

# AGL Energy Limited

## AGL Hallett Wind Farm Portfolio Equity Investor Tour



South Australia  
April 2009

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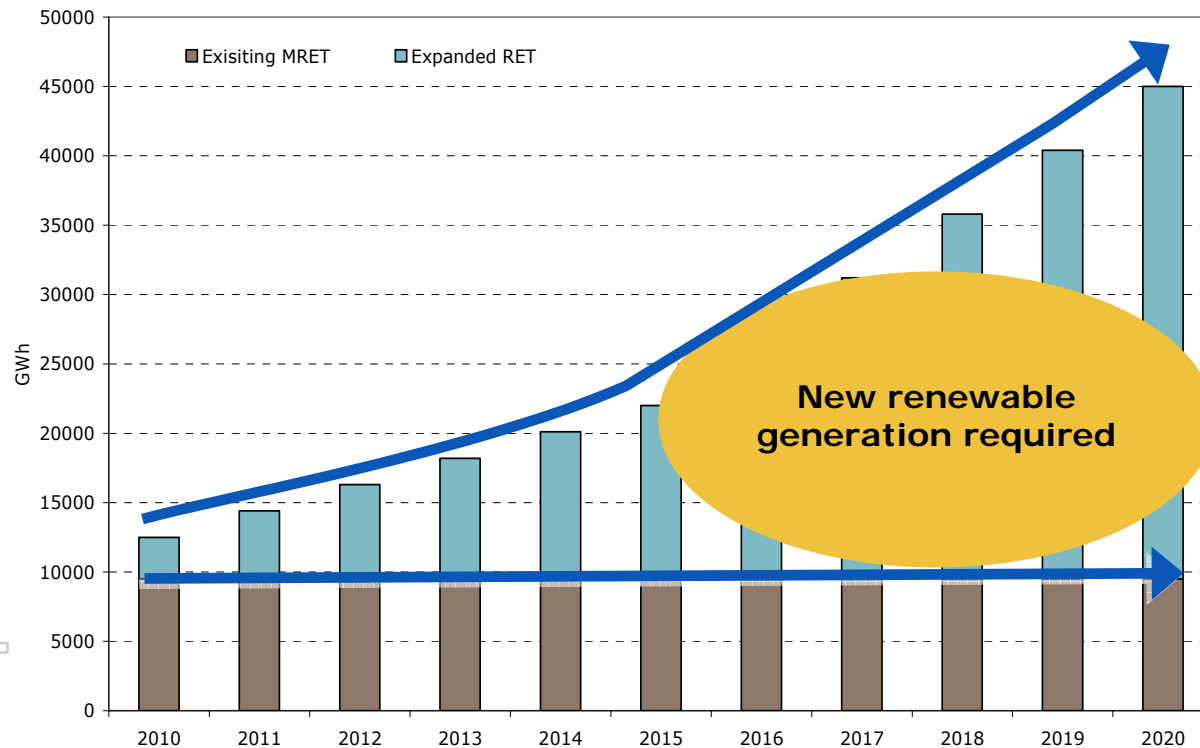
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# Agenda

- > **Wind Generation Overview**      Ken Woolley - General Manager, Power Development
- > **Hallet 1 & 2 Construction**      Adam Mackett - Project Manager, Power Development
- > **Future Site Developments**      Tim Knill – Project Manager, Power Development
- > **Question & Answer**

# Required Renewables Growth

## Expanded Renewable Energy Target (RET) Drives Growth



- > New federal Government Policy – by 2020 an additional 35,500 GWh p.a. of renewable energy required to meet the target of 45,000 GWh p.a.
- > If all new capacity is wind, implies ~12,000 MW of new renewable capacity
- > AGL's leading existing renewable portfolio & development options will deliver material upside via REC and black electricity price appreciation under Expanded RET & Carbon Pollution Reduction Scheme

