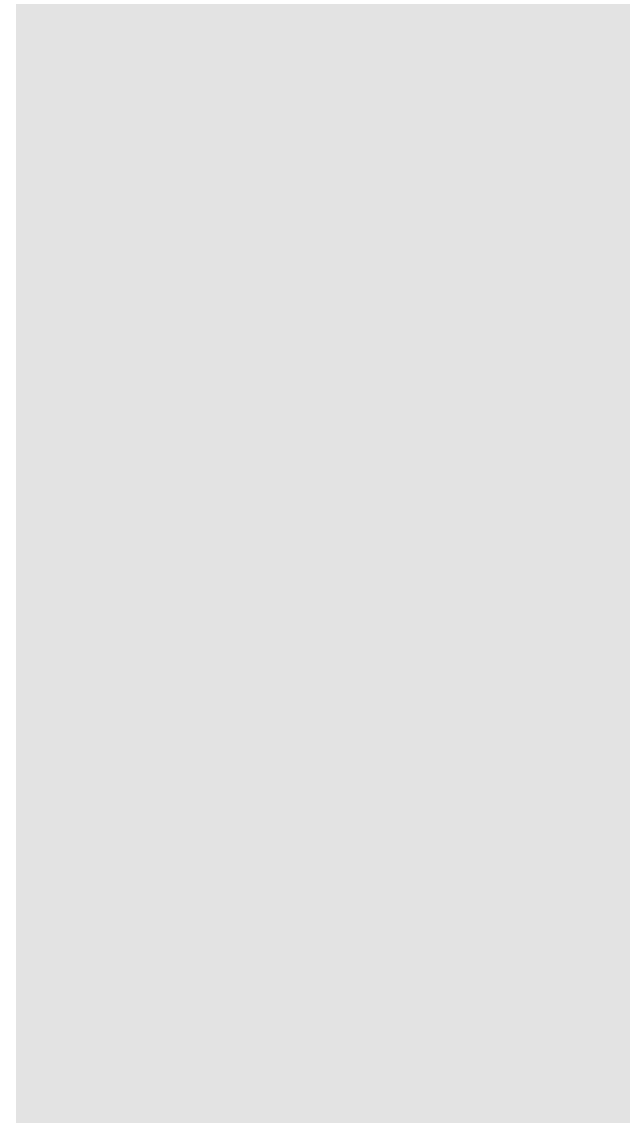
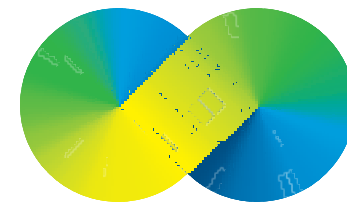




# LIGHTHOUSE COMMUNITIES

*zero-net energy transitions & community energy*





hepburn  
wind



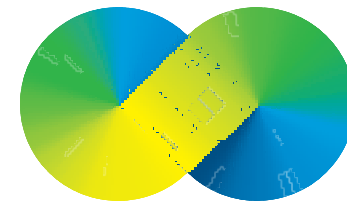
- First community-owned wind farm built in Australia
- 2010 shareholders, 54% local ownership
- Co-operative structure
- 2 turbines generating since June 2011, enough to 'power the town'
- Zero-net energy whole of Shire commitment by 2025, zero-net emissions by 2029
- Benefit sharing model includes Community Fund, Energy fund, cheaper electricity for neighbours, equity for neighbours
- Debt paid down 10 years ahead of schedule leaving us cash-flow positive for member returns and future projects



# Current Projects



- Partnership on Z-NET project
- EV charging station on Vincent Street
- Donation solar – 6 solar systems delivered on community buildings this year
- Partnership with MASH for solar bulk buy roll out for residential across Hepburn Shire – 70 systems, \$500k, 400kW confirmed 2 months in
- Partnership with Powershop to co-fund projects
- Antique micro-hydro restoration at Lake Daylesford
- 3MW Grid connected solar farm in planning permit application



