



## **SEEING IS BELIEVING?**

UKCCSRC, Glasgow

8 September 2015

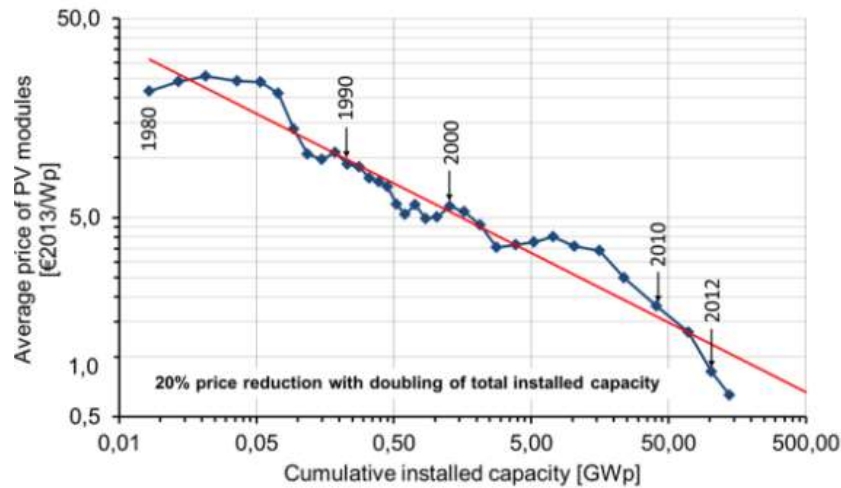
Phil Hare, Director

# DELIVERING ON PROMISES OF COST REDUCTION...



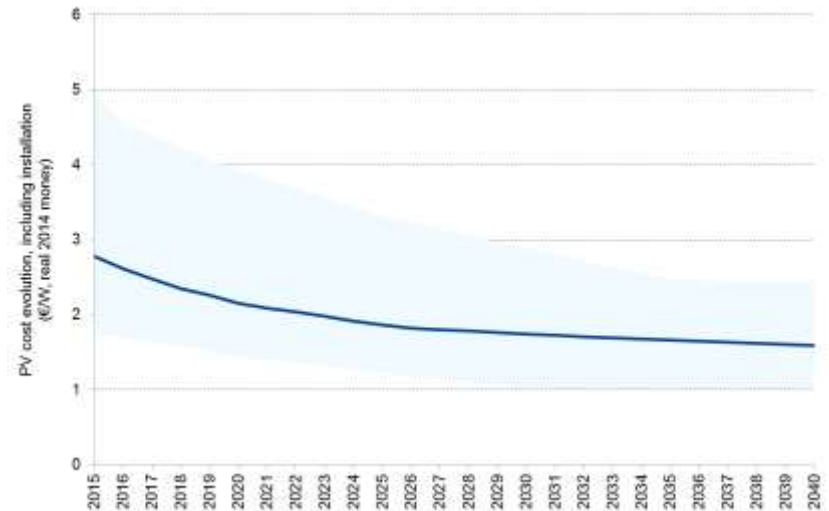
# PHOTOVOLTAICS...

