

# Global Gold Forum

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## Q&A-Move towards electric cars could have 'massive' impact on platinum group metals demand - Bodo Albrecht, chairman, IPMI



Take-up of electric cars may prove more devastating for platinum group metals demand than digital photography was for silver, Bodo Albrecht, chair of the International Precious Metals Institute (IPMI), told the Reuters Global Gold Forum on Wednesday.

Silver demand from photography slid from more than 7,000 tonnes a year in the late 1990s to just 45 tonnes last year. The use of platinum-heavy fuel cell technology in the electric car market is growing much too slowly to offset falling autocatalyst demand, Albrecht said.

The following are edited excerpts from the conversation:

**Q: Morgan Stanley recently said their base case was for 47% of new cars globally to be battery electric by 2050, representing some 61 million cars. How do you expect the market for fuel cell-powered cars to look by then?**

A: Up front, I believe that this outlook may be pessimistic. With the increasing number of countries committing to electrification I believe we will see a tipping point towards electrification by 2040 at the latest. As to fuel cell cars, I think the race in the light vehicle sector has been lost to battery-electric. It's a "Betamax" moment, in a way. Battery-electric may not be the best solution but it is currently taking the market.

**Q: In what sort of vehicles do you expect fuel cells to be most successfully used?**

A: Fuel cells are already used in heavy duty vehicles and fleet vehicles. In a semi-truck, for instance, a battery will just drain too quickly. Companies like Nikola Motors show that the likely future for hydrogen will be in the heavy duty market, as range extending fuel.

**Q: Is the biggest barrier to greater uptake the lack of infrastructure?**

A: Yes. Either technology, hydrogen electric or battery electric, only makes sense if the energy used is produced in a sustainable, non-polluting way. Large solar farms are needed for both. However, the delivery mechanism, storage of compressed hydrogen etc is much more complicated, and costly.

**Q: There are some initiatives underway to address this. Where are they most successfully being rolled out?**

A: Nikola Motors is on a good way to provide a solar-farm based infrastructure for its customers. However, that's a local solution that is unlikely to work in densely populated regions like in Europe. Companies like Air Liquide and Linde are working on delivery systems but they are three to five years away from having a solution.

**Q: Can this application replace falling platinum demand from car producers for diesel catalysts in the upcoming years?**

A: I'm afraid not. If you keep in mind that 40%+ of all platinum, and 75% of all palladium and rhodium are currently used in emission control catalysts, hydrogen fuel cells will not be able to make up for this quantity.

**Q: How many could be replaced approximately?**

A: My guess would be 10-20% of car industry demand, but we are in a very early stage of development here....

**Q: How much platinum, in ounce terms, is currently used in an average fuel cell vehicle, compared to the amount in an average catalytic converter?**

A: The Toyota Mirai contains about 30g (a little under an ounce) of platinum. Their goal is to bring this down, in steps, to 5-8g which is the approximate equivalent of the precious metal loading on a standard emission control catalyst.

**Q: Does that seem realistic?**

A: Yes. It is important that we separate ourselves from the classic way of thinking in the automotive industry. We are talking more about gadgets here. And gadgets tend to double their performance about every two to three years.

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**Q: The IEA report on electric vehicles had some pretty optimistic scenarios on plug-in hybrid vehicle and battery electric vehicle adoption – but what did you make of their exclusion of fuel cell electric vehicles in the report?**

A: The optimism is surely justified when you look at recent pledges by automakers to electrify their fleets within just a few years, either to BEV or hybrids. As to hydrogen electric vehicles, as I said, I believe they already lost the light duty market to battery-electric

**Q: How much platinum demand do you realistically expect fuel cells to account for in a decade's time?**

A: Really hard to say, obviously - see my answer earlier on. Despite my liking for hydrogen technology I think they will not go beyond a low single digit market share in the light vehicle market. They will take a bigger share in the heavy duty market but that's three to five years out. There will be virtually no noticeable impact on platinum markets from this application.

Rather than looking at the opportunity of hydrogen electric technology what we should be concerned about is the replacement of platinum group metals by battery electric technologies in years to come. The impact on the precious metals industry will be massive.

**Q: How much demand could be lost in this sector, in your view, and over what sort of timescale?**

A: We could lose literally all of the quantities mentioned in world consumption: 40% of platinum, 75% of palladium and rhodium. It will shake the industry more than the collapse of silver photography. Time frame? Some say as early as 2023, others say 2040. The truth will be somewhere in the middle. Not long, either way.

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