**hepburn  
wind**







# INVESTIGATING INTEGRATED SYSTEMS OF EUROPEAN ZERO-NET ENERGY VILLAGES



80 THOUGHT  
LEADERS



20 VILLAGES  
AND 5 CITIES



70 VISITS TO  
OPERATING  
PROJECTS

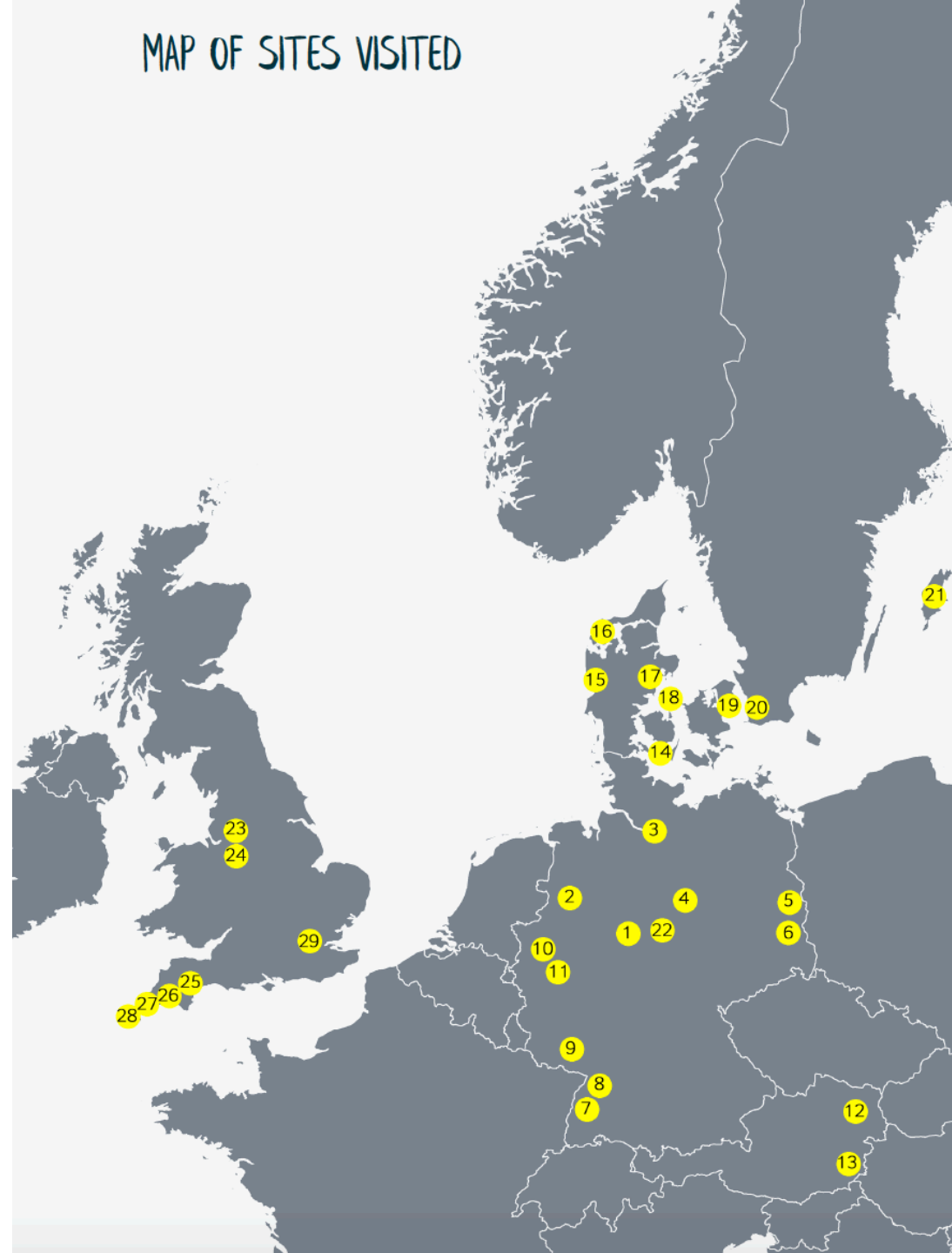


5 CONFERENCE  
PRESENTATIONS



# Locations May – July 2017

MAP OF SITES VISITED





# Context

- Zero-net energy or 100% renewable: generate enough to offset local consumption
- Hepburn Wind first example of a zero-net energy town however no council area has delivered 100% renewable
- Focus on 100% renewable villages with high community ownership and complexity partnership structure and technologies
- Interest in integrated community energy systems, with grid and demand management ownership approaches and strong social benefit