## The road so far...



Source: Fraunhofer Institute

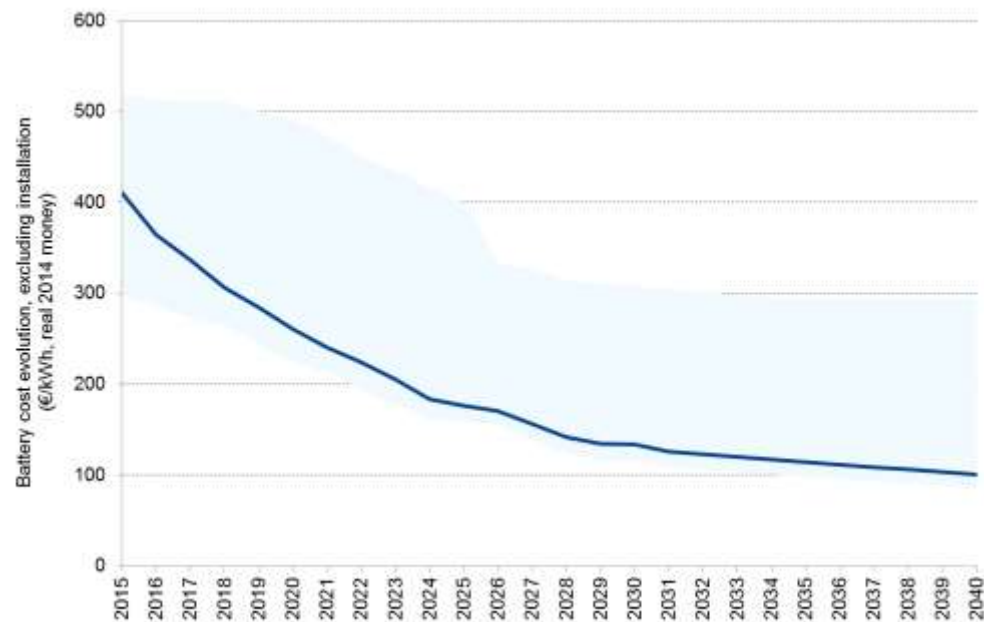
## Future cost evolution



Source: Pöry, BNEF, IRENA, EPA, NREL, Black & Veatch, DOE, DECC, STA

# BATTERIES...

## Li-ion cells (€/kWh, 2014 money)



Source: Pöry, BNEF, EIA, Navigant, McKinsey, Tesla, Nature Climate Change

# CFD AUCTION ROUND 1



Department  
of Energy &  
Climate Change

Technology		2015/16	2016/17	2017/18	2018/19	Total Capacity (MW)
Advanced Conversion Technologies	£/MWh			119.89	114.39	
	MW			36	26	62
Energy from Waste with Combined Heat and Power	£/MWh				80	
	MW				94.75	94.75
Offshore wind	£/MWh			119.89	114.39	
	MW			714	448	1162
Onshore wind	£/MWh		79.23	79.99	82.5	
	MW		45	77.5	626.05	748.55
Solar PV	£/MWh	50	79.23			
	MW	32.88	38.67			71.55

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# OFFSHORE WIND...



