

# **Biomethane in Sweden: Governmental Incentives and Market Trends**

*Michelle Ekman, Swedish Gas Association  
CNG and Biomethane manager*

# Outline

- **The Swedish context**
- **Figures and market trends**
- **Political instruments and policies**
- **Biomethane prices**
- **Future trends**



# Swedish Gas Association

A member-funded organization dedicated to promote a greater use of energy gases in Sweden



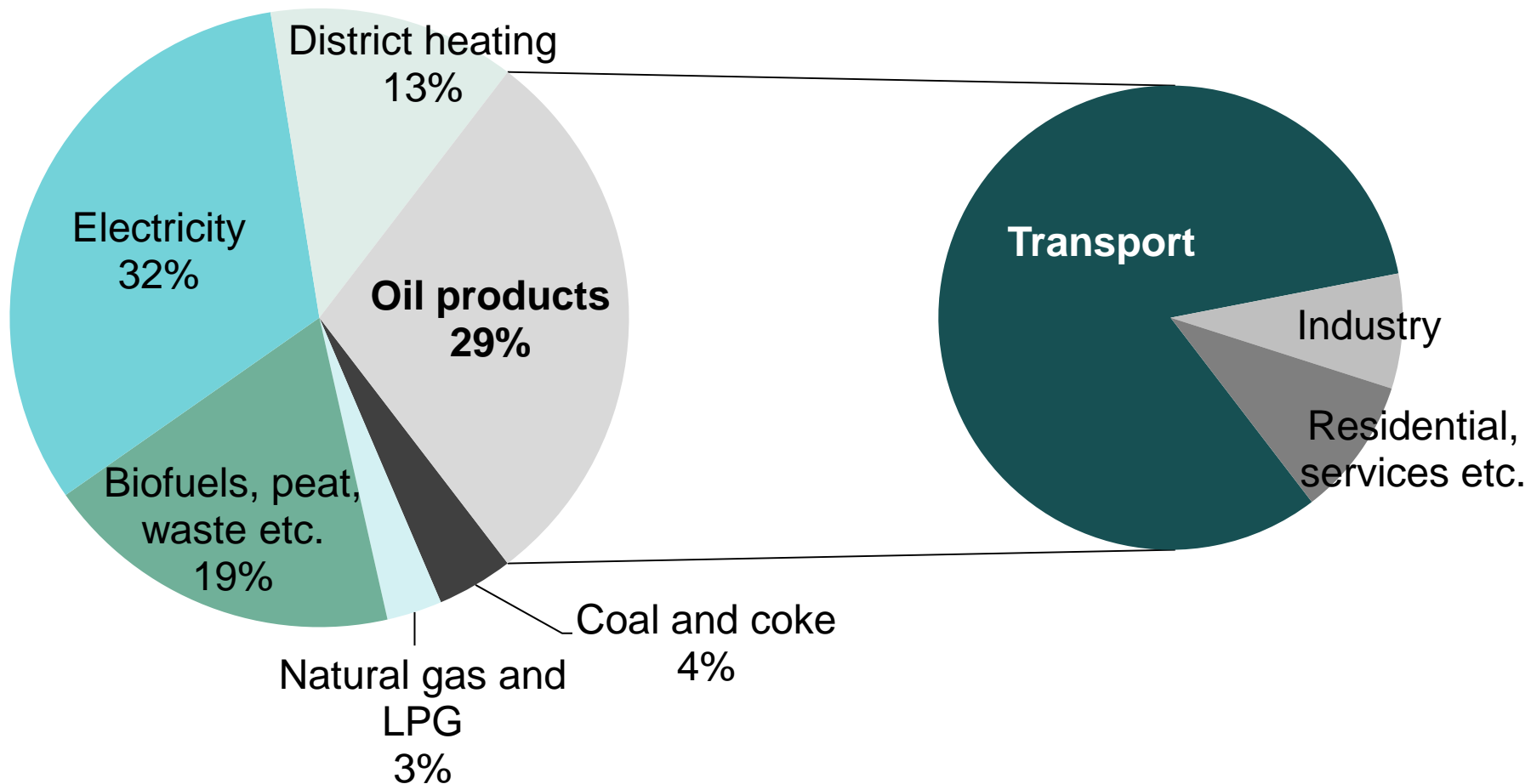
**Safety and technology**



**Information and public opinion**

# The Swedish context

Total final consumption (392 TWh)



