Climate Solutions Framework (CSF)

qualifying climate solutions and climate solutions companies

This framework has been developed by Exponential Roadmap Initiative and Oxford Net Zero and subject to extensive consultation and review, from November 2023 to May 2024. For more background information, please see <u>Climate Solution Framework version 1.0</u>



Contents

1. Introduction	1	
2. Purpose of this framework		
3. Definition of a climate solution	2	
4. Scope of the framework	2	
5. Criteria for qualifying climate solutions products and services	3	
5.1 Core criteria	3	
5.2 Underlying requirements	4	
5.3 Safeguard requirements	4	
6. 50% reduction threshold based on the Carbon Law		
7. Complementing other frameworks	6	
8. Criteria for qualifying climate solutions companies	7	
Appendix: Examples of types of products and services	8	
that could qualify under this framework	·	

1. Introduction

Climate solutions that replace high-emitting activities with low- or zero-emission alternatives are essential for decarbonising our economies. These solutions need to be developed and scaled rapidly in order to phase out fossil fuels and other highemitting activities at the pace required. This framework sets out criteria for qualifying climate solutions and climate solutions companies, with the aim of encouraging and rewarding the growth of innovations that can help counter the risks of global warming. Existing accountability and recognition frameworks assume all companies must reduce total emissions and are not set up to reward companies with climate solutions that need to be scaled, for which intensity targets may be more appropriate than absolute ones.

At global and sectoral levels, we know the technologies that are needed, and many of these technologies already exist. Examples include green steel, low-carbon cement and plant-based food. This framework seeks to identify and give recognition to products and services that are specific examples of these technologies, produced by specific companies. In this way it differs from taxonomies and white-lists of climate solutions.

Most companies have no products or services today that would qualify as climate solutions using the criteria outlined in this paper. However, to be fit for a net-zero world, companies must plan for inclusion and growth of climate solutions products in their portfolios, and for financing climate solutions produced by others.

2. Purpose of this framework

This paper sets out criteria anchored in science for defining climate solutions and climate solutions companies. The objective is to provide guidelines that are simple enough to be applied rapidly and at scale, with reasonable use of resources – and to do so with precision sufficient enough to accelerate the required climate transformation and avoid greenwashing. The criteria for defining both climate solutions and climate solutions companies are applicable to large established companies and start-ups, and can be used in procurement and investment decisions (e.g. by public bodies and financial institutions).

For established companies, the criteria can be used to drive transformation of product portfolios. For start-ups the criteria can give the recognition they need to gather financial support to scale disruptive solutions. In procurement and investments, this framework provides a common language to facilitate efficient decision-making.

The criteria in this framework focus on climate impact, with safeguards around other environmental impacts. However the criteria should not be used without consideration of impacts on people and society. We welcome linkage of this framework to work by others on defining and assessing impacts on wider society, such as the SDGs and climate justice, and of the potential co-benefits that climate solutions can provide.

3. Definition of a climate solution

We define a climate solution as a product or service that contributes to emissions reductions at a global level by having significantly lower emissions per functional unit than current market options. Production and consumption of climate solutions is compatible with the global 1.5°C ambition which, when replacing established solutions, will accelerate the transition towards a net zero carbon economy.

We recognise that numerous other ways to understand and define "climate solutions" exist and that the term climate solutions is used variously (eg by <u>Chan et al 2023</u> to refer to policies or projects).

4. Scope of the framework

This framework is not designed for the following types of products and services, because we believe them to be better addressed by other, complementary, principles and frameworks:

- Financial products and services.
- The services of professional service providers.¹
- Tech-based enabling platforms (eg 5G networks).
- Other products and services with the primary purpose of enabling others to avoid or reduce emissions (eg GHG calculation tools).
- Nature-based solutions in the context of beyond-value-chain mitigation.

