

Japan's Basic Strategy for Promoting the Development of Next-Generation Environmentally Friendly Vehicles (EFVs)

REPORT SUMMARY

Next-Generation Environmentally Friendly Vehicle Working Group

Promoting the development of next-generation Environmentally Friendly Vehicles (EFVs) is an urgent task if we are to restore the environment to a state in which future generations, that is, our descendants can lead comfortable lives. This process of restoration depends on radically resolving the problem of air pollution caused by vehicles, protecting the global environment, and ensuring energy-supply security.

The term "next-generation EFVs" refers to vehicles that are targeted for practical utilization starting in 2010 and that, thanks to revolutionary technological innovations, are strikingly superior to today's models in terms of their emission of pollutants, fuel efficiency, and so forth.

The working group's report outlines Japan's basic strategy for promoting the development of such vehicles.

1. The basic strategy for next-generation EFVs development

- *The basic strategy for passenger cars and small and mid-sized vehicles*

Passenger cars and small and mid-sized vehicles are primarily fueled by gasoline. The volume of nitrogen oxides (NO_x) and other gases emitted by these vehicles is comparatively small, and they excel in terms of their emission of pollutants.

However, there are many of these vehicles, and they account for more than half of the carbon dioxide (CO₂) produced by the country's transport sector. Therefore, as a global-warming countermeasure, we should move forward with development focused on the improvement of fuel efficiency.

The prospective line-up of options for utilization as passenger cars includes fuel-cell vehicles, hydrogen-fueled vehicles, and next-generation hybrid vehicles. The next generation of natural gas vehicles and next-generation hybrid vehicles are among the possibilities envisioned for small and mid-sized vehicles.

- *The basic strategy for heavy-duty vehicles*

Diesel-powered vehicles predominate among large vehicles. While the fuel efficiency of diesel is excellent, the emission of exhaust gases, including NO_x and particulate matter (PM), is a problem.

For this reason, we should aim to radically resolve the problem of air pollution and proceed with development focused on the reduction of emission gases, while at the same time keeping, or improving upon, the superb fuel efficiency that exists today.

The possible options for utilization as trucks include next-generation hybrid vehicles, vehicles that run on dimethyl ether (DME) vehicles, and super-clean diesel vehicles. As for buses, it is believed that efforts should also be made toward the practical utilization of fuel-cell buses in addition to the aforementioned vehicle options.

2. Emissions, fuel-efficiency, and other objectives for next-generation EFVs

We should aim for objectives at optimal levels that are below the limits that have been stipulated by countries around the world.

(1) Emissions and fuel-efficiency objectives

- *Passenger cars and small and mid-sized vehicles*

As development proceeds, it should aim for CO₂ output that is approximately half the present level.

Additionally, while preserving exhaust limits that are at the level of Japan's new long-term target, which is approaching virtually zero emissions, we ultimately ought to aim for zero emission of exhaust gases at all.

- *Heavy-duty vehicles*

There should be a quest for phenomenal improvement with regard to exhaust gases while also keeping, or improving upon, the good fuel efficiency that exists today.

— For NO_x, we should strive for a near-zero level, that is, we should further reduce the amount emitted to a tenth or less of the level of the new long-term target that is scheduled to be introduced in 2005.

— For PM, little or no emissions should be the goal.

(2) The improvement of fuel quality

The preservation and improvement of fuel quality are indispensable for the advancement of next-generation EFV technical development.

(3) Other objectives

Further discussion should take measures for unregulated substances and fine particulate matter into consideration.

Moreover, development should be pursued in a way that, in addition to being geared toward the improvement of the rate of recyclability and low-noise operability, also minimizes the environmental cost of a vehicle from its production through its utilization and disposal.

3. The role of the government and so forth in the development and dissemination of next-generation FEVs

There is a need to clarify the roles of industry, government, and academia. An organized, systematic approach should then be taken with respect to moving ahead with the technical development that each party ought to undertake and the efforts that they must make to lay the groundwork for market penetration.

As part of this endeavor, the government must implement the following policy steps. These steps, which will involve the cooperative efforts of relevant ministries and offices within the government, are required in order to promote the expeditious development of next-generation EFVs and prepare the setting for dissemination to the market.

- ***Financial support***

Technical development is lagging in some areas, such as next-generation EFVs for use as heavy-duty vehicles, because the cost of their development is high while the market for them is limited. It is necessary to provide financial assistance for this kind of development. Support for the installation of fuel-supply facilities is also needed.

- *Structural support*

The government should also make parallel efforts to provide other forms of support. It should support standardization so as to reduce the cost of parts and vehicles, provide assistance for experimental car trials and testing, and establish guidelines and technical standards pertaining to safety and environmental preservation.

4. An international approach to promoting next-generation EFVs development

- *The implementation of a meeting framework*

It will be effective to proactively conduct exchanges of information related to next-generation FEV technologies and policies.

- *The harmonization of regulations and standards*

There should be an endeavor to harmonize different countries' regulations and standards pertaining to next-generation EFVs so as to enable the concentrated investment of resources for technical development.

- *Technical cooperation for developing countries*

It will be necessary to implement technical cooperation and technical assistance in connection with technologies for the reduction of vehicles' emission of pollutants; techniques for vehicle inspections, servicing, and controls; and the utilization of such.
