Study "Legal and Regulatory Environment for the Construction and Operation of CNG Filling Stations in European Countries"

BACKGROUND TO THIS PROJECT (2011-2012)

- Sponsor: European Business Congress
- Primary Contractor: National Gas Vehicle Association Russia, assisted by Clean Fuels Consulting
- Project Scope
  - 21 European NGV Country Profiles (West & East Europe) – PowerPoint file
  - Legal & regulatory environment to build fuelling station network – Excel File
  - Strategic approaches to create NGV fuel infrastructure – PowerPoint file
  - NGV Infrastructure Calculation Tool (NICA) – Excel File

PURPOSE OF THE PROJECT

European Business Congress Study - 2012

The European market for natural gas vehicles has been expanding steadily since 1994 when there were 524,000 natural gas vehicles (NGVs) and 1,693 CNG fuelling stations. Today the European market has expanded to 1.5 million NGVs and 4,000 fuelling stations; growth of 286% and 236% respectively.

While NGVs and the fuelling infrastructure are a practical potential business opportunity they compete with the 'politically attractive' technologies such as hydrogen fuel cells and electric battery vehicles. Thus, the time is right for the wider European business community to be made aware of the 'NGV potential.' This is best done by highlighting the excellent opportunities to invest in a sustainable fuel and technology that addresses today's important concerns about energy and the environment through the wider use of NGVs, whether they run on fossil natural gas, liquefied natural gas or renewable biomethane.

The European Business Congress has recognized this need and now is seeking a way to inspire new investments in the CNG fuelling infrastructure across Europe. Once in place, this can lead to a much more widespread development of the European NGV market in individual countries that are linked across Europe along the normal transportation corridors.

ACKNOWLEDGMENTS

The project sponsors wish to thank the following individuals for their dedicated research and analysis in making this project possible

- EBC Project Coordinator: Detlef Wessling, E.On Ruhrgas
- NGVRUS Project Manager: Eugene Pronin, Gazprom
- Clean Fuels Consulting
- Principal Investigator: Dr. Jeffrey M. Seisler
- Research Assistant: Marco Dal Pont
- Project engineer for the Natural Gas Infrastructure Calculation Tool (NICA): Gijs van Schoonhoven (Ingenieurbüro van Schoonhoven)

NGV COUNTRY PROFILES

European Business Congress Study - 2012

NGV Country profiles provide, in a PowerPoint format, a template of information that represents in-depth analyses on a country-by-country basis. The profiles focus on the specific elements that are important to understand the investment environment to develop a CNG fuelling infrastructure. Taken together, these country profiles provide a unique window into individual markets that may be attractive to different commercial interests investing in the NGV infrastructure.

SWEDEN
(September 2011)

European Business Congress Study - 2012

COUNTRY PROFILE TEMPLATE

European Business Congress Study - 2012

- NGV Profile
- Motivation
- Energy Profile (oil & gas/imports & exports)
- Vehicles
- Fuelling Infrastructure
- Government Support
- Gas Industry Support
- Conclusions

NGV PROFILE

- Number of NGVs: 32.000
- NGVs are 0,07% of total vehicle population
- 3,4 NGVs per 1000 population
- CNG fuelling stations: 174
- 184 vehicles per fuelling station
- Price differential CNG-Petrol/diesel:
  - CNG equivalent per liter gasoline: 0,93 €/liter
  - Regular Gasoline: 1,47 €/liter

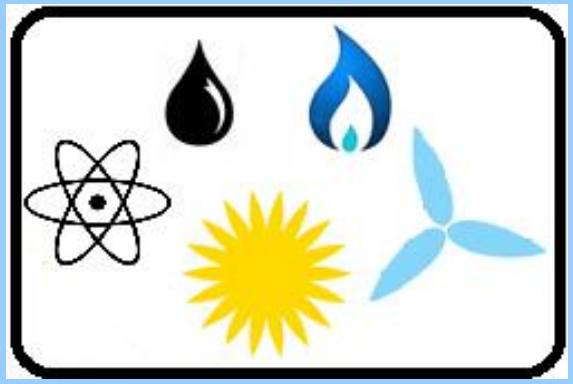
  Natural gas costs 37% less then gasoline

Source (July 2011), www.metanoauto.it; http://www.drive-live.co.uk/fuel_prices_europe.html

MOTIVATION

- Environmental considerations
- Energy security through energy diversification, particularly using renewable resources
- Economics
- Employment

ENERGY PROFILE



ENERGY PROFILE SUMMARY

- Oil, once more than 70% of the total energy supply in 1970 is around 30% today
- Renewable energy sources have increased from 22% of the total energy supply in 1994 to 28% today
- Biomass and wind power have led the rise
- Sweden liberalized the electricity sector before many other EU countries. A significant effort is underway to improve the transmission system and to increase international interconnections

ENERGY PROFILE SUMMARY

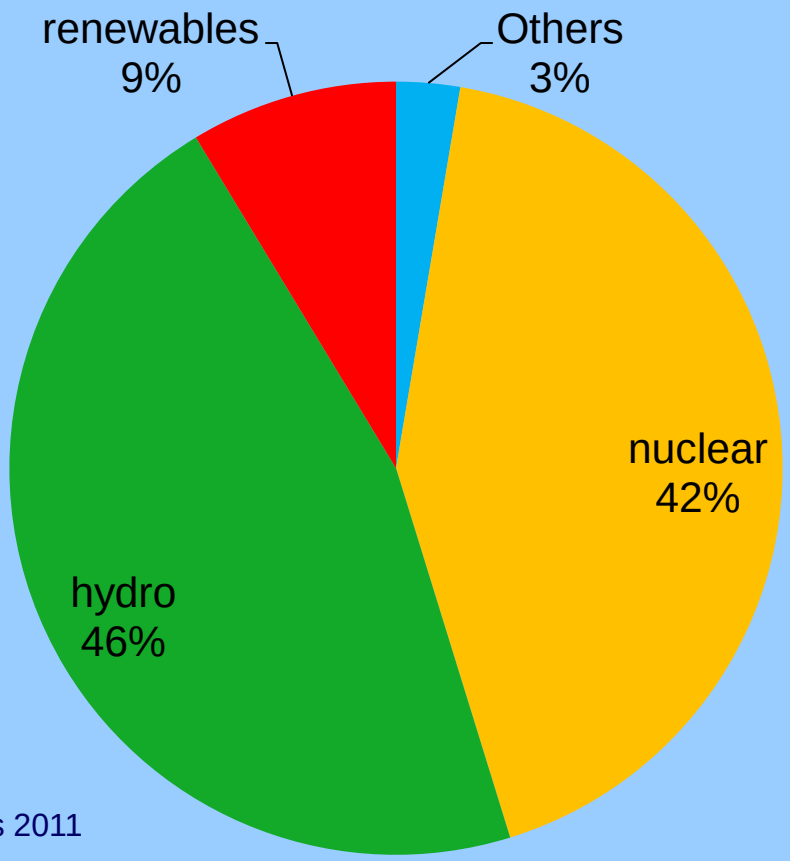
- Sweden is one of the leading environmental countries of the EU where renewables play a major role in the energy mix
- Biogas forms half of the natural gas supply
- Use of LNG has been opposed by the government since the 1970's although this appears to be changing

ENERGY PROFILE

- **Oil**
  - production: 4.833 bbl/day
  - consumption: 328.100 bbl/day
  - imports: 589.900 bbl/day
  - exports: 248.500 bbl/day
  - reserves: 0 bbl
- **Natural gas (fossil)**
  - production: 0 m^3
  - consumption: 1,23 billion m^3
  - imports: 1,23 billion m^3
  - exports: 0 m^3
  - reserves: 0 m^3