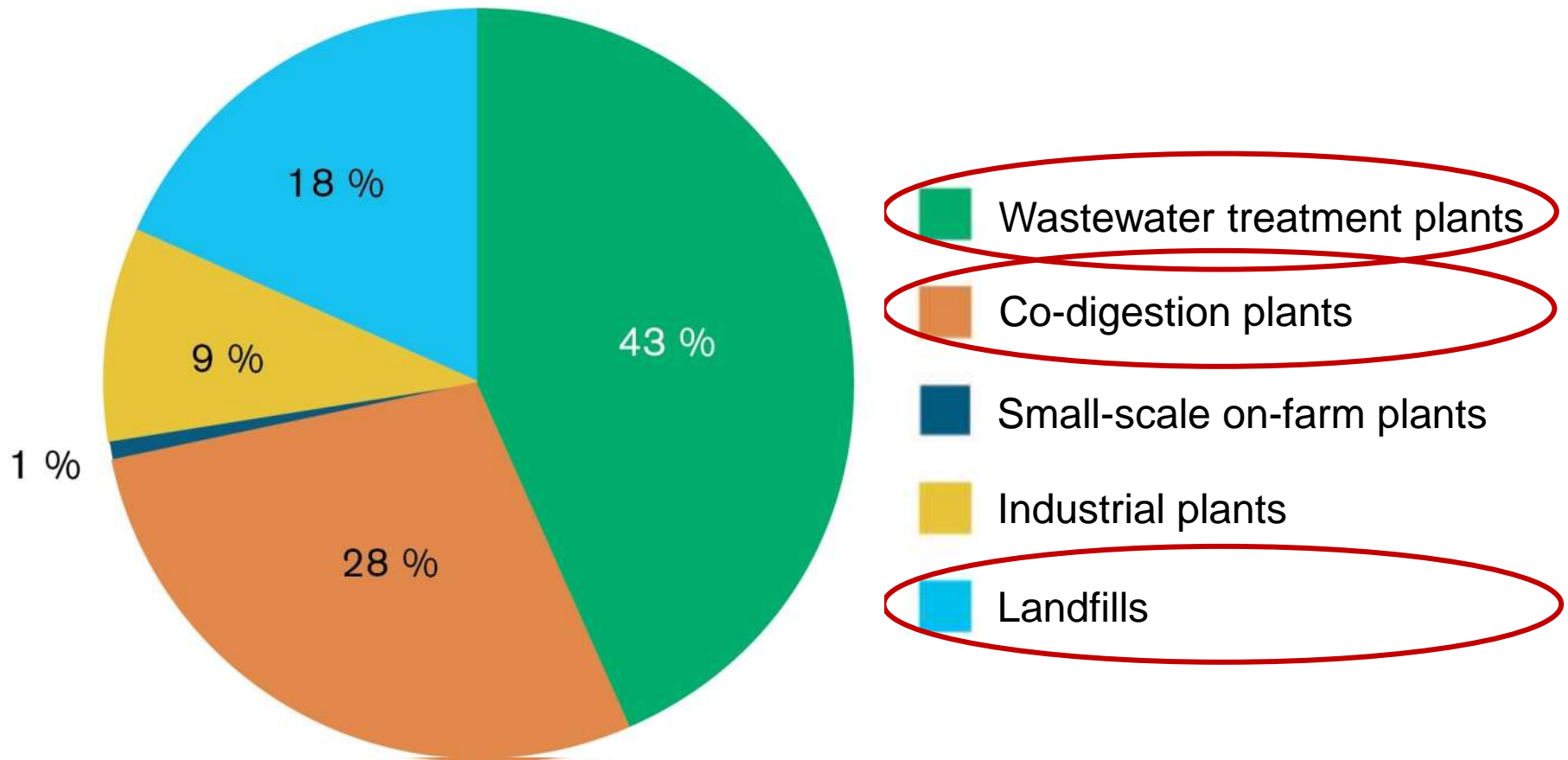
# The Swedish context

13-15 TWh of natural gas



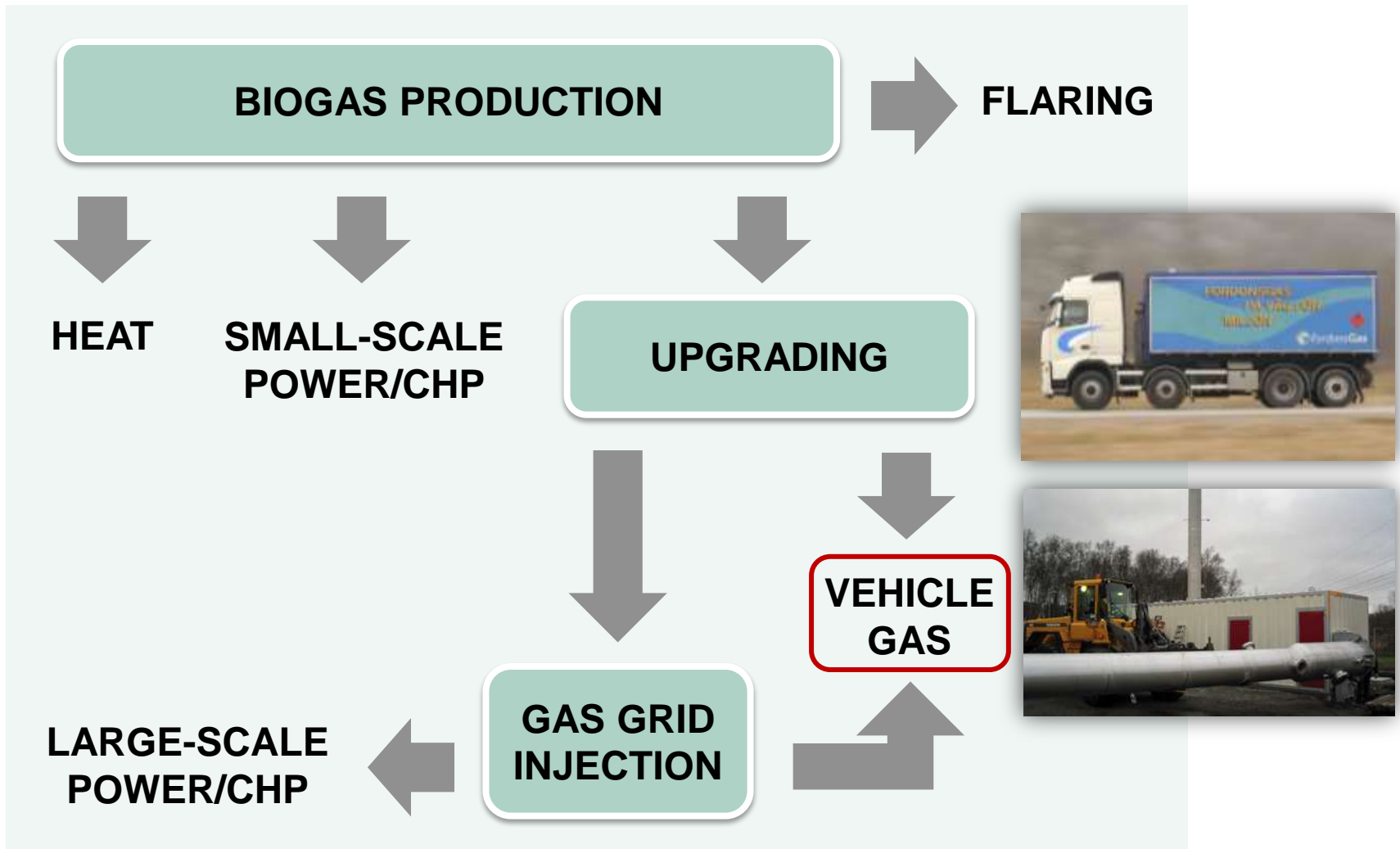
# Biogas production: 1,5 TWh

Wastewater