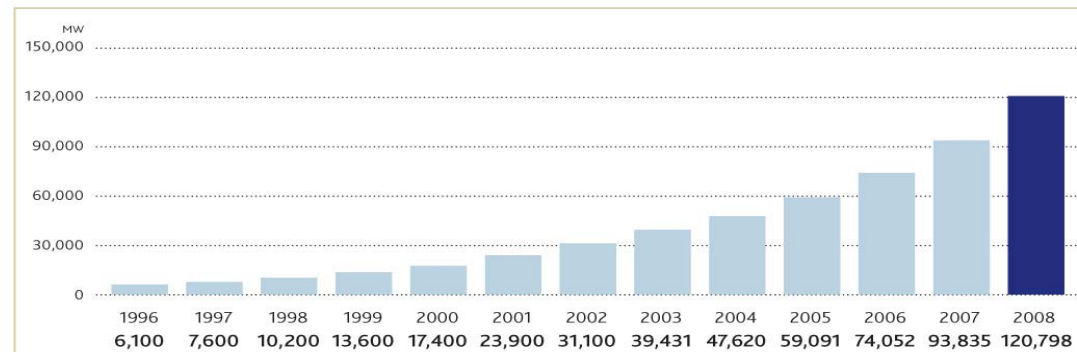
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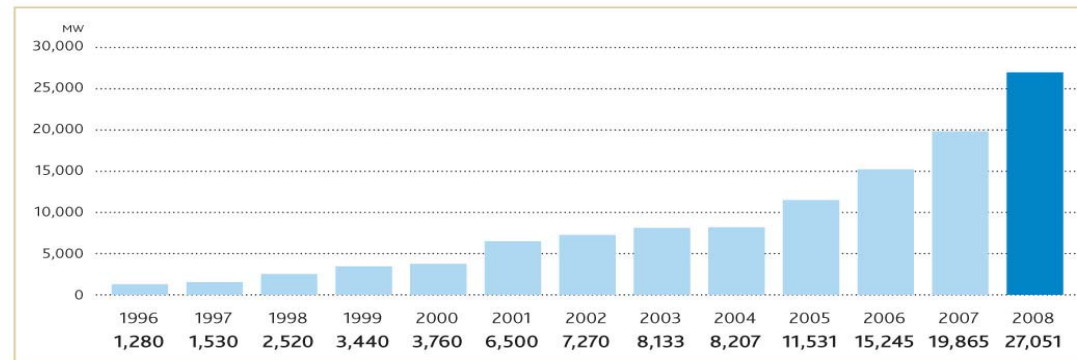
# Wind – Global Capacity Growth

As the most proven, economically scaleable renewable, winds global growth continues exponentially

GLOBAL CUMULATIVE INSTALLED CAPACITY 1996-2008



GLOBAL ANNUAL INSTALLED CAPACITY 1996-2008



Source: Global Wind Energy Council - Global Wind 2008 Report

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# Growth - Wind compared to other renewables