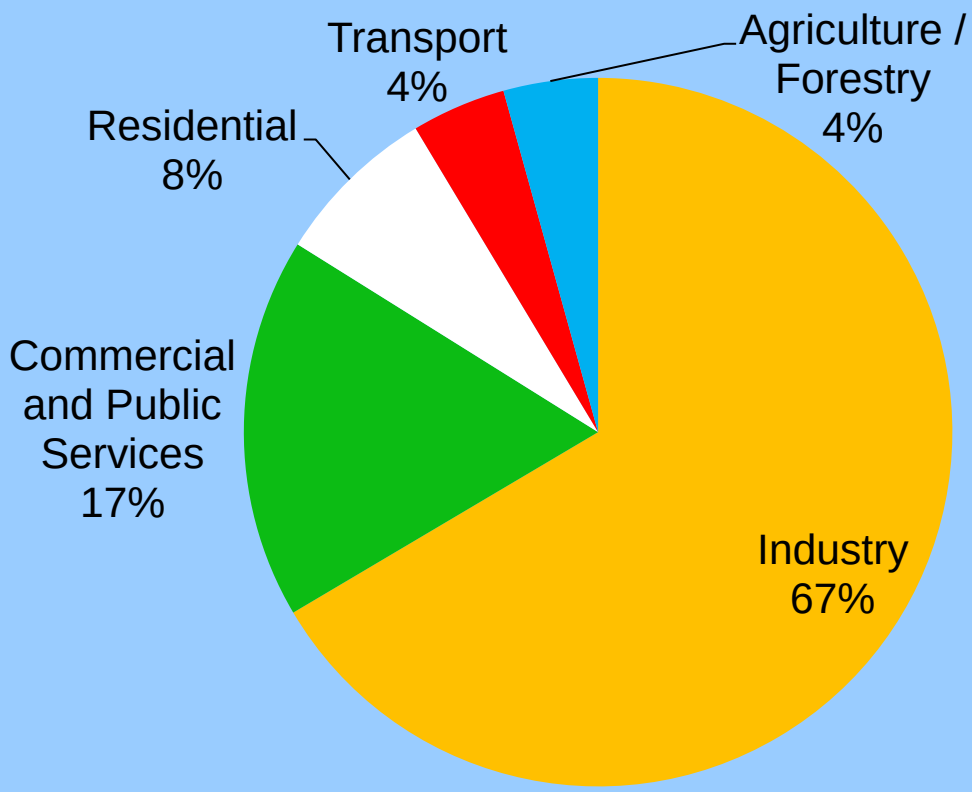
Source: CIA World Factbook 2011

Almost 90% of electricity is produced by nuclear and hydro



Source: IEA statistics 2011

Only 2% of the total energy input comes from natural gas and it is used mostly in the industrial sector



Source: IEA statistics, 2011

There are only 786 km of pipeline
most of the country (including large urban areas) does not have access to natural gas

LNG as a vehicle fuel

- A number of projects examining possibility of using LNG in dual-fuel engines in medium and heavy duty trucks
- Studies underway to create a nationwide LNG fueling network. **(AGA's ambition is to have LNG fuelling stations along all the highways probably by 2020)**
- Estimates that 24 well located LNG or L-CNG stations would provide an adequate refueling network for HD vehicles used for long distances, with one station every 200-300 km along the major Swedish highways
- Supply for short distance travel will be from mother-daughter systems including trucking of CNG although the LNG option may be considered to be more fuel efficient
- Consideration is being given to develop capacity to liquefy about 20% of the high pressure natural gas passing through pressure reduction stations (using pressure-drop technique for liquefaction)

