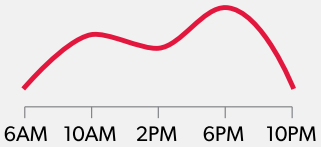
Practical example: Leyla

Leyla wants to get electricity to her offgrid farm house.

Profile

Name: Leyla
Location: Rural town
House type: 3 bedroom
Occupants: 2 adults, 1 child
Tariff: Not applicable
Existing solar: None
Daily electricity usage profile:



Daily average: 15 kWh
Annual total: 5,475 kWh

Overview

Leyla and her family recently decided to leave city life behind and build their dream home in a rural area. She discovered that there's no existing electricity connection to the property. The costs to put in the connection was a lot more than she was anticipating, and she was advised that it might be more cost-effective to go offgrid for her electricity.

Her engineer indicated that a solar and battery system could handle the household's main energy needs. This appealed to Leyla as one of her goals in moving was to live more sustainably. She consulted two local solar installers to see what would be involved, including the costs, in being totally self-sufficient for her energy needs.

What did Leyla decide?

Solar: 10 kW of solar.

Battery: 20 kWh offgrid battery system.

Backup generator: to ensure she had power even after long periods of poor sunshine.

Offgrid system maintenance: There are a few maintenance tasks that include maintaining the generator, buying fuel and a safety check every few years.

Summary

System cost: $44,000

To meet the needs of this system, Leyla also reduced her future energy consumption by:

- designing her house on passive solar-design principles
- installing lots of insulation in the floors and walls as well as the ceiling
- purchasing highly energy efficient appliances including a split-system air conditioner for heating and cooling, a high-efficiency heat pump for hot water and an electric induction cooktop
- adding extra insulation for the hot-water tank, located indoors.

Assumptions and notes:

- Canberra was used as the location for modelling. This location has high sunshine.
- System sized so that only 5% of the energy is supplied by the generator.

Takeaways

1. Going completely offgrid only makes financial sense in a few circumstances, mostly in rural areas without an existing grid connection.
2. For most households it's more economical to stay on the grid and reduce grid energy consumption through other means, such as solar and energy efficiency.
3. If you decide to go offgrid, look at different battery technologies and backup options and include fuel costs in the ongoing cost of a diesel or petrol generator.

For more information, download the NSW Home Solar Battery Guide: energysaver.nsw.gov.au/solar-battery-systems