Health and Safety Code; and
    - the reductions are permanently retired.

- The incremental cost of the proposed activity must be reduced by the value of any existing financial incentive that directly reduces the cost of the proposed activity, including tax credits or deductions, other grants, or any other public financial assistance.

- For infrastructure activities, the activity life must be for a minimum of five years. The TCEQ will establish the required activity life for each grant period. Not less than 75 percent of the annual use of the electricity dispensed from the infrastructure, or the idling operation reduced, projected for the activity life, must be projected to take place in one or more of the eligible counties. For infrastructure activities involving marine vessels, not less than 75 percent of the annual use of the electricity dispensed from the infrastructure projected for the activity life must be projected to take place in bays adjacent to one or more of the eligible counties, or in the Texas Intracoastal Waterway.

- Annual use will normally be measured using hours of idling operation by the vehicles or equipment being replaced by the electricity from the infrastructure.

- The TCEQ will determine an acceptable activity life for infrastructure activities on a case-by-case basis.

- Applicants must agree to monitor the use of the grant-funded vehicles, equipment, infrastructure, and/or fuel, and to report to the TCEQ for the life of each grant-funded activity.

- Applicants must also agree to notify the TCEQ of any changes during the life of the following activities: termination of use; change in use, sale, transfer, or accidental or intentional destruction of grant-funded vehicles, equipment, or infrastructure; or change in use of the qualifying fuel.

- Administrative costs and other internal costs of the grant recipient, including but not limited to personnel expenses, internal salaries, indirect costs, and travel will not be eligible. This restriction also applies to situations where the grant recipient acts as a transportation provider for delivery of the grant-funded vehicle or equipment before or after acceptance of the vehicle or equipment.

- Consultant fees for the preparation of a grant application, either directly or as an addition of the cost basis of the grant-funded vehicle, equipment, or engine, are not eligible for reimbursement by the TCEQ.

- Fees for a third-party consultant hired by the grant recipient to manage and administer the grant-funded activities, including coordination of the work and submission of reports and paperwork to the TCEQ for the grant recipient will not be eligible. This restriction is not intended to limit the ability of the vehicle or equipment provider or installer to include reasonable and necessary costs for managing the work to be performed in the price of the vehicle, equipment, or installation services. The costs for professional services, including engineering and technical work, required for completion of the activity may be included,

subject to the restrictions pertaining to that type of project. Per the Uniform Grant Management Standards (UGMS), the cost plus a percentage of cost methods of contracting for professional services shall not be used.

- The TCEQ may impose additional criteria for certain projects and funding periods, consistent with these guidelines.

NO_x Emissions Standards

The baseline NO_x emissions standards for this program normally should be the federal standards for NO_x emissions applicable to the engines being provided the electricity from the infrastructure. The federal NO_x emissions standards for various categories of engines are listed in the *Technical Supplement* available from the TCEQ. Potential grant applicants should consult with the TCEQ to ensure that the appropriate baseline standards are used.

Calculating NO_x Emissions Reductions

In general, the emissions-reduction benefit represents the difference in the emissions level of a baseline engine and the auxiliary power unit (APU), if it emits NO_x. For infrastructure to allow a vehicle or equipment to accept electricity from an external source, the emissions-reduction benefit will be the reduction in emissions from the on-board internal combustion engine as a result of the use of electricity.

For APUs and idle-limiting devices on locomotives, the emissions-reduction benefit will need to be determined by the reduction in fuel use or hours of idling operation. Grant applicants should consult with the TCEQ to determine the most appropriate methodology to use in calculating the NO_x emissions reductions attributable to these types of locomotive projects.

The NO_x emissions reductions should be calculated based on information regarding the type of vehicles and equipment using the electricity. The idling emissions level is calculated by multiplying an emissions factor, an activity level, and a conversion factor, if necessary.

Calculating NO_x Idling Emissions Reductions Using Hours of Operation

For most applications, the idling activity level should be established by the annual hours of idle operation. The calculation of emissions and emissions reductions using annual hours of operation as the usage factor is determined by the steps shown in Table 8-1.