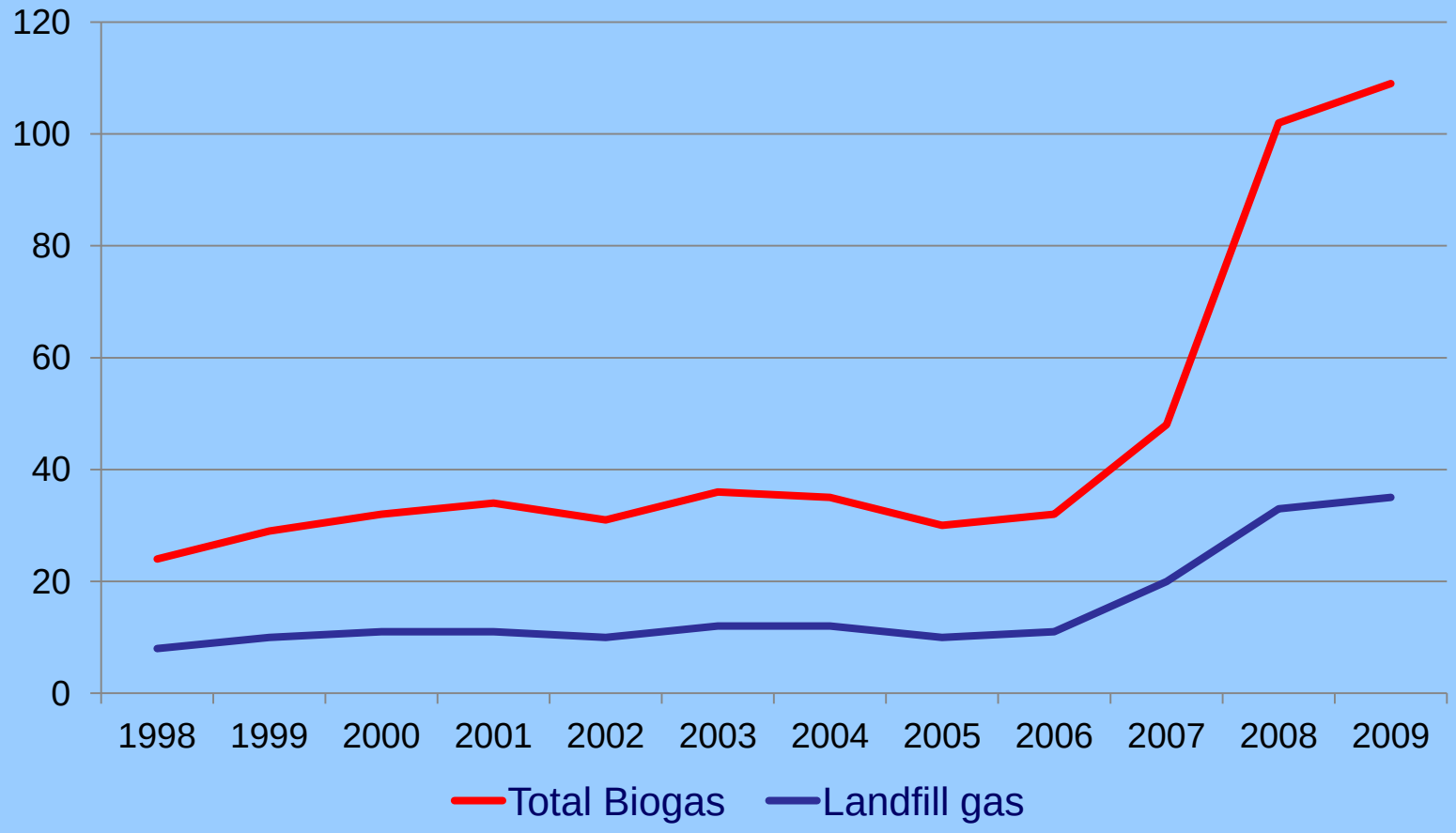
LNG development in the South of Sweden

LCO2 & LBG Fuelling Stations

AGA´s first LNG terminal was officially opened in Nynäshamn

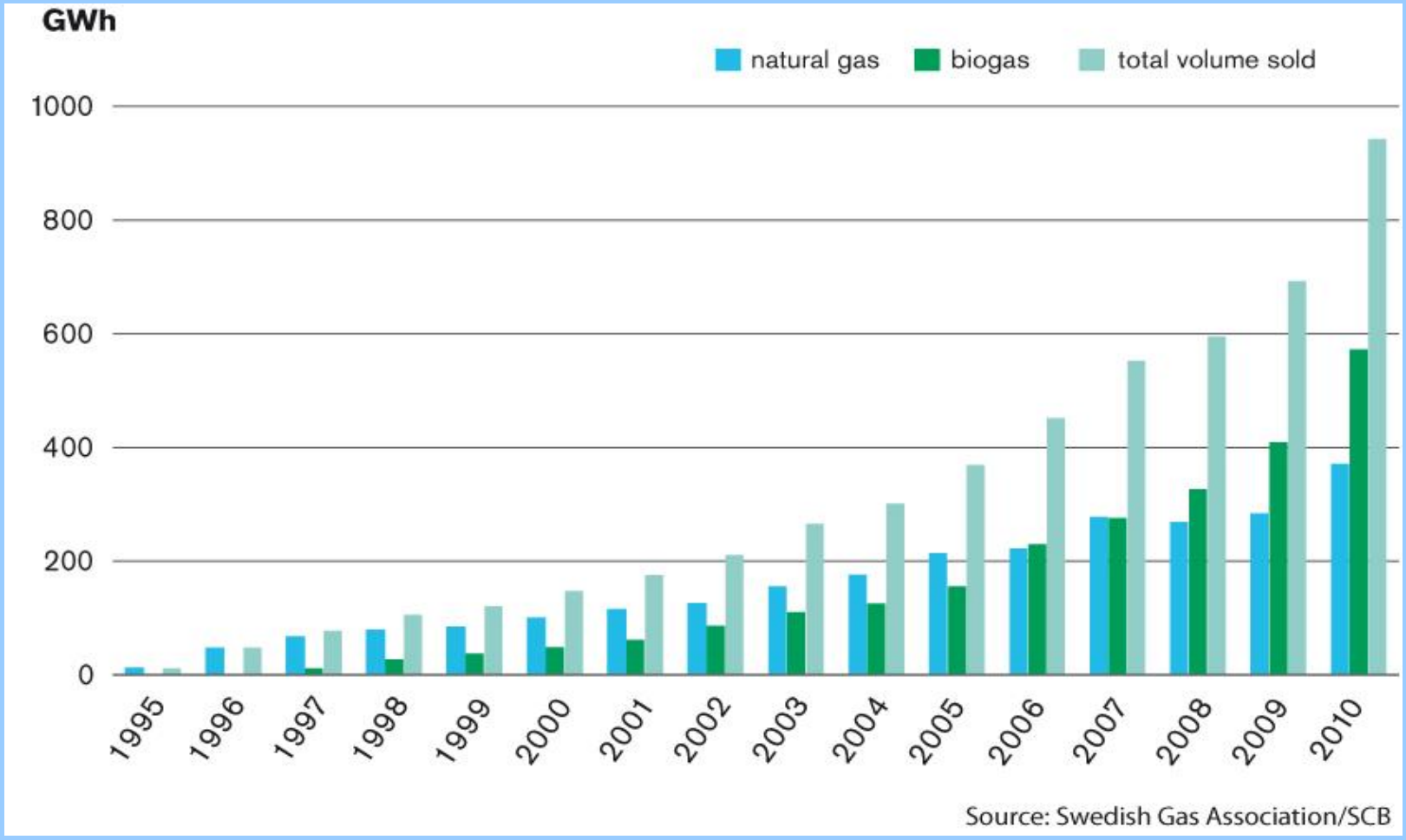
- Opened on 27 May 2011 by Sweden's AGA Gas AB, part of German industrial gas supplier Linde
- Expected reduction of carbon emissions by 50,000 tonnes per year in Stockholm's city gas network
- The plant will import 250.000 tonnes of LNG per year

Landfill gas is almost 30% of total biogas production



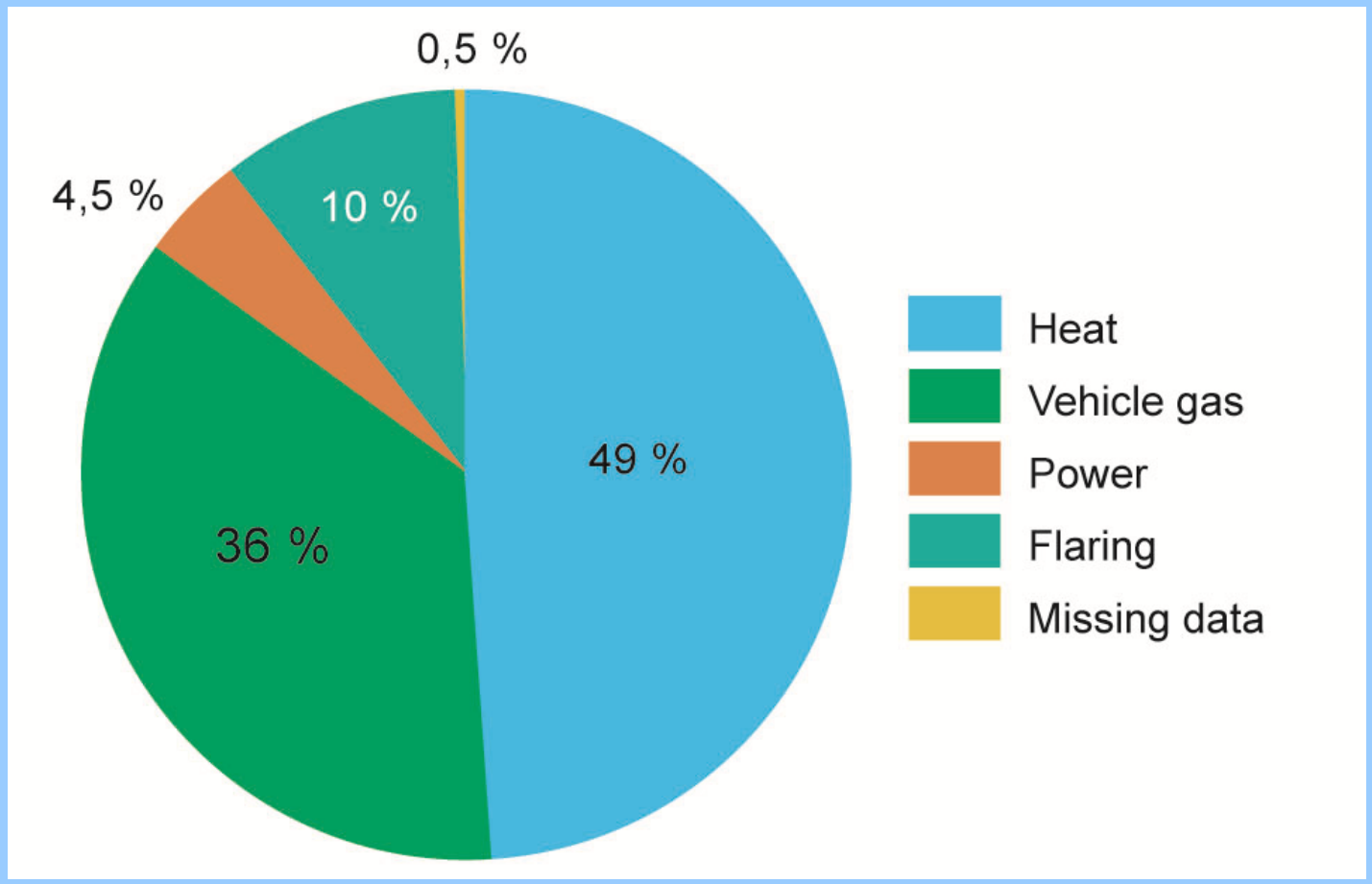
Source: Eurostat

Today more biogas is used than fossil Natural Gas



Source: Biogas Renewable Methane Gas, Leif Holmberg, Swedish Gas Association

The use of Biogas in the transport sector is growing



Source: Biogas Renewable Methane Gas, Leif Holmberg, Swedish Gas Association

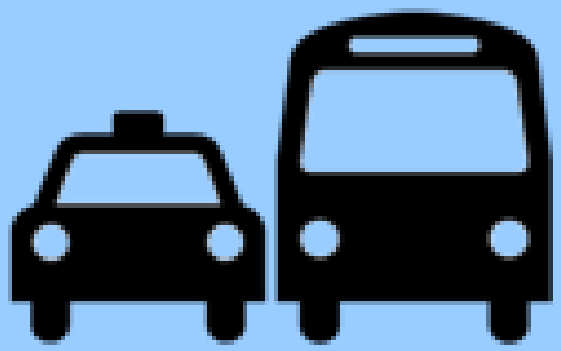
GoBiGas project

- Göteborg Energi's GoBiGas project to open new plant in 2012 to produce 80 million Nm3
- Plant could supply twice as much fuel as the current total Swedish use of 'fordonsgas' (natural gas for vehicles)
- The GoBiGas project uses a new technology where waste from the forest industry is gasified and converted into pure biomethane
- 70 % of the energy contents in the waste will be converted into methane; 20 % will be used for district heating purposes and only; 10% will be consumed in the production process
- Total investment near €150 million
- Process far exceeds efficiencies of '2nd generation liquid biofuels'

Biogas feed-in policies in Sweden

- Gas quality: prescribed (pipeline quality)
- Mandatory acceptance of Grid Injection: Yes
- Regulatory Style: not prescriptive, but the national policy strongly encourages the use of biogas for all possible sectors
- Government Incentives: No fuel tax, investment grants, green certificates
- Restriction: injection into transmission grid not allowed
- Tariffs: market determines prices
- Feed-in Facilities: 8 in operation

