Clean Vehicles and Fuels

- Experiences from Stockholm (Sweden)

Eva Sunnerstedt, City of Stockholm

Stockholm – Capital of Sweden

- 800 000/1,8 million inhabitants
- 250 000/800 000 cars
- Built on 14 islands connected with 54 bridges
- 50 % public transport (80 % in peak hours)
- Congestion charging zone
- Environmental zone for heavy vehicles
- Improved air quality but problems with NOx and PM
- Green Capital of Europe 2010

Let many flowers blossom!!!

- Clean car?
  - Low fuel consumption
  - Electric
  - Renewable fuels
    - Biogas
    - Ethanol
- We need different biofuels in parallel

Clean Vehicle Strategy

- Local authorities are key players to start a market development
- Use your procurement power
- Introduce step-by-step
- A long term perspective is necessary
- Incentives are very helpful
- Subsidies and tax relieves may be needed initially

Clean Vehicles in Stockholm

1) Start with heavy vehicle fleets

- limited number of filling stations
- large environmental impact
- possible to exchange a whole fleet in only a few years

2) Demand clean vehicles in the city fleet

- The Stockholm City council has decided:
  - All new vehicles that are bought to the city fleet in Stockholm should be clean
  - 100 % clean vehicles in the city fleet
  - 85 % clean fuel in city fleet
  - 50 % new clean cars sold in the Stockholm Region 2014
  - 10 % new clean heavy trucks by 2014
  - 16 % biofuels by 2014

3) Promote to other users

National incentives

- No tax on renewable fuels - 2013
- Lower tax on company cars if they are clean - 2011
- Lower vehicle tax for clean cars
- 100 % of all vehicles bought by state administrations should be ”clean” in 2011
- (10 000 Skr for private users buying a new clean car until mid 2009)
  New: Possible super clean car premium of 40 000 Skr from 2012

Clean Vehicles in Stockholm

Local incentives

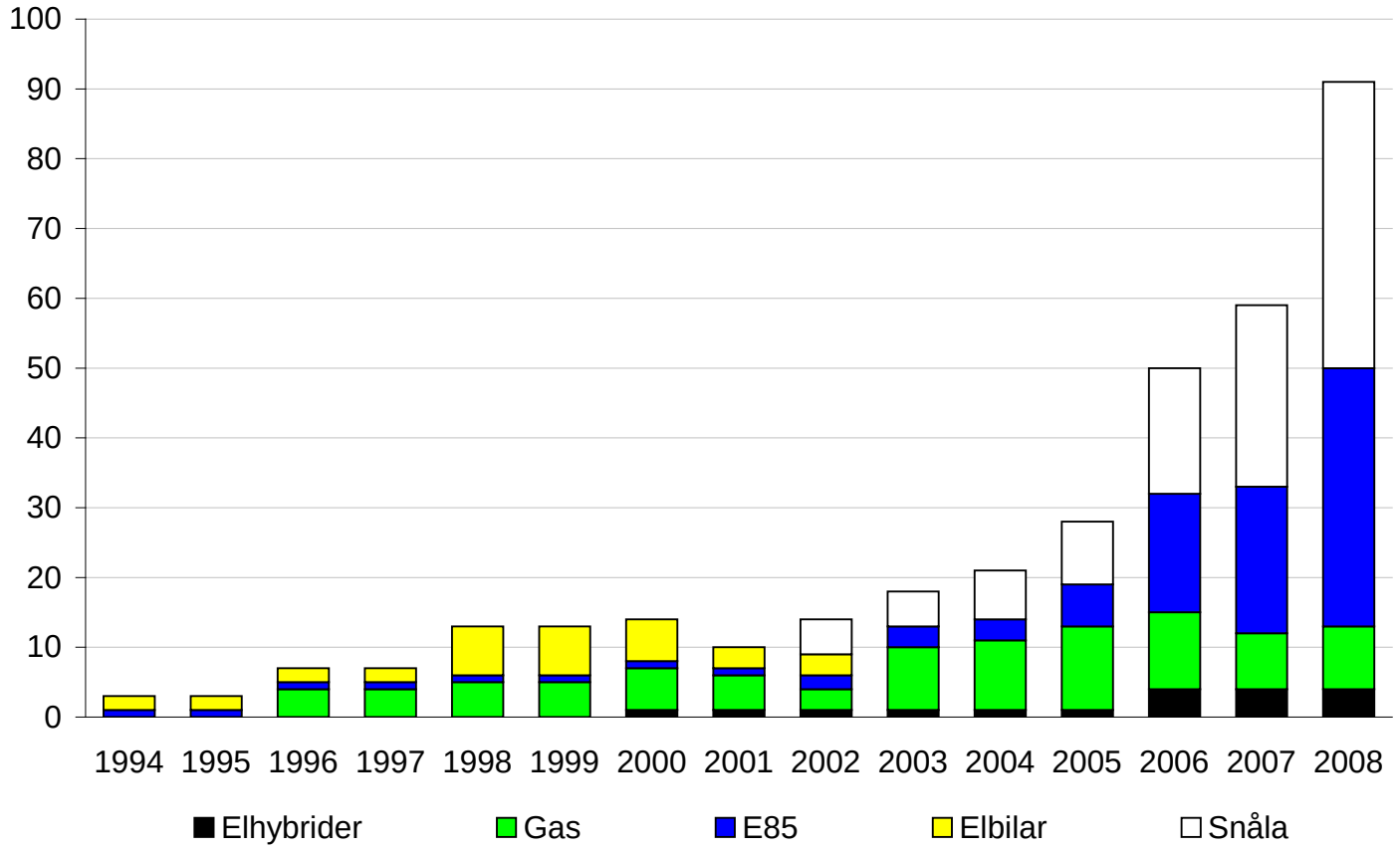
- Clean cars are demanded in various procurements
- (free parking)
- (no congestion charging)
- information
  - sales promotion & market research
  - web-portal: www.miljofordon.se
  - newsletter
  - test fleet
- Clean taxi cars ”cut the line” at Arlanda Airport