treatment is the largest source



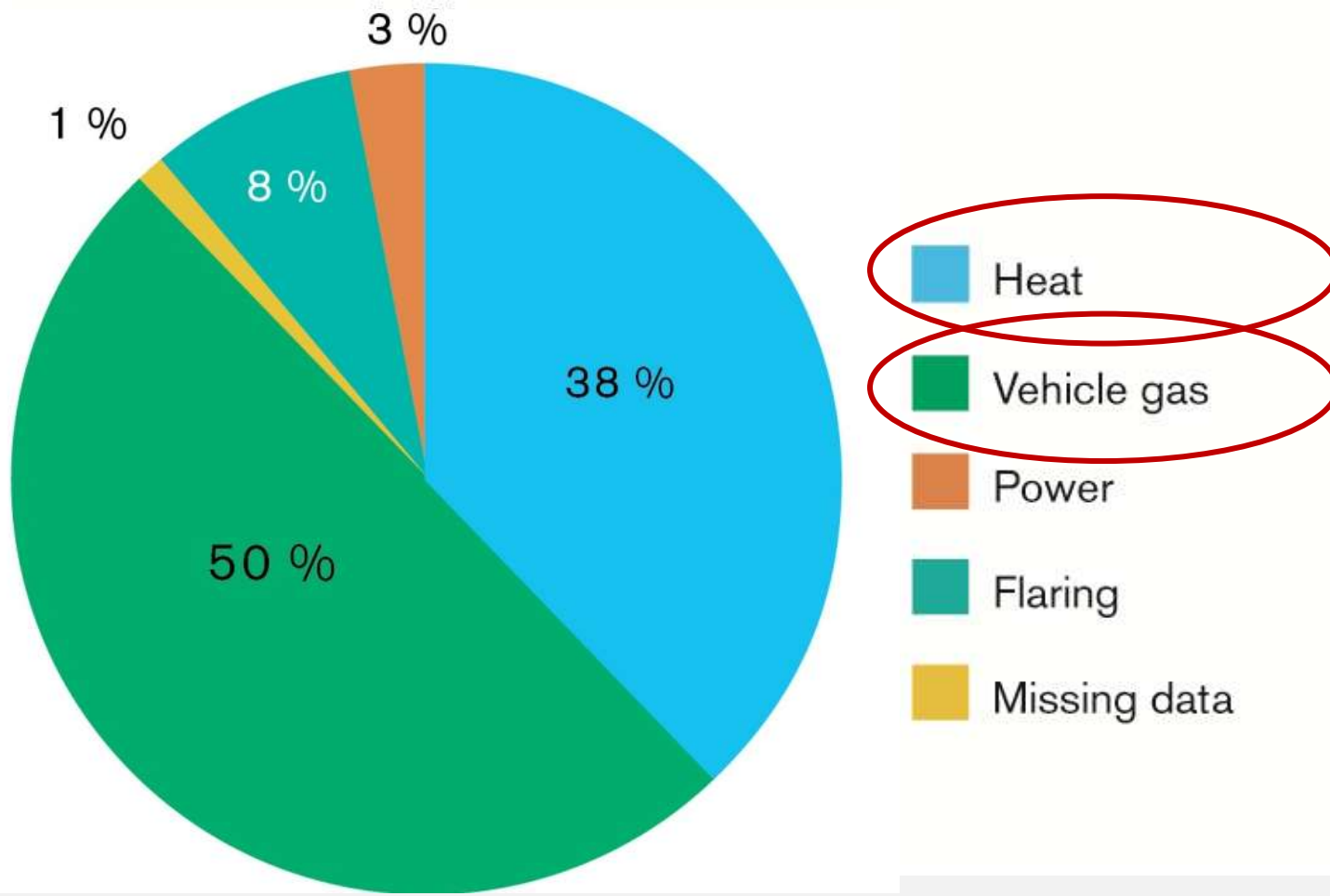
**TREND:** Landfill biogas decreases – co-digestion, on-farm and industrial plants increase

