

**Schroders**

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# Global Energy Transition

Global Commodities and Resource Equities Team  
November 2019



For professional investors or advisers only.

# The Global Energy Transition has started and has to happen

The world has set clear targets to make the energy system more sustainable

50% of electricity in **Nevada** must be renewable by 2030 and 100% must be carbon-free by 2050.

100% of all electricity in **California** must be from zero-emission sources by 2045.

Target of 5 million zero-emission vehicles in **California** by 2025 and 250,000 EV chargers.

100% of electricity in **Massachusetts** to come from renewables by 2050.

Proposed bill for 100% renewable power in **Pennsylvania** by 2050.

30% of all **UK** electricity should be produced by renewables by 2020.

**UK** Emissions to be reduced 80% compared to 1990 levels by 2050. Proposed plan for 'net zero' emissions by 2050.

Target for 35% of all energy in **China** to be from renewable sources by 2030.

By 2020, 12% of all conventional passenger cars in **China** should be zero-emissions vehicles.

**Texas'** Renewable Portfolio Standard (RPS) has a target of 10,000 MW of renewable energy capacity by 2025.

23% of all **Brazilian** electricity (other than hydropower) to be from renewables by 2030.

Two new energy auctions per year to increase renewable capacity.

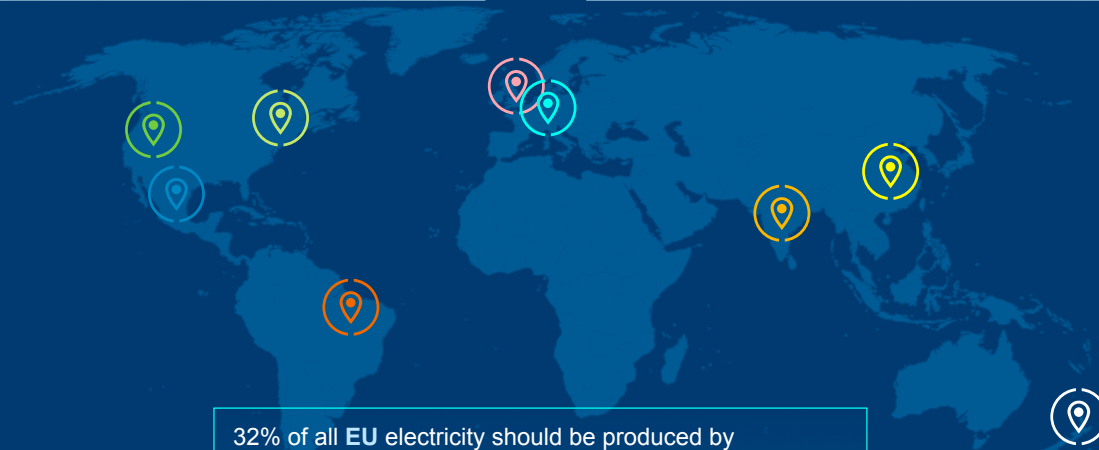
32% of all **EU** electricity should be produced by renewables by 2030.

Complete coal phase out in **Germany** by 2038.

100% of all electricity in **Spain** from renewables by 2050.

90% of all electricity in **New Zealand** to come from renewable sources by 2025.

Target of 230GW of renewable power in **India** by 2022.

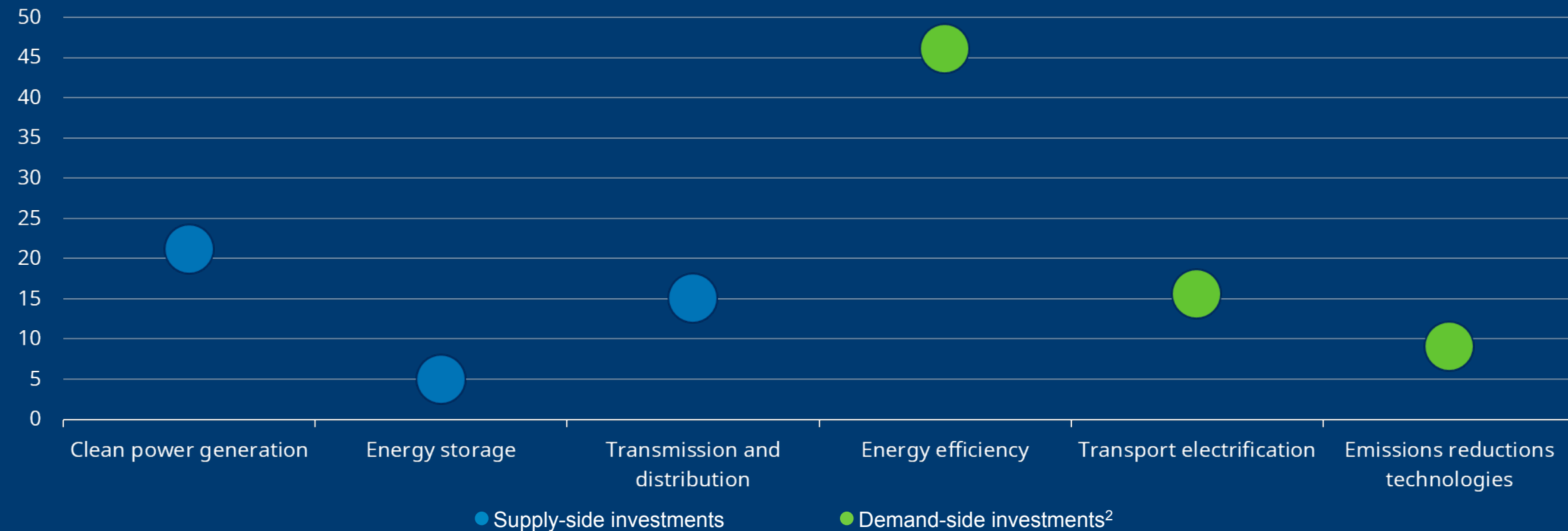


# A huge amount of investment is needed to meet these goals

Realising the transition will require USD 120 trillion of investment by 2050<sup>1</sup>

## Required cumulative investment in key energy transition sectors out to 2050

USD trillion



Source: IEA, IRENA, BNEF, Schrodgers, as of January 2019. <sup>1</sup>Schroder ISF Global Energy Transition will only invest in the sections of these markets directly related to the energy system, with the investment in these specific sub-markets taking only a share of the overall investment.

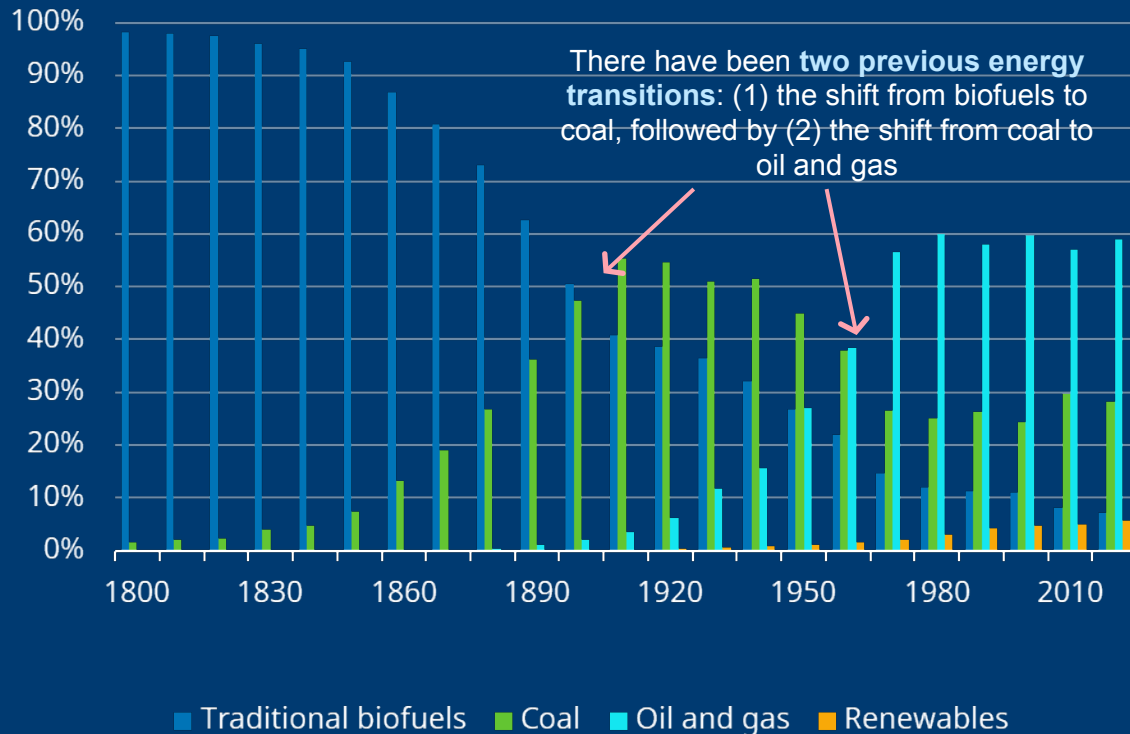
<sup>2</sup>Estimated demand-side investments include investments in end-user goods, such as electric vehicles and more efficient appliances and industrial process.

# Energy transitions are long-term structural transformations

These systematic societal shifts are rare events that are hugely disruptive

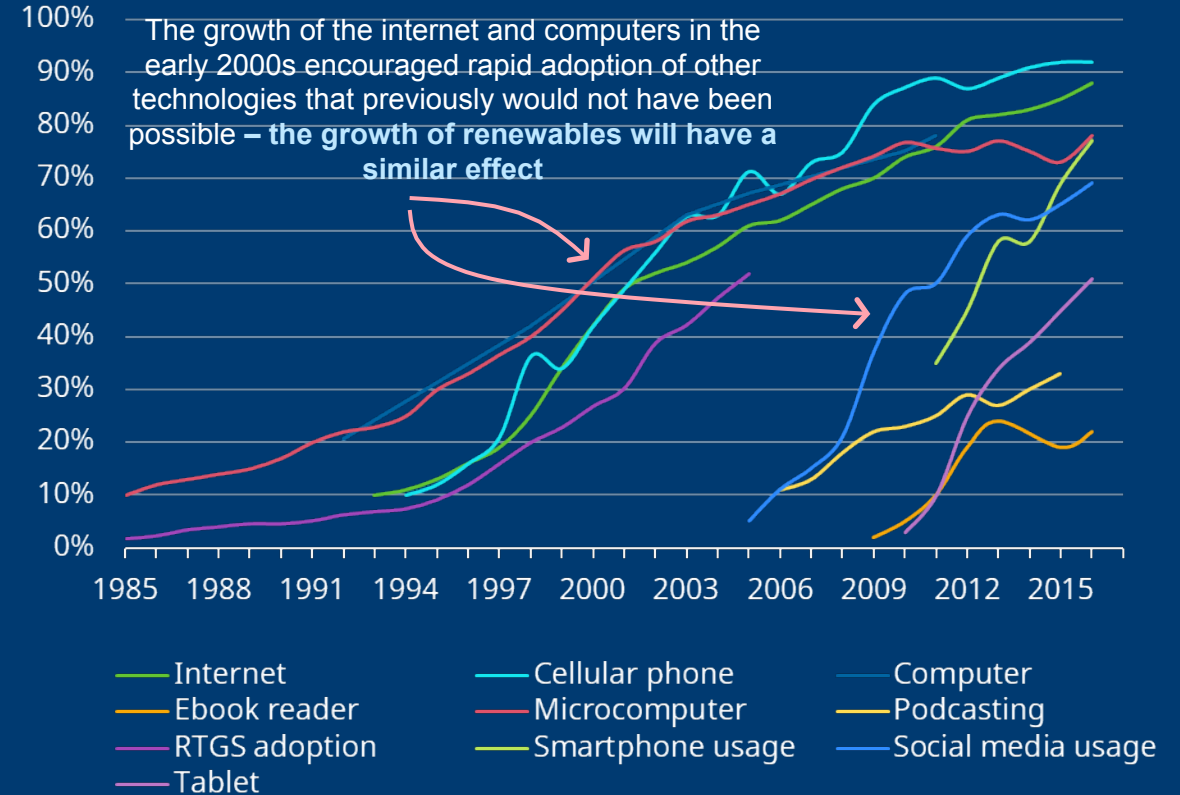
## Change in global primary energy consumption

Share of global energy consumed



## Digital technology adoption by US households

Share of adoption



Source: BP, Our World In Data, Schrodgers, as of January 2019.

# The low-carbon energy transition will be hugely disruptive

New investment and earnings opportunities will come from three key structural trends



## Decarbonisation of power generation

The share of electricity generated from renewables is expected to increase from 20% to closer to 85% by 2050 in order to reduce carbon emissions



## Electrification of energy use

The share of electricity in final energy consumption is expected to increase from 20% to nearer 45% by 2050 due to the growth of electric vehicles



## Increased efficiency of consumption

The energy intensity<sup>1</sup> of the global economy must fall by nearly two-thirds by 2050 to limit the growth in overall power consumption

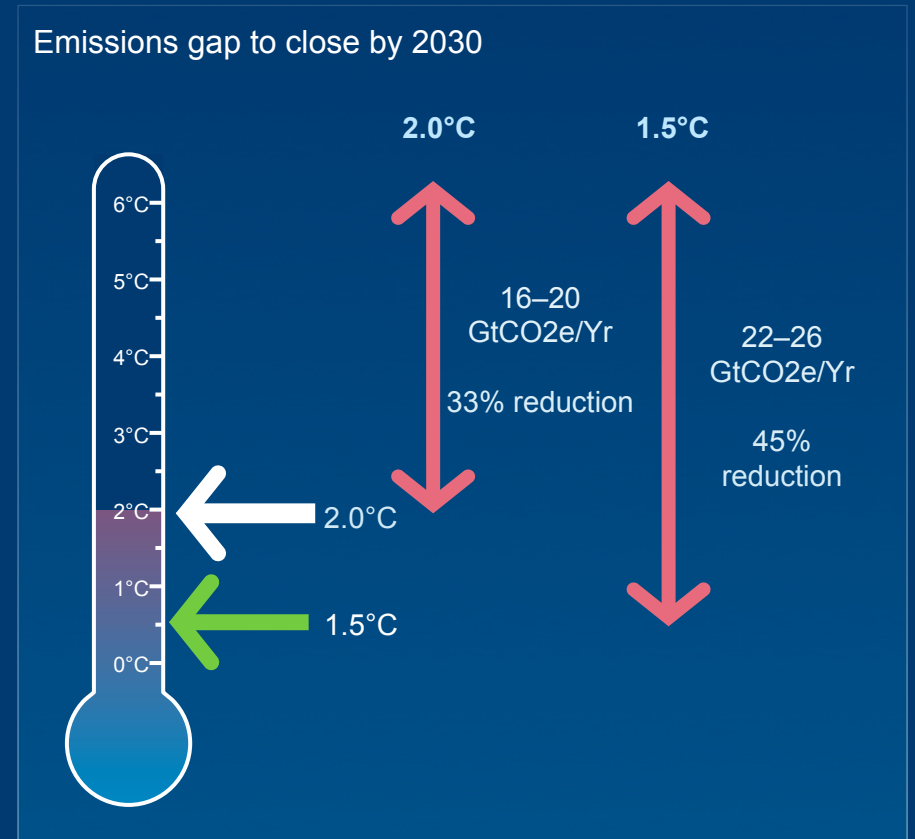
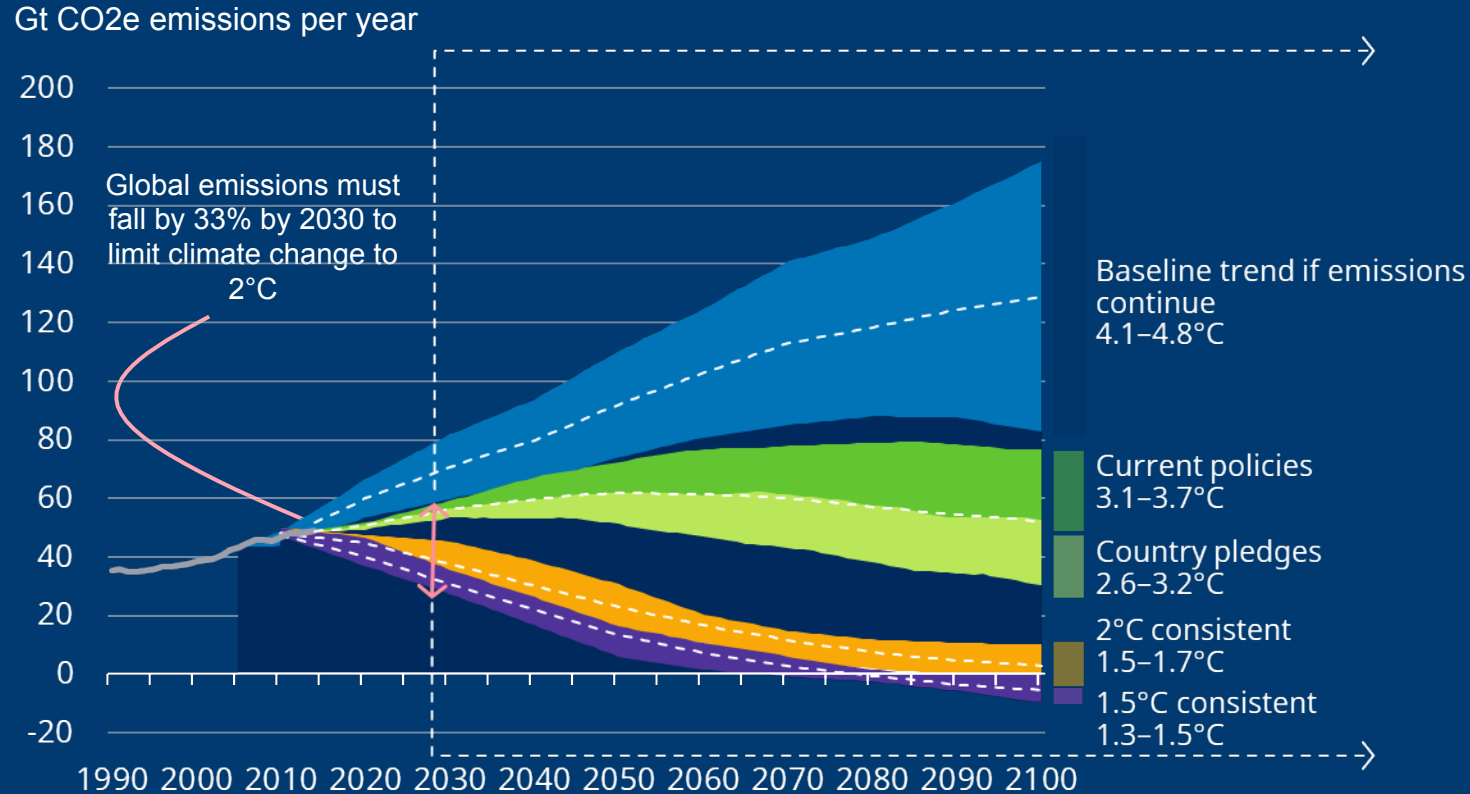
<sup>1</sup>Energy intensity is the amount of energy needed to produce one unit of GDP. Source: Schrodgers, IEA, BNEF, IRENA, as of June 2019.