Table 8-1

The TxLED Correction Factor

The counties affected by the TxLED requirements currently include all of the counties eligible for TERP incentive funding, as listed in Chapter 3, except for El Paso County.	
TxLED Correction Factor for On-Road: *1 - 0.057*	0.943

Calculate the NO_x Idling Emissions Reduction Using Annual Hours of Operation

Baseline		**APU**	
NO_x Idling emissions factor (g/hr)		APU NO_x emissions factor (g/bhp-hr)	
		x TxLED correction factor *(diesel engines only)*	
x TxLED correction factor *(diesel engines only)*		x APU load factor	
		x APU horsepower	
= NO_x emissions factor (g/hr)		= NO_x emissions factor (g/hr)	
Baseline g/hr - APU emissions g/hr			
x annual idling hours			
x percent within affected counties (%)			
= grams per year reduced (g/yr)			
		divided by 907,200 grams per ton	
= estimated annual NO_x emissions reduction (tons/yr)			
x activity life (years)			
= estimated activity life NO_x emissions reduction (tons)			

For activities involving the add-on of idle-limiting devices or devices to enable acceptance of electricity from an external power source, the emissions reductions can be calculated using just the baseline emissions. The APU emissions would be set at zero.

Appropriate baseline NO_x idling emissions factors, APU NO_x emissions standards, and APU load factors are included in the *Technical Supplement* to these guidelines. Use the factors most closely associated with the vehicle or engine. Potential grant applicants should consult with the TCEQ to ensure that the appropriate factors are used.

Calculating Cost-Effectiveness

Only the amount of incentive funds requested under the program should be used in cost-effectiveness calculations. The incremental costs for each activity must be reduced by the value of any existing financial incentive that directly reduces the cost of the proposed activity, including tax credits or deductions, other grants, or any other public financial assistance.

To determine the cost-effectiveness of an activity—with the exception of qualifying fuel activities—the incentive amount for the activity included in the project must be amortized over the activity life designated by the applicant, with a discount rate of 3 percent.

The following amortization formula yields a *capital recovery factor* (CRF).

$$\text{capital recovery factor (CRF)} = \mathbf{[(1 + \mathit{i})^{n} (\mathit{i})] \ / \ [(1 + \mathit{i})^{n} - 1]}$$

where, i = discount rate (3 percent)
n = activity life

The discount rate of 3 percent reflects the opportunity cost of public funds. This is the level of earning that reasonably could be expected by investing state funds in various financial instruments, such as U.S. Treasury securities.

The incentive amount should be multiplied by the incremental cost or incentive amount requested to determine the annualized cost.

Incremental Cost x CRF = Annualized Cost

The cost-effectiveness calculations are presented in Table 8-2. Capital recovery factors for up to 20 years are presented in Table 8-3, for use in the calculations.

Table 8-2

Calculating Cost-Effectiveness

Step 1. Determine the Capital Recovery Factor (CRF)	
$CRF = [(1+i)^n (i)] / [(1+i)^n - 1]$ i = discount rate (.03) n = activity life	
Capital Recovery Factor:	
Step 2. Determine the annualized cost	
Incentive amount x CRF = Annualized cost	
Annualized cost ($/year):	
Step 3. Determine cost-effectiveness	
Annualized cost ($/year) / Annual NO_x emissions reduction (tons/year) = Cost-effectiveness ($/ton)	
Cost-effectiveness ($/ton):	$

Table 8-3

Capital Recovery Factors (CRFs) Using a Discount Rate of 0.03

Activity Life	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
CRF	1.00	.5226	.3535	.2690	.2184	.1846	.1605	.1425	.1284	.1172
Activity Life	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
CRF	.1081	.1005	.0940	.0885	.0838	.0796	.0760	.0727	.0698	.0672

For projects that include more than one activity, the total project incentive amount should be used to determine the cost-effectiveness of the project. The applicant may request an incentive amount that is less than the full incremental costs, in order to meet the cost-effectiveness criteria.

The cost-effectiveness should be determined by first adding all of the annualized costs for the activities included in the project. The annual emissions reductions of each activity should also be added together to determine an annual emissions reduction for the project.

The cost-effectiveness of the projects is then determined by dividing the combined annualized costs for all activities included in the project application, by the total annual NO_x emissions reductions for the combined project activities.

Total Annualized Costs / Total Annual NO_x Reductions = Project Cost-Effectiveness

Appendix 9
Rail Relocation and Improvements

This appendix contains the project criteria for rail relocation and rail improvement projects that assist in reducing air pollution and engine idling. This type of project must be applied for separately from the other eligible activities.