# Biogas utilization pathways



# Market trends - utilization of biogas:

50% vehicle gas, 38% heat

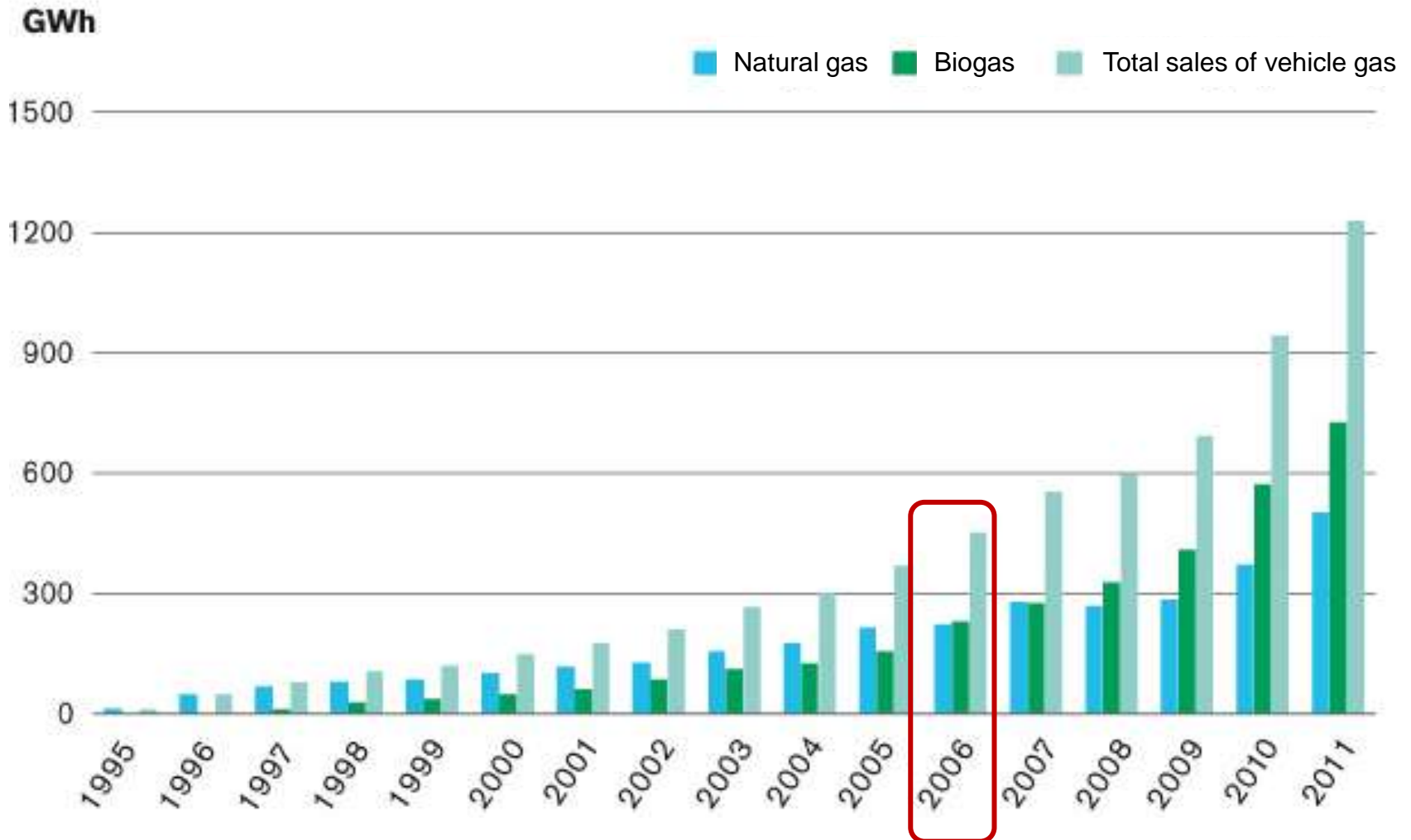


**TREND:** Vehicle gas use increases rapidly – heat, power and flaring decrease



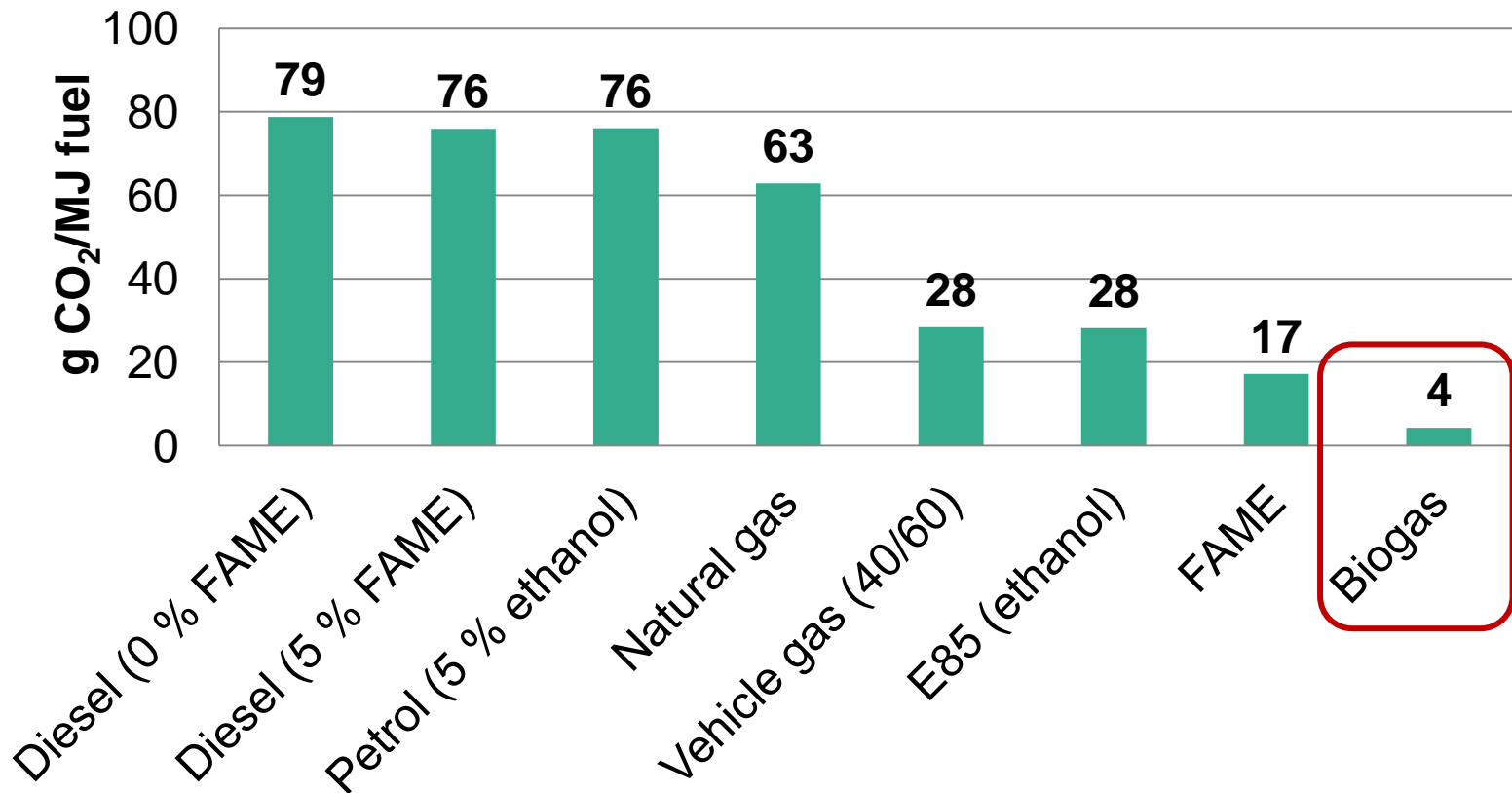
# Market trends - vehicle gas:

