

Wind power is now cheaper than coal in some countries

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When many countries are choosing their next generation of power stations, they will be tempted to pick wind turbines. Thanks to better design, building wind farms can now be cheaper than building new coal or gas power stations.

Figures from Bloomberg New Energy Finance show that [this is already the case in Australia](#). Any wind farms built now would generate electricity for between A\$80 (about US\$80) and A\$113 per megawatt-hour, whereas new coal plants would cost A\$176/MWh.

In Australia, coal's high cost is partly due to [the nation's carbon tax](#), but new coal power stations would still cost A\$126/MWh even in the absence of the tax.

Better designs

Wind is the latest renewable energy source to become competitive, after [the price of solar energy fell 75 per cent between 2008 and 2011](#). That was driven by economies of scale, as Chinese manufacturers learned how to make large quantities of panels quickly and cheaply.

Wind is a different story. "For wind it's more about the technology," says [Guy Turner](#) of Bloomberg New Energy Finance. [Better designs](#), including [longer blades](#) and taller turbines have all boosted efficiency.

The design of wind farms has also improved. Wind becomes turbulent in the lee of turbines, which makes those behind them less efficient, says Turner. So companies now use fluid dynamics modelling to arrange their turbines. A recent analysis found that staggering them created higher wind speeds and less turbulence, compared with straight rows ([Boundary-Layer Meteorology, doi.org/kgd](#)).

International differences

The costs of installing wind and coal vary between countries. Building coal-fired power stations remains relatively cheap in China. But, every time the Brazilian government has asked power companies to bid for contracts over the past five years, new wind farms have come out cheaper than new fossil-fuelled power stations.

And according to the Global Wind Energy Council in Brussels, Belgium, the amount of wind capacity installed worldwide [rose 19 per cent last year](#).

Wind is seen as a safer long-term investment, says Turner. "Investors are nervous about building a new coal plant." While renewable sources are increasingly favoured by governments, fossil fuels face an uncertain future as countries try to cut greenhouse gas emissions.

Existing coal-fired power plants remain cheap to run, in part because coal itself is cheap. But building new plants is a risky bet, says Turner. "If you had to build a new generation, that's

where wind comes out cheaper."