



LEFT TO RIGHT: CRAIG AJRINNESS—CORBIS; DAVID MCNEW—GETTY IMAGES (2)



How a state agency ruling on climate change may force Detroit to spend \$33 billion.

California rocks the auto industry

BY STUART F. BROWN ■ A few weeks ago in Los Angeles the board of directors of a state regulatory agency you've never heard of met in an airport hotel you'd never notice. The California Air Resources Board voted to adopt regulations to reduce the amount of carbon dioxide (CO₂) and other greenhouse gases that cars and light trucks emit into the atmosphere by 30% within 11 years. The vote didn't garner much national attention. If you did read about

GOLDEN STATE WORRIES: Melting snows in the Sierras, gas hogs on the freeways, irrigation troubles on the farms

it in a squib buried in a newspaper, you might have thought, How nice, the public servants of CARB are doing their share, earnestly urging Californians to get their greenhouse gases in check.

You almost certainly wouldn't have expected the car industry to react as if someone were trying to hit it upside the head with a \$33 billion sledgehammer. "This is probably the most far-reaching and expensive regulation the auto industry has ever faced," says John Cabaniss, director of environment and energy at the Association of International Automobile Manufacturers, a trade group representing Honda, Nissan, Toyota, and other foreign makes. "It would take a change of direction on California's part to avoid litigation," warns Reg Modlin, DaimlerChrysler's director of environment and energy planning. He adds that the company would "very seriously consider" suing to "protect our interests."

How could an obscure state agency get such a rise out of a \$425 billion industry? For one thing, CARB is a local agency with very large teeth. Headed by a Welsh-born chemist named Alan Lloyd, it makes decisions that often end up serving as the model for federal vehicle-pollution regulations, as well as those of foreign countries. And at the top of CARB's agenda just now is global warming, which is an especially urgent issue in California. The state is seeing the effects of global climate change firsthand, the starkest example so far being a shrinking of the snowpack in the Sierra Nevadas that supplies much of the state's water. There's also evidence of climate-related crop damage, as well as coastal flooding. "Absent federal leadership, it's important for California to demonstrate that there is a way to address global warming," Lloyd says. "And then other states can copy it." What Eliot Spitzer is to Wall Street, Lloyd is to the auto industry.

Believe it or not, if California's rule overcomes the lawsuits—and there will be lawsuits—it could force car companies to build millions of vehicles with greatly reduced fuel consumption. That would surely be the case if seven Northeastern states (and possibly Canada) do decide to copy California, as they've indicated they may. Together, the eight states make up about 25% of the 17 million-vehicle market for cars and light trucks. (California alone buys 1.5 million vehicles a year.)

In this case, what goes for 25% of the market could go for 100% of the market. "If the automakers are required to do this for Cal-

The CO₂ ruling, a car business insider says, "is the most expensive regulation the auto industry has ever faced."



OLIVER LAUDE

CARB CONTROL Lloyd's decisions are heard round the world.

ifornia and any other states that opt into the California regulations, I don't think there's any choice but making changes through the whole 50-state fleet of vehicles," says Cabaniss. Think about that for a minute: He's talking about *all* vehicles. That would be a gigantic shift. Tooling up to make it happen could cost automakers \$33 billion (the aforementioned sledgehammer), according to Tom Austin, senior partner at Sierra Research, an air-pollution consulting firm in Sacramento. And it would add to pricetags on the showroom floor. CARB estimates that its ruling would raise a vehicle's sticker price by about \$1,000; the Alliance of Automobile Manufacturers, a trade group that includes Detroit's Big Three, claims the amount would be more like \$3,000.

The reason a 30% CO₂ reduction is so much work is that there's no way to achieve it without reducing fuel consumption by the same amount. Unlike the three main

vehicle pollutants now controlled by federal regulation (hydrocarbons, carbon monoxide, and nitrogen oxides), CO₂ can't be gobbled up by some bolted-on scrubbing gadget, like catalytic converters in cars today. In fact, part of the catalyst's job is to turn poisonous carbon monoxide (CO) into CO₂. A vehicle's CO₂ emissions are simply determined by how much fuel it uses: The more it burns, the more it spews. It's an immutable law of chemistry. So puritanical efficiency becomes the only solution.

How can that be done? Would everybody need to drive tiny Smart cars? The reassuring news is that technologies are already on (or almost on) the shelf that

should let Americans continue to buy the big vehicles they love so dearly. "Two technologies, strong hybrids and advanced diesels, seem to offer the biggest efficiency leap forward in the shortest time," says Lindsay Brooke, senior analyst at CSM Worldwide, an auto-industry forecasting-and-analysis firm in Farmington Hills, Mich. "On paper, hybrids can give up to 40% better fuel efficiency, depending on how they are driven. And diesels can offer a 30% to 35% efficiency improvement."

Gasoline-electric hybrids deliver efficiency benefits in stop-and-go city driving by using regenerative brakes, which capture energy that would otherwise be wasted and store it in a battery. But cruising on a lonely Interstate, a hybrid is no better than a traditional car—maybe even worse. As they say, your mileage may vary. So-called strong hybrid powertrains, which are used in the Toyota Prius, the forthcoming Lexus RX400h, and Ford's new Escape hybrid, offer the biggest efficiency gains. If a hybrid can drive at low speed solely under electric power, you know it's the strong type.