60 % biogas, 40 % natural gas (1,2 TWh)



# Why biogas in transport?

Up to 90 % reduction in CO<sub>2</sub> emissions



Biogas and natural gas: 80-90 % reduction in NO<sub>x</sub> and PM emissions

# Biomethane/CNG filling-stations in Sweden

- 136 public stations, September 2012



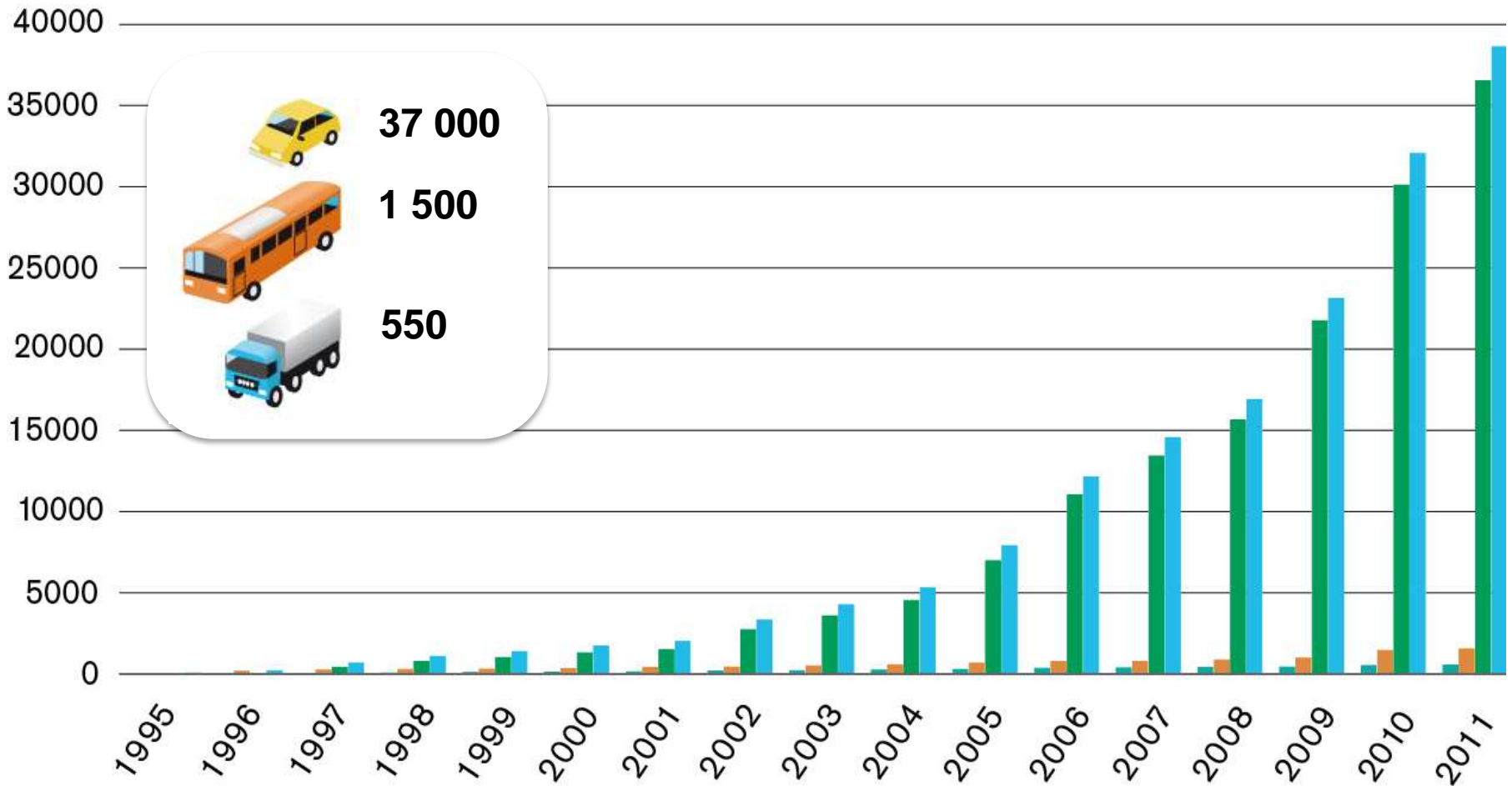
# Market trends - gas vehicles

Rapid growth in the last ten years

– mainly company cars

Number

■ heavy duty vehicles ■ buses ■ passenger- and light duty veicles ■ totalt amount of gas vehicles



