Study on The Impact of Haze Weather Treatment on Automobile Industry Development and the Countermeasures

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Abstract
Since 2013, lots of places in China have suffered serious fogs and hazes, therefore a number of measures have been taken to alleviate the problem, especially in some big cities such as Beijing, Tianjin, and Shijiazhuang. Some of the measures are targeted at automobile industry. This paper gave some suggestion about fog and haze prevention after analysing the major cause of haze weather; meanwhile, it explained the positive influence on automobile industry. As far as automobile industry is concerned, it is necessary to issue related standards, laws and regulations as soon as possible. On the other hand, the development of new energy vehicles will help alleviate air pollution, and then our purpose to avoid haze weather can be achieved.

Keywords
Haze Weather; Automobile Industry; Impact; Countermeasures

Since entering 2013, central, northern and eastern China has encountered unprecedented haze weather, and the PM value hits a new peak of 2.5. Some cities such as Beijing, Tianjin, and Shijiazhuang have been worst by the haze, so the air pollution control plan was put forward immediately to lower emissions from automobiles, and thus producing a profound effect upon the automobile industry.

What Does Fog and Haze Mean, and the Main Cause of Haze Weather
Fog is a collection of liquid water droplets or ice crystals suspended in the air at or near the earth's surface. Haze is traditionally an atmospheric phenomenon where dust, smoke and other dry particles obscure the clarity of the sky. Sources for haze particles include traffic, industry and wildfires. Usually, haze arises from complex chemical reactions that occur as sulphur dioxide gases emitted during combustion are converted into small droplets of sulphuric acid. The weather phenomenon as the fog and haze has tremendous influence on PM2.5 and PM10.

According to the “Dangerous breathing—Health of PM2.5 and the economic loss assessment” (School of public health Beijing University), the number of death which caused by PM2.5 pollution has climbed up 8572, and direct economic losses amounted to 6.82 billion RMB.

The main reasons of haze weather formation are followings:
Firstly, in cold winter, coal-fired heating will emit large quantities of dust into the air. Dust in the air acts as a condensation nucleus, so that the water vapour in the air condenses formation of cloudy weather.

Secondly, the emission exhausted by automobile is a causative factor in haze weather.

Thirdly, pollution caused by industrial emissions is very serious, producing large amounts of harmful compounds, such as sulphur, oxides, nitrogen oxide, carbon monoxide, dioxide, particulate matter and etc.

According to the statistics, Chinese GDP was roughly equivalent to 10.48% of global GDP in 2011, but consumed 20.3% of the world’s energy, cement 60%, steel 49%. Moreover, coal was consumed 3.5 billion ton. It’s very easy to generate haze weather by using a great amount of coal.

Effectual Suggestions and Measures to Combat Haze Weather
Recently, some big cities such as Beijing, Nanjing, Shijiazhuang, and Jinan launched new statutes about haze weather prevention, of which Beijing was to implement the permit system. Some companies producing toxic and hazardous pollutant should monitor their pollutant emissions and accept public supervisor. Nanjing issued the emergency plan, for example, earthwork construction site is strictly
prohibited, and some buildings and chemical industries shut down temporarily. Haze weather created policies where even-numbered license plates could drive on even numbered days and odd-numbered license plates could drive on odd numbered days. But restricting motor vehicle number is not a once for all measure for air pollution. Cutting industrial emissions is key measures of combating haze weather.

In terms of the elimination of automobile emissions, several problems are encountered. First, the “High pollution emissions from vehicles” is accounted for 17% of the total number of motor vehicles, but its emissions are accounted for more than 50%. So it is important to control the numbers of “High pollution emissions from vehicles”. Second, with the breaking out of “haze crisis”, the car exhaust related to the quality of refined oil has become the focus of public attention. It has been widely believed that for a long time, China’s oil contains high sulphur; thereby the level of vehicle exhaust emission is increased. Third, the regulations concerning the environmental protection are still far from perfect. Furth, we have overlooked pollution of the atmosphere caused by auto enterprise when emphasizing haze weather caused by vehicle emissions. Fifth, normally, heavy vehicle emissions are severer than light-vehicle’s, emissions from diesel powered cars are severer than those from oil powered cars.

So concentration on fogs and haze weather, the following advices were recommended. First of all, Act on the Prevention and Control of Atmospheric Pollution should be perfected. Some factories that fail to meet emission standards should be shut down as soon as possible. Secondly, legal system should be fully utilized to solve the problem about automobile exhaust emissions rather than the restriction based on the last digit on the license plate, and oil quality standard, exhaust emission standards. Thirdly, the auto enterprises should be urged to improve technology in order to alleviate carbon emission and environmental pollution. Fourthly, the new energy vehicles development should be improved, thus minimizing air pollution.