4) Demand clean transport in PROCUREMENTS of ALL transport services

- i.e taxi, goods distribution, curier and internal mail, security services

Number of clean car models in Sweden 1994-2008

Källa: Miljöbilar i Stockholm och Konsumentverket



Growing number of filling & charging stations !

Sweden

Methane	127
Etanol	1 719
Electric	350

Stockholm

Methane	17
Etanol	170
Electric	170

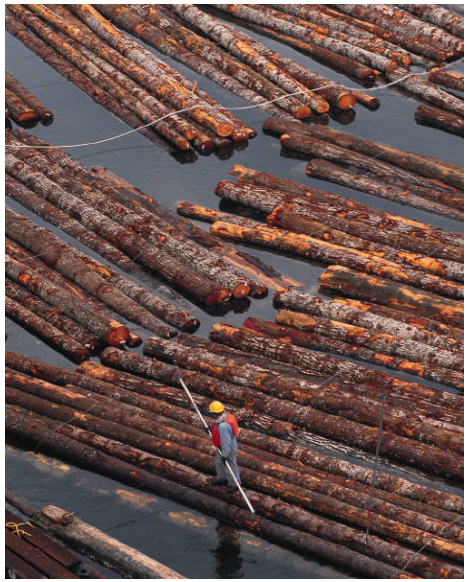
How ”friendly” are biofuels?

- Reduction of CO2, NOx, HC, PM ?
- Effect on biological life ?
- Land use and fuel vs food ?
- Working conditions during production?

- There is a difference!
  - Between biofuels and producers!
  - You can to it wrong and you can do it **right**!!

