



Evaluating solar water heating: Sun, renewable energy and climate change

Questions and Answers

1. Aren't solar water heaters good for the environment?

Yes, solar water heaters do reduce carbon dioxide emissions from existing power plants. However, they do little to reduce the need to build new fossil fuel power plants.

2. Is there a problem with the winter electricity peak?

Yes, and from an environmental perspective, we need better planning to reduce winter peaks.

3. Do solar water heaters help in winter?

Yes they do. However they don't deliver consistently which is important when decisions are made to build new power plants. On some winter days, the solar heating only contributes about 10% of the energy needed to heat water. And it's on these cold stormy winter days that demand for electricity is particularly high – and when reducing it can make a difference to how many fossil fuel peak power plants are built.

4. Isn't most of winter's peak electricity used for keeping people warm and having lights on?

Certainly having lights on and heating rooms is a major contributor to peak demand. But so is water heating. They all contribute to the winter peak and reducing the electricity used for heating water on cold winter days will make a difference.



5. Can't water stored in hydro dams help meet the demand when solar is not so effective?

It depends on your timeframe. For now, we meet the winter peak by releasing more water from dams and burning more gas and coal. If you're planning for the future the question becomes how many more rivers are dammed to build more hydro storage and how many new fossil fuel power plants are built.

6. Are solar water heaters cost-effective?

In terms of making a dent in your power bill they will make a difference but the systems themselves are costly. The Government recently decided to stop the subsidy on solar water heaters and this was based on studies showing they were not a good investment. But from the point of view of some individual households, solar water heaters may be cost-effective.

7. Why is heating water only at night such a great idea? It doesn't save energy.

It shifts the electricity used in heating water from the day to the night. It is during the day that the peaks in electricity use occur.

8. Why didn't the report consider other solar technology?

There are many ways to capture solar energy and the different technologies (and economics) keep changing. The focus on solar hot water heating was seen as useful given that the Government was looking at the future of subsidies, and that many councils were involved or thinking of becoming involved. But the report is about much more than solar water heaters – a major message is that reducing peaks in electricity use is good for the environment.



9. Does the report agree with international advice? Didn't the International Energy Agency (IEA) call for much greater use of solar technology?

New Zealand is in quite a different situation to many other countries for two reasons. First, most of our electricity already comes from renewable energy sources. Second, electricity use in New Zealand peaks in winter, whereas in many countries electricity use peaks in summer because of air conditioning.

10. What does the report mean for those that have solar water heaters?

This report isn't intended to stop people using their solar water heaters. Rather it is focused on the national level – looking at what large scale uptake of solar water heaters would achieve for the environment in the New Zealand context. For those thinking about buying a solar hot water heater the report may help them think about what other options might be available. There is a recommendation to the Energy Efficiency and Conservation Authority (EECA) on the provision of good information to help people make decisions.