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## Cummins Announces Three Innovations at MINExpo

*Dual-Fuel Technology For Mining Engines;*

*QSK50 Engine Meets Tier 4 Final Standards;*

*Doubling High-Horsepower Engine Remanufacturing*

LAS VEGAS--(BUSINESS WIRE)-- Cummins Inc. (NYSE: CMI) today announced three innovations at MINExpo to deliver cleaner, powerful and reliable engines and related technology to mining customers.

The first innovation is Cummins' plans to produce dual-fuel engines for mine-haul trucks. The Cummins Dual Fuel™ engine technology substitutes natural gas for diesel fuel in the combustion process, reducing the amount of diesel fuel required to operate mining equipment. The first engine in the Cummins Dual Fuel portfolio for mining is the QSK60, with other QSK Series engines to follow, including engines capable of meeting U.S. Environmental Protection Agency (EPA) Tier 4 Final emissions standards.

The QSK60 is available in standard and high-altitude configurations, and both will be capable of substantially reducing fuel costs with Cummins Dual Fuel technology. Cummins Dual Fuel engines will use integrated controls that will optimize the substitution rate based on operating conditions, and will seamlessly and automatically transition between diesel fuel and dual-fuel modes. Cummins Dual Fuel technology enables mining equipment to operate in 100 percent diesel fuel or in dual-fuel mode, giving the customer flexibility depending on natural gas availability at the mine site.

The second innovation announced was to increase high-horsepower engine remanufacturing capacity by 100 percent, to approximately 7,000 units per year by 2016, in order to meet demand for a rapidly expanding population of mining equipment powered by the popular QSK and K Series engines. Cummins' engine rebuild process ensures that the equipment operator receives a rebuilt engine with "as-new" standards of reliability and performance.

A global network of highly specialized rebuild facilities are located in areas aligned with high populations of Cummins-powered haul trucks, loaders, excavators, drill rigs and other mining

equipment. The investment program will establish a number of additional engine rebuild facilities in new locations, as well as expand many of the existing facilities.

The third innovation announced was that the next-generation QSK50 engine is ready to meet EPA Tier 4 Final ultra-low emissions standards. The 16-cylinder, 50-liter engine uses a fully-integrated Cummins Selective Catalytic Reduction (SCR) aftertreatment system, designed as a drop-in replacement for the exhaust silencers.

The SCR system, together with clean-combustion enhancements to the engine, enable the QSK50 to lower operating costs by 5 percent or more, due to significantly higher fuel efficiency and low levels of Diesel Exhaust Fluid (DEF) consumption. Durability improvements on the engine, and the lower fuel burn, contribute to an extended life-to-overhaul for the Tier 4 Final QSK50, surpassing that of the best-in-class Tier 2 engine. Operators can expect an additional 1500 hours or more before rebuild, making a valuable contribution to reducing total life-cycle costs. Oil and filter services are extended to 500-hour intervals for Tier 4 Final, enabling the QSK50 to increase uptime availability levels for equipment.

The QSK50 achieves Tier 4 Final emissions standards without any compromise made to power output or reliability, as the main focus of emissions reduction takes place in the exhaust stream, with the SCR aftertreatment removing oxides of nitrogen. Taking this simpler approach to meet Tier 4 Final emissions standards means that the QSK50 and other engines in the QSK Tier 4 Final range avoid the need for any additional on-engine systems, any extra cooling or turbocharging complexity.

### **About Cummins Inc.**

Cummins Inc., a global power leader, is a corporation of complementary business units that design, manufacture, distribute and service engines and related technologies, including fuel systems, controls, air handling, filtration, emission solutions and electrical power generation systems. Headquartered in Columbus, Indiana (USA), Cummins employs approximately 44,000 people worldwide and serves customers in approximately 190 countries and territories through a network of more than 600 company-owned and independent distributor locations. Cummins earned \$1.85 billion on sales of \$18.0 billion in 2011. Press releases can be found on the Web at [cummins.com](http://cummins.com) or [cumminsengines.com](http://cumminsengines.com). Follow Cummins on Twitter at <http://twitter.com/cumminsengines> and on YouTube at <http://youtube.com/cumminsengines>.

*Note to editor:* Photo images of Cummins Dual Fuel technology, High-Horsepower engine remanufacturing and the Tier 4 Final QSK50 engine can be downloaded at <http://cumminspr.com>.

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