# Environmental concern is the main force driving these trends

There is still a significant emissions policy gap<sup>1</sup> to meet 2°C climate targets

## Global greenhouse emissions and expected warming based on different policy scenarios

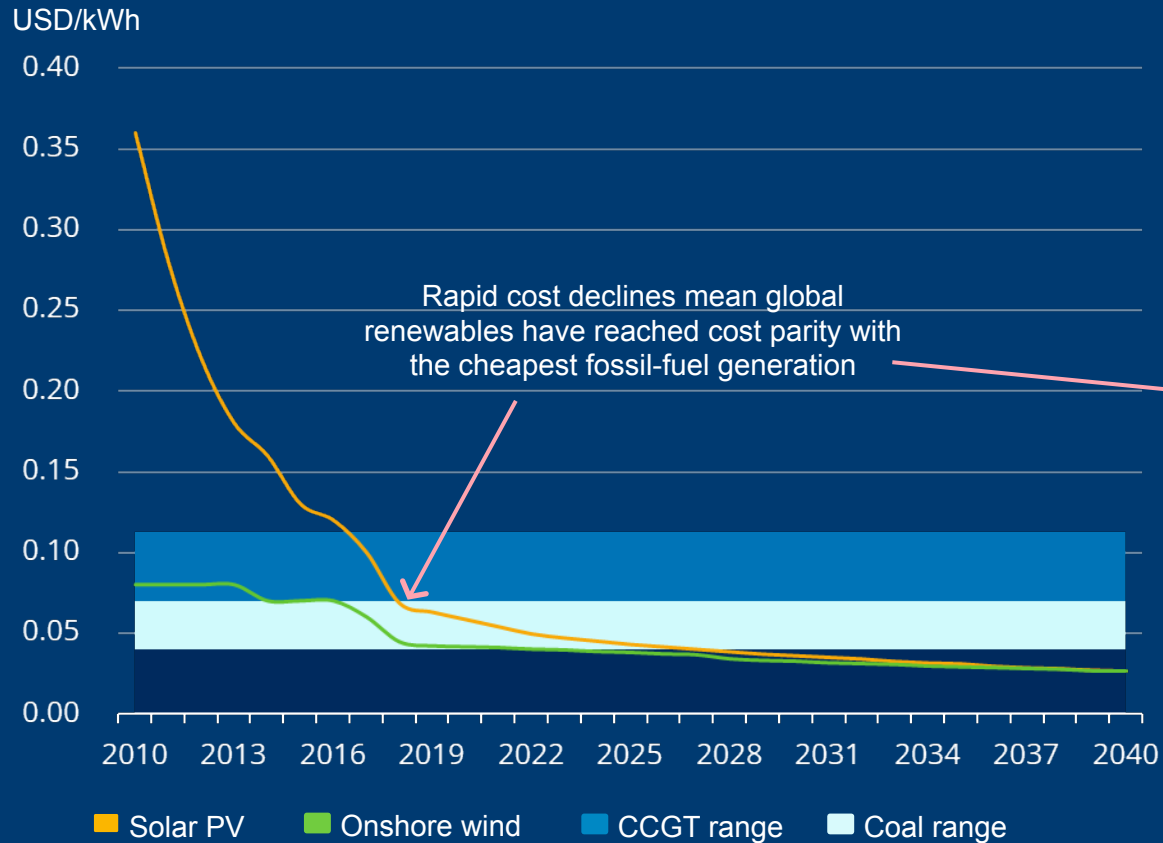


<sup>1</sup>The emissions gap represents the difference between the emissions countries have pledged to reduce and the emissions that need to be reduced to limit global temperature increases to below 1.5°C or 2°C. Source: Climate Action Tracker, Schroders, as of October 2018.

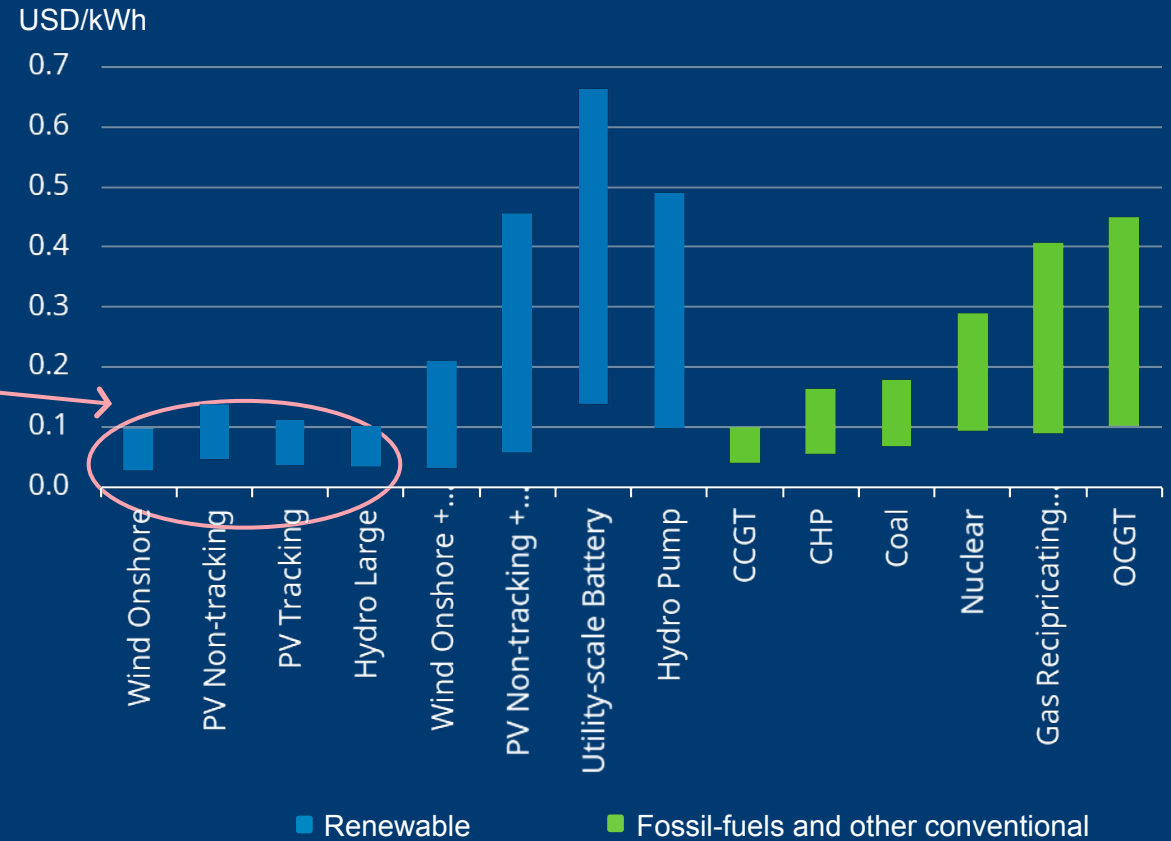
# Renewable energy is now cost-competitive

Rapidly falling costs mean renewables have reached cost-parity with fossil fuels

## Global LCOE<sup>1</sup> for onshore wind and solar PV



## Unsubsidised LCOE range for all power generation<sup>2</sup>

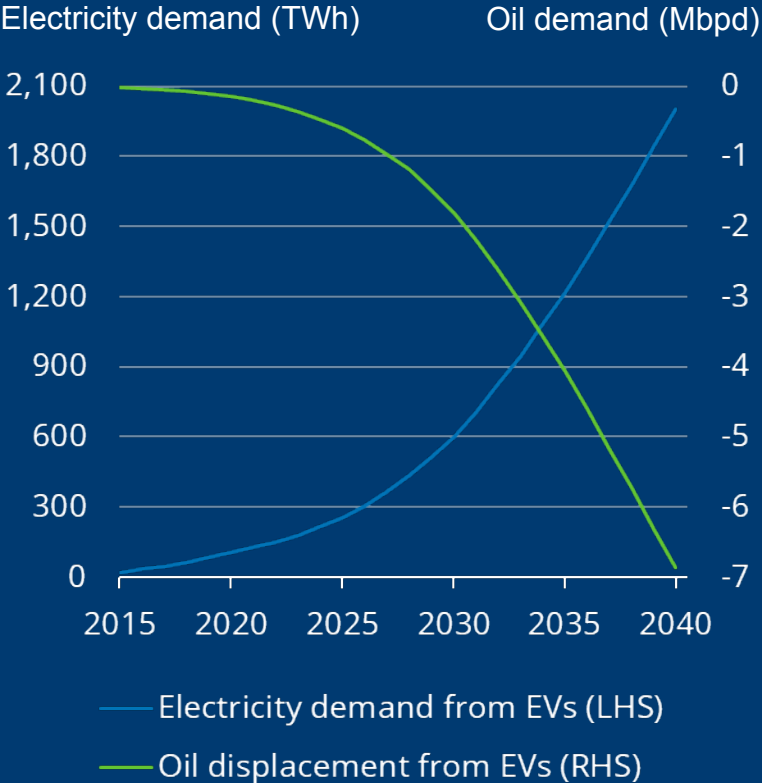


Source: IRENA, IEA, Schrodgers, as of July 2018. <sup>1</sup>Levelized cost of energy (LCOE) represents the net present value of the unit-cost of electricity over the lifetime of a generating asset. It is used as a proxy for the average price the generating asset must receive to break even over its lifetime. <sup>2</sup>US selected as a representative market but LCOE does vary by country. Source: IRENA, IEA, Schrodgers, as of July 2018.

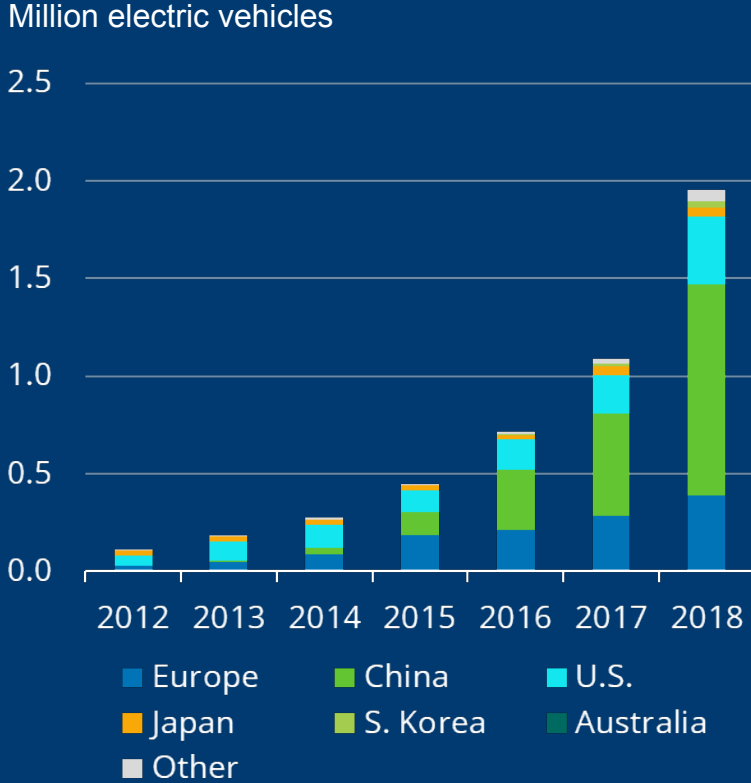
# Electricity demand is expected to grow substantially

One electric vehicle uses as much electricity annually as a typical family home

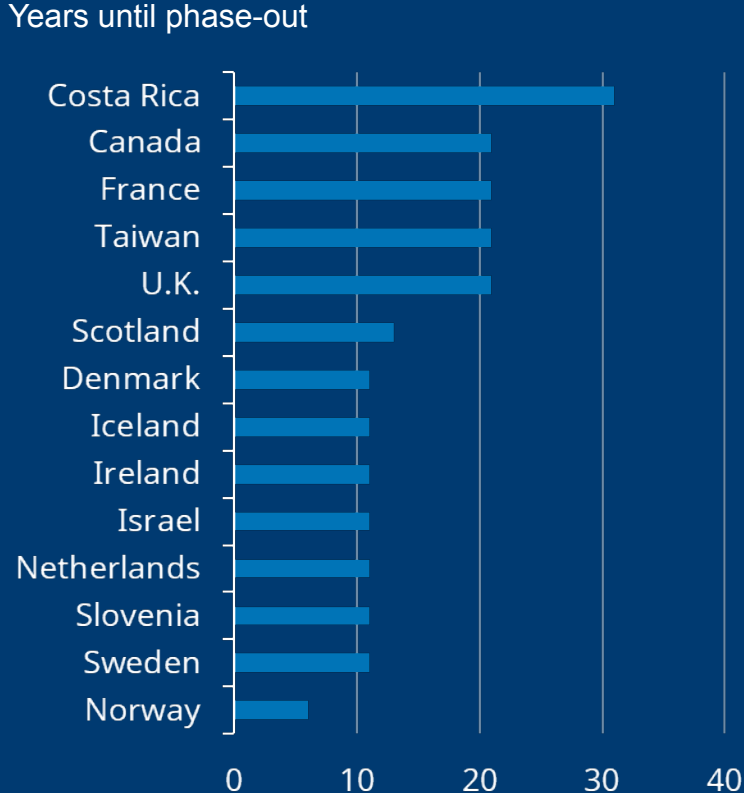
## Estimated electricity growth and oil displacement from EVs



## Annual global passenger EV sales



## Years until ICE sale phase-out



Source: BNEF, IEA, EIA, Schrodgers, as of June 2019.



# Opportunities across the entire value chain

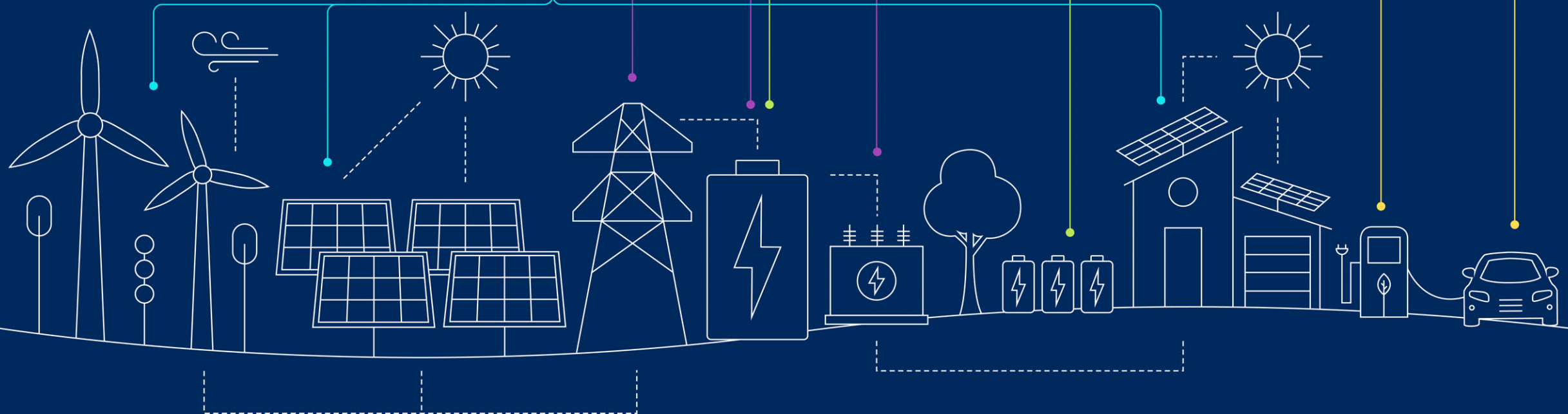
Earnings growth opportunities will emerge across four different areas:

**1**  
Clean energy generation

**2**  
Transmission and distribution

**3**  
Energy storage

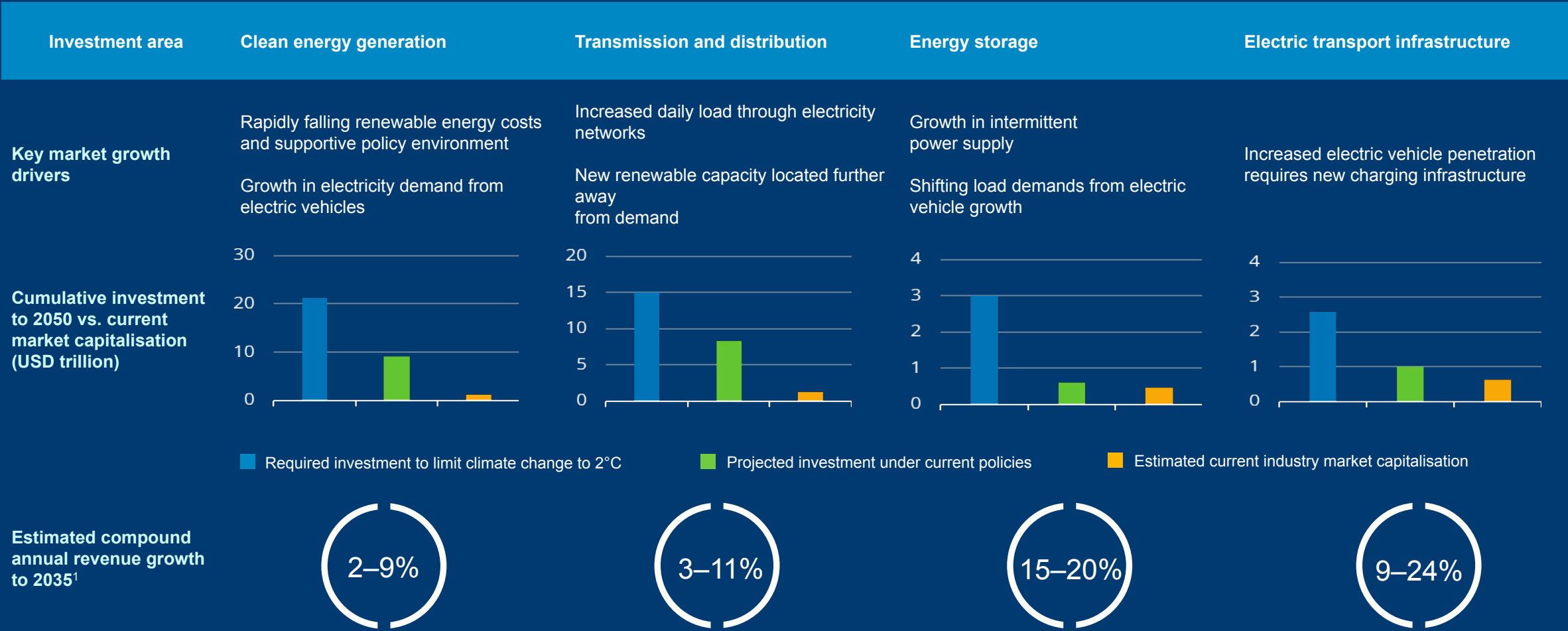
**4**  
Electric transport infrastructure



Source: Schroders, as of October 2019.

