

### AFFORESTATION PROJECT DEVELOPMENT

# Afforestation projects around Europe



### What is a carbon project?

A carbon project is a joint activity of a project developer and landowners, in the course of which carbon is sequestered over the long term. It must be demonstrated that these activities would not be carried out without the project. The created carbon credits can be sold.

### **AFFORESTATION**

Afforestation in areas where no forest has been grown for at least the last 10 years

### **CARBON CREDIT**

One verified carbon credit = one tonne of sequestrated CO2\* that can be bought, stored and sold.

\*Dry wood and soil organic matter is approximately 50% carbon. As trees grow, they "sequestrate" carbon out of the atmosphere into wood. The term "sequestrate" means storage over the long term, typically 20 years or more. 20% of all human generated emissions are created through deforestation and land-use. Af/Reforestation is a crucial component of addressing global climate change.



## What is the voluntary carbon credit market?

- The voluntary carbon market is not the same as the mandatory carbon market in the European Union;
- In the voluntary market, credits can be purchased by all parties (both corporates and private individuals);
- The largest buyers in the voluntary market are usually large companies who are not part of the mandatory market, but who seek to reduce their carbon footprint and become carbon neutral.

For example: Bolt buys carbon credits every year to offset the company's footprint. Footprint compensation is done with the aim of acquiring and retaining climate-conscious customers and to obtain better conditions from lenders and investors.

### STANDARD ORGANIZATIONS: for example Verra

PROJECT VERIFIERS: third parties who are auditors to projects

### PROJECT DEVELOPERS: Ecobase

### LANDOWNERS

CREDIT INTERMEDIARIES: platforms and credit brokers, also Ecobase

CREDIT BUYERS: companies, also private persons



Ecobase Afforestation Projects goal is 500k hectares across Europe. We have a chance to be the first mover in 20 European countries

Estonia – planting starts spring 2022 2<sup>nd</sup> layer – planting starts autumn 2022 Rest of EU – planting starts spring 2023 <u>Agricultural land hectares by country –</u> <u>maximum theoretical potential for an afforestation project,</u> <u>depending on the country we'd see 0.5-3% afforested</u>



# Landowner

- Participation in afforestation project that results in the creation of carbon credits.
- Organizes the planting and covers the planting costs.
- With credits that are yours, you can operate as you wish you can sell, hold, or use them for your carbon balance.
- Land and forest are, of course, 100% owned by the landowner.
- Landowner receives 90% of the credits awarded to the project.

# Ecobase

- Writes and administers the carbon project.
- Covers all registration and verification costs and organizes project monitoring.
- Builds a registry and platform to make it easier for landowners to manage credits.
- Ecobase covers the costs and performs the biodiversity monitoring at the beginning of the project and after every 5 years.
- Accessing carbon markets comes with high transaction costs and required levels of expertise.
- Ecobase receives 10% of the credits awarded to the project.



# Project entry conditions

- Eligible land in the project must not have been forest land for the last 10 years:
  - **Out of use land**, such as abandoned agricultural land that does not forest naturally.
  - **Regular pasture land** (not woody meadows) of low economic value.
  - Arable land of low economic value.
  - **Other land,** such as old quarries that does not forest naturally.
- It is forbidden to disturb more than 10% of soil during planting.
- Material carbon emissions due to land use change need to be avoided as they create a "hole" in the project that needs to covered.
- All other silvicultural work is allowed.
- The contract must be signed before planting begins.

Credit issuance is based on actual real results, not a model, and it happens after the verification of the results every 5 years.



## Overview of contract terms



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# Examples of events on a 1 ha land area



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# How is the price of credit formed?

**Biodiversity** 

among buyers

Low





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A registry is required to track ownership and transfer of carbon offsets and to avoid double accounting. It also allows buyers to track offsets and ensure that they are real

**Ecobase Registry -** Creating an environment where Ecobase has no control over the assignment, creation, and deletion of credits, but all is done automatically and in a manner where it can be controlled by all parties.

