



## CHAPTER SEVEN: Electric Vehicles (EVs)

### INTRODUCTION

The transportation sector is a significant contributor to global greenhouse gas emissions, accounting for approximately 14% of emissions worldwide. One way to reduce these emissions is to switch from fossil fuel-powered vehicles to electric vehicles (EVs). EVs are powered by electricity from batteries, which can be charged using renewable energy sources like solar power. This chapter will provide information on how households in Noosa Shire can switch to EVs, including the costs and savings associated with this transition.

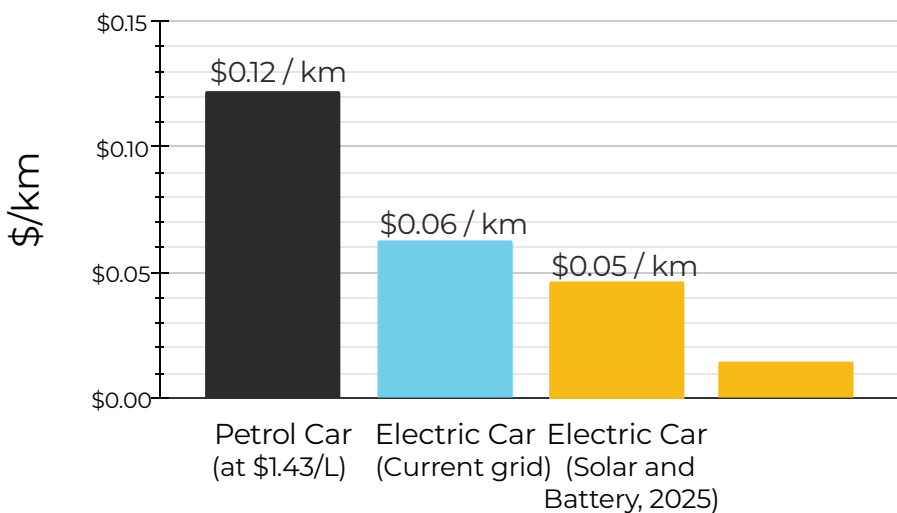
### WHY SWITCH TO ELECTRIC VEHICLES?

Switching to EVs has several benefits, including:

- **Reduced greenhouse gas emissions:** EVs produce significantly fewer emissions than fossil fuel-powered vehicles. In Australia, the average emissions from a new petrol car are 180g CO<sub>2</sub>/km, while the average emissions from an EV are 0g CO<sub>2</sub>/km.
- **Reduced air pollution:** EVs produce no tailpipe emissions, which can improve air quality and reduce health impacts from air pollution.
- **Reduced noise pollution:** EVs are quieter than fossil fuel-powered vehicles, which can reduce noise pollution in urban areas.
- **Reduced fuel costs:** EVs are cheaper to run than fossil fuel-powered vehicles, with lower fuel costs and maintenance costs.

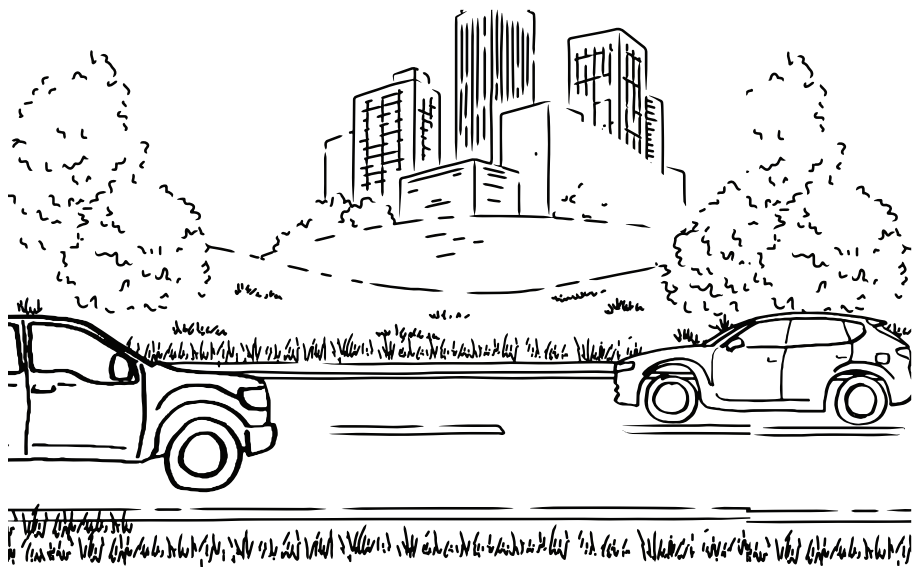
- **Increased energy independence:** By using renewable energy sources like solar power to charge their EVs, households can become more energy independent and reduce their reliance on fossil fuels.

QLD driving cost per km - petrol car versus electric car - mid-size



An electric car costs about 6 cents per km to drive if charged from the grid, compared to a petrol car which costs about 12 cents per km (when petrol is at \$1.43/L).

Charging an electric car with rooftop solar reduces this even further, to about 1 cent a km, over 10 times less than a petrol car.



