

# EARLHAM GIGAGRID

October 2026

ORCADIAN ENERGY 



A pathway to deliver near zero  
emission gigascale compute

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# Investor update on Earlham Gigagrid

- We keep learning stuff and we want to share it with you all
- We have very good answers to the following questions
  - Why put a data centre offshore, next to a power generation platform?
  - Can an offshore power station work?
  - Can a datacentre fit on a platform?
  - How do you do carbon capture so cheaply?
  - How much is the effective cost of electricity with an offshore private wire?



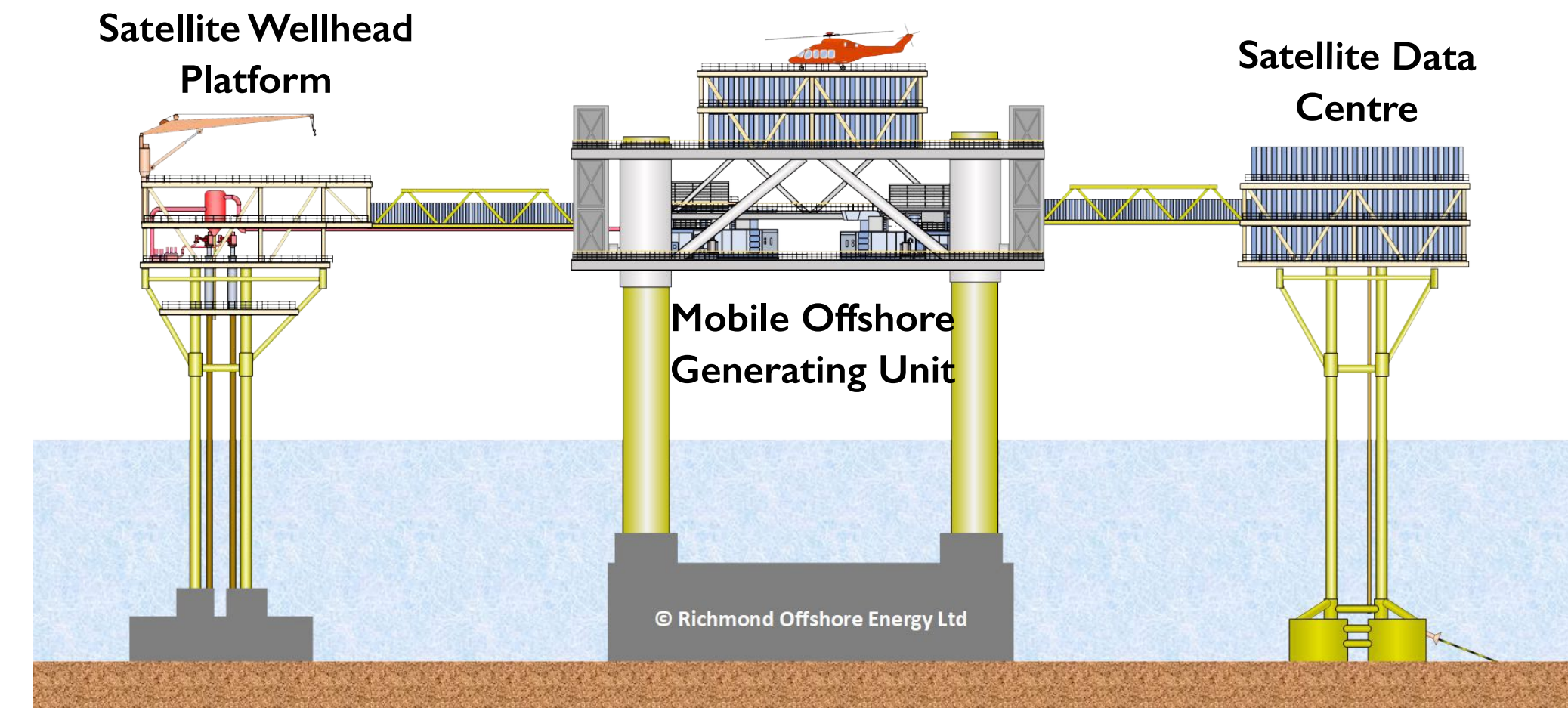
**If you are interested listen on!**

**Even better ask a question.**

# Why put a data centre offshore?

## Why put a data centre offshore next to a power platform?

- It is where the gas is and where the power is: energy first
- Private wire electricity prices are much lower than grid prices even with CO<sub>2</sub> abatement
- No need for HV transformers
- There is no grid integration to delay the project
- There are no neighbours to raise objections
- Facility heat rejection is simple
- No planning permissions and potentially a single regulator
  - *The North Sea Transition Authority*
- No land acquisition; no business rates
- Future potential to upscale the project and incorporate wind power as a gas saver
  - *Model for other locations*



# Can a data centre work offshore?

## Can an offshore power station work?

- Over the last half century the UK's oil and gas industry has operated countless islanded microgrids delivering mission critical power