Certification / Green labelling on ALL fuels

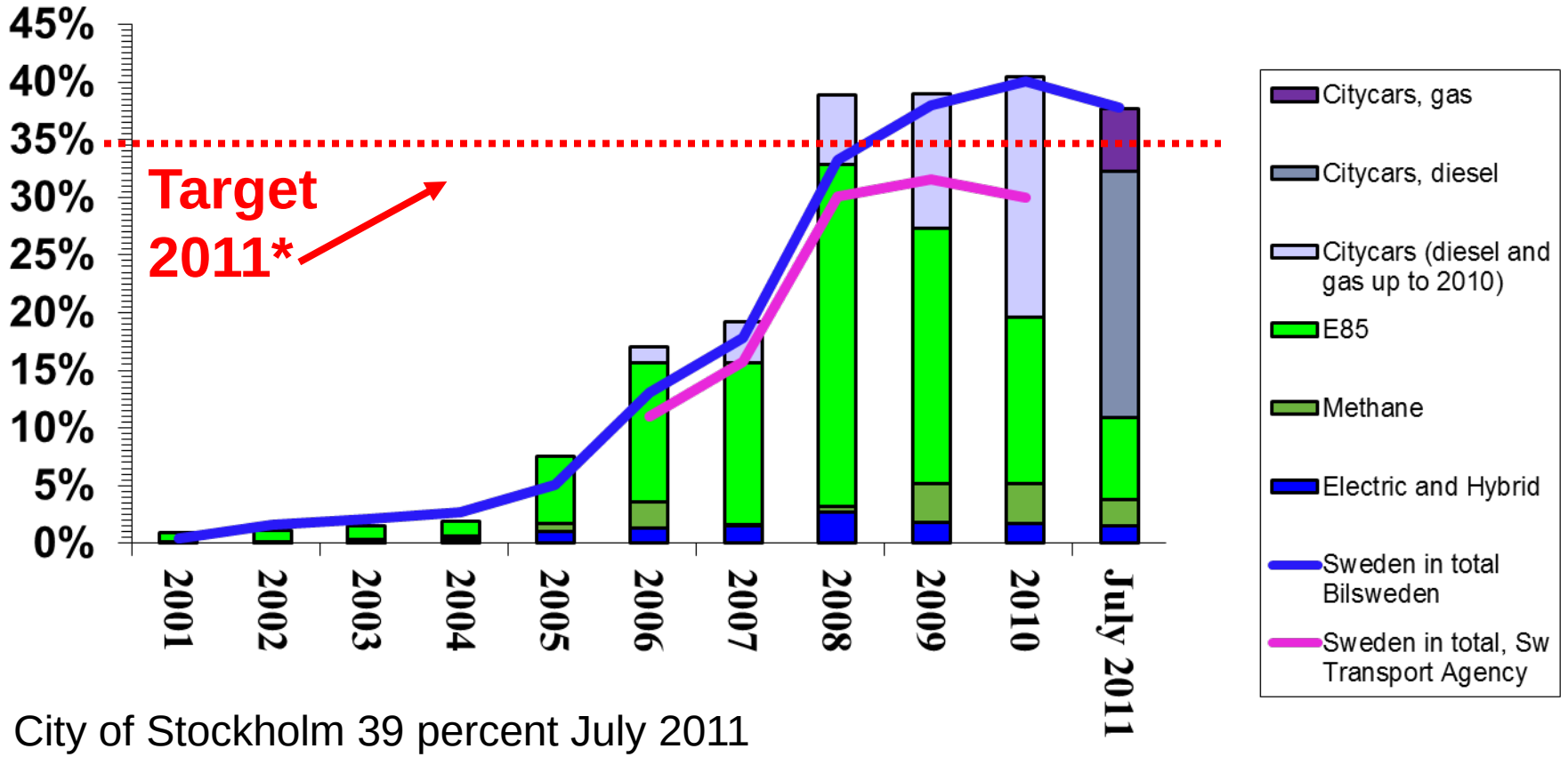
- Large CO2 reduction
- Descent working conditions
- Protection of biological important areas and spices
- Stockholm has started to demand the above in a fuel procurement



Happy drivers

- 94 % recommend others to drive clean
- Few of no technical problems
- Same need for service as conventional vehicles
- Environmental policy in a company important for the purchase

