What does an issue life-cycle analysis tell us about the process of electrification of the car?

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Presentation based on Penna & Geels (2012), for the workshop:

Electrification of the car: will the momentum last?

OTB Research Institute for the Built Environment
Delft University of Technology
Delft, 29th of November, 2012

Overview

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1. **Introduction**
   - The DILC-model as an ideal-type
   - Two omissions in the original model
2. **Case study: The climate change problem and American car industry strategies (1979-2012)**
   - Summary
3. **Analysis**
   - Pattern-matching between case study and DILC-model
4. **Conclusion**
   - Future assessment

What is issue lifecycle?

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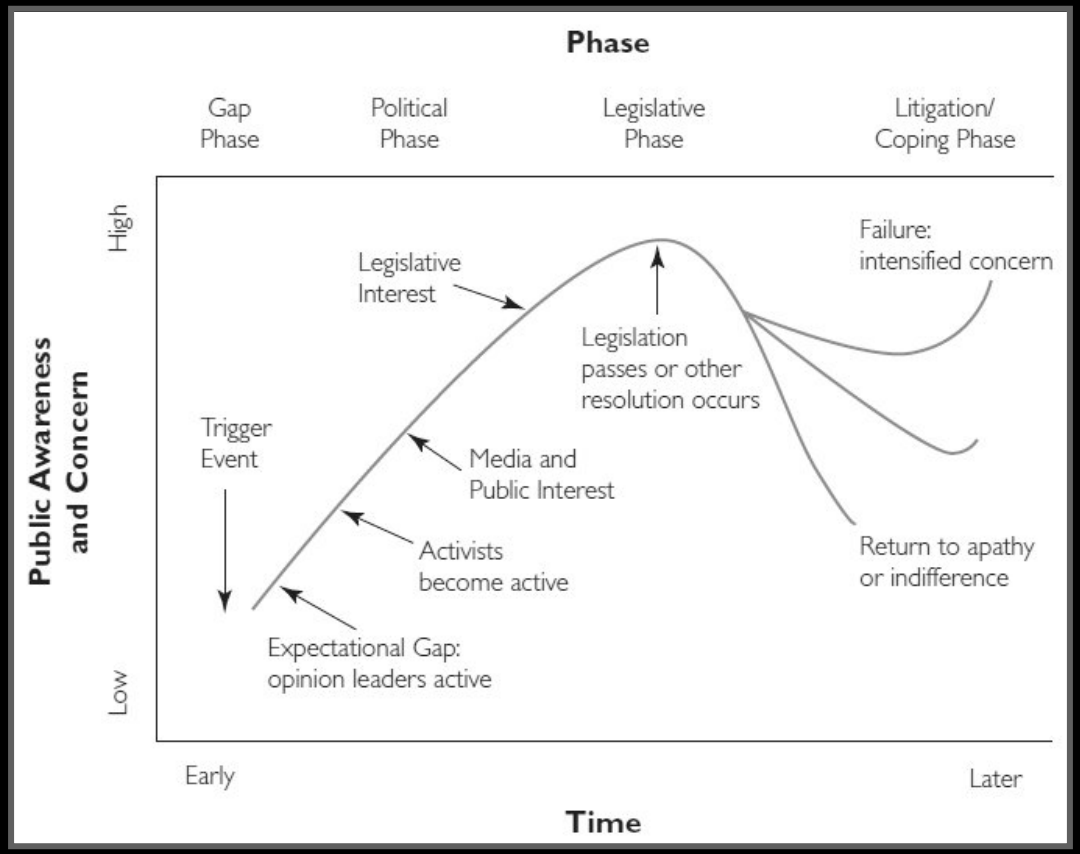

Source: *Rivoli & Waddock (2011)*

Issue lifecycle models embody the sequential stages that issues undergo in their 'lifetime'.

Two key criticisms:

- Strong emphasis on civil society and policy and relative neglect of industry strategies – little attention to innovation strategies and technological solutions;
- Assumption of linear progression through stages.