Public.

Third party managed or automatic / multilateral validation.

Credits are entered into the registry, showing who owns them and other relevant information (for example biodiversity scores). This allows the credits to be sold at a higher price.

Registry Information + The agreement is a way for ensuring the availability of your credits in case something should happen to Ecobase. You own and control your own credits.

We will try to offer the possibility of creating an account at the Verra registry for landowners who wish to do so. Paperwork and costs apply.



### Team

## Advisors



**Jaan Sepping** CEO Former investment banker and entrepreneur in the field of ClimateTech



**Kristiina Esop Project management** Entrepreneur; Doctoral student and lecturer in management sciences at EBS in the field of sustainable entrepreneurship



Leho Tedersoo Advisor Professor at the University of Tartu, one of the world's leading experts in soil biodiversity and DNA sequencing technologies, head of the EuroStat soil biodiversity research project

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**Aleksei Morgunov** Advisor Head of Machine Learning at Fluidic Analytics, a biotechnology company based in Cambridge

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**Andres Jäärats** Advisor Forestry, Ph.D Estonian University of Life Sciences Owner and manager of Puukool



OF TARTU



**Martin Kiik** Advisor Ex-Management consultant in the technology and pharma sectors

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In addition, the team includes the world's top carbon project writing consultants, who are also members of Gold Standard / Verra technical committees



Estonian, Latvian, Lithuanian, Southern Finnish, Central Swedish contract options



### Estonia native tree plantation contract types

Species	Contract length	Estimated felling times	Expected Compulsory Verra Risk Buffer and Reduction	Expected number of net credits for landowner per 1 ha
Birch	41y	26y thinning 40y final harvest	10-20%	180-230
Spruce	41y	26y thinning 40y final harvest		125-175
Birch-Spruce	41y	26y thinning 40y final harvest		150-200
Black alder	41y	26y thinning		180-230
Pine	61y	26y/46y thinning 60y final harvest		150-200
100y contract – all species	100y	100y only thinnings		275-325



# Example: birch 40-year rotation per hectare





# Example: birch 40 years, 1 ha



### Before the buffer 249 t

- Certification organization buffer.
- Guarantee for the buyer to ensure the long-term and reliability of credits. The exact size of the buffer depends on the length of the contract and is confirmed during validation (longer contract = smaller buffer)
  - In the event of a partial release of the buffer during the project (if any), 90% of it will be allocated to the landowner and 10% to Ecobase.

### After buffer 199 t

### X predicted €50 / t = €9000/ha

Landowner can choose either to:

- sell credits themselves (no additional fees apply) – landowner gets €9000/ha



# Ecobase adds Bio-markers to carbon credits through biodiversity measurement



# Example of an afforestation project land

Näide

- 8-hectare grassland surrounded by forest near Loksa (83663/35301: 001: 1692)
- Rent 60 EUR / ha per year (3 x lower than high quality agricultural land) Planting and maintenance costs 1500 EUR / ha

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# Voluntary carbon market statistics



# Reaching the 1.5-degree warming target could require a large quantity of negative emissions, including some generated using carbon credits.



**Global carbon-dioxide emissions,** gigatons (GtCO<sub>2</sub>) per year

### The voluntary carbon market has grown significantly in recent years.



Note: We estimated the voluntary carbon market size based on 5 standards: Verified Carbon Standard (VCS), Gold Standard (GS), Climate Action Reserve (CAR), American Carbon Registry (ACR), and Plan Vivo. We excluded ARB-eligible credits and Gold Standard-labeled CERs used for meeting compliance targets. Data was retrieved from aforementioned registries on December 2, 2020 for YTD volumes up until the end of November (ie, 150 million tCO<sub>2</sub>e of issuances and 81 million tCO<sub>2</sub>e of retirements). We projected volumes for full-year 2020 based on extrapolation in line with historical seasonality (last 5 years), and did not adjust for any COVID-19 related impacts on seasonality patterns. