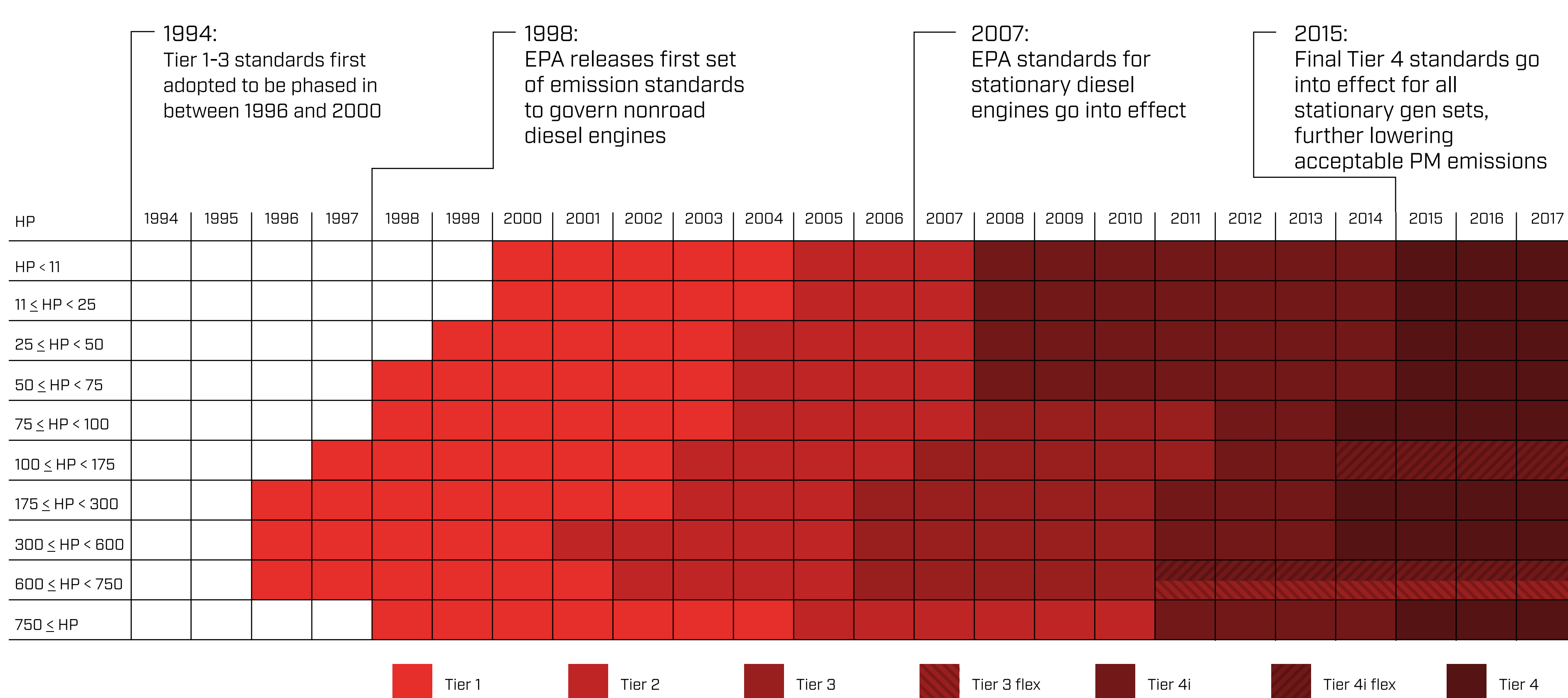


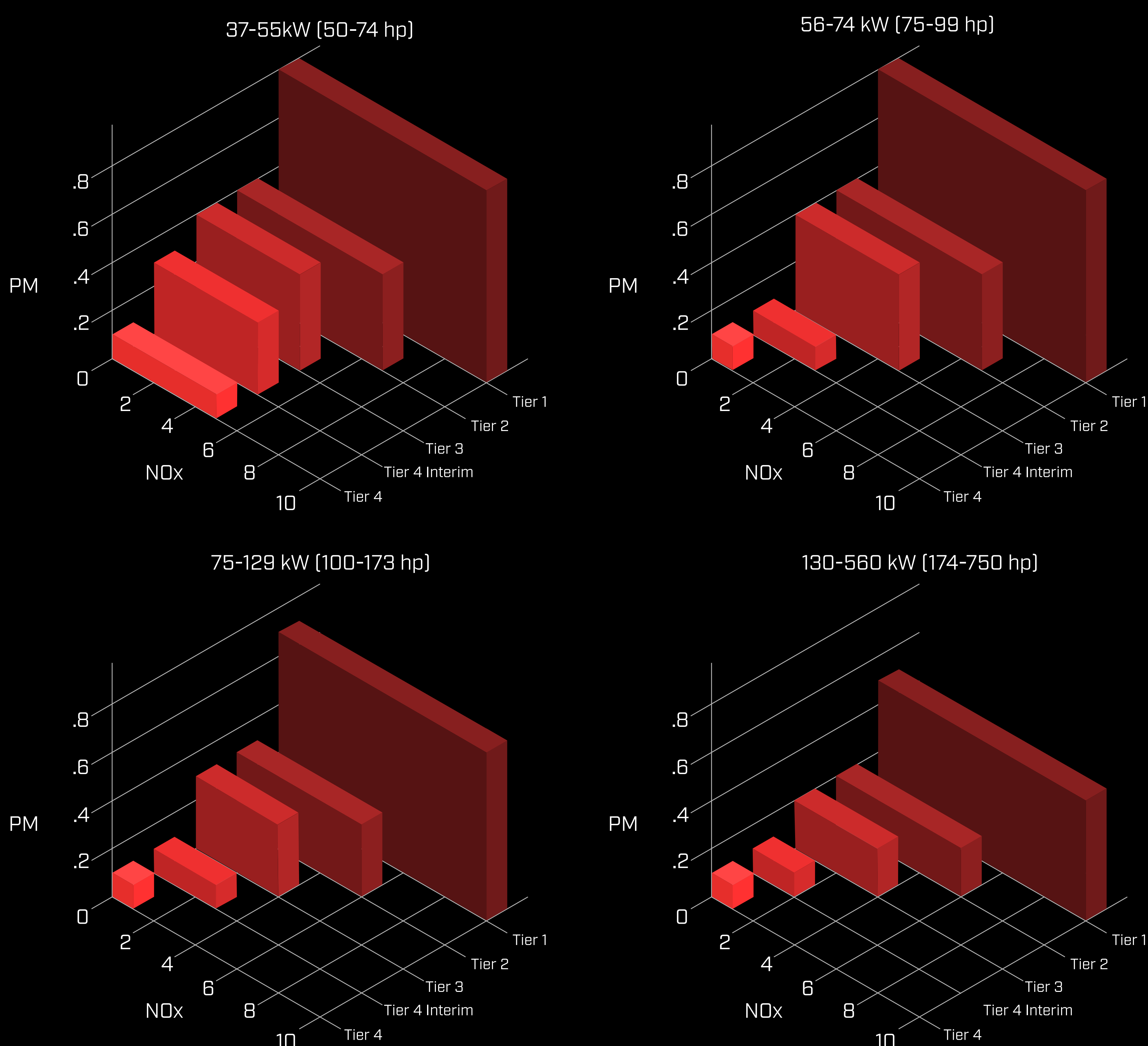
# Visual guide to regulations for final Tier 4 engines