The Dialectic Issue LifeCycle (DILC) model

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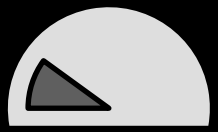
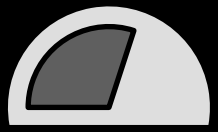
PHASE 1
PROBLEM DEFINITION AND FRAMING STRUGGLES



PHASE 2
RISING PUBLIC CONCERNS & DEFENSIVE RESPONSES

PHASE 3
POLITICAL DEBATES & INDUSTRY HEDGING



PHASE 4
POLITICAL REGULATIONS & DIVERSIFICATION

PHASE 5
SPILLOVER TO TASK ENVIRONMENT & STRATEGIC REORIENTATION

An ‘ideal-typical’ pattern of issue lifecycle, in which pressures evolve in the ‘right’ direction (i.e. towards change).

Shifting pressure-response dynamics: from cultural to political to economic and technical dimensions.

Linear view of technology strategies: from incremental through hedging to radical innovations.

Two omissions in the original model

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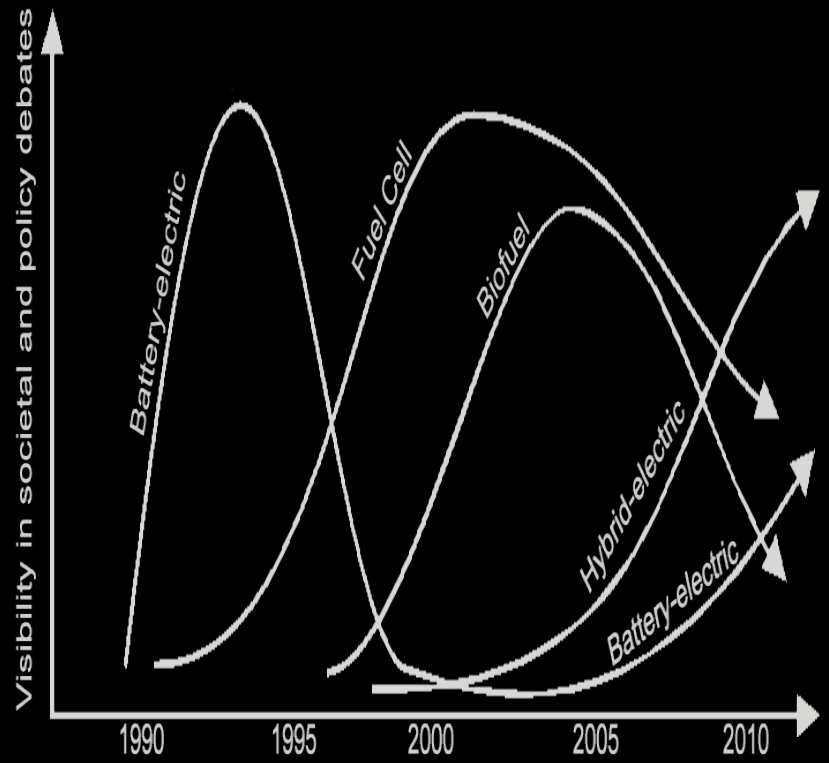
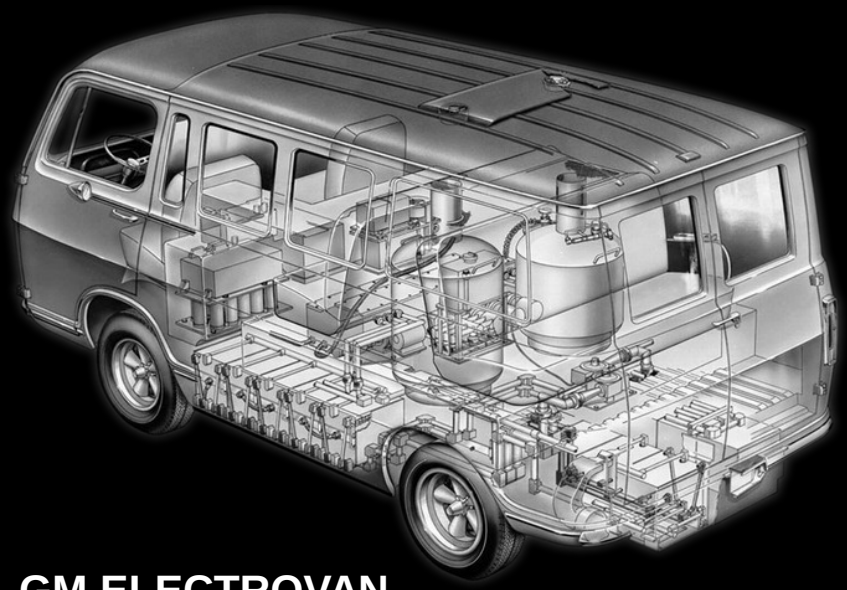
Technology hype-cycles



