



Understanding the CCS + EOR equation

Keeping the momentum in CCS

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About Element Energy

Element Energy is a leading low carbon energy consultancy. We apply best-in-class financial, analytical and technical analysis to help our clients intelligently invest and create successful policies, strategies and products.

**We operate
in three
main sectors**



Low Carbon Transport



Built Environment



Power Generation

**We offer
three main
services**

Due Diligence

- Technology assessments
- Market growth
- Market share
- Financial modelling

Strategy and Policy

- Scenario and business planning
- Techno-economic modelling
- Stakeholder engagement

Engineering Solutions

- CFD
- Software tools
- Prototyping
- Installations

Background to material presented

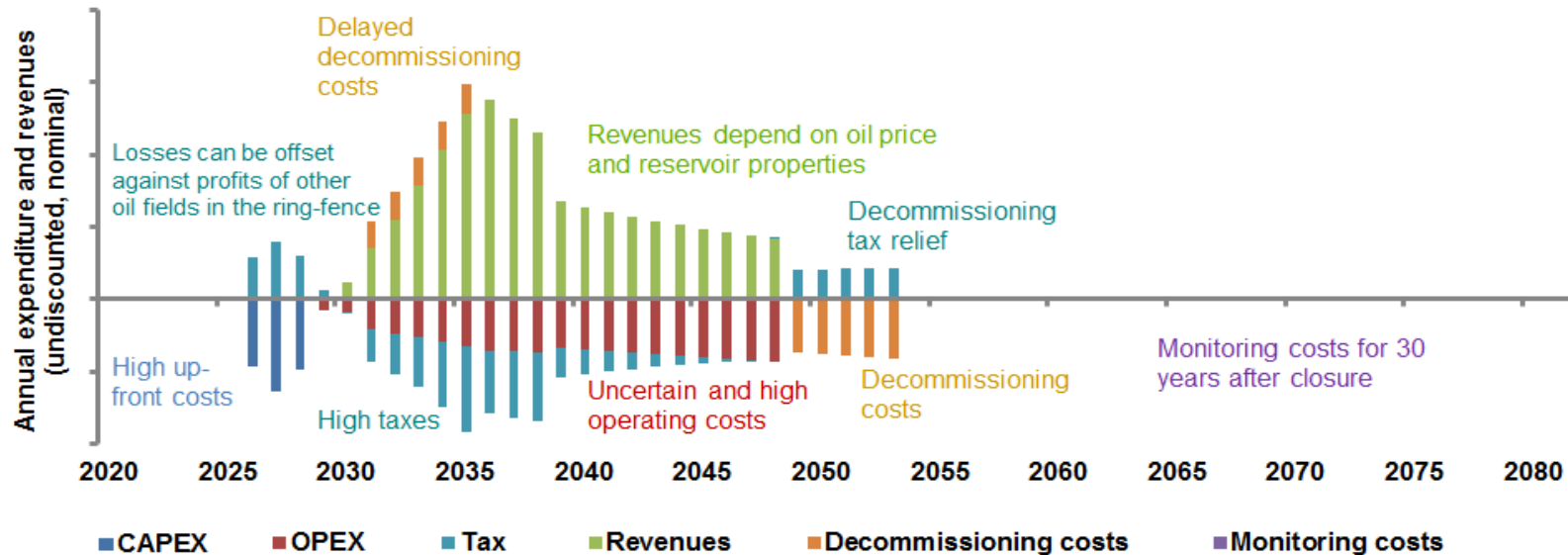
- This talk draws on insights from Element Energy projects funded by Scottish Enterprise and the CO₂-EOR Joint Industry Project.
- Multiple partners involved in these projects – including Scottish Carbon Capture and Storage (SCCS), Dundas, Aberdeen University, and AMEC. Also data providers ETI/TCE/BGS.
- “SCCS CO₂-EOR JIP - Analysis of Fiscal Incentives” is available at: <http://www.sccs.org.uk/expertise/reports.html>
- Multiple stakeholders involved in reviewing approach and findings, including the above clients, oil and gas companies, DECC, CCS and CO₂-EOR project developers, pipeline companies, and The Crown Estate.
- DISCLAIMER - all material presented today represents the view of the author, not clients, partners or stakeholders.

