

# HOME BATTERIES

Installing a home battery not only saves you money, it also contributes to the national power grid—helping to reduce power cuts—and lowers carbon emissions!

## Working with solar

If you have solar installed, but you're not at home during the day, you may find you're unable to maximise use of the power you are generating. If this is the case, your excess power can be exported back to the grid, but the money your provider returns to you will be very small compared to peak rate you pay for imported power. Typically, you might pay 26 cents per kW/hr, whereas your provider might buy it back from you at only 7 cents per kW/hr.

A battery allows you to store excess solar power and use it during times when there is not enough solar energy to power the home.

## The future

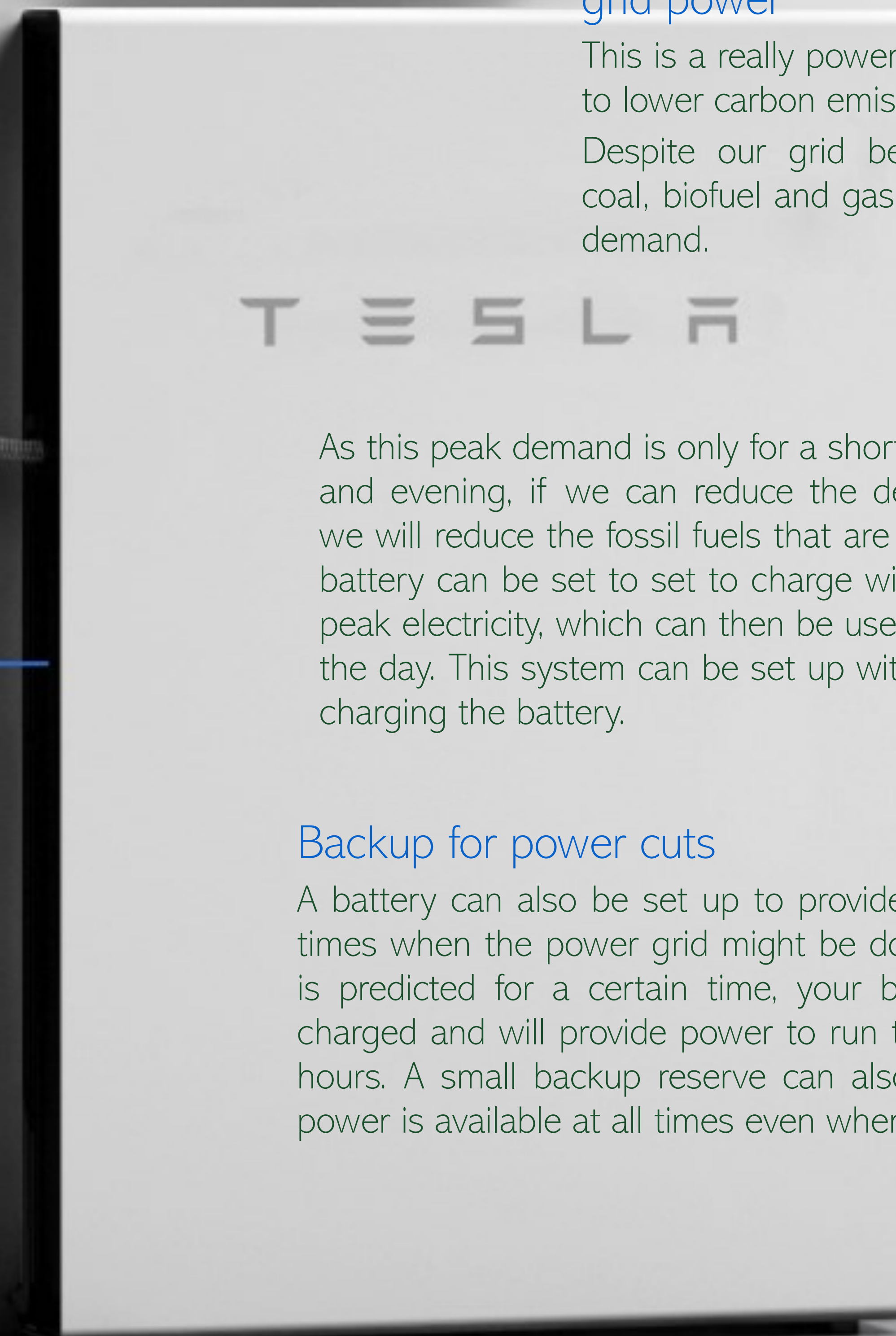
Batteries are a really fast-moving area of technology. At the moment the best battery chemistry is the long life LFP (Lithium Iron Phosphate) which can fully charge and discharge with little degradation. Other battery chemistry based around Sodium will likely be available within the next few years. This will likely have considerable cost advantages, although it is too early to know exactly how this will pan out.

If home batteries were to be widely used, the other area currently being investigated is the potential for batteries to work with the electricity grid, eliminating the need to burn any fossil fuels and maximise the potential of wind and solar generation. The advantage batteries have over alternative large grid scale storage systems, such as hydro pumped storage, is that they can be instantly charged and discharged (at 90% efficiency) allowing micro-management of supply reducing the need for a large buffer of supply to meet possible demand fluctuations. If home batteries (or in fact car batteries) are allowed to have controlled charging and discharge by the Grid they can form part of it without any significant further hardware of connections being required. This is presently being trialled in various places.

SOLAR  
INVERTER

MAIN  
PANEL

GATEWAY



## Monitoring power usage

Another useful feature that comes with most batteries are apps that allow you to fully monitor power usage and adjust settings in real time allowing you to maximise its efficiency. Used with timers and smart switches, this allows you to really maximise off peak power for high demand appliances.

POWERWALL

## Are home batteries worth it?

From a cost perspective, home batteries are well worth investing in, but only if they work with a system that maximises their capability.

If you can achieve two cycles per day out of your battery, one from the grid and one from solar, they will provide direct saving that easily covers their cost.

And from a low carbon perspective, they can directly reduce the need to burn fossil fuels by reducing peak demand, which gives you, the end-user a lot of personal satisfaction!

## Charging your battery with off-peak grid power

This is a really powerful method that has the ability to lower carbon emissions from the grid.

Despite our grid being 82% renewable energy, coal, biofuel and gas are still burned to meet peak demand.

As this peak demand is only for a short period in the morning and evening, if we can reduce the demand at these times, we will reduce the fossil fuels that are burned. To do this the battery can be set to charge with cheap (or free) off-peak electricity, which can then be used during peak times of the day. This system can be set up with or without solar also charging the battery.

## Backup for power cuts

A battery can also be set up to provide backup power for times when the power grid might be down. If a power cut is predicted for a certain time, your battery can be fully charged and will provide power to run the house for many hours. A small backup reserve can also be set to ensure power is available at all times even when the battery is low.

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