# Incentives to promote gas-vehicles and other clean cars

40 % reduction of income tax for use of company gas-vehicles

1100 EUR clean car subsidy

Five year exemption from vehicle tax for clean cars (on average 660 EUR in total)

Free parking benefits in many cities

Stockholm congestion tax exemption

2004

2006

2008

2010

2012

2014

2003

2005

2007

2009

2011

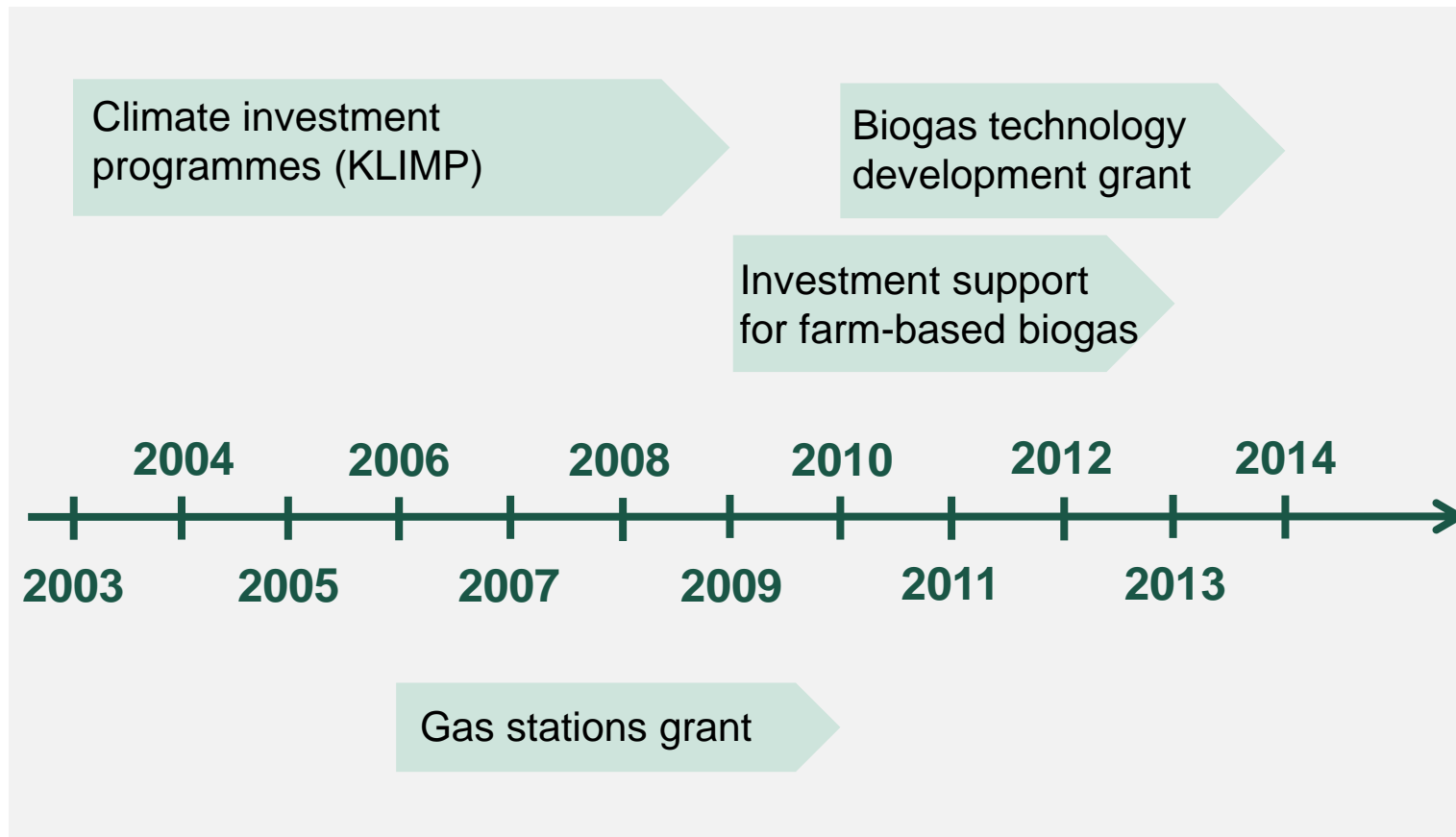
2013

Stockholm Airport: High priority queue for clean taxis

Ordinance of government purchase and leasing of clean vehicles (100 % clean vehicles as of February 2009)

