Can the offshore energy sector be transformed to help the UK become a net-zero nation?

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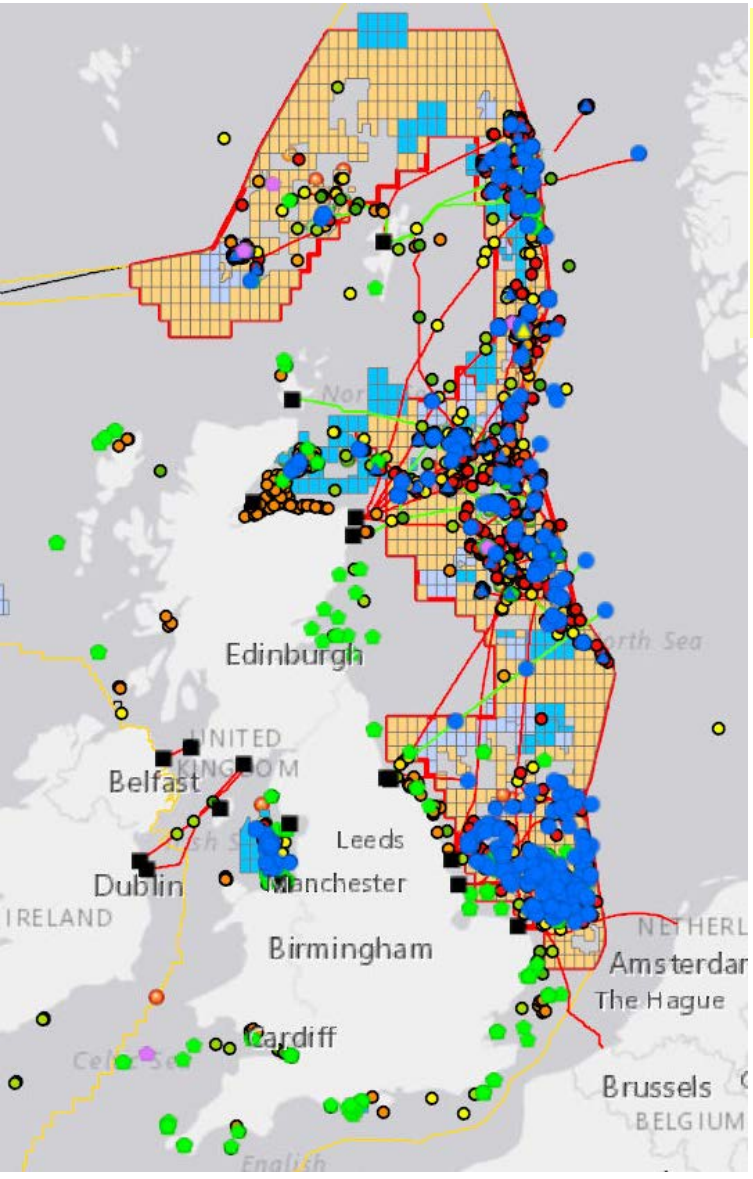
Embracing the net-zero challenge

- ✓ Oct-14, University of Glasgow (UofG) became 1st UK university to commit to full disinvestment from fossil fuel industry
- ✓ Apr-19, First Minister of Scotland declared a climate emergency, the 1st govt in world to do so
- ✓ May-19, UofG was 1st Scottish university to declare a climate emergency
- ✓ Jun-19, UK became the 1st major economy to legislate for net-zero by 2050
- ✓ Sep-19, Scotland committed to be net zero by 2045

