



## CHAPTER SIX: Home Batteries

### INTRODUCTION

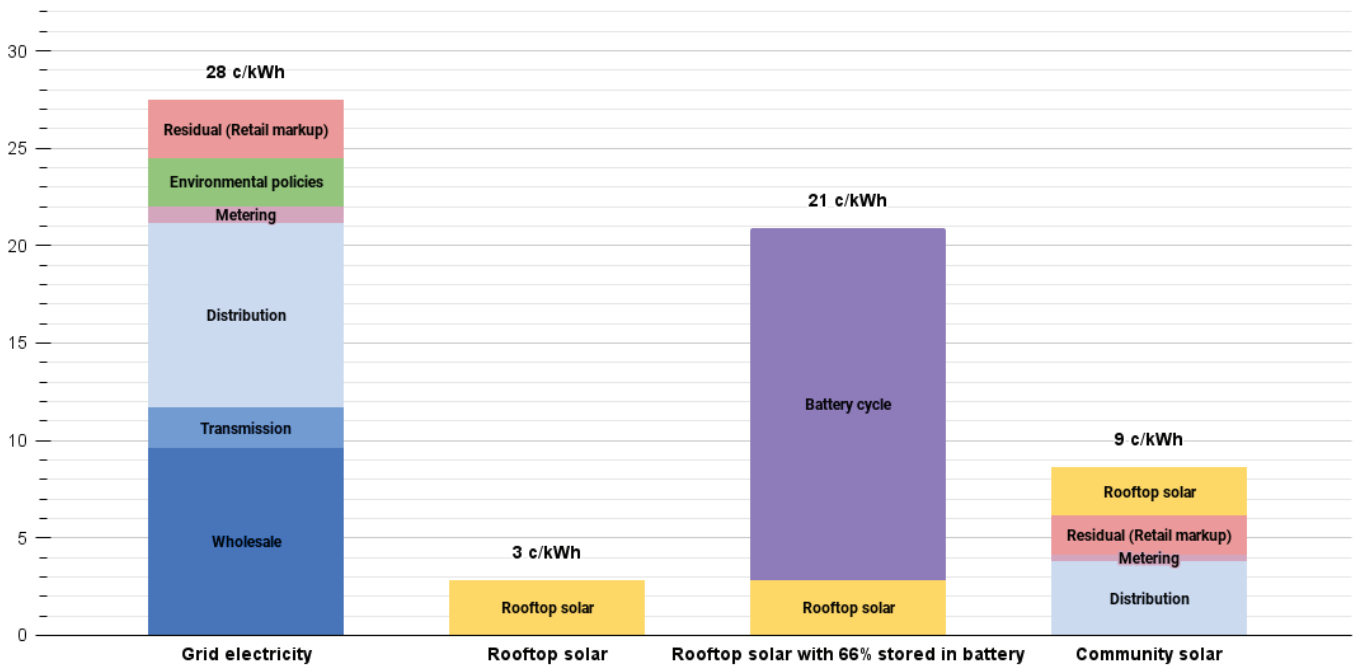
Home batteries are a crucial component of household electrification. They allow households to store excess solar energy generated during the day and use it during the night or during periods of low solar output. By using home batteries, households can reduce their reliance on grid power and increase their energy independence. This section of the “Electrify Everything” toolkit will provide information on how to install home batteries and estimate the costs and savings associated with their use.

Rooftop and community generated solar with batteries are already less than average grid costs. With battery prices falling fast.

The lowest cost energy of the future will come from homes and communities, and then the grid. The grid is an important part of the future, but it should be recognised that likely the best outcome is for most energy to be generated and used locally.

## Long distance fossil fuel grid electricity versus rooftop and community solar

Source: AEMC Price Trends 2021. SolarChoice. SolarAnalytics. Capacity Factor 17.14%.



## TYPES OF HOME BATTERIES

There are several types of home batteries available in the market, including lead-acid batteries, lithium-ion batteries, flow batteries, and saltwater batteries. Each type has its advantages and disadvantages, and the choice of battery will depend on several factors, including cost, performance, and durability.

Lead-acid batteries are the oldest and most common type of home battery. They are relatively cheap and have a long lifespan. However, they are heavy and bulky and require regular maintenance. Lithium-ion batteries are a newer type of battery that is becoming increasingly popular. They are lightweight, have a high energy density, and require little maintenance. However, they are more expensive than lead-acid batteries and have a shorter lifespan.

Flow batteries are another type of home battery that is gaining popularity. They are highly durable and have a long lifespan. However, they are still relatively expensive and have a lower energy density than lithium-ion batteries. Saltwater batteries are a new type of battery that is still in the early stages of development. They are non-toxic, non-flammable, and have a long lifespan. However, they are still relatively expensive and have a lower energy density than lithium-ion batteries.

## **COSTS AND SAVINGS**

The cost of installing a home battery will depend on several factors, including the type of battery, the size of the battery, and the cost of installation. The cost of a home battery can range from a few thousand dollars to tens of thousands of dollars. However, the cost of home batteries is expected to decrease in the coming years as the technology improves and economies of scale are achieved.

Despite the upfront cost, home batteries can provide significant savings over the long term. By storing excess solar energy, households can reduce their reliance on grid power, which can significantly reduce their energy bills. The amount of savings will depend on several factors, including the size of the battery, the amount of solar energy generated, and the household's energy consumption.

To estimate the potential savings of using a home battery, we can consider the following example. Suppose a household in Noosa Shire generates an average of 20 kWh of solar energy per day and consumes an average of 25 kWh of energy per day. The household can install a 10 kWh home battery to store excess solar energy generated during the day and use it during the night. Assuming an average cost of grid power of \$0.30 per kWh, the household can save up to \$2,190 per year on their energy bills.

However, the actual savings will depend on several factors, including the cost of the home battery, the lifespan of the battery, and the cost of grid power. Additionally, households that generate more solar energy than they consume may be able to sell excess energy back to the grid, further increasing their savings.

## **INSTALLATION AND MAINTENANCE**

Installing a home battery requires professional installation, which can add to the upfront cost. However, the installation process is relatively straightforward and can be completed in a few hours. The installation process will involve connecting the battery to the solar panels and the household's electrical system.

Home batteries require little maintenance, although they may need occasional cleaning and inspection to ensure optimal performance. The lifespan of a home battery will depend on several factors, including the type of battery, the size of the battery, and the household's energy consumption.

## CONCLUSION

Home batteries are a crucial component of household electrification. They allow households to store excess solar energy and reduce their reliance on grid power, increasing their energy independence and reducing their carbon footprint. Although the upfront cost of home batteries can be high, they can provide significant savings over the long term. The actual savings will depend on several factors, including the size of the battery, the amount of solar energy generated, and the household's energy consumption.

The “Electrify Everything” toolkit provides households with a step-by-step guide on how to install home batteries and estimate the costs and savings associated with their use. By using home batteries, households in Noosa Shire can contribute to the transition to a low-carbon future and increase their energy independence.