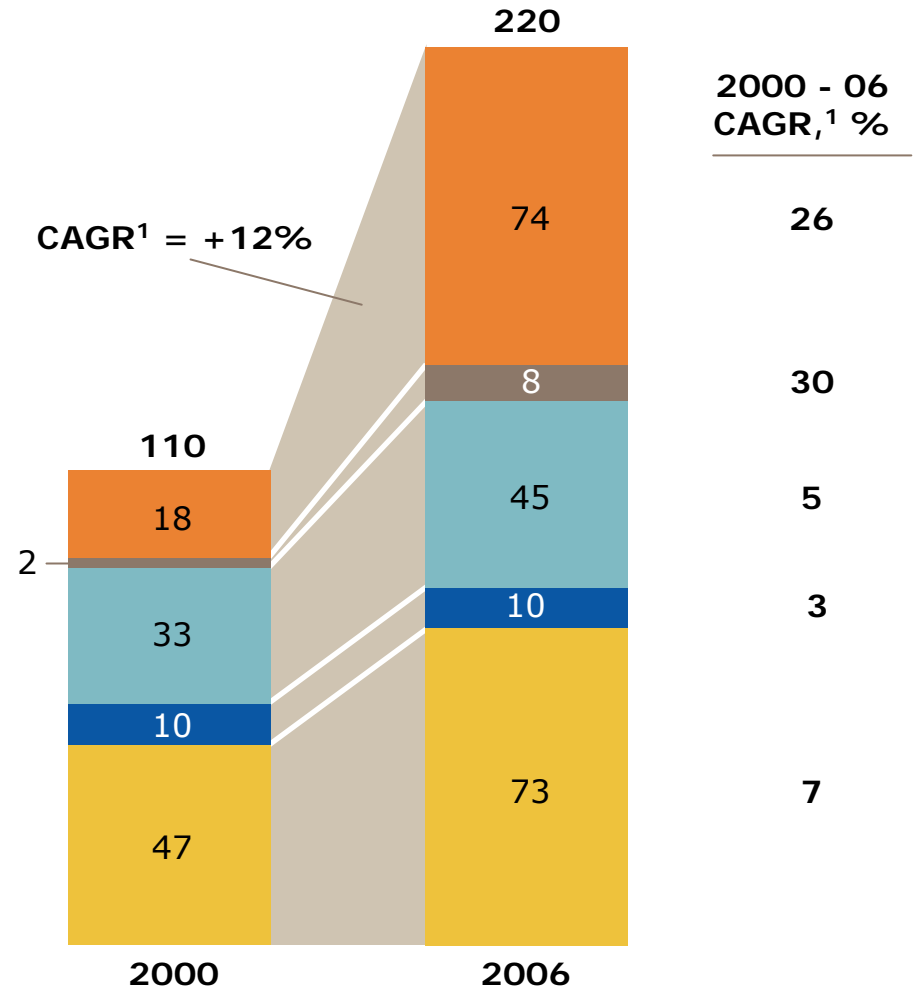
Global installed base, gigawatts (GW)

**Ongoing global renewables growth**

- > ~\$100 billion investment in Renewables in 2008
- > ~30% of all new capacity addition is renewable power



<sup>1</sup> Compound Annual Growth Rate



Source: IEA WEO 2006

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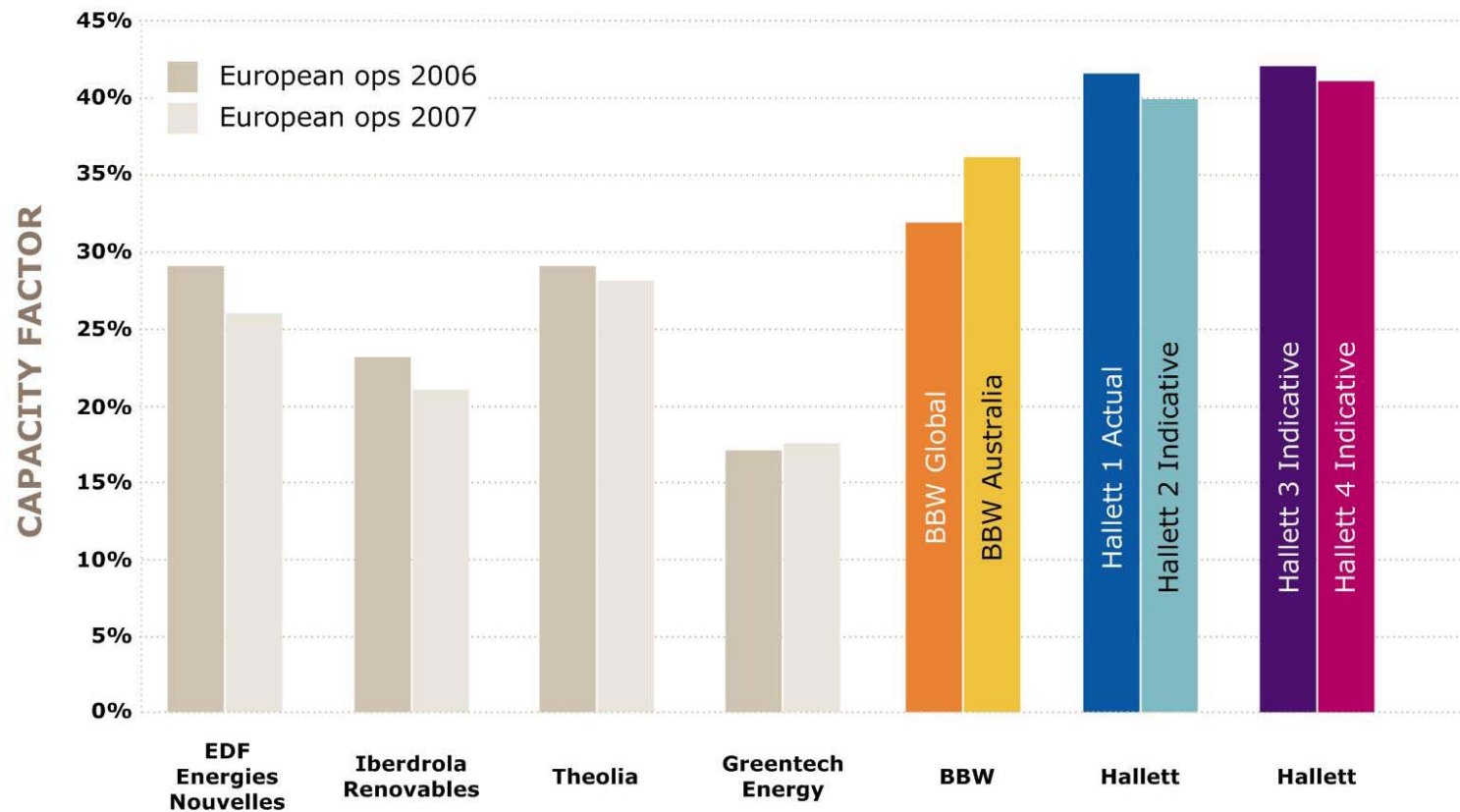
# Key Development Success Factors

