

The Future of International Forest Carbon Markets

Rod Keenan

Overview



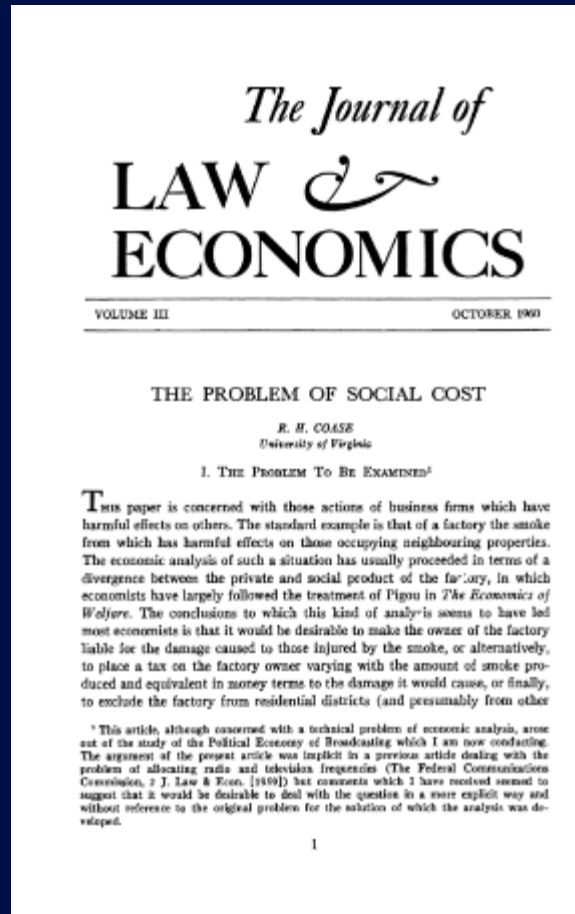
History

Current situation

Challenges

Future developments

History



‘Transaction costs do, and should, fashion the institutions which make up the economic system’

Property rights can be assigned to pollution, with "arbitrage" between actors with varying costs of pollution reduction resulting in more efficient environmental solutions than regulation

Laid the foundation from the 1970s for trade in pollution credits, for coal power, oil and gas and ozone depleting chemicals under the Montreal Protocol

1997 UNFCCC breakthrough



5% cuts to emissions by
Annex I countries

Included forests
(controversially)

Flexibility mechanisms

- Joint Implementation
- Emissions Trading
- Clean Development Mechanism

Key concerns for forest offsets:

- Baseline
- Additionality
- Leakage
- Permanence
- Measurement 'flexibility' and uncertainty
- Finance flows

1999: IETA formed by businesses including Transalta, BP, Rio Tinto, Mitsubishi, KPMG, Norsk Hydro

2000: IETA publishes the first voluntary carbon-market standards, to help companies looking to voluntarily offset their emissions and demonstrate corporate responsibility.



Post Kyoto Controversy



CDM

- **Gaming of manufacture of ozone depleting substances > depressed prices**
- **Very tight rules around scale land-based options > few benefits for developing countries**

REDD+ was included from mid-2000s

- **Avoided deforestation and degradation plus enhancing carbon stocks (ARR, IFM)**
- **Focus on developing countries, but few had sound regulatory frameworks**
- **‘Carbon cowboys’ signing up options national or local carbon rights of dubious legality**
- **Meant to be cheap, easy and quick...reality is anything but**

Led to stronger involvement of World Bank and others, investment in ‘readiness’, stronger vetting processes for VCM projects

Controversy over VCM marketts

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Revealed: more than 90% of rainforest carbon offsets by biggest certifier are worthless, analysis shows

Investigation into Verra carbon standard finds most are 'phantom credits' and may worsen global heating

- Nowhere else to go? Alto Mayo, Peru, at centre of conservation row
- Greenwashing or a net zero necessity? Scientists on carbon offsetting
- Carbon offsets flawed but we are in a climate emergency

the guardian.org

Patrick Greenfield
The Guardian

Share

Overstated carbon emission reductions from voluntary REDD+ projects in the Brazilian Amazon

Thales A. P. West^{1,2,3,4}, Jan Börner^{5,6}, Erin O. Sills⁷, and Andreas Kontoleon^{8,9}

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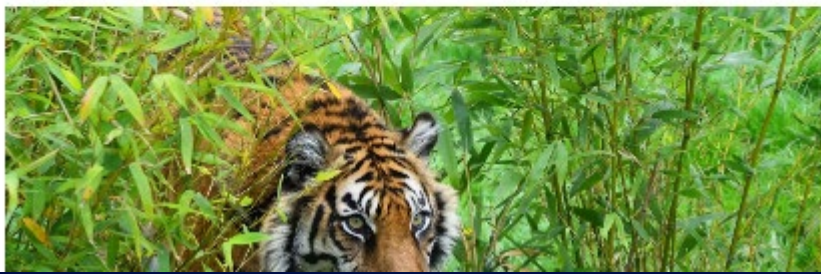
Reducing emissions from deforestation and forest degradation (REDD+) has gained international attention over the past decade, constructed by projecting the forest cover expected in the absence of REDD+ (9). These baseline scenarios typically assume

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Indonesia aborts agreement with Norway on US\$1b REDD+ scheme

The Indonesian government says the decision is made after thorough consultations and cites lack of progress in the payment by Norway as one of the reasons for the termination.



