



23 May 2018

#### **NEW ENERGY SOLAR (ASX: NEW) PRESENTATION** EVANS DIXON US FOCUSED INVESTOR CONFERENCE

Today, New Energy Solar<sup>1</sup> presented at the Evans Dixon US Focused Investor Conference. The presentation is attached.

For further information, contact:

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#### **About New Energy Solar**

New Energy Solar was established in November 2015 to invest in a diversified portfolio of solar assets across the globe and help investors benefit from the global shift to renewable energy. The Business acquires large scale solar power plants with long term contracted power purchase agreements. In addition to attractive financial returns, this strategy generates significant positive environmental impacts for investors.

Since establishment, New Energy Solar has raised over A\$500 million of equity, acquired a portfolio of world-class solar power plants, and has a deep pipeline of opportunities primarily across the United States and Australia. New Energy Solar's initial public offering was led by Morgan Stanley and its securities trade on the Australian Securities Exchange under the ticker, NEW.

New Energy Solar is a listed stapled entity consisting of New Energy Solar Fund (ARSN 609 154 298) and New Energy Solar Limited (ACN 159 902 708). For more information, visit: <u>www.newenergysolar.com.au</u>

#### **New Energy Solar**

#### Australia

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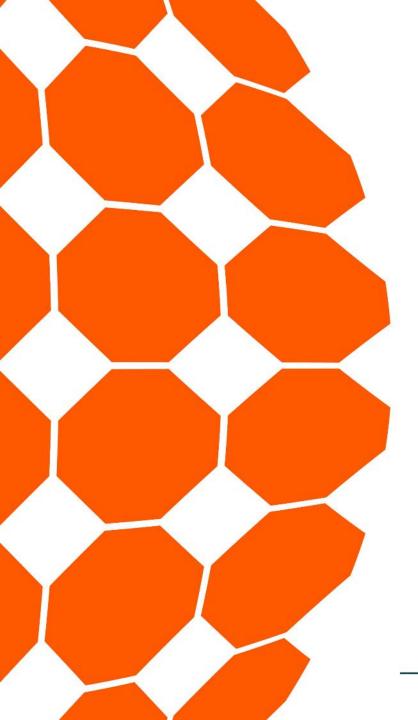
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Walsh & Company Investments Limited (ACN 152 367 649) (AFSL 410 433) as responsible entity for New Energy Solar Fund (ARSN 609 154 298) New Energy Solar Limited (ACN 609 396 983)

<sup>&</sup>lt;sup>1</sup> New Energy Solar Limited (**Company**) and Walsh & Company Investments Limited as responsible entity of New Energy Solar Fund (**Trust**), together **New Energy Solar**.