# Significant investment must be made across the value chain

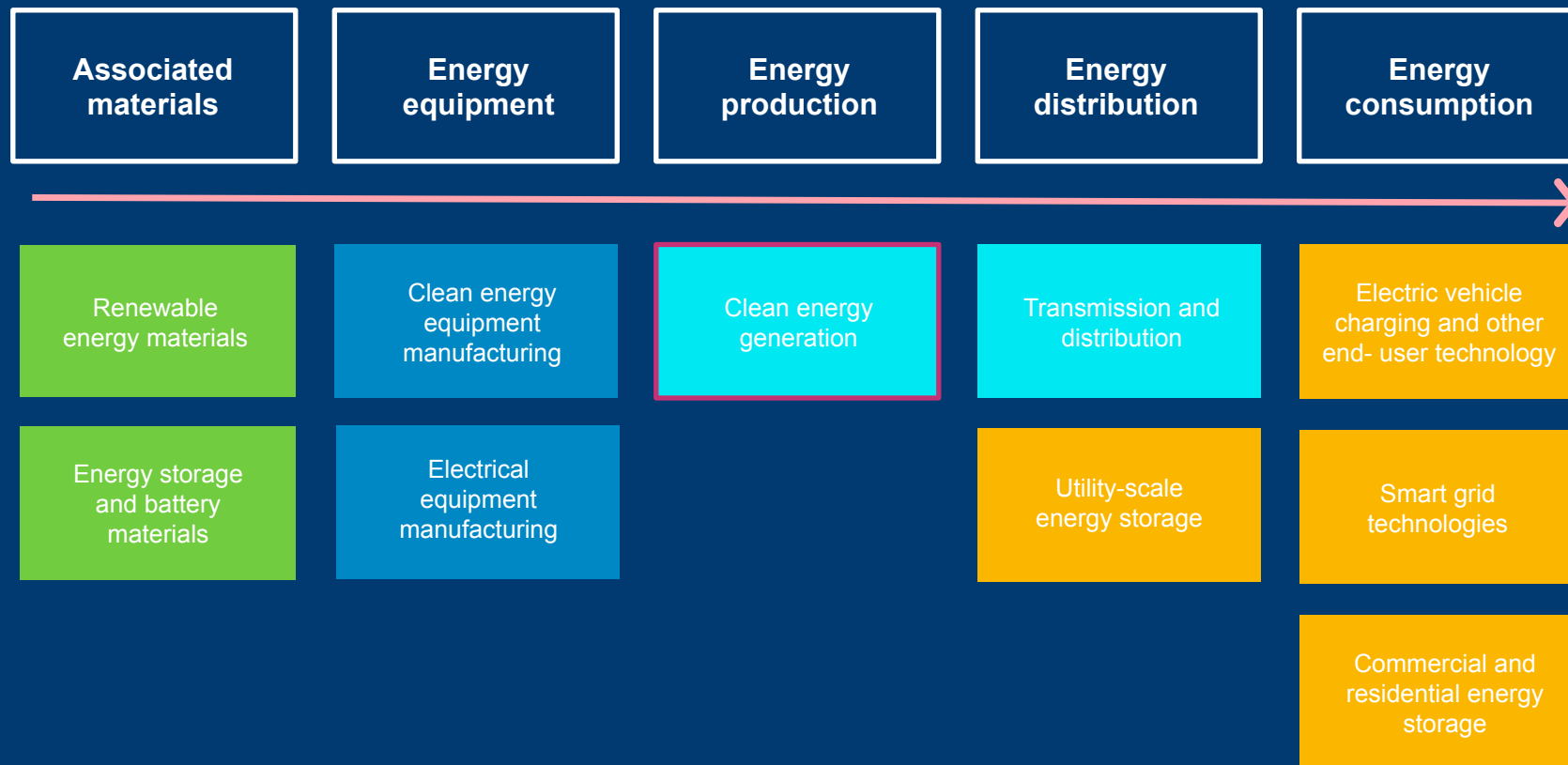
This new investment will result in earnings opportunities for companies



Source: IEA, IRENA, BNEF, Schroders, as of January 2019. <sup>1</sup>Estimated annual revenue growth range based on Schroders projections under different scenarios.

# Schroder ISF Global Energy Transition

## Investment proposition



■ Materials   
 ■ Industrials   
 ■ Utilities   
 ■ Technology

<sup>1</sup>SISF Global Energy Transition will not invest in companies with any exposure to fossil fuels or nuclear power, as defined by MSCI. Source: Schroders, as of August 2019.

# Investors have not missed out on this opportunity yet

The index has underperformed since 2013 – despite average EBIT margin expanding

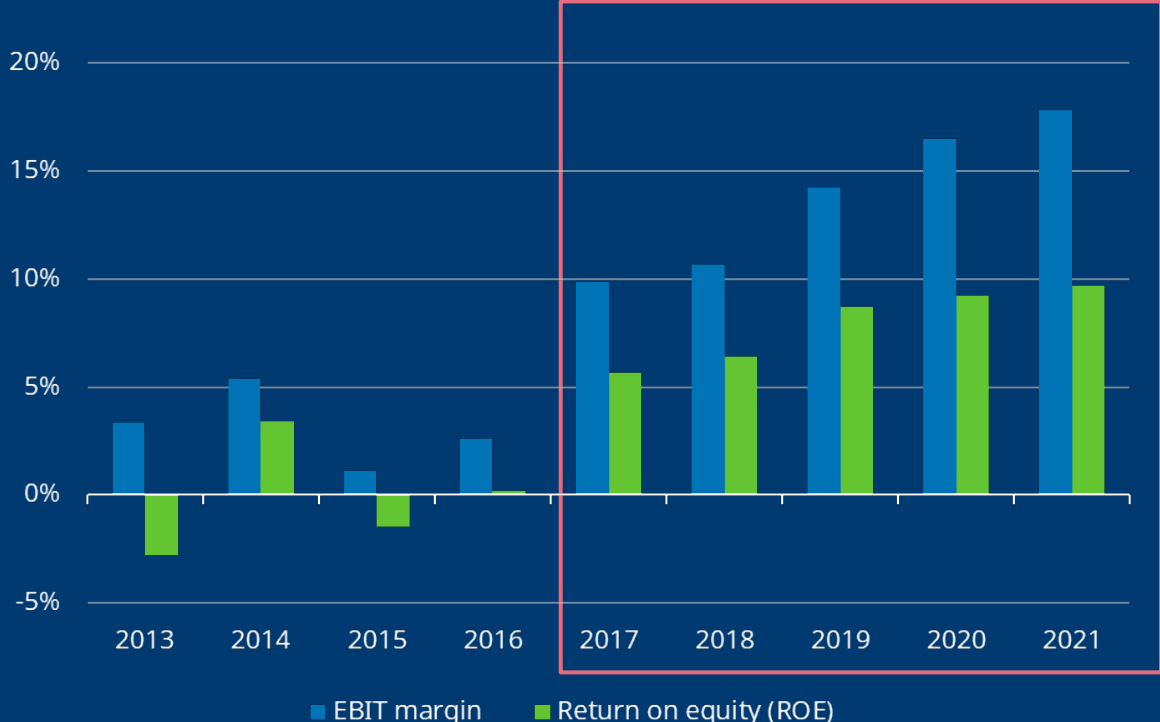
## MSCI Global Alternative Energy Index vs. comparators

Total return since 31 December 2013 (%)



## MSCI Global Alternative Energy Index EBIT Margin and ROE

EBIT margin and return on equity %



Past performance is not a reliable indicator of future results, prices of shares and the income from them may fall as well as rise and investors may not get the amount originally invested.

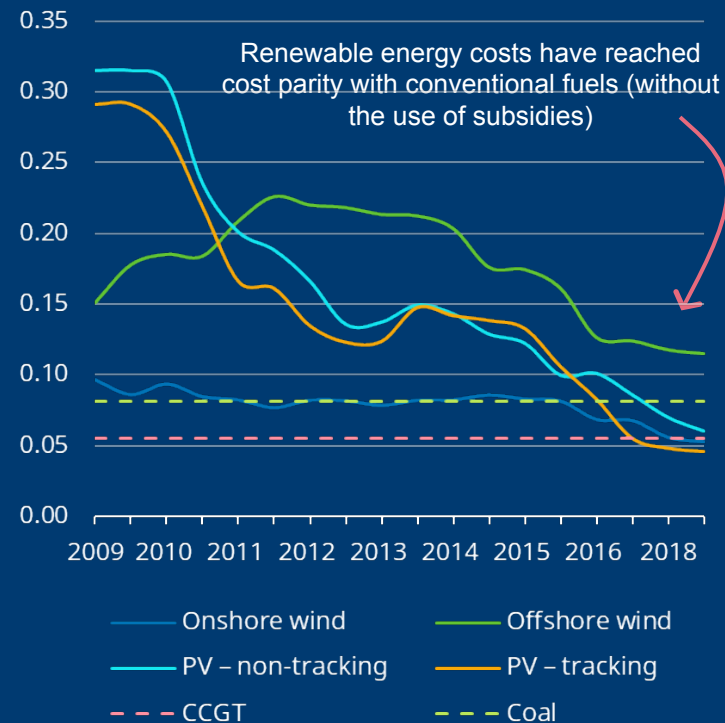
Source: Bloomberg, as of October 31<sup>st</sup> 2019.

# Now is a great time to invest in the energy transition

Significant market inflection points have been reached in the last two years

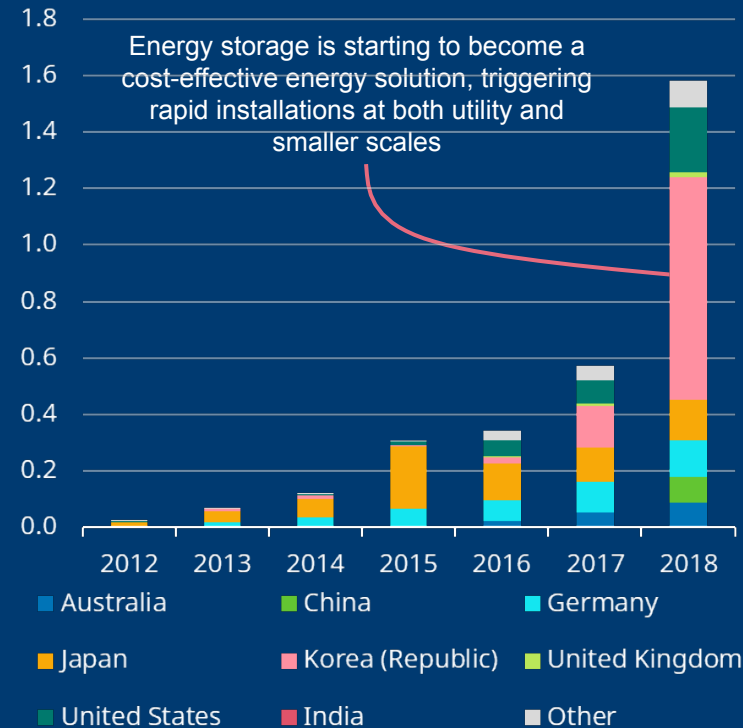
## Historic global renewable LCOEs

Levelised cost of energy (LCOE) (USD/kWh)



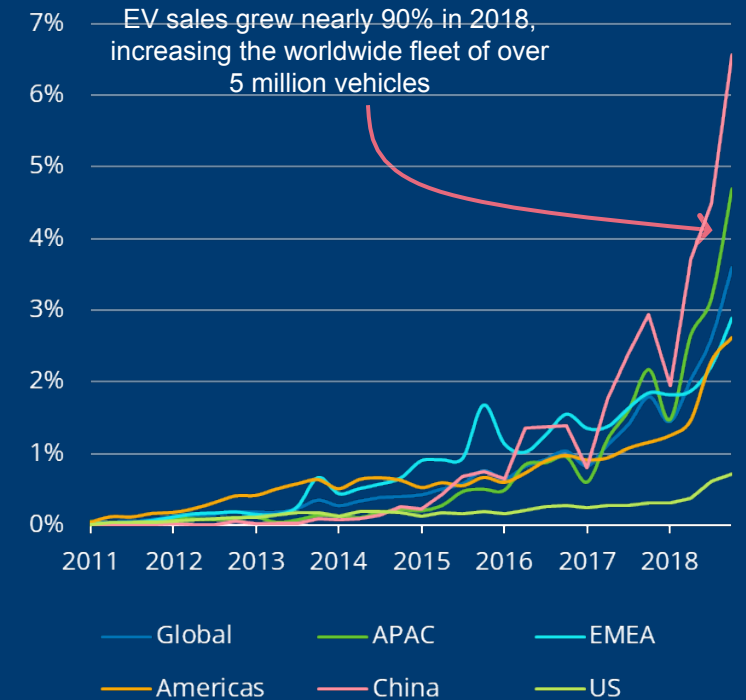
## Distributed storage capacity adds

Residential and commercial storage additions (GW)



## EV sales as % of all vehicle sales

EV share of passenger vehicle sales (%)



Past performance is not a reliable indicator of future results, prices of shares and the income from them may fall as well as rise and investors may not get the amount originally invested.

Source: IEA, IRENA, BNEF, World Bank, Schroders, as of May 2019.



# Schroder ISF Global Energy Transition

## Key messages

1

**The energy transition has to happen and the investment opportunity is massive**  
USD 120 trillion of investment in the energy transition is required by 2050 to meet globally agreed targets, creating strong real earnings growth opportunities

2

**A focused thematic approach and established investment process is key**  
Schroder ISF Global Energy Transition will leverage an established process and an unconstrained thematic approach to find the best companies across evolving value chains

3

**Now is a great time to invest in the energy transition**  
Significant inflection points have been reached in the last two years and EBIT margins are starting to expand







# Appendix 1

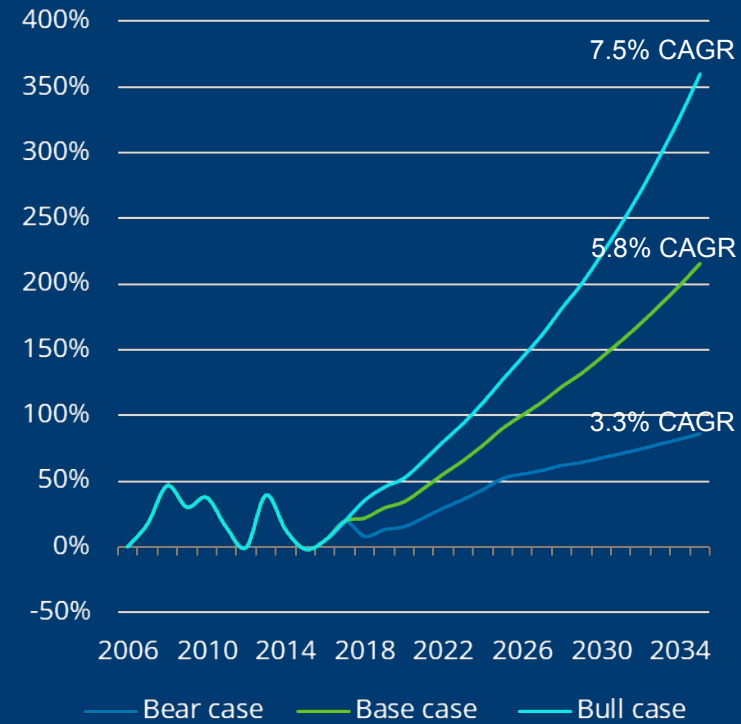
Strategy and outlook

# Generators and equipment makers will win from renewables

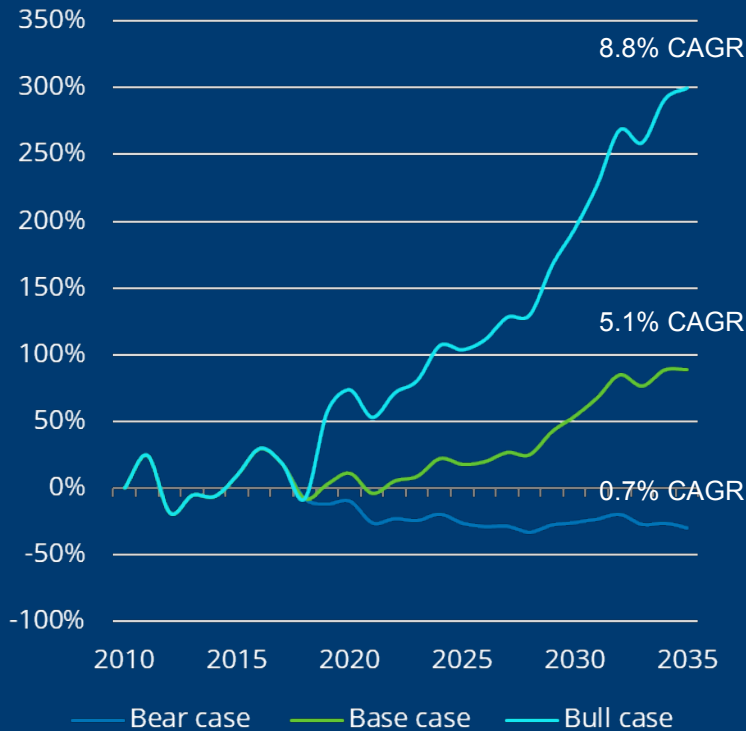
Base case scenarios see revenue growth at a compound annual growth rates of ~6%

Projected revenue growth for renewable generators and equipment manufacturers under various scenarios<sup>1</sup>

Cumulative revenue growth for renewable power generators



Cumulative revenue growth for wind and solar equipment manufacturers



**Bull case**

- Increased capacity demand and higher service revenues. Stabilisation in turbine and module prices due to consolidation in the market
- Increase in power demand – and prices – due to electrification of transport and industry

**Base case**

- Stable capacity demand and service revenues. Some repowering but limited. Turbine and module prices continual to fall at stable rates
- Increase in power demand offset by improved energy efficiency from new technologies. Power prices remain stable as cost of generation falls to offset growing demand and investment

**Bear case**

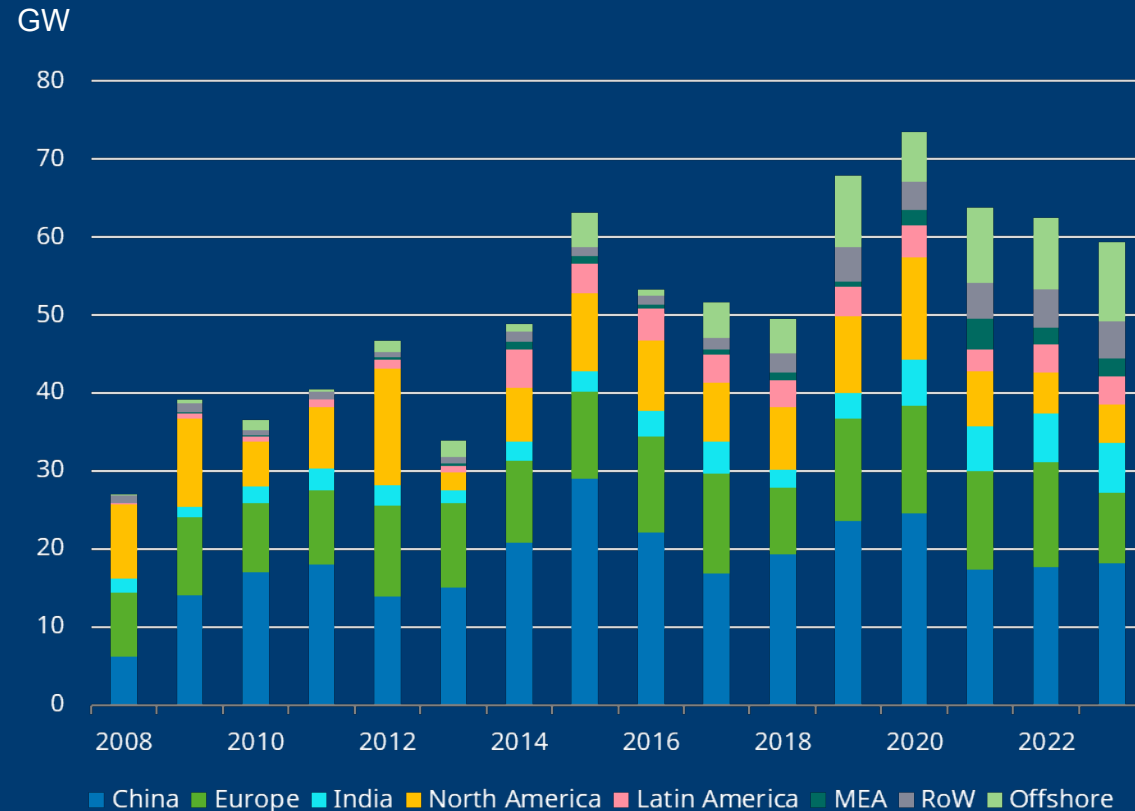
- Reduced capacity demand due to the emergence of new technologies or change in politics. Pricing for turbines and modules falls at accelerated rate as competition continues
- Falling power demand due to increased energy efficiency from new technologies

Source: Schrodgers, as of January 2019. <sup>1</sup>Scenarios use blended assumptions for future renewable power generation from BNEF and IEA, average US power prices based on both wholesale and PPA offtake data from Bloomberg, solar and wind capacity demand from BNEF and IRENA, and wind turbine and solar module price data from companies and Bloomberg.

