

# ***The Program Board for Automotive Research – PFF – and its work***

*The PFF is a research body that is unique to Sweden and that is comprised of the automotive industry and those authorities that conduct research in the automotive field. The PFF is a forum for cooperation between its various parties and it is also responsible for the implementation of four different research programs in the field of automotive technology*

## **THE PROGRAM BOARD FOR AUTOMOTIVE RESEARCH – PFF**

- Agreement on cooperation within the PFF
- Independent state-appointed chairman in the PFF
- PFF secretariat at VINNOVA

### **PARTIES**

Swedish Agency for Innovation  
Systems (VINNOVA)

Swedish Road Administration  
(Vägverket)

Swedish Energy Agency (STEM)

Swedish Environmental Protection  
Agency (Naturvårdsverket, SNV)

AB Volvo

Saab Automobile AB

Scania CV AB

Volvo Car Corporation

Scandinavian Automotive  
Suppliers

<b>Vehicle Research Program ffp</b>	
1994 – 1996	
1997 – 2001	
2002 – 2004	
2005 – 2008	
Industry	50%
VINNOVA	50%
<b>TOTAL</b>	<b>MSEK 1050</b>

<b>Swedish "Green Car" initiative Gröna Bilen</b>	
2000 – 2007	
	<b>MSEK</b>
Industry	1320
STEM	300
VINNOVA	145
VV	55
<b>TOTAL</b>	<b>MSEK 1820</b>

<b>Emissions Research Program EMFO</b>	
2002 – 2008	
Industry	1/3
VV	1/3
STEM, SNV, VINNOVA	1/3
<b>TOTAL</b>	<b>MSEK 140–205</b>

<b>Intelligent Vehicle Safety Systems Program IVSS</b>	
2003 – 2008	
	<b>MSEK</b>
Industry	270
VV	300
VINNOVA	50
ISA (Invest in Sweden Agency)	20
<b>TOTAL</b>	<b>MSEK 640</b>

**Program responsibility and  
program director  
VINNOVA**

**Preparation group  
ffp and Swedish "Green  
Car" initiative**

**Program responsibility and  
program director  
Swedish Road Administration**

**Preparation group  
EMFO**

**Preparation group  
IVSS**

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## The Program Board for Automotive Research (PFF)

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The PFF was set up in 1994 in order to facilitate cooperation between the automotive industry and the relevant authorities. The PFF's overall aims are:

- responsibility for the implementation of the program within the field of automotive technology
- to facilitate coordination of the R&D work done by contributing authorities within the field of automotive technology
- to be a forum for the discussion and analysis of current questions in the automotive sector.

The work carried out within the PFF is based on a collaboration agreement between Scandinavian Automotive Suppliers, Saab Automobile AB, Scania CV AB, AB Volvo, Volvo Car Corporation, Swedish Energy Agency, Swedish Environmental Protection Agency, VINNOVA and Swedish Road Administration. BIL Sweden contributes as an assistant member. The program is directed by an independent, state-appointed chairman.

PFF currently has responsibility for four research programs:

- The Vehicle Research Program (ffp)
- The Swedish "Green Car" initiative (Gröna Bilen)
- The Emissions Research Program (EMFO)
- The Intelligent Vehicle Safety Systems program (IVSS)

The general office for the PFF and the administrative offices of the Vehicle Research Program and the Swedish "Green Car" initiative are located at VINNOVA. The Swedish Road Administration is responsible for administration of the EMFO and IVSS programs.

Further information about the PFF and the four sub-programs can be found at [www.pff.nu](http://www.pff.nu)

## **The Vehicle Research Program (ffp)**

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The aim of the Vehicle Research Program is to strengthen the ability of the Swedish automotive industry to compete on an international basis. This is done by supporting technological automotive research in the fields of safety, the environment and cost/quality. The aim is the creation in the country of a skills and recruiting basis at the highest international level and to see that high-quality research results are generated. Research is governed entirely by the needs of the automotive industry, something that is ensured by the project being initiated and required by a company within the automotive industry, while, at the same time, work involving a university/industrial research institute is a precondition of any project.

### ***Positive evaluations***

The program has been evaluated on two occasions. Impressions from the latest evaluation of the ffp include the following:

- the projects are relevant in terms of research, industry and society
- there is a functioning network structure that has led to close contact within industry and real problems for the researchers to solve
- this network structure has allowed the companies to achieve an improved basis for recruitment and useable research results
- strong groups have been created that carry out fundamental research that is of long-term interest for the automotive industry.

The latest evaluation can be viewed at [www.pff.nu](http://www.pff.nu)

## The Swedish “Green Car” initiative

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The Swedish “Green Car” initiative (Gröna Bilen) includes a research and development program and an educational commitment.

The aim of the R&D is to promote the development in Sweden of more environmentally friendly technology in order to promote the ability of the Swedish automotive industry to grow and to compete in the long term. The development of vehicles and vehicle components with better environmental properties will serve to accelerate the changeover to a form of road traffic with an environmental impact that is acceptable in the long term.

