# Eco Investor Forum Opportunities for Renewable Energy Investment in Australia

Gerard Dover, Chief Financial Officer

19 October 2010





- Overview of Infigen Energy
- Deployment of Renewable Energy
- Availability of Wind Energy Resources in Australia
- Australia's Renewable Energy Policy Landscape
- Conclusions

### Presenter:

Gerard Dover Chief Financial Officer

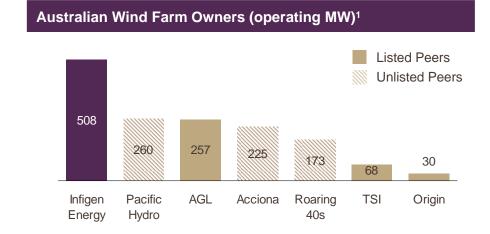
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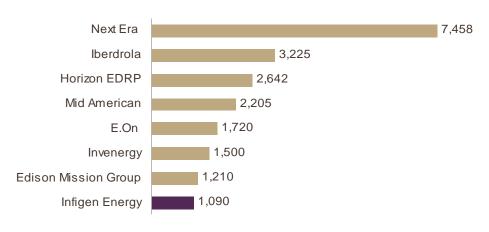
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### Infigen Energy Overview

- Operate over 2,100MW of wind energy generation globally
- Largest owner of wind energy capacity in Australia
- Development, asset management and energy markets capabilities in Australia
- Own & operate a top 8 business in US wind energy industry
- Highly experienced US Bluarc asset management team
- ASX listed (ASX:IFN) with market cap of approx. \$A500m+



### US – Top eight wind farm owners by installed capacity (MW)<sup>2</sup>



<sup>1.</sup> Clean Energy Council (2010) and company Websites. Excludes contracted capacity.

2. American Wind Energy Association: 2009 Annual Report



## Major Australian Projects

### Australia's leading specialist wind energy and renewable energy developer and operator



### **LAKE BONNEY 1**

Location: South Australia
Status: Operational March 2005
Installed Capacity: 80.5MW
Turbine: 46 Vestas V66



### CAPITAL

**Location:** Bungendore, NSW **Status:** Operational November 2009

Installed Capacity: 140.7MW
Turbine: 67 Suzlon 2.1MW S88



### **ALINTA**

Location: Western Australia
Status: Operational January 2006
Installed Capacity: 89.1MW
Turbine: 54 NEG Micon NM82



### **LAKE BONNEY 3**

Location: South Australia
Status: Operational June 2010
Installed Capacity: 39.0MW
Turbine: 13 Vestas V90



### **LAKE BONNEY 2**

Location: South Australia

Status: Operational September 2008

Installed Capacity: 159.0MW

Turbine: 53 Vestas V90



### **WOODLAWN**

Location: New South Wales
Status: Issued notice to proceed
Installed Capacity: 42.0MW
Turbine: Suzlon 2.1MW S88



### Development

### Target to commence 160MW in FY11

### 160 MW in FY11

### Woodlawn (42MW)

 Secured and progressed to construction in FY10

### Woodlawn Expansion (6.3MW)

Created opportunity for additional capacity

### **Next Projects**

 Subject to market conditions and economics will come from secured pipeline

### Solar Photovoltaic (PV)

- Secured development sites for entry into PV generation
- Infigen/Suntech consortium 1 of 4 short-listed for Commonwealth Solar Flagships Program as most immediate opportunity

Key Projects June 2010	Capacity (MW)	Location	Status		
			Land	Planning Approval	Connection
Flyers Creek	120	NSW		•	
Glen Innes	54	NSW			
Bodangora	45	NSW			
Capital 2	70	NSW			
Woodlawn 2	6.3	NSW			•
Walkaway 2	94	WA			
Walkaway 3	300	WA			
Woakwine	450	SA			
Cherry Tree	35	VIC	•	•	•
Other	324	Various	lacktriangle		
TOTAL WIND	1,498				
Solar	195	Solar Fla	agships		
TOTAL	1,693				