The role of  
the island

ÆRØ Island

STATUS = 120% RENEWABLE

TARGET: CARBON NEUTRAL BY 2025





# The role of the island Samsø Island

STATUS = 100% RENEWABLE BY 2008

TARGET: 100% FOSSIL FUEL FREE BY 2030



## SAMSO: THE ENERGY SELF-SUFFICIENT ISLAND

The first island to become completely energy self-sufficient in 10 years?

### 11 ONSHORE WIND TURBINES

**1 turbine** generates enough electricity to power **630 houses**.

The turbines transmit electricity to the mainland when more electricity than the island can consume is generated.



### OFFSHORE WIND TURBINES

**10 103m high offshore wind turbines** constructed in 2003 produce more energy than the island uses for transport.



**11 1MW onshore wind turbines** generate 28,000 MWh, that's more electricity than the island's total consumption and the equivalent of 690,000 gallons of oil.

### 3 x STRAW FIRED PLANTS

- Tuenelsgård  
Heats **263** households
- Bullen / Brøndby  
Heats **232** households
- Onbjerg  
Heats **76** households



### SAMSO: ISLAND FACTS

Area: 114 km<sup>2</sup>  
Population: 4,000  
Investment: DKK 365 million

### SOLAR PLANT

One of the heating plants receives heat from **2500 m<sup>2</sup>** of solar panels. This is combined with a **900 KW** wood chip fired boiler.



### EXCESS ENERGY

Excess electricity produced from offshore wind farms is invested in new energy projects.