Agenda

- Benefits and challenges of CO₂-EOR in the UKCS
- Tax incentives to kick-start CO₂-EOR
- Managing multiple variables
- Offshore CCS networks with CO₂-EOR

Recap of benefits and challenges for CO₂-EOR in the UKCS

Illustrative cash flow of a CO₂-EOR investment for a developer



Benefits

- Low or negative cost storage capacity
- Boost CCS project economics
- Leverage support from oil industry
- Support UK economy (tax receipts and jobs)

Challenges

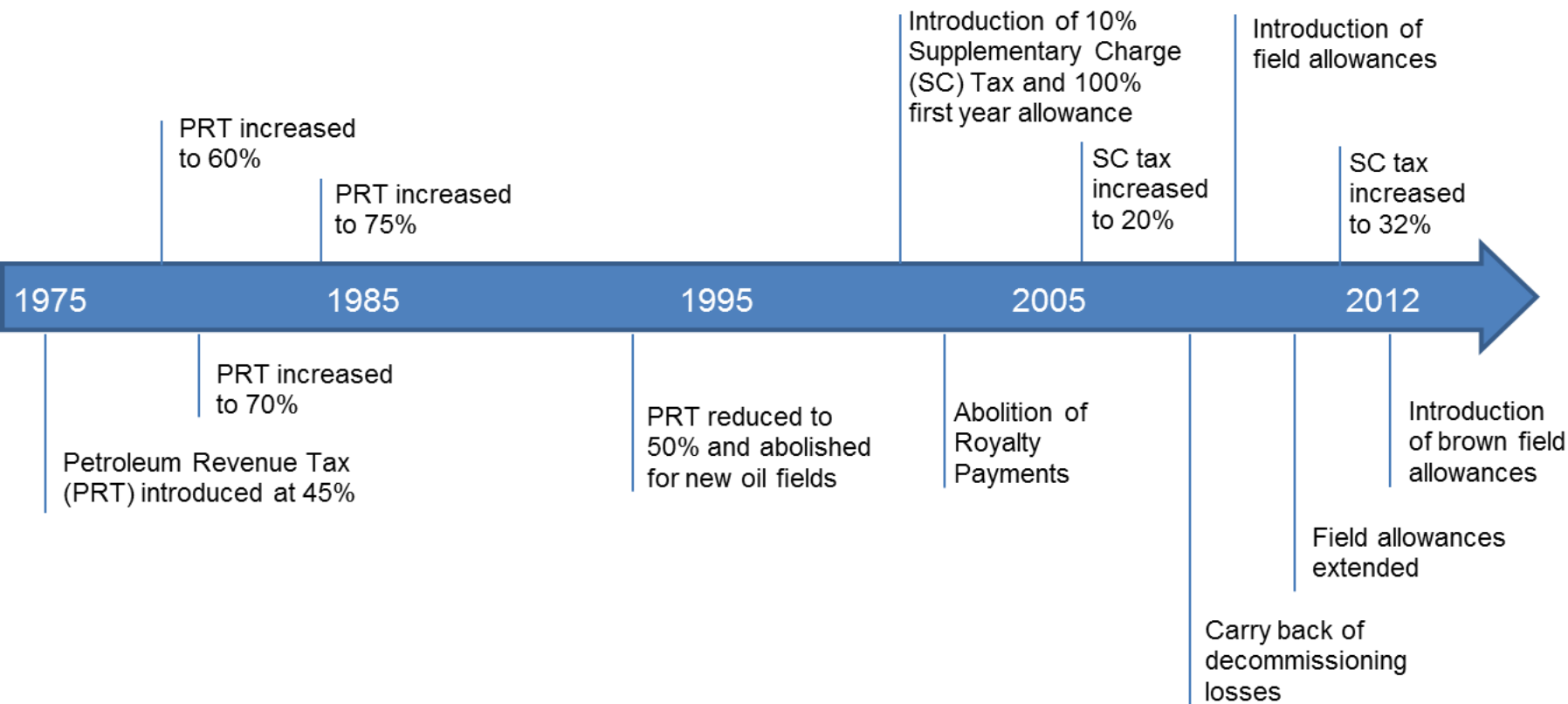
- Limited and uncertain supply of CO₂
- Tight window of opportunity
- High first-of-a-kind project risks
- High cost and high tax

