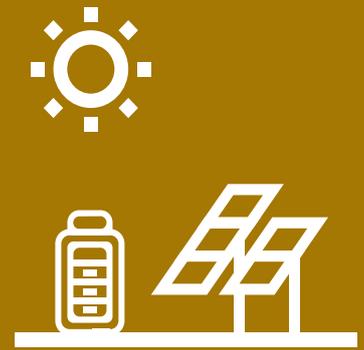


Energy

Subdivision design for a sustainable future



What's included in this fact sheet:

Why do subdivisions need improved energy productivity?

Benefits of improved energy productivity in subdivision design

What should be considered to improve energy productivity in subdivisions?

- Fuel Switching
- Energy Efficiency
- Renewable Energy

Where can I find out more?

This fact sheet explains how subdivisions can improve energy efficiency and increase renewable sources of energy by maximising opportunities for solar access and supporting all electric suburbs.

Why do subdivisions need improved energy productivity?

Residential subdivision represents a significant opportunity to influence improved energy productivity outcomes in the built environment, from how streets are designed to maximise solar access for future dwellings through to allocating space for onsite renewable energy generation and/or storage.

In Victoria, the residential sector contributes 28% to overall emissions, making it the biggest contributor to greenhouse gas emission in the state. Good subdivision design can set the preconditions for energy efficient dwelling construction, reducing energy consumption and greenhouse gas emissions.

Good subdivision design enables opportunities to decrease energy consumption, reduces reliance on fossil fuels and future-proofs our communities to the impacts of climate change.

Victoria's Climate Change Act 2017 establishes a long-term target of net zero greenhouse gas emissions by 2050. With the residential sector being the largest contributor to overall emissions and also the largest contributor to emissions from stationary energy activities (such as burning gas for heating and cooking), designing energy efficient subdivisions will form a critical part of mitigating and adapting to the effects of climate change.

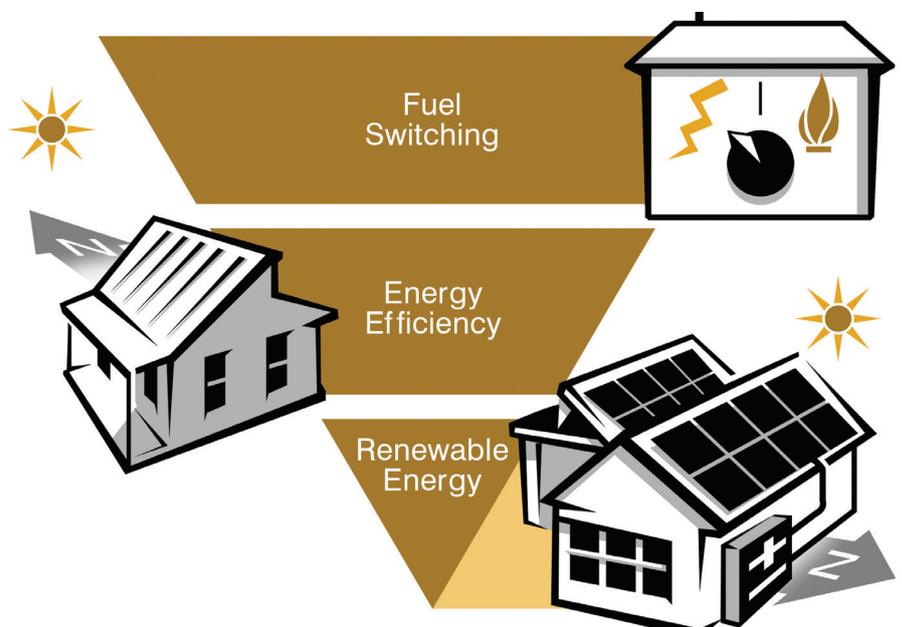
Benefits of improved energy productivity in subdivision design

Developers can take advantage of:

- Enhanced market appeal of the development to prospective purchasers, based on lower operating costs for new residents
- Demonstrating best practice energy efficiency and creating climate resilient neighbourhoods

A new resident can expect:

- Lower energy bills due to less reliance on active heating and cooling systems
- Improved living comfort
- Future proofing of building and community assets





Energy Productivity in Subdivisions

When seeking to improve energy productivity in subdivision design, the 'energy hierarchy' can be used to rank the stages to reduce energy use. It starts with the objective to reduce stationary energy related emissions which can be achieved by switching fuel, reducing the need for energy, and finally installing renewable energy for any remaining energy demand.

Fuel switching

Subdivision design with improved energy productivity outcomes starts with considering opportunities to switch energy sources away from fossil fuels in both the public and private realm.

Fuel switching objectives include:

- To avoid the extension of new gas networks
- To support electric only suburbs

Avoiding gas in residential subdivisions will make a significant contribution to reducing emissions from stationary energy activities such as heating and cooking, with the residential sector being the largest contributor to direct combustion emissions from burning fuels.

Not only will avoiding extension of the gas network save money up front, switching to all electric subdivisions will also influence energy efficiency and renewable energy decisions in both the public and private realm without the need for design guidelines.

Energy efficiency

The next stage to improving energy productivity in subdivision design is considering energy efficiency measures. Having modelled stationary energy related emissions, opportunities can be sought to cut energy demand.

Energy conservation objectives include:

- To provide lots with areas and dimensions that enable the appropriate siting and construction of a dwelling for solar access
- To ensure streetlights and other public infrastructure requiring energy supply (pumps etc.) are of the highest efficiency standard available and integrate smart technology where appropriate

The Framework includes metrics to ensure subdivision design:

- Considers options to change the street layout to enable 75% of lots with the rear or the property to face west, north or east - which is supported by aligning streets to the compass points as part of site layout
- Looks to introduce behaviour change programs for new residents
- Considers opportunities to introduce design guidelines to influence energy efficiency in dwellings

Renewable energy

The final stage in this hierarchy is installing renewable energy measures. By improving energy demand through the first two stages, the required amount of energy needing to be consumed has been cut down.

This means the size of a renewable energy system required to meet the needs of the subdivision can be more accurately determined, which results in a smaller and cheaper system having considered the other two factors.

Renewable energy objectives include:

- To provide lot orientation which encourages roof lines capable of supporting solar PV
- To maximise the provision of renewable energy to the subdivision
- To promote adoption of battery storage at the subdivision or lot scale

Opportunities can be sought to include precinct scale renewable energy supply and battery storage to support the overall energy usage within the subdivision. Alternatively, developers can seek to influence renewable energy generation and storage on lot through design guidelines.

Where can I find out more?

Other Fact Sheets in this series are also available to provide guidance on the 7 Sustainable Subdivision Categories. For further information on Energy, see the Fact Sheets entitled:

- Site Layout and Liveability
- Streets and Public Realm

Sustainable Buildings Fact Sheets

imapvic.gov.au

Rating Tools

Green Star Communities

www.gbca.org.au

EnviroDevelopment:

www.envirodevelopment.com.au

Sustainable Infrastructure Guidelines

Provides alternative design and construction initiatives to achieve greater sustainability outcomes

www.designmanual.com.au