VEHICLE PROFILE

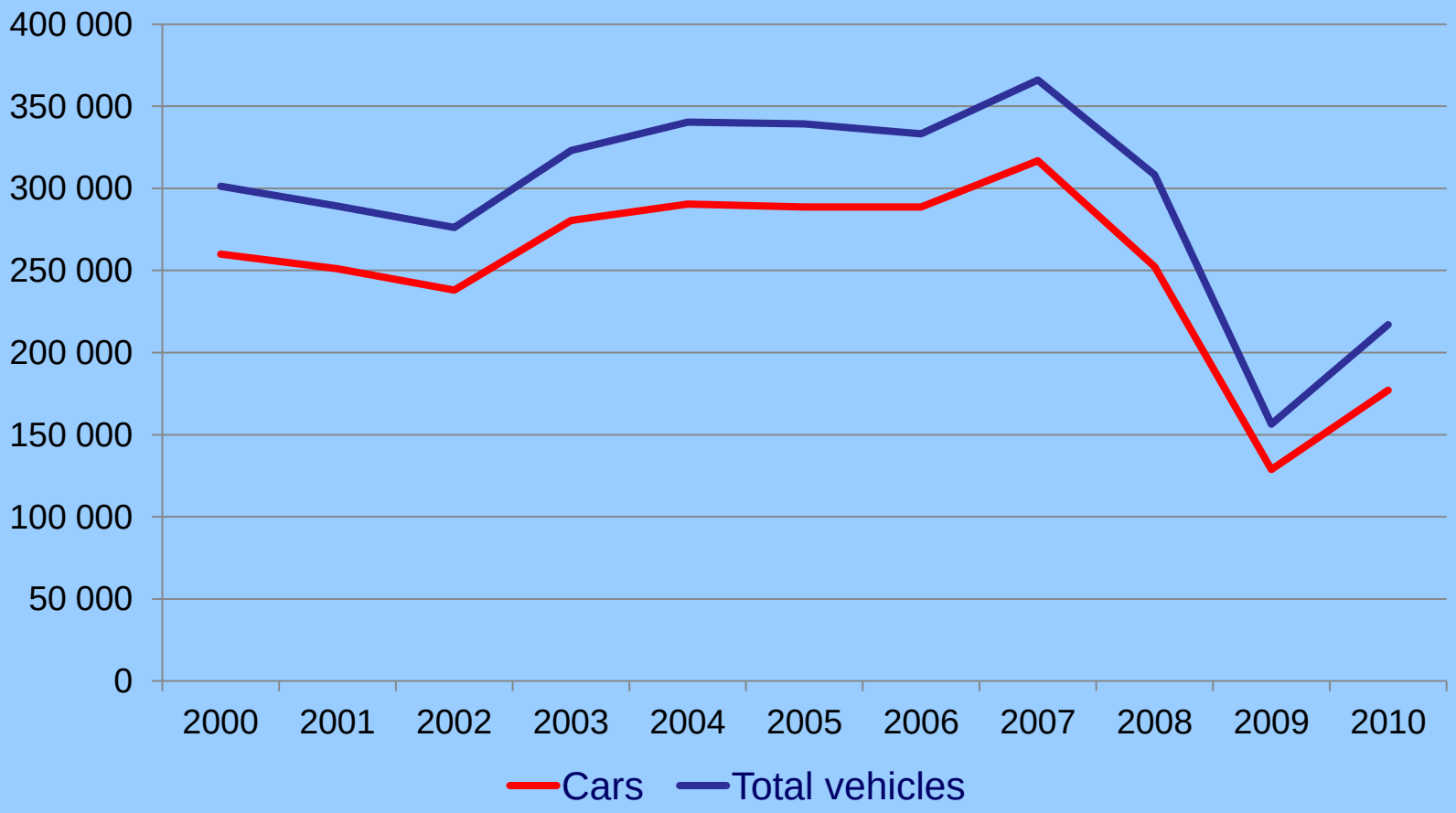


General vehicles overview

- Sweden is among the countries in the world that are most highly dependent on the motor vehicle industry
- Sweden hosts one important domestic carmaker in Volvo Cars (with Saab Automobile now in financial turmoil) and two of the world's leading heavy truck and bus manufacturers – Volvo Group and Scania