## HOW TO SWITCH TO ELECTRIC VEHICLES

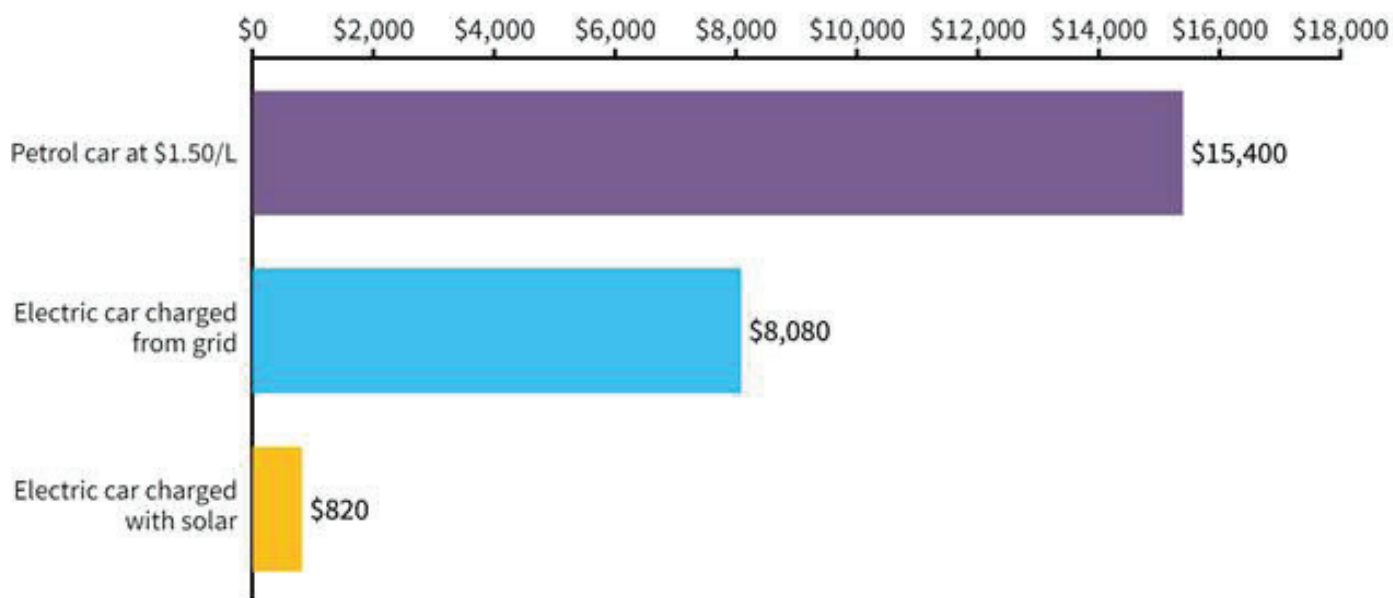
Switching to EVs involves several steps, including:

1. **Researching EV models:** There are several EV models available in Australia, including the Nissan Leaf, Tesla Model S, and Hyundai Kona Electric. It's important to research the different models and their features to find the one that best suits your needs.
2. **Assessing your charging needs:** EVs can be charged using a standard household power outlet, but this can take several hours. Alternatively, households can install a dedicated EV charging station, which can charge the vehicle much faster. It's important to assess your charging needs and determine whether a dedicated charging station is necessary.
3. **Installing a charging station:** If a dedicated charging station is required, households can install one at their home. There are several types of charging stations available, including Level 1, Level 2, and DC fast charging. The cost of installation will depend on the type of charging station and the complexity of the installation.
4. **Purchasing the EV:** Once you've researched different EV models and assessed your charging needs, it's time to purchase the vehicle. The cost of an EV will depend on the model, features, and any government incentives that may be available.
5. **Maintaining the EV:** EVs require less maintenance than fossil fuel-powered vehicles, but they still require regular servicing and maintenance. It's important to follow the manufacturer's recommendations for maintenance and servicing to ensure the vehicle runs smoothly.

## COSTS AND SAVINGS

The costs and savings associated with switching to EVs will depend on several factors, including the model of the EV, the cost of electricity, and any government incentives that may be available.

### Driving | Lifetime running costs over 10 years



Based on average Australian driving of 12,000km per year. Petrol price \$1.50/L. Grid price \$0.27 /kWh. Solar price \$0.028 /kWh. Solar use 100%. 10 year lifetime.



Here is a breakdown of the estimated costs and savings associated with switching to an EV in Noosa Shire:

### COSTS:

- **Purchase cost:** The cost of an EV will depend on the model and features. In Australia, the cost of a new EV ranges from \$44,000 for the Nissan Leaf to \$133,000 for the Tesla Model S.
- **Charging station installation:** If a dedicated charging station is required, the cost of installation will depend on the type of charging station and the complexity of the installation. A Level 2 charging station can cost between \$1,500 and \$2,500 to install, while a DC fast charging station can cost between \$20,000 and \$50,000.
- **Electricity costs:** The cost of electricity will depend on the electricity provider and the time of day. In Noosa Shire, the average cost of electricity is approximately \$0.25/kWh.

## SAVINGS:

- **Fuel costs:** EVs are significantly cheaper to run than fossil fuel-powered vehicles, with lower fuel costs and maintenance costs. The cost of electricity to charge an EV is approximately \$0.05/km, while the cost of petrol to drive the same distance is approximately \$0.15/km.
- **Government incentives:** The Australian government offers several incentives for EV owners, including a \$3,000 rebate for new EV purchases and free registration for EVs in some states.
- **Maintenance costs:** EVs require less maintenance than fossil fuel-powered vehicles, which can save households money on servicing and maintenance costs.

## CONCLUSION

Switching to EVs is a significant step households can take to reduce their carbon footprint and contribute to a cleaner, greener future. While the initial costs of purchasing an EV and installing a charging station can be high, the long-term savings in fuel and maintenance costs can make the investment worthwhile. Additionally, government incentives can help offset some of the costs associated with switching to EVs. By using renewable energy sources like solar power to charge their EVs, households in Noosa Shire can become more energy independent and reduce their reliance on fossil fuels.