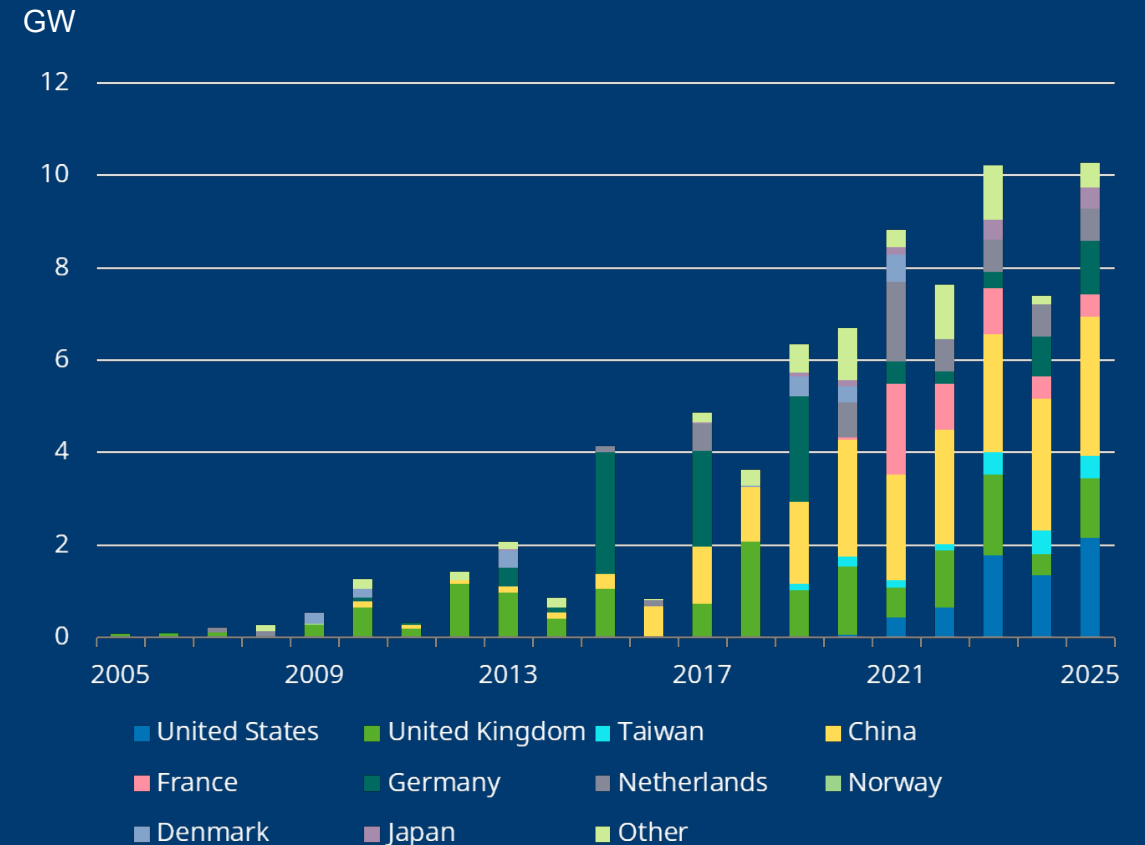
# Wind additions will accelerate over the next two years

Offshore wind shows strong long-term growth potential and is a concentrated market

## Global wind capacity additions forecast



## Offshore wind capacity additions forecast



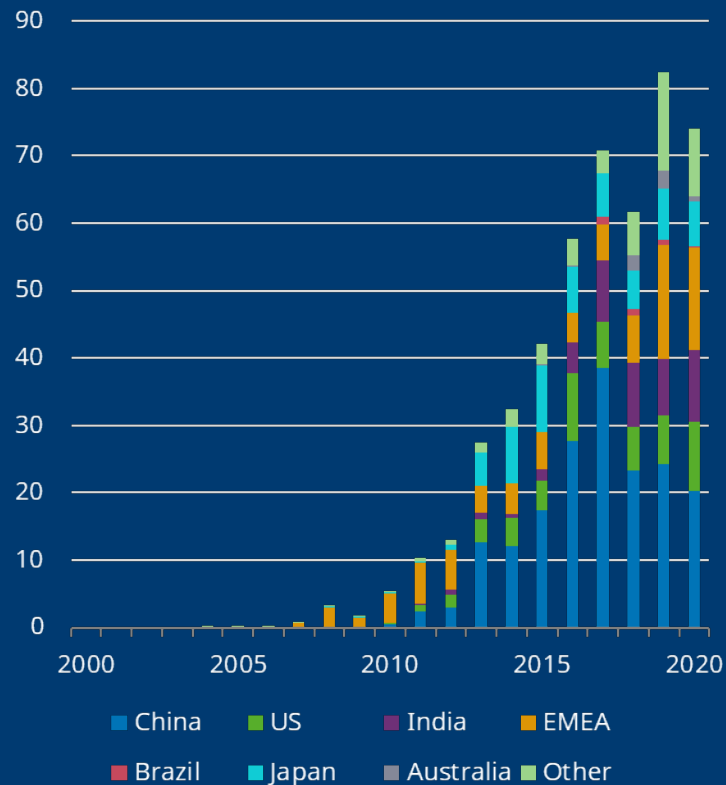
Source: BNEF, Schrodgers, as of August 2019.

# Solar energy installations are growing dramatically

Utility-scale still dominates capacity adds but behind-the-meter growth is very strong<sup>1</sup>

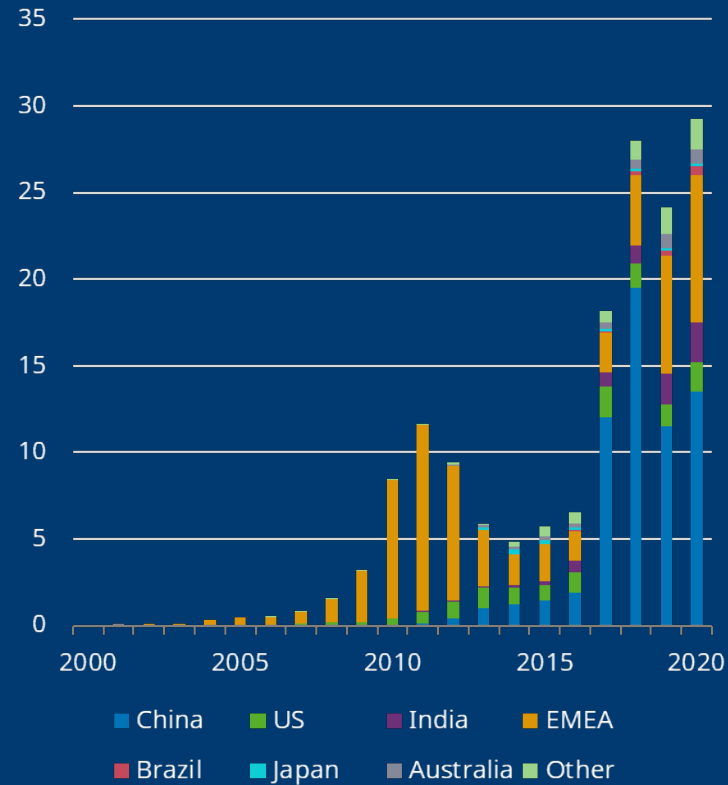
## Utility-scale solar additions

GW deployed



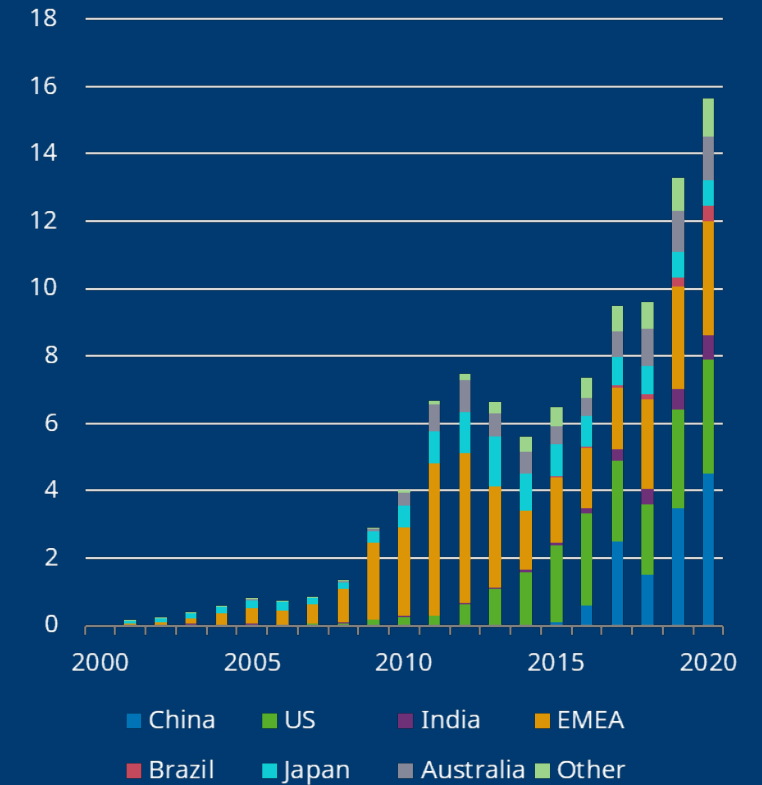
## Commercial solar additions

GW deployed



## Residential solar additions

GW deployed



<sup>1</sup>Forecasts for 2019 and beyond are BNEF estimates. Source: BNEF, Schroders, as at September 2019.

# Solar demand is now starting to pick up on a global basis

Strong near-term demand could drive price improvements in parts of the value chain

## Projected solar capacity additions

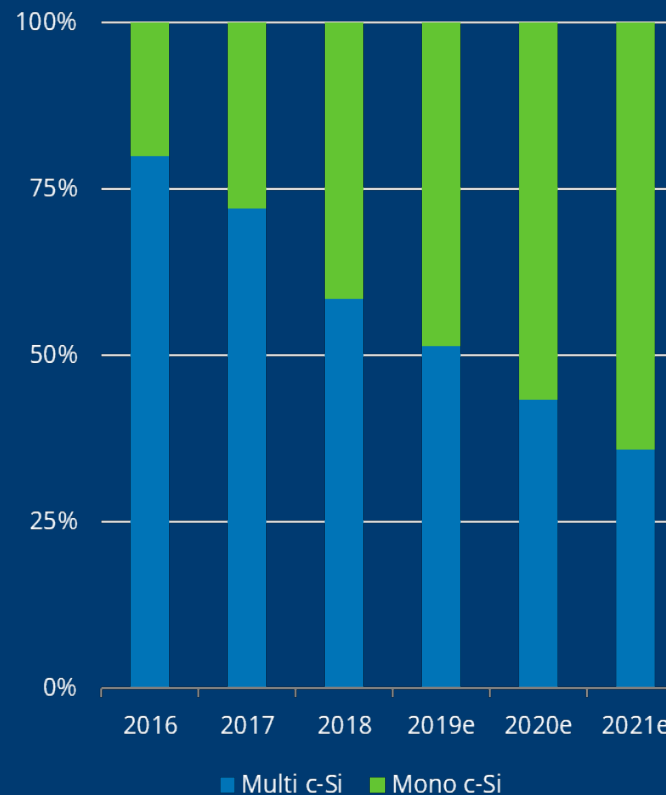
Schroders	2019 MW	YoY Δ	BNEF	2019 MW	YoY Δ
Global	117	15%	Global	116	15%
China	39	(-11%)	China	39	(-11%)
US	15	29%	US	12	5%
India	15	35%	India	12	9%
EMEA	24	70%	EMEA	25	75%
Brazil	2	40%	Brazil	1	15%
Japan	8	18%	Japan	9	26%
Australia	4	7%	Australia	5	24%
Other	10	24%	Other	13	56%

Schroders	2020 MW	YoY Δ	BNEF	2020 MW	YoY Δ
Global	137	17%	Global	120	4%
China	45	15%	China	39	0%
US	17	13%	US	15	21%
India	20	33%	India	14	18%
EMEA	24	0%	EMEA	28	12%
Brazil	3	80%	Brazil	1	(-13%)
Japan	8	0%	Japan	8	(-10%)
Australia	4	0%	Australia	3	(-36%)
Other	16	60%	Other	12	(-6%)

## Mono vs multi polysilicon cell share

Relative market share



## Average global polysilicon price

USD/Kg

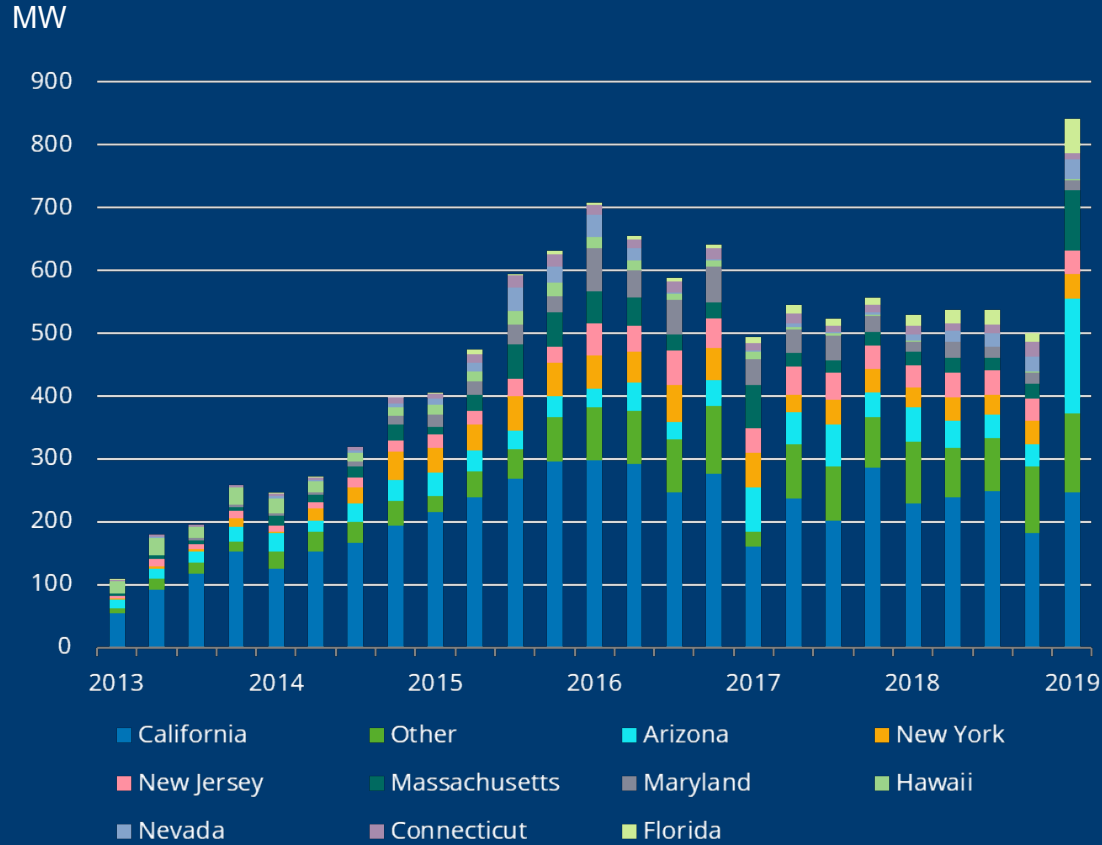


Source: BNEF, Bloomberg, Schroders, as of August 2019.