# National grants

## Investment support for biogas

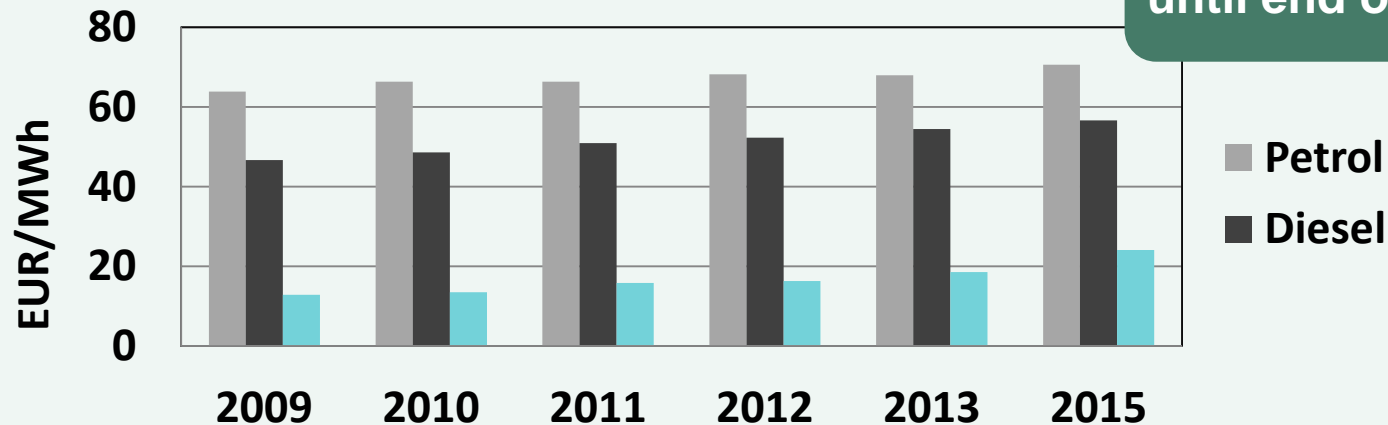


# No tax on renewable fuels

A strong incentive for biogas

**Biogas has a competitive tax advantage equivalent to about:**

- 68 EUR/MWh compared to petrol
- 52 EUR/MWh compared to diesel
- 16 EUR/MWh compared to natural gas



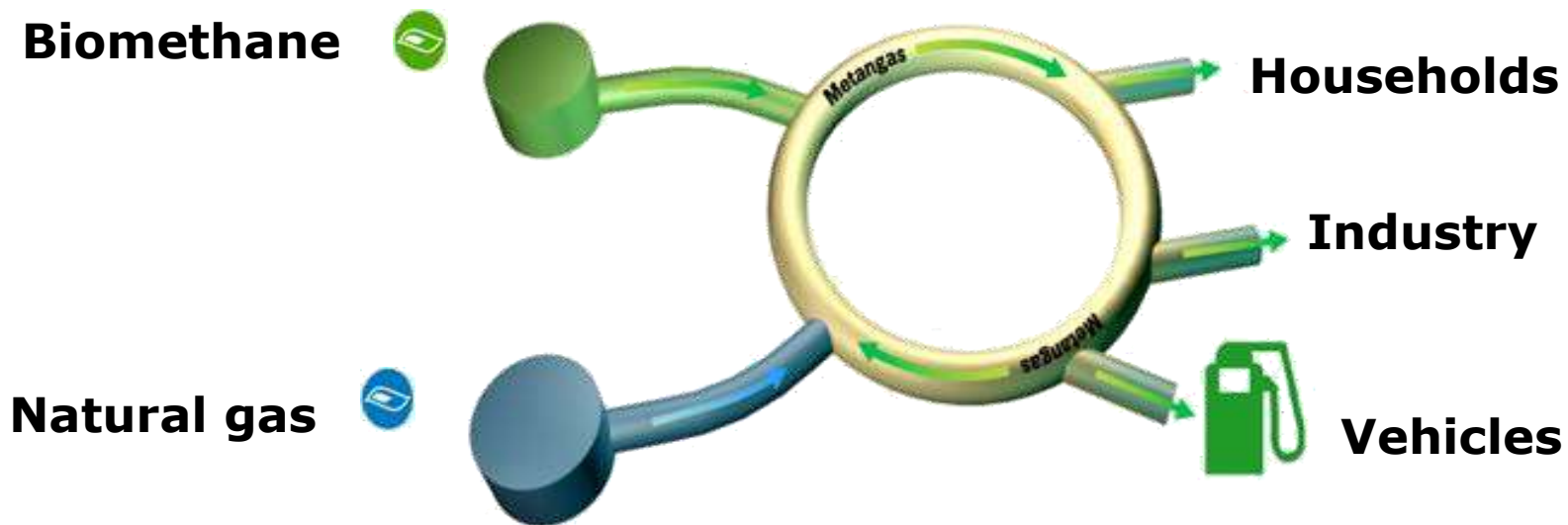
## No energy tax on natural gas

**Natural gas has a competitive tax advantage equivalent to about:**

- 52 EUR/MWh compared to petrol
- 36 EUR/MWh compared to diesel

# New legislation helps distribution

- The green-gas concept



- New tax legislation from 2011 makes it possible to use the green gas concept across different local grids. Allows consumer to order 100 % biogas and the tax exemption can follow.