**New Energy** Solar

## **US Investor Conference**

New York, 22 May 2018

#### Presenter

John Martin, Chief Executive Officer

### **Disclaimer**



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### Agenda





















Stanford SGS – September 2017



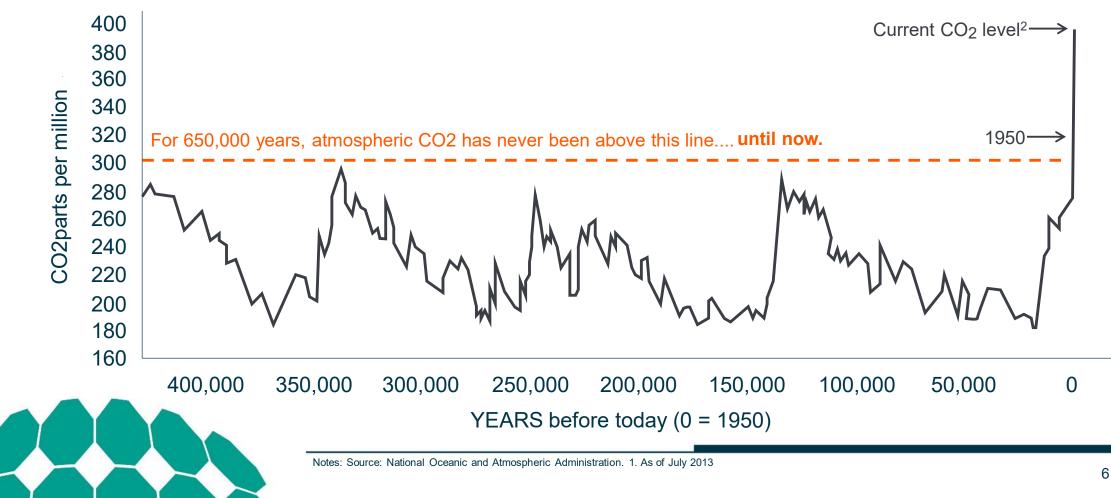
## **1** Renewables and efficiency



## The impact of climate change



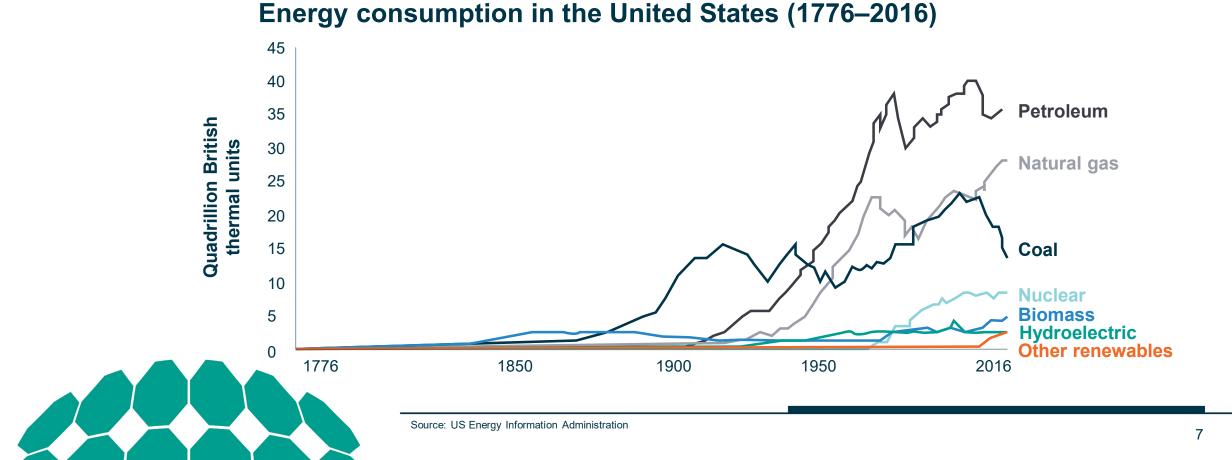
#### The boom of renewable energy was initially driven by climate change concerns



## Historical energy use



The adoption of new energy has been driven by economic efficiency



## **Technological change and economic efficiency**



The economic driver for technological change is an ongoing need for efficiency – producing more with the same or fewer resources



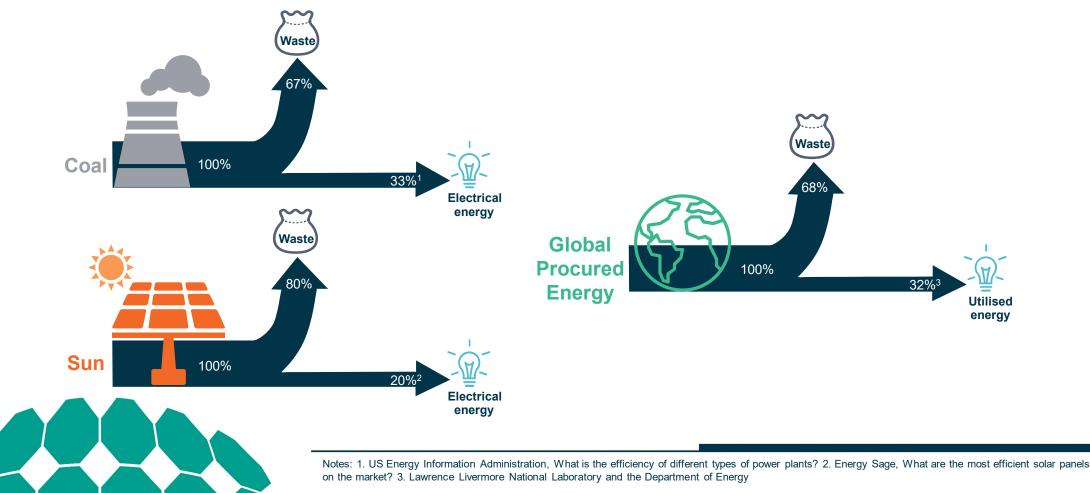


## The engineering view of efficiency



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The energy conversion efficiency of solar is comparatively low

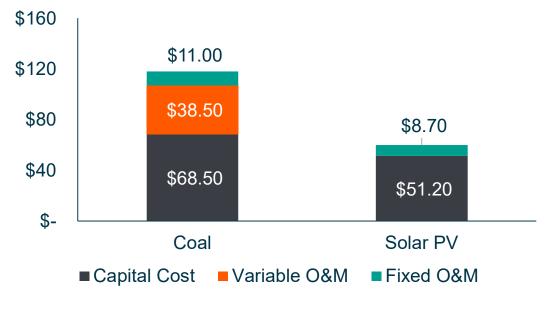


## The economic view of efficiency

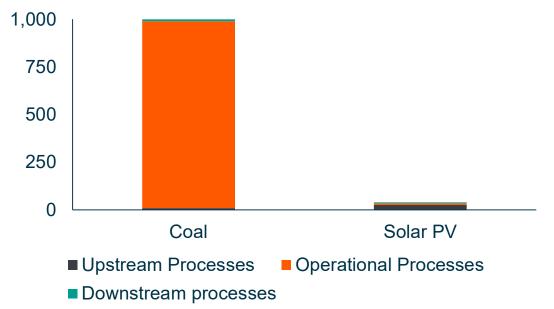


The economic efficiency of solar is high, particularly if CO<sub>2</sub> emission externalities are factored in