¹ Professional services providers include, for example, management consultants, advertising agencies, engineering consultants and legal firms. The Race to Zero campaign and Oxford Net Zero have produced a paper on the alignment of professional services providers with the 1.5°C ambition, and we see potential use of similar frameworks by tech-based enabling platforms. https:// climatechampions.unfccc.int/wp-content/uploads/2024/05/Professional-Service-Providers-draft-guidance-for-consultation.pdf

5. Criteria for qualifying products and services as climate solutions

5.1 Core criteria

To qualify as a climate solution, a product or service must:

• Have a carbon footprint that is at least 50% lower^{1, 2}, than the relevant marketweighted average for the current products/services being replaced³.

OR

 Fulfil a credible intensity threshold per functional unit for a net zero world, as set out in a robust taxonomy or other science-based paper⁴.

Over time the climate impact of mainstream services and products will gradually decrease, and more credible intensity thresholds for a net zero world will be established. Therefore there will be a gradual shift from using the first criteria above to using the second.

Fig1. Criteria and safeguard requirements for qualification of a product or service as a climate solution

¹ See section 6. below for explanation of the connection between the 50% threshold and the Carbon Law.

² Preferably the footprint of the solution should be at least 90% lower than the market-weighted average.

³ The assessment is made according to a functional unit, full-lifecycle perspective including all value chain emissions.

⁴ Examples of science-based intensity threshold include the One Planet Plate concept developed by WWF Sweden: <u>https://www.wwf.se/mat-och-jordbruk/one-planet-plate/one-planet-plate-english/ and the SBTi steel</u> sector target-setting guidance.

5.2 Underlying requirements

- Full transparency about all quantifications of emissions, both of the product/ service and the comparison to the current market solutions.¹
- All quantifications include the full life cycle of the product/service.
- All quantifications follow best practice methods and recognised standards where these exist.
- The carbon footprint calculation does not involve any "net" reduction claimed by purchase of carbon credits or other investment beyond the value chain.
- The quantification used for the market comparison is the latest available and sufficiently recent² and relevant.³
- Qualification will be on a time-limited basis, to ensure integrity and ongoing monitoring and evaluation.

5.3 Safeguard requirements

In addition to meeting one of the two core criteria and the underlying requirements, climate solutions must

- Not contribute to extending the life of technologies that depend solely on fossil fuels.
- Do no significant harm in the following areas:⁴
 - Sustainable use & protection of water & marine resources.
 - Pollution prevention and control regarding use and presence of chemicals.
 - Protection and restoration of biodiversity and ecosystems.

¹ Transparency and disclosure: the company needs to publish their data annually for traceability, in addition to feedback of their products/service performance.

² For instance, not more than two years old.

³ For instance, when the exact source and related carbon emissions of hydrogen are unknown, use conservative market emissions factors or credible grid factors.

⁴ The Do No Significant Harm safeguards are based on the requirements in the EU taxonomy legislation.

6. The 50% threshold

If we assume that the economy follows the decarbonization pathway known as the Carbon Law - halving emissions every decade - then business-as-usual solutions would follow this downward exponential curve. So, to continue to qualify as Climate Solutions, products or services need to follow a trajectory which is at least 50% below that curve. This can be understood as solutions being at least "10 years ahead of time". A solution which today delivers emissions reductions of 90% compared to the average footprint of solutions in the market today (eg near zero steel) could be considered to be 20-30 years ahead.

The 50% reduction threshold for the first criteria option:

- a) Means that climate solutions can be considered to move the dial forwards, according to the Carbon Law¹, by 10 years.
- b) Ensures the products and services that qualify are contributing to significant shifts, rather than incremental ones.
- c) Ensures a wide enough gap to allow for some uncertainty, since all the necessary calculations will have some uncertainty and will most likely include approximations.

The case for defining a particular product or service as a climate solution will be more easily made for products and services that can demonstrate carbon footprints much lower than 50% of the footprint of the current options. The cases for which the reduction in comparison to the market-weighted average is close to 50% need to be examined especially carefully.

The dark line in the diagram below represents business-as-usual and the green shaded areas represent Climate Solutions.

Fig2. Projecting carbon footprint of the product or service/CO2e.

