

# Now it's easier to be green

Despite the mixed messages on adopting eco-friendly measures, the demand for sustainable housing is growing.

Joanna Mather

Architect Caitlin McGee is among those home owners who have been short-changed by the NSW government's decision to wind back the state's solar bonus scheme. In 2009, McGee spent \$385,000 renovating her 1880s worker's cottage in Sydney's inner west.

The aim was to make the house as sustainable as possible so she installed a 1.26 kilowatt solar system at a cost of \$8000. At the time, the NSW government was offering a feed-in tariff rate of 60¢ a kilowatt-hour and she estimated the system would pay for itself in reduced energy bills within eight years. Now the government is cutting the tariff to 40¢, it'll be closer to 11 years.

NSW Premier Barry O'Farrell hopes to save \$471 million but his decision will affect 120,000 households and has ramifications nationwide. The change adds to a prevailing climate of uncertainty when it comes to government incentives for eco-friendly measures at home.

At a Commonwealth level, consumers have been confused by the pink batts furore and reduced solar hot-water rebates. The bigger question is how this uncertainty will affect the sustainable housing movement. To date, the lesson for home owners is not to invest in green measures if the decision is based solely on government incentives because there is no guarantee any scheme is permanent.

"I think it is unconscionable to offer something and then withdraw it," McGee says. "It is up to the government to show leadership, not short-termism, on these issues."

The solar industry and proponents of sustainable housing say governments in Australia have acted irresponsibly so far.

"People need certainty," says Sydney-based architect Caroline Pidcock, who is renowned in the area of sustainable design. "A lot of people invested in photovoltaics because they [saw] that power is going to get more expensive."

The good news is, politics aside, there is a small but growing number of sustainable houses throughout our cities and towns.

These homes are designed to maximise natural light, heat and ventilation. They collect rainwater and use waste water in the garden.

Building a sustainable house from scratch obviously provides more room for innovative design but renovators can make a difference too.

"People are hungry for information about how they can make their homes naturally more comfortable and make savings on an ongoing basis," Pidcock says.

Proponents of sustainable housing insist the costs are not prohibitive. Nor does it mean compromising on comfort or style, says Queensland architect Brian Steendyk.

"You can have the best of both worlds," he says. "You just have to be more thoughtful about the way you build, design and implement items into your everyday life."

Steendyk says he finds it odd that clients often ask about how much it



Green homes

## Meeting the sustainability challenge

Late last year, Cameron Rosen moved his wife, three children and live-in nanny into a \$1 million eco-home in Sydney's east.

It was the height of summer and the house, which has no artificial heating or cooling, was about to be put to the test. Without air-conditioning, temperature control on hot days would come down to the home's design.

The family survived well enough, but Rosen realised he had a lot to learn about "operating" his new home. On hot days, for example, blinds need to be closed, shading devices activated, windows opened and ceiling fans switched on.

Rosen's 8-star house (the residential star rating system is not the same as the green-star ratings used for commercial properties) was completed earlier this year.

In what became known as the Eco Challenge, the Rosens and three other families set out to design and build sustainable houses on adjacent plots in Rose Bay.

"I developed the Eco Challenge to showcase the sustainable building industry and to also provide a

will cost to add solar cells to the roof but hardly ever worry about the expense involved in adding an entertainment room with a super large flat-screen television.

There are few people better equipped to create a sustainable home than McGee, who works in a research role with the Institute of Sustainable Futures at the University of Technology, Sydney.

"I wanted to practise what I preach and show others it can be done without causing a huge blowout in your budget," she says. McGee estimates that



tangible example to heighten awareness amongst industry and consumers," says Rosen, the founder of sustainable construction consultancy Australian Living.

Rosen says you can easily build a sustainable home on the same budget as a conventional one. It's just a matter of prioritising spending: principally on good

sustainability measures, including a water tank, improved insulation and double glazing, added about 2 per cent to the costs of her renovation. She reused as many of the discarded building materials as possible chose new products with the smallest ecological footprint.

McGee used a website called Ecospecifier, which lists thousands of products with details of their ecological credentials. The brain behind the website is David Baggs, who worked as a sustainable materials consultant on 10 of the Sydney Olympic Games sites.

architecture and design, and on quality building materials.

Thermal mass, the building's ability to store and release heat at appropriate times, is very important in a sustainable house.

In the case of the Rosen family house, the thermal mass is a prefabricated, hollow core wall filled with recycled concrete.

On the energy front, three kilowatts of photovoltaic cells on the roof offset all the household's energy consumption.

A two-storey courtyard in the middle of the house has a louvre roof that can be opened in summer and closed in winter.

The four-bedroom house - which has a pool - uses about 60 per cent less water than the average NSW home. The savings are achieved by using water from the 6600 litre tanks, a grey water diversion system and water-efficient fittings. Toilets are flushed with water from the rainwater tanks, while waste water from three showers, four wash basins and two baths is diverted to the garden.

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Baggs has developed a simple certification system to help home owners and commercial builders identify the most environmentally sensitive products. He says the cost difference is usually minimal and the only thing standing in the way of better consumer choice is information.

"This is one of the biggest myths," he says when asked whether environmentally sound products are more expensive. "Often in exactly the same price bracket you will have market-leading products and the worst in

### Help is at hand

- On behalf of CHOICE Magazine, the Alternative Technology Association has calculated payback times for small solar panel systems in each state and territory. [www.ata.org.au](http://www.ata.org.au)

- The federal government's Your Home website provides materials and tools to encourage the design, construction and renovation of healthier and more environmentally sustainable homes. [www.yourhome.gov.au](http://www.yourhome.gov.au)

- Sustainable House Day celebrates its 10th year on September 11, 2011. More than 300 homes will be open for inspection. The annual event includes solar power, water harvesting and recycling. [www.sustainablehouseday.com](http://www.sustainablehouseday.com)

- The Ecospecifier website lists 6000 eco-products, eco-materials, technologies and resources for homeowners and businesses. [www.ecospecifier.com.au](http://www.ecospecifier.com.au)

Caitlin McGee practises what she preaches. Photo Rob Homer

the market. In other cases it might be the very best is more expensive but you can get something that's 60 per cent better than the worst and it doesn't cost a cent more."

When it comes to designing and building sustainable homes, there are three main areas to consider: energy, water, and materials and waste. "Passive design" takes advantage of climatic elements such as sunlight and breezes to reduce or eliminate the need for air-conditioning and heating.

"If you're thinking about it from the beginning it doesn't cost a lot," says Pidcock, whose company recently completed a \$1 million "zero emissions" house in Rose Bay in Sydney's east (see box).

One aspect of building that sustainability consumers are still coming to grips with is the notion of "embodied energy". That is, the amount of energy consumed by all the processes associated with the production of a building, from the mining and processing of natural resources to manufacturing, transport and product delivery.

A lifecycle approach goes even further to consider the impact of, for example, removing old growth forest to produce timber products. Removing trees has ramifications for wildlife and eliminates their capacity to act as carbon repositories. The other side of the coin is behaviour.

McGee's home uses about three kilowatt-hours of electricity a day; the average home uses about 20 kilowatt-hours a day.

"I was already conscious of the environmental issues but one of the features I have now is an electricity monitor," she says. "I can see in real time how much electricity the house is using at any one time. It's the same with the rainwater."

Overall, she's delighted with the result and the house won the Australian Housing Industry Association Green Home of the Year Award in 2009.

But home owners who want to create greener abodes need to do the research, McGee says.

"My recommendation is if you're going to get an architect, get one that has a good track record in this area. Look for builders and architects who have already worked on green homes because they've done some research and have learnt along the way."