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NAPĘDY HYBRYDOWE JAKO ROZWIĄZANIE EMISJI DWUTLENKU WĘGLA

Streszczenie: Już w przyszłym roku, według szacunków, producenci samochodów często będą musieli liczyć się z wyjątkowo wysokimi karami za nadmiar gramów dwutlenku węgla. Rozwiązaniem może być zastosowanie nowych typów napędów lub napędów hybrydowych. Przewaga jest szczególnie po stronie tych producentów samochodów, których segment pojazdów wykorzystuje w jak największym stopniu systemy hybrydowe.

Słowa kluczowe: emisje, hybryda, EURO standardy, CO₂

HYBRID DRIVES AS A SOLUTION TO CARBON DIOXIDE EMISSIONS ISSUES

Summary: Already next year, according to estimates, car manufacturers will often face extremely high fines for excess grams of carbon dioxide. The solution can be the application of new types of drives or hybrid drives. The advantage is especially on the side of those car manufacturers whose vehicle segment uses hybrid systems as much as possible.

Keywords: emissions, hybrid, EURO standards, CO₂

1. Increasing demands to meet EURO standards

According to PA Consulting Agency, (which specialises in technology, strategy and innovations), car manufacturers will more often face extremely high fines for not

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meeting amount of grams of carbon dioxide in exhaust gases produced by their vehicles set by European Union than in past years .

Car manufacturers are experiencing hard times at the moment and it will be even worse.

Growing public concern about climate change is increasing regulations and goals of European Union to reach determined CO₂ emissions values.

From 2021, the new rules will be applied in full specter which means that every gram above the limit of each car produced by car manufacturers will be fined 95 euros. PA consulting says that 13 biggest car producers will be fined 14.5 billion Euros. This number is quantified on the basis of fleet emissions from the largest car producers operating in Europe and from the number of sold cars. At the same time, the agency has been rating progress of car manufactures toward required targets for several years, and after positive results in last years, many manufacturers have taken an illogical step backwards, which will make it significantly more difficult for them to achieve emission targets in the next year. Better said, according to current estimates, none of car manufacturers will be able to reach these norms and each of them will soon be fined. While several top manufacturers have been able to avoid fines by favoring low-emission vehicles, most of them now need to take aggressive steps to prepare for European Union targets within emissions of CO₂ till year 2025 and 2030. Manufacturers or better said sellers will either force customers to buy electric cars or they will reduce selection of high-emission vehicles.

There are some exceptions within car manufacturers. These exception car manufacturers will not make cars more expensive due to high emission standard fines, but they will not have to limit selection of vehicle models that produce higher amount of CO₂ emissions. This is despite the fact that they do not plan to introduce or launch new electric cars on the Slovak market this year or next year.



Figure 1. Hybrid powertrain of new vehicles

1.1. Increasing trend of SUV

There is nothing new about the trend of utility sport vehicles on the market. A while ago, manufactures of luxurious “Royal” or manufacturers of famous sport cars would never think about developing cars as SUV, but the increasing demand of customers forced them to give their engineers difficult tasks to bring such type of vehicles to the production and to the market. It seems that this step was in right direction. British

manufacturer of super-luxury cars, achieved record sales numbers last year, mainly thanks to the new model which belongs to SUV segment. However, this trend certainly does not help manufacturers to move closer to the European Union emission targets. In last four years, the fuel consumption of new cars in Europe and, with it, in proportion to CO₂ emissions, has not only fallen, but on the contrary, it has grown. For example in 2018 there was a 2.4 grams growth to a final 120.5 grams per kilometer, which is not only due to arrival of popular, but heavier, bigger and thirstier sport utility vehicles, which already can be found in selection of almost every known car manufacturer brand but also decline in diesel car sales in connection with the Dieselgate emission case. Dieselgate started in year 2015, which discovered usage of software which can recognize that engine is working in regime of laboratory testing of exhaust gases and with the temporary change of engine settings could decrease amount of produced nitrogen oxides to meet legal emissions limits. However, this problem was later found in number of other manufacturers, who also manipulated with settings of their vehicles to achieve better emission test results and secure that their vehicles met the set limit.