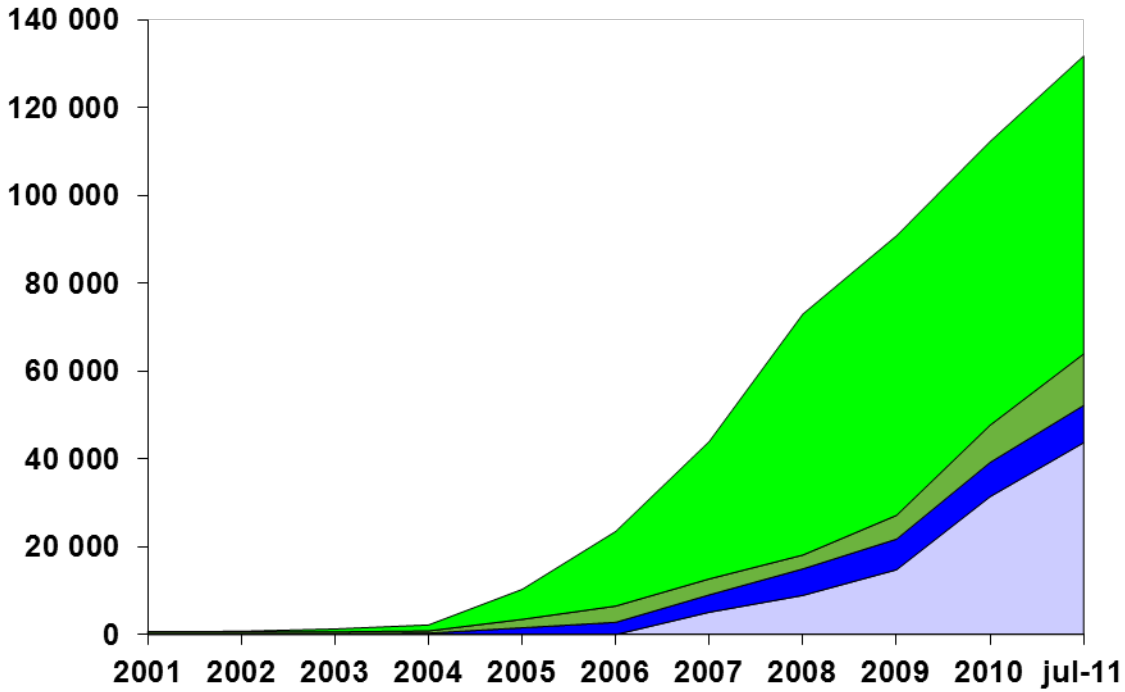
Market share of brand new passenger cars in Stockholm County



City of Stockholm 39 percent July 2011

Clean Vehicles in Stockholm

No of Clean Cars, in Stockholm County (in total fleet of passenger cars)



Approx. 132 000 (July 2011)

Clean Vehicles in Stockholm

- Target: Fossil fuel free by 2050
- Vision ”Electric Vehicle City 2030”
  - *City traffic almost emission free*
  - *Access to recharging where needed*
  - *Renewable or CO_2 free electricity*
  - *Stockholm sets an example in terms of electric vehicles and recharging infrastructure*
- Strategy for electric vehicles
  - *Actions for city administrations in order to promote EV use*

Ongoing National Procurement of EVs & PHEVs

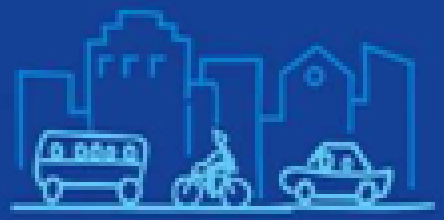
- 303 organisations participating: municipallities, county councils and private companies
- Request of 1 370 vehicles/year (870 cars and 500 trucks/vans)
- Frame work agreement with many suppliers should be ready for orders October 1, 2011. 2+1+1 years
- The Swedish Energy Agency gives financial support
- Compensation of € 5 000 for the first **1 000** vehicles that are bought through the procurement agreement

NEW: € 4 000 state funding for Super Clean Cars (2012)

CATALIST

Experienced cities share know-how with interested cities

- Site visits and study tours
- Workshops
- Feasibility plans/transfer studies/ twinning
- Conference contributions



THE CIVITAS INITIATIVE IS CO-FINANCED BY THE EUROPEAN UNION

What is next?

