The future of construction equipment might not be simply getting more bang for the buck but more push with less pollution.

Researchers at UC Riverside are spending the next two years studying the emission reduction potential of hybrid engines in heavy construction equipment. The $2 million grant, awarded by the California Air Resources Board, will help buy hybrid equipment for companies and public agencies in Southern California and then track the pollution emitted by the new gear compared to conventional diesel-powered models.
The purpose is to analyze the benefits of the hybrid engines to spur manufacturers into focusing more on cleaner engines, and encourage buyers to embrace the new equipment, said Kent Johnson, assistant research engineer at the Center for Environmental Research and Technology and the principal investigator on the project. Much like the debut of hybrid cars such as the Toyota Prius, introducing them is a slow process but can catch on, Johnson said.

**Clean machine**

“It is making them available that will increase their use,” Johnson said, as he looked over the first Caterpillar bulldozer bought through the grant program, which was delivered to Johnson Machinery earlier this week.

“Caterpillar has to make them.”

The $600,000 Caterpillar D7E, designed primarily for waste hauling, is about $100,000 more than its diesel-powered twin. Johnson said half of the air board grant will augment that cost for the buyers. Orange County, Riverside County and Waste Management have all signed on to test bulldozers. Johnson said he is also looking for more partners.

The second phase of the study includes mounting pollution monitoring equipment on the construction gear to track its emissions compared to conventional diesel machinery.

The hybrid bulldozers use a diesel-electric motor, which recaptures some of the energy used by the bulldozer for other activities, said Eric Gfeller, a sales representative at Johnson Machinery in Riverside. That allows for not only pollution reductions but fuel savings, he said.

“According to Caterpillar, the (hybrid) uses about four gallons less fuel per hour,” Gfeller said. “So over the course of the day, a full work day, you could use 40 gallons less fuel.”

For more information about Bourns’ Corporate Partners Program, please contact Linda Parker, Assistant Dean of Development, at (951) 827-6106.