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Global Change Biology WILEY

PRIMARY RESEARCH ARTICLE

Systematic over-crediting in California's forest carbon offsets program

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Abstract

Carbon offsets are widely used by individuals, corporations, and governments to mitigate their greenhouse gas emissions on the assumption that offsets reflect equivalent climate benefits achieved elsewhere. These climate-equivalence claims depend on offsets providing real and additional climate benefits beyond what would have

Issues



Integrity – are buyers purchasing genuine emissions reduction

Quality – do credits provide additional benefits beyond carbon sequestration: for communities, to reduce poverty and improve biodiversity, natural capital and ecosystem services

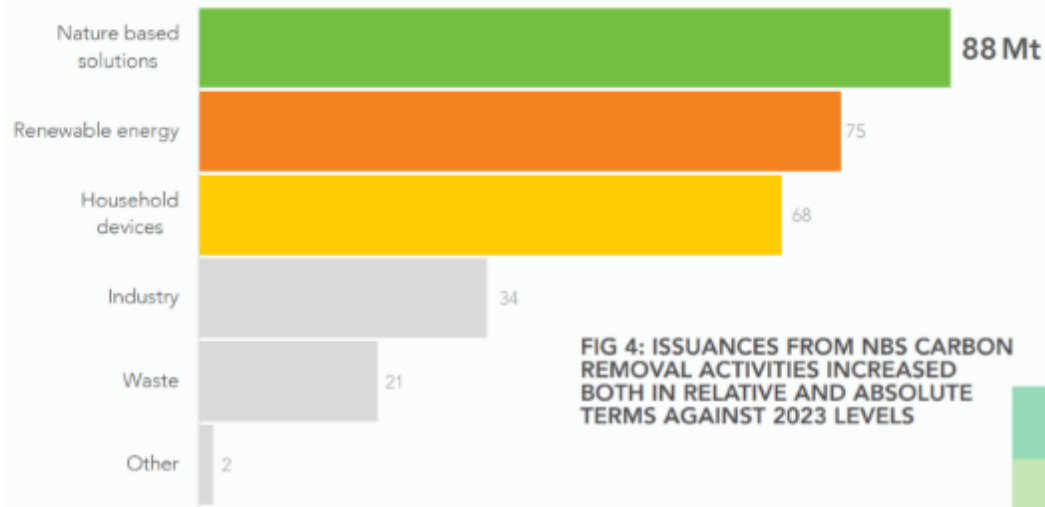
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Current situation

FIG 3: ISSUANCES FROM NATURE-BASED SOLUTIONS DOMINATED SUPPLY, FOLLOWED BY RENEWABLE ENERGY AND HOUSEHOLD ACTIVITIES



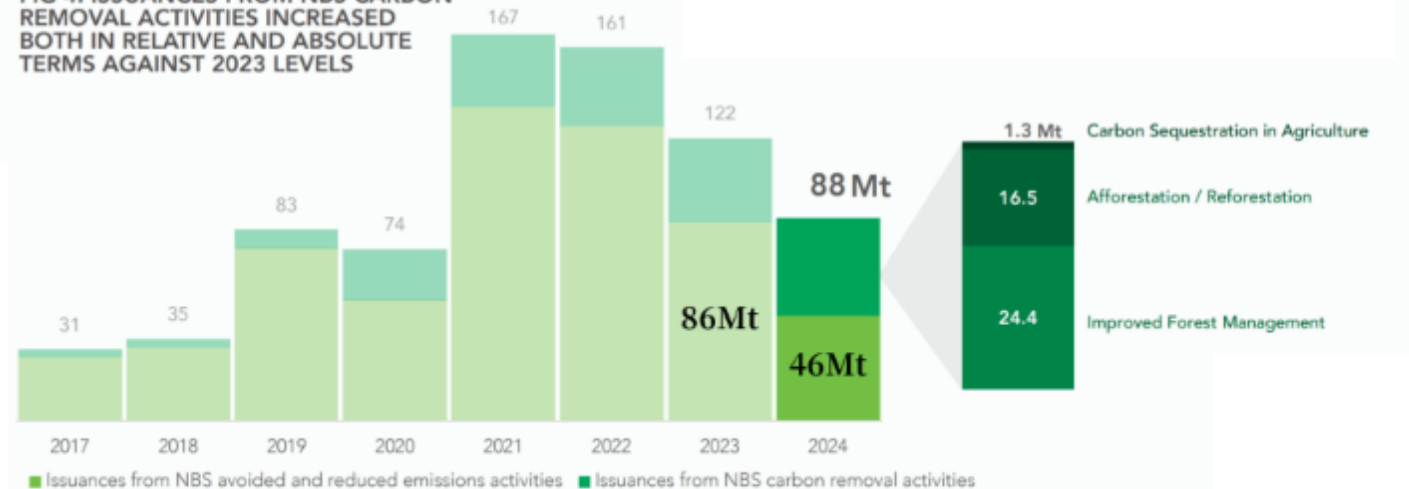
NBS Carbon removal projects

1. Afforestation/Reforestation
2. Carbon sequestration in agriculture
3. Improved Forest Management (IFM)
4. Wetland restoration

