

# Car buyers to see the light in LEDs

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LAS VEGAS — Starting next year, automakers may be singing a new tune: Twinkle, twinkle, little car.

That's because automotive lighting makers are working to bring headlights composed of tiny light-emitting diodes, or LEDs, to U.S. roads. LED headlights would be bright enough to illuminate the night road while being long-lasting, lightweight and dramatic-looking.



The 12-cylinder Audi A8 6.0 features LED daytime running lights. LEDs in Audi's regular headlights are expected after 2007.

The gasoline-electric hybrid version of Lexus' LS flagship model, due on the market early

next year, will sport LED headlights. The Audi A8 was the first Audi to have LED daytime running lights. It has been followed by the S6 and S8 luxury sedans that went on sale in October.

The R8 sports car coming to the USA next year will have them as well.

"We are working on LED headlights. We hope to have them after 2007," says Audi spokesman Jeff Kuhlman. The R8 concept car at the Paris Motor Show in September had LED headlights.

LEDs have been around since the 1970s. (Remember those neonlike red LED displays on wristwatches?) Only in recent years have they shown up in lighting applications, such as traffic signals and blinking bicycle taillights.

The breakthrough now is making them bright enough for automotive headlights and daytime running lights. But they're coming at a high price, at least initially.

"For now, it's so expensive it'll be for niche models," says Michael Hamm,

head of the innovative lighting unit at Automotive Lighting in Reutlingen, Germany. He worked with Audi on the LED headlights.

He says such lights could cost eight times as much as already-expensive high-intensity discharge, or HID, lights. They're those icy blue headlights that some motorists say create too much glare for oncoming drivers.

HID headlights can run \$800 to \$1,000 a pair to replace, says Fred Snow, an executive of automotive lighting company Hella, who was manning a display at the Specialty Equipment Market Association show here.

The National Highway Traffic Safety Administration says LED headlights are legal if they meet the illumination regulations applied to all other types of headlights in the USA.

They also have to be wired so that if one tiny LED fails, the whole light goes out. NHTSA says that prevents motorists from unknowingly driving with reduced illumination.

Hella, a German company, has just started selling LED running lights, add-ons for car owners who have LED-headlight envy. Those are not yet available in the USA.

Why LEDs are lighting up interest in the auto industry:

- They save power.** Hella says a pair of its running lights takes only 10 watts to run, vs. 150 watts for the low beam of conventional headlights.

"Ultimately, the energy to run the headlights comes out of the fuel tank," says David Cole, head of the Center for Automotive Research at the University of Michigan.

"LED is a very efficient light form. Its time is coming. It's on a fast track."

Hamm cautions that the first units might not save much power.

Even though LEDs run cooler than other lights, concentrating them into headlight form



requires special cooling — tiny fans on his models — which use power.

•**They look neat.** Instead of a single light, LEDs can be dispersed into interesting patterns to beautify the front end of a vehicle.

"It is really pretty," says David Davoudi, vice president of Philips Automotive Lighting North America. In automotive taillights, where they've been used for about five years, LEDs usually have a starlight quality.

LED headlights have an intense white light.

•**They are long-lasting.** LED headlights will last several times longer than most cars will, lightmakers say. Steve Landau, spokesman for Philips Lumileds Lighting, which makes LED lights, says they can run 50,000 hours and will probably have dimmed to 70% of their original brightness. The average car, he says, will burn its headlights only about 5,000 hours in 10 years.

•**They need less space.** Because they're thinner, designers can use the saved space to add bigger crumple zones for crash protection.

The interest in LED headlights underscores how the auto industry is dressing up a taken-for-granted part of the car, the headlight.

For the new Lexus LS luxury sedan, which precedes the hybrid version coming next year, Japanese designers wanted a special high-end look to house the HID headlights, so made them emulate Baccarat crystal.

To give the Escalade SUV a unique signature, Cadillac designers emblazoned the brand's famous crest logo on the lenses.

While it won't project the logo like Batman's Bat Signal, the crest still

looks cool, says spokesman David Caldwell. "It's the kind of thing you can't see unless you look really hard, but that's the point."

The Lincoln Navigator's new projection-type high-intensity discharge headlights are only about 3 inches in diameter, positioned on the grille where the parking lights would normally be.

They are "a brighter white light. It gives you far more throw," says spokesman Mike Peyton.

*Woodyard reported from Las Vegas; Healey from McLean, Va*