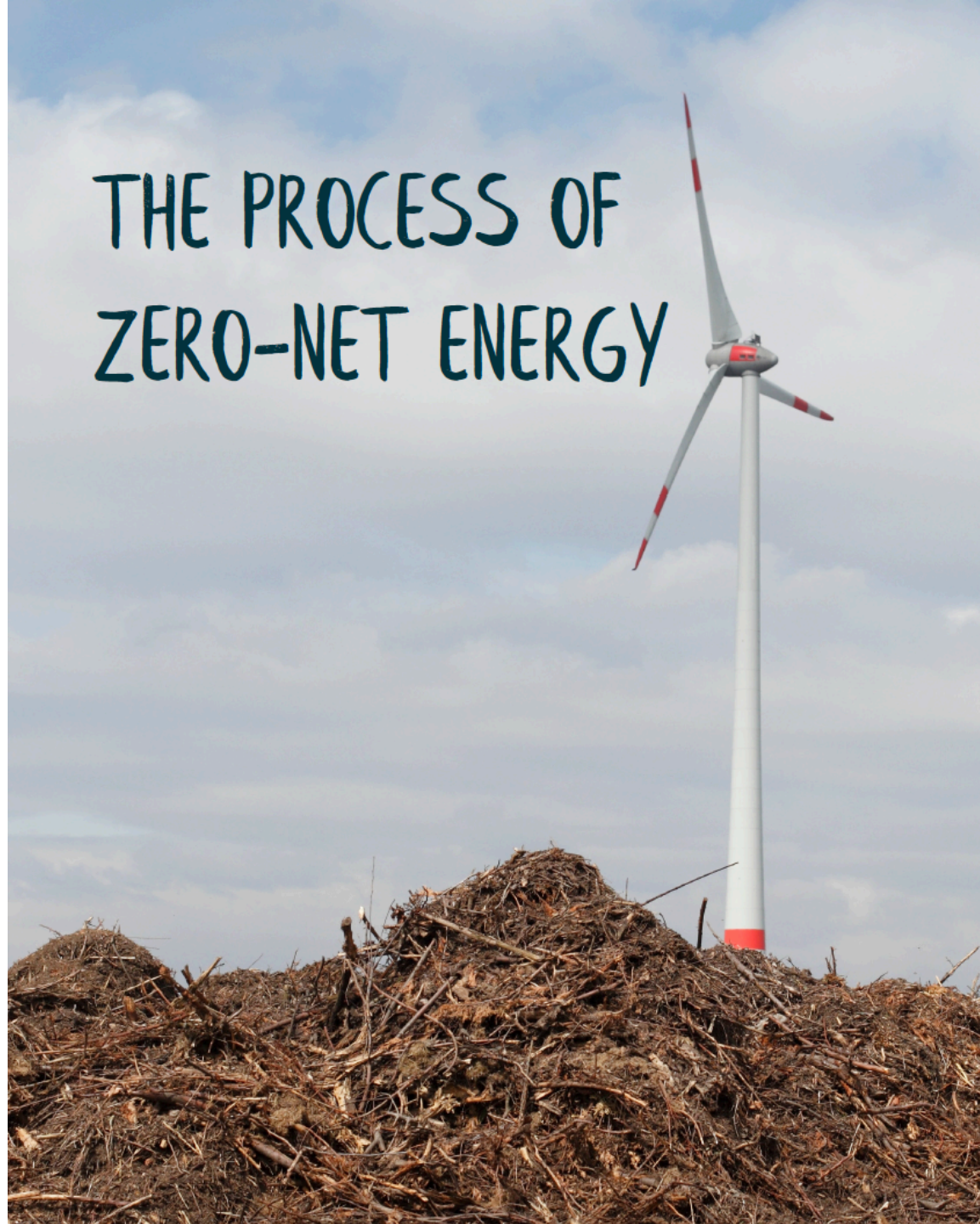


# The role of the region

- Taking municipality success to the regions is an active strategy
- Very complex to implement
- Important for bringing less capable communities along on the journey
- Learnings: to have a shared strategy across the region is very important, BUT it is equally important not to make the transition a top down approach
- In some examples, strategies were abandoned or lost community support as they weren't designed at the local level



The  
importance  
of  
frameworks |  
blueprints |  
masterplans



# Localised process – the Energy Council

## THE PROCESS FOR RINGKØBING-SKJERN

TARGET: 100% RENEWABLE ELECTRICITY BY 2020,  
FOSSIL FUEL FREE BY 2035

STATUS = REACHED 60% OF TARGET IN 2016

- Energy policy Ringkøbing 2020 underpins activities
- Action plan lays out the pathway
- Energy Council drives strategy and engagement and delegates to working groups
- Municipality provides Energy Secretariat to assist



# Local government role

- The role of the municipal voluntary planning criteria
- Council providing underwriting / long term loans for community investment projects
- Community Power Cornwall: £2.75M loan fund set up by local government, managed by CE group
- Loans made at 6.5%, Council loans funds at 4.3%
- \*\* local banks also offer small scale community finance options

What's  
happening  
in our  
Shire?



Leading the way towards zero-emissions



hepburn  
wind

Hepburn  
SHIRE COUNCIL





## The Community Transition Pilot

# Z-NET Hepburn Shire

### Scope?

electricity | heat | waste | transport  
agriculture | industry

### Outputs?

Carbon emissions inventory  
Community Transition Plan  
Feasibility work on projects (3-5)  
Build capacity

### Timeline?

March - August 2018 and then ongoing

A pilot of Sustainability Victoria's TAKE2 program

Going from  
profile >>  
baseline, the  
importance of  
bespoke  
place-based  
inventories,  
going beyond  
the global  
standard

## The emissions context

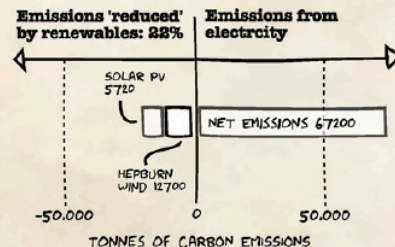
# Electricity baseline for Hepburn Shire



### Shire Summary

Hepburn's emissions from electricity amounts to 67,200 tonnes of carbon emissions annually. Electricity is used for a range of daily business and household needs such as lighting, heating, hot water, equipment and appliances.

