

# TIER4

The new EPA Tier 4 standard  
and what it means to you



**Count on it.**

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## The EPA Tier 4 standard and the impact on the Turf Industry:

The Environmental Protection Agency's Tier 4 diesel engine emission reduction mandate will soon have an impact on your business. Tier 4 compliant Turf Equipment, in the 25 to 74 horsepower (hp) category, manufactured after January 2013 will be better for the environment and healthier for everyone, but it will also cost more.

Understanding the financial implications of various compliance options - today - will allow you to evaluate all of your options, in advance, so you can make the most beneficial decision for your business.



Tier 4 compliant systems require more sophisticated engine electronics and exhaust after-treatment systems.

### The EPA Tier 4 Standard is about cleaner air!

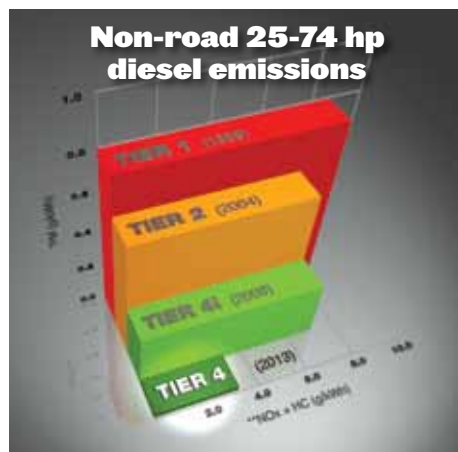
All US regulated emission standards, including Tier 4 for off-road diesel engines, are extensions of the "Clean Air Act" (1963) which was enacted to reduce air pollution in the United States. The "tiered" mandates were put in place to progressively reduce the level of harmful emissions such as Particulate Matter (PM) and Nitrogen Oxides (NOx) that enter the air via diesel engine exhaust. The most stringent emission reduction mandate to date, is called "Tier 4". The Tier 4 emission standard will reduce emissions of PM by 90% from current levels.

### What Tier 4 means to Turf Equipment Manufacturers

Compliance with Federal Regulations, like EPA Tier 4, is not optional. The EPA Tier 4 emission reductions were first mandated in industries with large on-road vehicles (such as semi trailers and other diesel-powered trucks) and followed shortly thereafter in industries with large off-road diesel equipment (such as agricultural and construction equipment). In each case, the cost to manufacture Tier 4 compliant models went up substantially due to the significant scope of the changes needed to implement compliant engine and exhaust after-treatment technology.

The Toro Company has been working with its engine suppliers over the past decade to proactively and transparently comply with each progressive Tier of the emission regulations.

The incorporation of Tier 4 compliant diesel engines into today's Turf equipment solutions (25-74 hp), will require significant equipment redesign. Tier 4 compliant diesel engine/exhaust system solutions: 1) require more sophisticated



electronics to monitor and control emissions, 2) are physically larger in size, and 3) have new and more expensive components - particularly in the exhaust after-treatment area.

Compliant models may require retooled engine compartments, modifications to chassis frames and re-engineered cooling systems. Over a third of the parts for a given model will likely need to be reworked, replaced or otherwise re-engineered in order to integrate Tier 4 compliant engines and exhaust systems into the products! As such, existing models are not "retrofit" capable. Toro, alone, produces over twenty diesel powered models in the 25 to 74 hp range that will need to be addressed - beginning in 2013.

The obvious message is that the design, manufacturing and component costs - to deliver Tier 4 compliant diesel powered product will increase significantly, beginning with machines manufactured in 2013. Cost reductions, while always a high priority in product redesigns, will not be sufficient to offset cost increases.

As the cost of diesel powered products increase, the viability of other solutions need to be evaluated. Toro continues to invest in the evaluation and, where appropriate, development of alternative fuel options like non-diesel engines and compliant diesel engines.

There are many complex trade-offs and pro/con arguments for each option, but the alternatives speak to the challenge manufacturers are facing to deliver comparable solutions at a commercially viable price point.

### Be Prepared for the Tier 4 Mandate

Educating customers early, regarding the financial impact of Tier 4, provides sufficient time to evaluate multiple options. The additional time will allow you to thoughtfully consider the most meaningful approach for your business as it relates to environmentally and financially prudent (i.e. Tier 4 compliant) turf equipment purchases.

End users in other industries that have already lived through the transition to Tier 4 have taken a few different strategic approaches when developing their capital spending plans around Tier 4 compliance:



- **Go "Green"**  
Some end-user companies embraced the new Tier 4 product and wanted to position themselves as leaders in the "green" space. They got in line for the new products early, despite the higher prices, to lead the charge toward cleaner air.
- **Business as Usual**  
Other companies chose to simply pay the market price (even if it was forecasted to go up substantially) when their current capital plan called for new equipment or when their equipment simply reached the end of its useful life.
- **Buy Used**  
Equipment manufactured prior to 2013 is "grandfathered-in" and does not need to be retrofitted to Tier 4 standards.
- **Pre-Buy**  
Many companies decided to buy equipment in advance of the mandatory Tier 4 changeover (at lower prices) to defer the need for higher priced products as long as possible and to give them more time to adjust to the new market pricing.



As you review your own needs and options for capital spending on EPA Tier 4 compliant turf equipment, you may want to consider the experiences of end-user customers in other industries that dealt with the same challenge. The trucking and large off-road industries experienced significant pre-buy behavior. This increased demand created availability issues because equipment manufacturers were unable to meet the unforecasted demand. In addition, the engine manufacturers' capacity became constrained as they converted existing manufacturing lines to the new Tier 4 product, while demand for existing technology remained strong.



## What can or should you do?

### Act now to learn more and share what you know!

- Become knowledgeable about the coming EPA Tier 4 Emission Standard:
    - Conduct a simple internet search on “EPA Tier 4 Emission Standards” to learn as much as you can on this topic directly.
    - Ask any equipment manufacturer who supplies diesel powered equipment 25 to 74 hp how they plan to become Tier 4 compliant.
    - **Visit [www.toro.com/tier4](http://www.toro.com/tier4).** Information regarding how Tier 4 will impact customers in the turf maintenance business is scarce. As a service to our customers, we've created an informational website to provide relevant details, answer some common questions and share several relevant links.
  - Educate your leadership team and financial stakeholders about Tier 4 and the possible impact it may have on your equipment purchasing plans.
  - Understand the availability for both existing and new Tier 4 technology solutions and how it may influence your options and decisions starting in 2013.
- Create a capital equipment acquisition plan with a longer-range view of spending priorities.**
- Specifically review your diesel equipment needs by Tier 4 hp category (i.e. less than 25 hp, 25 to 74 hp, 75 hp and higher).
  - Perform financial ROI analysis for different scenarios to understand possible financial impact based on various strategies.
  - Understand budgetary and product availability implications of purchasing equipment before and after the mandatory January 2013 compliance timing.
- Contact your local Toro Distributor partner to:**
- Acquire additional presentation materials and information to help you educate your organization on Tier 4 environmental and financial implications.
  - Obtain budgetary pricing to develop a recommended fleet acquisition and capital spending plan for a three to five year timeline to help optimize long range ROI scenarios.