



The Clean Energy Partnership



A Solution to decarbonise Traffic with Hydrogen

Thomas Bystry, CEP Chairman

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Strong partners developing mobility solutions for the future



DAIMLER



SIEMENS



TOYOTA

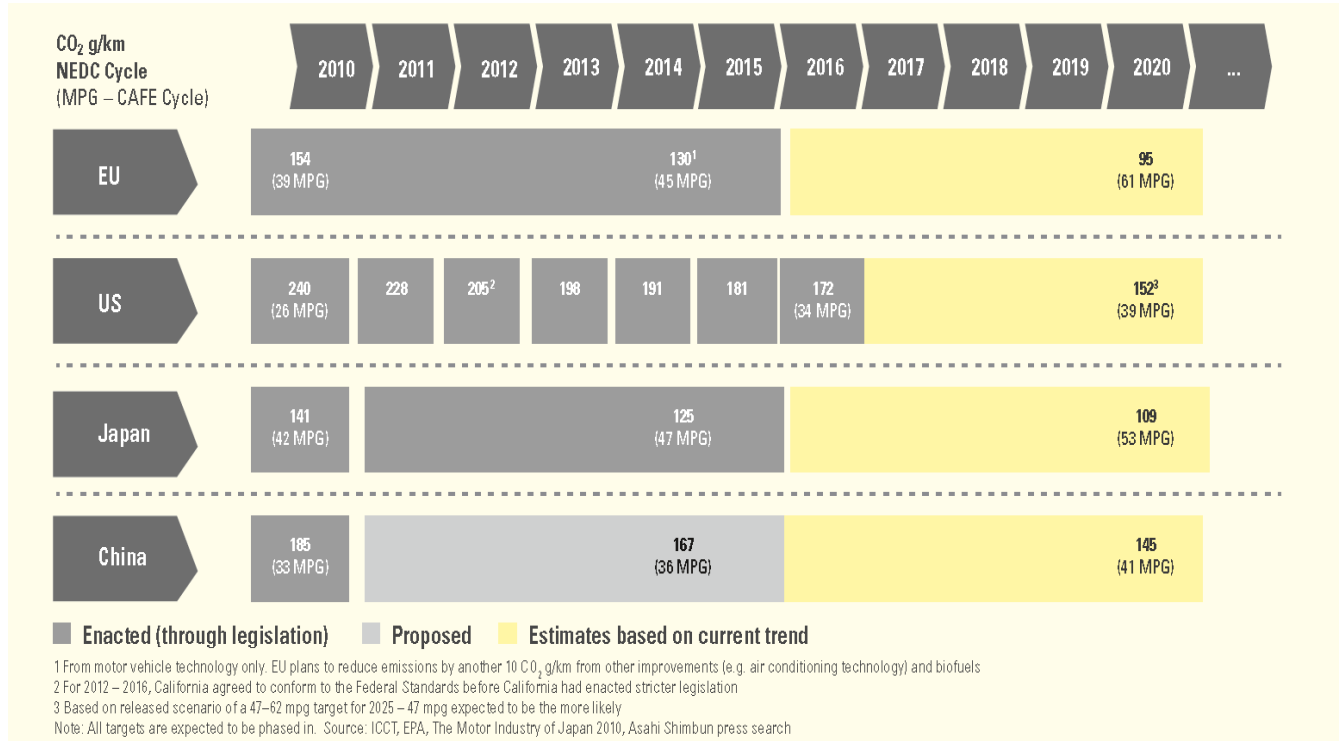
VOLKSWAGEN
AKTIENGESELLSCHAFT



Hydrogen Mobility?

- Hydrogen: A CO₂-Free Fuel And Energy Storage Mechanism

Hydrogen Has A Key role As Energy Carrier To Facilitate The Energy Transition In Germany



- CEP Rule > 50% 'Green' Hydrogen From Renewable Energy
 - e-Mobility Is Not Only Battery-Electric (BEV) But Also Fuel Cell Electric (FCEV)
- Involve! Experience! Explain! Think Hydrogen!**

The Road Map

Evolution	R&D and demonstration	Market preparation & validation	Commercial ramp-up
Timespan	Since 2006	Till 2023	After 2023
Protagonists	CEP NOW	H ₂ MOBILITY	Competitive market
Aspired outcome	H2 Refuelling Site technology up and running; Costs significantly reduced	Proof of site, car technology and H2 supply chain; Customer acceptance	Nationwide site network to enable car mass take-up; Profitable, high-growth business
Network targets	Up to 50 H2 Refuelling sites	Up to 400 sites	500 additional sites
FCEV fleet	100 H2 cars	250,000 cars	Small mass market
Profitability targets	No commercial aspirations	Significantly negative operating income	Sustainably positive operating income

Learnings & Recommendations

Partnering	Drive partnering under NGO Coordination to enable Long Term strategies and stay independent from Election Periods
Cooperation	Enable cooperation between competitors to share risk
Information	Align Strategies of Governments, OEM's, Hydrogen Suppliers and Infrastructure Providers, to speed up the "Big Picture"
Legislation	Openness to amend Legislation (from industrial regulations use to public fuel use) to ease approvals and operation
Technical	Openness to discuss technical challenges between partners to achieve improvements and cost reduction

Activities in Progress (Examples)

CEP Workgroup	Activity	Target
H2 Hardware	Test Hardware Components	Optimisation & Cost Reduction
H2 Fuelling Process	Verification Of Safe Refuelling	Embed Future Station Approval Process
H2 Metering	Test Metering Devices And Align With Weights & Measures Offices	Establish High Accurate Calibrated Metering
H2 Quality	Specification Of Adequate Hydrogen Quality Under Commercial Conditions	Develop Quality Sampling & Monitoring Equipment
H2 Codes & Standards	Exchange & Alignment With International Standardisation Bodies	Embed International Standards For Construction, Approval And Operation Of H2 Stations

CEP & H₂ Mobility – Expansion of the filling station network in Germany