# Levelised cost of electricity by stage of asset life<sup>1</sup> US\$/MWh



## Lifecycle $CO_2$ emissions by stage of asset life<sup>2</sup> grams $CO_2/KWh$





## **Economics is driving rooftop solar**



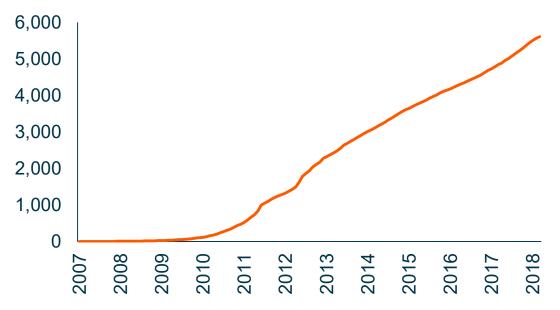
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The rooftop solar boom is driven by more than just environmental concerns

#### Levelised cost of a 5KW rooftop PV system vs retail electricity price<sup>1</sup> A\$/KWh



# Cumulative residential rooftop solar capacity in Australia<sup>2</sup> MW



Notes: 1. Australian Energy Council Analysis, January 2018. Central estimate assuming 6.53% discount rate. 2. Australian PV Institute (APVI) Solar Map, funded by the Australian Renewable Energy Agency, accessed from <u>pv-map.apvi.org.au</u> on 3 May 2018.

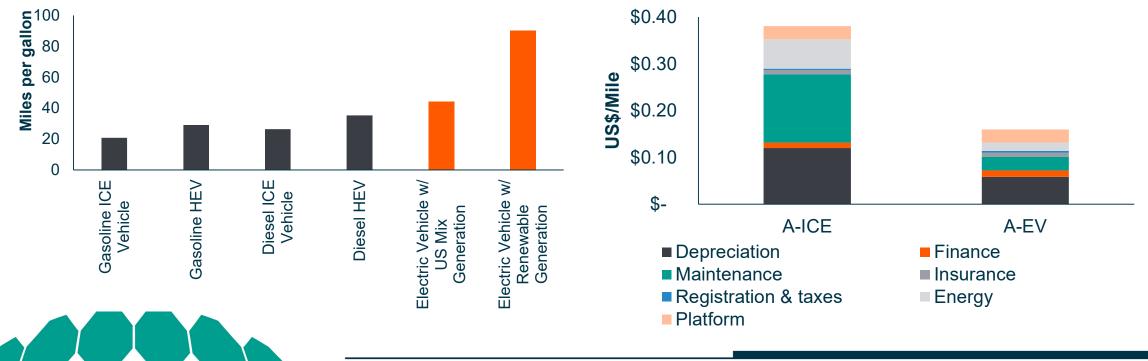
## **Electric vehicles and efficiency**



Electric Vehicles (EV) offer significant thermal and economic efficiency gains over vehicles with Internal Combustion Engines (ICE) and Hybrid Electric Vehicles (HEV)

Well to wheel thermal efficiency of vehicle engine types<sup>1</sup>

## Projected autonomous vehicle fleet costs in 2021<sup>2</sup>



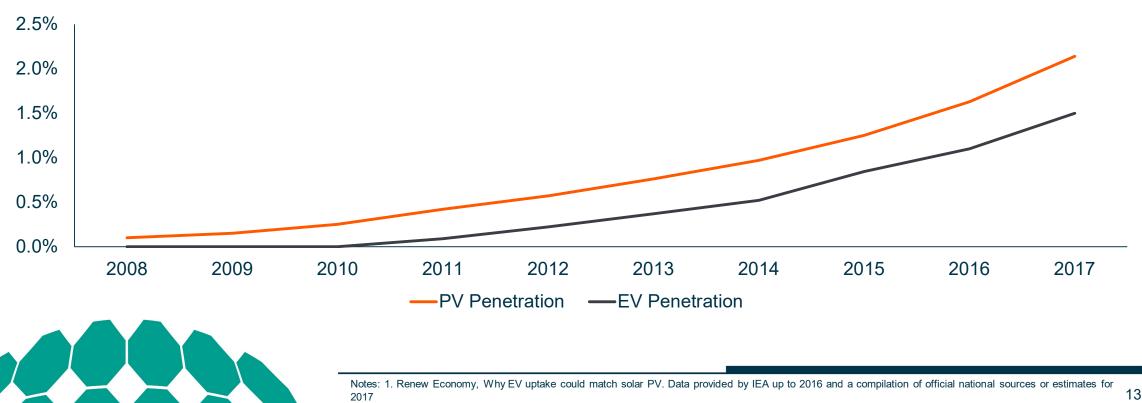
Notes: 1. The Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation (GREET) Model. Software: GREET 1, Version 2011 Copyright © 1999 UChicago Argonne, LLC, and Software: GREET 2, Version 2.7 Copyright © 2007 UChicago Argonne, LLC. 2. RethinkX, Rethinking Transportation 2020-2030

### Improving economics drives change



The improving economics of renewable technologies and EVs is driving exponential increases in adoption

