Where is it cheapest to cut carbon?

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Researchers from The Australian National University have shed some light on why some countries are more reluctant to agree to an international carbon price than others.

Research by Dr Jack Pezzey from the Fenner School of Environment and Society in the ANU College of Medicine, Biology and Environment, and Professor David Stern and Mr Ross Lambie, both from the Crawford School of Public Policy in the ANU College of Asia and the Pacific, shows why carbon-emissions intensive countries such as Australia and the USA are more likely to prefer certain types of international policies to cut emissions.

Their recent findings are published in the current *Australian Journal of Agriculture and Resource Economics*.

"Our research shows that a carbon emissions-intensive country – one with high emissions per dollar of Gross Domestic Product (GDP), which typically has low energy prices and therefore a low dollar cost of cutting an extra tonne of carbon emissions at the margin – would not like a policy like emissions trading which imposes a common, international carbon price in dollars per tonne," said Dr Pezzey.

"This is because a country's economy would then respond by cutting emissions up to the point where its 'marginal cost of cutting' equals the common price. As a result, it will probably pay a higher total cost of cutting emissions – measured in per cent of GDP – precisely because of the bigger gap between its low initial marginal cost and any common international price, which probably means it would end up cutting a much larger per cent of its initial emissions than less emission-intensive countries."

The researchers tested these ideas using output from several multi-country, climate-economy computer models to estimate the costs of cutting carbon dioxide emissions from fossil-fuel burning and industrial processes in the USA, EU, China and India, under different types of policy targets for cutting emissions.

"The results broadly confirm our theories," said Professor Stern.

"A common global carbon price results in the EU having lower total costs as a percentage of GDP than the other more emissions-intensive regions. A Kyoto-style agreement where everyone cuts emissions by a common percentage has similar results. However, if instead the common target is set for emissions intensity, then China and India are the countries with the lowest total costs. This helps to explain why different countries favour different climate policies, as, for example, shown by the different types of emission pledges made by key countries after the 2009 UN climate conference in Copenhagen."

Provided by Australian National University