NBS Avoided Emissions Projects

1. Avoided deforestation
2. Avoided conversion
3. Reduced emissions in agriculture

FIG 4: ISSUANCES FROM NBS CARBON REMOVAL ACTIVITIES INCREASED BOTH IN RELATIVE AND ABSOLUTE TERMS AGAINST 2023 LEVELS

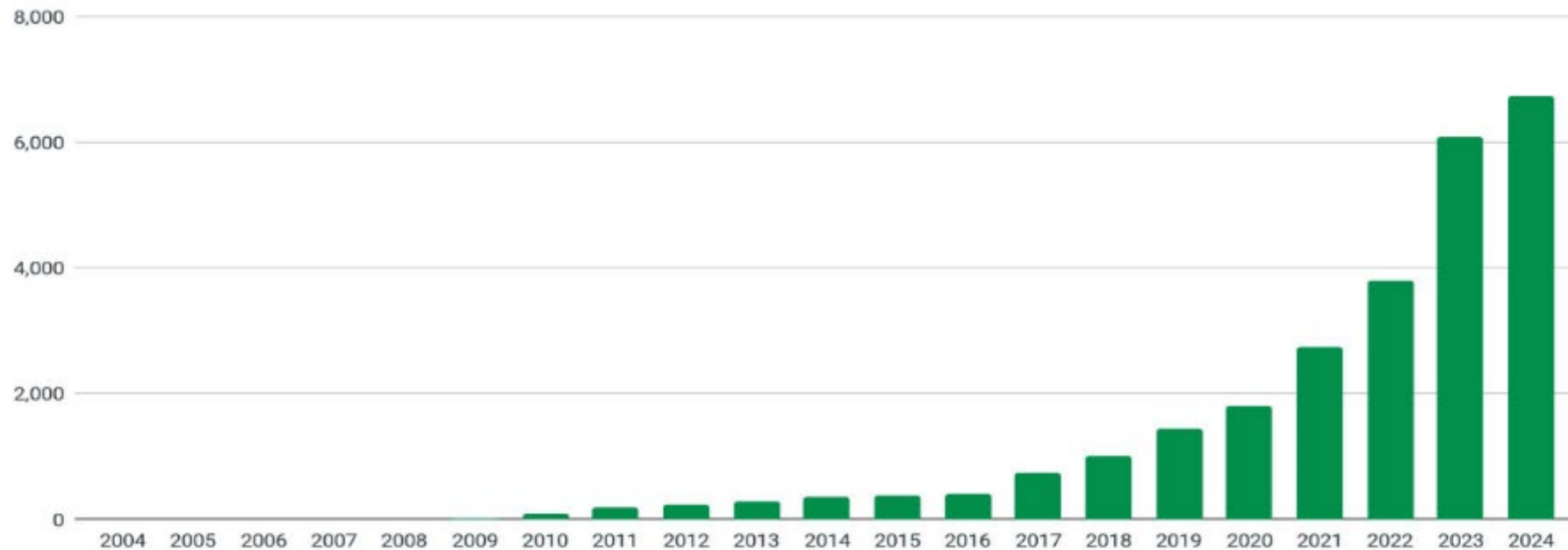


Source: Climate Focus – Voluntary Carbon Market 2024 Review

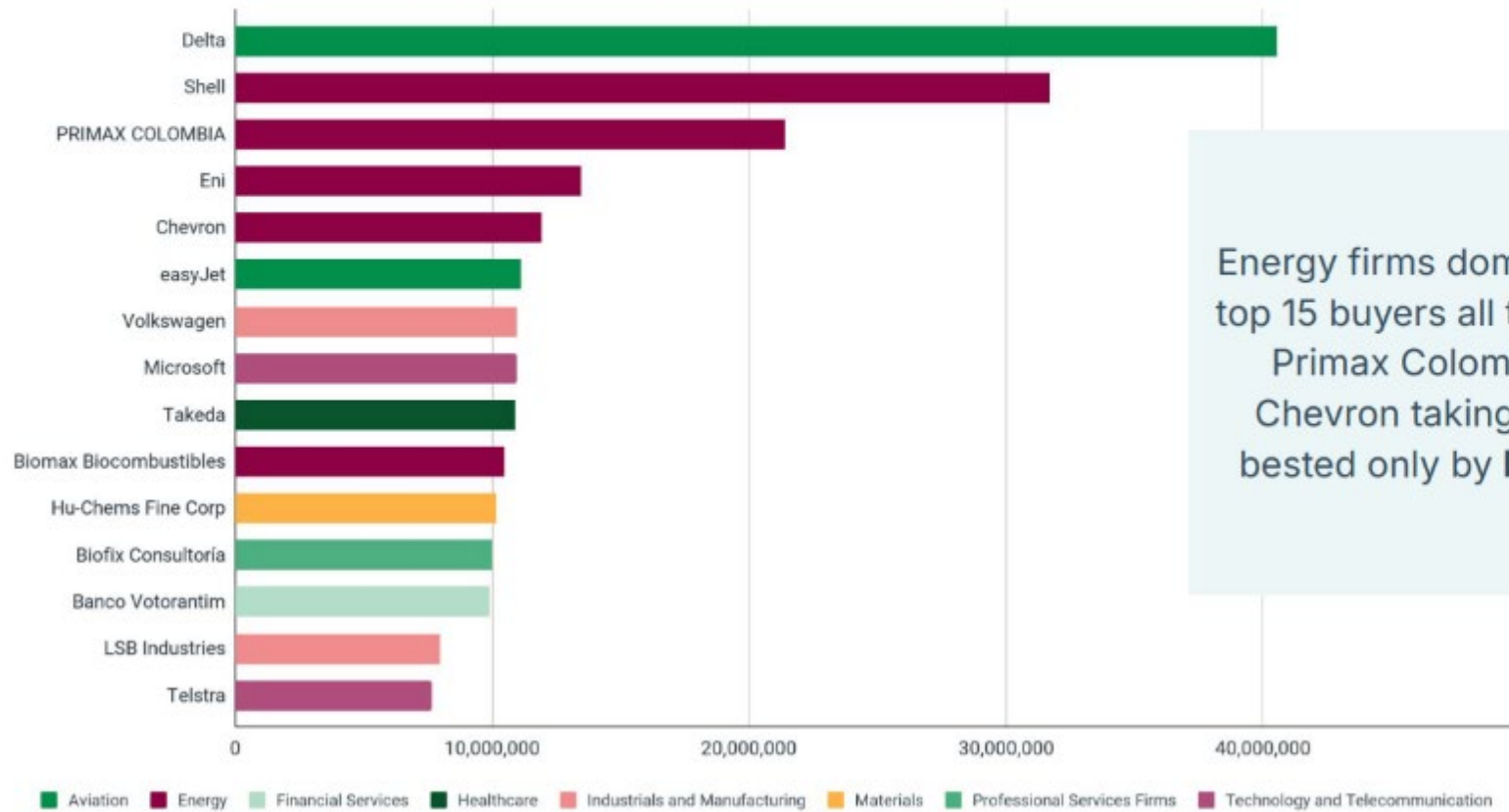
Buyers growing but growth slowing

The number of buyers active in the market has continued to increase in 2024, reaching over 6,500 firms for the first time this year, though the growth slowed relative to last year.