The Effect of Prevention Haze Weather on Automobile Industry

Combating to haze weather will make a great impact on automobile industry.

It Can Perfect Automobile Industry Policy.

In order to prevent the occurrence of haze weather, the environmental protection department has issued “light-duty vehicles emission limits and measurement methods” draft. Now the Act of atmospheric Pollution Prevention and “motor vehicle scrap mandatory standards” are all into effect. Some vehicles failing to emission standard should be scrapped.

It Can Improve Auto Technology and Alleviate Air Pollution.

Auto enterprises should develop their vehicle emission system to meet the emission standards, thus air pollution can be alleviated. For example, diesel engine pollution comes mainly from three aspects– particulate matter emissions, nitrogen oxides and sulphur. It was confirmed that the diesel engine emissions contain about 40 different chemical compositions. Now diesel particulate trap can reduce the soot generated by the engine of 90% or more. This trap installed in the exhaust system of the ceramic filter, can be in particulate matter emissions into the atmosphere prior to their capture. Of course, upgrading technology makes costs up, and the increased costs will pass on to customers.

It Can Contribute to the Restructuring and Upgrading of China’s Automobile Industry.

Now, we have long-term measures and short-term measures about prevention haze weather. The emphasis of current restricting and upgrading of China’s automobile industry is on vigorously developing new energy car and saving energy car so as to alleviate energy usage and air pollution. Focus should be placed on reasonable industry layout, enhancing competitiveness, subsidizing own brand and enhancing our capacity for independent innovation.

Countermeasure against the Effect of Prevention Haze Weather on Automobile Industry

Aiming at the effect of prevention haze weather on automobile industry, two suggestions were put forward.

Try to Perfect the Relevant Policies and Regulations

There are two problems that should be elaborated when establishing new policy and regulation. One is the relationship between state policy and local policy; and the other is the relationship between government and enterprises. In my opinion, local government should implement state policy carefully and local
government can launch some statutes without conflict with state policy. Now some automobile enterprises are relying on supporting policies and government pay more attention to automobile industry. In 2012, America government issued the regulation which is CAFÉ (Corporate Average Fuel Economy) to limit vehicle fuel consumption about 4.3L every hundred kilometres. This regulate helped the automobile industry development, but it didn’t interfere vehicle enterprises how to develop.

**Try to Improve the New Energy Vehicles**

There is a good tendency of hybrid cars and electrical cars. Some auto-companies face growing competition in the hybrid cars market. According to statistics, in 2012 the Toyota Company had already sold one million and twenty-eight thousand hybrid cars, much more than the sales of electrical cars.

Developing hybrid cars faces some challenges. For example, with marketing new energy vehicles, the challenges of establishing the sale system, customer service system, automotive supplier system are encountered. Auto-enterprises should try to commercialize their research as soon as possible so that large-scale production of new energy vehicles can be achieved.

As for electrical cars, here the constraint is the difficulty in designing an economically feasible electric car. One of the drawbacks of existing electric autos is limited range. Most Chinese customers remain dubious about electric vehicle reliability and repair costs.

The other challenge comes from lithium-based batteries. Lithium-based batteries offer many advantages over nickel and lead-based batteries, for example, lithium-based batteries are lighter than other equivalent batteries, but it should be charged early and often, and the price of lithium-based batteries amounts to one third of a car’s price.

**Conclusion**

The measurement taken to prevent haze weather is effective to our country’s automobile industry. Environmental protection and energy saving are main topics in the long-run no matter whether automobile emissions is the main reason that causes the haze weather. So we should not only develop technology, improve emission standard and decrease vehicle exhaust, but also adjust developmental strategies, try to develop energy saving and new energy cars in order to protect environment and save energies.

**REFERENCES**


Sun Liang. The haze weather causes harm and control management. Environmental Science and Management. 2012, 10, p71-75.

Tong Wei. Fog and haze is our common cause. Tide of Science and Technology. 2013, 3, p11.

Wan Ren-mei. Ternary material becomes the mainstream gradually. CHINA AUTOMOTIVE NEWS. 2012-4-8-B5.


Ye Sen-ji. Motor vehicle emissions is not the main factors causing fog and haze weather. CHINA AUTOMOTIVE NEWS. 2013-3-4-A3.

Zhang Nan. The fiscal and taxation policies to promote the development of China’s clean energy research -Based on the background haze weather. Information of Finance and Economics Politics and Law. 2013, 5, p19-25.