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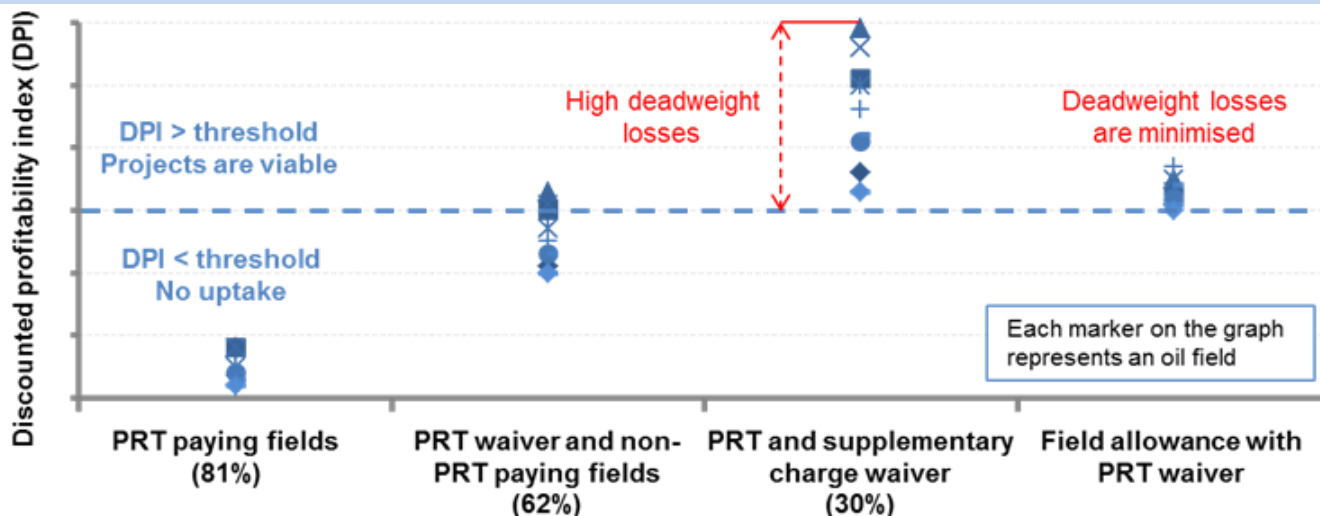
Since the 1970s, UKCS taxation structure has been dynamic to reflect the market conditions

