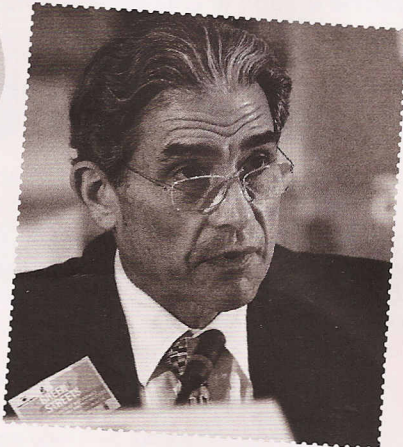


Interview with

Dr. Jeffrey M. Seisler

CEO Clean Fuels Consulting



Czas na Gaz: *You have had a very long and visible career as a natural gas vehicle advocate, and now advocating for the broader 'clean fuels'. Can you please describe a little about your background, from where you are coming and what you see into the future, now that you have opened up a new business in Brussels?*

Seisler: Although I am an American, I have had the good fortune to create a dual-continent life in Europe and the United States, as well as travel to many countries around the world, sort of with a 'world citizen' perspective. This fits with my educational background in that I received my first university degree in international relations in Washington, D.C. and then moved to London where I completed my Masters of Science and Ph.D. in international relations, with a special focus on conflict resolution, decision making and communications. Returning to Washington, D.C., I became heavily involved in the energy business – electric, natural gas and renewable energies – as a management consultant and policy analyst. In 1983 the America Gas Association, which was a client of mine for several different assignments, was looking for someone to focus the association's efforts to build a market for natural gas vehicles. The rest is 'history,' so to speak.

In 1988 a group of US gas company presidents decided to start the Natural Gas Vehicle Coalition in order to provide a 'rifle shot' focus on NGV market development. After five years working with the fledgling natural gas vehicle industry, including involvement in the establishment of the International Association for Natural Gas Vehicles in 1986 (IANGV), the A.G.A. leadership viewed me as the likely candidate to run their new NGV Coalition.

In 1992 I started advocating the development of a worldwide network of associations that could be the focal point of NGV activities in Europe, South America and the Asia-Pacific region. That led to the establishment of the European NGV Association (ENGVA) and I was fortunate that their new Board of Directors asked me to leave Washington and attempt to do what we had accomplished there but with a European flavor and focus.

In thirteen years at ENGVA we had a remarkable run. NGVs went from being a technology familiar in Italy, Russia and to some degree in the Netherlands to being much better known, and with an organized industry representing a strong contending alternative fuel alongside LPG, hydrogen, and the rest. ENGVA became a known entity at the European Commission, Parliament and the United Nations in Geneva, something that has put the industry in good stead today.

In September 2007 I moved to Brussels after having travelled there 15-to-20 times a year for thirteen years at ENGVA to start my own lobbying and consulting practice. My mission, very simply, is to facilitate the commercialization of clean fuels and technologies. I am very fortunate now to be able to continue my lobbying and analytic activities but now not only for NGVs, although that continues to remain a principle focus of my business practice.

Also, I have been fortunate to be continually engaged in visible ways with policy leaders at the Commission, Parliament and at the UN on behalf of the IANGV. I have been asked to actively participate at Commission conferences, speak at lobbying initiatives in Parliament, and generally stay engaged with government decision makers in my attempts to advocate a more balanced approach to what I see as a European Alternative Fuels Policy. This was the theme of our first ENGVA press conference in Brussels in 1995 and is consistent with my approach today and into the future.

Czas na Gaz. *Brussels is a logical place to be as a lobbyist and clean vehicle advocate. It seems like there is a lot of competition among the alternative fuels and that NGVs and LPG are confronting some very large challenges in the political arena in Brussels.*

Seisler: It is true that there is a lot of attention focused on fuel alternatives other than NGVs and LPG. Over the years we have seen a roller coaster of support for different fuels but the gaseous fuels have had difficulties capturing the limelight despite their commercial success in having more vehicles on the roads worldwide than any other alternative fuel.