Source: *Geels (2012)*

Symbolic use of technologies



GM ELECTROVAN
(Fuel Cell concept-vehicle from 1966)

Source: Hydrogen Cars Now
(http://www.hydrogencarsnow.com/gm-electrovan.htm)

Case study summary: The climate change problem and American car industry strategies (1979-2012)

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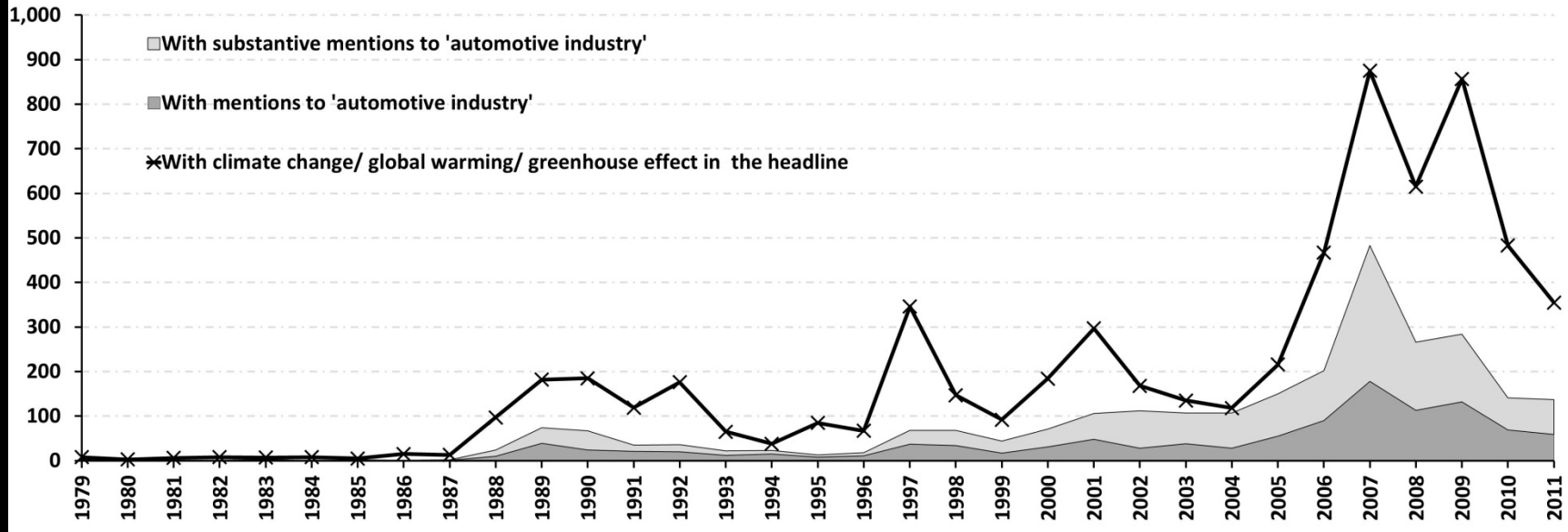
Source: The Age (http://www.theage.com.au/opinion/green-in-your-dreams-20080604-2lu1.html)