AGL Hallett wind farm portfolio achieves all critical success factors in wind farm developments

- > Wind resource
- > Land access (support by landowners)
- > Capital cost (materially more important than O&M costs):
  - » Typical split of capital costs for 70MW wind farm:
    - ~86% EPC, ~11% electrical connection, miscellaneous ~3%
    - Currently witnessing material turbine discounting as a result of global economic downturn
- > Connection access: (cost, loss factor, grid capacity)
- > Wind farm scale (to absorb certain fixed cost)
- > O&M costs (typically only around 1.5% of capital cost per year)

# Wind Capacity Factors - Global

AGL Hallett portfolio delivers world leading wind resource



Source: Macquarie Research Equities – *Report Wind farmers (Europe) May 2008*, BBW 2008 Annual Report, AGL live data & estimates

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# Wind Generation – Growth Pipeline

Developing a portfolio with strategic depth & optionality

	PROJECT	NOMINAL CAPACITY (MW)	LOCATION	TYPE	PROJECT STATUS	DEFINITION
RENEWABLE GENERATION	Hallett 2	71	SA - Hallett	Wind	Under Construction	Committed
	Hallett 4	132	SA - Hallett	Wind	Under Construction	Committed
	Hallett 3	80	SA - Hallett	Wind	In Development	Probable
	Oaklands Hill	63	VIC - West	Wind	In Development	Probable
	Hallett 5	50	SA - Hallett	Wind	Permitted	Possible
	Macarthur	330	VIC - West	Wind	JV with Meridian	Possible
	Crows Nest	150	QLD - Toowoomba	Wind	Permitted	Possible
	Worlds End	180	SA - Burra	Wind	Permitted	Possible
	Ben Lomond	150	NSW - Armidale	Wind	Landowner Agreements in place	Possible
	Coopers Gap	300	QLD - Kingaroy	Wind	Landowner Agreements in place	Possible
Other	4 Projects totalling up to 720	Various	Various	Under Review	Possible	

- › **Probable Projects:** Projects which are under development with an approved budget and pending final investment decision
- › **Possible Projects:** Projects where AGL holds rights to the sites and/or where the final investment decision is expected to be in excess of 12 months
- › **CAPEX:** Current AGL indicative installed capex for wind is approximately \$2.7m to \$2.9m / MW

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# AGL Hallet 1 & 2 Construction