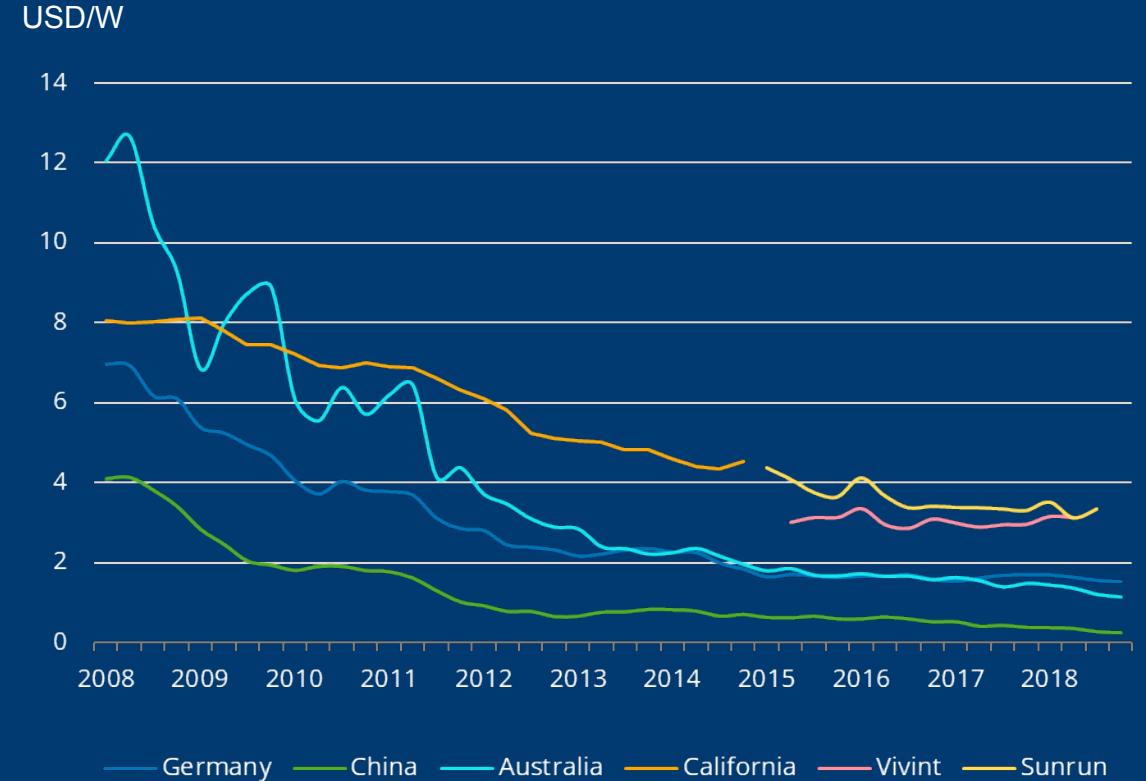
# Residential and commercial solar is gaining real momentum

Small-scale solar has huge long-term potential and is starting to accelerate globally

## Quarterly US residential solar installations



## Residential solar costs globally



Source: BNEF, Schrodgers, as of August 2019.

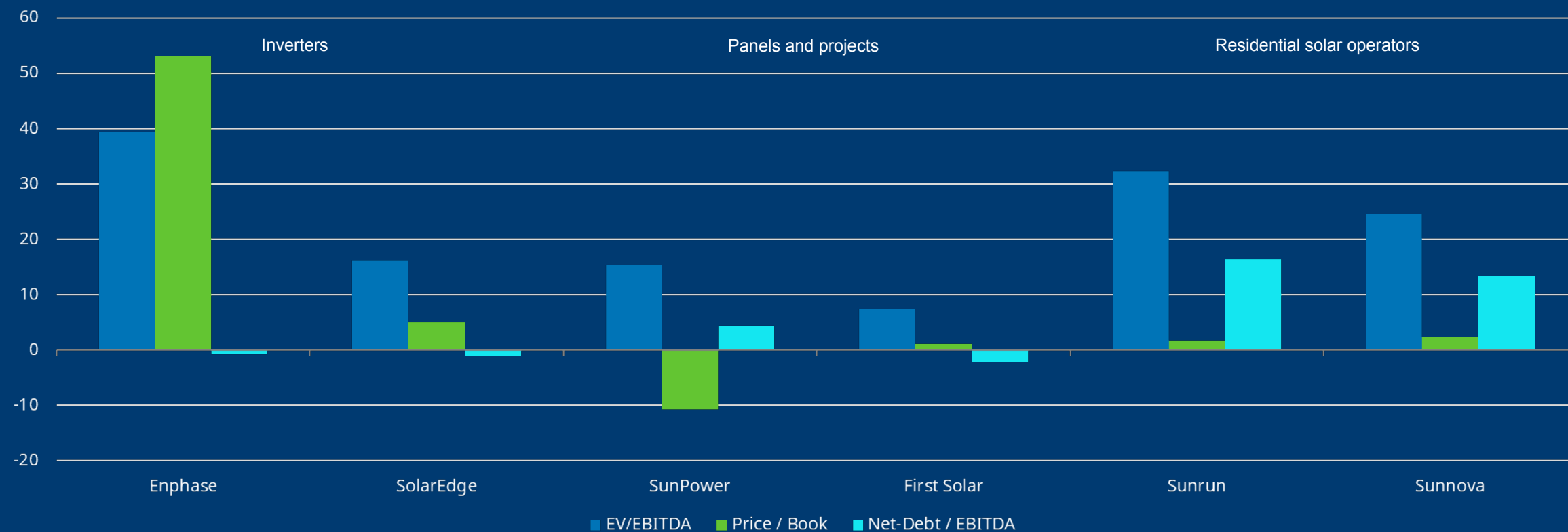


# Valuations in part of the solar market looked stretched

Finding sustainable value in the volatile solar market requires discipline

## Select US solar market valuation multiples

Multiples (X)

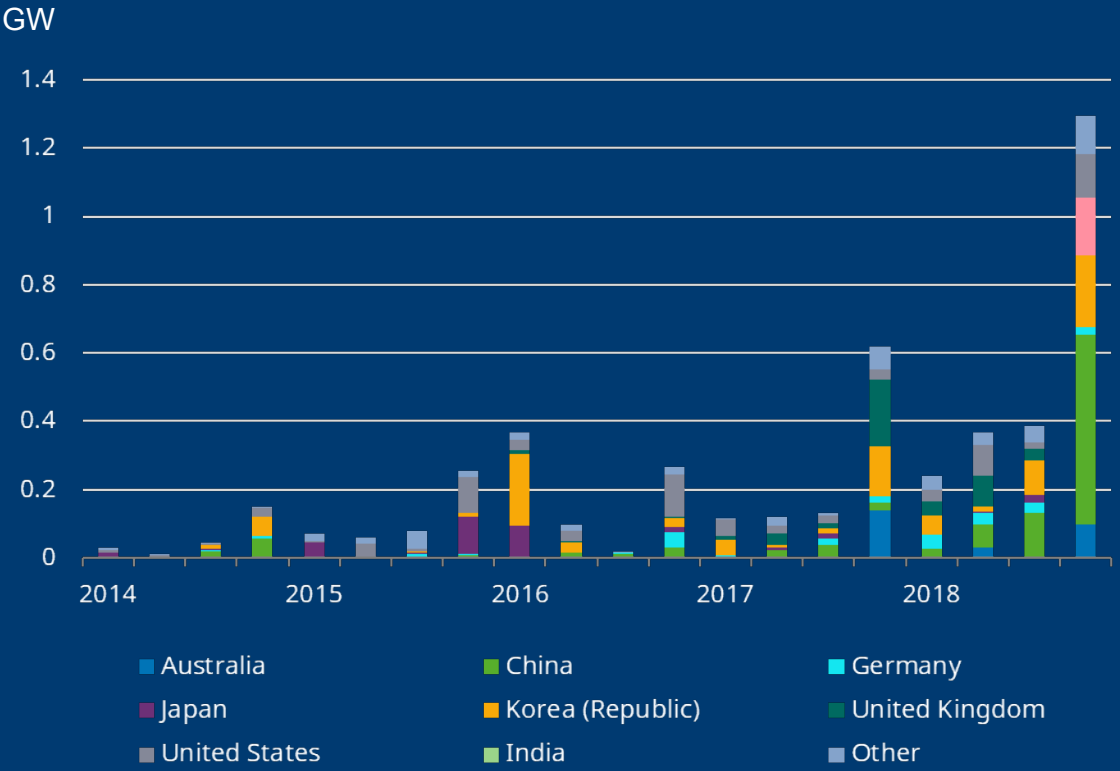


Source: Bloomberg, Schroders, as of August 2019.

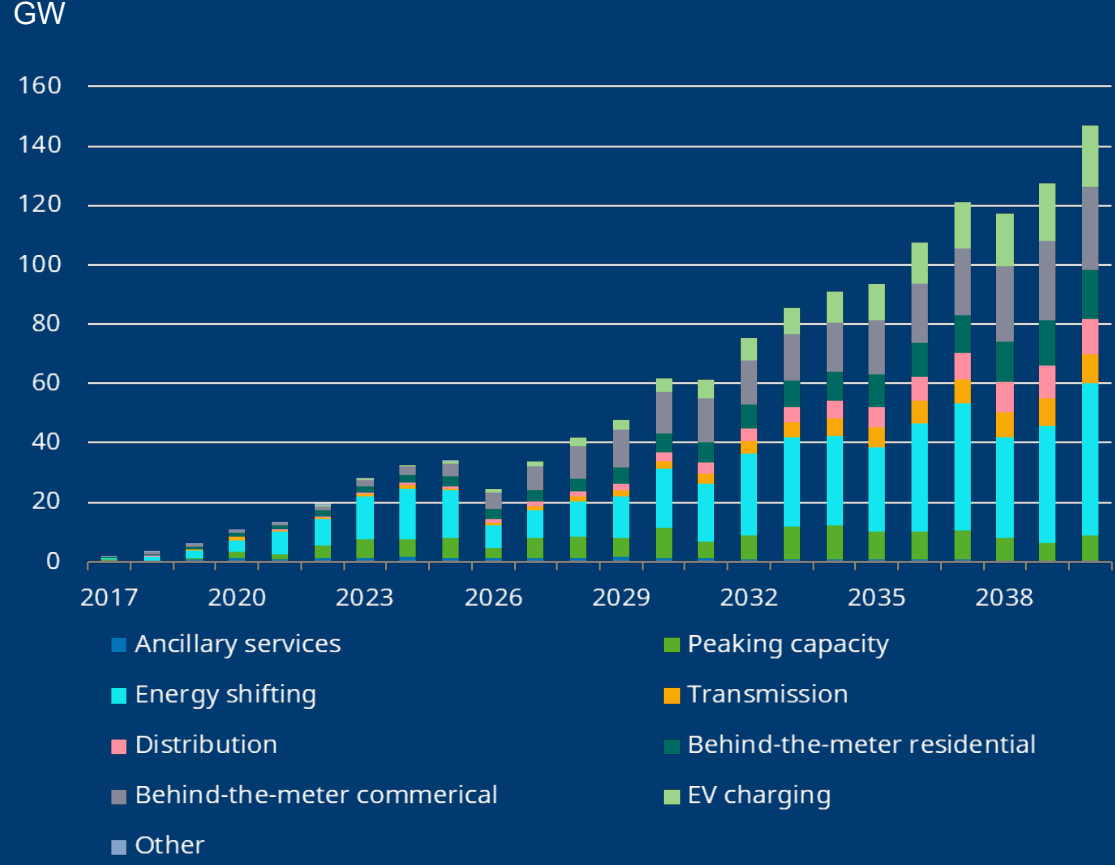
# Energy storage deployments are starting to accelerate

The long-term outlook for stationary energy storage is very robust

Quarterly energy storage additions



Projected annual storage deployments by application

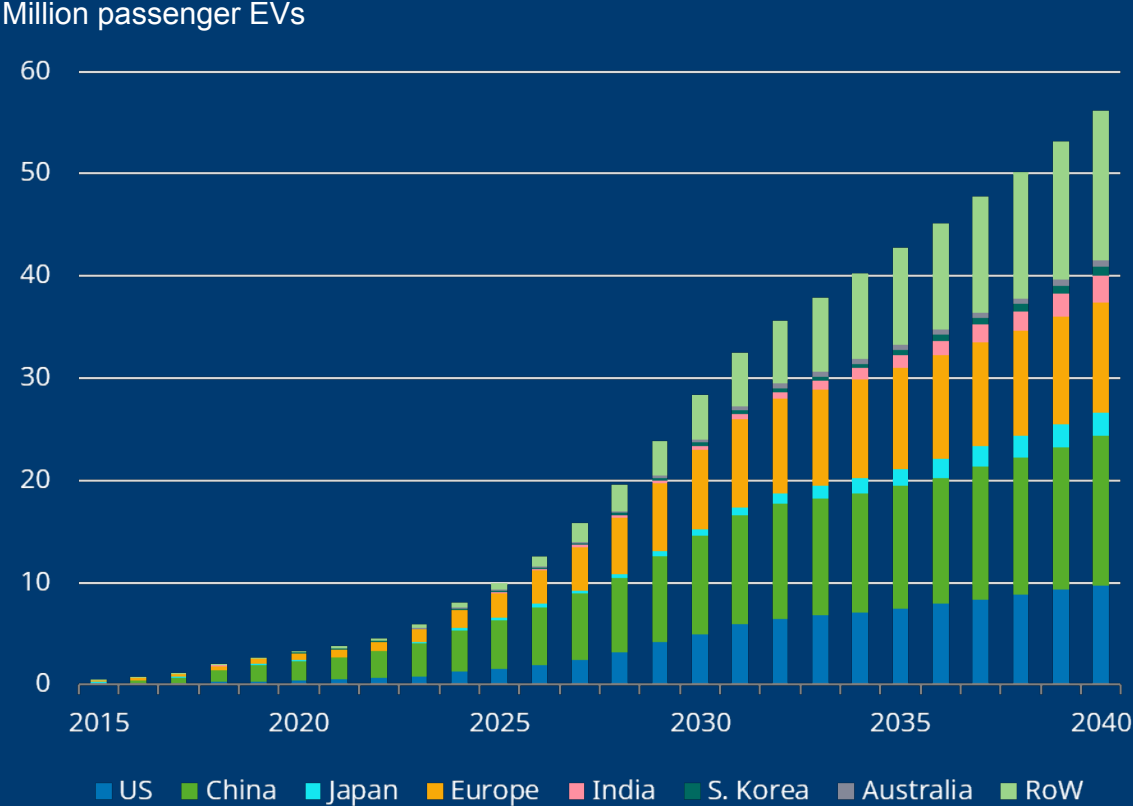


Source: BNEF, Schrodgers, as of August 2019.

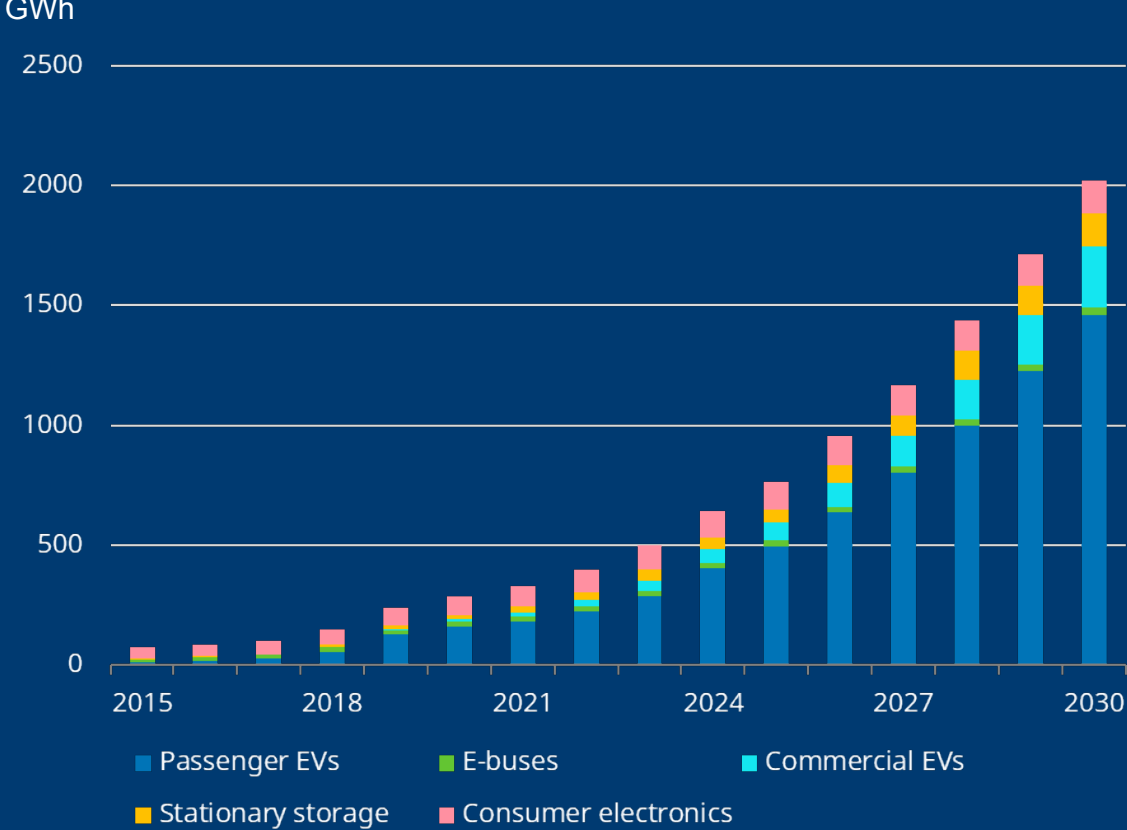
# EV battery demand is also poised to accelerate

Vehicle batteries currently dominate the energy storage landscape

### Annual passenger EV sales by region



### Annual lithium-ion battery demand globally



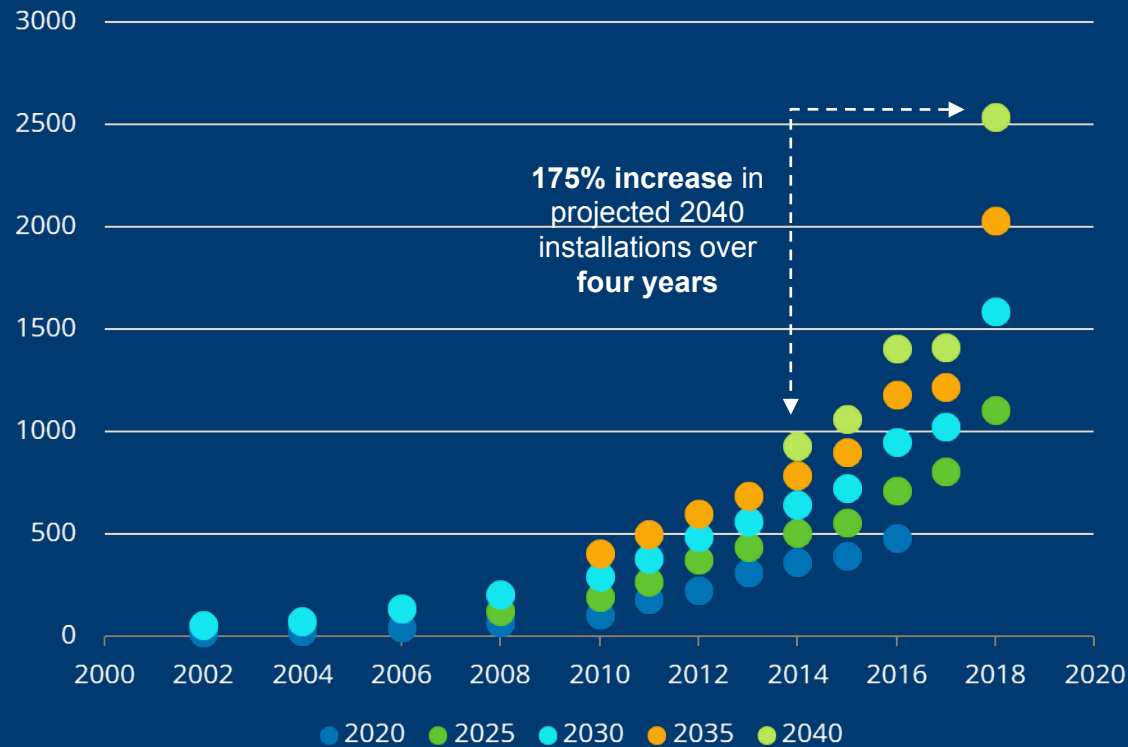
Source: BNEF, Schroders, as of August 2019.