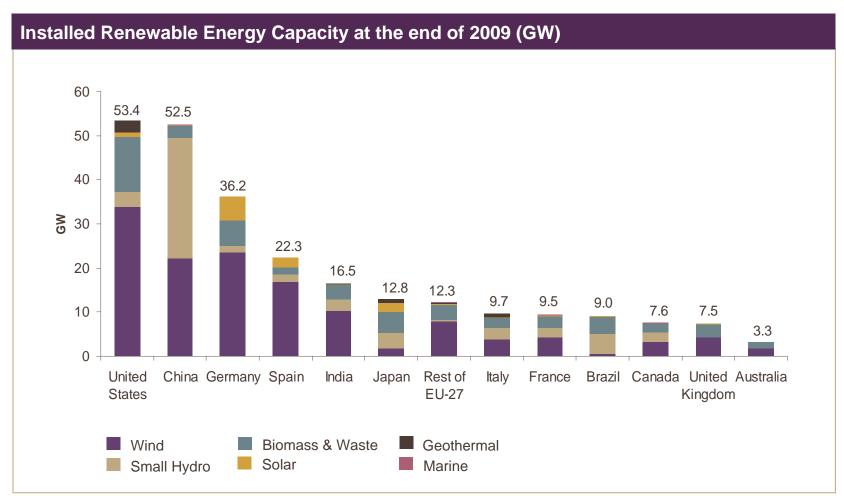


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## Global Deployment of Renewable Energy

Wind energy dominated installed renewable energy generation at the end of 2009

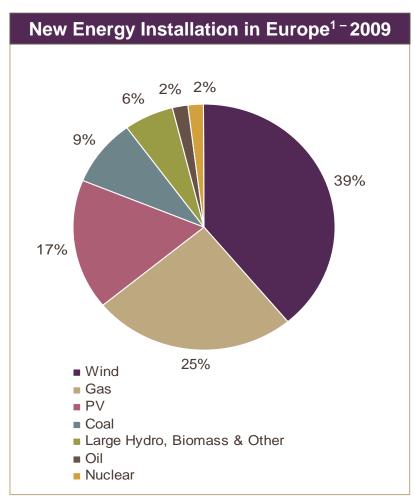


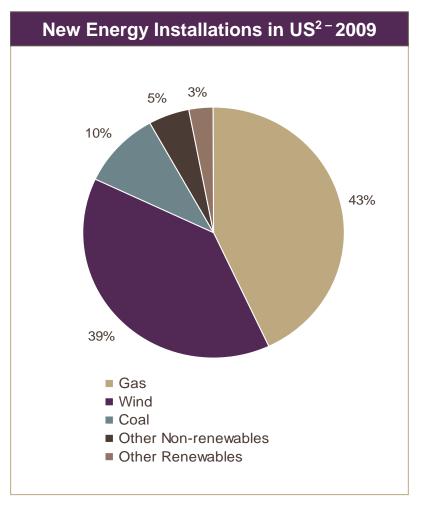
Source: PEW G20 Clean Energy Factbook (2009). Excludes large Hydro

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## European and US New Energy Installations

Wind energy accounted for 39% of all new generation capacity in the US & Europe in 2009





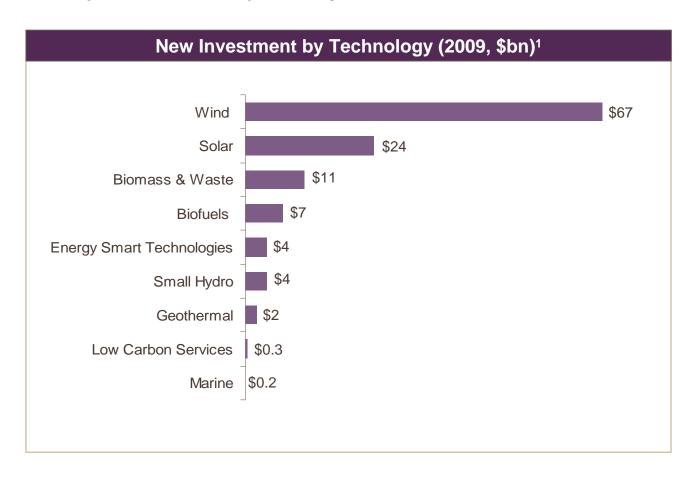
<sup>1.</sup> European Wind Energy Association: 2009 Industry Statistics