Public attention to climate change

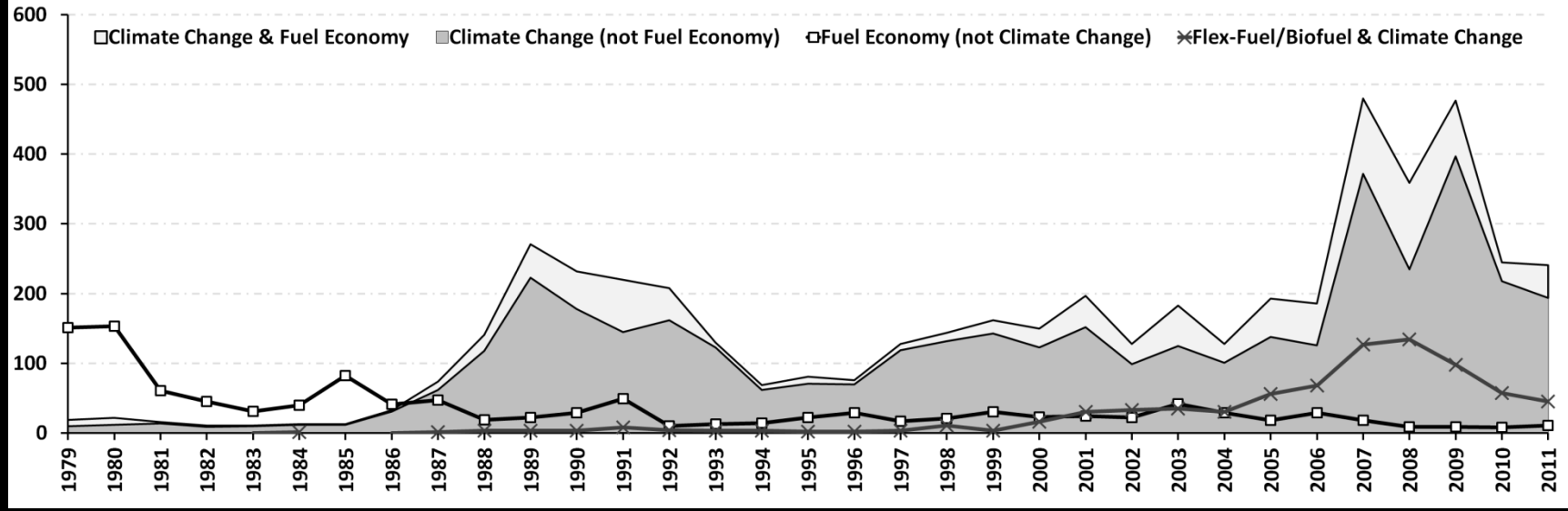
Articles published in New York Times, USA Today, Wall Street Journal & Washington Post



