

# Lessons learned from successfully implemented case studies

Results from the 129+ show cases presented on  
[www.alter-motive.org](http://www.alter-motive.org)

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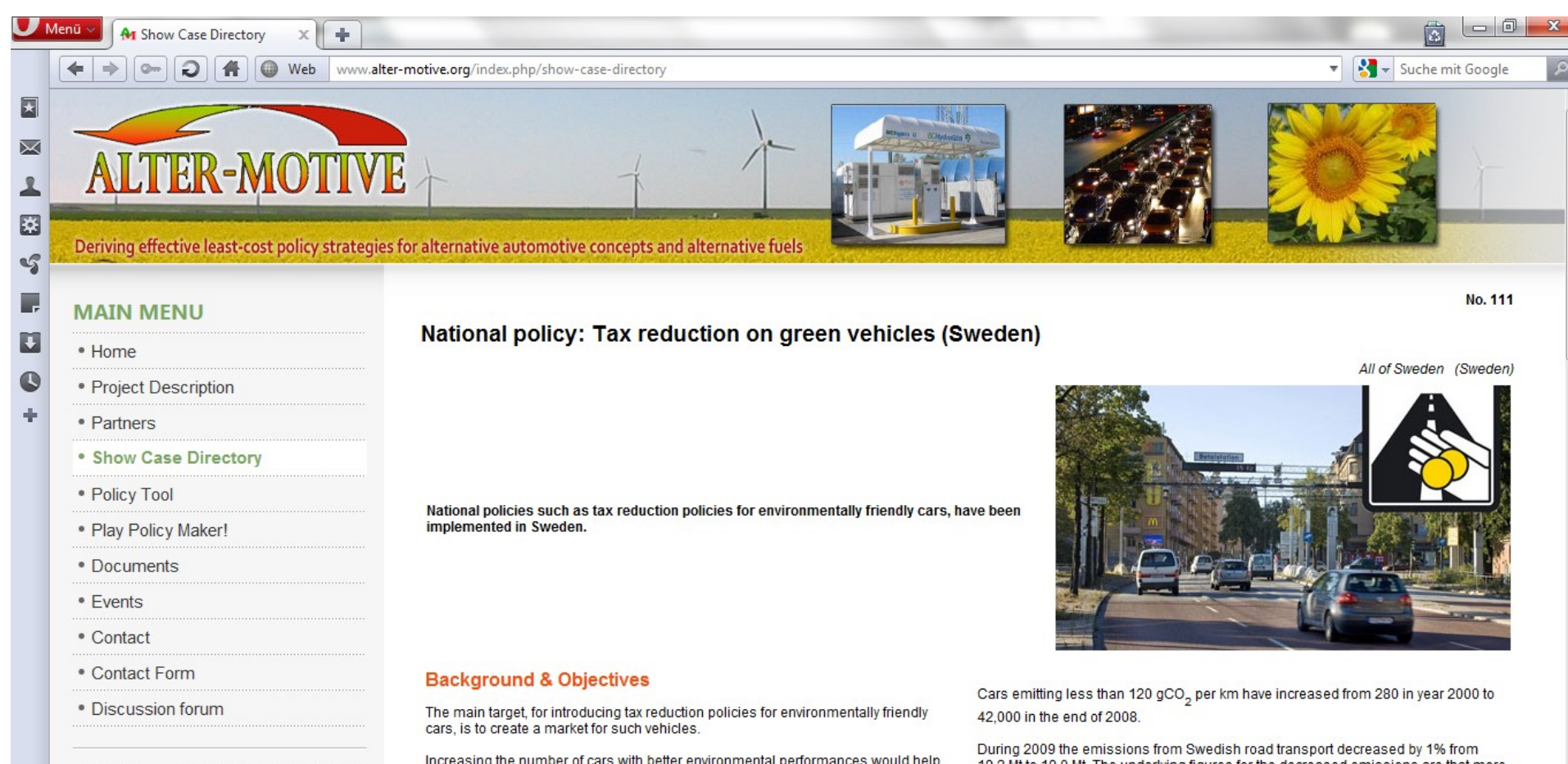
FGM - AMOR gemeinnützige Gesellschaft m.b.H

# Approach

- Three tasks to acquire valid case data
  - Case database 129+ cases
    - new and old revamped case descriptions, own evaluation sentence added
  - In depth stakeholder interviews
    - 34 fleet cases
    - 8 policy cases
  - Additional Internet survey
- Results: Lessons learned, gaps, success factors , fuel specific practical policy guidance...



