

## Profit over the environment

# Who Killed the Electric Car?, written and directed by Chris Paine

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*Who Killed the Electric Car?*, a film written and directed by Chris Paine, was shown in some theatres earlier this year and was released on video November 14. The following review was submitted by a reader of the World Socialist Web Site.

Chris Paine has crafted a provocative exposé of General Motors' cancellation of its electric vehicle program in 2004. Filmed in the style of a murder mystery, the documentary investigates the death of the EV1, an electric vehicle developed by GM in the 1990s in response to the visionary, but ill-fated, zero-emission vehicle (ZEV) mandate of the California Air Resources Board (CARB).

At its essence, *Who Killed the Electric Car?* is a case study in how the profit system has interfered with material human progress—with the rational use of technology to stem global warming, fight air pollution, and adopt sustainable sources of energy. The film successfully reveals how, in collusion with the auto industry and oil companies, the federal government and the CARB betrayed the long-term interests of the American people in order to cater to the short-term profitability of big corporations.

But even as it heaps up mounds of infuriating evidence, the film fails to draw broader political conclusions about the contradictory nature of the profit system itself. The film suffers from one of the principal flaws plaguing Al Gore's *An Inconvenient Truth*: by laying at least some of the blame for the EV1's death at the feet of consumers, Paine suggests that consumers should avert environmental disaster by making enlightened purchases, rather than by confronting the class antagonisms and corporate profiteering that propel global warming.

Paine's film falls into two parts. The first describes the development of the EV1 in response to the CARB's mandate, the reversal of the mandate in 2003, and the impounding and destruction of all leased EV1s by GM. In the second part, the film switches gears to examine the factors influencing the CARB's withdrawal of the mandate and the resultant death of the EV1—the auto industry, the oil industry, the federal government, consumer demand, battery technology, the hydrogen fuel cell alternative, and the CARB itself—and renders a verdict on each party to the crime: Guilty or Not Guilty. Interspersed throughout are interviews with drivers of the EV1, environmentalists, energy policy analysts, and critics of the EV1, including representatives from GM and the American Petroleum Institute.

The air quality crisis in California came to a head when, in 1990, the Los Angeles basin experienced 41 days of stage-one smog alert. Along with mounting evidence that smog was contributing to lung lesions in children and other health problems, the smog crisis motivated the CARB to mandate that automakers include ZEVs as a fraction of their California sales: 2 percent by 1998, 5 percent by 2001, and 10 percent by 2003. In the 1990s, electric cars were the only vehicles available to carmakers that did not emit smog-forming nitrogen oxide and volatile organic

compounds.

The mandate had far-reaching consequences beyond just smog fighting; it was seen as a key step toward reducing greenhouse gas emissions and curbing dependence on fossil fuels. Even in their bio-diesel and ethanol burning varieties, internal combustion engines emit carbon dioxide into the atmosphere, accounting for some 25 percent of carbon emissions in the US. By contrast, electric vehicles can be charged using electricity from nuclear power plants, which emit no carbon dioxide, as well as from clean, renewable sources such as hydro, wind, and solar cells.

Almost immediately, the CARB's mandate fell victim to lawsuits and intense lobbying by the auto and petroleum industries, which claimed that the cars' expensive batteries and limited range made them hopelessly impractical. The CARB soon abandoned the 2 percent requirement for 1998, but maintained the 10 percent level for 2003. However, when the mandate came up for renewal in 2003, the CARB was swayed by testimony from automakers claiming that there was not adequate demand for electric cars, and that the cars could not be sold for a profit. GM in particular testified that the production run on the EV1 was so small (approximately 1,000 cars) that no parts makers were willing to continue making spare parts for the car. Ironically, auto dealerships that joined the lawsuit were concerned that the EV1's mechanical simplicity would cut into the profits they reap from repair jobs and mark-ups on parts.

As they built a case against the electric car, auto and petroleum lobbies united behind an alternative vision for ZEVs: the hydrogen fuel cell. On the surface, the fuel cell glitters with potential—its fuel is derived from water, and water is its only emission. But the reality is that fuel cells are riddled with technical snares and could take 20-plus years to mature. In light of this, Paine argues that the oil industry uses the fuel cell as a red herring. The fuel cell simultaneously diverts resources from electric vehicles while creating the illusion that oil companies care about sustainability and the environment.

Confronted with a mounting air crisis, and two options for confronting it, why did the CARB side with a technology that will, at best, be available 15 years from now, rather than one that is available today? Air quality and global warming are world historical crises that can only be confronted with coordinated long-term planning. Yet, given the opportunity to implement such a plan, the CARB caved in and allowed profits to supercede human needs. At the federal level, this tendency is reflected in the Bush administration's investment of \$1.92 billion in fuel cell development, with vocal support from the oil lobby, who run green magazine ads billing themselves as future purveyors of hydrogen.

Paine makes no secret of his fervor for the EV1. He peppers the film with admiring shots of the car's aerodynamic shell, showcasing its technical wizardry and the glowing testimony of its drivers, while downplaying concerns about the expense and limited range of its batteries.

He also elides the difficulty of designing and installing charging infrastructure. The EV1 is the height of geek chic, and Paine's adulation for the car gives the film an overtone of nerdy go-go enthusiasm, rather than one of detached evaluation.