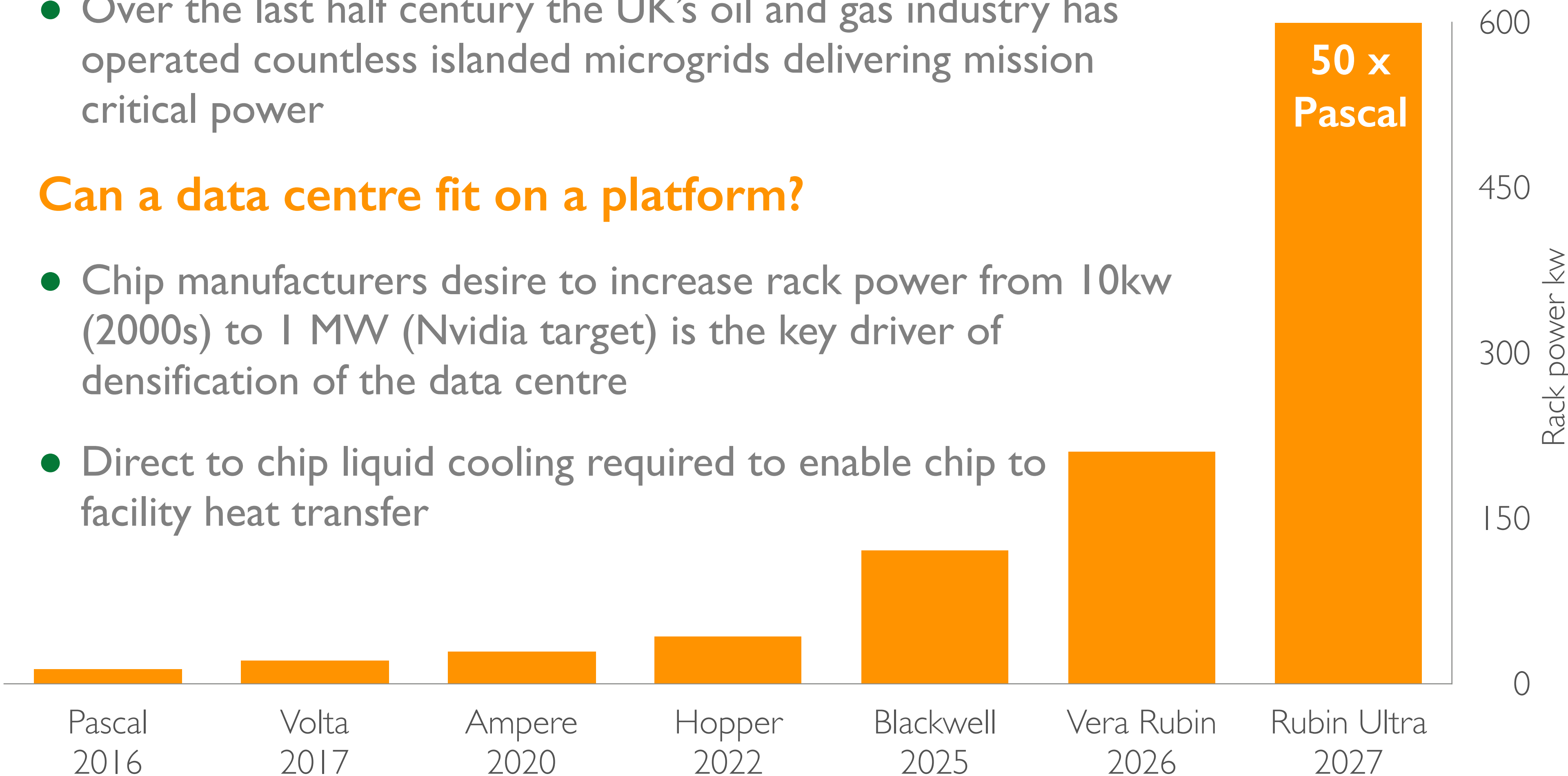
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