All 129+ cases are available for further analysis via CD  
(please serve yourself as long as supplies lasts) +Internet  
<http://www.alter-motive.org/index.php/show-case-directory>



The screenshot shows a web browser window with the URL [www.alter-motive.org/index.php/show-case-directory](http://www.alter-motive.org/index.php/show-case-directory). The website header features the ALTER-MOTIVE logo and a navigation menu. The main content area displays a case study titled "National policy: Tax reduction on green vehicles (Sweden)".

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**National policy: Tax reduction on green vehicles (Sweden)**

No. 111

*All of Sweden (Sweden)*

National policies such as tax reduction policies for environmentally friendly cars, have been implemented in Sweden.

**Background & Objectives**

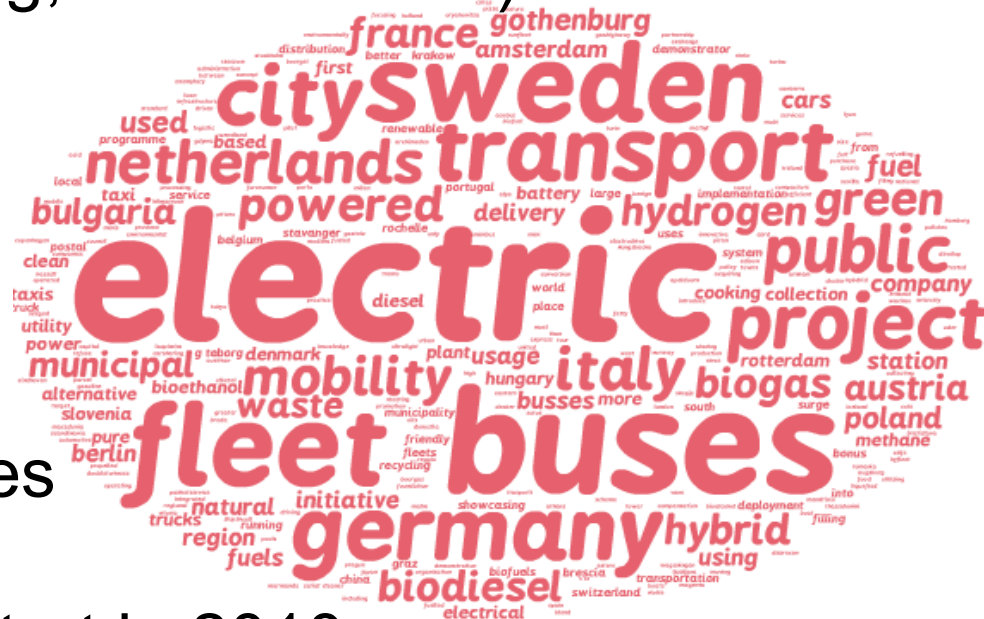
The main target, for introducing tax reduction policies for environmentally friendly cars, is to create a market for such vehicles.

Cars emitting less than 120 gCO<sub>2</sub> per km have increased from 280 in year 2000 to 42,000 in the end of 2008.

