

How it all began

The European Commission – Green paper on security of energy supply (Nov. 2000):

Suggested target of 20% alternative motor fuels by 2020

The next step

The European Commission's communication on alternative fuels (Nov. 2001):

A more concrete scenario

Year	Biofuel	Natural Gas, %	Hydrogen, %	Total, %
2005	2			2
2010	6	2		8
2015	(7)	5	2	14
2020	(8)	10	5	(23)

The Drivers

1. Security of motor fuel supply
2. Reduction in Greenhouse Gas emissions

The Constraints

3. Cost
4. No compromise on air quality

The approach

1. The Contact Group (stakeholders)
2. The subgroups (NGV, Hydrogen, BTL)
3. The well to wheel analysis

The methodology

1. Calculate impact of marginal changes
2. Base assessment on 2010+ situation
3. Assume mass market economics
4. Choose conditions relevant for Europe

The main findings

NGV:

No fundamental problems in achieving 2, 5, 10% substitution as foreseen. Cheap!

Hydrogen:

Timetable for introduction (2% - 2015, 5% - 2020) optimistic. Greenhouse gas reduction very dependent on hydrogen production. Cost basically unknown.

Biomass to Liquid:

Interesting but unproven, certainly expensive.

The case for NGV

1. OIL security of supply more critical than NATURAL GAS security of supply
2. CO₂ benefit by 2010:
 - 15-20% over gasoline
 - 10-15% over diesel
3. Competitive with diesel and gasoline in mass market situation
4. Improved MACROECONOMIC performance with higher energy prices

Transition Cost

Infrastructure cost is low \pm \$500 per vehicle with good utilisation

Total transition cost for EU-15:

- €3 billion (mainly vehicle)

Annual vehicle and fuel cost, EU-15:

- €400-500 billion

Cost of ownership

Incentives necessary during transition period

Predictable long term scheme essential

Conclusion

Introducing NGV at large scale
will be cheap

Not doing it will be expensive