Number of buyers retiring credits



Top buyers all time

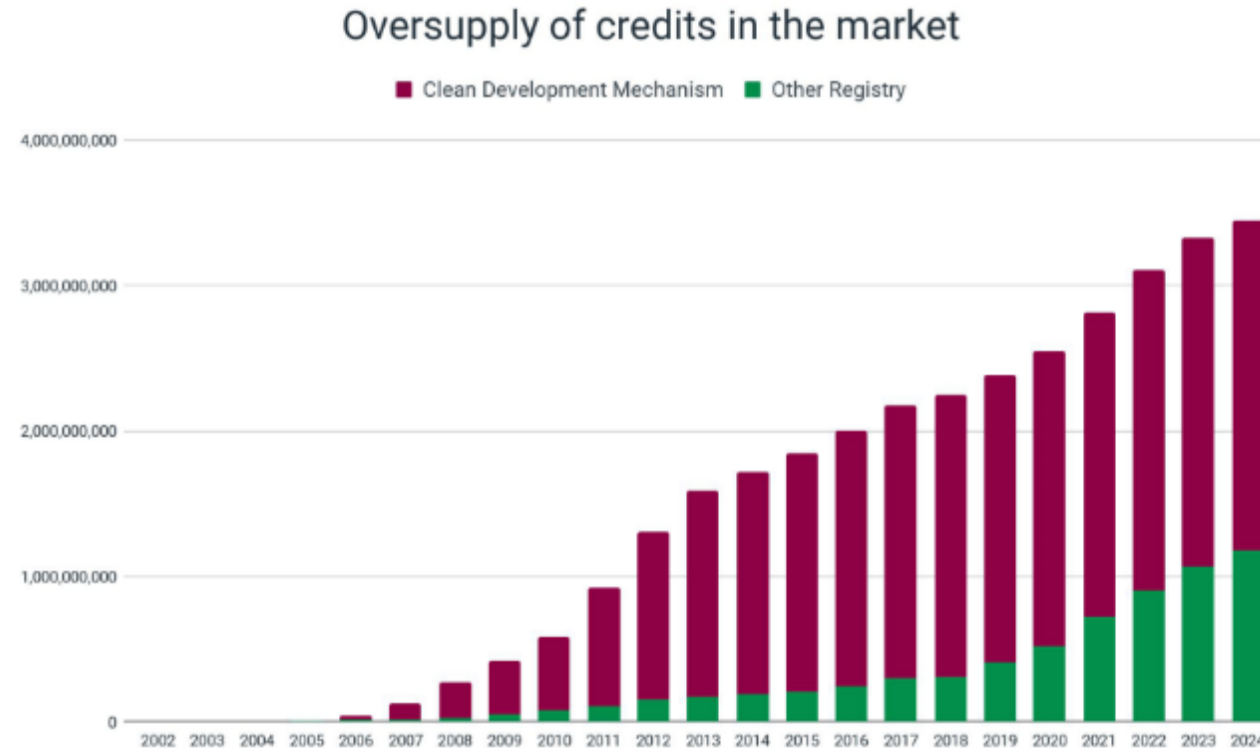


Energy firms dominate the list of top 15 buyers all time, with Shell, Primax Colombia, Eni, and Chevron taking spots 2 to 5, bested only by **Delta Airlines**.

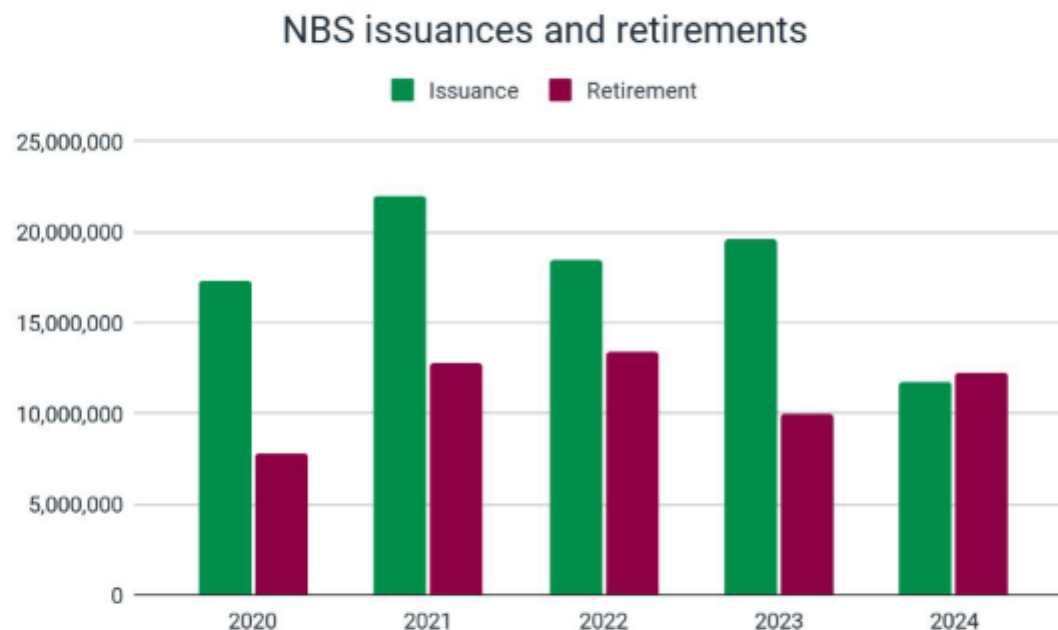
Oversupply

The number of issued but not retired credits has **continued to increase in 2024**.

While much of that is driven by old CDM credits, **non-CDM issuances continue to outpace retirements**.



NBS removal oversupply



NBS removals' scarcity has likely played a part in driving up their price – while there is an oversupply of these credits, it's not as pronounced as in other sectors. Indeed, 2024 even saw slightly more retirements than issuances in this part of the market.