Global market penetration of Solar Photovoltaic (PV) and Electric Vehicle (EV) technologies over time







# 2 Renewable energy outlook



## **Renewable penetration**



#### Renewable generation is increasing steadily in both the US and Australia

### **US electricity generation by fuel type**

9%	11%	10%	13%	12%	13%	13%	14%	15%	18%
22%	24%	24%	25%	31%	28%	28%	33%	34%	32%
20%	20%	20%	19%		400/	400/			52 /0
			1070	19%	19%	19%	19%	20%	20%
48%	44%	45%	42%		000/	222/			
		4070	4270	37%	39%	39%	33%	30%	30%
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
		■Coal ■O	■Oil ■Nuclear ■Natural gas ■Renewables (including hydro)						

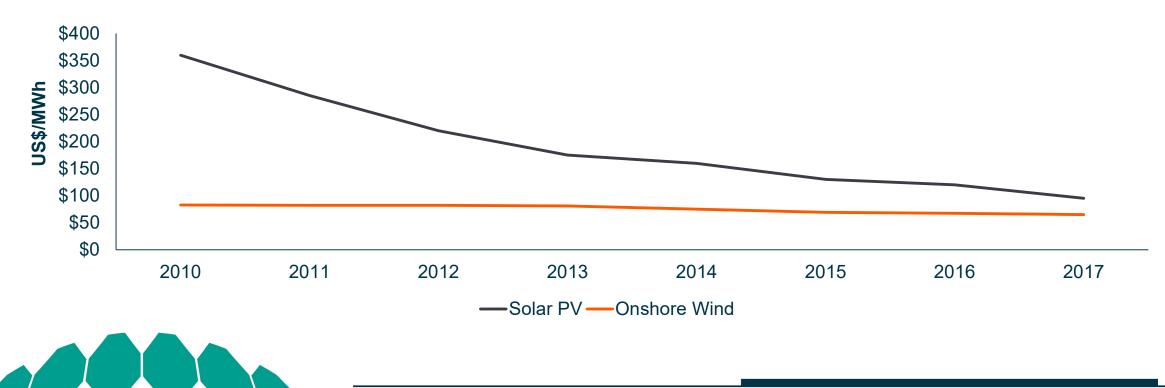


### The cost argument



Renewable technology is quickly becoming the most cost effective means of producing electricity

#### Global weighted levelised cost of Solar PV and onshore wind

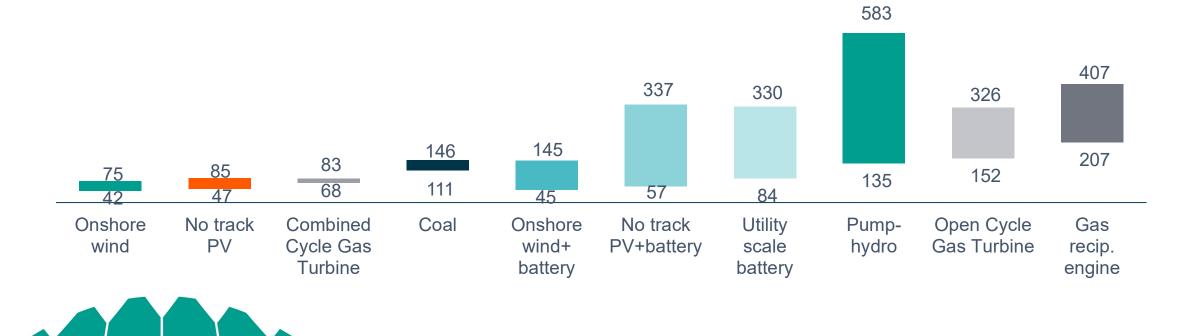


### The cost argument



Renewable technology is quickly becoming the most cost effective means of producing electricity