<sup>2.</sup> American Wind Energy Association: 2009 Annual report (% approximate)



## Global Investment by Renewable Energy Type

Global Wind Energy Investment accounted for 56% of total renewable energy investment in 2009, up from 45% in the previous year



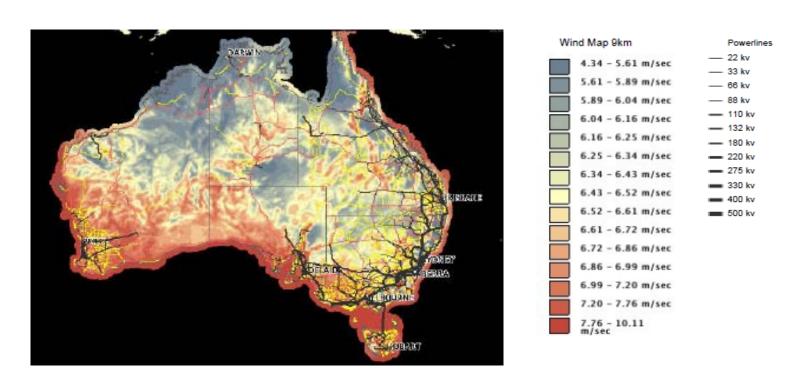


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### Australian Wind Energy Resource

Straight forward connections in high wind resource areas are becoming scarce



Source: Department of the Environment, Water, Heritage and the Arts

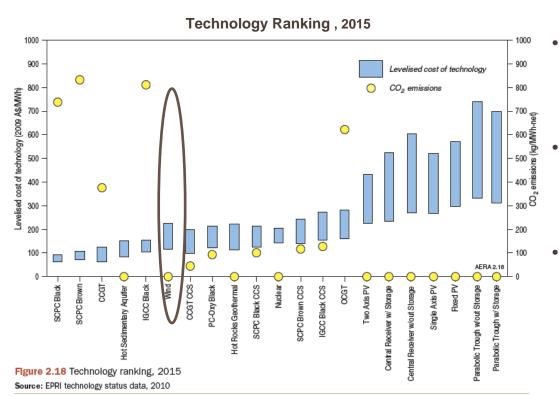
Augmentation of the grid will be required to efficiently satisfy LRET



## **Comparative Energy Costs**

Wind Energy is the most cost effective utility scale renewable technology

### Comparative Cost of Wind with Conventional & Renewable Energy Generation



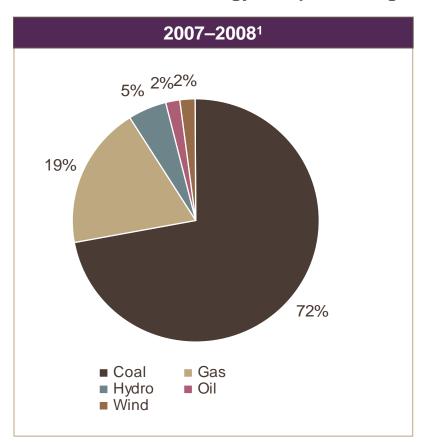
- Wind energy is the most cost effective utility scale technology under least cost, technology neutral incentives schemes
- Hot rocks geothermal technologies are not proven in utility scale and are likely to suffer remote location disadvantages
- Utility scale solar technologies are still substantially more expensive than wind energy but costs are reducing for Solar PV