During 2009 the emissions from Swedish road transport decreased by 1% from 49.0 Mt to 48.0 Mt. The underlying figures for the decreased emissions are that more

## Case descriptions - what hits the eye...

- Most prominent are cases in Sweden & Germany, The Netherlands and Italy
- More cases in cities - fleets run by public entities, municipalities (Gothenburg, Amsterdam...)
- Biogas is catching up, hybrid increasing, hydrogen still strong, biodiesel long history
- Buses & e-mobility often mentioned, but CNG-cases precedes e-mobility 2:1, e-mobility had a a Steep start in 2010



# Two Cases on Bio-CNG (biogas)

- Linköping, Sweden
  - One example for other local initiatives
  - *Biogas as fuel for transport in Linköping (Sweden)*  
A-M Case Nr. 80
  - 13 pumps, 67 Buses, >500 vehicles and one train..
- Lille, France
  - *Biogas use in public transport buses in Lille (France)*  
A-M Case Nr. 103
  - 150 buses, 4 mio. litre diesel replaced
  - Integrated approach including waste processing and entering unknown terrain for regulating authorities.

*Visited via google street view*





# Choice of best fuel: Biodiesel, Ethanol?

- Low blending is undisputed (B7, E15)
- Use of pure biodiesel was successful in fleets,
- Several problems like lack of suited engines and exhaust after-treatment, price binding to diesel, sustainability concerns popped up, may phase out.
- Ethanol is mostly present in Sweden and profits from specific support
- BTW: FFV range extended  
Volt/Ampera is in the works



# Fully implemented cases on electric-mobility in Italy

- BEV rental for commercial transport in Reggio Emilia
- Cost efficient lead acid batteries in buses in Rome
- New serial hybrid bus concepts for buses in Brescia (micro-turbine)
- PEDELEC support in Modena
- Other may be found: ships, mobile advertising in Como
- And recently the big brands+utilities stepped in



Own photos



# How Reggio Emilia solved the chicken and egg problem for electric mobility...

- The problematic: Buyers demand for recharging stations and operators need users to achieve ROI.
- *Electric vehicles in the Municipality of Reggio Emilia, Italy, Case Nr. 82.*
- Regional initiative with the help of practitioners + long tradition of BEV manufacturing (Microvett)
- 250 rental vehicles for social services, firms, utilities, and recently also private users.





# Hybrid, Hydrogen...

- 27 cases including „Hybrid“
  - Taxi's (established)
  - Buses (increasing)
  - refuse collection,
  - general tendency to equip heavy vehicles in Stop'n Go traffic may be seen
- 9 cases including Hydrogen
  - mainly bus(es)



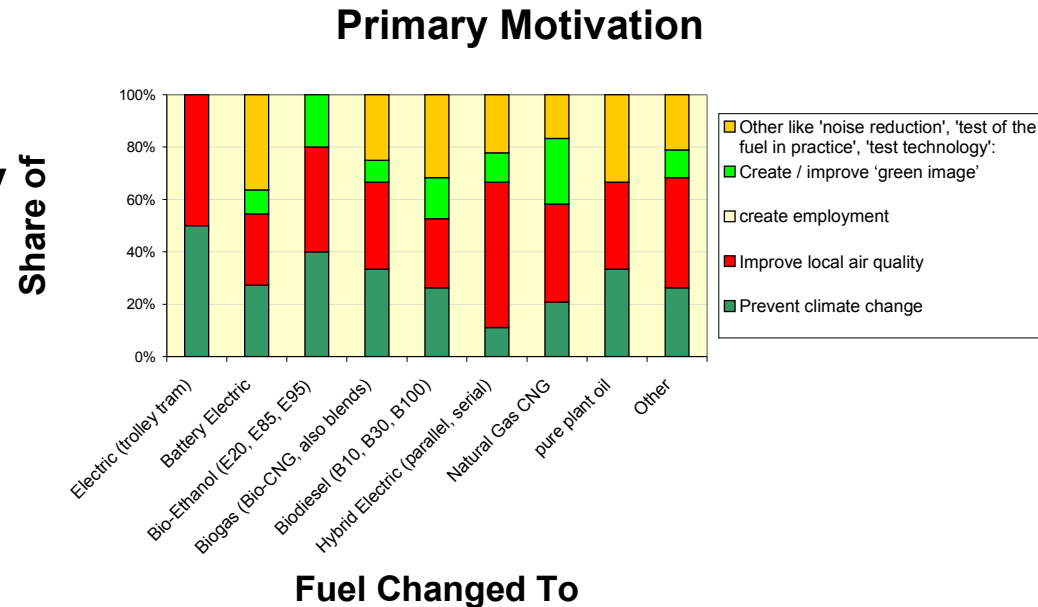
# Findings Bottom Up initiatives

- Motivation (n=35)