# Vehicle gas price development

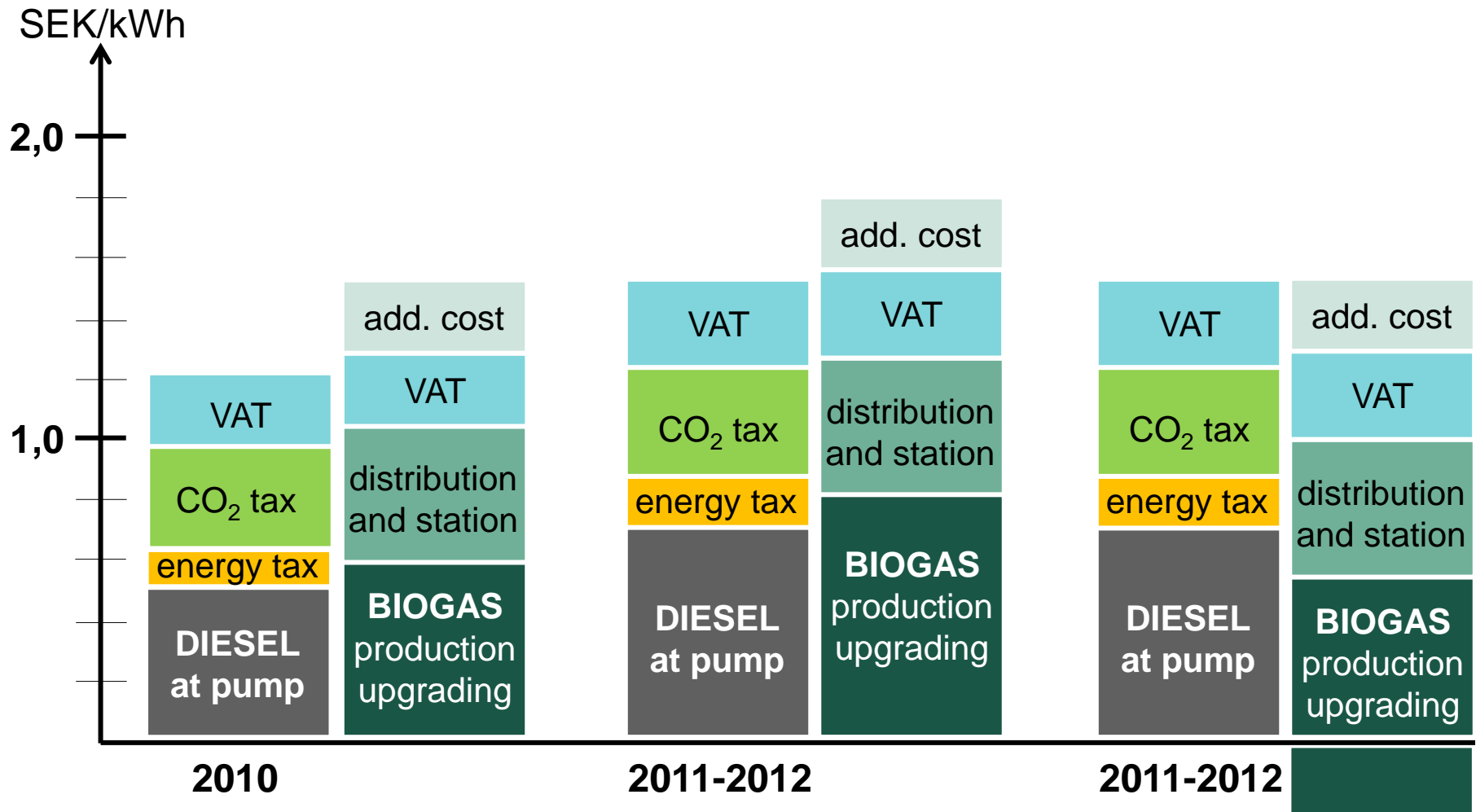


Source: Statistics Sweden and FordonsGas Sverige

- The biomethane price is influenced by the oil price as the fuels are exchangeable on the same market.

# Biomethane prices

- competing with diesel...



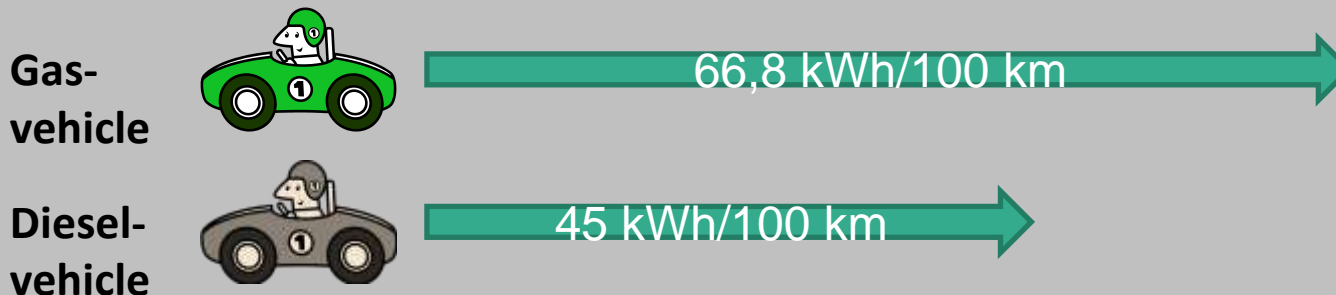
# What is the additional costs for the customer in Sweden?

Gas-car och diesel-car differ in energy-efficiency and price

## Example: Volkswagen Passat

*TSI 150 EcoFuel Masters (gas) vs. TDI 140 BlueMotion Technology (diesel)*

How much energy is needed to drive 100 km?



In this example the diesel-vehicle is almost 50 % more effective than the gas-vehicle

### Additional cost for a gas-vehicle: 3 cents/km

- A new car is owned during 7 years
- The car is driven 15 000 km per year
- The exemption from vehicle-tax during 5 years for both cars. Thereafter a yearly approx 90 Euro higher tax for the diesel-vehicle than the gas-vehicle.
- The purchase price is approx 3500 Euro higher for the gas-vehicle

# Future trends

- Growing market for liquified biomethane and natural gas:
  - Substituting diesel in heavy duty vehicles (Volvo and Scania)
  - Substituting oil in ships
  - Lowering distribution-costs when fueling passenger cars



The first passenger ferry  
in Sweden will be in  
traffic in January 2013.  
(Viking Line)

# The liquified biogas plant in Lidköping

- Inauguration next week!



**The film:**

[http://www.youtube.com/watch?v=hIAEe8X41PM&feature=youtube\\_gdata](http://www.youtube.com/watch?v=hIAEe8X41PM&feature=youtube_gdata)

# Thank you!

**Swedish Gas Association**

**Michelle Ekman**

Swedish Gas Association

Box 49134

SE-100 29 Stockholm

+46 70 685 4403

[michelle.ekman@energigas.se](mailto:michelle.ekman@energigas.se)