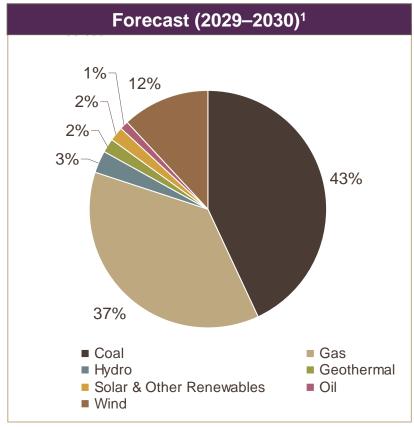
Source: Australian Energy Resource Assessment. EPRI technology status data 2010. Levelised cost of technology estimates based on simplified pro-forma costs. Levelised cost of technologies includes weighted cost of capital (8.4% real before tax); excludes financial support mechanisms, excludes grid connection, transmission and firming (standing reserve requirements); and includes a notional allowance of 7.5% for site specific costs.



## Australian Generation by Fuel Type

Penetration of wind energy is expected to grow by a factor of over five times to 12% by 2020





Australian new build electricity generation capacity will be dominated by wind energy and gas fired generation

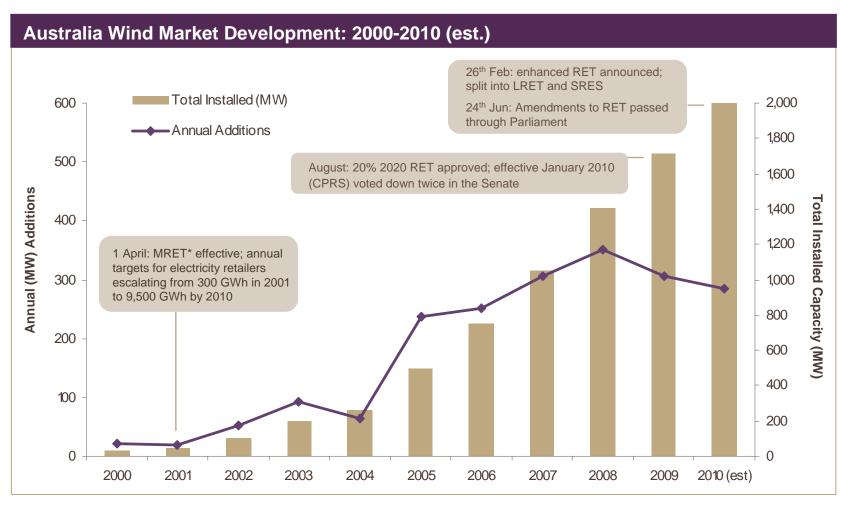


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## Wind Energy and Policy Frameworks in Australia

Government commitments have contributed to a steady increase in wind energy since 2005

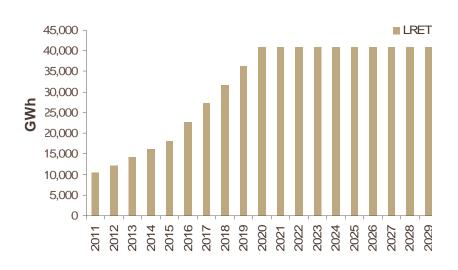




## Large Scale Renewable Energy Target

LRET improves the prospect of achieving the 20% by 2020 renewable energy target

### Requirement for Renewable Energy in Australia<sup>1</sup>



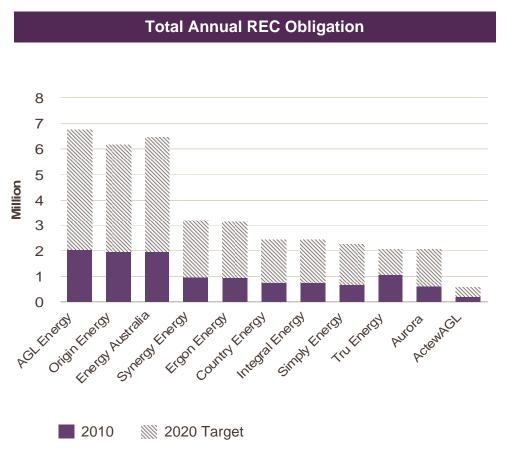
1. Enhanced Renewable Energy Target: Fact sheet July 2010