Simplified history of the UKCS taxation

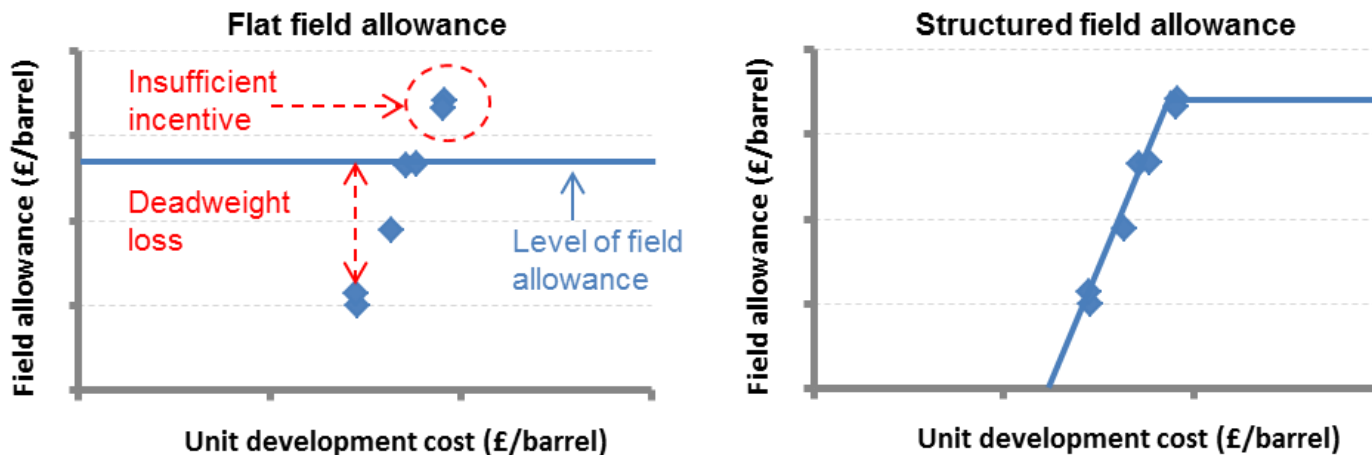


If structured efficiently, field allowances encourage new investments without incurring substantial deadweight losses

Comparison of changing headline tax rate and field allowances

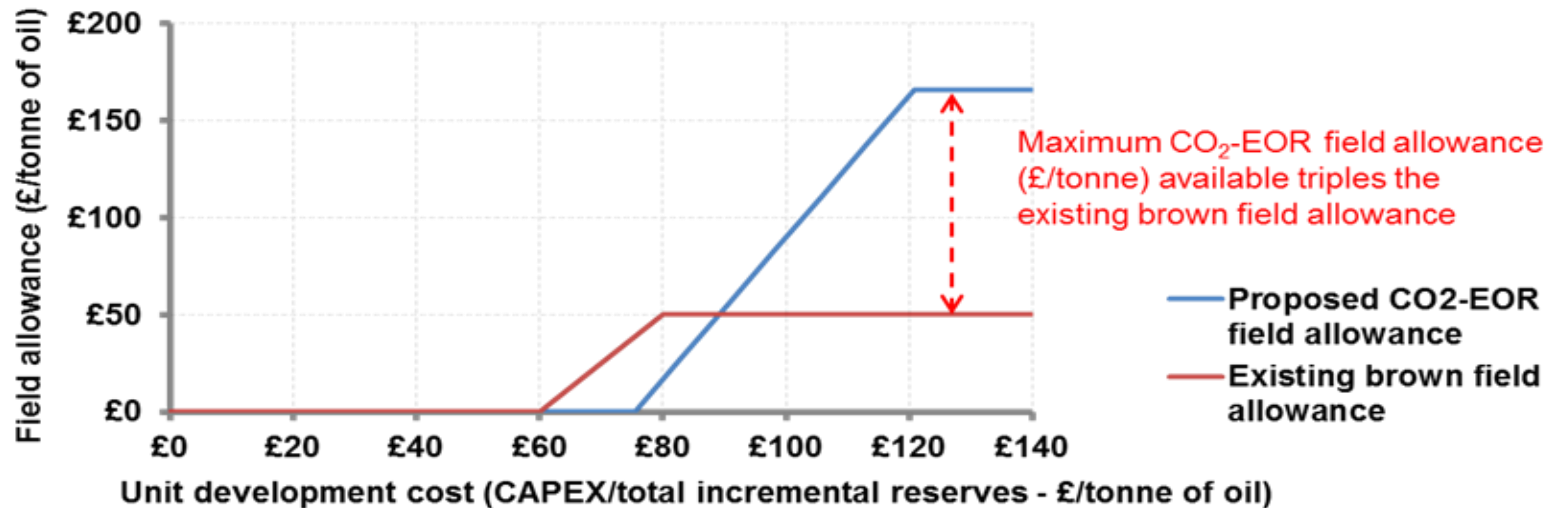


Comparison of different field allowance structures



Modelling suggests that it is possible to kick-start CO₂-EOR in the UKCS with tax incentives

Comparison of the proposed CO₂-EOR field allowance with the existing brownfield allowance