The educational commitment is intended to increase the number of graduates specialised in the automotive field in order to widen the recruitment basis for the automotive industry and for postgraduate studies. Further information about the educational package can be found at [www.gronabilen.se](http://www.gronabilen.se)

**The Swedish “Green Car” initiative consists of the following ten sub-programs:**

- Methane gas engines
- Exhaust after-treatment
- Emission research
- Fuel cell and electric hybrid vehicles
- New engine technology (HCCI)
- Advanced engine concept 1
- Advanced engine concept 2
- Road information
- Weight reduction
- Education

### ***State funds essential for long-term knowledge development***

The program was evaluated in 2003. Amongst the matters raised by the assessors is the fact that the state funds may appear small compared to the companies’ total R&D budget. However, the vehicle companies only use 10 % of their R&D budgets for more long-term R&D work and knowledge development, which means that the state funds have initiated projects that would not otherwise have been launched. The competition in the companies for R&D funding also means that participation in the Swedish “Green Car” initiative provides better preconditions for motivating long-term development work. This is particularly important in companies with foreign owners and at times when savings have to be made. The evaluation can be found at [www.pff.nu](http://www.pff.nu)

## **The Emissions Research Program (EMFO)**

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The aim of the EMFO is to offer academia, industry and authorities access to necessary knowledge for pioneering solutions that are necessary if vehicle technology is to develop in the desired direction. One important task is to coordinate activities within the programme with both national and international research in the field.

The program covers emissions from tractors and larger motorized equipments, as well as road traffic vehicles. Emissions, in this context, are taken to mean both air pollutants and noise. In addition to exhaust emissions, vapour emissions and emissions from tyres and road surfaces are also covered.

The program started in 2003 and consists of the following twelve sub-programs:

- 1 Functional solutions to achieve future emission requirements for diesel engines
- 2 Future requirements and standards for diesel engines
- 3 The occurrence of different types of emissions from different sources and conditions
- 4 Reliable emissions statistics and basic data for this
- 5 Reduced road dust and noise emissions
- 6 Future alternative fuels and drive systems
- 7 Alternative fuels for the existing vehicle fleet
- 8 Knowledge of different emissions and their sources (also from a life cycle perspective)
- 9 Socio-economic evaluation of the health and environmental impact of different emissions
- 10 Health and environmental impact
- 11 Emissions-optimised traffic and transport management
- 12 Optimal range of socio-economic measures

## **The Intelligent Vehicle Safety Systems program (IVSS)**

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The traffic on our roads is increasing, while, at the same time, there are ever-increasing demands that the vehicles themselves must be safe, environmentally friendly, reliable and efficient. In order to meet these demands, the vehicles have to be supported by artificial intelligence. A great many new systems and services will have to be developed both for the vehicles themselves and for their components, and also for road and system infrastructures.

The aim of the IVSS program is for a national initiative to be arrived at in order to strengthen the world-beating position of the Swedish automotive industry in the field of road safety, based on Sweden's recognised skills in the fields of IT and telecommunications.

The program is limited to creating the preconditions for and introducing new safety-promoting technological solutions in vehicles and appurtenant system and road infrastructures. The solutions are to be based on information technology in a broad sense, and formulated in such a way as to be adapted to human needs and prerequisites. The program is intended to work towards achieving political transport and commercial goals, as well as the commercial goals of the companies involved. The common goals form the basis for the content of the program.

The program started in 2003 and consists of seven sub-programs:

- 1 Driver support and human-machine interface systems (HMI)
- 2 Communications platforms, internal and external to the vehicles
- 3 Sensor - rich embedded systems
- 4 Intelligent road infrastructure and telematics
- 5 Crashworthiness, biomechanics and design of vehicles for crash avoidance and injury prevention
- 6 Dependable systems
- 7 Vehicle dynamic safety systems

## The Swedish automotive industry

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Sweden has a very extensive motor industry that employs about 150,000 people in Sweden. Of these, about 43,500 work for the vehicle manufacturers, and about 106,500 work for the suppliers.

In 2002, Swedish vehicle manufacturers made about 745,000 vehicles. About 280,000 of these were made in Sweden, and of these about 25,000 were complete goods vehicles. In addition, Sweden also produces principle components for about 100,000 goods vehicles and busses, which are then assembled at other sites within Europe. Most of the production is exported – about 85 % of cars and about 95 % of goods vehicles/busses. In 2002, this export of cars, goods vehicles, busses and vehicle components was worth SEK 110 billion, corresponding to 14.1 % of overall Swedish goods exports, while the excess of the so-called vehicle balance was more like SEK 40 billion.

Gross exports of vehicles and vehicle components have increased from 1974 to 2002 by a factor of 3.3 when converted to 2002 prices – from MSEK 33,330 to MSEK 110,000. This is more than double the value of Swedish pharmaceutical exports, which in 2002 was a total of MSEK 43,000. In 2003, according to information from journals, both pharmaceutical and vehicle exports grew by about 20 %.

During the same period, the net figures or the trade balance for vehicles and vehicle components expressed in 2002's prices, increased from MSEK 11,161 to MSEK 40,000 or a factor of 3.2 times. This also represents a good 25 % of Sweden's trade balance.

The increase in exports and the trade balance is equivalent to a little over 4 % growth each year over a period of 27 years.

As well as those companies that manufacture vehicles, a number of other domestic companies also develop and manufacture contract machinery, forestry machinery and other similar vehicles.

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The information contained in this publication has been obtained largely from the PFF's website. This is being constantly updated and therefore it contains the most up-to-date information.

*[www.pff.nu](http://www.pff.nu)*

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