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Testimony of the Connecticut Fund for the Environment  
Before the Energy and Technology Committee

**In Support of H.B. 5681, an Act Concerning Fuel Cells**

Submitted by Curtis Johnson, Program Director and Senior Attorney  
February 26, 2008

The Connecticut Fund for the Environment ("CFE") offers qualified support for H.B. 5691, an Act Concerning Fuel Cells. In summary, by aggressively investing in fuel cell buses, Connecticut could become a global leader in fighting global warming, provide strong support for hydrogen based fuel cell buses, which UTC has developed as a home grown technology, and provide cutting edge, clean and modern bus service. It will be successful if this investment is linked to an overall investment in bus service expansion, so we can enjoy a cost-effective 80% increase in bus ridership across the state, a goal that is consistent with our state's global warming objectives. However, forcing ConnDOT to invest in this expensive technology using existing resources would effectively be a roadblock to needed bus service expansion.

CFE, with a total membership of approximately 6,000 Connecticut members, uses law and science to defend Connecticut's air, land and water

It is important to go into this investment with our eyes open. Fuel cell buses are a solid, but at this point, very expensive technology. At \$2 million per bus, this technology is nearly 6 times more expensive than the low emission diesel buses the Department is purchasing for a bit over \$300,000 per vehicle. (See attached March 2, 2008 *New York Times* article).

Unless the General Assembly leaders and the Governor are willing to strongly support this investment as part of an entire investment package in expanding bus transit across the state, this concept could become no more than a costly distraction. The Committee must understand that in investing in the UTC fuel cell buses, we will be subsidizing the production of these buses from the costly prototype scale to a production scale, in part to launch a Connecticut based green product. If this investment is made consistently and aggressively, hopefully in concert with strong federal cost-sharing, and as part of a "pooling" of other public orders being undertaken by Bill Clinton's sustainable foundation effort, then it could result in several substantial public benefits.

First, if UTC were to agree to manufacture the fuel cells and hopefully other components of the buses here in Connecticut, this will create good state manufacturing jobs. Second, if Connecticut were to purchase 25 fuel cell buses per year (at \$50 million in bonding per year), this could become a substantial part of the 100 bus/year order that UTC has identified as a target needed to reduce the cost of these buses by at least 50%. (Rauch, Jonathan, "This is Not Charity", *The Atlantic*, October '07.) If successful in making the transition from prototype to cost effective production, Connecticut and UTC could become global suppliers of a cost-competitive highly green technology. If this

investment were to be highly federally subsidized, then state bonding costs could be further reduced.

It is critical for the Committee to place this investment in context with the potential we have for expanding bus transit in a cost effective manner. CFE and the Transit for Connecticut Coalition released a report completed by the consulting group Urbitran in February of 2007. This analysis concluded that bus ridership in Connecticut can be increased 80% through a very cost effective investment in expanded service. The advantages of nearly doubling clean bus service is obvious: a reduction in global warming, reduced congestion, increased job access and better opportunities for employers to attract and retain qualified employees here in Connecticut. To achieve these benefits, we will need to invest in both clean buses and approximately \$60 million per year in operational funding. The outcomes of such an investment will be an environmental and economic win-win.

The bottom line is that a state investment in a fuel cell bus fleet would be a terrific concept, IF, ConnDOT, the Governor's Office, and our Congressional leaders were to commit to a vision for an expanded, modern, non polluting bus system that is supporting a Connecticut based fuel cell manufacturing opportunity. Strong leadership will be needed to actualize these goals. Anything less could result in ConnDOT's scarce existing capital transit resources being siphoned toward buying a few fuel cell buses at a great price disadvantage. If inadequate existing resources were to be directed toward such a costly technology, it will effectively block the possibility of expanding bus service in Connecticut – a very bad outcome.

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## THE WEEK; For Hartford, a Fuel-Cell Bus Milestone

By JAN ELLEN SPIEGEL

HARTFORD now has the only fuel cell bus operating east of the Rocky Mountains, a zero-emission vehicle that is among a few dozen running anywhere in the world. The bus represents an important milestone on a municipal mass transit stage that is increasingly mindful of global warming and other pollution issues. But at \$2 million, it is unclear whether it is cost effective.

The price is nearly six times the cost of each of the 650 full-size conventional diesel buses running in Connecticut and \$1.5 million more than each of two diesel hybrid buses that have been running in Stamford. "That's the \$64,000 question," said Michael A. Sanders, public transit administrator for the Connecticut Department of Transportation. "There's a benefit to having no emission from a tailpipe, but it's not worth a million and a half to me."

Jan van Dokkum, president of UTC Power in South Windsor, the division of United Technologies that developed the fuel cell for this bus and others running in California, said all the buses were still in a demonstration phase. He said UTC was continuing to refine the fuel cell, which combines hydrogen and oxygen to produce power, as well as the overall system, which is actually a fuel cell/electric hybrid. He expected the price eventually to compete with diesel hybrid buses.

"It's about twice as efficient as a diesel bus," Mr. van Dokkum said. "It has no emissions and no noise. It's a very steep price, but like anything in technology, you need to start somewhere."

Industry experts believe fuel cell buses and other fleet vehicles show more promise than fuel cell cars, in part because the fueling apparatus can be centrally located. Part of the \$2.9 million Federal Transit Administration grant that financed Hartford's bus went toward building a fueling station at UTC Power. The station produces hydrogen for the fuel cell through a process that uses natural gas and produces greenhouse gases, mainly carbon dioxide.

The Hartford bus has a range of 300 miles, can reach 60 miles an hour and is running on the free downtown shuttle route.

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