UK offshore energy picture – O&G

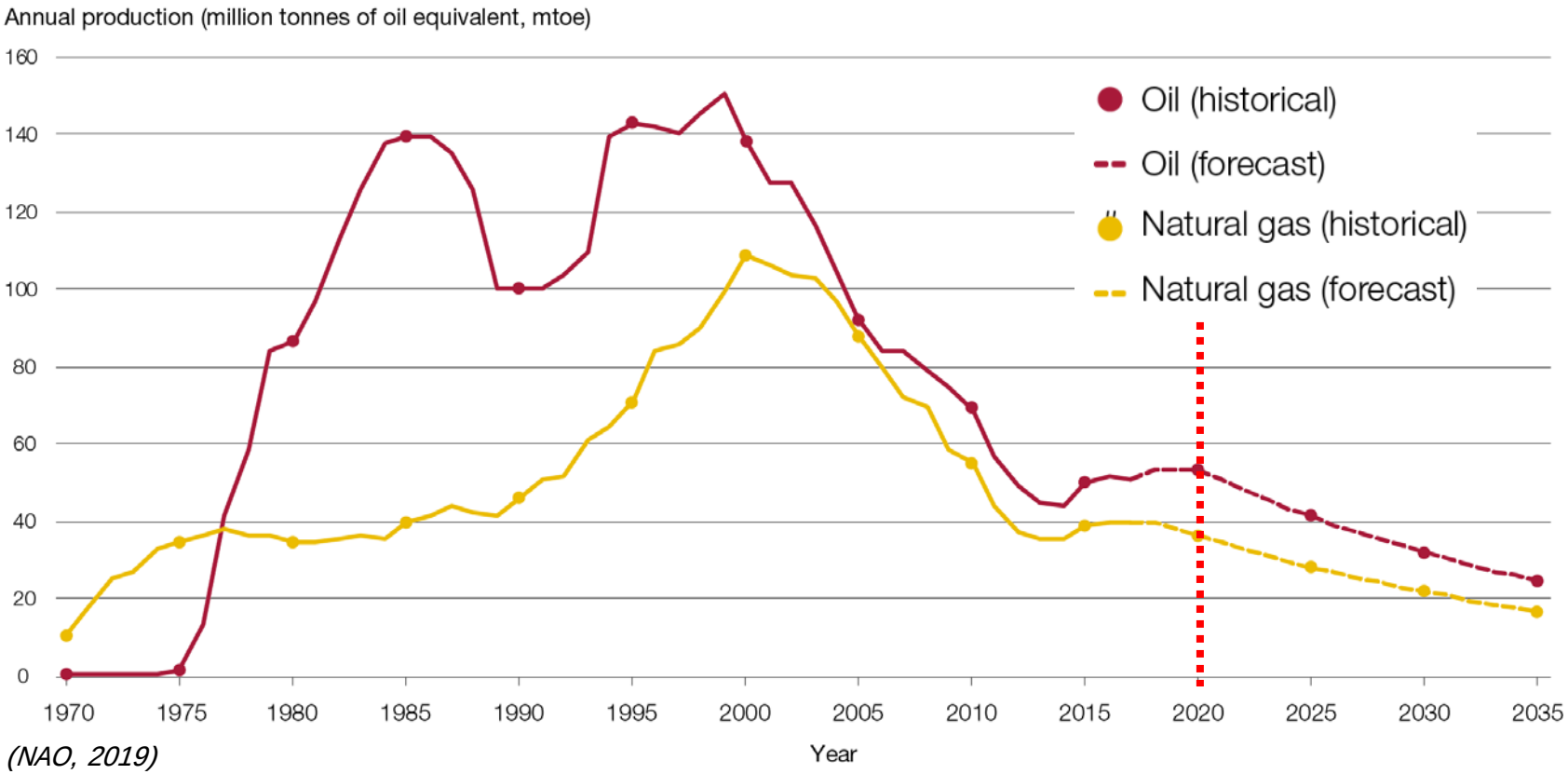


(OGA, 2020)

~320 fixed installations offshore UK
>44 bn boe recovered
What is still potentially recoverable?
5.4 bn boe "reserves" (*NAO, 2019*)

Estimated cost of decomm for UKCS over next decade:
£40-67bn (*OGA, 2019*)