In the 1980s there was enthusiasm for methanol but the great challenges of creating a commercial, public market for an expensive, difficult-to-handle fuel overcame its ability to achieve market success. In the late 1980s and early 1990s the policy enthusiasm turned for a short time to electric battery vehicles but the technology wasn't ready for prime time and vehicle manufacturers didn't want to be mandated to build cars they thought they could not sell. In the mid-1990s policy makers in Europe, the US and Japan became captivated by fuel cells and hydrogen. The fuel and technology has a lot of 'sex appeal' if renewable electricity can be used to establish a pathway to a hydrogen economy. Despite the fact that, in Europe alone, between 1986 and the end of the current Framework Program 7 (FP7) in 2012 €1.028 billion will have been spent on the technology, a great many issues continue to challenge

H2Vs rapid market growth. Hydrogen fuel cells hold great promise for the future but government enthusiasm is being tempered somewhat now that the long lead time into the commercial market is becoming more apparent.

In the early years of the 21st century hybrid vehicles became the rage on the heels of the success of the Toyota Prius. This came after decades of the auto industry claiming that hybrids were, what I call, 'Two Cubed (23)': two drive-trains; too complicated; and too expensive. But they run principally on gasoline and that was attractive to car makers, particularly compared to the 'chicken and egg' challenges of natural gas, LPG and hydrogen. Then, of course, policy makers became enamored by liquid biofuels, mostly ethanol made from a variety of food and non-food-chain plants. For the past several years as the European energy and climate legislation package unfolded, policy makers were being overly ambitious about their plans to replace 10% of the transportation fuels with biofuels.

The other problem is that policy makers have to be continually reminded that biogas and biomethane also are biofuels and that they should be considered more strongly in the European biofuels program toward 10% replacement of transport sector petroleum. Now that liquid biofuels are being questioned as to their 'sustainability criteria', which I believe will be nearly impossible or too complex to define to be useful, policy makers now are stricken with their next alternative fuel love affair: electricity and electric vehicles (EVs). Again, there is great promise for EVs of various kinds and for different applications but the technology shares the same two main problems as all the alternative fuels: energy storage (and thus vehicle range) and the development of a compatible fuelling infrastructure, what we call the 'chicken and egg' problem.

Czas na Gaz: *So what is the political future, especially in Europe, for alternative fuels and particularly the gaseous fuels?*

Seisler: The European Commission issued its five year work program this April 2010. For energy and environment it includes a wide range of 'communications' and a couple of new potential directives. One with serious potential – and some dangers to the fuels industries – is a revision of the Energy Taxation Directive. That will require some serious attention in order to prevent a sudden market distortion – i.e. fuel price increase – at the hands of legislators and regulators who take a preference in, for example, electric powered vehicles to the exclusion of others.

The other possible legislative effort will be the Commission initiative to go beyond 20% to 30% green house gas emissions reduction by 2020. Pending the outcome of a 2010 analysis, this could become a reality. If it does, the gaseous fuels should have a role to play. Additionally there will be communications on an Energy Action Plan 2011-2020; a communication on implementing the biofuels sustainability scheme; an interim document in the preparation of the Energy Action Plan and the Roadmap to low carbon energy 2050; and others. These need to be continually monitored as they develop to ensure that the various alternative fuel stakeholders each are represented in a balanced way. If we're not at the table we'll either be ignored or walked on.

In the same timeframe that H2Vs have received huge subsidies, NGVs have been the subject of about €20-25 million in funding from the European Commission; LPG almost nothing. In April, at the 3rd European Biofuels Technology Platform meeting it was announced that they would be requesting €8 billion over ten years to support research and demonstration of seven different 'value chains' of biofuels. Fortunately, one of those value chains also includes biogas, however, many policy makers at the Commission and in Parliament have leaned toward using biogas as an electricity generating fuel rather than a fuel for vehicles. Again, a strong lobbying presence in Brussels will need to focus on achieving more balance in these policies and the way in which the money is spent.