Adam Mackett



# AGL Hallett 1 Wind Farm

Hallett 1 was officially opened June 2008 and is operational

Wind Turbines: 45 x Suzlon S88 2.1 MW v3

Capacity: 94.5 MW

Energy Output: 320,000 MWh per annum

Performance (1 July 2008 to 13 March 2009):

- > Capacity Factor = 41.5%
- > Average Wind Speed = 8.6 m/s (at wind turbine)

Monitored from AGL's Mt Beauty Control Centre

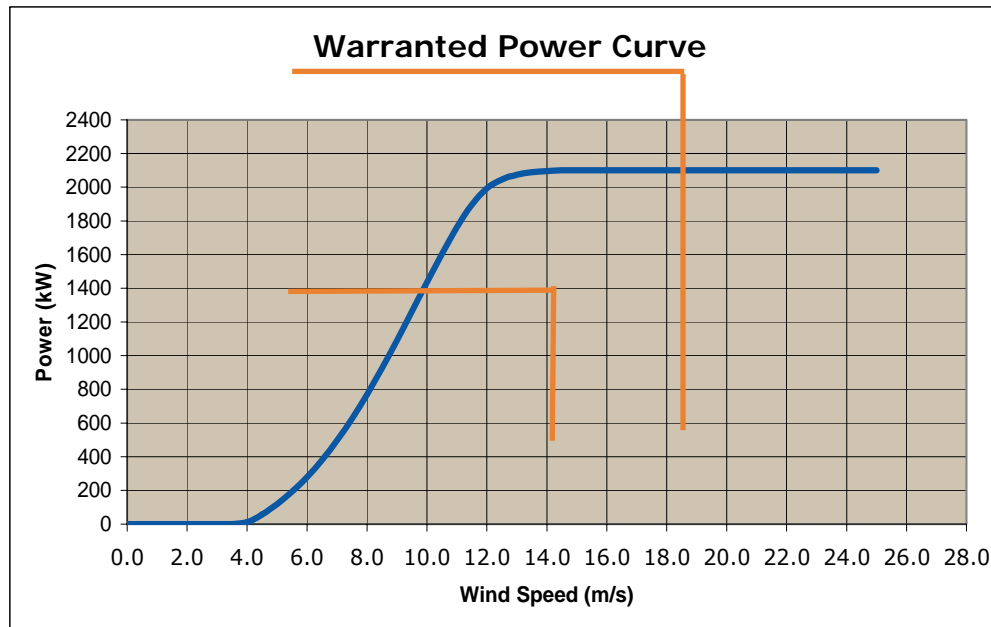


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# AGL Hallett 1 Wind Farm

Tests after Completion:

- > Power Curve Guarantee



- > Availability Guarantee:
- > 97% for first two years of operation (Defects Liability Period)



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# AGL Hallett 2 Wind Farm

Hallett 2 is currently in construction and due for completion in late calendar 2009

Wind Turbines: 34 x Suzlon S88 2.1 MW v3

Capacity: 71.4 MW

Energy Output: 255,000 MWh per annum

Forecast Performance:

- > Capacity Factor = approx 40%
- > Average Wind Speed = 8.6 m/s (at wind turbine)

Construction commenced June 2008



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# AGL Hallett 2 Wind Farm

Construction of a wind farm involves four overlapping stages:

STAGE	DESCRIPTION	2008							2009										
		Jun08	Jul08	Aug08	Sep08	Oct08	Nov08	Dec08	Jan09	Feb09	Mar09	Apr09	May09	Jun09	Jul09	Aug09	Sep09	Oct09	Nov09
1	Civil works and foundations																		
2	Electrical works																		
3	Wind turbine tower erection																		
4	Wind turbine installation & commissioning																		
Milestone	Total Windfarm Take Over																		

STATUS

- 1) Access roads, wind turbine hardstands and foundations
- 2) 33kV Collector system, 33kV Feeder system and Wind Farm 275kV Substation
- 3) Erection of wind turbine towers
- 4) Installation and commissioning of wind turbines