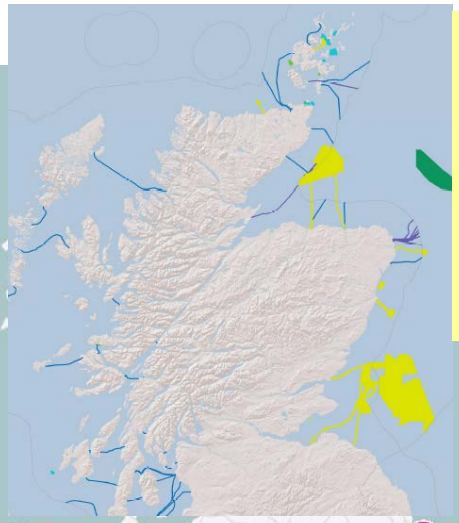
UK offshore forecast O&G production



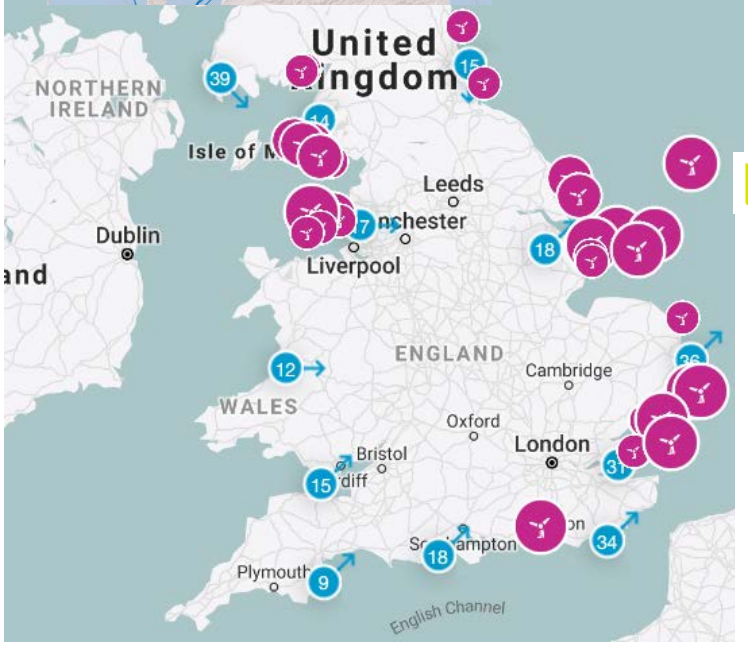
(NAO, 2019)

CCC's net-zero scenarios give reduction in O&G consumption of 82% and 32%, respectively, by 2050 *(CCC, 2019)*

UK offshore energy picture – Wind



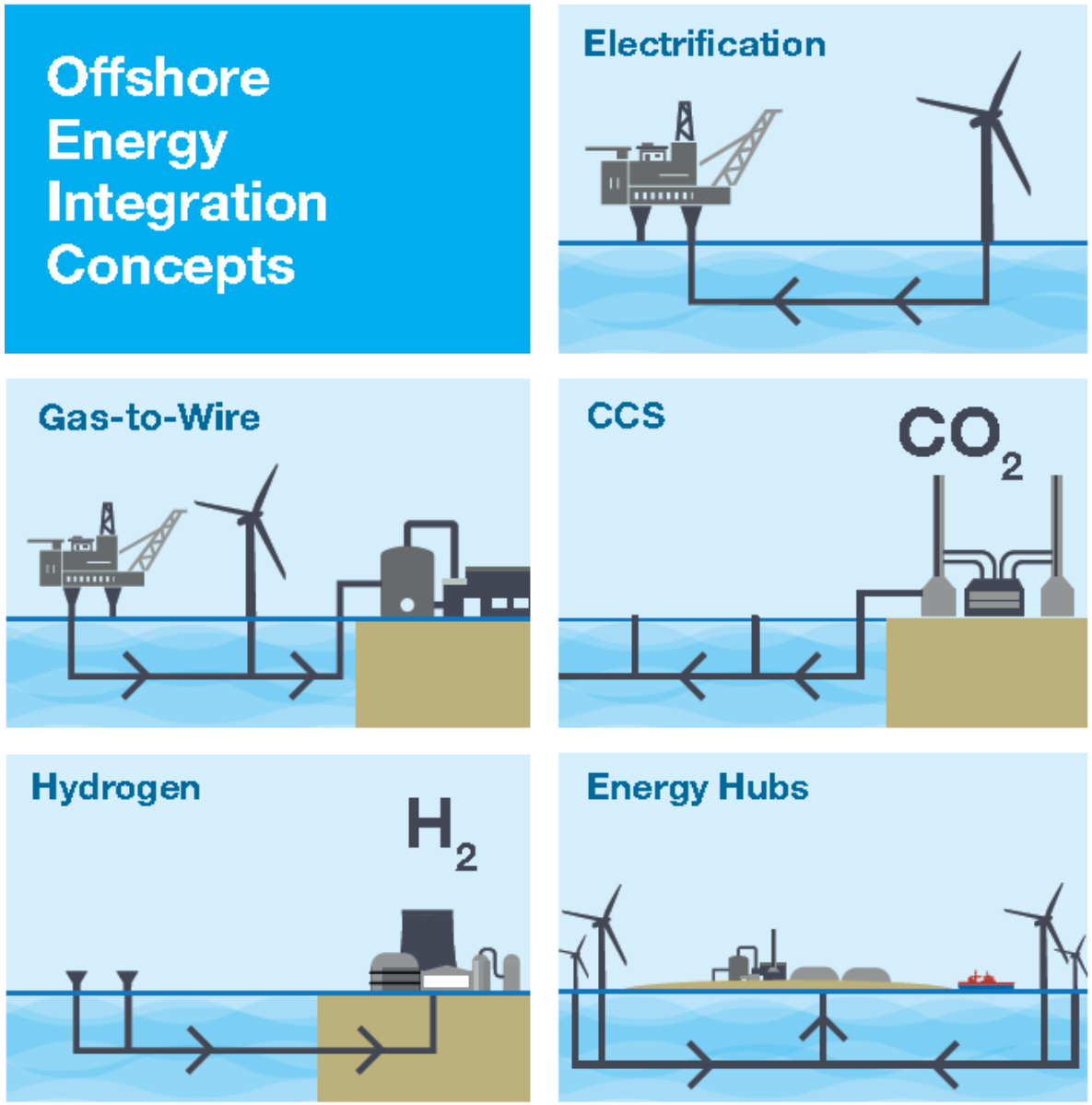
Total operational capacity: ~ 8.5 GW
2019 Offshore Wind Sector Deal set ambition to deliver up to 30 GW of generating capacity by 2030, at 1-2 GW of new offshore wind/year