- Mostly local air quality
- Climate change
- Often imposed by city government

- Results

- Acceptance **high**: Biogas, BEV, CNG, Acceptance **low**: PPO/SVO
- Catenary electric, bio-ethanol, biogas and hybrid electric have mostly follow ups



## Findings Top Down Measures

- What may explain a 1:10 difference in alternative fuel penetration seen?
- Sweden policy show case N#111:
  - ~200.000 FFV of ~4.4 mio. vehicles in total
- Blend of measures
  - Reduction of vehicle taxes
  - Exemption from Congestion Charging
  - Reduced taxation for company car usage







# Thank You for Your Attention!

Get you a clean and efficient ride and use it wisely!





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# Follow up slides...

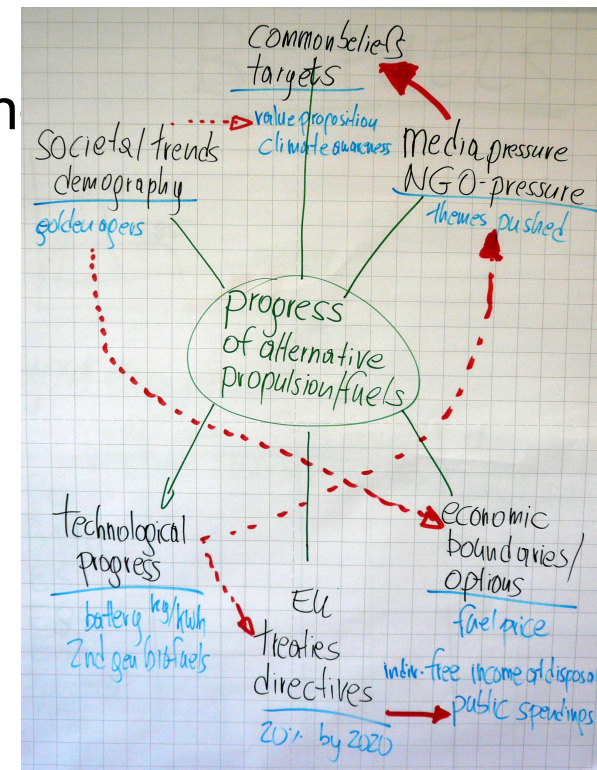
# Success Factors

- Combine financial and other regulative sectoral approaches
- Unite all stakeholders.
- Adapt to obvious facts – cars are sponsored by employers, focus on hybrids (like pedal electric vehicles) is definitely less risky but requires change of mobility patterns/behavior.  
Focusing on PEDELCS allows for reaching a diffusion of up to ~8% (The Netherlands), The Modena Show Case features a successful city approach towards pedal electric bicycles.
- Technology follows society- shift from FFV into Bio-CNG because of sustainability issues?(Waste as feedstock is better but limited)



# Fuel Specific Policy Recommendations

- Survey n= 25 shows gaps/hurdles
- Concentrate on the following issues for the fuels
  - Biodiesel & Ethanol – sustainability
  - Pure Plant Oil – maturity of propulsion techn
  - (Bio) CNG – refilling facilities
  - Battery Electric – charging infrastructure, (sustainability)
  - Range Extended Battery Electric – technological maturity
  - Catenary Electric - infrastructure
  - Hydrogen – refuelling facilities & cost



# Multi-fueled transport

- ~30% of the internet users answering would concentrate on electric mobility,
- but also 55% vote for a blend of fuels & propulsion systems,
- 53% say that a focused approach is best on a local level
- Lack of feedstock dictates inclusion of all alternative means in order to reach the share of renewable fuels!