1.2. Expected fines

Car manufacturers will definitely not divide the estimated amount of 14.5 billion in the shares equally. According to AP Consulting agency data, fines in the next year may be literally liquidational for some car producing companies although none of car producers will probably reach emission targets, some will at least come closer to set targets. According to datas, one of Japanes car producer is at its best which was not understood when they indtroduced hybrid vehicles to the market. In Slovak market, there are several different models of hybrid or plug-in hybrid vehicles produced by this car manufacturer. Thanks to gradual early deployment of electrified vehicles, their quality, popularity and increasing selection of vehicles, arrival of stricter emission standards will not be significant for this brand. Although this producer will pay fine too, however, it will be the lowest among other brands.

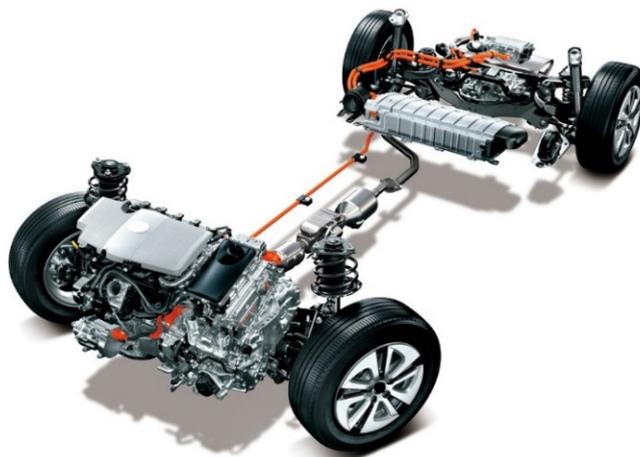


Figure 2. Hybrid powertrain of hybrid vehicles

Many other car manufacturers will have big trouble with achieving required targets and they will face very high fines, which in some cases even exceed their operating profit in 2018 by several tens or hundreds of percent. Some of them will have to pay € 4,504 billion next year, some of them less which makes high percentage of their profits obtained by selling vehicles during last three years. The fine percentage of profit varies from 9 percent to 400 percent which can threaten the existence of not one car producing brand.

Car manufacturers will not have much choice – they will either force customers to buy electromobiles or they will have to limit the selection of vehicles that produce high emissions, or pay huge fines, to which customers will contribute by buying vehicles from their selection.

Car producing companies still have options to meet emission targets and minimize the impact of financial penalties but they have to act quickly. Time is running out and marketing, sales and pricing strategies must be launched at the same time, which will increase sales of low-emission cars. Manufacturers should therefore carefully examine how to stimulate sale of low emission vehicles as well as electric vehicle and plug-in hybrids which could significantly reduce penalties for excess emissions. This means, that price and promotion of these vehicles should be reconsidered. It is also important to place these low-emission type of vehicles at more prominent place in showrooms, to secure customers attention during their showroom visit.

Car manufacturers should also consider partnership with other car producing companies and the supply chain in order to manage costs and develop open platforms that make electrical technology accessible.

According to experts dealing with emission standards and vehicle sales, it would be necessary for manufacturers to sell at least 2.5 million electrified cars on the European market by previous year (2020) which, however, represents an unrealistic increase of 1,280 percent that was not possible even in terms of production capacity. Car manufacturers that decided to go this direction many years ago, often questioned, now seems to be on the right path.

2. Conclusion

It can be said, that car manufacturers that decided to take path of electrifying vehicles made the right choice in terms of satisfying emission targets which are set by European Union. Many other car brands trying to catch up with other manufacturers by electrifying new models of their car selection, but not every attempt is successful. In general, companies, that produce the largest amount of electrified vehicles as hybrids or plug-in hybrids have big advantage in fulfilling EURO standards and in reduction of fines that are imposed for non-compliance emission standards by European Union.

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