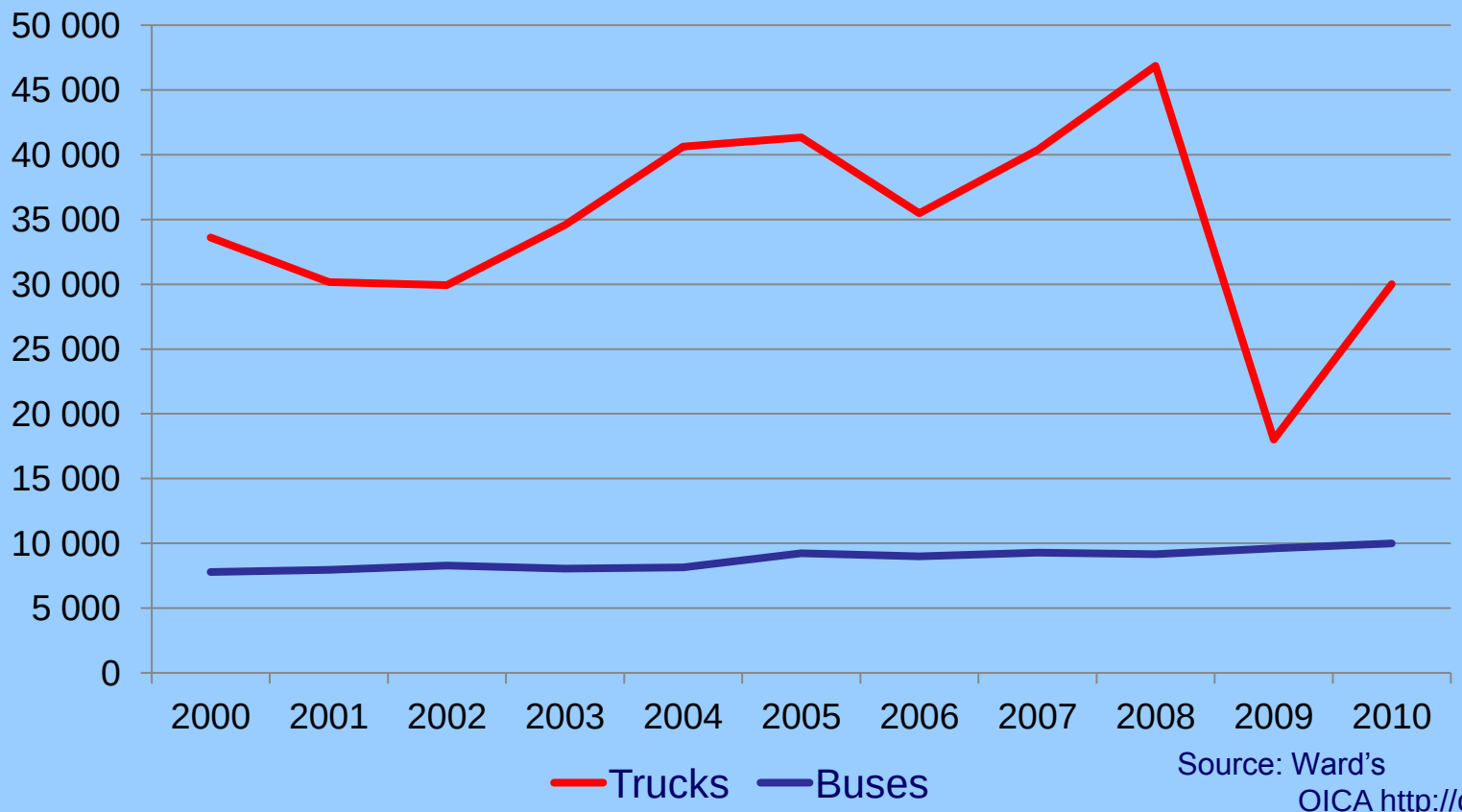
Source: ACEA

Since 2007 production started to decrease



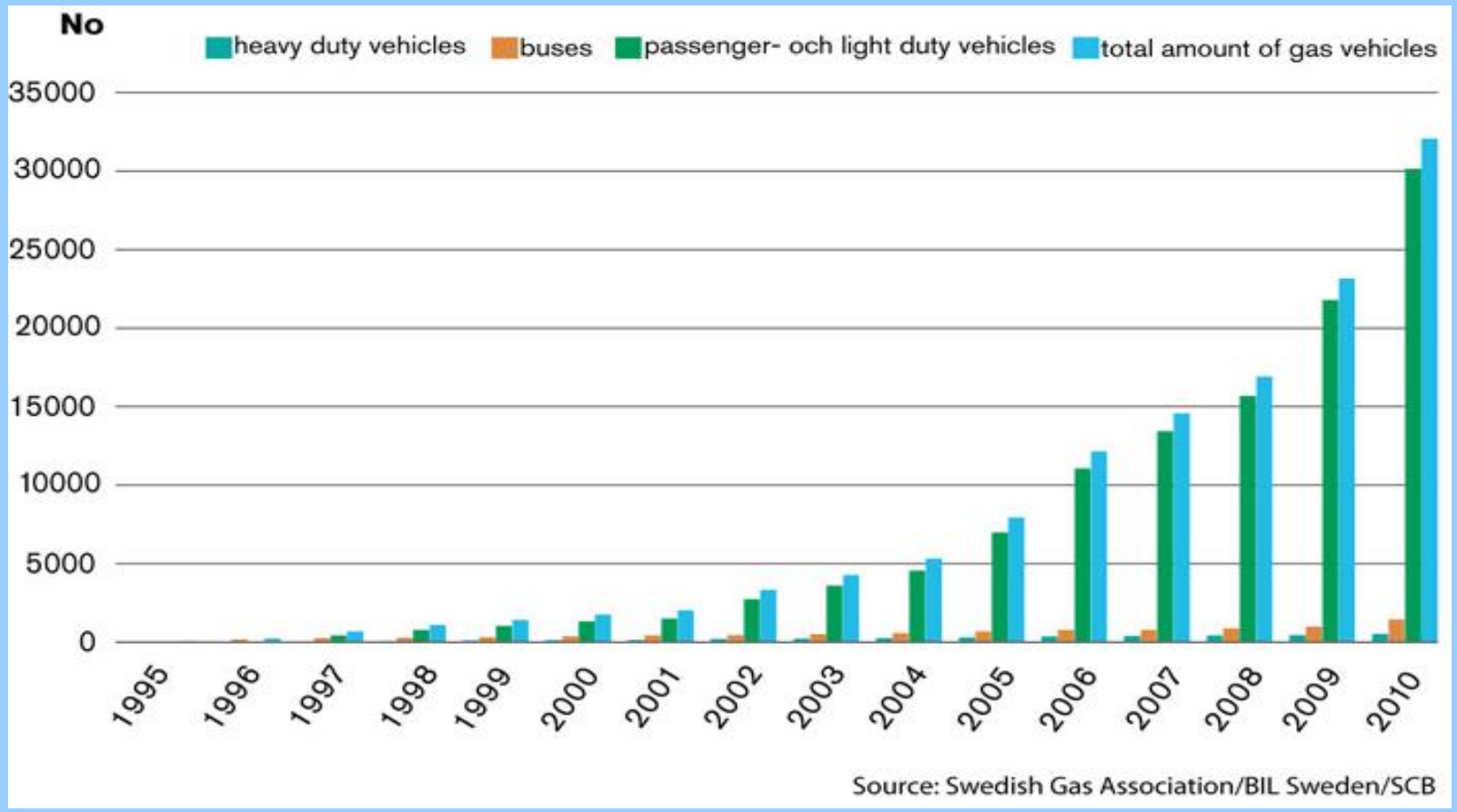
Source: Ward's
OICA http://oica.net/

Despite the economic crisis bus production continued to increase but truck production declined



Source: Ward's
OICA http://oica.net/

The majority of the NGVs are passenger cars



Source: Biogas Renewable Methane Gas, Leif Holmberg, Swedish Gas Association

New Volvo FM MethaneDiesel (dual-fuel) on the market since Summer 2011

- First to market will be the Netherlands, Great Britain and Sweden
- Plan to build about 100 trucks in 2011. Series production will get under way in August
- Volvo expect sales to launch the product in 6-8 European countries within the next two years, anticipating about 400 Volvo FM MethaneDiesel trucks sold each year

Source: “Volvo Trucks first to market gas-powered truck for long-haul operations”, Cision Wire, May 31, 2011

Volvo Buses has received its first order for buses with methane/diesel (MDE) technology in October 2010

- Eleven Volvo 8500 intercity buses, nine twin-axle buses and two, two-axle buses have been ordered from Vårgårdabuss in Sweden, and put in service in July 2011
- The Swedish Energy Agency is contributing nearly SEK 24 M to the project
- A standard diesel bus is used, with roof-mounted gas tanks, converted to run dual-fuel

Source: "Volvo Receives First Methane/Diesel Bus Order", NGV Global, October 28, 2010

Sweden's first biogas and biodiesel garbage trucks enter into service January 2010

- Kungsbacka Municipality, in cooperation with Renova, a major recycling company of West Sweden, has received the first of eight new dual-fuel trucks operating on biomethane and biodiesel
- Renova's biogas converted Dennis Eagle garbage truck to operate on biogas in collaboration with Hardstaff and Volvo

Source: "Sweden's First Garbage Truck to Run on Biogas and Biodiesel", NGV Global, January 25, 2010

Starting from 2009, Taxi Stockholm stepped up its NGV fleet

- Around 200 of the new vehicles are converted Volvo V 70 2.5 FT Flexfuel (ethanol-gasoline blend). The company also ordered 100 Mercedes B170 SMTH gas and 50 Volkswagen Passat EcoFuel gas cars
- Target: to reduce emissions by 70% by 2012

Source: www.taxistockholm.se

Subaru is considering supplying natural gas vehicles in Sweden

- The plans involve converting its midsize Legacy and crossover Outback models to run on CNG
- Plan is to use a vacant Saab facility in Trollhättan
- Production will focus on the Swedish market initially, where Subaru Nordic is confident interest exists for at least 2,000 cars

Source: “Subaru Eyes European NGV Market – Sweden First”, NGV Global, February 3, 2011

NGV OEM AVAILABILTY

OEMs offer a variety of NGVs in Sweden

VOLVO*
- V70 Bi-fuel

FIAT
- Punto Evo
- Doblò
- Fiorino

IVECO
- EcoDaily

MERCEDES
- Sprinter NGT
- E Class
- B 170 NGT

OPEL
- Zafira
- Combo

VOLKSWAGEN
- Passat
- Touran
- Caddy
- Caddy Maxi
- Transporter

*Qualified vehicle modifier now owned by Westport LD

Source: Forsonsgas

Volkswagen dominated 2009 NGV car market

- Volkswagen TSI Passat EcoFuel accounted for 68% of the total NG passenger cars sales in Sweden
- Then follow Mercedes B 170 NGT (24 %), VW Touran, VW Caddy, Opel Zafira, Mercedes E 200 NGT, Opel Combo, and Fiat Punto