Implications



Source: Climate Focus – Voluntary Carbon Market 2024 Review

Premium for quality

ARR credit spot prices (for projects with price quotes in L12M)

Covering 36 projects that have 44 million issued credits, ~63% of all ARR credits issued historically



Source: *The State of Carbon Credits 2024 (Sylvera)*

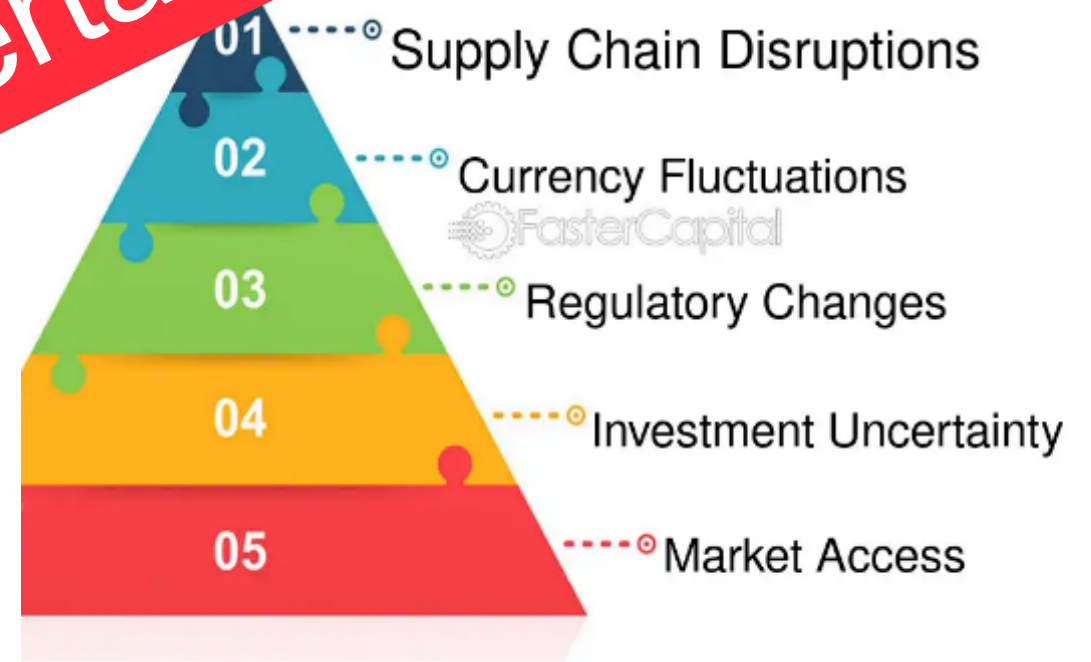
Future directions



<https://www.linkedin.com/pulse/rising-geopolitical-uncertainty-nigol-koulajian/>