Levelised cost of electricity 1H 2018 Australia US\$/MWh

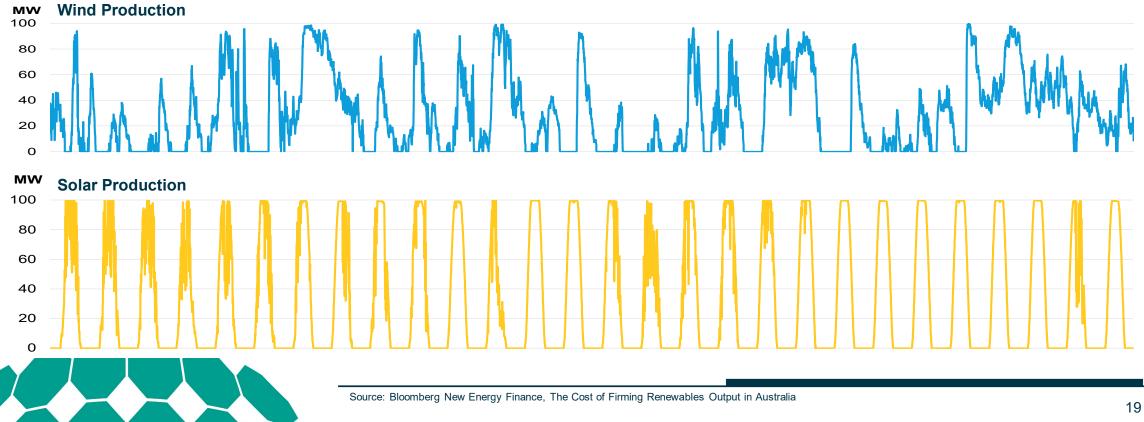


## **Renewable intermittency**



#### Electricity generation from renewable sources can be unpredictable and intermittent

#### **Renewable energy generation example monthly profiles**

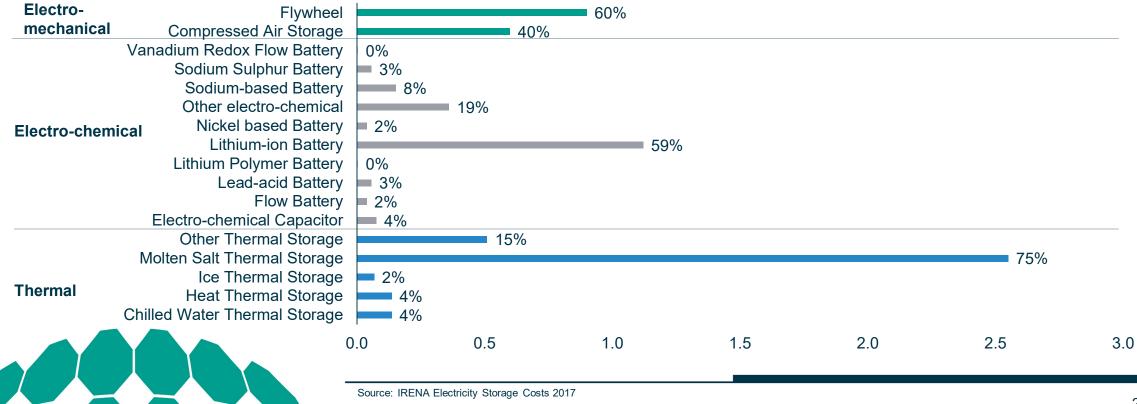


## **Storage alternatives**



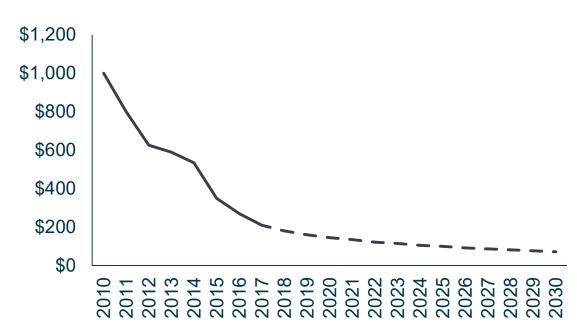
#### Of the 170GW of electricity storage that exists globally, Pumped Hydro makes up 96%

### The remaining 4% of global energy storage by type GW



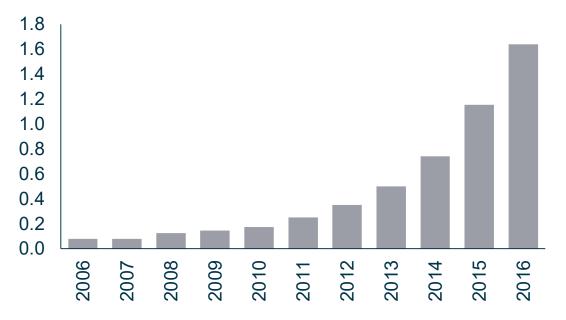
## The rise and rise of battery storage adoption

As batteries become cheaper and more efficient, adoption is increasing exponentially



#### LI-ION battery price forecast<sup>1</sup> US\$/KWh

#### Global electro-chemical storage capacity<sup>2</sup> GW





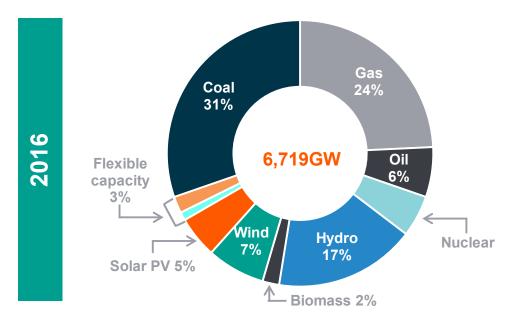


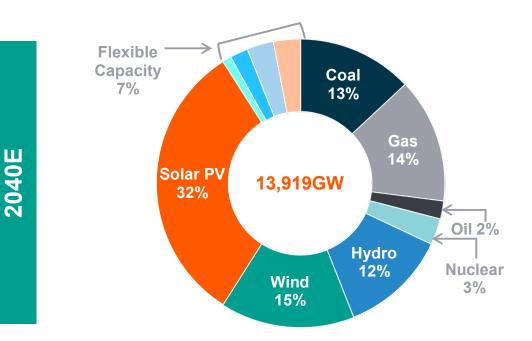
## **Projection of global generation capacity**