# FIRM PROMISE...OR ASPIRATION?

Reducing the cost of offshore wind to £100/MWh by 2020 is achievable

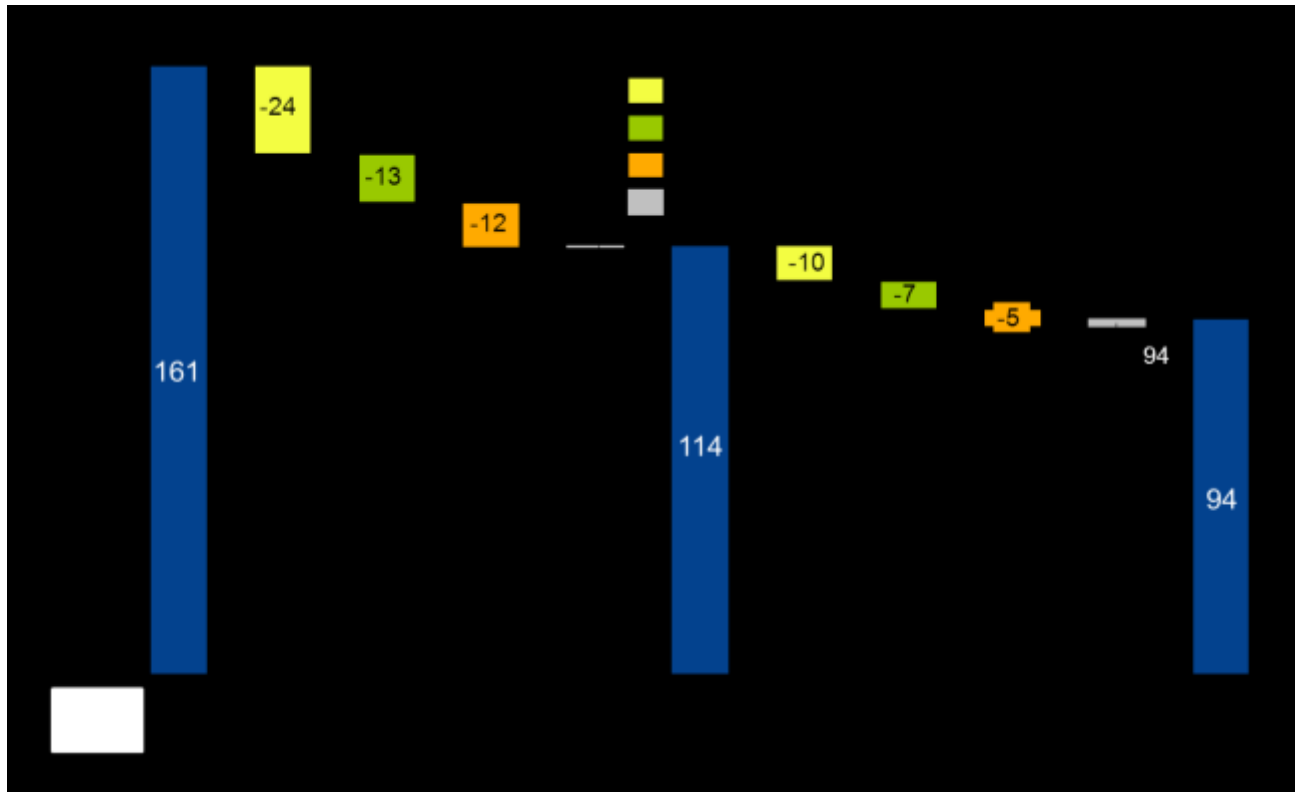


CCS...



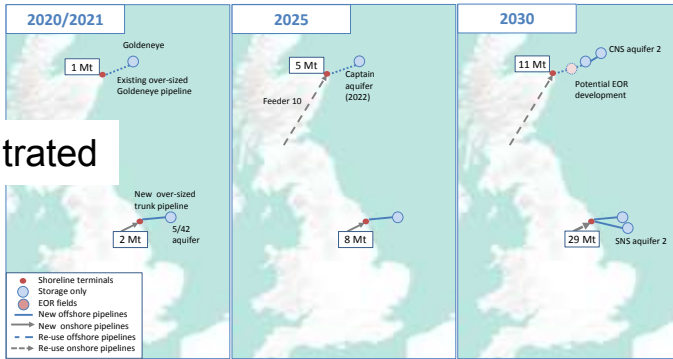


# COST REDUCTION TASK FORCE SET EXPECTATIONS

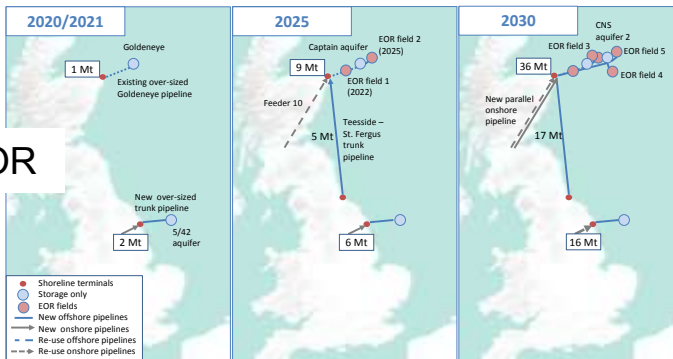


# PUTTING FLESH ON THE BONES – ROLL OUT SCENARIOS

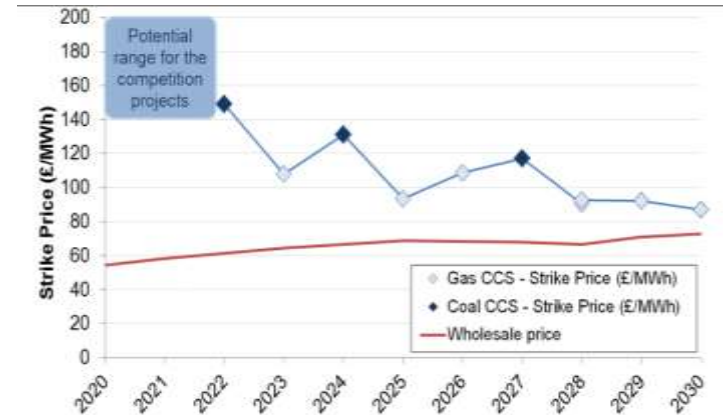
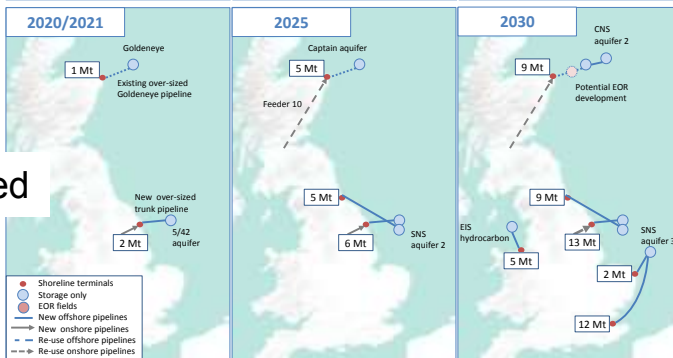
## Concentrated