The emissions reductions should be estimated using the applicant's information on the type of rail improvements being used. The emissions reduction for the activity will be the difference in the emissions level in tons of NO_x expected to be produced by existing conditions, and the emissions level in tons of NO_x expected to be produced through the rail improvements, within the eligible counties.

Eligible Activities and Costs

An eligible activity may include the relocation of rail lines to reduce the number of grade crossings, improvements at rail intersections, and other improvements that will directly result in the reduction of locomotive engine idling at rail intersections and other locations. The grant recipient must own or otherwise control the rail line, right-of-way, or the facility being improved.

The TCEQ may consider various congestion mitigation projects. The funding decisions may be based on the likelihood that the emissions reductions will be proven and accepted.

The applicant will need to provide information to show that the project is viable and can be expected to achieve significant reductions in NO_x emissions.

The TCEQ may further limit the types of eligible activities, and may more narrowly define eligibility requirements, under a particular funding round or by geographic area, as needed to best achieve the objectives of the TERP.

The grant recipient may be eligible for reimbursement of the costs of the rail relocation or improvements. Costs that may be reimbursed by the TCEQ include:

- design and engineering work directly necessary for completing the improvements;
- permitting and governmental fees needed to complete any site improvements or construction;
- costs for new construction or re-engineering costs for modifications of an existing site;
- invoice cost of equipment or other infrastructure, including sales tax and delivery charges;
- associated supplies directly related to the installation of the equipment or infrastructure;
- installation costs; and

- other costs directly related to the projects, subject to approval of the TCEQ.

All grant-funded equipment will be required to be purchased and not leased. Studies and plans will not be eligible for reimbursement by the TCEQ.

Project Criteria

In addition to the eligibility criteria previously presented, the following list of criteria applies to projects involving rail improvement projects. The TCEQ may impose additional criteria, and may more narrowly define the criteria established in this guide, under a particular funding round or by geographic area, as needed to best achieve the objectives of the TERP.

- An activity under the category must be submitted on an application separate from other activities.

- The project must result in new, surplus emissions reductions that will be available to the TCEQ for use in the State Implementation Plan.

- In general, a project should involve proven techniques that ensure a reduction in air pollution.

- The project must take place within an eligible county.

- Infrastructure activities—including infrastructure costs that are part of a broader repower, retrofit, replacement, or add-on project—are excluded from the statutory cost-effectiveness limit of $15,000 per ton. However, the TCEQ may limit the cost-effectiveness for each grant round.

- An activity is not eligible if it is required by any state or federal law, rule, regulation, memorandum of agreement, or other legally binding document. However, this restriction does not apply to an otherwise qualified activity—regardless of the fact that the State Implementation Plan assumes that the change in equipment, vehicles, or operations will occur—if, on the date the grant is awarded, the change is not required by any state or federal law, rule, regulation, memorandum of agreement, or other legally binding document. This restriction also does not apply to the purchase of vehicles or equipment that is required only by local law or regulation, or by corporate or controlling board policy of a public or private entity. Demonstration projects used to demonstrate a technology that may be used to comply with an emissions-reduction requirement may be funded, as long as the reductions directly attributable to the demonstration project are not used to comply with those requirements.

- An activity involving a new emissions-reduction measure that would otherwise generate marketable credits under state or federal emissions-reduction credit averaging, banking, or trading programs is not eligible for funding under this program unless:

    - the activity includes the transfer of the reductions that would otherwise be marketable credits to the state implementation plan or the owner or operator as provided under §386.056, Texas Health and Safety Code; and
    - the reductions are permanently retired.

- The incremental cost of the proposed activity must be reduced by the value of any existing financial incentive that directly reduces the cost of the proposed activity, including tax credits or deductions, other grants, or any other public financial assistance.

- The activity life must be for a minimum of five years. The TCEQ will determine an acceptable maximum activity life for infrastructure activities on a case-by-case basis.

- A grant recipient must have a viable mechanism for tracking and reporting on the emissions reductions received from the project.

- Applicants must agree to monitor the use of the grant-funded equipment and infrastructure, and to report to the TCEQ for the life of each grant-funded activity.

- Applicants must also agree to notify the TCEQ of any changes during the life of the following activities: termination of use; change in use, sale, transfer, or accidental or intentional destruction of grant-funded vehicles, equipment, or infrastructure; or change in use of the qualifying fuel.

