

# Renewable WWA

Steering the state to a greener horizon



What can be done to ensure the model of **'take-make-waste'** is a thing of the past

**Net-zero emissions goal** a government, industry, business and community collaboration



# It takes a village to raise a sustainable future

Madelin Hayes

**From passive-solar designs to reusable water schemes, there are a host of communities popping up across the state shaped to realise a cleaner, greener future.**

## Witchcliffe Ecovillage

Witchcliffe Ecovillage is one of the world's most sustainable residential communities, with innovative homes featuring a 100 per cent renewable energy design.

"The homes are intended to create significantly more energy than they consume," Sustainable Settlements Sales Representative and Communications and Marketing Manager Jo Thierfelder said. "The ecovillage's sophisticated energy network will incorporate solar photovoltaics (PVs) on every roof, solar batteries, and microgrids enabling power sharing between residents and businesses.

"Solar-powered electric vehicle fast-charging stations are located in every residential cluster to cater for tourists and locals alike.

"Every lot at the ecovillage has been carefully oriented to maximise solar capture for passive-solar homes, which will be built in accordance with our sustainable building design guidelines using natural materials such as timber, hempcrete and straw bale."

Other noteworthy features of the ecovillage include innovative water and food initiatives.

"Ample high-quality water will be captured and reused onsite by three large dams, household rainwater tanks and a network of stormwater rain gardens," Ms Thierfelder said.

"A community-scale wastewater treatment plant will treat all sewerage

onsite and irrigate on to a community avocado orchard and wood lot.

"Fourteen agricultural lots irrigated by the dams will be available for purchase by residents and will provide opportunities for high-value, small-scale commercial horticulture."

## WGV at White Gum Valley

Located 3km from the heart of Fremantle, WGV at White Gum Valley draws on community and environmental aspirations of the surrounding suburb.

"WGV at White Gum Valley is the first project in Western Australia and only the 11th in the world to achieve One Planet Living (OPL) accreditation as an innovative residential estate demonstrating best practice for modern sustainable design," DevelopmentWA Acting Chief Executive Dean Mudford said.

"OPL is a sustainable development framework based on the idea that we need to live within the limit of one planet's natural resources.

"The framework is built around 10 key principles covering areas such as zero waste, sustainable water and food, land and nature, and culture and community."

Each WGV at White Gum Valley dwelling integrates a climate-responsive design to help keep homes naturally cool in summer and warm in winter; other aspects include water and energy-saving technologies such as solar PV systems and rainwater tanks.

"Solar PV systems are mandated for all dwellings to ensure homes can be powered by renewable solar energy," Mr Mudford said. "The aim is to enable residents to achieve

zero-energy buildings status, which means the homes produce more energy than they use over a year."

The community includes more than 80 homes, which accommodate about 180 residents.

## East Village at Knutsford

As Fremantle's newest low-carbon development, East Village at Knutsford will run on 100 per cent renewable energy, with all power and water used by the residents derived from renewable sources through a microgrid supply network.

"Each home will have a rooftop solar system installed, which will be connected to an embedded private network for residents," Mr Mudford said. "A precinct-scale battery system will store excess energy, which can be shared between neighbours when required.

"The trial of this innovative energy-sharing technology aims to achieve at least an 80 per cent reduction in grid electricity imports at East Village at Knutsford compared to similar housing."

Embracing the principles of OPL, each townhouse will feature a passive-solar design – strategically positioned to receive optimal sun exposure all year-round.

"Designing homes according to passive-solar principles helps to maximise natural daylight, sun exposure and ventilation, which improves thermal efficiency, and reduces energy demands for heating, cooling and lighting a home," Mr Mudford said.

## OneOneFive Hamilton Hill

The latest Innovation Through Demonstration project by DevelopmentWA, OneOneFive Hamilton Hill is delivering an ecologically sensitive development, minimising water and energy consumption while retaining the site's landform, trees and biodiversity.

"The estate is anticipated to offer about 232 lots and a diverse range of new housing options, including single residential homesites, town homes and compact lots, along with four grouped housing sites," Mr Mudford said.



Gen Y Demonstration Housing project in WGV at White Gum Valley.