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LANDMARC Research Briefing

On the Complementarity of Climate Incentive Schemes for Emission Reductions and Carbon Removals

Nearly every conceivable pathway to keep the average global temperature rise under 2°C involves measures to remove carbon from the atmosphere, in addition to reducing emissions. Both activities need to be financed, either via direct funding or via selling emission credits into a relevant market.

There are a range of climate schemes that provide incentives for both reduction and removal actions. One of the main enablers of such schemes is therefore certification of carbon removals and reductions, which – when based on robust monitoring practices - provides clarity to both sellers and buyers that carbon removals and reductions have - or will - actually take place.

Why Do We Need to Certify Carbon Removal and Reductions?

Carbon removals/reductions can be split broadly into two main categories:

Engineering based solutions involve technical measures to capture and store carbon. Examples include direct air capture (DACCS) and blue hydrogen, where hydrogen is created from natural gas and the resulting carbon emissions either stored underground (CCS) or reused (CCU). Reduction options include many renewable energy project types, as well as energy efficiency measures.

Nature based solutions are projects that involve storage of carbon in soils, forests, wood products, chemicals, etc. They include measures such as forest management, re-forestation, peatland / wetland restoration, etc. Reduction options include many land-based mitigation activities that aim to prevent loss of carbon stored in soils and vegetation, such as forest fire prevention and peat land rewetting.

Both categories need robust business models to attract the necessary project investment. Successful business models therefore need a good understanding of income, i.e. how much money they can earn by delivering climate benefits, either via direct funding or selling into a (voluntary) carbon market.

Good quality projects also need to be protected from competitors who overstate their climate performance claims, via unreliable monitoring methodologies, or ignoring the risk of double counting or claiming.

Robust monitoring and certification are therefore a key facilitating component of incentive schemes that promote carbon removal and reduction actions. With certification, funders and buyers know that the claimed climate benefit of projects they support will actually be delivered, whilst project owners are able to provide evidence of how much carbon they will reduce or remove. Such certification schemes will be relevant for obtaining access to associated incentive schemes and funding markets.

Factors that need to be considered in certification schemes include:

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Validation. Is the methodology used to calculate climate performance robust? Is monitoring in place to ensure that the reduction/removal actually happen?

Additionality. Would the emissions reductions have taken place anyway, even without the additional funding generated by selling or trading carbon removals or reductions?

Permanence. And for removal options, will the captured carbon stay safely stored, and for how long? Is there a risk it will leak back into the atmosphere if, for example, the climate warms or the organisation managing the project goes out of business?

In LANDMARC, we are studying nature-based solutions, some of which can be considered as 'carbon farming'. The carbon savings delivered by these technologies can be harder to define and measure than pure engineering solutions, due to factors such as variation in the natural environment and the impact of climate change itself.

Current Incentives for Nature-Based Carbon Removals/Reductions

Carbon removals and reductions are currently incentivised by several different regional and national climate incentive schemes. To give an example, in the Netherlands – one of our case study countries - the schemes shown in Figure 1 currently apply.

Whilst all of these five schemes focus on carbon reduction and removal, their scope varies in terms of which emissions, reductions and removals they take into account.

Table 1 and Figure 2 show the basic scope for GHG accounting for the different schemes, broken down by emissions scope. Scope 1 covers direct emissions, Scope 2 is energy related emissions outside of the organisation or project and Scope 3 concerns indirect emissions (for example, from supply chains). Both Scope 2 and 3 can be split up in both domestic and foreign climate impacts.

The schemes also vary in terms of their additional policy goals. All five schemes aim to reduce atmospheric carbon, but HBE and SDE++ also aim to increase the amount of energy produced from renewable sources, whilst the Eco-scheme has goals around soil and air quality, biodiversity, landscape enhancement and water use.

This complex mix of climate incentive schemes with different goals, scopes and rules creates a difficult landscape for project owners to navigate.

There are multiple rulebooks and certification schemes that could apply to a specific reduction or removal activity.