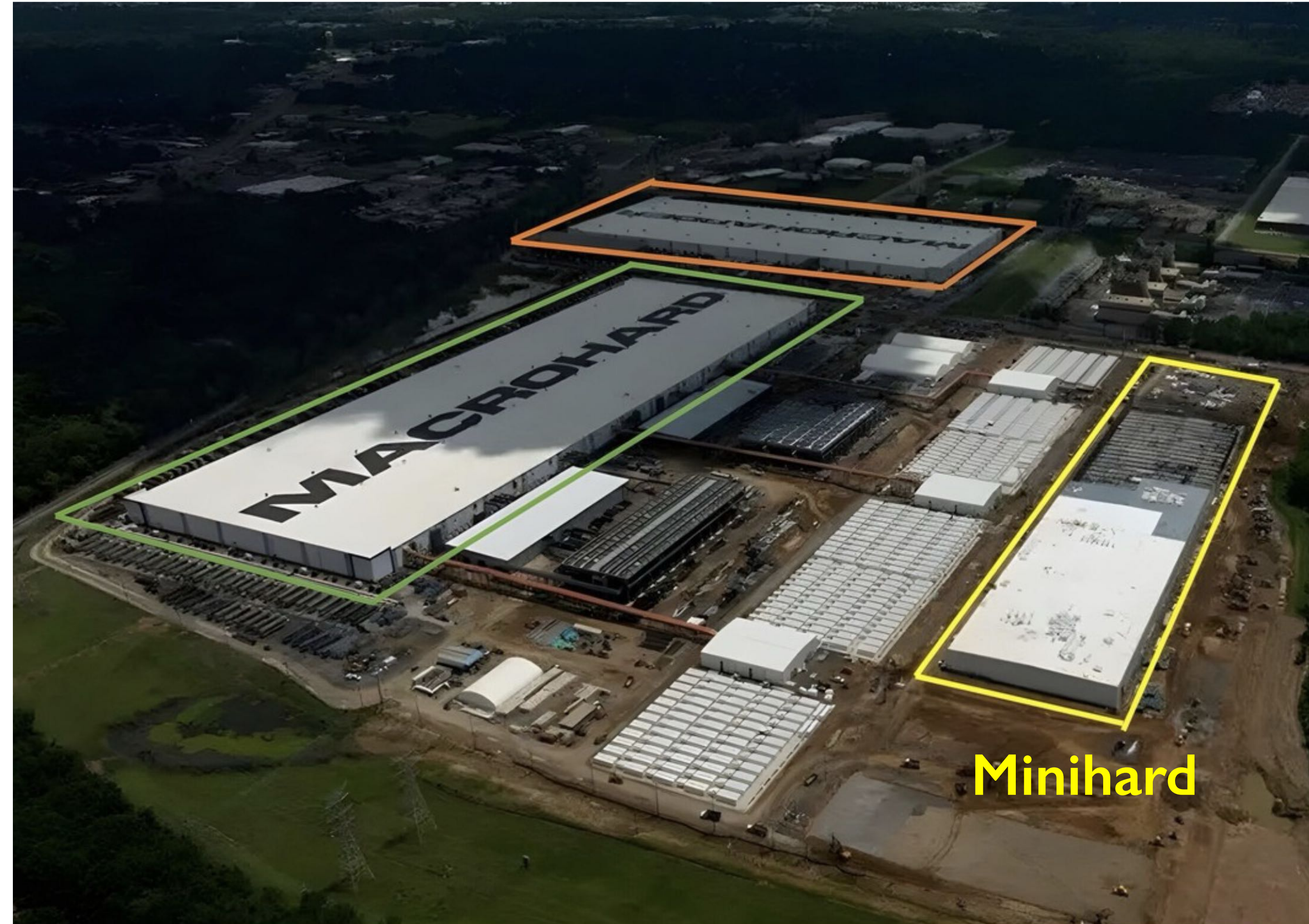
## Can a data centre fit on a platform?