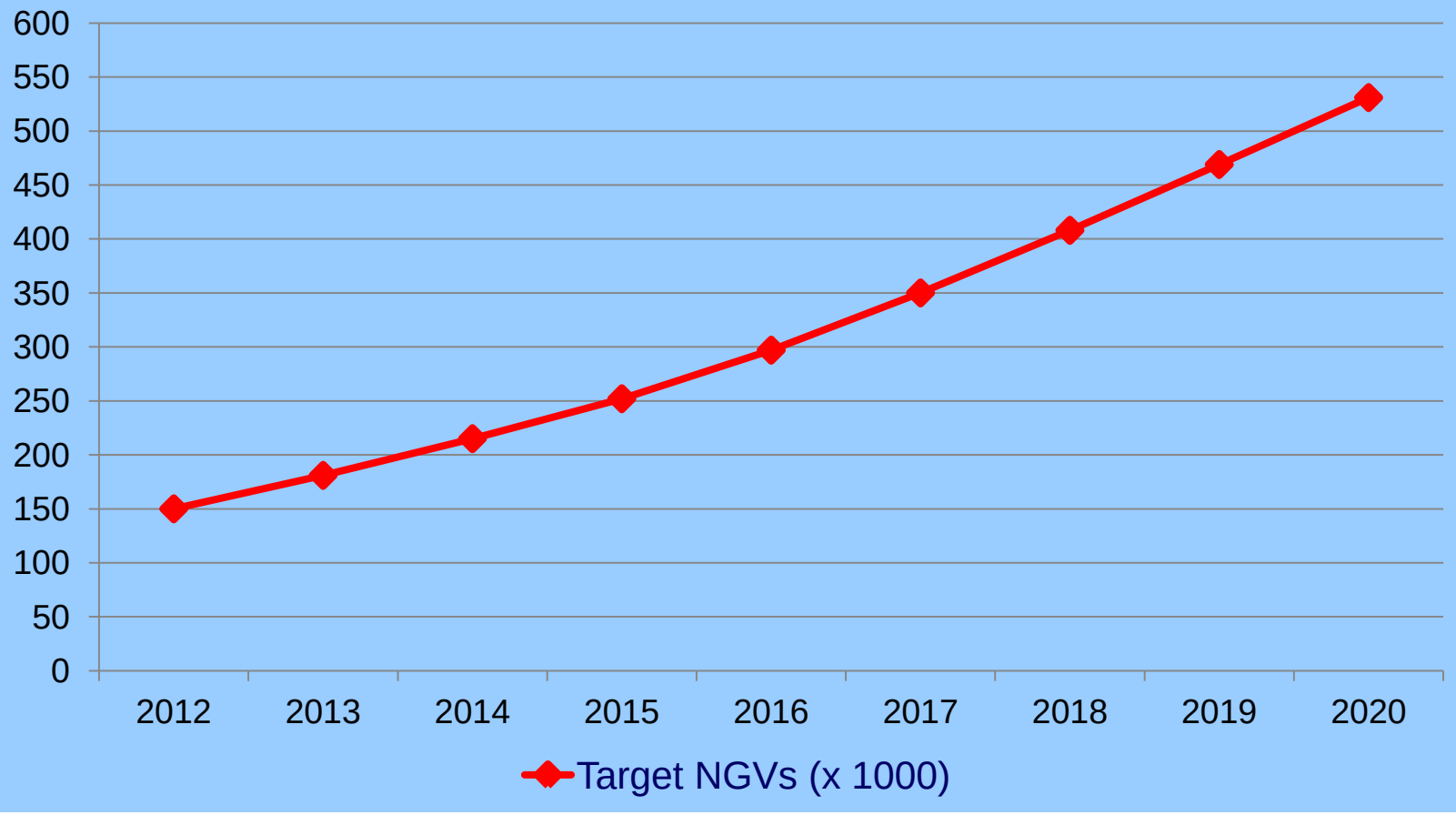
Source: NGVA Europe, 2009

Volkswagen also is leading on medium duty NGV sales

- Volkswagen Caddy accounts for some 45 % of the total sales
- Followed by Opel Combo, VW Transporter, Fiat Fiorino, Iveco Daily, and Fiat Doblò

Source: NGVA Europe, 2009

Swedish target is to reach 500,000 NGVs by 2020



NGV FUELLING INFRASTRUCTURE

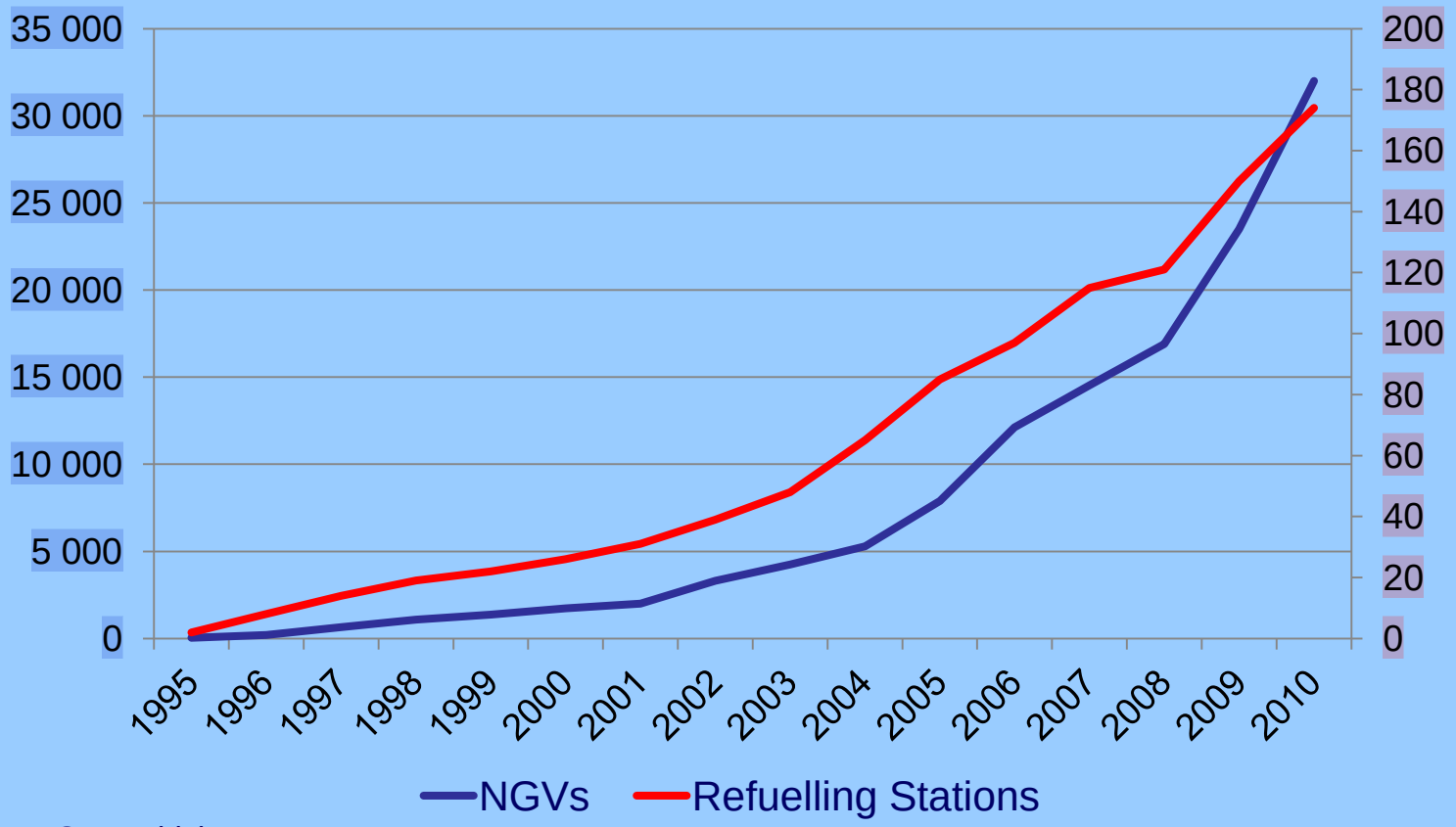
NGV FUELLING INFRASTRUCTURE

Refuelling stations are focused in the Southern part of Sweden where the most dense population -- people and vehicles -- are located

- 129 public stations
- 45 non-public stations for fleets, buses and heavy duty vehicles

Source: Biogas Renewable Methane Gas, Leif Holmberg, Swedish Gas Association

NGVs and refuelling stations have had steady growth



Source: Gas Vehicle Report

There are five major players installing Swedish NGV fuelling stations using a variety of public/private business models

- Municipalities with one or two stations are financed by taxes and municipal money
- Fordonsgas: Owned in part by Göteborg Energie, owns stations and rely strictly on profits but on a long payback period
- Svensk biogas: Owned by the energy company in Linköping,the company owns their own stations
- AGA: Gas suppliers part of the Linde Group does franchising with local petrol stations. Sometimes the petrol company owns the station and sometimes AGA owns the station
- E.on Sweden: The energy company owns their own stations.
- Roughly equal split of ownership of stations between the five groups

E.On and Liqueline signed an agreement to build a second L-CNG station

- New L-CNG facility in Stockholm, which is expected to be running in the second quarter of 2012
- Liquiline's gas will be supplied and stored as liquid natural gas (LNG) or liquefied biogas (LBG) and will then be converted into high pressure CNG at 250-300 bar

Source: NGV Journal, Second LCNG station to be built in Sweden, 19 August 2011

First LNG station opened on October 2010

- FordonsGas Sverige AB opened Sweden's first public LNG filling station in Göteborg
- At first the station used LNG from Norway. By the spring 2011 the station is supplied with liquefied biogas directly from a new biogas production plant in Lidköping

Source: GNV Magazine, First LNG public station for heavy vehicles in Sweden, 9 November 2010

Sweden's first public biogas refuelling station supplied by Liquid BioMethane

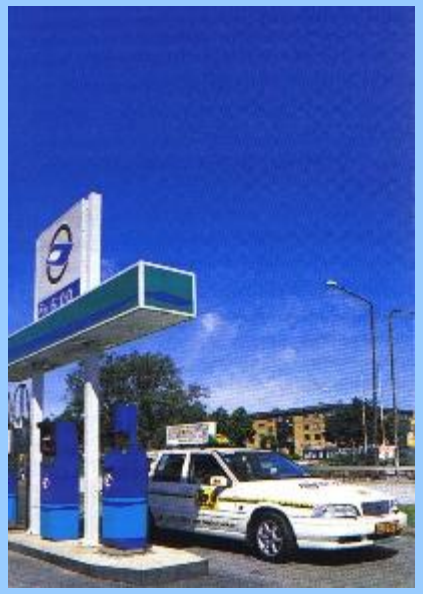
- Opened in Sundsvall, in June 2010, for the production of Liquefied BioGas (LBG)
- The filling station was opened one year earlier and has initially supplied Liquefied Natural Gas (LNG)
- The LBG will first and foremost be used to fuel waste collection trucks in Sundsvall