(Crown Estate/Scotland, 2020)

Estimated cost of OWFs in UK: **£1.28-£3.64bn** for 37 OWFs, but more developments/bigger structures planned (*Arup, 2018*)

OGA's energy integration vision



(OGA, 2019)

O&G infrastructure: life extension & re-purposing options

PROLONG	RE - USE	RE - PURPOSE
Electrification	Platform marketing	CCS
EOR	Hotel accommodation For wind projects	Geothermal
	Recreational use	PtG
	(Rigs-to-reefs)	GtW
		CAES
		Marine energy
		Research site/Field lab
		Offshore island (host wind converter stations)

(modified after WEC, 2007)

O&G infrastructure: life extension & re-purposing options

While continuing O&G production

HOW long can existing mature assets continue to produce?

WHAT economic integration options are there towards net-zero ops?

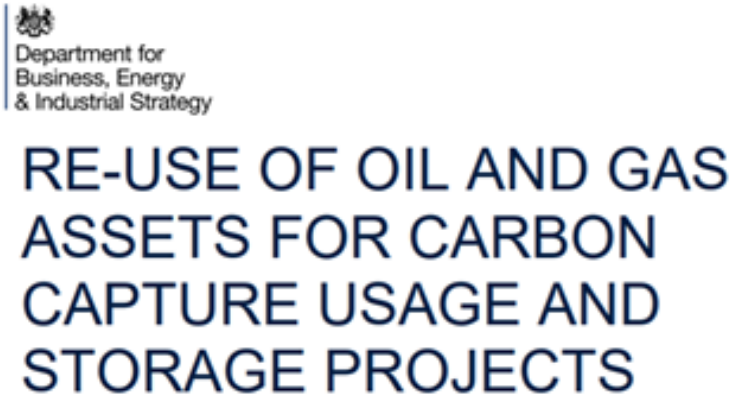
CAN mature infrastructure be used as “living labs” for different stakeholder groups to easily and effectively collaborate?

CAN stranded “small pools” be brought online via electrification with renewable energy?