- Chip manufacturers desire to increase rack power from 10kw (2000s) to 1 MW (Nvidia target) is the key driver of densification of the data centre
- Direct to chip liquid cooling required to enable chip to facility heat transfer

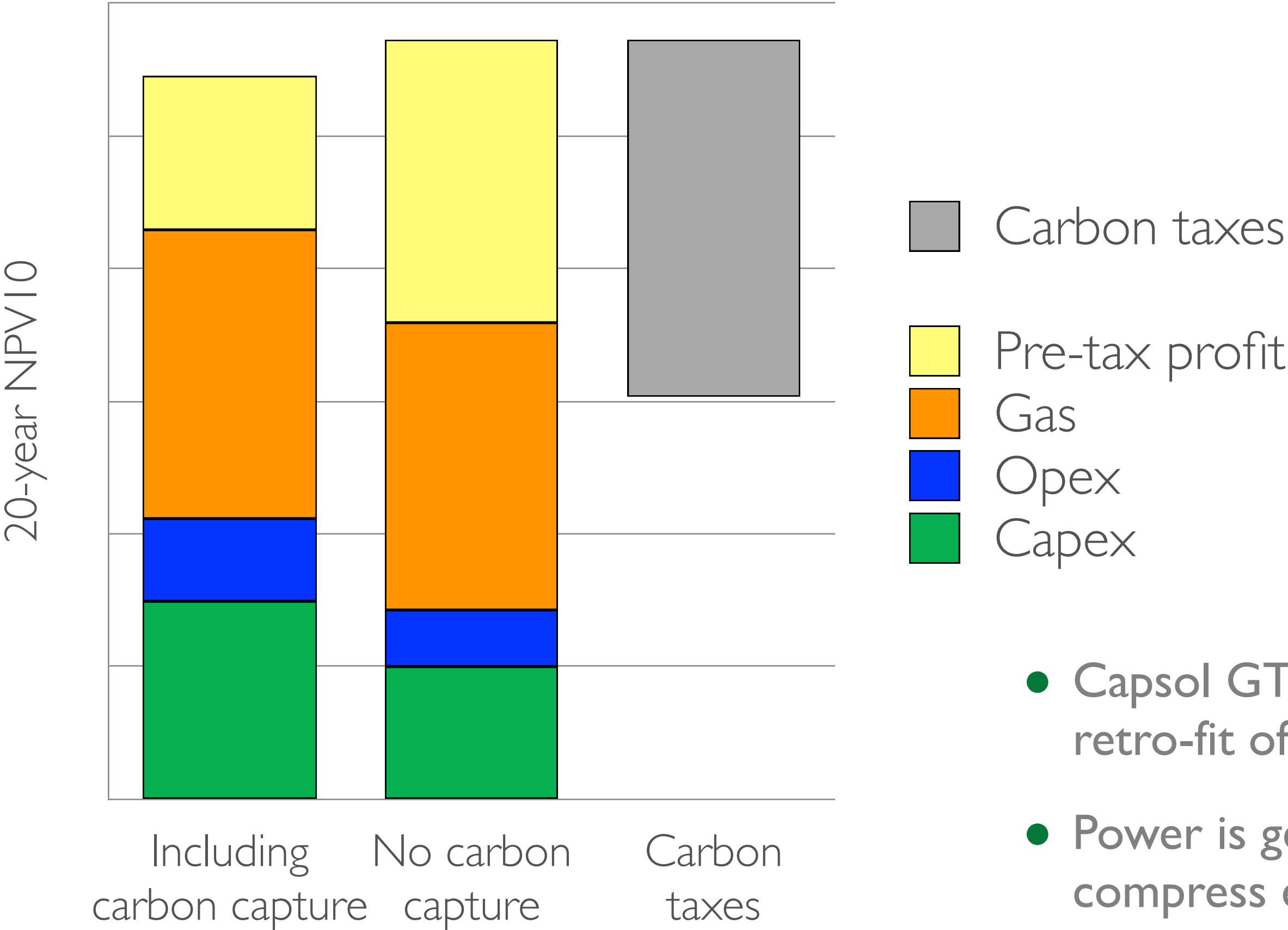


# How many floors would a 200MW version of Minihard need on an offshore platform?

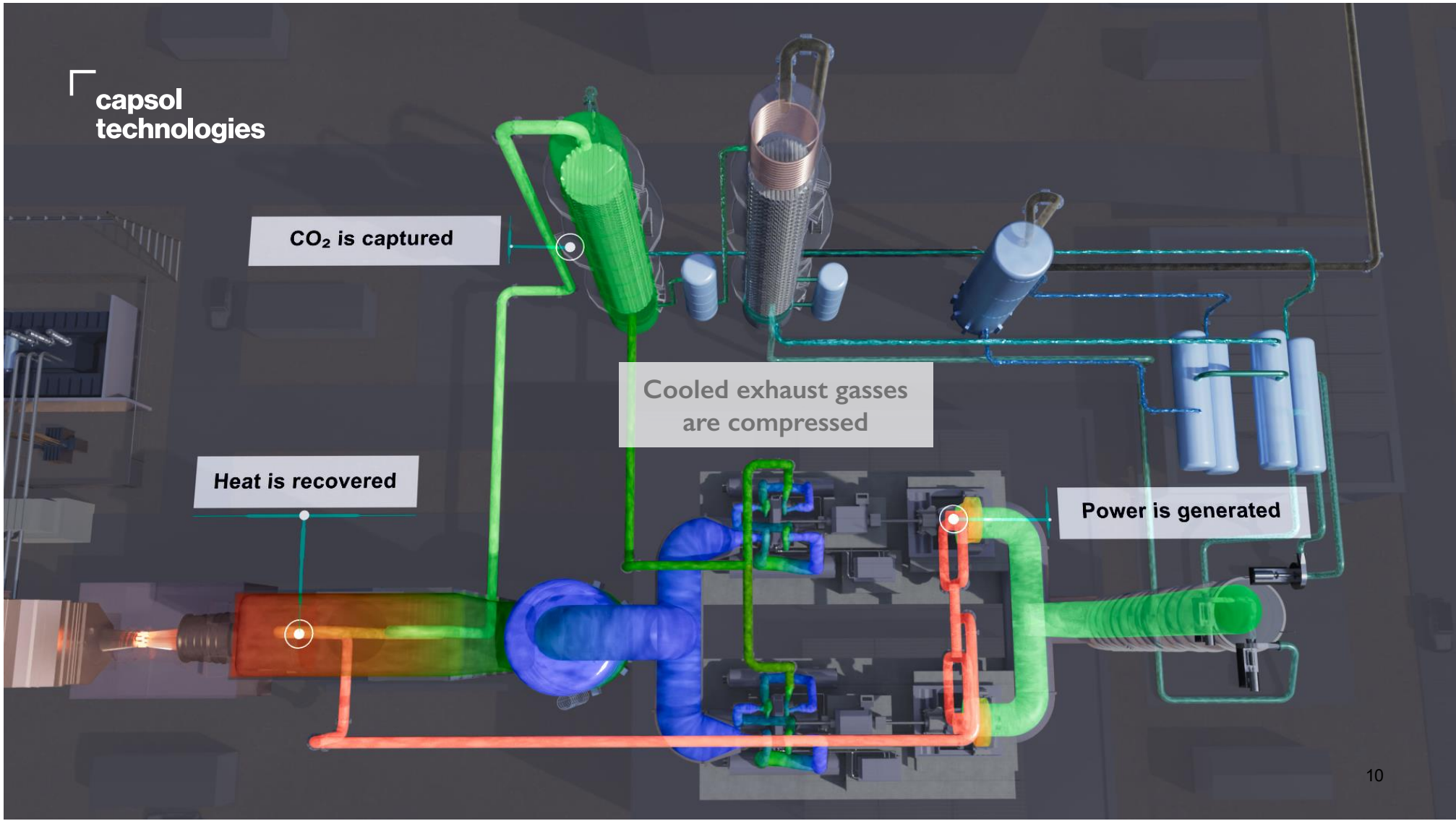
- SpaceXAI's Minihard data center building in Memphis is approximately 312,000 square feet spread across four storeys
- GPU Capacity: 220,000 Nvidia GB300 GPUs pulling 450MW of power; 400MW IT load
  - Approximately 3,000 racks
  - 130-140 kW per rack
- Downscale to 200MW IT load implies a space requirement of 156,000 square feet or 14,500 square metres
- Assuming an offshore platform is:
  - 50m x 50m implies just under 6 storeys
  - 40m x 40m implies 9 storeys
- We would aim to densify further and target a rack power density of over 300 kW per rack