- The LRET surplus is a critical element in determining short to medium term investment
- REC liable parties have limited in-house capacity to deliver their mandated requirements
- Steep ramp up profile of LRET and significant lead time to complete renewable energy development and construction requires commencement of projects now



## LRET Obligations for Electricity Retailers

Obligated retailers will need to build or contract increasing mandated renewable energy requirements. Only a few will build to meet their needs

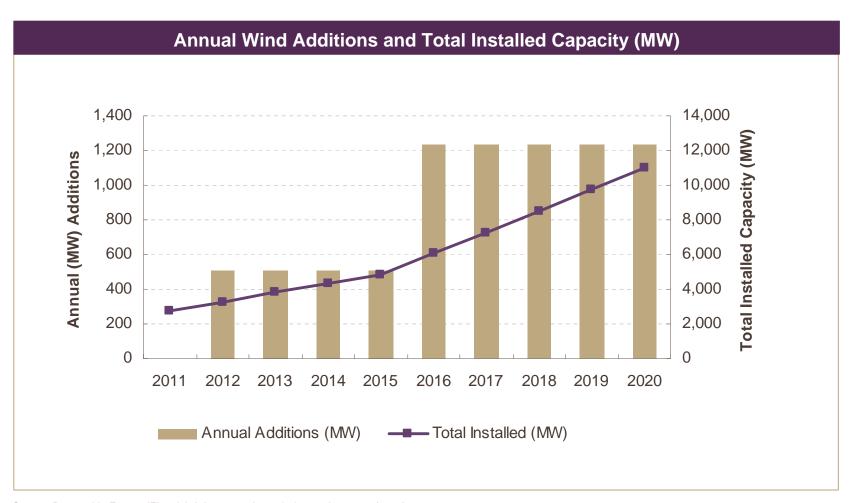


Projected Wind Demand Through 2020				
Obligated Retailer	Wind-Derived GWh Obligation per Retailer <sup>1</sup>	Projected MW Wind Demand per Retailer <sup>1</sup>		
AGL Energy	5,047	1,800		
Origin Energy	4,606	1,643		
Energy Australia	4,829	1,723		
Synergy Energy	2,392	853		
Ergon Energy	2,347	837		
Country Energy	1,828	652		
Integral Energy	1,816	648		
Simply Energy	1,709	610		
TRU Energy	1,560	557		
Aurora Energy	1,553	554		
ActewAGL	477	160		
Other	2,618	934		
Total	30,750	10,970		



## Australia Wind Energy Capacity Forecast

Wind energy expected to increase to >11 GW following implementation of the LRET





## Other Considerations for Energy Policy

Australia's electricity generation sector will under-invest due to uncertainty around the introduction of a carbon price

- A price on carbon will raise electricity prices
- Doubt about the timing and nature of carbon pricing is untenable for all power generation fuel types
  - Coal-fired plant investment is discouraged due to risks of a carbon price
  - Low emission intermediate gas plants will not be built in the absence of a carbon price
  - The result is that only expensive to operate gas peaking plants will be built
- This is likely to exacerbate the boom bust cycle of pricing and generation development prevalent in energy and REC markets in Australia

Over time this will lead to security of supply risks, and/or more costly and less sustainable mix of generation plant...



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## **Key Conclusions**

Infigen Energy	<ul> <li>Leading specialist wind energy and renewable energy developer and operator</li> </ul>		
Wind Energy	<ul> <li>Potential to satisfy a significant proportion of LRET</li> <li>Likely to dominate new build energy installation</li> <li>Expansion of the grid will be required to efficiently satisfy LRET</li> </ul>		
Policy Landscape	<ul> <li>LRET improves the prospect of achieving the 20% by 2020 renewable energy target</li> <li>REC surplus is a critical element in determining investment timing</li> <li>The introduction of a carbon price would provide further investment certainty</li> </ul>		
Market Dynamics	<ul> <li>Limited in-house capacity of REC liable parties to deliver their mandated requirements</li> <li>Steep ramp up profile of LRET and significant lead time to complete renewable energy plants requires commencement of projects now</li> </ul>		

## Questions

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Alinta Wind Farm, WA

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