# The speed of storage uptake is likely being underestimated

Projections for the adoption of transition technologies keep being revised upwards

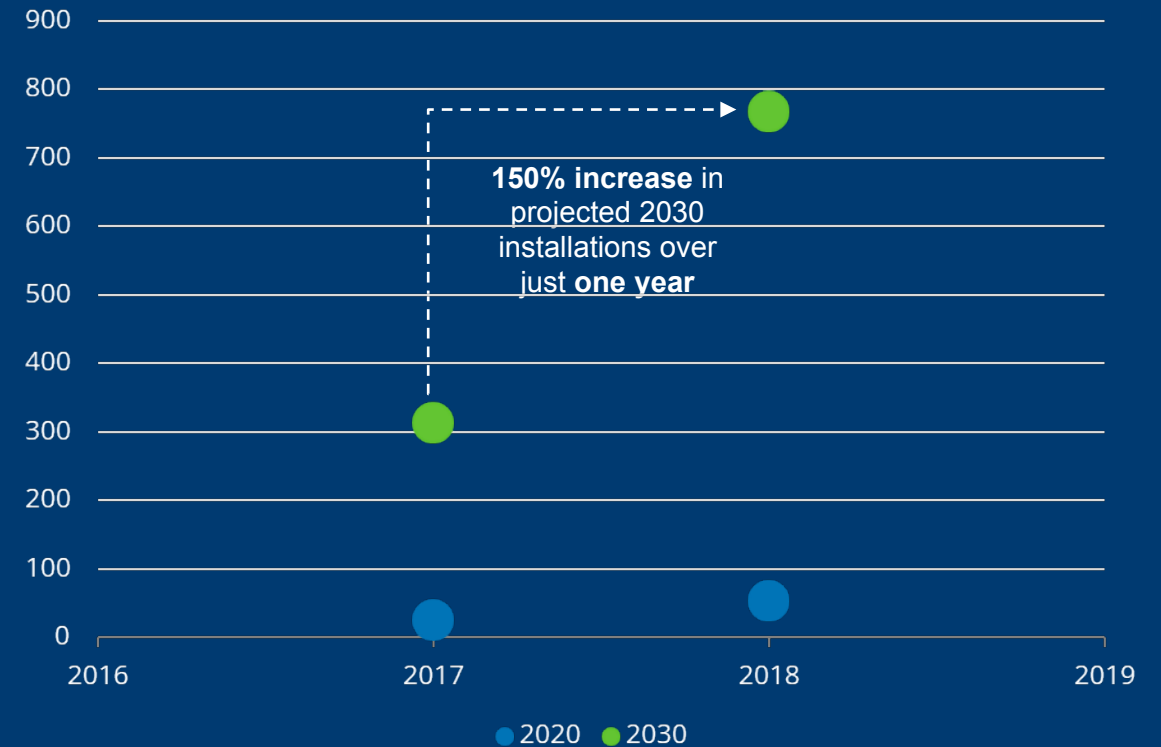
## Historic IEA projections for installed solar PV capacity

Projected cumulative solar PV capacity every year



## Historic BNEF projections for energy storage capacity

Projected cumulative energy storage capacity every year

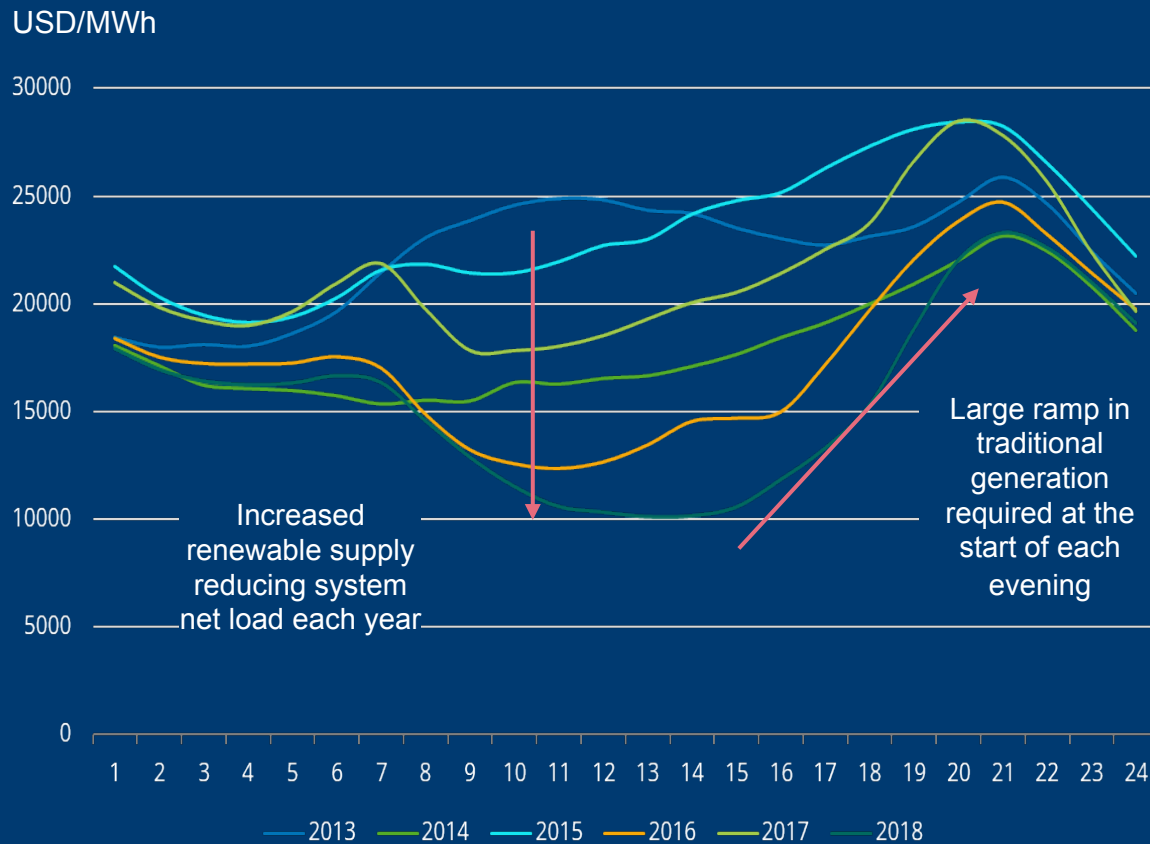


Source: IEA, Hoekstra, BNEF, Schrodgers, as of January 2019.

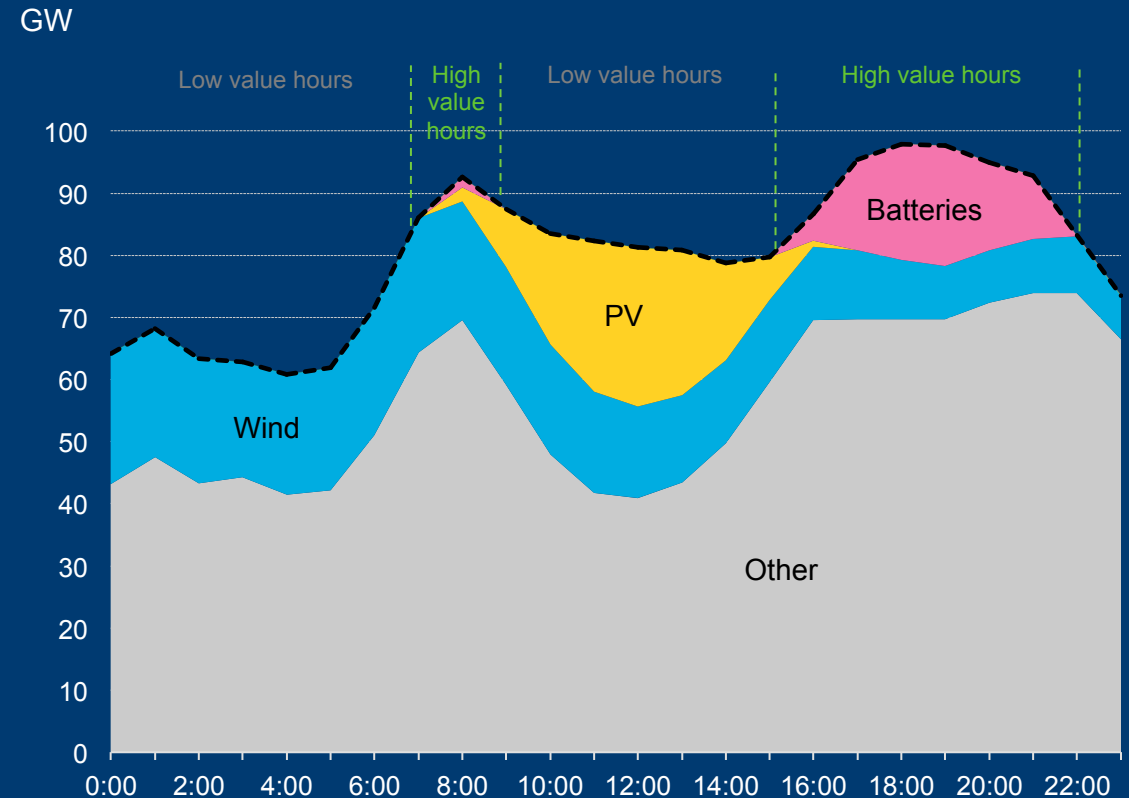
# Energy storage is required to manage variable load growth

The oversupply of cheap solar energy in the day results in volatile grid load over time

## Average net load in California in first week of May<sup>1</sup>



## Indicative energy dispatch by technology type

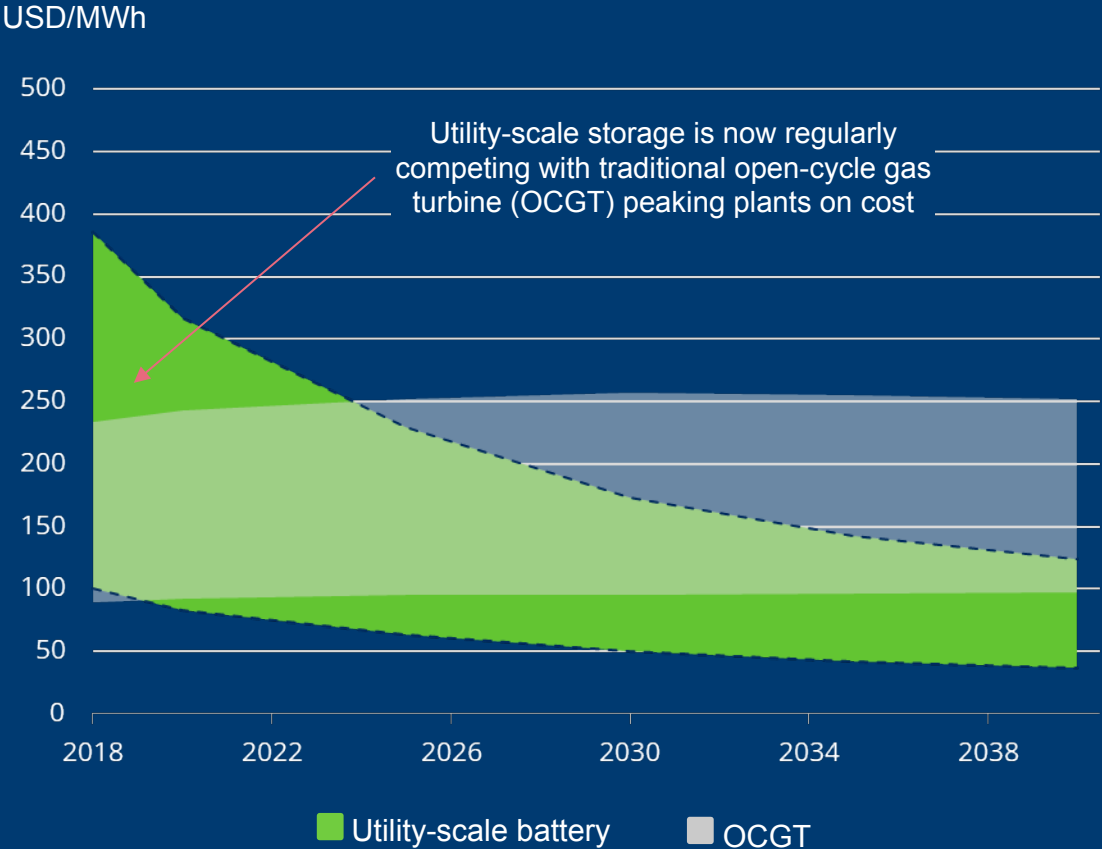


Source: CAISO, BNEF, Schrodgers, as of January 2019. <sup>1</sup>Net load represents the demand for power after deducting the supply of renewable energy.

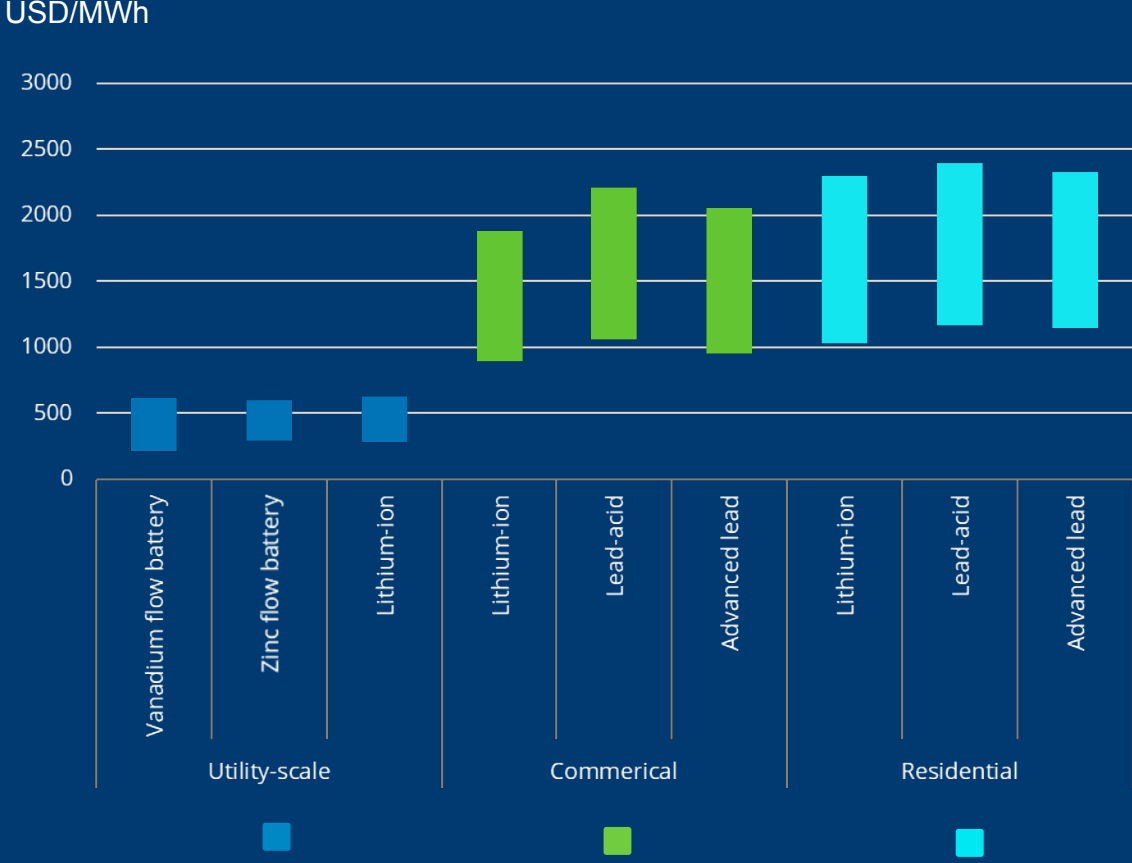
# Energy storage is becoming a cost-effective solution

Different technologies will play different roles at different scales

LCOE range of utility-scale storage vs gas peaker



LCOE range of energy storage by system size



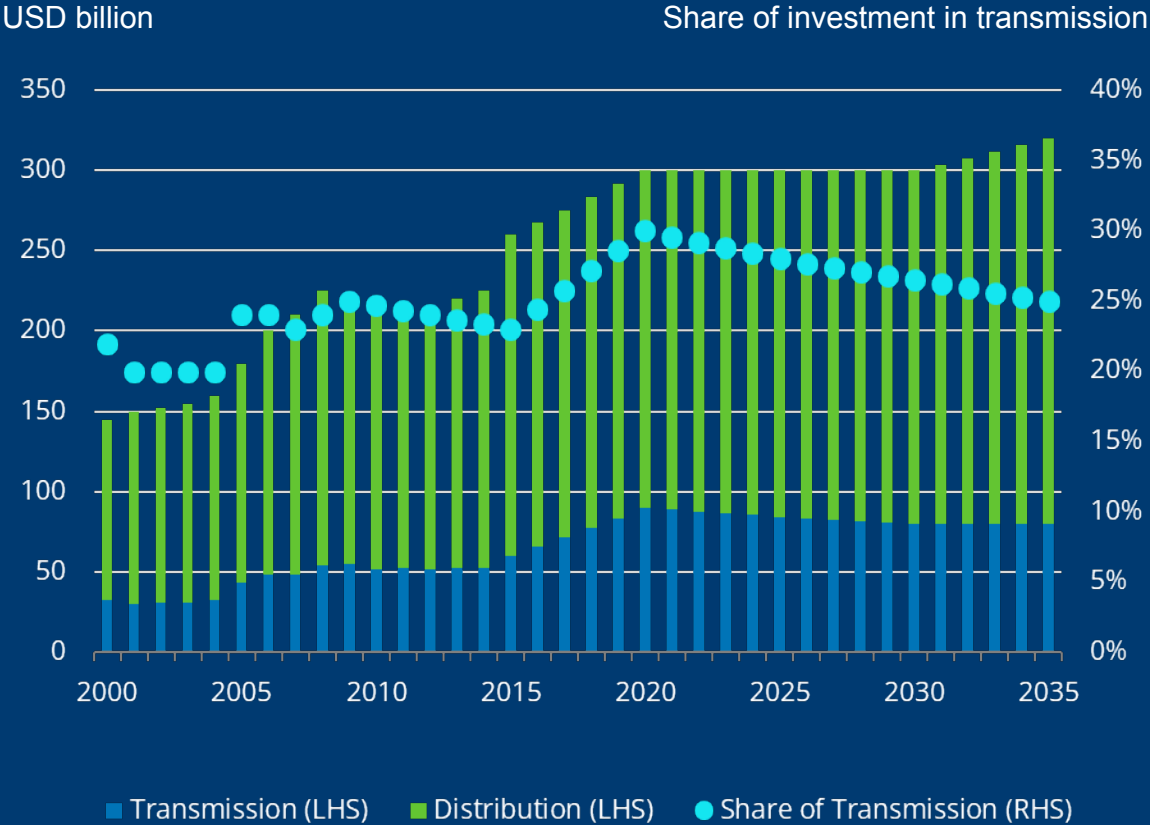
Source: BNEF, Lazard, Schroders, as of October 2018.