We reduce 22% of electricity emissions through local generation of renewable energy from rooftop solar and Hepburn Wind.



### Shire facts

Population 15,753  
# households 8,648

### Electricity supplied by:

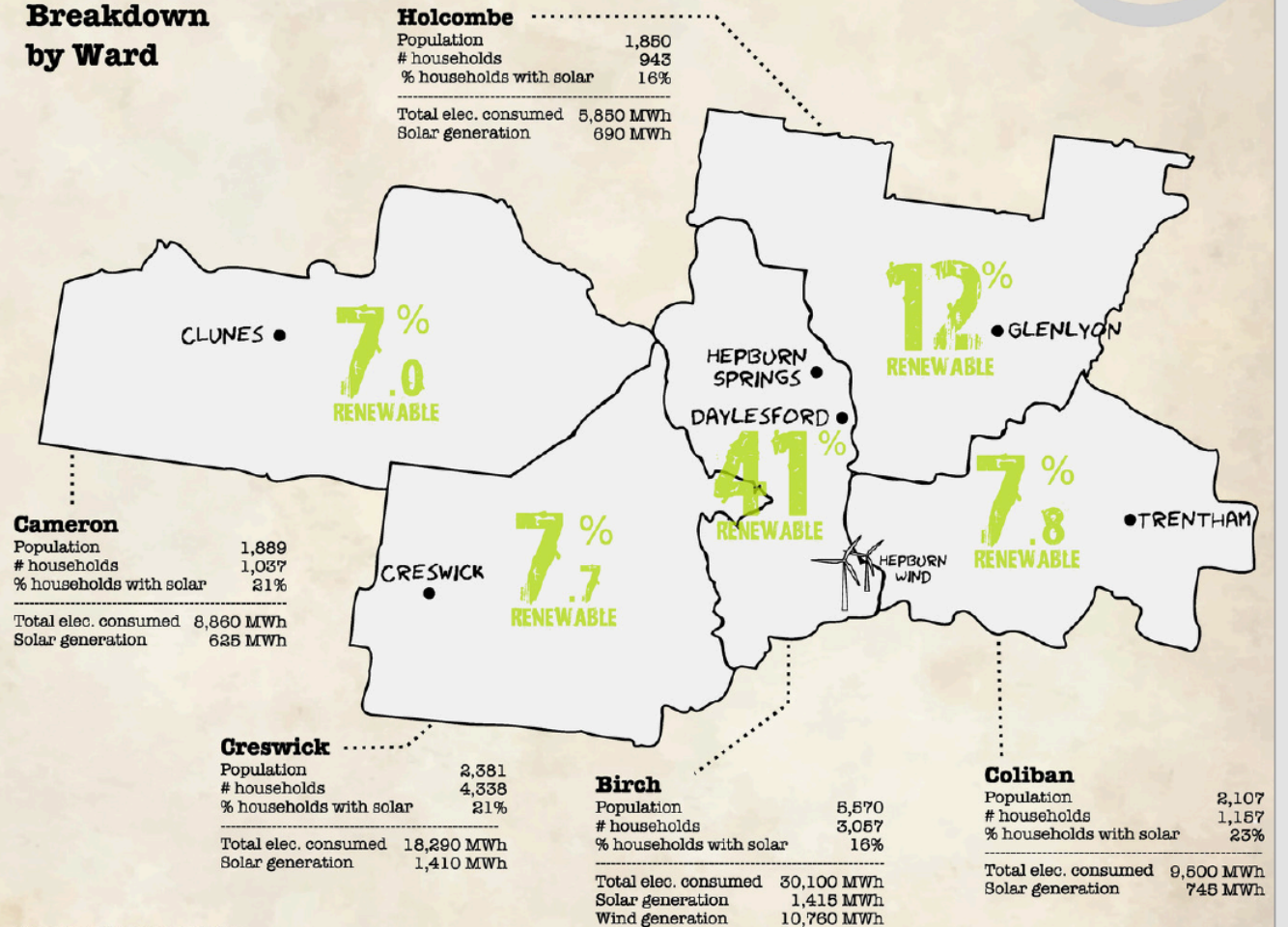
Solar 4,885 MWh  
Wind 10,760 MWh  
Supplied by grid 56,960 MWh  
Total elec. consumed 72,600 MWh  
% Renewable electricity 22%