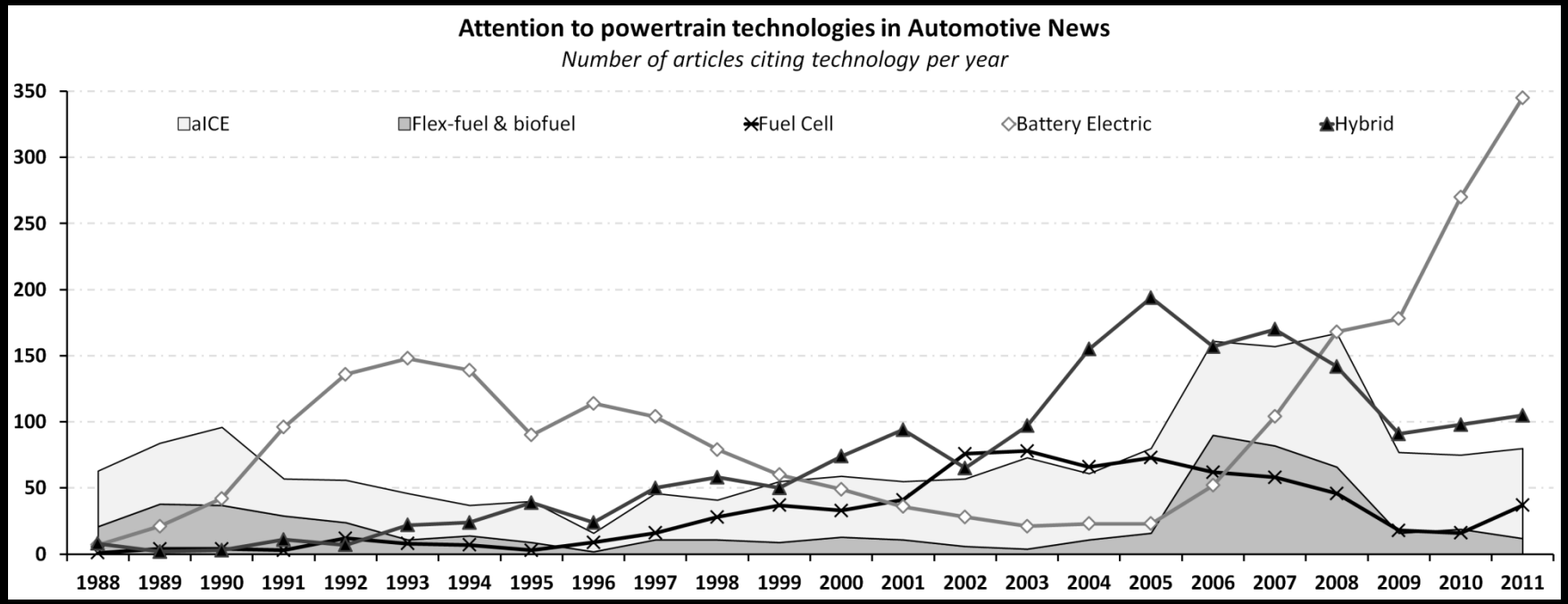
Congressional Attention

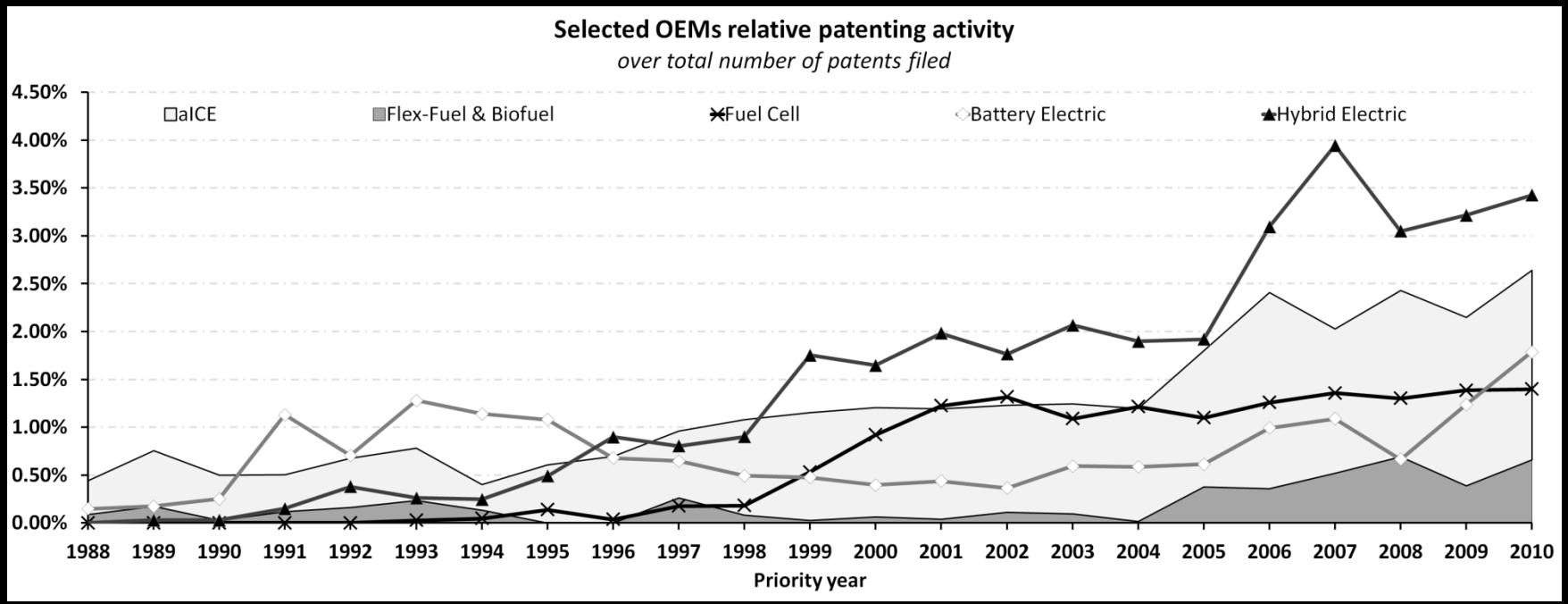
Number of issues of Congressional Record citing Climate Change, Fuel economy* or Flex-Fuel/Biofuel*