# Investment in the grid will occur in two phases

Transmission interconnectors provide a structurally supportive opportunity mid-term

## Projected annual investment in T&D



## Table of selected European interconnector projects

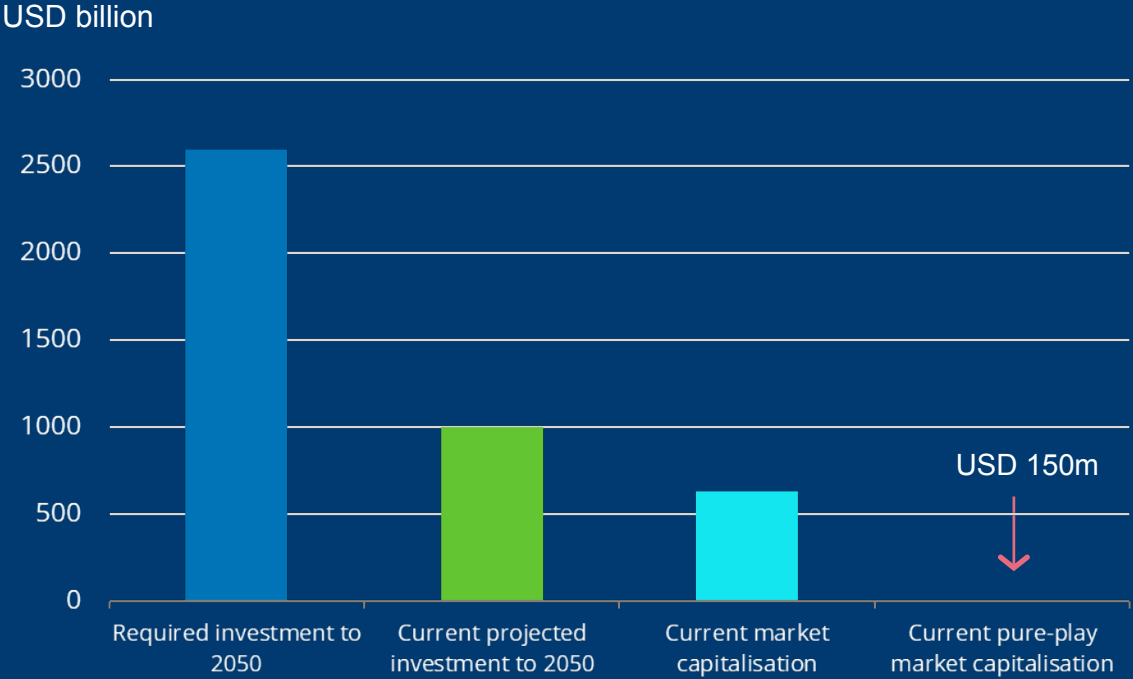
Cable installation year	Name	Capacity (MW)
2020	Viking Link	1400
2020	Greenlink	500
2020	Shetland HVDC Link	600
2021	NorthConnect	1400
2021	NeuConnect	1400
2021	Gridlink	1400
2022	Crete-Attica	1000
2023	Biscay Gulf	2000
2024	Marinus Link	1200

Source: BNEF, IRENA, Schrodgers, as of January 2019.

# Electric vehicles may need substantial charging infrastructure

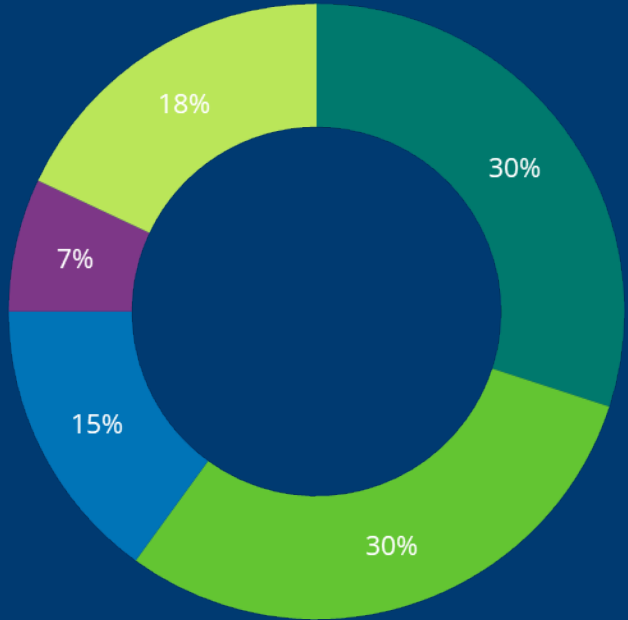
A diverse mix of companies could be involved in this capital spend

Cumulative investment vs. market capitalisation<sup>1</sup>



- Required investment to limit climate change to 2°C
- Projected investment under current policies
- Estimated industry market capitalisation
- Current pure-play company market capitalisation

Market share of charging point by sector



- Pure-play
- Utility
- Automotive
- Oil and Gas
- Other

Source: BNEF, IEA, Goldman Sachs, McKinsey, Berenberg, Wood Mackenzie, Schroders, as of January 2019. <sup>1</sup>Current projected investment based on existing policies. Required investment based on investment need to achieve 2°C climate targets.

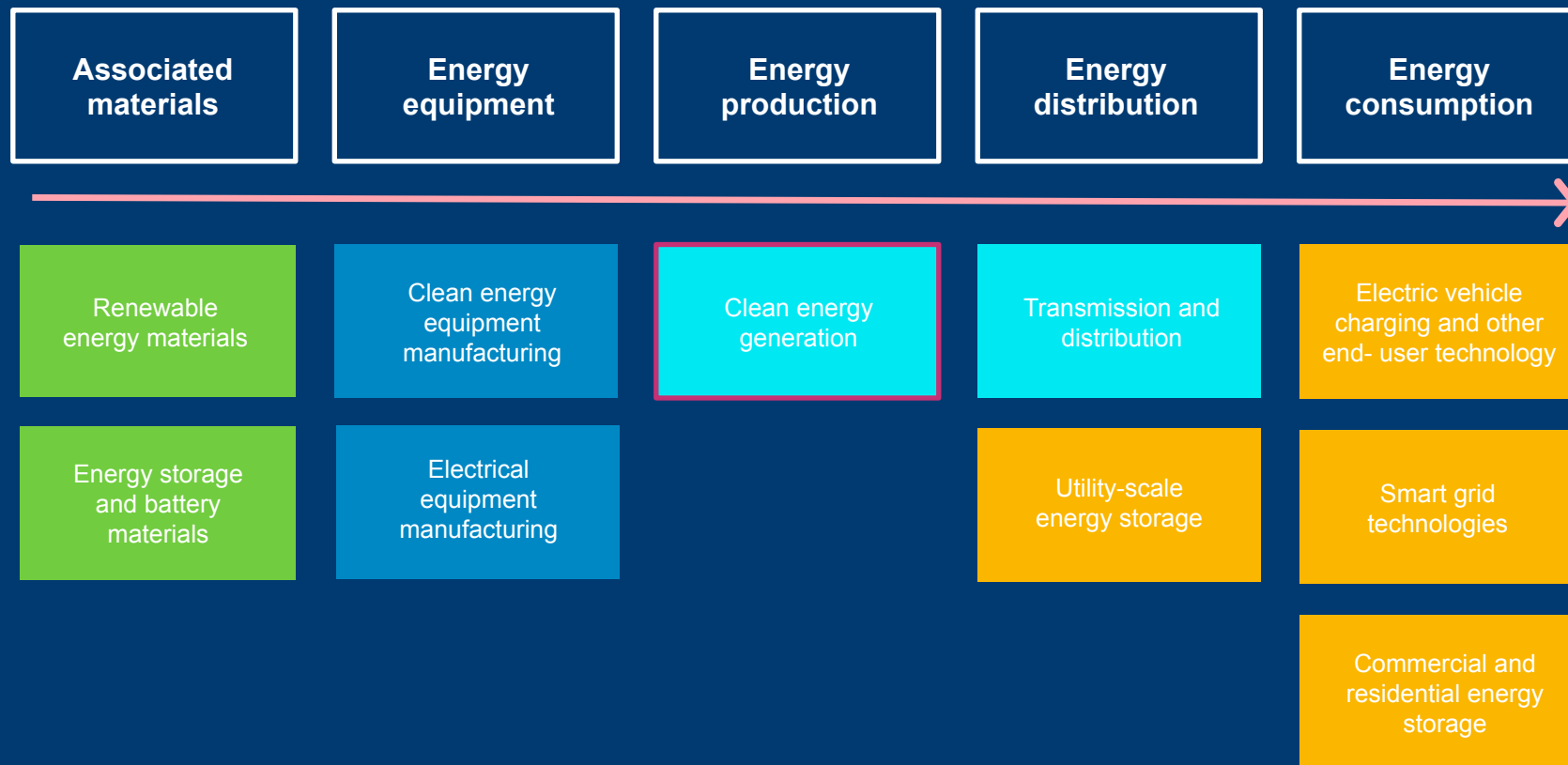


## Appendix 2

The fund

# Schroder ISF Global Energy Transition

## Investment proposition



■ Materials   
 ■ Industrials   
 ■ Utilities   
 ■ Technology

<sup>1</sup>SISF Global Energy Transition will not invest in companies with any exposure to fossil fuels or nuclear power, as defined by MSCI. Source: Schroders, as of August 2019.

# Schroder ISF Global Energy Transition

A thematic diversifier, targeting long term capital growth

## Fund objectives



Actively managed exposure to the energy transition sector



Target outperformance versus its stated comparators over the long run



Focussed only on those companies actively engaged in the shift towards a lower-carbon economy



Target outperformance versus competing funds over the long run

## Role in portfolios

1

As a long-term, sustainable growth play

2

As a source of equity diversification

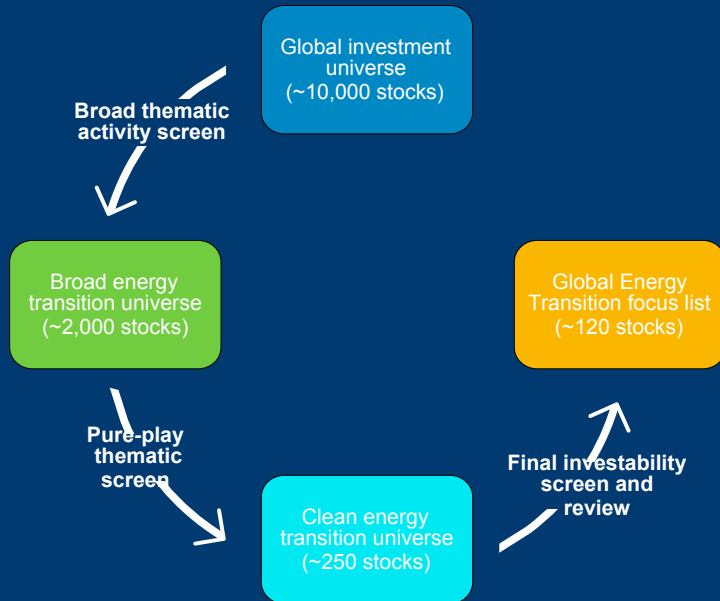
3

As a thematic investment, able to circumvent issues such as political and monetary policy challenges

# Schroder ISF Global Energy Transition

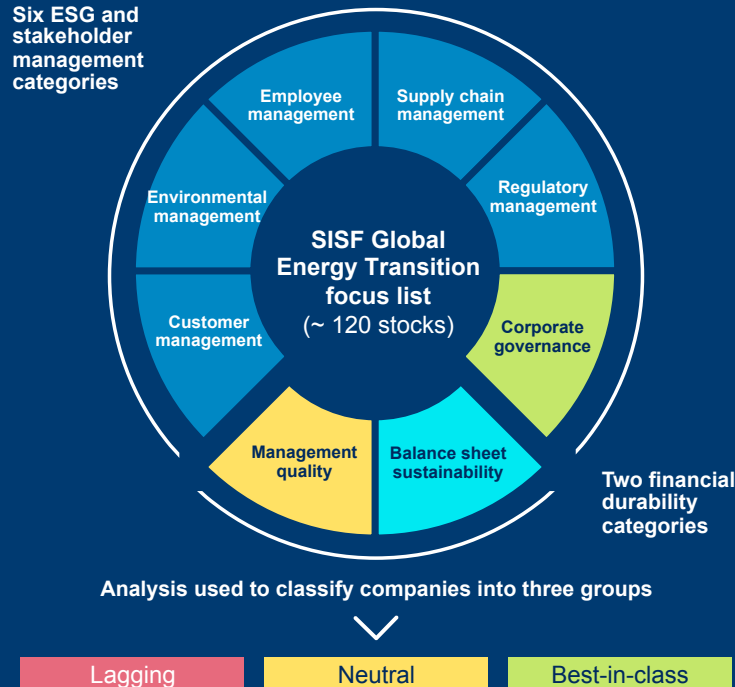
An established process with sustainability at its heart

## Construct proprietary thematic universe



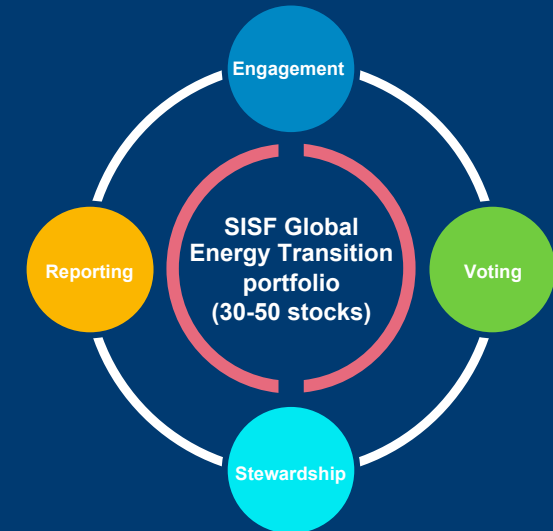
Proprietary screening tool uses financial and descriptive metrics to find companies most exposed and actively contributing to the sustainable energy transition.

## Analyse and value companies



The team create and maintain detailed financial models of focus list companies and use a combination of both DCF valuations and a bespoke GARP screen. Sustainability classification directly impacts valuation.

## Construct portfolio and manage portfolio



High conviction, unconstrained thematic portfolio with global reach. No shorting or leverage. Maximum cash 30%

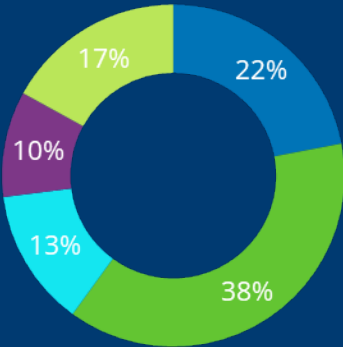


# Schroder ISF Global Energy Transition

A well-diversified thematic investment universe<sup>1</sup>

## Sub-sector spread

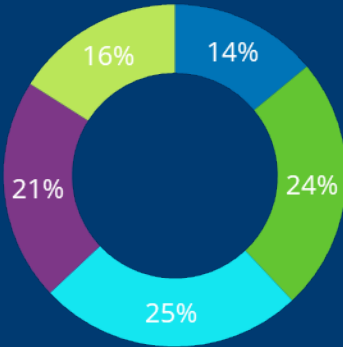
% share



- Renewable Energy Equipment
- Renewable Energy Generation
- Transmission and Distribution
- Energy Storage and Other Equipment
- Electrical Equipment and Services

## Market capitalisation spread

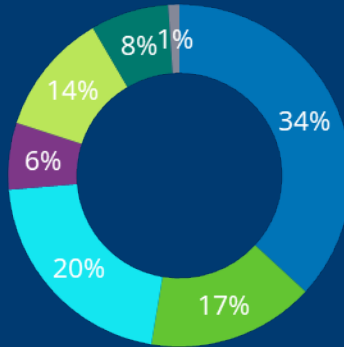
% share



- >10 Billion
- >2 Billion
- >1 Billion
- >500 Million
- <500 Million

## Regional spread

% share



- Europe
- China
- US
- Canada
- Other APAC
- Latin America
- Other

<sup>1</sup>Represents share of focus list companies, which is reflective of the investment universe. Source: Schroders, as of August 2019.

# SISF Global Energy Transition

Building and maintaining detailed individual company models

Valuation and financial model inputs



Full financial history (T-10 years)



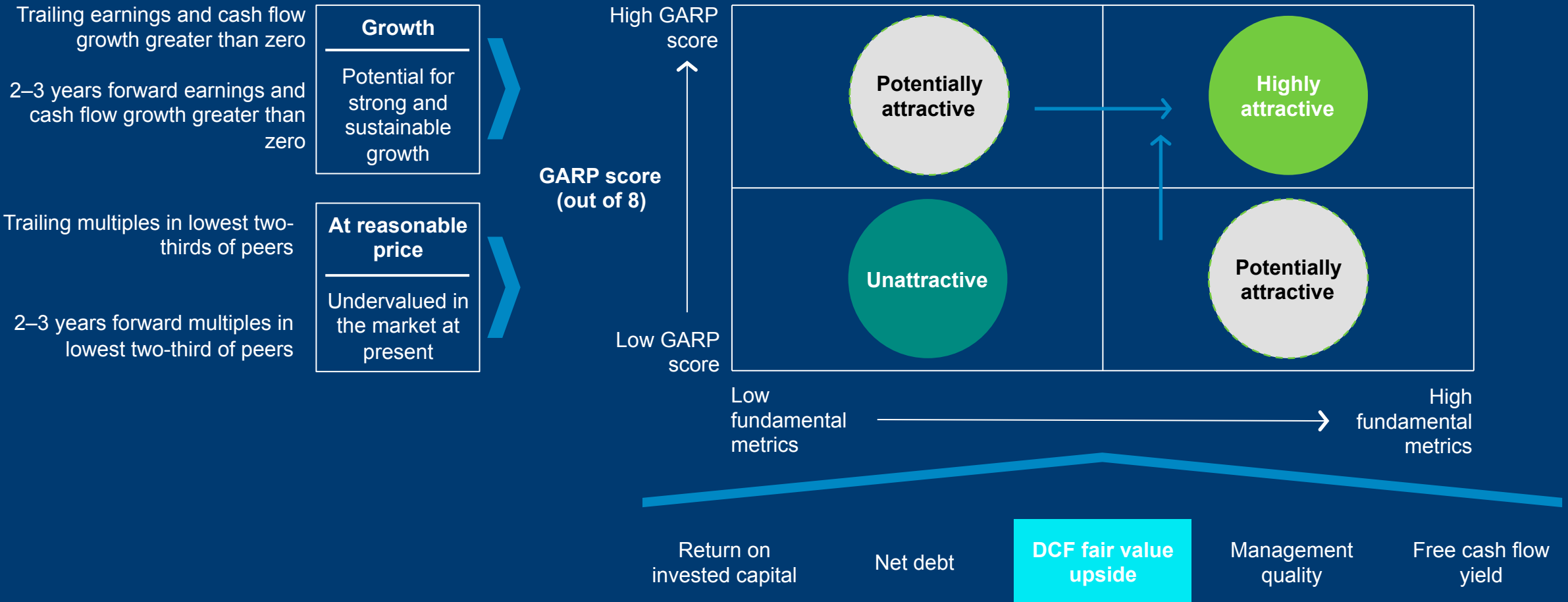
Valuation and financial model outputs



Source: Schrodgers, as of August 2019.