# How do you do carbon capture so cheaply?

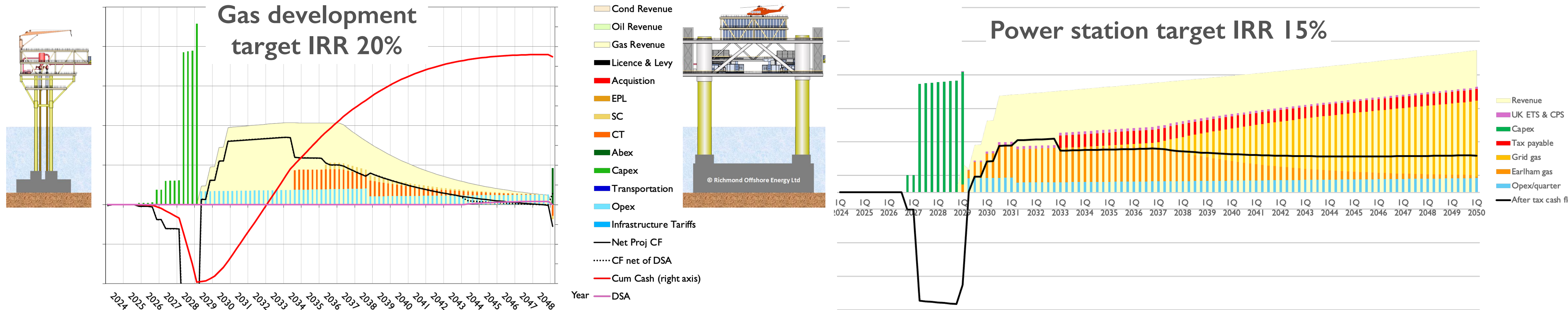


|                |                            |
|----------------|----------------------------|
| Abatement cost | £11 /tonne CO <sub>2</sub> |
|                | £39 /tonne Carbon          |