(* and synonyms)



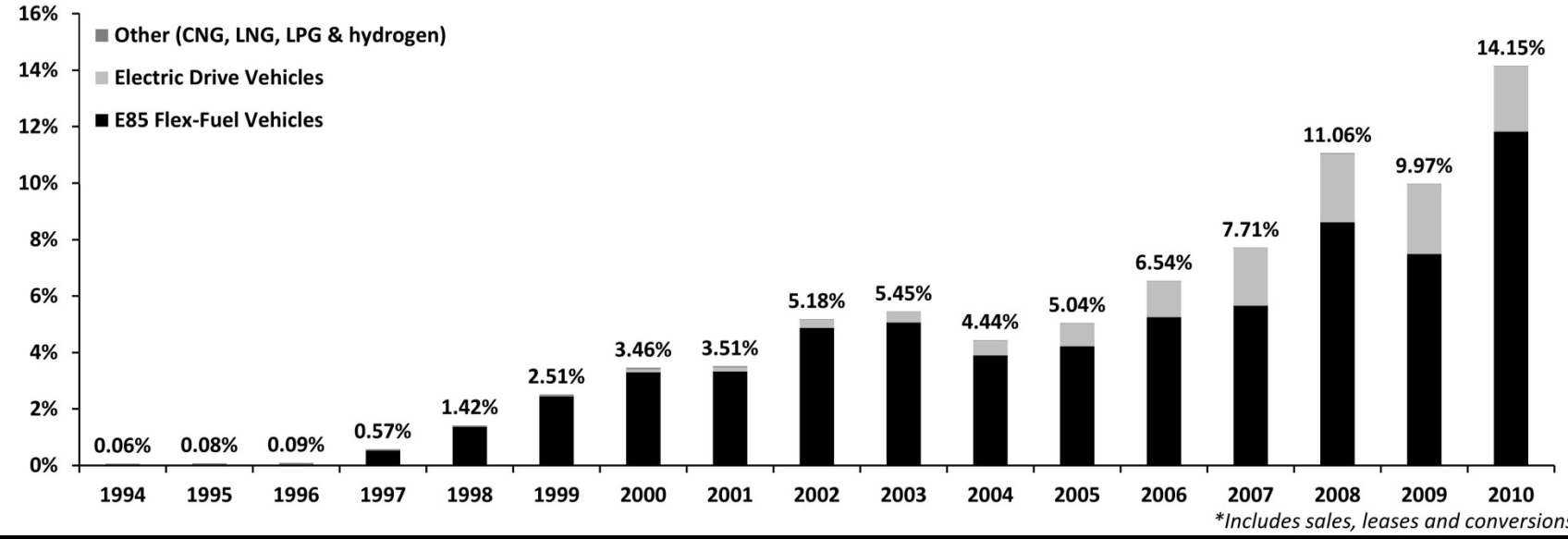
Source: Penna & Geels (2012)