Biogas Highway project

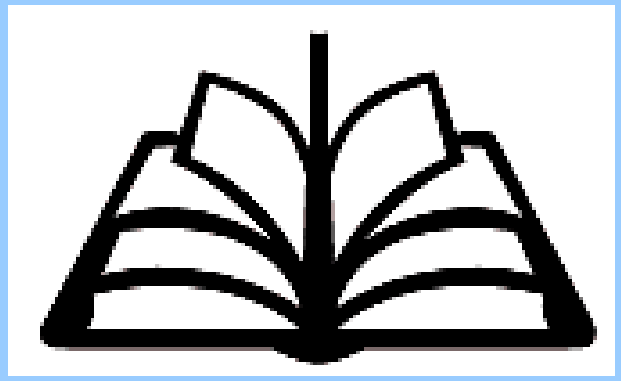
- Part of BIOGASMAX project in which 28 partners (cities, industries, research institutes) were involved
- The aim of the Biogas Highway is to connect Stockholm with Göteborg via biogas fuelling stations along the E20 Highway (500 km)

2014 Target

- Aim for a total of 400 fueling stations
- Aim to increase sales of gas from the current 60 million Nm3/year to 200-300 million Nm3/year (about 3% of total Swedish road fuel consumption)



STANDARDS & REGULATIONS



- Multi-fuel stations: allowed
- No limits on opening hours
- Self service: allowed
- Payment practices at the pump: cash, credit card and company fuel cards

Swedish Code for NGV and Biogas Filling Stations - TSA 06 deviate only somewhat from prEN 13638

- Gas compressor (main difference with European Standard prEN13638): Compressors must fulfil the requirements contained in the Machinery Directive SS-EN 1012-1 and the ATEX directive, and they must bear the CE mark in accordance with both directives
- Storage facility (main differences with European Standard prEN13638): Gas storage located inside a building must be separated from other parts of the building by walls that fulfil, at a minimum, fire resistance classification EI 60

Source: Biogasmax project, Synthesis Report on Normative Regulatory Requirements

Swedish regulations on dispensers (differences with prEN13638) – part1

- The filler hose must be equipped with a break-away valve. The break-away valve must stop the flow of gas at a tensile stress of less than 500 N for dispensers at public filling stations and 850 N for facilities that use the larger nozzle for buses and other heavy vehicles
- The filler nozzle must meet the requirements in ISO 14469-1 and have a gas return connection
- The supply temperature of the gas must be between -40 °C and +60 °C
- Filling stations must have a temperature compensated filling system complying with SÄIFS 1998:5

Source: Biogasmax project, Synthesis Report on Normative Regulatory Requirements

Swedish regulations on dispensers (differences with prEN13638) – part2

- Filling stations must be designed for a nominal filling pressure of 200 bar at 15°C, although with a maximum of 230 bar
- Pressure in excess of 230 bar must undergo a special review by the Swedish Rescue Services Agency for each filling station
- The maximum filling pressure for vehicles is 260 bar. Since there are vehicles in today's market that cannot handle 260 bar, this pressure is reduced to 230 bar. This pressure may be raised to 260 bar when these vehicles are phased out. Therefore, filling stations should already be designed with 260 bar as the maximum filling pressure

Source: Biogasmax project, Synthesis Report on Normative Regulatory Requirements

SS 155438 standard regulates the quality criteria for biogas utilized as biofuels or injected into the natural gas pipeline network

PARAMETER	UNIT	DEMAND IN STANDARD
Lower Wobbe index	MJ/nm3	43,9-47,3
MON (motor octane number)	-	>130(according to ISO 15403)
Water dew point	ºC	<t-5
CO2+O2+N2	Vol-%	<5
O2	Vol-%	<1
Total sulphur	Mg/nm3	<23
NH3	Mg/nm3	20

GOVERNMENT SUPPORT

All alternative vehicle fuels are eligible for tax rebates of vehicle fuel taxes

- Vehicle fuel taxes include a CO2 tax and a tax on the energy content of the fuel
- VAT is added to all types of fuel
- Compared to the energy value of petrol, biogas and ethanol receive a 100% tax rebate; natural gas and LPG propane receive a rebate of about 80%
- Valid until 2012

Reductions of tax assessment values in relation to a comparable petrol-fuelled vehicle

National government lowered the assessment values for clean cars to the same level as comparable petrol-fuelled vehicles in 1999. Additional reductions were allowed from 1 January 2002; as of 2007 the incentive has been extended until 31 December 2011:

- Natural gas and biogas: 40%, maximum SEK 16,000 per year (€1,756)

Exemption from congestion charges until 30 June 2012

- The charge affects vehicles entering and leaving Stockholm's inner city Monday-Friday between 06:30 – 18:29. The maximum charge is 60 SEK (€6.60) per day (no congestion charge on weekends or national holidays)
- Vehicles driven with biogas, ethanol, electricity, synthetic gas, methane, methanol, natural gas or hydrogen registered before 1 January 2009 are exempt until 2012
- No exemption from congestion charges for cars sold and registered after 1 January 2009

Basic tax at 360 SEK (€39.50) per year for all light duty vehicles

An additional tax is paid per gram CO2 exceeding 100 g/km:

- For petrol vehicles tax is 15 SEK/g CO2 (€1.65)
- For diesel vehicles tax is 52.5 SEK/g CO2 (€5.76)
- For vehicles using alternative fuels (E85, natural gas or biogas) the tax is 10 SEK/g CO2 (€1.10)

New car taxation system from 1st July 2009

	Until 30/6/2009	Jul 2009	Jan 2011	Jan 2013
Environmental bonus	10.000 SEK	-	-	-
Tax exemption for E-Cars	-	5 years	5 years	5 years
Co2 limit for car taxation	100 g	120 g	120 g	120 g
Tax on exceeding CO2-Emissions	15 SEK/g	15 SEK/g	20 SEK/g	20 SEK/g
Tax on exceeding CO2-Emissions (eCars)	10 SEK/g	10 SEK/g	10 SEK/g	10 SEK/g
Tax factor for diesel	3,15	3,15	2,55	2,4
Extra yearly diesel tax	-	-	250 SEK	250 SEK
Fuel tax on diesel, Compared to current level	-	-	+0,20 SEK	+0,20 SEK

Source: Volkswagen Group Sverige, Sweden – key driver for CNG in the passenger car market, 7 July 2011

Government incentives for biogas

- Climate program: 30% of investments in biogas production and upgrading facilities. Total €60mil (2003-2008)
- €15 million for biogas technology development (2009-2011)
- €20 million, 30 % investment, for establishing farm plants for biogas (2009-2013)
- €17 million, 30% of investment, filling-stations for renewable fuels (2006-2009)

Source: Biogas Renewable Methane Gas, Leif Holmberg, Swedish Gas Association

Municipal Incentives for Low Emissions Vehicles

- Stockholm exempts low emission vehicles including NGVs from the annual 15,000 SEK (€1,645) rush hour charge
- Many municipalities offer free parking for NGVs (ended in Stockholm in 2008), allow CNG fueled taxis to use priority lanes at strategic locations such as railway stations and airports (Arlanda Airport)

Source: NGVA Europe

Municipality Support for Public Transport

- Malmo was first city to have 100% NG bus fleet
- 50% of Stockholm's public buses will be "green" by 2011 and 100% by 2025
- By the end of 2008 Stockholm had 80 buses running on biomethane. Aim is for 500 by 2012 (today Stockholm Public Transport has 400 ethanol buses and 100 biogas buses)
- The Stockholm city council to allow fuelling stations to use fossil sourced natural gas when biomethane supplies are insufficient to meet demand
- All city owned vehicles to meet 'environmental vehicle' status by 2010

Source: Stockholm Public Transport

GAS INDUSTRY SUPPORT

GAS INDUSTRY SUPPORT

Historically Sweden's NGV growth has been driven by municipalities and their gas companies

