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'Hearts and minds' approach needed in green tech drive

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There is no shortage of research into the alternative energy technology that could eventually force the internal combustion engine from the highway. However, addressing technical problems alone is not enough, says senior scientist Robert Carling at the US government [Sandia National Laboratories](#) in Livermore, California.

He thinks if engineers collaborated with social scientists they would have a better chance of convincing people to help break the polluting rut our civilisation is stuck in.

Carling is director of [HITEC](#) – a programme that is attempting to ensure the success of research efforts into new fuels and improved engine efficiency by encouraging collaboration between researchers working on very different ideas, such as [algal biofuels](#) and [hydrogen storage](#).

He told **New Scientist** the project could be expanded by including social scientists to help explain how to change people's habits.

Mind games

This week at the [World Biofuels Market](#) meeting in Brussels, Belgium, Carling presented the results of Sandia's feasibility study, produced in conjunction with General Motors, into the use of cellulosic biofuels in the US by 2030. It suggested that the US could replace [a third of its oil-based transport fuel](#) with biofuels within 20 years.

But proving this is technically feasible is only part of the battle, says Carling, it needs to be socially feasible too.

[Anthony Leiserowitz](#), director of the Yale Project on Climate Change, agrees. "If the public is not on board, new technologies have real problems getting deployed," he says.

Public backlash

Biofuels have received a lot of public criticism in relation to recent food crises – something that could negatively influence uptake of even the cellulosic biofuels that don't displace food crops. Similarly, one of the biggest barriers to many renewable energy schemes like wind turbines is local opposition at a planning level, says Leiserowitz, even if a scheme stands to [provide the majority of a community's power](#).

This month Leiserowitz's team [published the results of a survey](#) into the US public's attitudes to climate change and their preferred policy preferences. The results are promising for technologists, suggesting, for instance, 79% public support for a 45 mpg fuel efficiency standard for cars, trucks and SUVs, even if that meant a new vehicle cost up to \$1000 more to buy.



The Tesla electric car appeals to some but what of the rest of the alternative energy technology? (Image: Voxluna)

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That kind of research about the views of the public should be an important influence on future development of green transportation technology, says Leiserowitz. "There is some work being done [into the public acceptance of new technology], but nowhere near enough and not enough in collaboration with green technologists."

Virtual vine

There are some signs that this is beginning to change. For example, the feature of the forthcoming hybrid electric Ford Fusion that has attracted most attention is its [dashboard](#) dubbed the "smart gauge".

Its unique design was informed by research into drivers' habits, which suggested drivers treat fuel efficiency in a similar way to a computer game, aiming for a good score. It was designed in collaboration with New York company [Smart Design](#) and shows fuel efficiency using a growing vine as well as with a traditional gauge.

If a person accelerates harshly, or drives in low gears they will see their vine wither and shrink, but if they drive more efficiently it will flourish and grow.

Carling says that more green technology research should be directed by suggestions from social scientists or other researchers interested in human nature, not engineering problems. "I think that would be fascinating – it's an area we haven't even touched, but it would be a great thing to do," he says.

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