## CO<sub>2</sub>-EOR



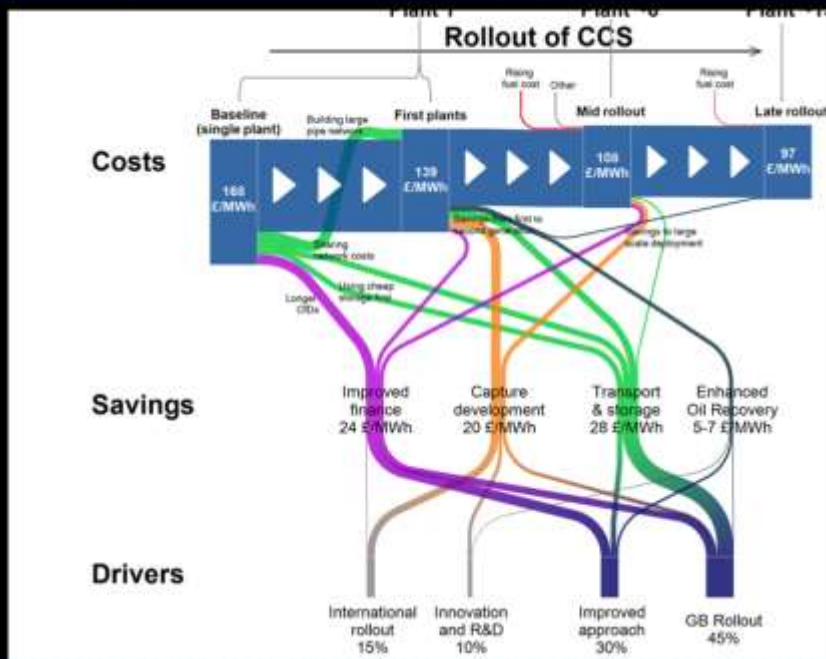
## Balanced



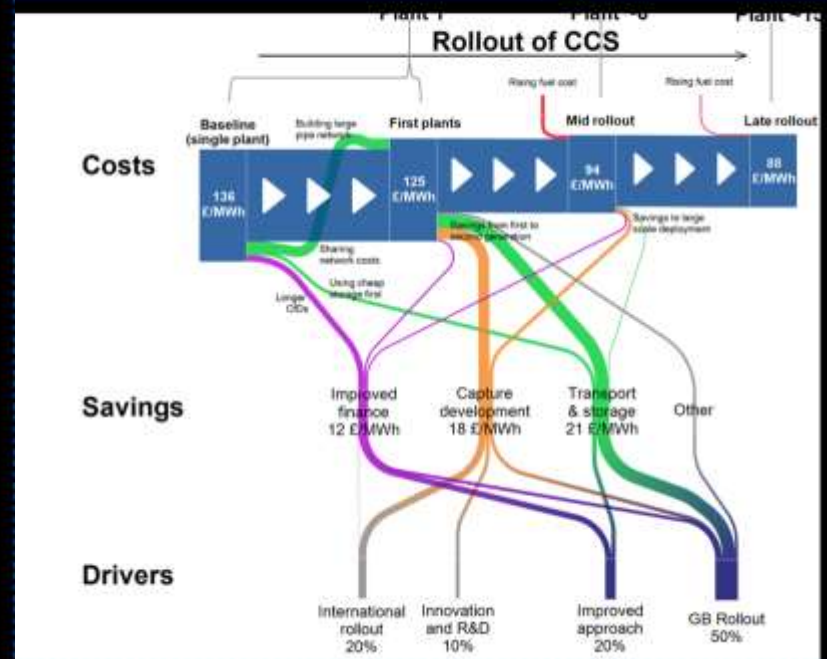
Strike prices for concentrated

# CCC WORK FOLLOWED UP

Oxyfuel Coal CCS cost reduction: Split by mechanism and driver



Post Combustion Gas CCS cost reduction: Split by mechanism and driver



# DELIVERING COST REDUCTION

Fewer projects, faster timescales...how can/should research efforts support this?

*J. Gibbins, H. Chalmers / Energy Policy 36 (2008) 501–507*



Fig. 3. Schematic view of two-tranche model for demonstration and deployment.



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