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# AGL Hallett 2 Wind Farm

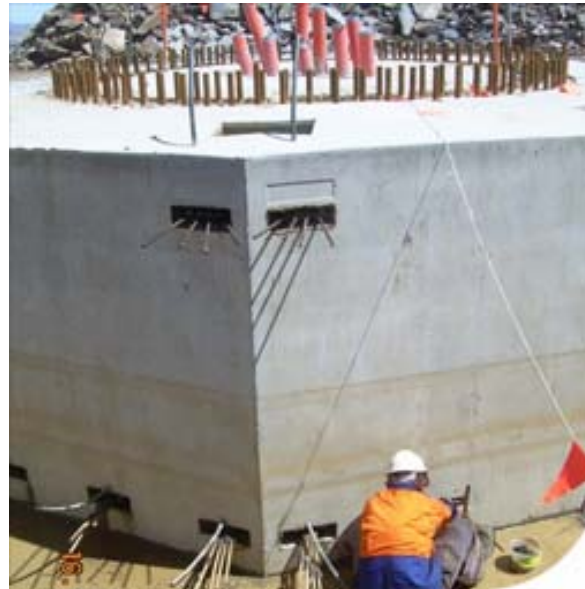
Stage 1 - Access roads and wind turbine hardstands



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# AGL Hallett 2 Wind Farm

Stage 1 - Wind turbine foundations including post tensioning and installation of rock anchors



