

Straight Shooting Spencer

In an exclusive Q&A, Energy Secretary Abraham sheds light on his vision of the transportation future and the role natural gas vehicles could play in it

When former Michigan Senator Spencer Abraham took over as Energy Secretary in early 2001, he was handed the opportunity to shape the Dept. of Energy's — and America's — energy priorities and policies. Now, more than three years later, Abraham has engineered a major shift at DOE with respect to transportation fuels and vehicles, having positioned the agency as a catalyst to development of hydrogen-based technologies. Under the Bush Administration's FreedomCAR and Freedom Fuel initiatives, the federal government plans to spend billions of dollars on hydrogen research, development and demonstration. Where does that shift leave natural gas vehicles? Have NGVs lost their relevance and their support within DOE? Hardly, claims Abraham, in this exclusive interview with Natural Gas Fuels.



NGF: With gasoline and diesel fuel prices rising, there is renewed public interest in our dependence on foreign oil. Could you briefly explain DOE's long-term and short-term strategies to reduce the use of gasoline and diesel fuel in transportation?

Secretary Abraham: As the President outlined in his State of the Union address last year, our long-term vision is for a vehicle transportation system based on hydrogen.

Our efforts today are focused on the R&D that will allow industry to be able to make the "business case" for practical, affordable fuel cell vehicles and the infrastructure to refuel them by 2015, leading to mass market introduction by 2020.

Hydrogen can be made cleanly from a variety of abundant, domestic energy resources. Virtually all hydrogen made today comes from natural gas, which is a relatively clean, low-carbon method of production.

Hydrogen also can be made without greenhouse gas emissions using renewable energy and nuclear energy. If we develop affordable methods of carbon dioxide capture and sequestration, we also will be able to make hydrogen from our abundant coal reserves.

A hydrogen transportation economy would address several critical public policy problems simultaneously, lessening our dependence on foreign oil, reducing our greenhouse gas

emissions and improving urban air quality.

Until hydrogen fuel cell vehicles are commercially available in large numbers, we have a two-part strategy to reduce our use of foreign oil based on improved efficiency and petroleum displacement. First, we are encouraging the production, purchase and use of hybrid-electric and other high-efficiency petroleum vehicles. These will help reduce our petroleum demand by increasing miles driven per gasoline or diesel gallon used.

The second part of our strategy is to encourage the use of alternative fuel vehicles — including natural gas vehicles. Every gallon of ethanol, biodiesel, propane or natural gas used to power a vehicle is one gallon of petroleum we don't have to import.

NGF: You mentioned natural gas vehicles. What is DOE's view of NGVs?

SA: We see NGVs as playing an important role, especially in targeted markets where the benefits of natural gas can have the biggest impact.

Every dedicated NGV in use displaces 100 percent of the petroleum that vehicle otherwise would use. Therefore, a growing NGV market is good for America since it helps reduce the amount of oil we need to import.

The problem we face with NGVs is that there is a high first cost because manufacturers do not produce these vehicles in large numbers and, therefore, they don't get the full benefit of high production volume.

The good news is that the price per gallon equivalent of natural gas is currently less than gasoline or diesel, providing the consumer an opportunity to earn back this incremental cost.

We think the best place to focus our effort is on high-fuel-use fleet vehicles: transit buses, trash trucks, school buses, taxis, shuttle vans and the like. Since they use a lot of fuel, these fleets are in the best position to take advantage of the lower cost of natural gas to recover the incremental up-front cost. By promoting NGVs in fleets, we hope to increase demand to the point where the incremental cost of NGVs will begin to drop.

NGF: The NGV industry strongly believes NGVs are a critical pathway to hydrogen vehicles. What is your view on that?

SA: As I said earlier, the benefits to America of a hydrogen-based transportation system are huge. But we also are aware that there are many technological, economic, regulatory and other barriers that must be overcome for that to happen.

There certainly is a role NGVs can play today in helping overcome some of the barriers for hydrogen vehicles tomorrow. For example, a hydrogen transportation system will need a significant human resource support structure. This includes specialists such as mechanics, inspectors and fire marshals who are familiar with gaseous fuel vehicles and fueling stations.

The NGV industry is already helping to create that support structure. Owners of maintenance garages and similar buildings in which hydrogen vehicles will be serviced will need to invest in modifications to house hydrogen vehicles safely. Buildings designed or retrofitted to safely handle NGVs already have made most of those changes.

Then there's public acceptance. The public is very familiar and comfortable with liquid transportation fuels but generally unfamiliar with gaseous transportation fuels. As NGV use grows, the public is becoming more familiar with and accepting of gaseous fuel vehicles. This too will make the transition to hydrogen vehicles easier.

NGF: How about after hydrogen vehicles begin to enter the market? Do you see NGVs still having a role?

SA: I don't foresee hydrogen vehicles being introduced in all vehicle weight classes and applications simultaneously. They'll first enter the market in those applications where they make the most sense, then expand from there. So I think we should expect vehicles with internal-combustion engines to continue playing a major role in our transportation mix for quite some time, especially in heavy-duty applications.

To the extent NGVs in these applications continue to offer petroleum displacement and air-quality benefits, I would expect that NGVs would be an attractive option and play a complementary role to hydrogen vehicles.

NGF: It appears one of the most critical unresolved questions about the introduction of hydrogen vehicles concerns the source of the hydrogen. The NGV industry

argues that reforming natural gas at the fueling station is the best option. Does that position have merit?

SA: One of the most attractive qualities of hydrogen is that it can be produced from a variety of sources. But in the near term, hydrogen produced from natural gas at distributed refueling points is probably among the first that will be available to consumers.

Because natural gas can be readily transported by existing distribution lines to fueling station sites, reforming natural gas at the site where hydrogen is needed currently is the preferred hydrogen option for virtually all commercially operating stationary fuel cells. Locating a small reformer at an existing NGV fueling station is one option being pursued for the transition period. Over the long term, we will want to see many different methods and options available in the marketplace.

NGF: What one message would you like to communicate to the companies that comprise the NGV industry?

SA: I'm proud to say the Dept. of Energy has played an active role in promoting the growing use of natural gas vehicles. And while we're not as far along as we want or need to be, collectively NGVs have made substantial inroads. More than 20 percent of transit buses on order today, for example, are natural gas buses.

That's real progress, and we need to build on that. DOE looks forward to continuing to work with the NGV industry to increase the number of natural gas vehicles on America's roads and the number of natural gas fueling stations providing fuel.

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The Natural Gas Vehicle Coalition was instrumental in helping set up the exclusive interview with Secretary Abraham.

For more information on clean-burning natural gas vehicles contact the Natural Gas Vehicle Coalition 202-824-7360 or visit www.ngvc.org.