Figure 1 – Climate incentive schemes for reductions and removals in the Netherlands

European Emission Trading System (EU ETS)	This EU wide cap and trade system represents about half of the European economy's CO_2 emissions, and put a price on emitting CO_2. It mainly targets the industrial and energy sectors
Eco-scheme	This is a new instrument within the Common Agricultural Policy (CAP), whereby CAP payments are awarded to so-called eco-activities in the agricultural sector. This instrument will work with a scoring system, whereby points will also be awarded for climate services.
The Renewable Energy for Transport (HBE) scheme	Stemming from the EU's Renewable Energy Directive (RED), this scheme focuses primarily on the transport sector whereby the blended renewable fuels must meet a certain minimum greenhouse gas emission reduction performance threshold.
Subsidy scheme for sustainable energy production and climate transition (SDE++)	Also stemming from the EU's Renewable Energy Directive, this feed-in subsidy scheme, which initially aimed to subsidise the production of renewable energy, now is reformed to promote various project categories that contribute to the reduction of greenhouse gas emissions and the storage of CO_2.
Voluntary national carbon market (SNK)	This focuses on voluntary climate projects and initiatives that can apply for carbon certificates via the 'Stichting Nationale Koolstofmarkt' (SNK) or Foundation National Voluntary Carbon market.

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Incentive	Climate impact	Scope 1 (direct)	Scope 2 (indirect energy) & 3 (in-direct chain related)	
			Domestic	Foreign
EU ETS	Emissions	Yes, within installation boundary	No	No, but perhaps indirectly via biomass sustainability certification
	Reductions	-	Yes, via avoided fossil CO_2 and CCS of fossil CO_2	No, but perhaps indirectly via the Carbon Border Adjustment Mechanism
	Removals	No	No, captured biogenic CO_2 does not receive additional incentive under EU ETS-CCS regime	No, but perhaps indirectly via the Carbon Border Adjustment Mechanism
CAP - Eco-schemes	Emissions	Yes	No	No
	Reductions	Yes (?), on own parcel/land	No	No
	Removals	Yes (?), on own parcel/land	No	No
RED-II → HBE	Emissions	Yes	Yes, via use energy during cultivation, harvest, transport, processing, and carbon stock changes associated with the biomass feedstock and perhaps indirectly via biomass sustainability certification	
	Reductions	-	Yes, avoided fossil fuel, and via CCS and CCR (carbon capture recycling) of fossil CO_2	
	Removals	-	Yes, via carbon storage in soils and via CCS and CCR of biogenic CO_2	
RED-II → SDE++	Emissions	Yes	Yes, via energy usage	No, but perhaps indirectly via biomass sustainability certification
	Reductions	-	Partial, via avoided fossil CO_2 and avoided methane	No
	Removals	Yes, via CCS as separate eligible activity	No	No
SNK	Emissions	Yes	Yes	No (?)
	Reductions	-	Yes	Yes, via specific rule within the SNK Rulebook (link)
	Removals	-	Yes	

Table 1 Scope and basic GHG accounting rules for climate incentive schemes in the Netherlands

For example, soil carbon accumulation actions could be eligible for funding via SNK, Eco-schemes as well as the HBE scheme. Up-front clarity about which schemes can be combined and which ones cannot, will help to keep valorisation and certification costs for the carbon farmer as low as possible, especially if more than one scheme (potentially) applies to their project. At the same time, for Governments, this complex eco-system of different climate incentive schemes creates the risk of over (or under) stimulation, double-counting and, potentially, fraud.

Developing Markets for Reduction and Removal actions

Markets for carbon reductions and removals need transparency and clarity to develop robust monitoring and certification systems, such as the proposed EU rules on certifying carbon removals, are crucial parts of the process.

Such systems will develop rules to monitor, report and verify the authenticity of removals, are strongly welcomed. However, our initial analysis shows that many reduction and removal projects in the nature-based solutions, or carbon farming, domain could be eligible for at least two or more climate incentive schemes. This will raise questions about whether the schemes can be used in combination to provide financial support. Although this adds complexity, it is not necessarily a negative situation as long as any double counting of climate performance claims is addressed.

We refer to this as a need for ***policy complementarity***, where support schemes and financial incentives are designed to integrate with, and complement, each other, to provide an adequate business / financial model for carbon farming projects and help meet multiple policy goals. At present, however, it is often not clear which combinations of financial incentives are allowed, or on which grounds certain combinations are rejected. For incentive schemes the rules for additionality are often set in isolation whereby the complementarity of these schemes remains poorly understood.