But let's back up a second. Did the analyst mention *diesels*, the all-time champion stinkers? Well, the new generation of diesels are a different deal. Diesels have always been more efficient than gasoline engines because their fuel contains more energy than gas does and because they breathe more efficiently. Fancy new electronic fuel-injection systems make advanced diesels such good citizens that they

now power about half the cars sold in Europe. If you've rented a diesel on a recent European vacation, it may have impressed you with its quiet, smooth power. They are definitely not the rattling, smoking diesels of yore. They're still too dirty to pass the extremely tough U.S. diesel-smog rules that take effect in 2007, but Brooke thinks they'll be ready by then.

As big a challenge as making the engine technologies work will be building the factory capacity to produce all those hybrids and diesels soon enough. CARB's greenhouse-gas rule for cars and light trucks would begin taking effect in the 2009 model year, and the full 30% reduction would be required by 2016. Ford, GM, and DaimlerChrysler, which rely most heavily on light-truck sales for their profits, would have to do the heaviest lifting.

True, lots of hybrids will be hitting the U.S. market soon anyway; CSM Worldwide reckons that 20 or more hybrid models will be on sale by 2007. But production capacity would have to be increased even further. Toyota president Fujio Cho is putting in place a program to build hybrid versions of the company's major vehicle families as the market demands. More plants would also have to be built to produce the nickel-metal-hydrate batteries used in hybrid powertrains. And diesel-engine factories in Europe are busy trying to keep up with home-market demand, so planning to build new ones in this country would have to get underway soon.

The CARB ruling is not a done deal. Expect a legal battle royal between automakers—who say that California has no authority to regulate fuel economy—and the state, which under Governor Arnold Schwarzenegger has vowed to fight for global-warming controls. CARB hasn't managed to make all its regulations stick in the past. The agency was forced to back off from a so-called zero-emissions vehicle rule mandating that 10% of the vehicles sold in California be battery-electric-powered by 2003. (The batteries weren't good enough.) This time around CARB has been careful to tell the carmakers to just get the job done, as opposed to stipulating exactly how to do it.

Who died and left CARB boss? When the federal Clean Air Act was passed in 1970, California was already regulating vehicle pollution in an effort to combat the famous smog around Los Angeles. As a result, EPA rules were written allowing California to set its own stricter standards for vehicle

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light trucks is regulated by the National Highway Traffic Safety Administration, part of the Department of Transportation.

But David Doniger, senior attorney at the Natural Resources Defense Council, believes California's action has a sound legal footing. "For more than 30 years California has had clear authority under the Clean Air Act to set motor-vehicle emission standards," he argues. "This authority extends to pollutants not yet regulated by the federal EPA." Another hurdle CARB's global-warming rule will face is getting a required waiver from the federal EPA, which has said that CO₂ is not a pollutant. The outcome of that encounter could well be affected by who is in the White House when the paperwork arrives.

It may take a year or more before CARB's ruling succeeds—or fails—to make it through the legal obstacle course. But the automakers have only a year at most to wait before tooling up for Plan B. They have to start making important decisions about where to get parts, where to put them together, and the million other things that go into making a whole new powertrain.

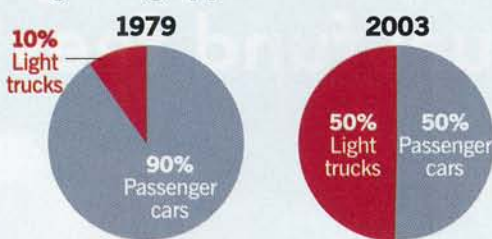
The car industry hates being told what to do, especially by the Golden State's regulators. Just give us one national standard to work with, they say. That's the idea behind the CAFE rules. But those have been stuck since 1990 at 27.7 miles per gallon for cars and 20.7 mpg for light trucks (the latter will increase to

22.2 mpg in 2007).

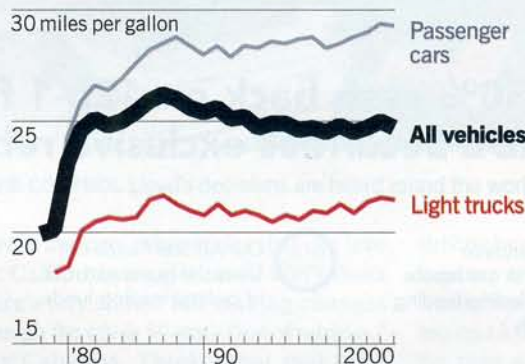
Conservation may be a noble goal, but the country hasn't been able to decide how to get there. Polls indicate that Americans are for conservation, but the same public is persisting in a wholesale adoption of light trucks for uses that cars once served. As a result, total fuel economy in this country has actually decreased over the past few years. Washington makes noises about increasing efficiency, yet obvious ideas like bumping up fuel taxes are political nonstarters. Maybe Lloyd and his band of earnest bureaucrats are the solution we deserve. **E**

FEEDBACK sbrown@fortunemail.com

A growing appetite for trucks ...



has decreased the overall fuel efficiency of vehicles.



FORTUNE CHART / SOURCE: NHTSA

pollutants but not for fuel economy. The law also permits other states to voluntarily adopt California's pollution standards, which four Northeastern states have already done.

There's only one car-assembly plant in California, limiting the amount of job-related political leverage the automakers can exert to derail the global-warming rule. So the courts are where the industry must turn. The likely argument will be that CARB's regulation is actually a disguised fuel-economy rule, which only the federal government has the authority to impose. Under the federal corporate average fuel-economy (CAFE) law, the fuel efficiency of cars and