By 2040, solar PV is projected to represent 32% of global installed electricity generation capacity, up from 5% in 2016

#### **Global installed generation capacity**





Stanford SGS - September 2017



## **3** Divestment in fossil fuels

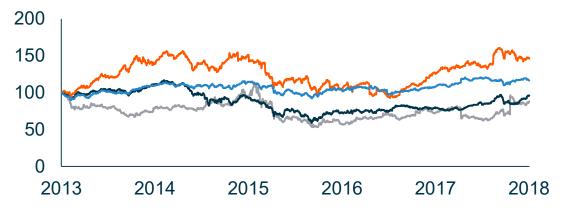


## Trends in global energy investing



#### The current market capitalisation of the energy sector is in excess of US\$5 trillion

# Market cap movements of relevant indices, rebased to 100 as at 18 May 2013<sup>1</sup>



-----Bloomberg World Coal Index

----Bloomberg World Oil and Gas Index

 Wilderhill New Energy Global Innovation Index
Bloomberg World Utilities Index

## Market cap of relevant indices as at 18 May 2018

INDEX	MARKET CAP (\$US)
<b>Oil and Gas Investment</b> (Bloomberg World Oil and Gas Index)	\$3.27tn
Coal Investment (Bloomberg World Coal Index)	\$0.19tn
<b>Total Investment in Utilities</b> (Bloomberg World Utilities Index)	\$2.02tn
<b>New Energy Investment</b> (Wilderhill New Energy Global Innovation Index)	\$0.30tn

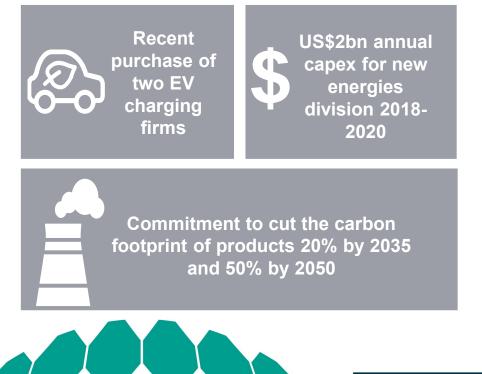
Notes: 1. Bloomberg data sourced 18 May 2018