Keenan presentation to Forest Carbon Summit 11 April 2025

How Geopolitical Uncertainty Affects Businesses



<https://fastercapital.com>

Future directions



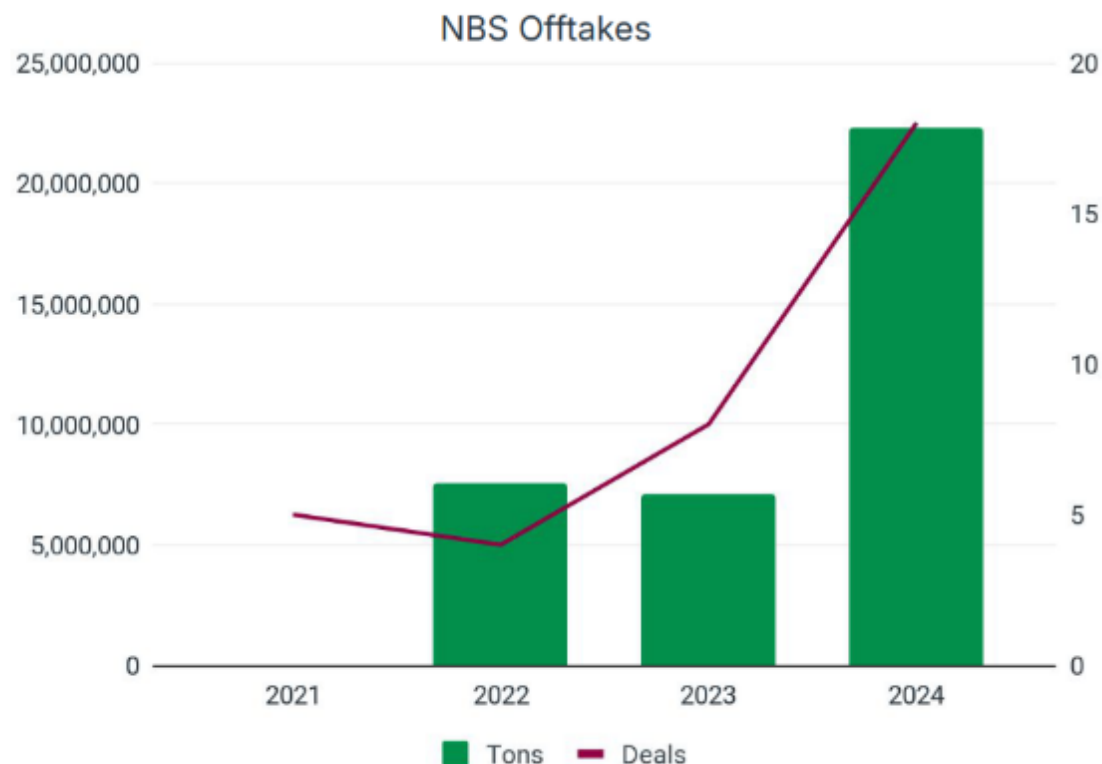
Price – supply vs demand

Hacking – measurement tech

Stacking – integrating quality benefits

Packing – insetting and off-market trades

Offtake agreements take off in 2024

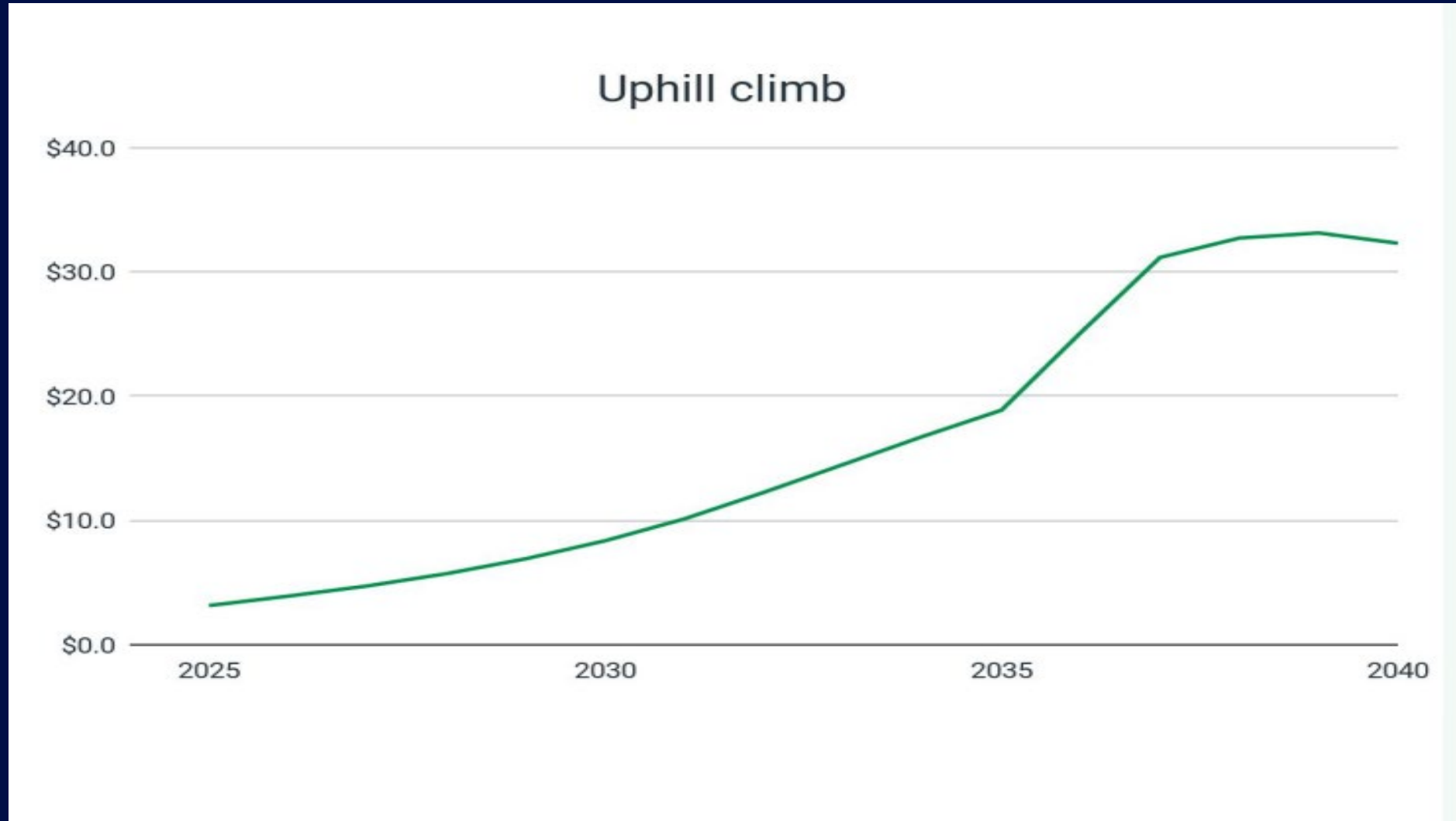


NBS offtakes see increased activity

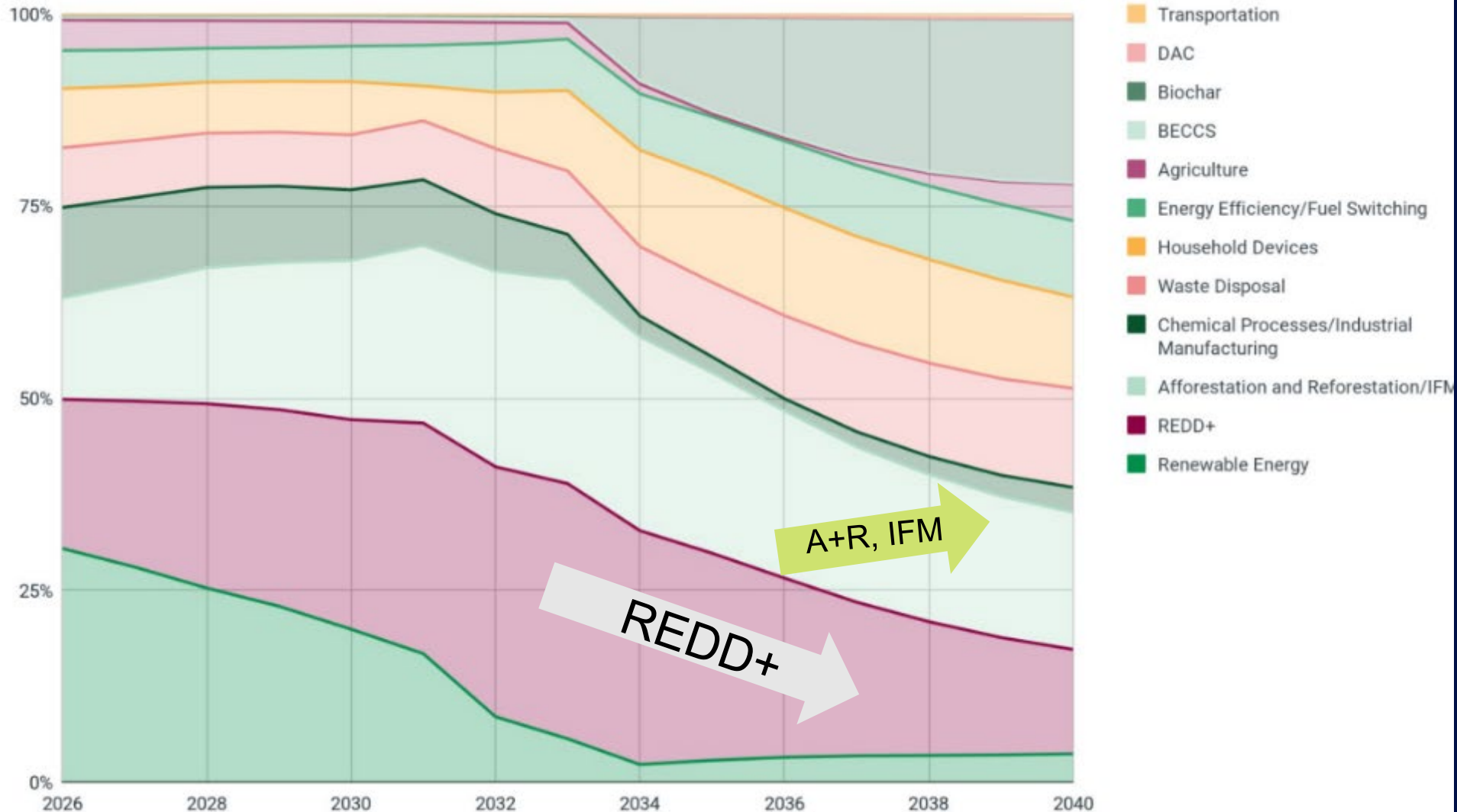
We saw the number of offtake agreements for NBS projects more than double, to **18 deals representing over 20m tons in 2024.**