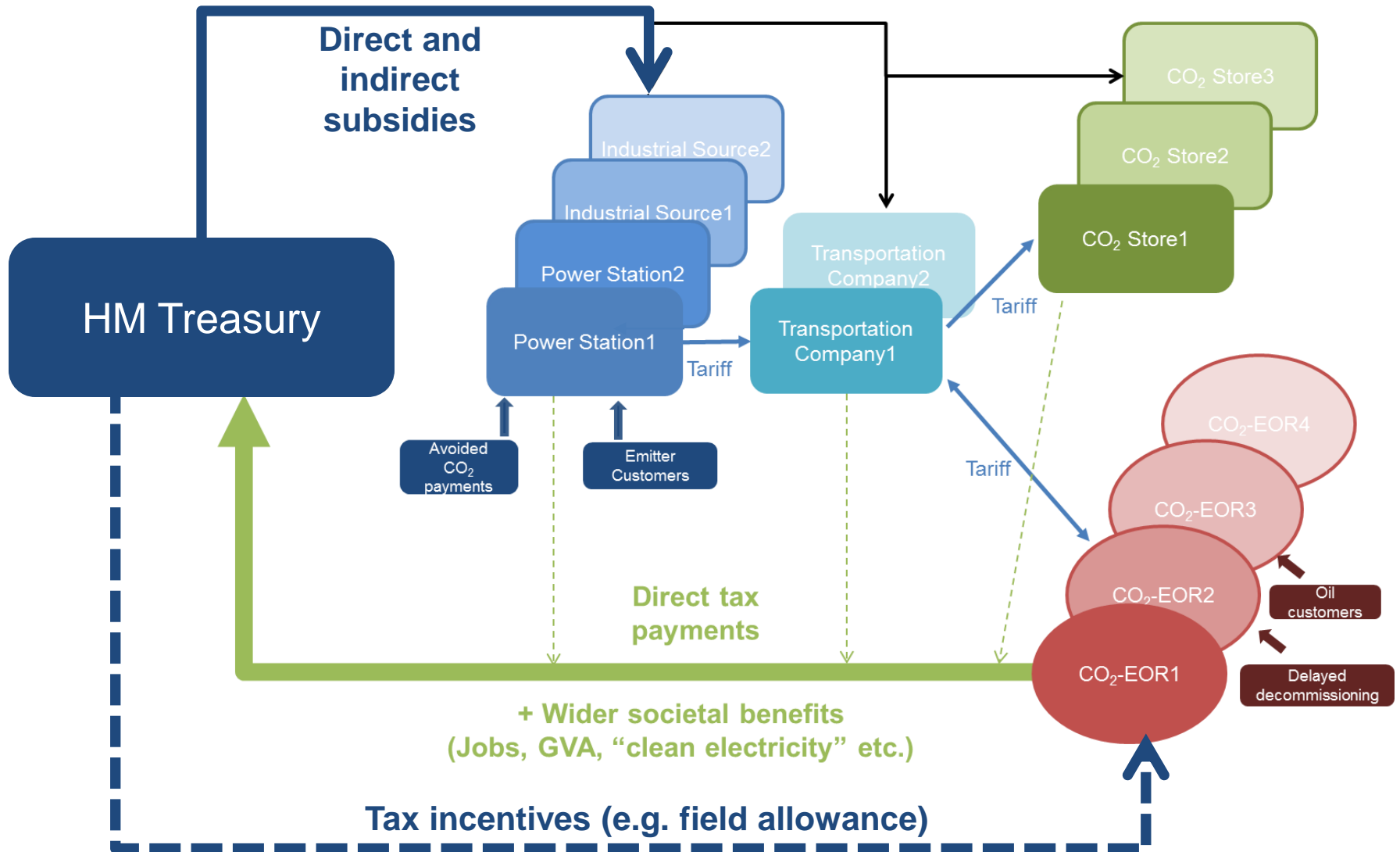


- A field allowance based on unit development cost with PRT removal for the first projects appears the most efficient structure in terms of minimising deadweight losses
- Unlike most oil field development projects, CO₂-EOR is not only CAPEX intensive but also OPEX and fuel intensive, with revenues emerging over long lifetimes - the amount of allowance would need to be higher compared to existing brown field allowance.
- Although the required amounts of field allowances are high, CO₂-EOR projects are able to bring billions of pounds of additional tax revenues for the Government.