Czas na Gaz: *Clean Fuels Consulting has held two Critical Issues Workshops: LNG is Hot in December 2009 and a Dual Fuel (Gaseous/Diesel) Engine Workshop. Were these well received and what results were achieved?*

Seisler: The workshop, "LNG is Hot: Opportunities, Challenges & Strategies as a Vehicle Fuel," brought 65 people from four continents and the Dual Fuel (gaseous/diesel) Engines: Opportunities, Challenges & Strategies to Expand the Market," workshop had 75 people, also with guests from as far away as Australia, New Zealand,

and Brazil. The response has been extremely favorable from the participants: both achieved ratings of 'very good-to-excellent' by 92-95%.

The Critical Issues Workshops are designed to focus on important industry issues that need strategic attention to overcome immediate hurdles facing their commercial expansion. In the case of LNG one of the key findings was that international standards must be developed for fuel tanks, fuel connectors, fuelling stations, and more. The LNG workshop resulted in an immediate increase in the number of LNG stakeholders who joined the efforts at the International Standards Organization (ISO) to develop these standards where beforehand the efforts were struggling due to a lack of expert participation from the industry. We also identified other challenges in fuelling, distribution and technology that face the industry and, which I am confident, will be addressed in due time.

The Dual Fuel workshop was designed as an initiative to develop engine certification procedures and regulations so that these natural gas and LPG-diesel combination engines don't have to suffer through country-by-country certification as is now the case. Now that Volvo, Bosch, and others are developing dual fuel products it is imperative that regulations at the UN – and likely Europe as well – be created so these clean and economical products can see much more substantial market growth. The workshop was an informational, networking, and lobbying opportunity. Key government officials involved in emissions and engine regulations from the European Commission and several important member states spoke and participated, making it a very powerful and effective meeting that has resulted in new moves to create certification regulations for dual fuel and high pressure direct injection engines.

All the Critical Issues Workshops, including one in 2008 on CNG and Hydrogen cylinders result in the development of a very focused strategic plan, or roadmap, that draws conclusions from two days of discussion and analysis. This, then, becomes a tool and guideline for these select market segments to come together to help confront and overcome their market-place challenges.

Czas na Gaz: *What is your view about the current developments in the world for NGVs and LPG vehicles?*

Seisler: Overall I am very positive about the prospects for both of the gaseous fuels, natural gas and its derivatives – LNG and biomethane – as well as LPG. Apart from the well-known environmental benefits of the gaseous fuels, they are the only ones among all the other alternative fuels that are cheaper than gasoline and diesel fuel. Although the vehicles still come at a premium price over petroleum-based vehicles the savings from the fuel costs will continue to drive customers to look for these clean, abundant and economical fuels.

LPG today has about 13 million vehicles worldwide; about 7 million in Europe. Natural gas vehicles are closing the gap as they approach 11 million vehicles worldwide and about 1.2 million in Europe. There has been extraordinary growth in Asian and South American markets, in particular, for both fuels and this will likely continue as the international thirst for oil and the new supplies of natural gas continue to grow.

There also are new opportunities facing the industry: moving into transport hubs such as airports and seaports. There is tremendous potential for 'LNG on the sea', both in port facilities as well as powering ships. With changes in fuel quality rules for shipping, both on the sea and inland waterways, gaseous fuels could have a new and expansive market. This has been demonstrated effectively in the US in Los Angeles, Long Beach, California and is having some beginning success in Europe. The fact is that there is no more 'low hanging fruit' in the gaseous fuels markets. The industry is going to have to focus on many new opportunities and that will be the way into a sustainable, long term market.

Czas na Gaz: *Thank you for this interesting notes and good luck in your future projects.*