The average price for credits is **over \$20/ton**, higher than credits on the secondary market.

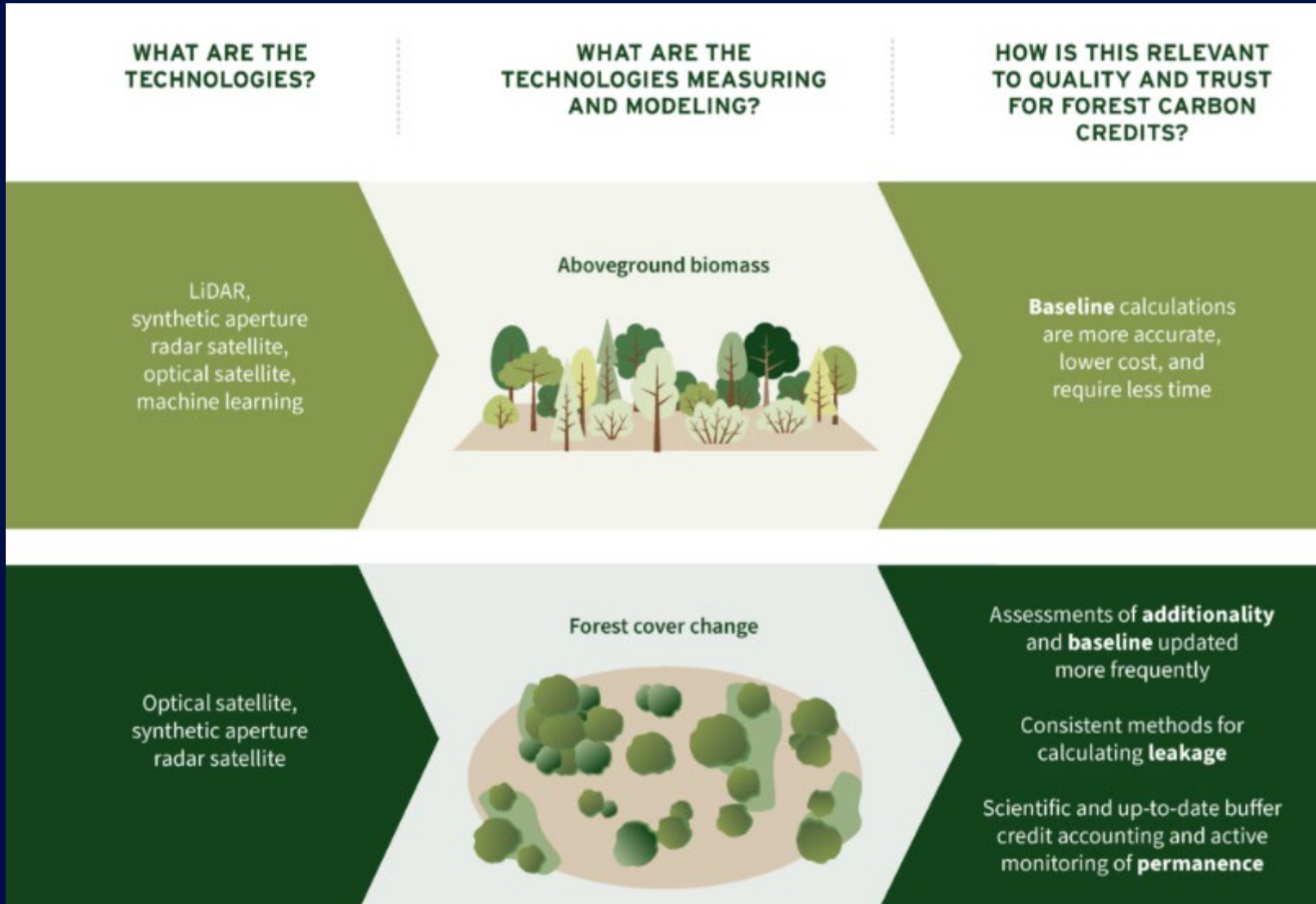
Price projection



Volume of trade by credit type



Technology (hacking)



