

AEGPL/PARLIAMENT MAGAZINE

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Balanced Policies for Alternative Fuels

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Purpose of today's remarks

- Make some observations about past & present policies that have been designed to encourage the increased use of alternative fuels.

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- Offer some thoughts and options for approaching alternative fuel policy making with a new perspective:
 - more holistic/systemic: to marry up problems and solutions, and not create problems because of our selected solutions or omissions
 - more balanced
 - that looks to the future but supports the fuels and technologies that will take us on the pathway to get there.

ALTERNATIVE FUELS ('energy carriers')

The Principal Players

- **LIQUID BIOFUELS** (blends, up to 85%..or more?)

- Ethanol
- Biodiesel

- **GASEOUS FUELS**

Liquefied Petroleum Gas (LPG) (butane/propane) 40% petrol derived; 50% NG derived

Methane (CH₄)

- Natural gas (fossil)
- Liquefied natural gas (-163° C)
- Renewable biogas upgraded to bio-methane for vehicles

Hydrogen (gas or cryogenic liquid)

- **ELECTRICITY**

- Various hybrid strategies
- 100% electric plug-in batteries

THERE ARE NO FUEL PANACEAS

Every fuel has its benefits & challenges (using petrol & diesel benchmarks)

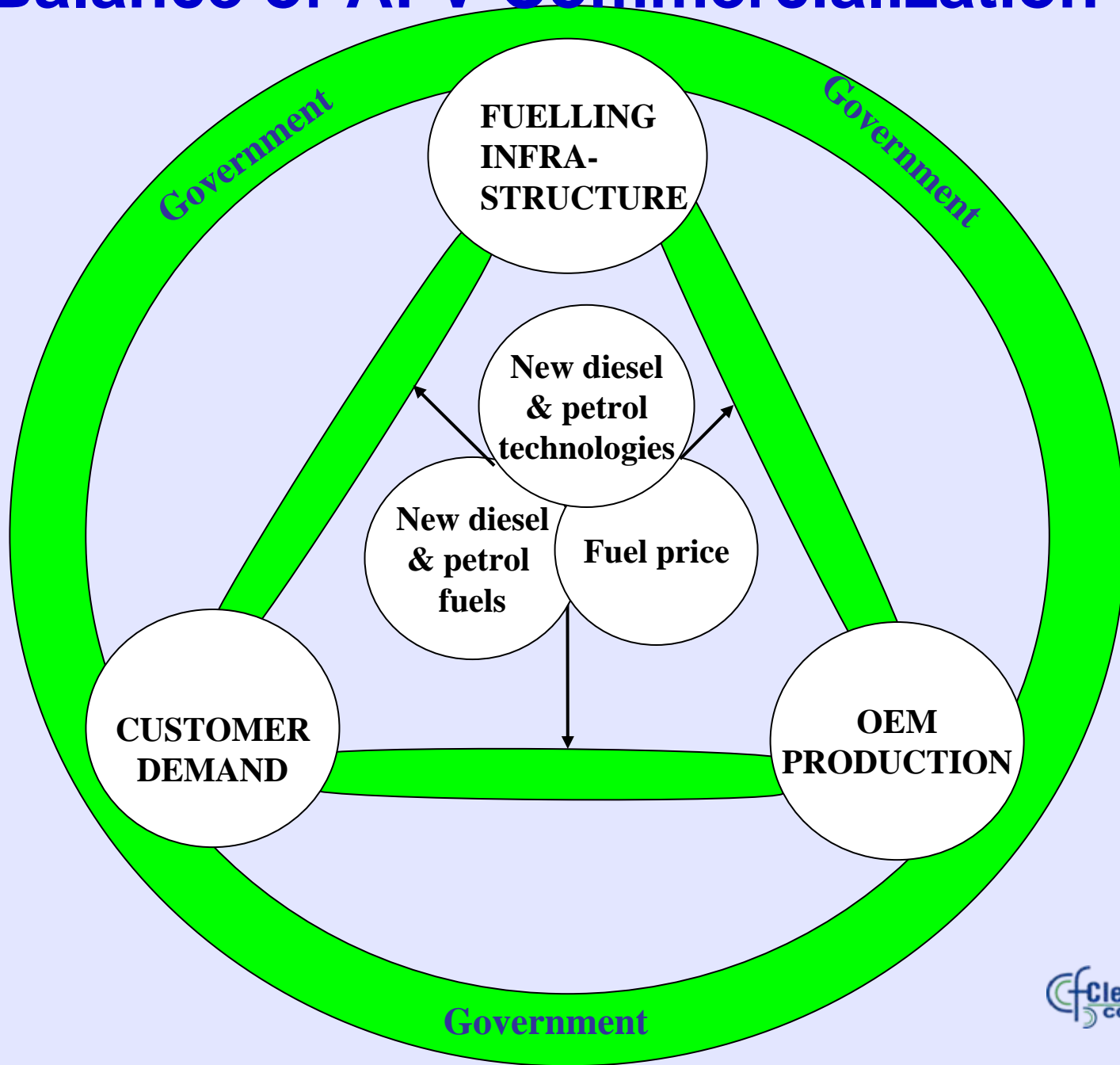
- **Cost of fuels relative to gasoline & diesel: all more expensive except LPG & NG**
- **Cost of vehicle: higher (*before critical mass*)**
- **All have energy storage problems and, as a result, issues about 'range' (kms traveled)**
- **Environmental benefits: varied**
- **Resource availability & *sustainability* of the fuels varies -- including feedstock for renewable fuels**
- **New fuelling infrastructures are needed or some modification required**