### **Case study: Royal Dutch Shell**

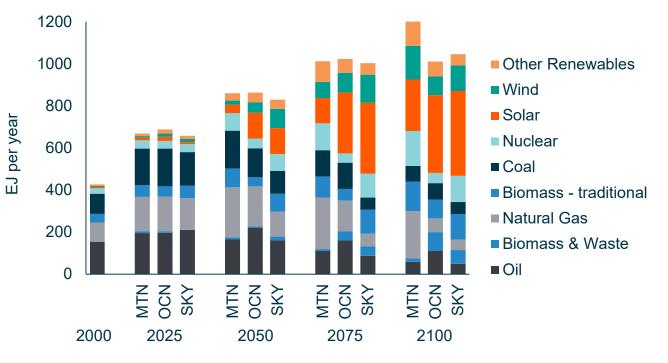


### Royal Dutch Shell is preparing for a low carbon future with help from its scenarios team

## Royal Dutch shell clean energy initiatives<sup>1</sup>



## Energy generation forecast by generator type and scenario<sup>2</sup>



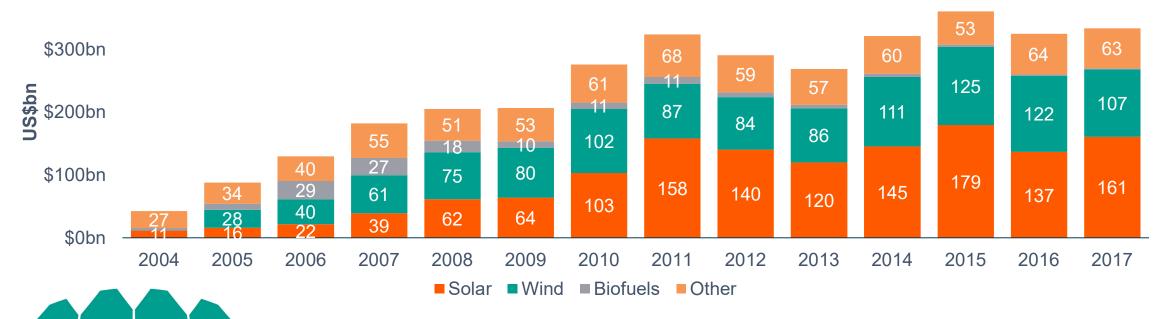
### **Renewable investment**



Renewable investment increases as fossil fuel divestment progresses

#### Global new investment in clean energy by sector

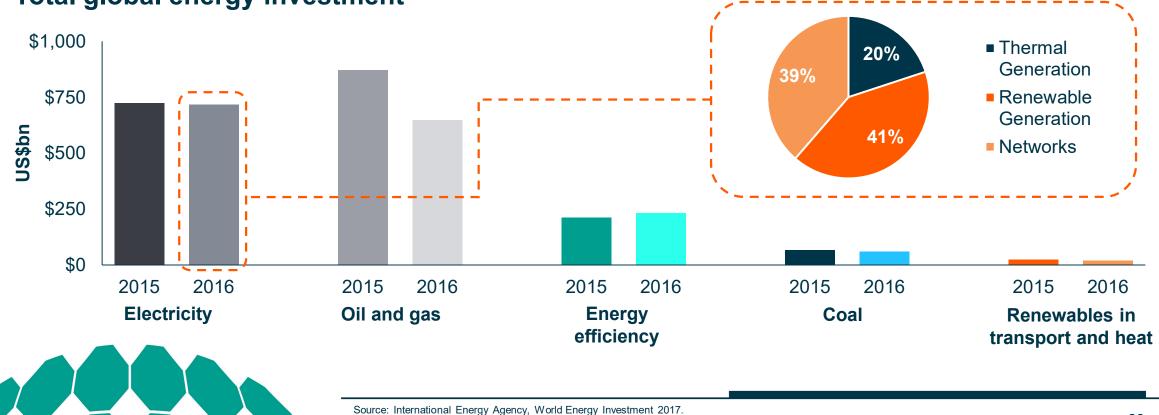
\$400bn



### **Renewable investment**



#### Renewable investment increases as fossil fuel divestment progresses



#### Total global energy investment





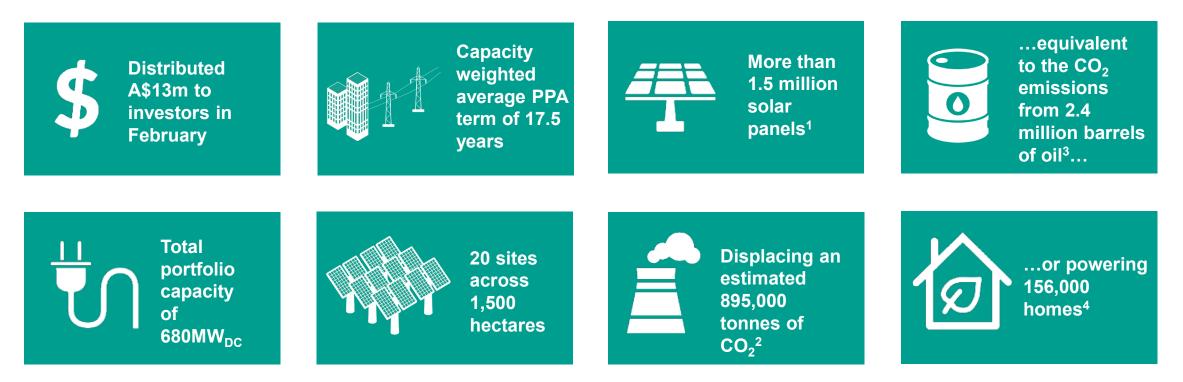
# 4 Update on NEW



## **Key achievements**



#### New Energy Solar has delivered financial and environmental returns to its investors





**Notes:** Estimates assume all construction and committed projects are operational and all projects and plants owned on a 100% basis. 1. Figure excludes Rigel portfolio. 2. Calculated using the US Environmental Protection Agency's Avoided Emissions and generation Tool (AVERT). 3. Calculation based on the US Environmental Protection Agency's Greenhouse Gas Equivalences Calculator. 4. Based upon an average house utilising approximately 8,375 KWh per annum.

## **Portfolio Summary**

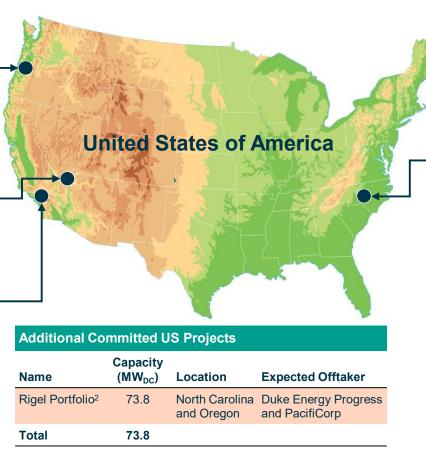


## 20 plants with blue-chip offtake and a capacity weighted PPA term remaining of 17.5 years as at 31 March 2018

<b>Oregon Plants</b>			
Name	Capacity (MW <sub>DC</sub> )	Location	Offtaker
Bonanza	6.8	Klamath	PacifiCorp
Pendleton	8.4	Umatilla	PacifiCorp
Total	15.2		
Nevada Plants			
Name	Capacity (MW <sub>DC</sub> )	Location	Offtaker
Boulder Solar 1	125.0	Clarke County	NV Energy
Total	125.0		
California Plan	ts		
Name	Capacity (MW <sub>DC</sub> )	Location	Offtaker
Mount Signal 2	200.0	California	Southern California Edison
Stanford SGS	67.4	Rosamond	Stanford University
TID SGS	67.4	Rosamond	Turlock Irrigation District