New satellites and platforms offer potential efficiency, accuracy and integrity

Needs

- Availability
- Standards
- Data sharing

CO-BENEFITS

- Benefits that occur incidentally from, or through planning and implementing, a greenhouse gas mitigation project that results in a.
 - Environmental (improved biodiversity or water benefits)
 - Social or local economic

Challenges and limitations:

Measurement metrics and costs

Providing information to the market (stacked vs. bundled)

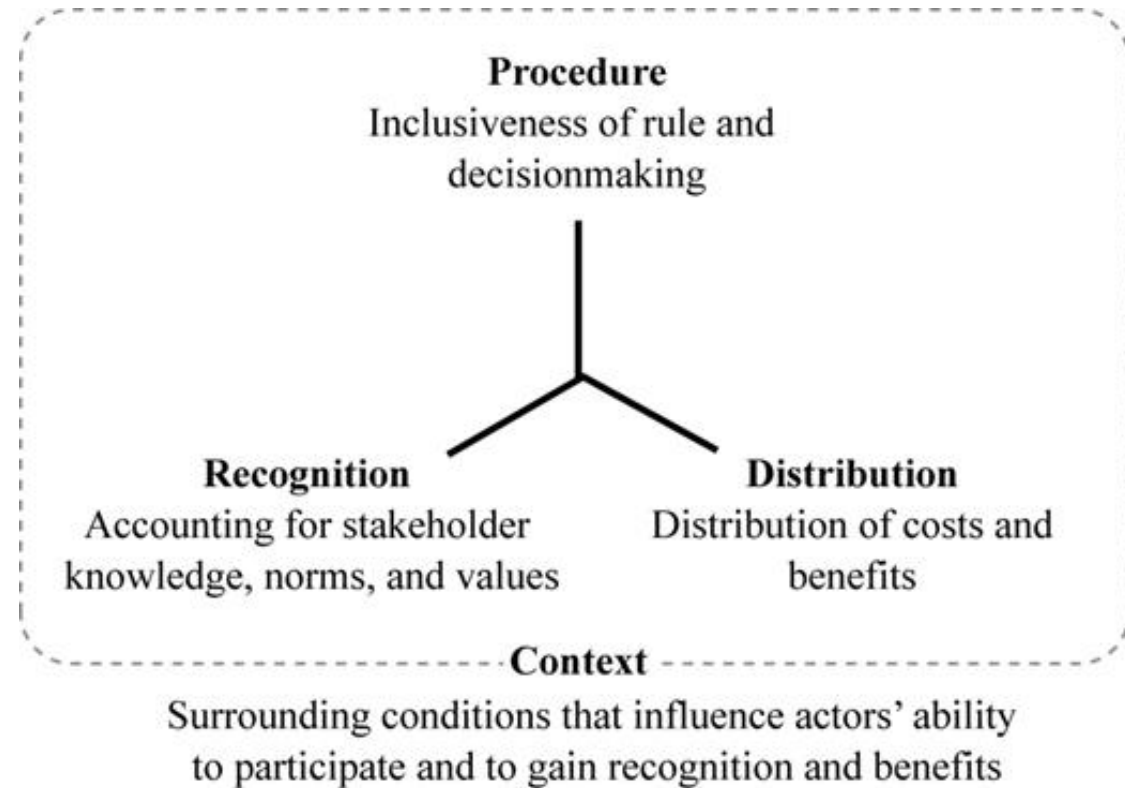
Fungibility and tradeability

Investors want to see co-benefits but often not willing to pay the price



Social Equity

Social equity pillars	Carbon standard requirements
Procedure	Stakeholder engagement / safeguarding
Recognition	
Distribution	Benefit sharing
Context	Eligibility criteria / safeguarding



Dimensions of social equity in ecosystem management
(Pascual et al., 2014; adapted from McDermot et al., 2013)

Insetting

PRESS RELEASES

J.P. Morgan Asset Management Acquires Campbell Global, a Leading Player in Forest Management and Timberland Investing

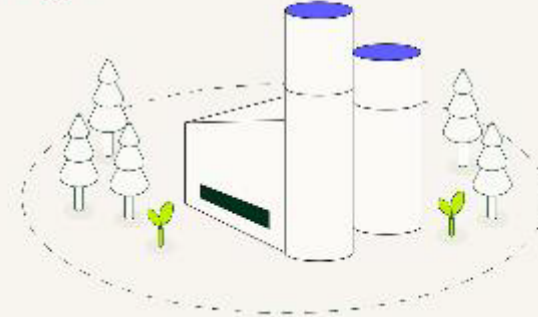
Provides direct access to Forestry sector and alignment with UN Sustainable Development Goals and Principles of Responsible Investing J.P. Morgan Asset Management expects to become an active participant in carbon offset markets

June 21, 2021

“Acquiring Campbell Global provides us with an opportunity to strengthen and diversify our ESG focus, including building a robust carbon sequestration platform,”
Anton Pil, Global Head of J.P. Morgan Global Alternatives.

What is carbon insetting?

Carbon Insights with

Conclusions



- ✓ **International carbon market landscape is becoming more complex and uncertain**
 - buyers have multiple options for meeting their needs, sellers carry more risk
- ✓ **New tech can drive down measurement and verification costs but standards at scheme level are required to assure buyers they get what they pay for**
- ✓ **Buyers need balance trade-offs between quality (environmental and social co-benefits) and price and decide what is appropriate to their needs and goals, and how they provide that information to their market and stakeholders**
- ✓ **Unclear whether market price differences will be sufficient to develop high quality credits**
 - Integrating environmental and social co-benefits can diversify income and lower project risk
 - Buyers seeking high quality will likely need to commit to offtake agreements at agreed prices to encourage projects that meet their needs
- ✓ **Carbon standards need to evolve beyond minimum requirements for social benefit sharing to involves individuals and communities in scheme design and to recognize local knowledge, culture and needs**

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