## The road to Tier 4 engine emission standards



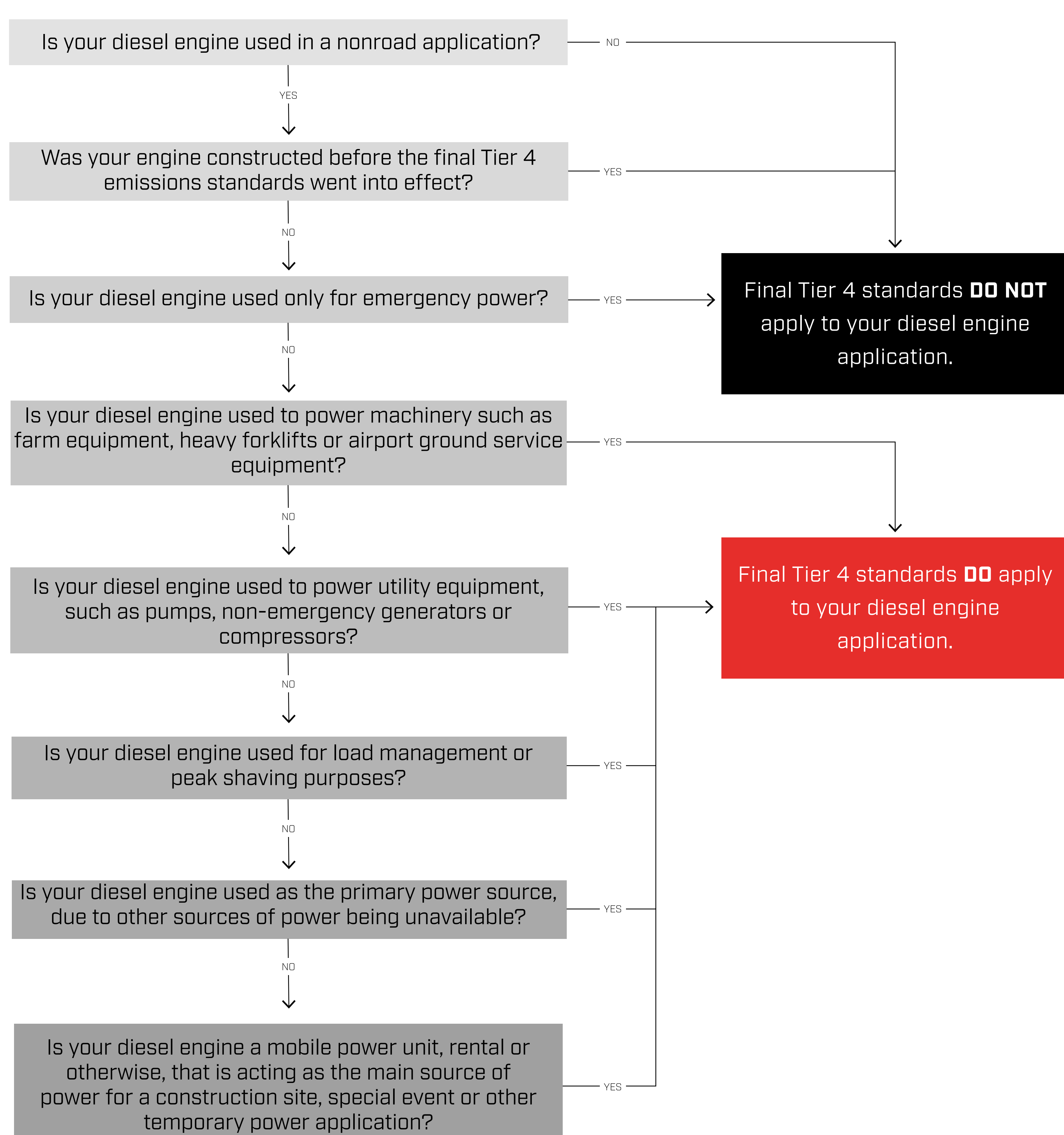
The Environmental Protection Agency (EPA) introduced its tiered system for regulating diesel engine emissions in 1996. These initial standards were phased in over a period of four years. Since then, the criteria for the power and application of the engines that are required to meet these standards have broadened significantly. In 1998, the EPA decided that nonroad applications should be included under the standards. In 2004, the EPA introduced stricter (Tier 4) engine standards, which were phased in starting in 2008 and are to run through 2015. [Tier 4 engine](#) requirements are to be fully implemented by the end of 2015 for most applications.

## Key emission levels for final Tier 4 engines



Particulate matter (PM) and nitrogen oxides are two of the main byproducts of diesel engines targeted for reduction. Nitrogen oxides are known to aggravate respiratory difficulties and they tend to react with volatile organic compounds and sunlight to form ozone. Particulate matter is a byproduct of diesel exhaust and is also known to have harmful effects on human health. Selective catalytic reduction and diesel particulate filters are two methods that have contributed significantly to the reduction of emissions in final Tier 4 engines.

## Does my application require a final Tier 4 engine?



Over time, the scope of the EPA's final Tier 4 engine standards has become complex. It can be difficult to determine if your application is governed by the standards. Nonroad engines initially did not fall under the tiered system, but that has since changed. Exceptions do still exist, though. Equipment that satisfied all emission standards in the year it was produced, for example, is considered legacy equipment and can continue to be used without penalty. Also, emergency internal combustion engines designed for use only in the absence of normal power are not included under final Tier 4 rules. Generators intended for use load management or peak shaving, on the other hand, are governed by the rules. To determine whether your application falls under the final Tier 4 engine emission rules, proceed through the chart above.

### Sources:

<https://www.cummins.com/literature/technicalpapers/PT-9010-Tier4EmissionRegImpact.pdf>  
[https://www.deere.com/en\\_US/docs/pdfs/emissions/understanding\\_the\\_regulations\\_final\\_03\\_02.pdf](https://www.deere.com/en_US/docs/pdfs/emissions/understanding_the_regulations_final_03_02.pdf)  
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[http://www.mtu-online.com/uploads/tx\\_templavoila/WhitePaper\\_Tier4i\\_and\\_Tier4\\_02.pdf](http://www.mtu-online.com/uploads/tx_templavoila/WhitePaper_Tier4i_and_Tier4_02.pdf)

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