Incentive schemes cover multiple layers of Government, for example the EU, member states and, in some cases, local government. For EU member states, the EU has a pivotal governance role to play in providing strong rules, regulation, and guidance on the complementarity of incentive schemes to the markets.

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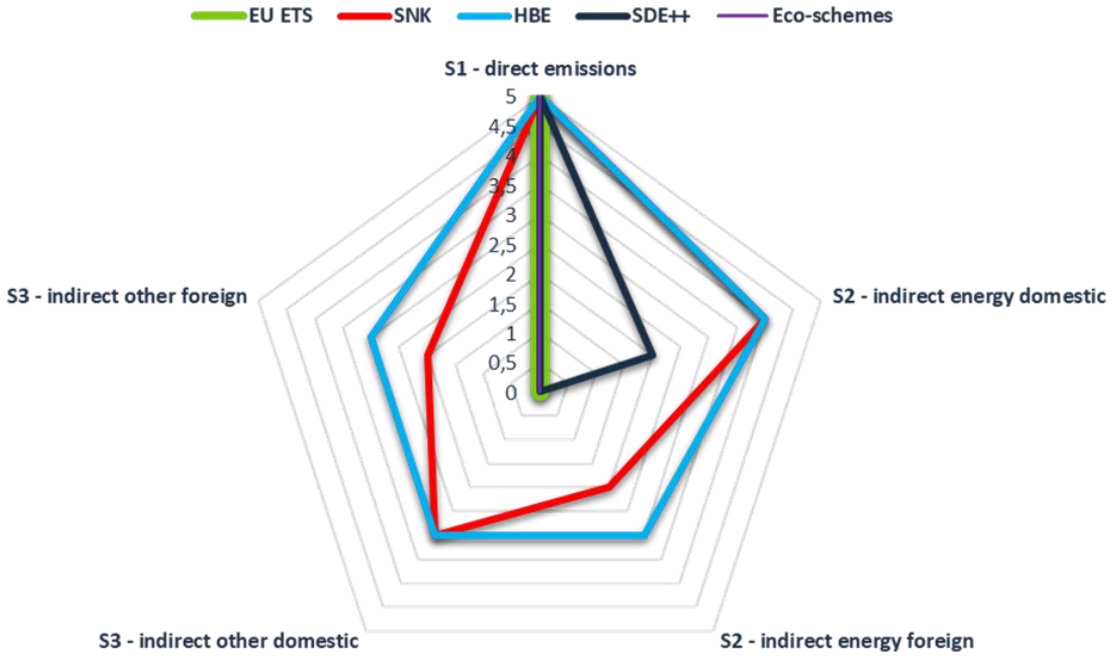
Figure 2 - Scope and basic GHG accounting rules for climate incentive schemes in the Netherlands



This goes beyond the need for robust monitoring and certification of reductions and removals, also addressing the financing challenges and legal implications of booking, claiming, transferring, and redeeming specific climate impacts for a specific sector or activity.

Within EU countries such as the Netherlands, adequate governance of the complementarity of climate incentive schemes would require the involvement of different ministries (linked to the relevant incentive schemes), and a broad range of market actors from the agriculture, forestry, (bio-based, circular) industry, energy, and transport sectors. Private sector operators of carbon farming and other nature-based solutions can support this process by providing empirical evidence of cases and projects, especially where the valorisation of climate services and claims is not clear across the range of climate incentive schemes.

More Information

This brief is based on LANDMARC Deliverable D2.5, 'Guidance Report for the Potential Role of Carbon Offsetting Schemes and the Paris Agreement', which is available on request.

About LANDMARC

LANDMARC is a 4-year project (2020-24) that is improving our understanding of how and where Land Based Mitigation Technologies can be most effectively deployed. We bring together stakeholders, Earth observation technology and computer modelling to estimate the global realistic potential of the Earth's land surface in absorbing additional carbon from the atmosphere. We are developing new assessment methodologies and tools. Our work will help Governments identify suitable LMTs for their countries and quantify their impact.

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