A principal flaw of the film is the large swaths dedicated to the plight of individual EV1s and their drivers, at the expense of providing commentary on the underlying political issues. Paine's narrative personifies the EV1, comparing its destruction to the passing of a loved one. He chronicles the impounding and destruction of the cars in great detail, including a lengthy segment on efforts by protesters to stop GM from hauling away the last batch of impounded cars from a lot in Burbank, California.

While Paine's telling adds dramatic tension to the film, and pays due respect to the car's technical pedigree, the time would have been better spent drawing broader conclusions about the political forces that Paine blames for the car's demise. But even if this approach compromises the film stylistically, it does not sacrifice its objectivity. Paine's argument is that the car was scrapped not because of a few technical glitches and costly parts, but because it threatened the interests of powerful corporations. And his evidence clearly bears this out. Had the car not shown some promise, the petroleum industry would not have gone to such great lengths to snuff it out.

Admittedly, in its original design, the EV1 was limited to about 60 miles per charge, and required hours to fully charge its batteries. With an expensive upgrade to nickel-metal hydride (NiMH) batteries, the range could be extended to around 120 miles, but this battery pack ran into the tens of thousands of dollars. Yet, as Paine argues, the important thing to recognize is that GM succeeded in creating a low-maintenance, sporty commuter EV that people could really drive to work. In time, it is inevitable that economics of scale will drive down battery costs. Paine shows how lithium-ion cells (essentially laptop batteries) are used to create prototype electric cars with 250-mile range. These batteries are currently beyond the means of most consumers, but just as prices are now declining on NiMH batteries, Paine suggests, so too will lithium-ion batteries someday become economical, bringing EV ranges into line with those of gas autos.

By contrast, fuel cells and hydrogen fuel tanks are still prohibitively expensive, driving the cost of fuel cell prototype cars up to \$1 million each. And while EVs can tap into an existing electricity distribution grid, a hydrogen distribution system will come at an astronomical cost. Finally, there is still no commercially viable method for producing hydrogen that does not consume fossil fuels in the process—defeating the very purpose of the fuel cells.

As Paine argues, this all points to the conclusion that hydrogen fuel cell technology is still 20 or more years away from fruition, while EV battery technology works today, and is getting better all the time. By endorsing a technology that is a long way from making any impact, oil companies are greenwashing themselves while decimating a legitimate EV alternative and safeguarding petroleum sales. The use of fuel cells by the Fed and Big Oil to forestall the progress of EVs—this insight is not only the most telling bit of evidence in the murder mystery, but also the film's most subversive point. It shows how the government's entanglement with corporate capital prevents it from serving the interests of the people. It also reveals how capitalism, once the dynamo that pumped out new technologies and multiplied efficiency, has devolved to the point that it is now fettering, rather than spurring, the development of a technology that we desperately need.

Even if fuel cell technology does mature in the next 20 years, battery technology will continue to improve as well, making it harder for fuel cells to outperform EVs. Advances are presently being incorporated into hybrid gas-electric cars, which use battery-powered motors in tandem with internal combustion engines. As Paine shows, plug-in hybrids will

soon be available that run on electricity alone for the first 30-60 miles before switching over to hybrid mode, offering a transitional gas-electric car that brings us one step closer to driving true ZEVs.

Paine is smart to cite plug-in hybrids as proof that EV technology works, but ending his film with an upbeat advertisement for them is damaging to his overall case. Just as *An Inconvenient Truth* closes by urging individual conservation efforts rather than class-based action against polluting corporations, Paine ends by extolling the plug-in hybrid for introducing a pseudo-EV by stealth. After building up the viewer's frustration and disgust for 80 minutes, this ending squanders much of the viewer's anger and political will, taking some of the bite out of Paine's exposé. Having convinced us that serious government malfeasance has occurred in the service of private capital, he suggests that EVs, or at least newfangled plug-in hybrids, will emerge out of the interplay of market forces, nudging us all toward cleaner air.

Paine is right to judge oil companies, car companies, fuel cells, the CARB, and the American government guilty of "murdering" the EV1. And his evidence strongly supports the conclusion that the batteries were not truly at fault. However, it is backward to blame consumer indifference as one of the factors leading to the EV's demise, and it is naïve to suggest that buying plug-in hybrids is the truly progressive way to fight global warming. Given the outright conspiracy of interests aligned against the EV1, the limp advertising campaign that it suffered, and the reactionary decision by the CARB, even the most enthusiastic consumer response would not have saved the car.

Blaming consumers, and exhorting them to embrace new technology as individuals, sidesteps the role of forces far more powerful than consumer choice. Confronting the problem of environmental devastation from inefficient energy use—and among the solutions are not only the promotion of new types of automobiles, but also the construction throughout the world of efficient systems of public transportation, as well as the move away from coal-driven energy plants—requires a systematic, scientifically motivated and internationally coordinated investment of resources. But such a program, urgently needed to head off global warming and other environmental ills, cannot be implemented within the framework of a social system that subordinates everything to the interests of private profit.

Paine deserves praise for his courage and insight in this documentary, but the task of drawing political lessons from the film, and of exacting justice for the crime that was committed, will have to fall to others.



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