334.8

Total



North Carolina Plants				
Name	Capacity (MW <sub>DC</sub> )	Location	Offtaker	
NC-31	43.2	Bladenboro	Duke Energy Progress	
NC-47	47.6	Maxton	Duke Energy Progress	
Arthur	7.5	Columbus	Duke Energy Progress	
Hanover	7.5	Onslow	Duke Energy Progress	
Heedeh	5.4	Columbus	Duke Energy Progress	
Organ Church	7.5	Rowan	Duke Energy Carolinas	
County Home	7.2	Richmond	Duke Energy Progress	
Church Road	5.2	Johnston	Duke Energy Progress	
Total	131.1			

Кеу
Operational
Acquired / under construction
Committed

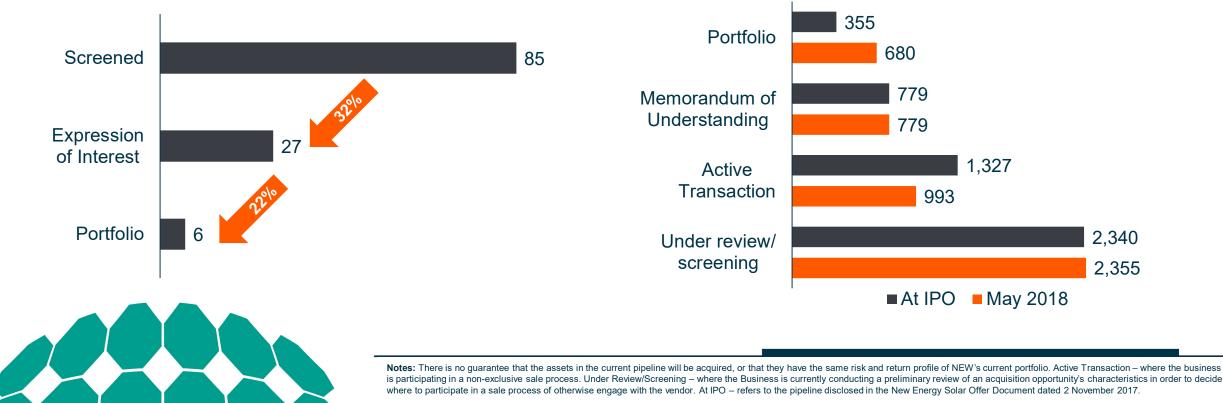
### Notes: Includes plants that are either wholly or partly owned by NEW. Total portfolio of 680MW<sub>DC</sub> includes plants that are operational, acquired and under construction or committed. 1. PPA terms of committed projects have been determined from commercial operations date. 2. Rigel Portfolio refers to portfolio of assets NEW has committed to acquire from Cypress Creek Renewables.

## **Acquisition update**



### NEW remains well placed to transact on a significant pipeline of quality opportunities

# Pipeline conversion by number of opportunities



#### Investment opportunity pipeline MW

## **Acquisition update**



Since listing, New Energy Solar has reached financial close on ten assets with combined capacity of 381MW<sub>DC</sub> whilst further progressing committed assets



#### **Portfolio composition by asset stage**



34





## 5 Conclusion and Outlook

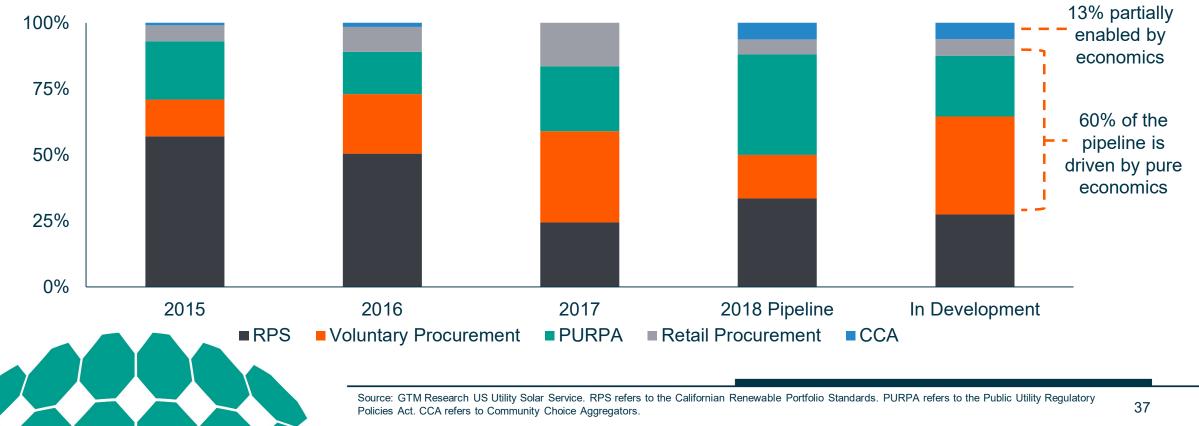


## What's next for renewable energy?



Improving economics is expected to continue driving the adoption of renewable generation technology

#### Operating and contracted us utility scale solar by procurement driver





## 6 Q&A



Stanford SGS and TID SGS sites at sunset – September 2017





