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Market best to reduce carbon

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*Experience shows that price incentives invariably lead to cheaper solutions, writes **John Daley and Tristan Edis.***

AUSTRALIA continues to debate the best response to carbon dioxide emissions. Should we put a price on emissions or should government pay for specific actions? If we do price emissions, should this be a tax, a trading scheme or a hybrid? Whatever the response, few doubt that this would be a historic reform.

Pricing emissions is a fundamental economic reform, but it is not a new one. In the past few years, governments in Australia and overseas have priced pollution to reduce emissions, usually by setting a pollution or clean energy target and leaving it to market participants to decide the actions to achieve the target.

Grattan Institute investigated six schemes, including the NSW Greenhouse Gas Reduction Scheme, the European Union's carbon trading scheme and the US sulphur emissions trading scheme.

In each case the outcomes diverged significantly from government and industry predictions. Environmental markets routinely led to lower emissions and achievement of targets at lower cost in practice than in forecasts. Forecasts tended to underestimate commercial innovation. In some cases the targets and regulations required less change to business as usual than governments expected. As it was relatively easy to achieve targets, the market price of emissions was lower than forecast. The price crash in European carbon markets was not just a one-off result of design peculiarities; the same pattern recurred in a variety of environmental markets.

This is no accident. There is a structural bias to government and industry forecasts. They tend to focus on opportunities for reducing emissions that are well understood. A forecast based on a technology that does not yet exist or is not yet in wide use tends to lack credibility. It is open to attack by vested interests that stand to lose from environmental regulations.

However, history shows that once there is a financial incentive to use cleaner sources of energy, businesses innovate rapidly to do this at a lower cost than existing practice. Competitive cost advantage invariably depends on doing things in ways that are not already widely used by competitors. Thus it is likely government forecasts will assume a cost for reducing pollution higher than it turns out to be in practice, so the market price will be substantially lower than forecast.

Under the trading scheme pioneered in the US in the 1990s to control sulphur dioxide emissions from coal-fired power stations, actual prices were about half of forecasts in the first five years and less than a quarter in the next five years of the scheme.

Technology innovation diverged from expectations. Instead of installing scrubbers to remove emissions from waste flows, as predicted, generators changed to low-sulphur coal. When scrubbers were later installed, they turned out to be more efficient and much cheaper than expected.

When we see the same features repeated across eight phases of six schemes, we are entitled to suspect there may be a pattern. We can probably predict that in future the forecasts for environmental schemes are likely to overestimate the costs of reducing pollution and likely to be wrong about which actions will deliver this at the lowest cost.

How should we design policy to reduce carbon emissions in light of this experience?

First, we should put a price on carbon dioxide as our primary policy to reduce emissions. History shows markets, enabled by pollution prices, deliver more emission reductions more cheaply than government selecting specific actions or projects. Ironically, although schemes to promote renewable energy and encourage energy efficiency are proliferating, in Australia, we are still debating the merits of putting a price on carbon dioxide emissions, which is likely to deliver the greatest reductions at lowest cost.

Second, there should be a floor price for pollution, effectively reducing total pollution if it turns out to be cheap to do so. If governments think this will be expensive, they worry about the economic impact and set relatively weak targets. If the economic cost is less than expected -- and this happened in all the schemes reviewed -- a floor price effectively tightens the pollution target.

Floor prices also provide certainty for the builders of low-emissions power plants that they will not be undercut by existing high-emissions generators if carbon prices turn out to be low. This is important for financing power generation where prospective financiers refuse to back a project that would generate a loss in a "plausible but bad case". Grattan Institute's review suggests low carbon prices are possible. A floor price provides significant assurance that cleaner power generation will provide positive returns even if it turns out to be cheap to reduce emissions. This avoids the scenario in which no one invests in new electricity generation, and power prices rise without substantial reductions in emissions.

There may still be some justification for measures complementary to pricing carbon emissions. Behavioural biases, such as consumer focus on up-front costs, may discourage uptake of low-cost energy efficiency options. Government may be justified in setting minimum efficiency standards, or creating up-front capital incentives such as taxes on energy inefficient products, or subsidies for energy-efficient products. It also may be rational to encourage development of a technology that is not lowest cost now because market forces cannot readily overcome substantial hurdles to commercial development and initial deployment.

However, experience of market innovation suggests the burden of proof should fall on those arguing for such exceptions, instead of arguing government is likely to do well in identifying lower-cost abatement options.

Technology innovation is the key to reducing carbon emissions. Markets may not be perfect, but they are consistently effective at identifying lower-cost opportunities, promoting innovation and responding flexibly to changes. Markets are likely to deliver more innovation at lower cost than governments expect.

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