- Capsol GT system is integrated into the overall power generation package, no retro-fit of equipment which is generally expensive
- Power is generated in the Capsol system although power is also used to compress exhaust gasses and inject CO<sub>2</sub>
- No gathering, transportation, purification or storage costs necessary for Earlham
- Carbon taxes (UK-ETS and CPS) increase cost of emitting CO<sub>2</sub> and therefore improve economics of capture

# How much is the effective cost of electricity with an offshore private wire?



- To estimate the power cost for the compute operator we target that the gas development project earns a 20% IRR and the power station project earns a 15% IRR over 20 years
  - To deliver a 20% IRR requires a gas price of 55p/therm for unprocessed gas from Earham
  - We assume 90p/therm for make-up gas from the national grid or other local supply
- On that basis, and assuming ETS & CPS (carbon taxes) are only charged on the 5% of carbon dioxide released and no

Climate Change Levy is charged, the private wire power price would need to be £124/MWh

- These are illustrative assumptions based on Orcadian production profiles and cost estimates and not agreed or contracted prices
- Energy Prices (Non-Domestic Prices) Table 3.4.1 published by DESNZ 29/9/26 states Extra Large consumers paid an average of £218/MWh, excluding CCL, during the 2026 part-year

# An onshore data centre compared to an offshore one

## Onshore

*“in someone’s backyard”*



*Complex, protracted and bureaucratic process to secure land & planning consent*

|                                                                                                             |                                                                                                                                    |   |
|-------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|---|
| ✗                                                                                                           | <b>Power supply</b>                                                                                                                | ✓ |
| Reliance on grid, project pace defined by grid connections; noise and emission limitations on back-up power | Dedicated, reliable power supply with simple power delivery from gas well to busbar, decarbonised on site, all under owner control |   |
| ✗                                                                                                           | <b>Power price</b>                                                                                                                 | ✓ |
| ~£218/MWh                                                                                                   | ~£124/MWh                                                                                                                          |   |
| ✗                                                                                                           | <b>Emissions</b>                                                                                                                   | ✓ |
| Defined by grid emissions, backup generators hard to decarbonise and store CO <sub>2</sub> .                | 90-95% of CO <sub>2</sub> captured and stored in Earlham                                                                           |   |
| ✗                                                                                                           | <b>Cooling</b>                                                                                                                     | ✓ |
| Heat capture from chips common to both systems                                                              |                                                                                                                                    |   |
| Heat rejection subject to high cost, noise and high maintenance                                             | Located in a massive, free, natural low maintenance heat sink                                                                      |   |
| ✗                                                                                                           | <b>Security</b>                                                                                                                    | ✓ |
| Large, easily accessible facility; expensive to secure                                                      | Compact difficult to access offshore facility, cheap to secure                                                                     |   |
| ✓                                                                                                           | <b>Accessibility</b>                                                                                                               | ✗ |
| Drive or walk to work                                                                                       | Helicopter or WTW vessel                                                                                                           |   |
| ✗                                                                                                           | <b>Communities</b>                                                                                                                 | ✓ |
| Multiple concerns over noise, water, power and emissions                                                    | Too far away to be affected                                                                                                        |   |

## Offshore

*“in no-one’s backyard”*



*Simpler process to secure development consent under Petroleum License & Act*

**Earlham Gigagrid** – a project enabled by the oil & gas, wind and data centre industries, and government departments working together



### **Wind farm operator**

Potential alternate route to market

### **Licensees**

Low calorie gas is monetised

### **Compute operator**

Secure data centre site close to power and demand

### **Communities**

Jobs, no noise, no disruption, no water used

# **Earlham Gigagrid**

### **NSTA**

MER and Net Zero central obligations met

### **Offshore**

### **Workers**

Long term high skill transition jobs

### **NESO**

No grid connections and no strain on the grid

### **Sovereign AI**

Viable option for a gigascale data centre

### **DESNZ**

Carbon capture and storage proven without subsidies