- Administrative costs and other internal costs of the grant recipient, including but not limited to personnel expenses, internal salaries, indirect costs, and travel will not be eligible. This restriction also applies to situations where the grant recipient acts as a transportation provider for delivery of the grant-funded vehicle or equipment before or after acceptance of the vehicle or equipment.

- Consultant fees for the preparation of a grant application, either directly or as an addition of the cost basis of the grant-funded vehicle, equipment, or engine, are not eligible for reimbursement by the TCEQ.

- Fees for a third-party consultant hired by the grant recipient to manage and administer the grant-funded activities, including coordination of the work and submission of reports and paperwork to the TCEQ for the grant recipient will not be eligible. This restriction is not intended to limit the ability of the vehicle or equipment provider or installer to include reasonable and necessary costs for managing the work to be performed in the price of the vehicle, equipment, or installation services. The costs for professional services, including engineering and technical work, required for completion of the activity may be included,

subject to the restrictions pertaining to that type of project. Per the Uniform Grant Management Standards (UGMS), the cost plus a percentage of cost methods of contracting for professional services shall not be used.

- The TCEQ may impose additional criteria for certain projects and funding periods, consistent with these guidelines.

NO_x Emissions Standards

The baseline NO_x emissions standards will be based on the federal standards for NO_x emissions applicable to the category of locomotive for which idle time will be reduced. In general, baseline idling emissions should be based on EPA and/or TCEQ approved estimates for locomotive engine idle emissions. Default idling emissions factors of 800 grams of NO_x per hour for two-stroke locomotive engines and 620 grams per hour for four-stroke locomotive engines may be considered by the TCEQ.

Calculating NO_x Emissions Reductions

In general, the emissions reduction benefit should be calculated based on the projected number of hours of locomotive engine idling reduced, multiplied by an idle emissions factor for that type of locomotive. The calculation of emissions and emissions reductions using annual hours of idling operation reduced is determined by the steps shown in Table 9-1.

Table 9-1

The TxLED Correction Factor

The counties affected by the TxLED requirements currently include all of the counties eligible for TERP incentive funding, as listed in Chapter 3, except for El Paso County.	
TxLED Correction Factor for Non-Road: *1 - 0.07*	0.93

Calculate the NO_x Idling Emissions Reduction Using Annual Hours of Operation

NO_x idling emissions factor (g/hr)	
x TxLED correction factor *(diesel engines only)*	
= grams per hour (g/hr)	
x annual hours of idling reduced (within the eligible county)	
= grams per year reduced (g/year)	
	divided by 907,200 grams per ton
= estimated annual NO_x emissions reduction (tons/yr)	
x activity life (years)	
= estimated activity life NO_x emissions reduction (tons)	

Because of the nature of this type of project, it will be the responsibility of the applicant to verify the types of locomotives and the number of locomotive engine idling hours that will be reduced annually as a result of the rail line relocation or improvements. All studies and reports to show the projected reduction in locomotive engine idling must be completed before an application is made, and those studies and reports must be submitted with a grant application.

It is recommended that interested applicants meet with TCEQ staff before submitting an application to discuss the information that will be used to verify the reductions in engine idling.

Calculating Cost-Effectiveness

Only the amount of incentive funds requested under the program should be used in cost-effectiveness calculations. The incremental costs for each activity must be reduced by the value of any existing financial incentive that directly reduces the cost of the proposed activity, including tax credits or deductions, other grants, or any other public financial assistance.

To determine the cost-effectiveness of an activity—with the exception of qualifying fuel activities—the incentive amount for the activity included in the project must be amortized over the activity life designated by the applicant, with a discount rate of 3 percent.

The following amortization formula yields a *capital recovery factor* (CRF).

$$\text{capital recovery factor (CRF)} = \mathbf{[(1 + \mathit{i})^{n} (\mathit{i})] \ / \ [(1 + \mathit{i})^{n} - 1]}$$

where, i = discount rate (3 percent)
n = activity life

The discount rate of 3 percent reflects the opportunity cost of public funds. This is the level of earning that reasonably could be expected by investing state funds in various financial instruments, such as U.S. Treasury securities.

The incentive amount should be multiplied by the incremental cost or incentive amount requested to determine the annualized cost.