After ceasing O&G production

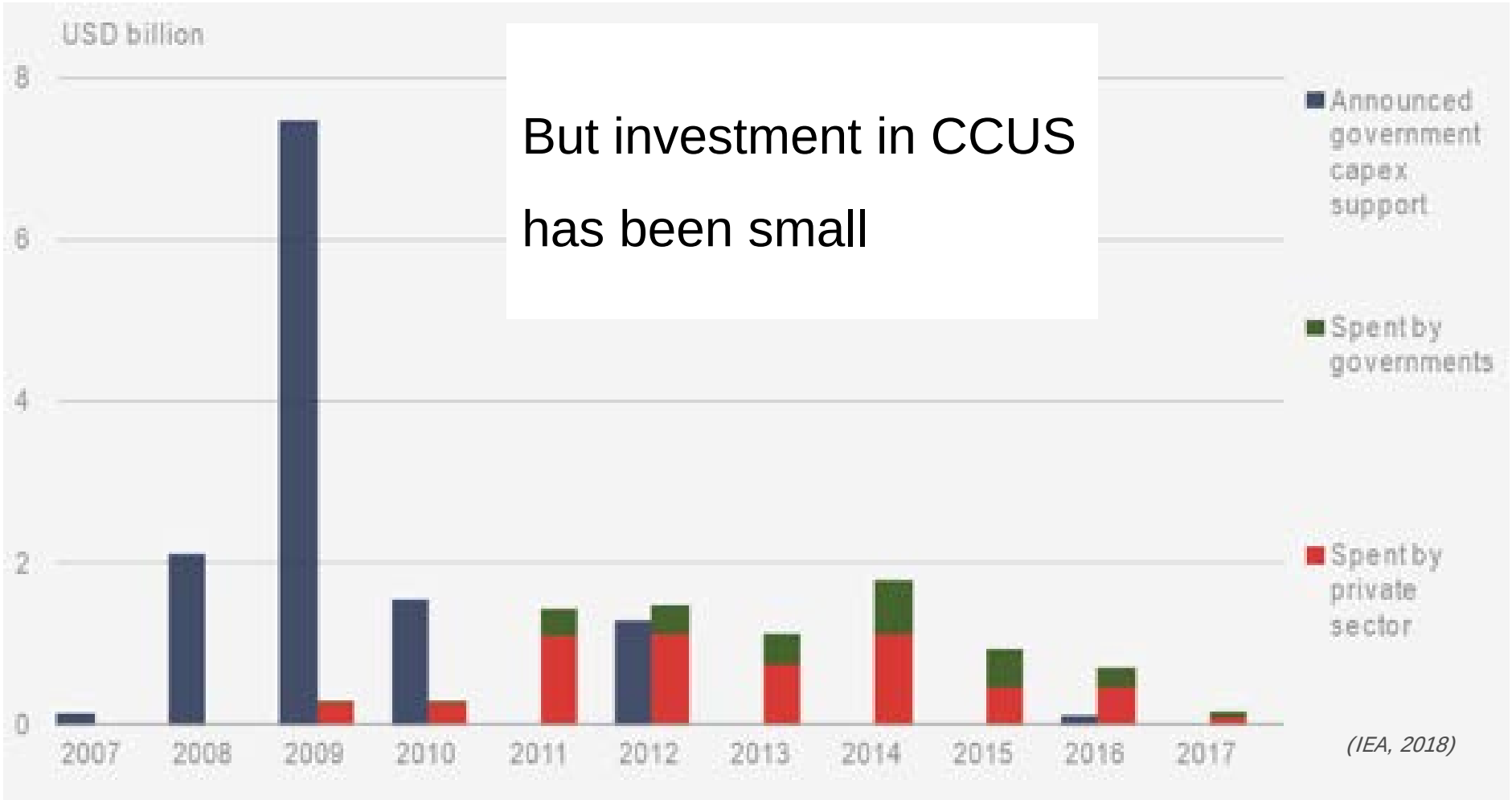
WHICH infrastructure can be re-purposed and used beyond 2020/50?