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# AGL Hallett 2 Wind Farm

Stage 2 - Vermeer trenching for the underground 33kV Collector cable



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# AGL Hallett 2 Wind Farm



Stage 2 - Wind Farm  
275kV Substation  
under construction

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# AGL Hallett 2 Wind Farm

Stage 3 -  
Installation of  
lower mid tower  
section



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# AGL Hallett 2 Wind Farm

Stage 4 -  
Installation of  
nacelle at wind  
turbine no.34

Completed  
turbine



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# Future Site Developments

Tim Knill



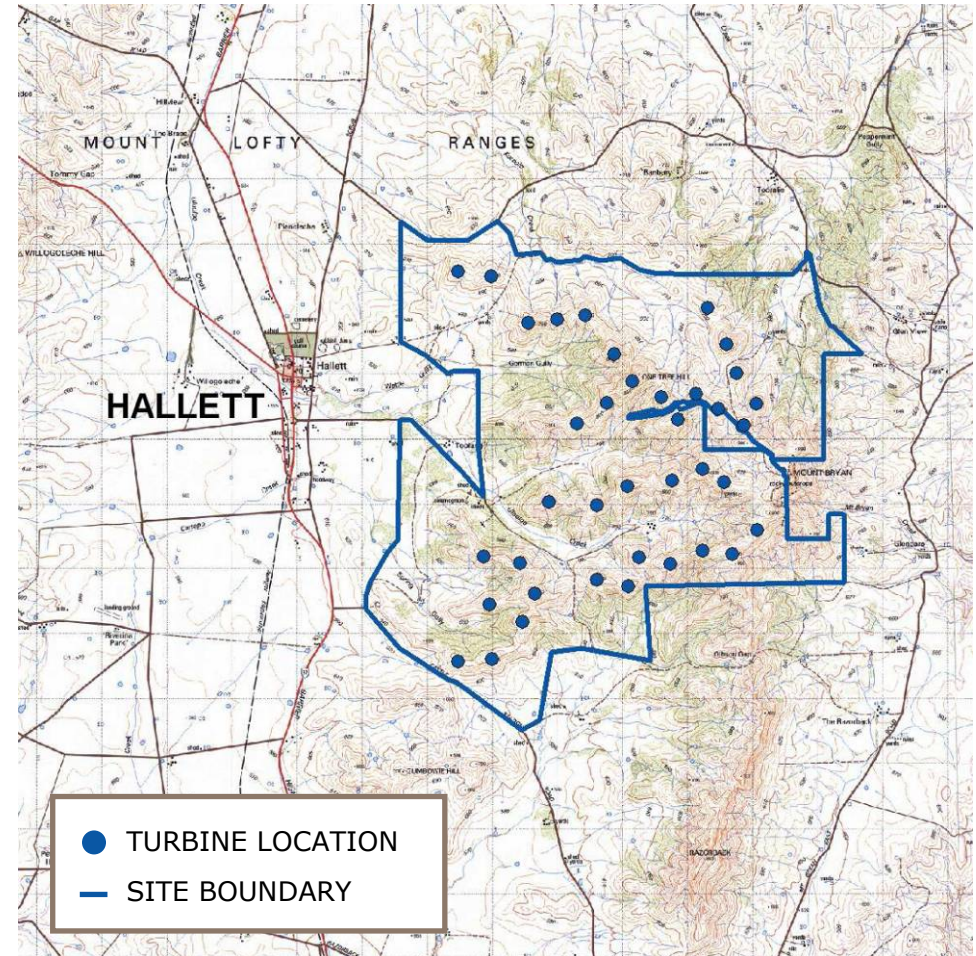
# AGL Hallett 3

## Project Summary

- › 38 Turbines
- › Complex terrain
- › Challenging to build

## Project Status

- › Development Approval expected April
- › Ecology studies underway
- › Aboriginal heritage clearance underway
- › Investment decision scheduled 1HFY10



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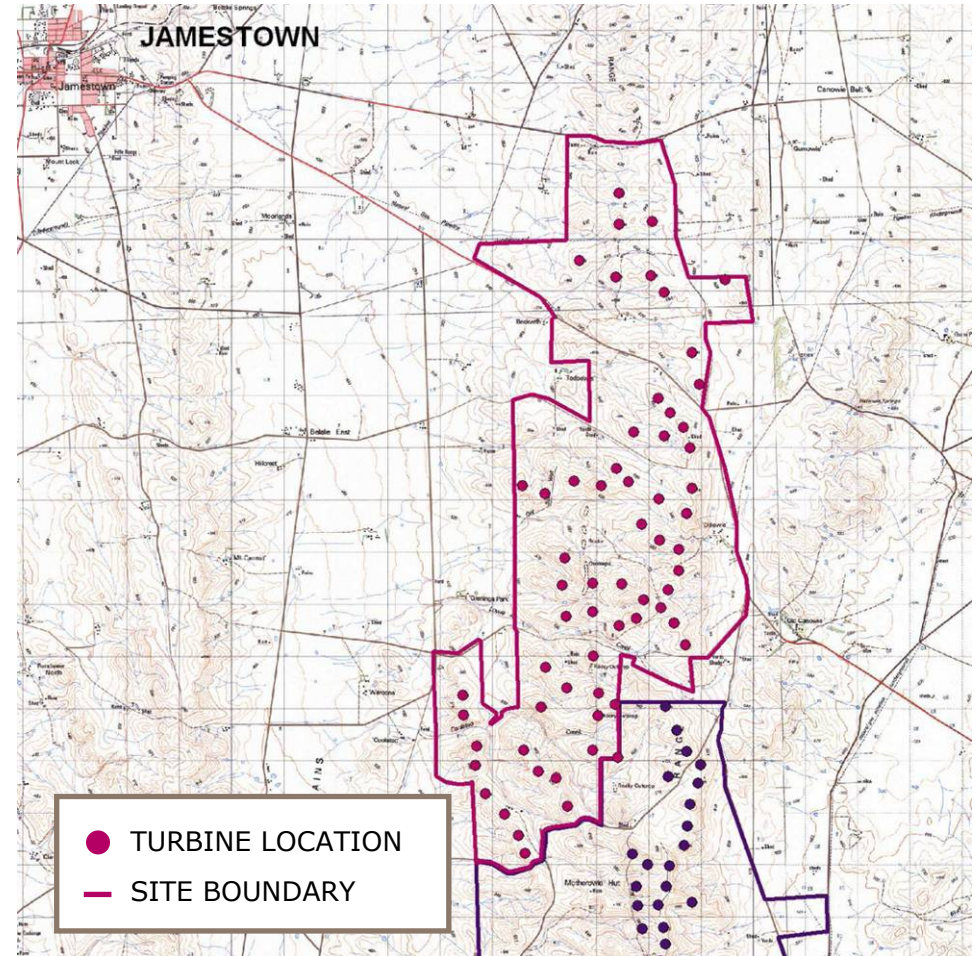
# AGL Hallett 4