Incremental Cost x CRF = Annualized Cost

The cost-effectiveness calculations are presented in Table 9-1. Capital recovery factors for up to 20 years are presented in Table 9-2, for use in the calculations.

Table 9-1

Calculating Cost-Effectiveness

Step 1. Determine the Capital Recovery Factor (CRF)	
$CRF = [(1+i)^n (i)] / [(1+i)^n - 1]$ i = discount rate (.03) n = activity life	
Capital Recovery Factor:	
Step 2. Determine the annualized cost	
Incentive amount x CRF = Annualized cost	
Annualized cost ($/year):	
Step 3. Determine cost-effectiveness	
Annualized cost ($/year) / Annual NO_x emissions reduction (tons/year) = Cost-effectiveness ($/ton)	
Cost-effectiveness ($/ton):	$

Table 9-2

Capital Recovery Factors (CRFs) Using a Discount Rate of 0.03

Activity Life	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
CRF	1.00	.5226	.3535	.2690	.2184	.1846	.1605	.1425	.1284	.1172
Activity Life	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
CRF	.1081	.1005	.0940	.0885	.0838	.0796	.0760	.0727	.0698	.0672

For projects that include more than one activity, the total project incentive amount should be used to determine the cost-effectiveness of the project. The applicant may request an incentive amount that is less than the full incremental costs, in order to meet the cost-effectiveness criteria.

The cost-effectiveness should be determined by first adding all of the annualized costs for the activities included in the project. The annual emissions reductions of each activity should also be added together to determine an annual emissions reduction for the project.

The cost-effectiveness of the projects is then determined by dividing the combined annualized costs for all activities included in the project application, by the total annual NO_x emissions reductions for the combined project activities.

Total Annualized Costs / Total Annual NO_x Reductions = Project Cost-Effectiveness

Appendix 10
Use of Qualifying Fuel

This section contains the project criteria for the purchase and use of a qualifying fuel or fuel additives. In order to be considered a qualifying fuel, the fuel or fuel additives must be verified by the EPA, the CARB, or otherwise accepted by the TCEQ to result in less emissions of NO_x than the baseline fuel for the vehicle or equipment in which the qualifying fuel is used. The baseline fuel used for comparison normally will be either standard on-road or non-road diesel fuel, or gasoline.

The methods for calculating the NO_x emissions reductions for a qualifying fuel project are also included in this chapter. Most of the calculations will require input of a NO_x emissions factor applicable to the engine and/or vehicle. The emissions standards and emissions factors applicable to this program are provided in a *Technical Supplement*, which will be made available in conjunction with these guidelines. Potential grant applicants should contact the TCEQ for copies of the supplement and for any questions regarding the emissions standards and factors to use.

Eligible Activities and Costs

The reimbursements for incremental fuel costs under this category should be made over the life of the activity, based on the actual amount of fuel purchased and the cost of that fuel. The incentive amounts included in the grant contract should be a maximum amount that may be reimbursed under the grant. The actual reimbursement will depend upon the cost differential between the baseline fuel and the qualifying fuel at the time of the purchase. Administrative costs, in-house labor costs, and travel costs are not eligible expenses.

In some cases, the TCEQ may preapprove a reimbursement amount per unit of qualifying fuel, for all activities using the fuel. Grant applicants and/or suppliers of qualifying fuel should consult with the TCEQ regarding alternative approaches for establishing an approved reimbursement amount.

Project Criteria

In addition to the eligibility criteria previously presented, the following list of criteria applies to projects involving qualifying fuel activities. The TCEQ may impose additional criteria, and may more narrowly define the criteria established in this guide, under a particular funding round or by geographic area, as needed to best achieve the objectives of the TERP.

- One or more eligible *activities* of the same project type (i.e., on-road, non-road, locomotive, etc.) and that will occur in the same primary area may be included under one project application.

- Fuel used in vehicles and equipment used primarily for competition or recreational purposes is not eligible for funding.

- When required under federal law, fuel additives must be registered by the EPA to be eligible under this program.

- When required, qualifying fuel to be used in on-road vehicles must be registered by the EPA for on-road use, to be eligible under this program.

- The NO_x emissions reductions attributable to the qualifying fuel must be verified by the EPA, the CARB, or otherwise accepted by the TCEQ.