The Critical Challenge*

- Find the right balance and mix of fuels in the marketplace
- Design policies that motivate the customer to decide which technology & fuel is best for them

**Recognize that status-quo, petroleum-based liquids will be around for a long time but....*

Balance of AFV Commercialization



**‘TYPICAL’
CHARACTERISTICS
OF
ALTERNATIVE FUEL POLICY
MAKING**

ALTERNATIVE FUEL *FAVORITES* HAVE CHANGED OVER TIME

- **1980s:** Electric batteries with the prospect of ‘free energy’ from solar & photovoltaics
- **1990s into early 2000s:** fuel cell mania and the prospect of ‘cheap’ hydrogen from renewable electricity (still a ‘current’ panacea and might remain the ‘fuel of the future’ for a long time)
- **Early 2000s+:** liquid biofuels (ethanol & biodiesel)
- **2003+ :** gasoline hybrids (15 years ago hybrids = 2³: two drive-trains, too complicated, too expensive)
- **2008+** back to electric vehicles (plug-in, etc.).
- **Meanwhile:** LPG & NGVs keep coming along...steady, improving, reliable...

**EU HAS UNDERTAKEN MANY
VALUABLE AFV INITIATIVES**

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- **Incentives**

- Framework Programs (esp. FPs 4-7)
- Green Car Initiative (2008)
- Subsidies for liquid biofuels

- **Mandates (hard & soft)**

- Cars & CO2 (2008)
- Renewable Energy Directive (Targets) (2008)
- Clean Efficient Vehicle Directive (2008)

EU HAS UNDERTAKEN MANY VALUABLE AFV INITIATIVES

- **Standards**
 - Environmentally Enhanced Vehicle (EEV) standard (1999)
 - Fuel Quality Directive 2008
 - Other CEN & United Nations ECE initiatives
- **RD&D**
 - Multi million €s for H2V/FC & Electric
 - Subsidies for ethanol
 - Well-to-wheel analysis
 - Various transport sector analyses (TRANSvisions scenarios (2009); *Market Development Alt Fuels* (2003); & other studies)

Characteristics of AFV Policy

- **Somewhat whimsical** (fuel du jour)
 - Popular fuel and technology choices change at any given time (and subject to the strength of a given fuel's lobbying)
- **Disjointed & not balanced**
 - What is the goal for each fuel & the market?
 - What is the appropriate, *balanced pathway* to reach the goal?
- **Incremental**
 - Innovation in transport technologies *creep, not leap*. Money spent can't always speed technical developments.

**THERE ARE MANY
OPPORTUNITIES TO
IMPROVE EU POLICIES
FOR
ALTERNATIVE FUELS &
VEHICLE TECHNOLOGIES**

Create European Alternative Fuels Directive.

- Help reduce disjointed policy aspects & consolidate/coordinate more effective, long term transportation vision [to fit the primary policy objectives: energy security, reduced CO₂, efficiency, etc.]
- Integrate multi-faceted problems like waste management – urban, agricultural & water - into transport fuel solutions.

EU TRANSPORT POLICY OPPORTUNITIES

- **RD&D funding:** More balance funding alternatives; liquid biofuels, H2/fuel cells, & electrics/hybrids have been the 'cash cows'
 - NEAR ZERO FOR LPG & NGV..MARKET READY
- **Credits to vehicle manufacturers:** to produce & sell low CO2 vehicles . Now favor electricity (CO2 & Cars)& fuels from biomass (Fuel Quality Directive); but not gaseous fuels.

EU TRANSPORT POLICY OPPORTUNITIES

- **Clean Vehicle Label for OEMs & Consumers**
 - **OEM incentive & advertise achievements**
(like EEV for HDVs in Euro IV)
 - **Enhance customer decision making**
- **Expand EC/EP use of AFVs (Leadership by example)**

EU TRANSPORT POLICY OPPORTUNITIES

- **Continue supporting Civitas**
- **Collect data to validate policy impacts:**
European Commission needs to better-identify cost-benefits via fuel replaced; fuelling infrastructure expansion; etc.
- **Provide training** to support mandate to purchase cleaner, more efficient vehicle (Clean Efficient Vehicle Directive)

EU TRANSPORT POLICY OPPORTUNITIES

- **Focus incentives & policies on transportation hubs:**
 - Airports
 - Seaports
- **Look carefully at opportunities & barriers to off-road AFVs**
 - Marine
 - Rail

KEY QUESTION FOR POLICY MAKERS

- **What can be done to develop a *balanced*, sustainable, and effective fuels policy (with measureable results) that fulfills the EU objectives of energy security and commitment to environmental protection?**

Visions of the Future for Alternative Fuels

- **The Ultimate Goal:** The *'commercially successful'* **alternative fuels** should become *fuel alternatives* (to petroleum).
- **How to achieve the goal?**
 - AFV proponents bear equal responsibility to be *'partners in politics'*
 - Let customers decide which fuel they prefer.
- **Understand that the future is a big place. It will take a long time to get there.**

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