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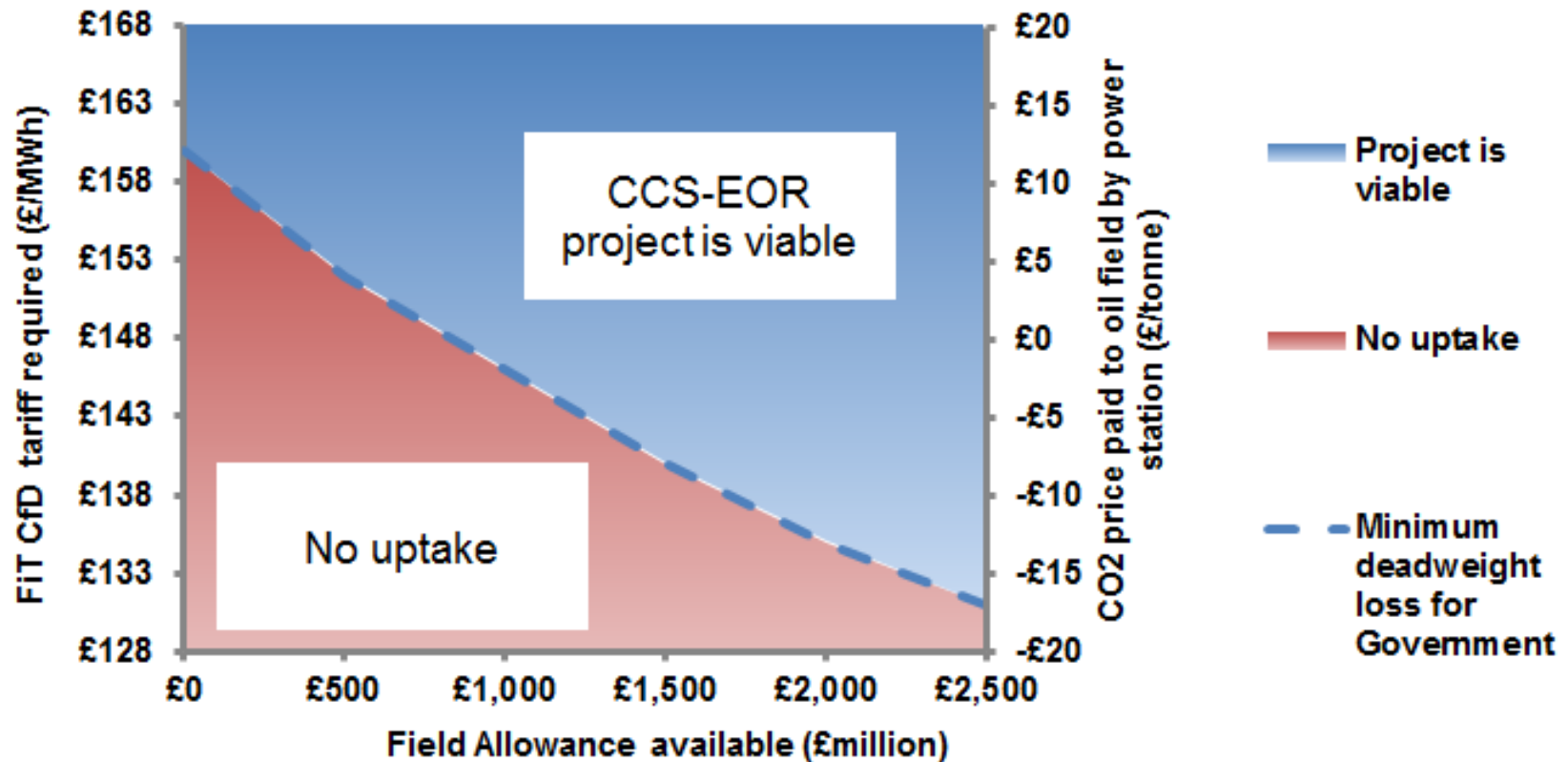
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It will be necessary to monitor potential interactions between different offshore incentives



CO₂-EOR tax incentives are linked to FiT CfD prices through the CO₂ transfer price

Illustrative interplay of onshore and offshore incentives for a network comprising an IGCC capture project with a CO₂-EOR project



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Thank you for your attention

If you have questions, please contact:

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