- Qualifying fuel technologies will be reviewed by the TCEQ's technical staff. Any questions regarding the effects of a fuel or fuel additive on health or the environment will need to be resolved before the fuel is considered eligible for funding. Manufacturers and suppliers of a qualifying fuel are encouraged to discuss their products with the TCEQ early in the process, before a grant application is submitted.

- The cost-effectiveness of a project, other than a demonstration project, must not exceed $15,000 per ton of NO_x emissions reduced in the eligible counties for which the project is proposed. Individual activities included under a single project application may exceed this amount, but the combined project must meet the cost-effectiveness standard.

- In the areas of the state where Texas Low Emission Diesel (TxLED) must be provided by suppliers, beginning April 1, 2005, the baseline and reduced emissions rate calculations for diesel engine usage after March 2005 must be adjusted using a correction factor, in addition to any other calculation adjustments.

Figure 10-1

Correction Factor for TxLED

The TCEQ has adopted rules (30 TAC §114.312 to §114.319) requiring that beginning on April 1, 2005, diesel fuel sold or supplied for use in compression-ignition engines in certain counties in Texas must meet new low-emission diesel (TxLED) standards.

The counties affected by the new TxLED requirements currently include all of the counties eligible for TERP incentive funding, as listed in Chapter 3, except for El Paso County.

The new requirements set a maximum aromatic hydrocarbon content standard of 10 percent by volume per gallon. The requirements also set a minimum cetane number for TxLED of 48.

The TxLED requirements are intended to result in reductions in NO_x emissions from diesel engines. Currently, reduction factors of **5.7 percent** (0.057) for on-road use and **7.0 percent** (0.07) for non-road use have been accepted as an estimate for use of TxLED. However, this reduction estimate is subject to change, based on the standards accepted by the EPA for use in the Texas State Implementation Plan (SIP). The TCEQ will identify the appropriate reduction factor to use in the *Technical Supplement* prepared to support these guidelines.

For activities in the applicable counties, a correction factor will need to be applied when calculating the baseline and/or reduced emissions for diesel engines.

On-road:
TxLED Correction Factor = 1 - 0.057, which is a TxLED Correction Factor of 0.943
Non-road:
TxLED Correction Factor = 1 - 0.070, which is a TxLED Correction Factor of 0.93

- An activity is not eligible if it is required by any state or federal law, rule, regulation, memorandum of agreement, or other legally binding document. However, this restriction does not apply to an otherwise qualified activity—regardless of the fact that the State Implementation Plan assumes that the change in equipment, vehicles, or operations will occur—if on the date the grant is awarded the change is not required by any state or federal law, rule, regulation, memorandum of agreement, or other legally binding document. This restriction also does not apply to the purchase of vehicles or equipment that is required only by local law or regulation, or by corporate or controlling board policy of a public or private entity. Demonstration projects used to demonstrate a technology that may be used to comply with an emissions-reduction requirement may be funded, as long as the reductions directly attributable to the demonstration project are not used to comply with those requirements.

- An activity involving a new emissions-reduction measure that would otherwise generate marketable credits under state or federal emissions-reduction credit averaging, banking, or trading programs is not eligible for funding under this program unless:

    - the activity includes the transfer of the reductions that would otherwise be marketable credits to the State Implementation Plan, or the owner or operator, as provided under §386.056, Texas Health and Safety Code; and
    - the reductions are permanently retired.

- The incremental cost of the proposed activity must be reduced by the value of any existing financial incentive that directly reduces the cost of the proposed activity, including tax credits or deductions, other grants, or any other public financial assistance.

- The use of qualifying fuel funded under this program must take place in one or more of the eligible counties.

- For most qualifying fuel activities, annual use will be measured using calculations based on the fuel use. The TCEQ may consider using either miles of operation or hours of operation using the qualifying fuel for particular applications, on a case-by-case basis.

- Applicants must agree to monitor the use of the grant-funded vehicles, equipment, infrastructure, and/or fuel, and to report to the TCEQ for the life of each grant-funded activity.

- Applicants must also agree to notify the TCEQ of any changes during the life of the following activities: termination of use; change in use, sale, transfer, or accidental or intentional destruction of grant-funded vehicles or equipment; or change in use of the qualifying fuel.