## Project Summary

- › 63 turbines
- › 132.3 MW capacity
- › New 33kV/275kV substation

## Project Status

- › Board approved
- › All permits and authorisations received
- › EPC Contract executed with Suzlon
- › Construction completion 1HFY12



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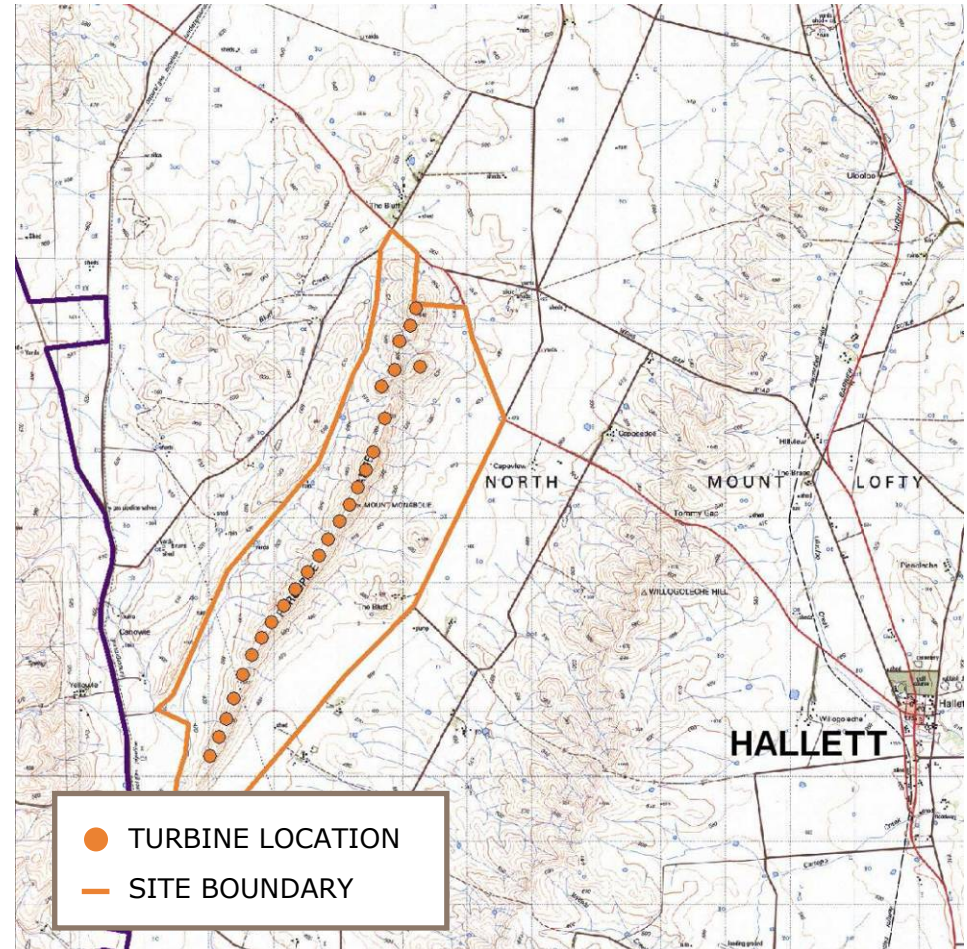
# AGL Hallett 5

## Project Summary

- > up to 25 turbines
- > Connection into Hallett Stage 4 substation
- > Good constructability

## Project Status

- > Development approval for wind farm received
- > Export power line requires DA
- > No connection enquiry to date
- > Investment decision scheduled for FY10



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## Question & Answer



## Further Information / Contacts

A range of information on AGL Energy Limited including ASX & Media Releases, Presentations, Financial Results, Annual Reports and Sustainability Reports is available from our website:  
**[www.agl.com.au](http://www.agl.com.au)**

alternatively, contact:

**Graeme Thompson**  
Head of Investor Relations  
AGL Energy Limited  
phone: +61 2 9921 2789  
mobile: +61 (0) 412 020 711  
e-mail: [gthompson@agl.com.au](mailto:gthompson@agl.com.au)

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