

Diesel Emissions Reduction Act (DERA) Best Achievable Technology Analysis Guidance

Document Summary

Participants of any DERA Program funding opportunity should note that when replacing nonroad, marine, and locomotive engines, the selected replacement should represent the Best Achievable Technology (BAT) available for the application. The BAT is defined as the highest Tier engine that can be used in an engine replacement project.

All new nonroad and locomotive engines are manufactured to meet [U.S. Environmental Protection Agency \(EPA\) Tier 4 standards](#). All new Category 2 and commercial Category 1 marine engines at or above 804 horsepower are also manufactured to meet EPA Tier 4 standards. Accordingly, applicants proposing to replace nonroad, marine, or locomotive engines with internal combustion engines should demonstrate in their application that they commit to using Tier 4 engines if Tier 4 engines with the appropriate physical and performance characteristics are available. If an applicant anticipates proposing anything less than Tier 4 at the time of application, the applicant should explain the basis for that proposal.

If selected for funding, recipients must submit a BAT analysis to the EPA for approval **before Tier 3 or Tier 4i nonroad, marine, or locomotive engines may be purchased**. This analysis is not required at the time of application submittal. The information that follows is provided for informational purposes to highlight certain portions of the BAT analysis that may be of most interest to applicants, including applicability, physical and performance compatibility, and supporting documentation. This information is not all-inclusive and is not meant as a substitute for the applicable regulations, EPA guidance, or award conditions. Applicants are responsible for addressing all applicable parts of the BAT requirements in their justification.

BAT Analysis Requirements

Projects involving the replacement of nonroad, marine, or locomotive engines must include a clear and concise justification in the project narrative why any Tier 3 or Tier 4i is the most appropriate replacement. Prior to purchasing a Tier 3 or Tier 4i engine, a BAT analysis must be approved by the EPA.

The BAT analysis must be prepared by the engine manufacturer or installer.

Using good engineering judgment, the manufacturer or installer must determine whether any manufacturer produces a Tier 4-certified internal combustion engine with the appropriate physical and performance characteristics to replace the existing engine.

If the manufacturer or installer determines that no Tier 4 engine is available with the appropriate performance characteristics, the justification should explain why Tier 4 engines produced by the applicant or other manufacturers cannot be used because they are not similar to the engine being replaced in terms of power or speed.

If the manufacturer or installer determines that suitable performance characteristics are available, but no Tier 4 engine is available with the appropriate physical characteristics, the justification should explain why Tier 4 engines cannot be used because their weight or dimensions are substantially different from those of the engine being replaced, or because they will not fit within the equipment's engine compartment.

In evaluating appropriate physical or performance characteristics, the manufacturer or installer may consider compatibility with equipment components that would not otherwise be replaced when installing a new engine, including, but not limited to:

- Transmissions or reduction gears,
- Drive shafts,
- Cooling systems,
- Operator controls, or
- Electrical systems.

If the BAT determination is based on incompatibility with these components, the justification should identify the incompatible components and explain why they are incompatible and why it would be unreasonable to replace them.

If a Tier 3 engine is proposed for nonroad equipment, the recipient must make a separate determination showing that no Tier 4i engine meets the appropriate physical or performance characteristics to replace the existing engine.

The BAT analysis should identify the proposed Tier 3 or Tier 4i engine and discuss the physical and performance characteristics that ensure compatibility with the existing equipment.

DERA project eligibility or approval does not supersede any regulatory requirements for equipment owners, operators, manufacturers, installers, or others, including but not limited to 40 CFR [§1068.240](#), [§1042.615](#), and [§1033.601](#).

Applicants may include costs for design and engineering analysis, including BAT, in the project budget.