

RISK RATING GHG EMISSIONS OFFSETS BASED ON CLIMATE REQUIREMENTS

Main Finding: Offset types differ in their capacity to address global warming and should be rated in terms of climate risk

To meet the Paris Agreement, greenhouse gas emissions need to be net-zero. As absolute emissions generally cannot be zero, offsetting is required.

Quintin Rayer¹ and Pete Walton²

1. Head of Research & Ethical Investing, P1 Investment Management, Centre for Financial and Corporate Integrity, Coventry University
2. UK Climate Impacts Programme (UKCIP), University of Oxford, Oxford, UK

Contact: Quintin Rayer quintinrayer@p1-im.co.uk

EMISSIONS - OFFSETS = NET ZERO EMISSIONS

Different offset schemes vary in capacity to stop global warming. If widely used, what risks do different offset types pose to climate stability? A framework helps develop discussion of this important topic.

TYPES OF OFFSETS

- Economic incentives
- Emissions reductions
- Extraction of carbon dioxide from atmosphere
- Payments to external parties to support adoption of lower emissions technologies

Some offsets are economic tools to provide cost benefits for emissions reductions. Climate offsetting requirements are more demanding. The framework grades offsets from most to least benefit by helping classify offsets' climate risks.

We apply our offset climate ratings to some different types of offsets, including the sorts of schemes proposed by major oil companies, and the PAS 2060 carbon-neutrality standard.

OFFSET CLIMATE RISK-RATINGS

Emissions reduction due to superior basic or established tech.
Investment in renewable energy low emission energy sources to displace fossil energy sources (wind, solar)
Burning methane from landfill to generate CO ₂ , or else flaring (the controlled burning of natural gas) during fossil fuel extraction.
Payments to preserve fossil fuel reserves underground.
Natural process that absorbs CO ₂ resulting in hard carbon storage.
Afforestation: restore existing forests to maximum potential. More likely to be biodiverse robust ecosystem.
Emissions reduction due to superior speculative tech.
Switching fuel from oil to natural gas, coal to natural gas etc.
Natural process that absorbs CO ₂ resulting in soft carbon storage
Tech capturing CO ₂ at source in industrial plant with soft storage
Tech removing CO ₂ directly from atmosphere with hard storage
Crop growing and harvesting treatment resulting in soft carbon storage.
Tech capturing CO ₂ at source in industrial plant with hard storage.
Payments to preserve forest.
Reforestation, danger of plantation, difficulty in creating biodiverse robust ecosystem.
Tech removing CO ₂ directly from atmosphere with soft storage.
Building using cement that is carbon absorbing over lifecycle.
Arbitrary emissions quota that allows offsets to be purchased for a price. Amounts agreed by treaty of other means as being "acceptable" levels of emissions.
Crop growing and harvesting treatment resulting in hard carbon storage.
Fails to meet preconditions.



Risks of Misusing Offsetting

- Offsets as last resort or first resort?
- Reliance on unproven technology
- Priority relative to emissions reduction
- Robustness of carbon dioxide storage
- Quality of offsetting schemes adopted
- Estimation of both emissions and offset volumes
- Disincentivises emissions reduction, encourages "business as usual"

Offset Climate Risks

- Direct physical risk
- Technology risk
- Storage risk
- Biodiversity risk
- Risk from moral hazard
- Quality risk

Ultimately, to stabilize global warming, policymakers will need to encourage the use of high-quality offsets.

AGU FALL MEETING
New Orleans, LA & Online Everywhere
13-17 December 2021

SY25F-13
Advancing Equitable Science Policy:
Frameworks, Stories, and Best
Practices



**INVESTMENT
MANAGEMENT**

Disclaimer: Nothing in this poster should be construed as investment advice.

**UNIVERSITY OF
OXFORD**