¹ The Carbon Law was formulated in the 2017 article "A Road for Rapid Decarbonisation" <u>https://www.science.org/doi/10.1126/science.aah3443</u>

7. Criteria for qualifying climate solutions companies

These criteria are for application to companies that supply climate solutions directly to markets.

For a company to quality as a Climate Solutions Company:

A. >90% of the company's revenues come from Climate Solutions.

AND

B. The company has a public near-term GHG target, a net zero target* covering all emissions (scopes 1, 2 and 3) a long-term climate action plan, and discloses progress annually.

AND

C. The company is working more broadly to transform its sector.

A company that doesn't yet fulfil the above criteria can set a pathway to shift its portfolio towards climate solutions, with the aim of transforming to a Climate Solutions Company. The pathway can be based on targets for increasing sales of climate solutions eg from 5% of annual revenue from climate solutions to 90% in five years.

*A net zero target is defined as a long-term GHG target aligned with a global 1.5°C pathway to net zero, to reach residual emissions by 2050, with counterbalancing of residual emissions by durable CO2 removals.

8. Criteria for qualifying climate solutions companies

This framework has close links to the following:

- Quantification of scope 1, 2 and 3 emissions, target-setting and planning for emissions reductions (eg GHG Protocol and PCAF see <u>Becker 2024</u>, for a full list).
- Methodologies for calculating avoided emissions written by organisations such as the <u>GHG Protocol</u>/World Resource Institute (WRI), International Telecommunications Union (ITU) and World Business Council for Sustainable Development (<u>WBCSD</u>).
- **Guidelines for communication about environmental claims and for labels** by organisations such as the International Organization for Standardization (<u>ISO</u>), the International Chamber of Commerce (<u>ICC</u>), the UK Green Codes Guideline and the Australian Guide for Business on Making Environmental Claims.
- Frameworks for sustainable investment, such as taxonomies, the <u>NZAOA</u> <u>Target-setting Protocol</u>, the European Green Bond Standard, the Climate Bonds Initiative, and GFANZ work on scaling transition finance and the investor methodology by <u>Project Frame</u>.

Appendix: Examples of types of products and services that could qualify under this framework

	Electric car in shared use	Near zero steel	Vegan food	Recycled concrete aggregates that mineralise CO2	
Core criteria	50% lower than	Meets net zero	Meets net zero	50% lower than	
	market comparison	intensity threshold	intensity threshold	market comparison	
Note	Relevant market	Electricity from	Based on threshold	Electricity from	
	comparison will be	renewable sources	for kgCO2e per kcal	renewable sources	
	region specific	required	at global net zero	required	
Safeguard requirements					
Not contributing to extending	Yes, since can	Yes, since can be	Yes, assuming	Yes, since can be	
the life of technologies that	be operated on	produced using	produced using non-	produced using	
depend solely on fossil fuels.	renewable electricity	renewable energy	fossil inputs	renewable energy	
 Does no significant harm to a. sustainable use & protection of water & marine resources b. pollution prevention and control regarding use and presence of chemicals c. protection and restoration of biodiversity and ecosystems 	Yes, if produced with minimal impacts				

Authors

Johan Falk, Claire Wigg – Exponential Roadmap Initiative Kaya Axelsson, Matilda Becker – Oxford Net Zero

Reviewers

Emily Faint – British Standards Institution Alice Roche-Naude – Futerra Andrew Wanliss-Orlebar – Futerra David Ekelund – Icebug Eva Normell Alder – Investment Fund Emelie Kagstedt – Kivra Jesica Andrews – Net Zero Asset Owners Alliance Sam Fankhauser – Oxford Net Zero Johan Mandaric Reunanen – Stegra Ola Hansén – Stegra

Acknowledgements

The authors wish to thank Tessa Vincent for her thoughtful feedback. They also thank Andrea Lindblom for all her contributions to the paper and Hsu-Kai Weng for creating the Carbon Law graphic.

Suggested citation

Falk, J., Wigg, C., Axelsson, K. & Becker, M. (2023). Climate solutions framework (CSF) - defining and qualifying climate solutions and climate solutions companies. Exponential Roadmap Initiative.

