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Energy credits vs carbon credits – we need both

A Deakin University researcher has called for the creation of an energy credits trading scheme to operate alongside carbon trading credits trading.

In a paper published in the International Journal of Global Energy Issues, “The core of the global warming problem: energy”, Dr Eric Hu presents a case for using energy credits to address the problem of climate change.

“The energy credit proposed can be defined as: if you emit extra carbon dioxide or conduct any other activities contributing to global warming, you need to send the energy out of the earth’s atmosphere, which equals the energy trapped due to the extra carbon dioxide you emitted,” Dr Hu said.

“In the current emission or carbon market, carbon dioxide is proposed to be used directly as the ‘currency’ in trading, although it’s political and technical acceptance is still in doubt.”

“From a thermodynamic point of view, the cause of global warming is the heat or energy that accumulates in the earth and its atmosphere.

“It’s not only that you need to get a credit for not emitting carbon dioxide, you also need to send the energy out of the earth’s atmosphere, which is equal to the energy trapped due to the extra carbon dioxide you emitted.

“For sending the energy back into space, you could gain an energy credit.

“There are several advantages in an energy credit system.

“Energy credits can measure and guide activities which contribute to global warming, but not emit carbon dioxide directly.”

Some activities, like major construction projects, do not emit carbon dioxide directly but have some effect on the energy balance of the earth, so they should be treated the same as carbon dioxide emission. One example would be to take a black asphalt road and resurface it with a pale coloured surface which would reflect energy back into space, and gain an energy credit.

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“These activities, like road building for example, may not be a problem now but may be a problem in the future when we are facing more direct and serious results of global warming,” Dr Hu said.

“One advantage of an energy credit scheme is that it will not limit or retard development. Countries could keep their carbon based industry as long as they gained enough energy credits.

“In theory, it should be easier to obtain political acceptance because an energy credit system avoids the reduction or limitation of carbon dioxide emissions directly but provides a way of releasing the ‘extra energy’ from the earth.

“As well, energy credits are permanent – once energy is sent out to space, it will never come back, but carbon credits, such as planting trees, is temporary, and could escape back into the atmosphere in the case of a bush fire.”

In the paper, Dr Hu gives three examples to show the advantages of energy credits over carbon credits.

In one example, the land required for a tree plantation to store carbon dioxide is 30 times more than that required for the installation of a reflector that is one of possible ways to gain energy credits. The reflector would send the same amount of energy trapped by the carbon dioxide to space.

In a second example, a 12m wide, 14,000km dark coloured road would be equivalent to emitting an extra 0.0246 Gt carbon dioxide (which equals 5 per cent of Australia’s annual carbon dioxide emissions) into the atmosphere. However, if the road were a light colour, then it would gain the same amount of energy or carbon credits that could be sold to other parties in the emission trading market.

Similarly, a light coloured roof would gain a household energy or carbon credit.

Ends

Dr Hu is available for interview.

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