

## Energy and the environment

### The car of the future ?

<p>Ⓐ There is a good reason why General Motors is hurrying to build a viable electric car. California – the first place in the world to make catalytic converters compulsory – 5 has brought in some tough new laws on emission levels from car exhausts. These state that at least 10% of each car maker's sales in the state must be "zero-emission" vehicles by 2003. With nearly two million 10 cars sold in California each year, that percentage adds up to quite a lot of cars.</p> <p>American, European and Japanese companies are pouring money into developing a successful electric car, and there 15 are already about 20 prototypes and production models on the roads. However, no one has so far come up with an answer to the problem of batteries. The 400 kilos of lead-acid batteries in GM's "Impact" 20 contain the energy of just 5.7 litres of petrol. This means that electric cars have to be small, light and very streamlined. Even so, the Impact's range is limited – a mere 240 kilometres between recharges that</p>	<p>take several hours. These are big dis- 25 advantages for the potential user who is used to a bigger car and long-distance driving.</p> <p>There is another difficulty. Although the Impact can run for 200 kilometres on a 30 dollar's worth of electricity at cheap, overnight rates, its expensive batteries have to be renewed every 40,000 kilometres or so. If you take battery- 35 replacement into account, then the Impact costs as much to run as a big limousine like a Cadillac.</p> <p>But now we come to the <i>real</i> problem. How do you find the additional power needed to recharge millions of electric cars? Building more conventional power 40 stations, which burn more fossil fuels, which produce more CO<sub>2</sub>, takes us back to where we started. Presumably, California 45 hopes that the extra power stations needed for all those new ZEVs (Zero Emission Vehicles) will be constructed in someone else's back yard! (319 words)</p>
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### Comprehension

1.

*What new Californian laws have made GM develop the Impact ?*

The laws state that at least 10% of each car producer's sales in the state must be "zero-emission" vehicles.

2.

*Roughly how many new cars per year will be ZEV from 2003 ?*

200,000 cars should be ZEV from 2003.

3.

*Electric cars seem cheap to run. What makes them as expensive to operate as a large, conventional car ?*

Firstly the car has to be recharged every 240 kilometres and secondly the very expensive batteries have to be changed every 40,000 kilometres.

4.

*Why does sentence one in the last paragraph (lines 38-48) emphasize the world real ?*

Because the main problem – the power supply – is not solved. The extra power stations needed for all those new ZEVs will be generated in someone else's back yard.

## Summary

5.

*Sum up the things that may stop people from buying the Impact.*

They don't buy the Impact, because the expensive batteries don't last very long and often must be recharged. The range is too limited.

## Language

*Form nouns from the following*

6. *to state* - statement

7. *to develop* - development

8. *electric* - electricity

9. *to construct* - construction

*Find words in the text to match these definitions*

10. *the first example of something produced* - prototype

11. *pices charged for electricity at night* - overnight rates

12. *put back power into a battery* - recharge

13. *oil, coal and gas* - fossile fuels

*Paraphrase the underlined words.*

14.

*...10% of each car maker's sales ... must be "zero-emission" ...*

*...have to be environmentally friendly and are not allowed to have any exhaust fumes...*

15.

*...no one has so far come up with an answer to the problem...*

*Nobody has found an answer yet.*

16.

*...California hopes that the power stations ... will be constructed in someone else's back yard.*

*...in another country, where Californian people don't feel disturbed.*

*Rewrite the following starting with "Several years ago ..."*

17.

*California has brought in some tough new laws.*

*Several years ago California brought in some tough new laws.*

18.

*Companies are pouring money into developing an electric car.*

*For several years companies have poured money into developing an electric car.*

## Comment

19.

*Many Californians are now against the many tough environmental laws. They say that these laws are adding costs to many things and damaging the state economy.*

*Argue for or against this point of view.*

The fear of the people is understandable, because they have to carry the costs. The state should support conservation-conscious firms.

## Translation

20.

*Translate paragraph 2 (lines 12-28)*

Amerikanische, europäische und japanische Firmen investieren Geld in die Entwicklung eines erfolgreichen elektrischen Autos. Es gibt bereits ca. 20 Prototypen und Produktionsmodelle auf den Strassen. Bis jetzt ist jedoch noch niemand auf eine Lösung des Problems der Batterien gekommen. Die 400 Kilo der Blei-Säure-Akkus des "Impacts" von GM beinhalten die Energie von nur 5,7 Liter Benzin. Das bedeutet, dass elektrische Autos klein, leicht und stromlinienförmiger sein müssen. Trotzdem ist die Reichweite von "Impact" begrenzt - lediglich 240 Kilometer zwischen jedem Aufladen, was jeweils mehrere Stunden dauert. Dies sind große Nachteile für den potentiellen Verbraucher, der ein größeres Auto und Langzeitfahren gewohnt ist.