- European co-operation necessary to get a large market
- Heavy Vehicles & Hybrids running on biofuels
- EVs and PHEVs (Vision: EV City by 2030)
- National and European definition of clean vehicles
- Certification/ “Green labelling” of biofuels

Thank You!

Eva Sunnerstedt
eva.sunnerstedt@miljo.stockholm.se
+ 46 8 508 28 913

Read more:

www.elbilsupphandling.se
www.stocholm.se/miljobilar
www.miljofordon.se

Cars and driving behavior in Sweden

- In total 4,4 miljon cars
- Every year approx. 250 – 330 000 cars are sold
- Growth of 48 000 cars/year
- Over 55 % of the new cars are sold to companies
- 25 % of the households have 2 cars
- Over 60 % of the daily trips are made with a car (less in large cities like Stockholm)
- Average distance home - work: 10 km
- 50% the people working have < 5 km to work, 3 % have over 50 km
- Avereage yearly distance for a car: 15 000 km/year & **40 km/day**

Ethanol cars (E85)

- Audi A3, A4
- Cadillac BLS Sedan/Kombi
- Chevrolet Uplander 7sitts
- Citroen C4, C5 Sedan/Kombi
- Dodge Journey 7sitts
- **Ford Focus** Sedan/Combisedan/kombi, C-Max, S-Max, Galaxy
- Peugeot 307, 308 Combisedan/Kombi, 407 Sedan/Kombi
- Renault Clio, Megane Combisedan/Kombi, Kangoo kombi/skåp
- Seat Altea, Altea XL, Leon
- Skoda Octavia & Superb
- Saab 9-5 Sedan/kombi, 9-3 Sedan/Kombi
- Volkswagen Golf Combisedan/Kombi, Golf Plus, Jetta,
- Volvo C30, S40, V50, V70, S80
- Mitsubishi Colt & Outlander

Methane cars (biogas/natural gas)

	Range: methane/petrol
• VW Passat	21 + 31
• VW Caddy Ecofuel	40 + 15
• VW Touran Ecofuel	30 + 19
• VW Transporter	37 + 14
• Renault Kangoo	25/50 + 65
• Opel Combo CNG	33 + 17
• Opel Zafira CNG	35 + 16
• Fiat Doblo Cargo	33 + 33
• Fiat Punto Bi-Power	26 + 74
• Fiat Ducato & Grande Punto	
• Mercedes E200 NGT	30 + 72
• Mercedes B170 NGT	30 + 70
• IVECO Daily CNG	33 + 0
• Citroen C3 CNG	34 + 69
• Citroen C5	25 + 80
• Volvo V70 (+ E85)	25 + 75

Electric Hybrid Cars

- Toyota Prius, Auris

- Honda Civic, Insight, CR-Z

Electric cars in Sweden today…..

- Citroen C Zero
- Dong Feng – minibuss
- Fiat 500 (EV-Adapt)
- Mitsubishi i MiEV
- Peougeot iOn
- Tesla Roaster
- Think City
- (Nissan Leaf, Renault Fluence, Volvo C30)

Plug-in Hybrid Cars on their way in 2012

- Chevrolet Volt (EREV)
- Opel Ampera (EREV)
- Toyota Prius PHEV
- Volvo V60

City cars < 120 g CO2/km

- Citroën C1, C3 HDi, C4 HDi
- Fiat Panda 1.3, Punto Grande 1.3 MJT, 500
- Hyundai i10, i30 e-Sence
- Kia Picanto Eco, Cee´d eco
- Peugeot 107 & Bipper
- Toyota Aygo
- Smart Fortwo
- Audi A3
- Mini Cooper 1.6
- Seat Cordoba 1.4, Ibiza 1.4 ECO-TDI
- VW Polo 1,4 TDI &Golf Blue Motion
- Volvo S40, V50, V70, C30