

# My New Scientist

[Home](#) | [Tech](#) | [Environment](#) | [News](#) | [Back to article](#)

## Efficiency could cut world energy use over 70 per cent

19:57 26 January 2011 by [Helen Knight](#)

For similar stories, visit the [Energy and Fuels](#) Topic Guide

Simple changes like installing better building insulation could cut the world's energy demands by three-quarters, according to a new study.

Discussions about reducing greenhouse gas emissions usually concentrate on cleaner ways of generating energy: that's because they promise that we can lower emissions without having to change our energy-hungry ways. But whereas new generation techniques take years to come on stream, efficiency can be improved today, with existing technologies and know-how.

To calculate how much energy could be saved through such improvements, [Julian Allwood](#) and colleagues at the University of Cambridge analysed the buildings, vehicles and industry around us and applied "best practice" efficiency changes to them.

Changes to homes and buildings included triple-glazing windows and installing 300-millimetre-thick cavity wall insulation, using saucepan lids when cooking on the stove top, eliminating hot-water tanks and reducing the set temperature of washing machines and dishwashers. In transportation, the weight of cars was limited to 300 kilograms.

They found that 73 per cent of global energy use could be saved by introducing such changes.

### Demand side

Many people are unaware of the scale of opportunities for reducing energy demand, says Allwood. By showing how global energy demand can fall to a quarter of its current level without any decline in services, the team hope to redress the balance.

"We think it's pretty unlikely that we'll find a good response to the threat of global warming on the supply side alone," Allwood says. "But if we can make a serious reduction in our demand for energy, then all the options [for changing the energy supply] look more realistic."

Not all of the changes might be suitable for immediate introduction, Allwood admits. "Our 300-kilogram cars would be at risk in collisions at present if they met heavier vehicles coming the other way." But increasingly tough emissions standards for passenger cars, particularly in Europe, will drive down average vehicle weights, he says.

[Nick Eyre](#), leader of the Lower Carbon Futures group at the University of Oxford, says some of the assumptions made by the team on how much energy could be saved by efficiency measures may even be overly conservative. For example, it is possible to design buildings that are more efficient than the [PassivHaus](#) standard they use as their practical limit. Buildings complying with this standard must consume less than 15 kilowatt-hours per square metre of energy in heating

### ADVERTISEMENT



each year.

Even so, achieving the 73 per cent cut in energy consumption will depend on how people use the more efficient technologies, Eyre says. "A Passivhaus building will not perform to its design standard if its occupants open windows when it's cold outside."

However, the team's conclusions are "powerful", he says, and the suggestion that major investment should be going into buildings, vehicles and factories instead of the energy system has major political implications.

"The emphasis on the importance of 'passive systems' strongly implies that conventional ideas about the energy system and energy policy need to be broadened to include the way energy is used, not just the way it is supplied and converted," Eyre says.

Journal reference: *Environmental Science and Technology*, DOI: 10.1021/es102641n

0

0  
tweets  
tweet

Me gusta



PRINT



SEND



SHARE

If you would like **to reuse any content** from New Scientist, either in print or online, please [contact the syndication](#) department first for permission. New Scientist does not own rights to photos, but there are a [variety of licensing options](#) available for use of articles and graphics we own the copyright to.

[Back to article](#)



PRINT



SEND



SHARE

ADVERTISEMENT