- Administrative costs and other internal costs of the grant recipient, including but not limited to personnel expenses, internal salaries, indirect costs, and travel will not be eligible. This restriction also applies to situations where the grant recipient acts as a transportation provider for delivery of the grant-funded vehicle or equipment before or after acceptance of the vehicle or equipment.

- Consultant fees for the preparation of a grant application, either directly or as an addition of the cost basis of the grant-funded vehicle, equipment, or engine, are not eligible for reimbursement by the TCEQ.

- Fees for a third-party consultant hired by the grant recipient to manage and administer the grant-funded activities, including coordination of the work and submission of reports and paperwork to the TCEQ for the grant recipient will not be eligible. This restriction is not intended to limit the ability of the vehicle or equipment provider or installer to include reasonable and necessary costs for managing the work to be performed in the price of the vehicle, equipment, or installation services. The costs for professional services, including engineering and technical work, required for completion of the activity may be included, subject to the restrictions pertaining to that type of project. Per the Uniform Grant Management Standards (UGMS), the cost plus a percentage of cost methods of contracting for professional services shall not be used.

- The TCEQ may impose additional criteria for certain projects and funding periods, consistent with these guidelines.

NO_x Emissions Standards

The baseline NO_x emissions standards for this program should be the federal standards for NO_x emissions applicable to the type of engine and model year of vehicle. The federal NO_x emissions standards for engines are listed in the *Technical Supplement* available from the TCEQ. Potential grant applicants should consult with the TCEQ to ensure that the appropriate baseline standards are used.

Calculating NO_x Emissions Reductions

The NO_x emissions reductions for a qualifying fuel activity will be based on the types of vehicles and equipment using the fuel. Grant applicants should refer to the chapter or chapters of these guidelines applicable to the vehicles and equipment being fueled, to determine how the emissions reductions will be calculated.

In most cases, the NO_x emissions reductions should be determined based on the difference between the NO_x emissions using the baseline fuel and the NO_x emissions using the qualifying fuel. The grant applicant will be required to list the vehicles and equipment that will be fueled using the qualifying fuel.

For many types of qualifying fuel, the TCEQ may allow the grant applicants to list the vehicles and equipment by vehicle/equipment category, rather than listing each individual vehicle or piece of equipment. The *Technical Supplement* to these guidelines will include information on the categories that may be used for listing vehicles and equipment in a qualifying fuel application.

Calculating Cost-Effectiveness

Only the amount of incentive funds requested under the program should be used in cost-effectiveness calculations. The incremental costs for each activity must be reduced by the value of any existing financial incentive that directly reduces the cost of the proposed activity, including tax credits or deductions, other grants, or any other public financial assistance.

The cost-effectiveness of qualifying fuel activities should be determined somewhat differently than for other activities. Whereas the incentive amount for other types of activities must be amortized over the activity life, using a 3 percent discount rate, the incentive amount for qualifying fuel activities do not need to be amortized. The cost-effectiveness calculations are presented in Table 10-1.

Table 10-1

Calculating Cost-Effectiveness for Qualifying Fuel Activities

Total cost ($) / Total NO_x emissions reduction (tons) = Cost-Effectiveness ($/ton)	
Cost-effectiveness ($/ton):	$

For projects that include more than one activity, the total project incentive amount should be used to determine the cost-effectiveness of the project. The applicant may request an incentive amount that is less than the full incremental costs, in order to meet the cost-effectiveness criteria.

The cost-effectiveness should be determined by first adding all of the annualized costs for the activities included in the project. For purposes of calculating the cost-effectiveness of a project that includes other types of activities, the annualized cost for the qualifying fuel activity should be the total activity cost.

The annual emissions reductions of each activity should also be added together to determine an annual emissions reduction for those activities. Again, the total emissions reductions for the qualifying fuel activity should be added to the annualized emissions reductions from the other activities.

The cost-effectiveness of the projects is then determined by dividing the combined annualized costs for all activities included in the project application, by the total annual NO_x emissions reductions for the combined project activities.

Total Annualized Costs / Total Annual NO_x Reductions = Project Cost-Effectiveness

Appendix 11
Demonstration of New Technology

This section contains the project criteria for demonstration of new technology projects. This type of project must be applied for separately from the other eligible activities.

Eligible Activities and Costs

In general, the emissions reductions attributable to the technologies demonstrated under this program should already be proven—for example, through certification or verification by the EPA or the CARB. This program can then be used to help encourage the implementation and use of the technology in the areas of the state where the emissions reductions are needed.