Net emissions 67,200 tCO<sub>2</sub>-e

### Data sources

Australian Bureau of Statistics (ABS), Powercor and Hepburn Shire Council (Rates data), openNEM

### Breakdown by Ward



### About grid electricity

Electricity from the grid that is generated outside Hepburn is also partially supplied by renewable energy. In April 2018, this totaled around 16% of Victoria's electricity generated





# COMMUNITY INVESTMENT DISCOVERY SESSION

Sapphire Wind Farm is inviting the community to participate in a survey to understand the local interest in investing directly into the project. With enough interest, the Sapphire Wind Farm will look into the possibility of pioneering Australia's first community investment into a large scale wind farm. Join in our Discovery Sessions across the region to hear more about this exciting opportunity.

## SAPPHIRE WIND FARM

Sapphire Wind Farm is located in the New England region of northern NSW. The site is 28km east of Inverell and 18km west of Glen Innes to the north of the Gwydir Highway in the Kings Plains area.

Once operational, the Sapphire Wind Farm will be the largest wind farm in NSW. It will generate enough clean energy to power 115,000 homes and offset over 700,000 tonnes of carbon emissions each year.

The project will also deliver substantial economic benefits to the New England region. Construction is scheduled to be completed in the second half of 2018.

### MON 4 SEPT

#### INVERELL

INVERELL RSM  
10:00AM - 11:30AM  
5:15PM - 6:30PM

#### WELLINGROVE

WELLINGROVE HALL  
2:00PM - 3:30PM

### TUES 5 SEPT

#### MOREE

TOWN AND COUNTRY CLUB  
9:15AM - 10:30AM

#### GLEN INNES

GLEN INNES SERVICES CLUB  
2:00PM - 3:30PM  
5:15PM - 6:30PM

### WED 6 SEPT

#### TAMWORTH

TAMWORTH TOWN HALL  
PASSCHENDAELE ROOM  
12:30PM - 1:30PM

#### ARMIDALE

ARMIDALE CITY BOWLING CLUB  
5:15PM - 6:30PM

## TO PARTICIPATE IN THE SURVEY:

[SAPPHIREWINDFARM.COM.AU/  
COMMUNITYINVESTMENTTESTING](http://SAPPHIREWINDFARM.COM.AU/COMMUNITYINVESTMENTTESTING)

(RELEASE DATE 4 SEPT 2017)

COMPLETE THE SURVEY ONLINE AND GO INTO THE DRAW TO WIN AN IPAD!

## TO REGISTER

Please register your attendance at:  
[www.cwp-investment-discovery.eventbrite.com.au](http://www.cwp-investment-discovery.eventbrite.com.au)



## New model: Community investment into commercial large-scale projects

- First large scale wind farm to open up for a public offer community investment in October this year - \$10m equity piece
- 270MW wind farm \$580M wind farm in the New England area
- 'Discovery Phase' tested the community appetite with focus groups and public survey, building capacity of local community and designing the community investment vehicle
- \$7.5M pledged so far by 500 – 75% local investors
- Geographic spread will preference investors in the local region
- CWP to retain control over Sapphire Wind Farm, investment opportunity, rather than an ownership opportunity.

Thank you!

One last message:

***"There can be no other target than 100%"***

(Stephan Shurig at the World Future Council  
Germany)

We need stronger political leadership – we can  
push the bar by setting our own targets and  
taking action.

Think beyond the 100% renewable...