O&G infrastructure: life extension & re-purposing options



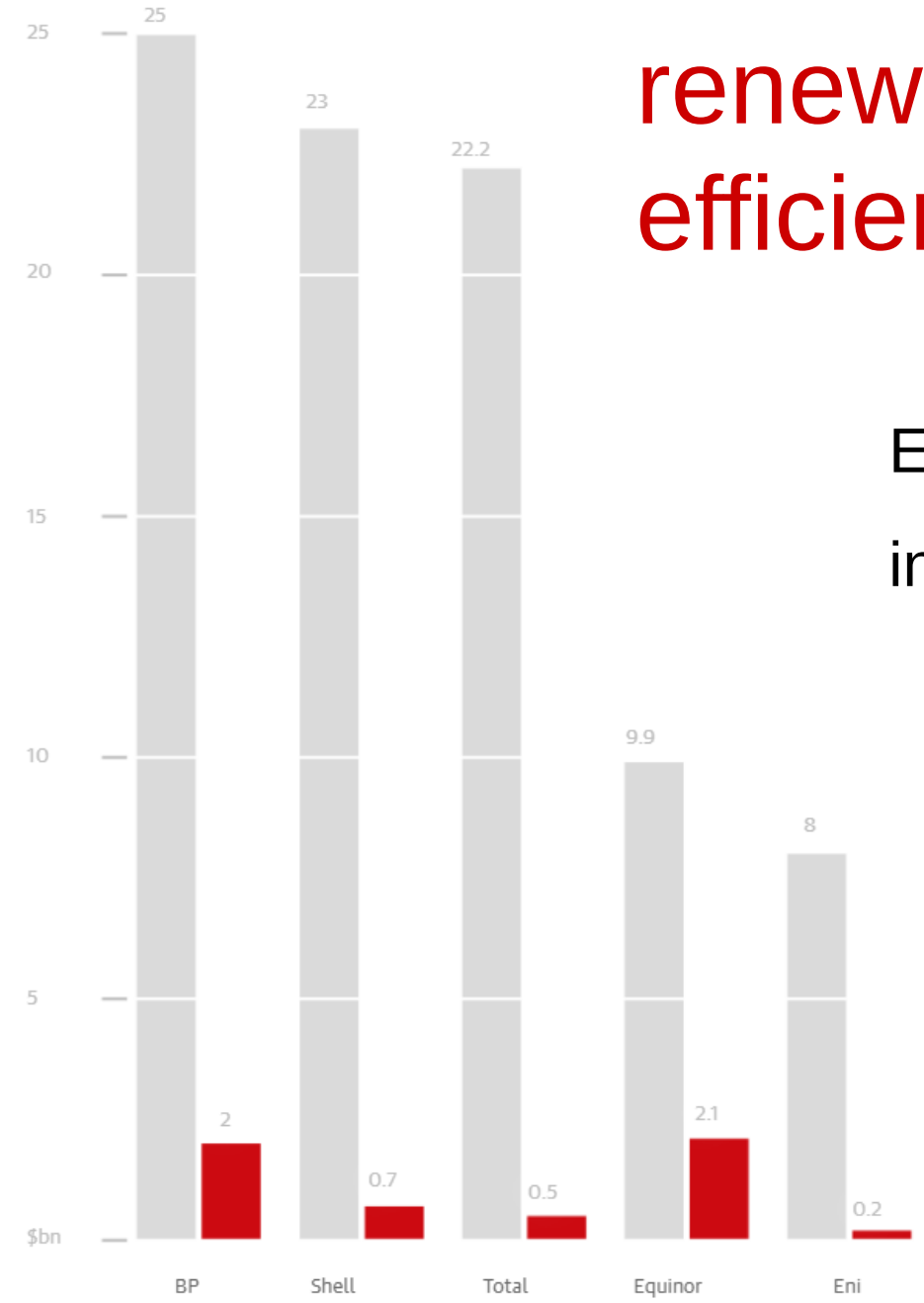
- Small window of opportunity to identify what should stay/go
- Likely only a small percentage could be re-purposed
- Urgent need for a structured timeline
  - Abandoning valuable infrastructure = lost opportunity
  - Not abandoning unusable infrastructure = delayed liability
  - Isolated demonstrators may not prove repeatability/scaleability

Investment must shift to renewables and energy efficiency



(IEA, 2018)

Investment must shift to renewables and energy efficiency



Europe's Oil Majors' investment in renewables is disappointing

Total spending on all energy types last year

Total spending on renewable energy ever*

*(Guardian graphic, 2020 - Source: Rystad Energy, company data Note: * Rystad Energy does not include spending on research and development, or clean energy technologies that are not renewable)*

Jobs in low carbon & renewable energy

	2015	2016	2017
UK	202,200	208,300	209,500

(ONS, 2019)

2019 Offshore Wind Sector Deal set the ambition to increase jobs from 7,200 today to 27,000 by 2030

2019, the UK O&G offshore industry still supported 269,100 jobs across the UK, compared to the 463,900 peak in 2014 (*Oil & Gas UK, 2019*)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Thank you!
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