

The Program Board for Automotive Research

PFF

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.

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.

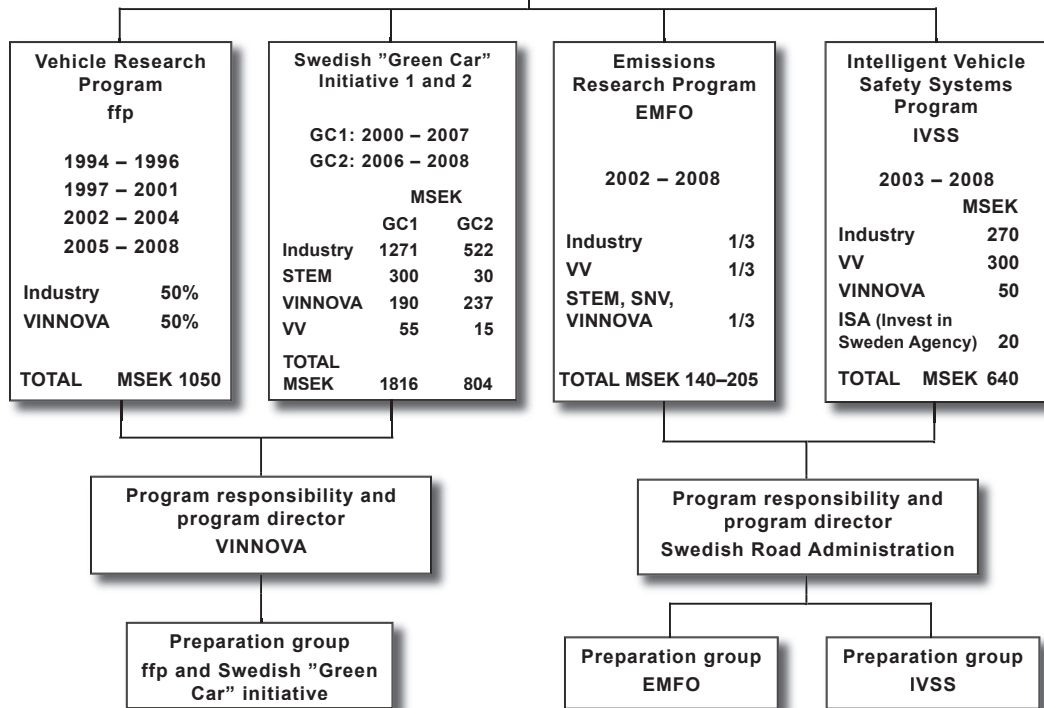
November 2006

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)	AB Volvo
Swedish Road Administration (Vägverket)	Saab Automobile AB
Swedish Energy Agency (STEM)	Scania CV AB
Swedish Environmental Protection Agency	Volvo Car Corporation
	Scandinavian Automotive Suppliers



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The Program Board for Automotive Research (PFF)

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 programs 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 discussions 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 the Swedish Road Administration. BIL Sweden contributes as an assistant member. The program board is directed by an independent, state-appointed chairman.

PFF currently has responsibility for five research programs:

- The Vehicle Research Program (ffp)
- The Swedish "Green Car" initiative 1
- The Swedish "Green Car" initiative 2
- 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

The Vehicle Research Program (ffp)

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 of a skills and recruitment base in the country at the highest international level and to make sure 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 for the researchers with industry and real problems 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 which is of long-term interest for the automotive industry.

The latest evaluation can be viewed at www.pff.nu

The Swedish “Green Car” Initiative 1

The Swedish “Green Car 1” initiative includes a research and development program and an educational commitment.

The aim of the R&D program is to promote the development in Sweden of a 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 aim of the investment in education is to increase the amount of people educated in the automotive field at universities so that the recruitment base for the automotive industry and research education is strengthened. Further information about the education is available at www.gronabilen.se

The Swedish “Green Car” initiative 1 consists of the following 10 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. The evaluators maintain for instance that state funds may appear moderate compared to the companies’ total R&D budgets. However, vehicle manufacturers only use about 10% of their R&D budget for more long-term R&D work and knowledge development which means that state funding has initiated projects which would have otherwise not come off. 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

The Swedish “Green Car” Initiative 2

The Swedish “Green Car 2” R&D program is an extension of Green Car 1. The aim of the program is to produce results which can contribute to the change-over to a sustainable form of road traffic and promote the ability of the Swedish automotive industry to compete in the long term. This will be achieved by co-ordinating R&D development within specially chosen areas of research which provide the greatest potential with the minimum environmental impact.

Green Car 2 has a clear focus on energy-efficient road vehicles, including the use of alternative fuels with the objective of reaching a sustainable transport system. The program encompasses research, development and demonstration within the following areas:

- Internal combustion engines
- Hybrid technology
- Vehicles that use alternative fuels
- Weight reduction
- Aerodynamics
- Auxiliary units

A sub-goal of the program is that suppliers participate in R&D projects either as a party in the project or as a subcontractor to a party in the project. Even participation from companies that lack previous association with the automotive industry as well as the creation of new companies within innovation and development is desirable.

Universities, institutes of advanced studies and research institutes

In order to meet increasing international competition as well as the technological challenges which face the automotive industry, the nation’s ability to produce technological renewal within the automotive field is required. This may be brought about by connecting university research together with development operations within the automotive industry.

The industrial research institutes are well positioned to build up long-term relations with small to medium sized enterprises by contributing with their knowledge and research results which can complement companies’ technological and skills development.

The Emissions Research Program (EMFO)

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)

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, 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

Sweden has a very extensive motor industry. In an international comparison, Sweden is considered unique; with only 9 million inhabitants, it has four vehicle manufacturers with both manufacturing and development within the country. Two of the world's leading manufacturers of heavy vehicles - Scania and Volvo - and two car manufacturers - Saab Automobile and Volvo Personvagnar - have their bases in Sweden. One in five heavy vehicles manufactured in the world in 2005 were either manufactured by Volvo or Scania.

The four vehicle manufacturers including their subcontractors employ about

140 000 people in Sweden. The industry has great regional significance because these companies are spread throughout the whole country and in many areas they are a major employer.

In 2005, Swedish vehicle manufacturers (including Volvo owned Mack and Renault Trucks) produced about 840 000 vehicles, with approx. 325 000 of these vehicles being manufactured in Sweden. About 85% of the cars and 95% of the trucks/buses that are produced are sold on markets outside Sweden. Swedish exports of cars, trucks, buses and car parts amounted to 145,000 MSEK in 2005 which is the equivalent of 15% of the total of Swedish export trade. This makes the vehicle industry Sweden's largest exporter of goods. The equivalent import of vehicles and parts amounted to 98,000 MSEK in 2005 which provided a vehicle trade surplus of 47,000 MSEK. Even during the first half of 2006, the vehicle industry was the largest exporter of goods with an export value of 79,000 MSEK. The increase in exports and the trade balance is equivalent to a little over 4 % growth each year over a period of 30 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.

The technology-intensive vehicle industry has its effects on employment, advanced technological development and the dissemination of knowledge even within other industrial sectors; something which means a lot for example for the IT sector.

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Information in this publication has primarily been taken from PFF's web site. It is updated continuously and therefore contains current, up-to-date information.

Welcome to *www.pff.nu*

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