However, the TCEQ may also consider technologies that are still in the testing and/or verification stage of development. The funding decisions may be based on the likelihood that the emissions reductions will be proven and accepted.

The grant recipient may be eligible for reimbursement of all expenses attributable to the project. No cost-effectiveness requirements will be applied to a demonstration project, but the applicant will need to provide information to show that the technology is viable and can be expected to achieve significant reductions in NO_x emissions. Administrative costs, in-house labor costs, and travel costs are not eligible expenses.

Project Criteria

In addition to the eligibility criteria previously presented, the following list of criteria applies to projects involving qualifying fuel activities. The TCEQ may impose additional criteria, and may more narrowly define the criteria established in this guide, under a particular funding round or by geographic area, as needed to best achieve the objectives of the TERP.

- The TCEQ will select demonstration projects on a case-by-case basis, based on a full review of the project proposal and a determination that the project can lead to broader use of the technology.

- In general, a demonstration project should involve a limited number of vehicles or equipment (for example, one to five), so that the project can be considered a demonstration and not implementation of the technology.

- The demonstration project must take place within an eligible county. However, testing and other work required for completing the project may take place outside of the eligible counties, subject to approval by the TCEQ.

- Unless otherwise authorized by the TCEQ, the technology must be demonstrated on vehicles

or equipment that are actually being used for the purposes intended for that vehicle or equipment. Again, projects under this category normally should be for demonstration-proven technologies on real-world applications.

- It is expected that demonstration projects will normally last one year. The TCEQ will consider projects that last for a different time period. However, due to contracting and financial management requirements, projects may not extend beyond 18 months after the end of the state fiscal year of the grant award. The state fiscal year extends from September 1 through August 31.

- The grant recipient must monitor the use and effectiveness of the technology, including costs associated with its use. A project report must be prepared at the end of the project. The report must provide information and conclusions regarding the effectiveness and efficacy of the using the technology on the application demonstrated. The project report must be accepted by the TCEQ before the project will be considered completed.

- An activity is not eligible if it is required by any state or federal law, rule, regulation, memorandum of agreement, or other legally binding document. However, this restriction does not apply to an otherwise qualified activity—regardless of the fact that the State Implementation Plan assumes that the change in equipment, vehicles, or operations will occur—if, on the date the grant is awarded, the change is not required by any state or federal law, rule, regulation, memorandum of agreement, or other legally binding document. This restriction also does not apply to the purchase of vehicles or equipment that is required only by local law or regulation, or by corporate or controlling board policy of a public or private entity. Demonstration projects used to demonstrate a technology that may be used to comply with an emissions-reduction requirement may be funded, as long as the reductions directly attributable to the demonstration project are not used to comply with those requirements.

- An activity involving a new emissions-reduction measure that would otherwise generate marketable credits under state or federal emissions-reduction credit averaging, banking, or trading programs is not eligible for funding under this program unless:

    - the activity includes the transfer of the reductions that would otherwise be marketable credits to the state implementation plan or the owner or operator as provided under §386.056, Texas Health and Safety Code; and
    - the reductions are permanently retired.

- Administrative costs and other internal costs of the grant recipient, including but not limited to personnel expenses, internal salaries, indirect costs, and travel will not be eligible. This restriction also applies to situations where the grant recipient acts as a transportation provider for delivery of the grant-funded vehicle or equipment before or after acceptance of the vehicle or equipment.

- Consultant fees for the preparation of a grant application, either directly or as an addition of the cost basis of the grant-funded vehicle, equipment, or engine, are not eligible for reimbursement by the TCEQ.

- Fees for a third-party consultant hired by the grant recipient to manage and administer the grant-funded activities, including coordination of the work and submission of reports and paperwork to the TCEQ for the grant recipient will not be eligible. This restriction is not intended to limit the ability of the vehicle or equipment provider or installer to include reasonable and necessary costs for managing the work to be performed in the price of the vehicle, equipment, or installation services. The costs for professional services, including engineering and technical work, required for completion of the activity may be included, subject to the restrictions pertaining to that type of project. Per the Uniform Grant Management Standards (UGMS), the cost plus a percentage of cost methods of contracting for professional services shall not be used.

- The TCEQ may impose additional criteria for certain projects and funding periods, consistent with these guidelines.