# Schroder ISF Global Energy Transition

Finding strong and sustainable growth at attractive entry points



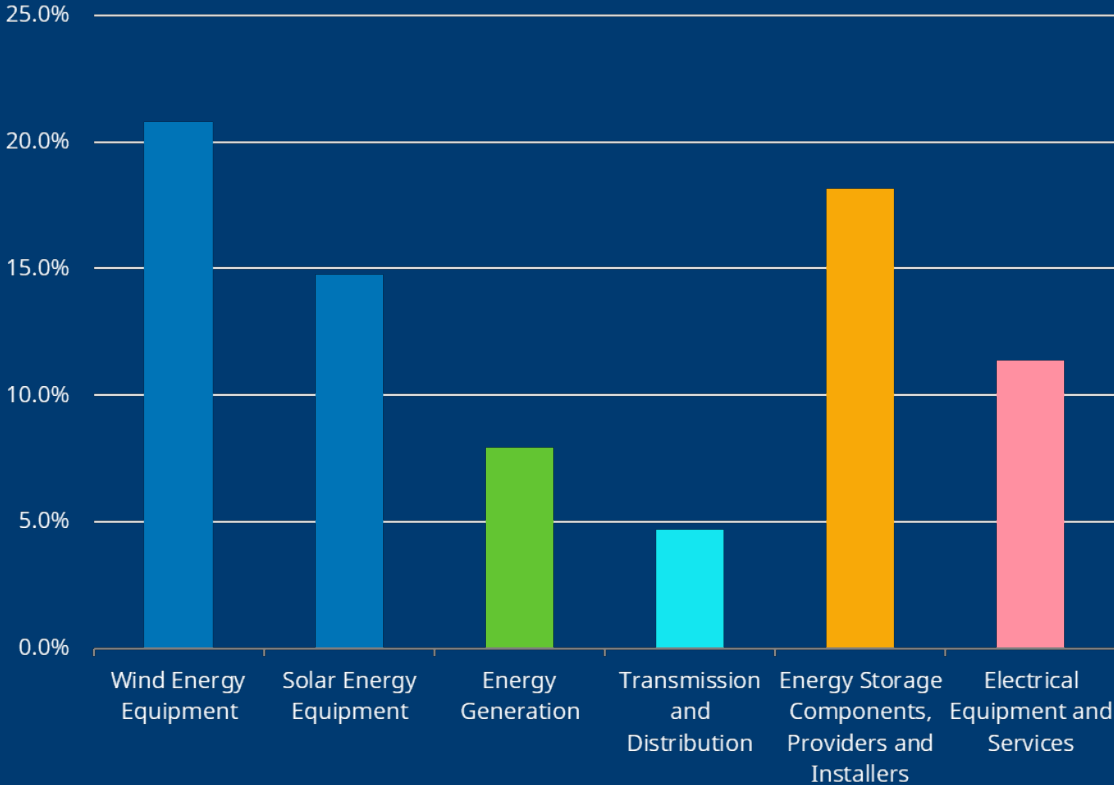
Source: Schroders, as of August 2019.

# Schroder ISF Global Energy Transition

Currently positioned in associated markets rather than renewable energy generation

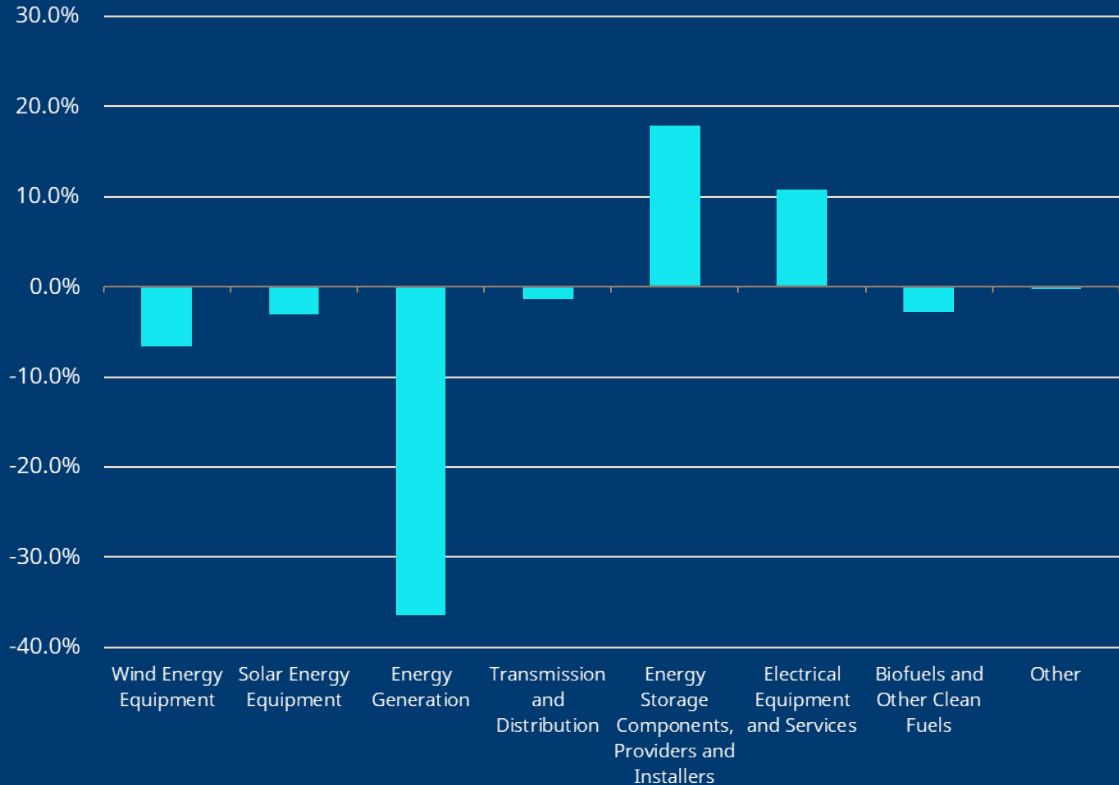
## Absolute exposures to energy transition sub-sectors

Portfolio weight (%)



## Relative exposure vs MSCI GEAE comparator

Relative weight (%)



Source: Bloomberg, Schroders, as at November 6<sup>th</sup> 2019.



## Appendix 3

Investment resources and process

# Team Biographies



**Mark Lacey**

**Head of Commodities and Resources – Fund Manager**

- Head of Schroders Global Commodities Strategy
- Lead fund manager for the Global Commodities strategy, Schroder ISF Global Energy and co fund manager of Schroder ISF Global Gold
- Formerly portfolio manager of Investec Global Energy funds
- Formerly Head of global energy at Goldman Sachs
- Was previously ranked as #1 energy investment specialist in Thompson Eitel survey
- Career commenced in 1996 at Credit Suisse Asset Management, managing gold and resources funds



**Alex Monk**

**Global Renewables Analyst**

- Investment career commenced at Schroders in 2016
- Previously sustainable investment analyst covering global utilities and telecommunications
- BA (Hons) Geography from Oxford University. Specific focus on climate science and policy.
- MSc Environmental Policy and Regulation from the London School of Economics and Political Science



**Felix Odey**

**Global Energy and Renewables Analyst**

- Current lead analyst on the Schroders Global Energy Fund
- Investment career commenced at Schroders in 2016
- Previously interned as equities analyst at Egerton Capital
- MA (Hons) Philosophy and Psychology from Edinburgh University

# Schroders commodity and resource equities funds

A well-fitting addition to the existing portfolio of resource funds

Fund	Launch date	Vehicles	Performance objective	Assets	Style
Schroder AS <sup>1</sup> Commodity Fund	2005	Part II SICAV, US LP	Index plus	Mainly futures	Long only, unconstrained
Schroder ISF Global Energy Transition	2019	UCITS SICAV	Index plus	Equities	Long only, unconstrained
Schroder ISF Global Energy	2006	UCITS SICAV	Index plus	Equities	Long only, unconstrained, high beta
Schroder ISF Global Gold	2016	UCITS SICAV	Index plus	Equities	Long only, unconstrained

<sup>1</sup>Schroder Alternative Selection is referred to as Schroder AS throughout this presentation.  
Source: Schroders, as of August 2019.

# Schroder ISF Global Energy Transition

Clear valuation screens using consistent investment tool<sup>1</sup>

Renewable Energy Equipment																											Schroders							
Company	Valuation						Multiples						Return						Gearing			Yield												
	Name	Last Price	DCF Target	Upside	GARP Score	WACC	Fair Multiple	Sustainability Classification	Market Cap (USDm)	Enterprise Value (USDm)	Price / Earnings		EV / EBITDA		Price / Book		Return on Equity (ROE)			Return on Invested Capital (ROIC)			Cash Return on Invested Capital (CROCI)			EBITDA Margin			Current Cost of Debt	Net-Debt / Equity		Clean Cash Flow Yield		Dividend Yield
										2019	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020	
Siemens Gamesa	14.96	22.31	49%	4	7.0%	10.0	Best-in-class	11,421	10,815	39.30	19.99	8.34	6.46	1.68	1.58	14.7%	4.3%	7.9%	19.6%	6.3%	7.8%	9.2%	5.0%	7.8%	11.8%	11.6%	13.4%	2.6%	(2.7%)	(11.4%)	6.7%	10.8%	0.6%	1.3%
Vestas Wind Systems	570.00	780.12	37%	3	7.0%	12.0	Best-in-class	16,923	13,513	20.12	16.44	9.84	8.11	4.94	4.08	18.3%	24.6%	24.8%	21.7%	18.9%	22.2%	15.3%	15.1%	16.3%	14.5%	12.6%	13.5%	2.8%	(43.1%)	(48.4%)	8.2%	9.6%	1.5%	1.8%
Nordex	13.55	18.26	35%	2	8.0%	7.0	Best-in-class	1,476	1,508	(33.77)	110.53	8.96	5.30	1.87	1.84	6.8%	(5.5%)	1.7%	8.6%	(2.3%)	2.5%	6.5%	3.9%	5.4%	7.4%	3.7%	5.4%	6.5%	(34.8%)	(41.5%)	9.4%	13.6%	0.0%	0.0%
Senvion	0.86	1.24	44%	3	13.0%	3.0	Lagging	63	246	(1.17)	(1.33)	(0.74)	(0.64)	0.37	0.52	19.8%	(32.0%)	(39.1%)	20.4%	(20.1%)	(22.1%)	4.7%	4.1%	4.0%	6.6%	5.7%	5.7%	3.8%	(80.2%)	(105.6%)	150.4%	153.8%	0.0%	0.0%
Xinjiang Goldwind	8.20	15.05	84%	6	9.5%	8.0	Neutral	3,883	6,628	7.68	6.33	8.17	7.07	1.06	0.94	12.2%	13.9%	14.9%	6.2%	8.3%	8.5%	9.2%	10.2%	11.1%	12.8%	20.0%	23.1%	3.7%	87.4%	96.2%	19.5%	24.1%	3.2%	3.3%
TPI Composites	24.37	38.04	56%	3	8.0%	9.0	Neutral	845	897	(316.02)	10.28	12.78	5.43	3.86	2.81	11.2%	(1.2%)	27.3%	21.5%	6.1%	19.0%	11.7%	7.1%	20.2%	10.5%	4.9%	10.0%	7.6%	23.7%	31.3%	4.6%	15.9%	0.0%	0.0%
Sif Holding	10.88	14.57	34%	4	8.5%	7.0	Neutral	312	346	13.22	12.33	6.60	5.73	3.32	2.84	42.5%	25.1%	23.0%	33.4%	19.9%	22.2%	32.9%	21.5%	21.7%	16.8%	17.2%	17.1%	2.9%	36.4%	11.6%	13.5%	14.6%	2.9%	3.0%
Wind Equipment Manufacturers			48%	4	8.7%	8.0		4,989	4,850	(38.7)	24.9	7.7	5.4	2.4	2.1	17.9%	4.1%	8.6%	18.8%	5.3%	8.6%	12.8%	9.6%	12.4%	11.5%	10.8%	12.6%	4.3%	(1.9%)	(9.7%)	30.3%	34.6%	1.2%	1.3%
First Solar	59.99	88.30	47%	4	8.0%	10.0	Best-in-class	6,292	4,212	23.51	16.43	12.27	8.05	1.23	1.15	3.0%	5.2%	7.0%	6.0%	4.4%	6.0%	6.7%	5.9%	7.5%	18.5%	12.3%	15.6%	5.5%	(30.2%)	(28.1%)	6.8%	9.4%	0.0%	0.0%
SunPower	8.20	7.96	(3%)	3	8.5%	9.0	Neutral	1,158	1,800	(10.05)	(43.35)	21.65	13.03	(5.60)	(4.96)	(136.6%)	55.6%	11.4%	(3.7%)	(8.0%)	3.1%	(13.6%)	1.3%	3.3%	1.9%	4.6%	6.8%	2.4%	(282.5%)	(241.6%)	3.1%	8.1%	0.0%	0.0%
Canadian Solar	19.12	24.40	28%	6	8.0%	8.0	Lagging	1,118	2,513	19.91	6.22	10.91	6.80	0.92	0.80	15.9%	4.6%	12.9%	6.1%	3.2%	6.3%	6.4%	4.7%	7.5%	10.7%	11.1%	12.0%	4.9%	142.0%	122.9%	17.2%	29.4%	0.0%	0.0%
JinkoSolar	18.61	21.59	16%	4	8.0%	8.0	Lagging	730	2,575	10.74	10.36	9.25	8.60	0.64	0.60	14.1%	5.9%	5.8%	6.7%	3.1%	3.2%	7.9%	5.1%	5.1%	10.7%	6.6%	6.6%	2.0%	153.1%	149.3%	30.8%	33.3%	0.0%	0.0%
LONGi Green Energy Technology	23.36	25.20	8%	6	9.5%	12.0	Neutral	11,747	13,055	23.49	15.45	14.83	10.29	4.63	3.67	12.2%	19.7%	23.8%	9.1%	12.7%	17.4%	8.1%	14.4%	18.3%	16.9%	19.3%	21.0%	5.3%	26.6%	10.3%	6.1%	8.7%	0.6%	0.8%
GCL-Poly Energy Holdings	0.51	0.63	24%	2	8.5%	8.0	Neutral	1,191	9,739	120.86	61.87	13.49	12.25	3.21	3.06	8.0%	2.7%	4.9%	5.1%	3.4%	4.0%	8.8%	6.6%	6.9%	32.2%	42.5%	42.4%	7.1%	227.2%	213.3%	83.1%	92.7%	0.0%	0.0%
OCI	89100.00	112398.33	26%	5	9.0%	8.0	Best-in-class	1,789	2,217	16.16	10.76	5.47	4.52	0.62	0.59	1.1%	3.8%	5.5%	(0.8%)	3.3%	4.5%	2.1%	5.0%	5.6%	14.9%	15.8%	16.5%	3.3%	17.6%	12.9%	20.7%	24.1%	2.2%	2.2%
Daqo New Energy	34.41	42.46	23%	5	11.0%	5.0	Lagging	457	571	2.38	1.60	1.88	1.00	0.19	0.17	0.3%	8.1%	10.7%	5.2%	6.4%	8.8%	3.6%	11.0%	16.0%	31.0%	36.0%	42.7%	5.4%	21.6%	14.9%	26.7%	45.1%	0.0%	0.0%
Wacker Chemie	72.38	96.95	34%	5	9.5%	8.0	Best-in-class	4,040	4,778	15.17	11.73	8.42	7.59	1.27	1.24	11.1%	8.4%	10.6%	5.3%	5.9%	7.7%	10.0%	7.0%	7.1%	19.6%	16.0%	16.9%	2.2%	31.4%	25.9%	20.5%	21.7%	6.5%	6.9%
REC Silicon	0.68	0.28	(59%)	3	13.0%	7.0	Lagging	198	297	(7,939.22)	(9,227.77)	11,897.08	11,493.66	2,264.86	3,001.57	(24.1%)	(28.5%)	(32.5%)	(10.7%)	(3.4%)	(1.3%)	(3.4%)	0.0%	(0.1%)	5.1%	9.0%	8.8%	11.5%	93.3%	129.4%	0.3%	(0.7%)	0.0%	0.0%
Xinyi Solar	4.33	3.98	(8%)	5	9.0%	10.0	Neutral	4,226	5,451	14.89	12.30	11.49	9.62	3.34	2.87	20.8%	22.4%	23.3%	11.5%	12.1%	13.3%	15.8%	14.4%	15.3%	30.9%	42.1%	43.8%	2.9%	76.5%	67.9%	9.4%	11.3%	2.7%	3.3%
SolarEdge Technologies	53.01	64.74	22%	6	9.0%	10.0	Best-in-class	2,441	2,079	20.50	14.76	13.42	9.00	4.48	3.44	19.0%	21.9%	23.3%	(387.2%)	20.4%	26.3%	0.2%	20.3%	25.5%	6.8%	15.6%	18.6%	0.0%	(51.6%)	(56.2%)	6.1%	8.7%	0.0%	0.0%
Enphase Energy	14.02	14.40	3%	2	8.0%	10.0	Neutral	1,501	1,504	36.76	26.89	24.56	17.21	109.42	21.59	(965.8%)	297.7%	80.3%	(63.8%)	60.2%	80.4%	(15.5%)	19.5%	25.2%	(5.5%)	14.1%	16.1%	4.0%	(69.1%)	(100.3%)	3.5%	4.6%	0.0%	0.0%
SMA Solar	18.93	25.45	34%	3	9.5%	10.0	Best-in-class	738	403	29.41	24.82	9.74	8.56	1.55	1.50	(5.8%)	5.3%	6.0%	(1.8%)	4.6%	5.3%	4.3%	4.8%	5.2%	8.2%	9.2%	9.0%	0.0%	(28.6%)	(28.7%)	10.9%	12.3%	1.9%	2.0%
Meyer Burger	0.67	0.71	6%	3	13.0%	9.0	Neutral	414	380	62.58	17.24	10.34	6.19	2.30	2.03	(50.1%)	3.7%	11.8%	(20.6%)	5.8%	13.9%	(8.3%)	4.0%	6.1%	(21.8%)	7.3%	9.2%	6.4%	(18.8%)	(35.1%)	6.8%	10.5%	0.0%	0.0%
Solar Equipment Manufacturers			14%	4	9.2%	8.8		2,688	3,657	(544.0)	(647.0)	861.0	829.3	170.8	216.9	(73.3%)	30.9%	13.8%	(29.5%)	9.2%	13.2%	3.0%	8.6%	10.6%	14.4%	18.2%	19.8%	4.0%	23.4%	20.9%	17.5%	22.1%	1.0%	1.1%

<sup>1</sup>Example only. Source: Schroders, as of May 2019. For illustrative purposes only and should not be viewed as a recommendation to buy or sell.



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