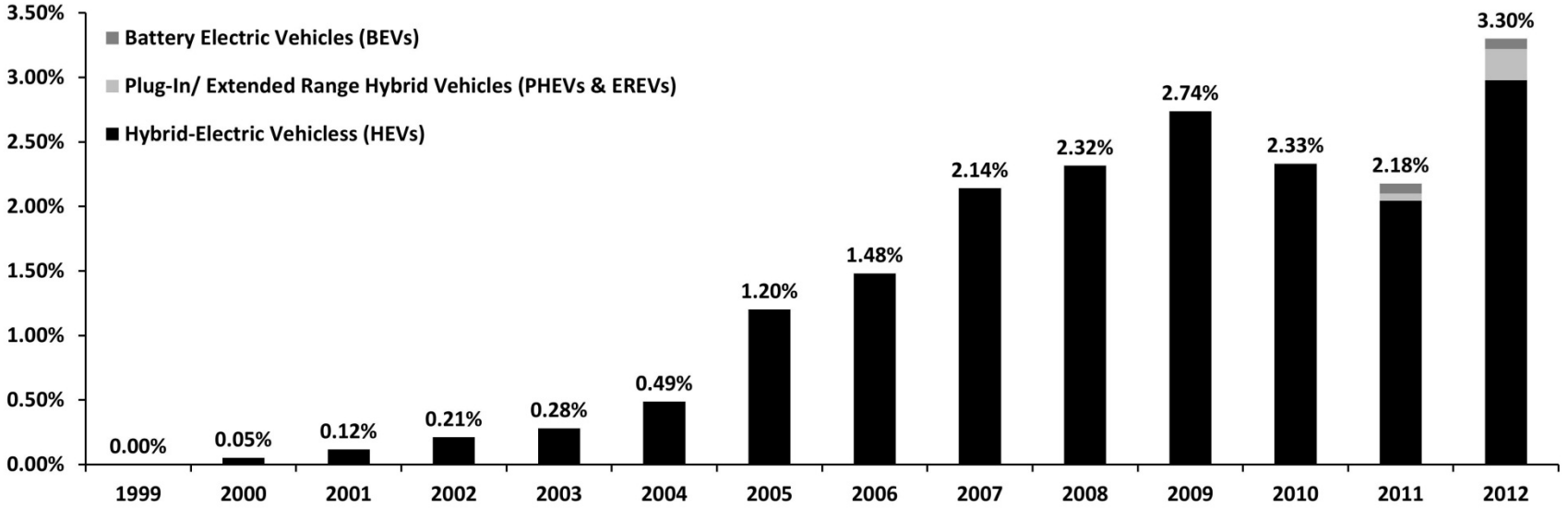
Source: Penna & Geels (2012)

Alternative Fuel Light-Duty Vehicles Made Available* as a percentage of Light-Duty Vehicles Sold



*Includes sales, leases and conversions

Electric Drive Vehicles as a percentage of Light-Duty Vehicles Sold



Source: Penna & Geels (2012)

The climate change problem and American car industry strategies (1979-2012)

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1979-1988: Scientific activism & industry indifference

1988-1997: Rising public concern & creation of closed industry-front

1997-2002: Political debate & technology hedging

2002-2007: Political stalemate & many competing technologies

2007-????: Initial (weak) regulation & (still) many competing technologies

Analysis: Pattern-matching between case study and DILC-model

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Ups & downs in attention	Multi-level governance processes
Case's complexity	
Competing technologies	Wider industry contexts & other issues

Phase-sequence of the climate-change issue lifecycle:
1 – 2 – 3 – 3 – 3½

- Industry front opened up without emergence of a single technological option around which automakers reorient (with coexistence of multiple hype-cycles.
- Incremental and radical innovations developed already in early periods, but early engagement with radical innovation motivated primarily by symbolic reasons.

Conclusion: future assessment

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Policy and innovation strategies	• Without stronger policy, we do not expect major industry commitment to radical green options in the next few years.
Policies and public opinion	• Public support for tougher climate-policy likely to remain low while American economy does not recover.
Industry fight-back	• The industry probably to oppose tougher regulations, because these might threaten current compliance investments.
Market demand	• If market demand for electric drive vehicles remains low, industry likely to call for rollback of long-term standards in mid-term review (2018).
New entrants	• Dynamics may speed up if new entrants are successful, but some are currently facing setbacks.

References

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