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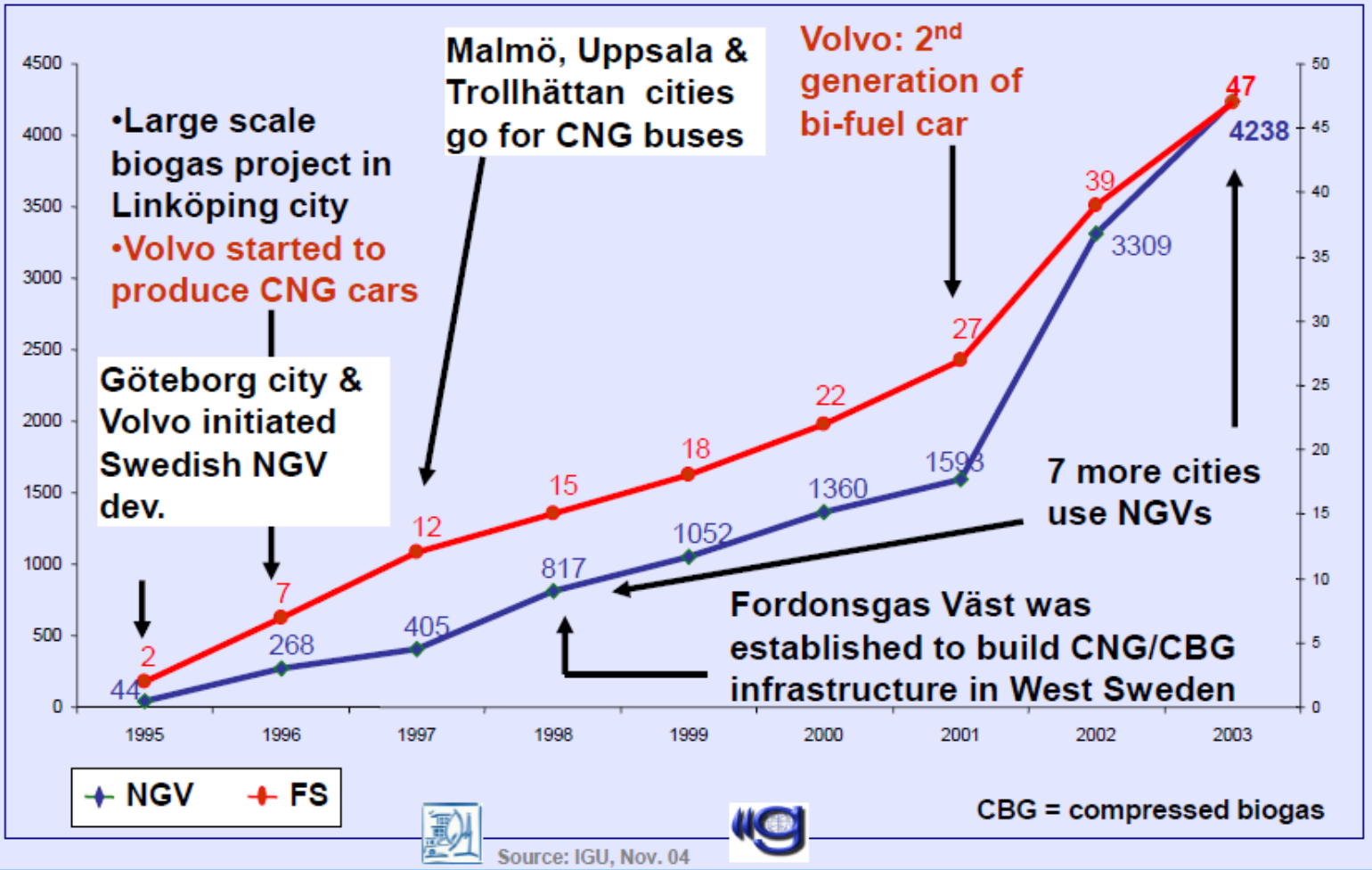

SGC is to co-ordinate Swedish industrial interest in R&D concerning gas fuel technology

Involved in many projects concerning biogas field:

- Upgrading of landfill gas
- Upgrading of digestate
- Struvite production from digestate
- Pre-treatment of source separated household waste
- Two-stage digestion
- Food waste disposer for waste from restaurants
- Biogas characterization
- Biogas from lignocellulose
- Collection of substrate for biogas production by food waste dispenser for households
- Dry digestion
- Handbook for BMP-measurments
- Methane emission measurements

SGC Svenskt Gastekniskt Center AB

Strong interest from AGA in Liquefied BioGas

Linde Gas | AGA

Biogas
Ren naturkraft

- AGA, part of The Linde Group, delivers gas to 14 public filling stations
- AGA has built eleven new stations in cooperation with Preem, OKQ8, Statoil, Shell and Uno-x
- AGA distribute biogas in 'swap body' truck storage systems
- 5.1 million Nm3 biogas 2008

Source: AGA, LBG infrastructure in Sweden

NATIONAL LAWS & REGULATIONS

Business freedom is high

- The efficient regulatory framework strongly facilitates entrepreneurial activity, allowing business formation and operation in Sweden to be dynamic and innovative
- The government generally takes a hands-off approach in sectors dominated by small businesses

Source: The Heritage Foundation, 2011 Index of economic freedom

Investment freedom is good but there is a complex bureaucracy

- Foreign companies may invest in most sectors in Sweden without any more restrictions than are applied to domestic firms
- Investment laws and the bureaucracy are efficient
- A complex network of permits and licenses applies to domestic and foreign firms but labor and environmental regulations add to the cost of investment
- There are no controls on payments and transfers or repatriation of profits. The purchase of real estate by non-residents may require a permit

Source: The Heritage Foundation, 2011 Index of economic freedom

COMMENTS BY STAKEHOLDERS

"Gas industry support is essential"

- The distribution companies are key actors. It is extremely important that they believe in the business and communicate that they are willing to invest. That gives argument for OEMs to deliver vehicles and is a clear signal to the market
- In the case of Sweden I believe FordonsGas was the key actor. They concluded that they will build stations where customers need them and the business case should be seen as a total and not one business case per filling station
- If gas distributors are not pushing the market initially with concrete actions no one else will. Gas distributors need to push OEMs as OEMs will not push gas distributors. It is a fact

Swedish environmentalist; formerly with Volvo in the alternative fuels group

COMMENTS BY STAKEHOLDERS

- In Sweden the car and truck industry is strong so they are involved and more motivated by the gas industry actions. But it goes back to the pull from the customers who, in Sweden, want a fully warranted OEM vehicle
- It's absolutely essential that the gas companies are involved in the CNG business to motivate customers and break the chicken and egg problem
- In Sweden they have an integrated model where the gas companies include distribution and transmission. Oil companies can buy the gas and resell it to customers or gas companies sell directly

Gas company executive formerly in Sweden now based in South America

COMMENTS BY STAKEHOLDERS

- In Sweden it's the energy companies that are driving the market for NGVs. The petrol companies are involved mostly in liquids
- It's a slower plan with the municipalities and the private gas companies than a national plan. The gas suppliers and station owners all have to grow organically to make profit in order to get loans
- Volvo's LNG truck is going to help with the demand for gas in the future

Swedish fuelling station supplier

CONCLUSIONS

- Energy environment
- Gas industry support
- Government support
- NGV market development
- Legal and regulatory framework for CNG station development
- Investment environment

Energy Environment

- Strong renewables energy program from the national and local governments provide a positive environment that supports the use of biogas/biomethane
- Though there is a relatively small pipeline network, natural gas (and particularly biomethane) is seen positively and with a role to play in the future transport market

Gas Industry Support

- Gas industry support for renewable gas is amongst the strongest in Europe
- Municipal gas companies have been an important driving force in creating the NGV fuelling infrastructure, so much so that the national government followed their lead
- Municipalities' flexibility (and creativity) has lead to interesting business opportunities to support NGVs

Government Support

- Good support, especially from municipalities, help drive the NGV market
- Various incentives have been very important but many were stopped on 2009 and others will decline as of 2012
- Tax advantages, particularly through employee benefits plans, help spur NGV purchases

NGV Market Development

- Lack of support from national OEM for light duty vehicles (Volvo is more focused on heavy trucks and buses than on passenger cars) has resulted in a strong presence of foreign OEMs in the market. This provides a relatively good selection of NGVs for customers.*
- Active fuelling station developers are supported by various stakeholders to help break 'chicken & egg'
- Environmentalism among the population has been a driver for clean fuels and vehicles, as well as other innovations

- *A Volvo's qualified vehicle modifier (QVM), now owned by Westport LD, does keep some light duty NGV models in the market.

Legal and regulatory framework for CNG station development

- Clear and trasparent standards, although sometimes they tend to be somewhat complicated
- Flexible rules for biomethane injection in the grid (and using it directly at production facilities) has positive effect on NGV markets, also recognizing the contribution to CO2 reduction

Investment Environment

- High levels of trade freedom, investment freedom, monetary freedom, and financial freedom
- The overall regulatory and legal environment, transparent and efficient, encourages robust entrepreneurial activity

SWEDEN
(September 2011)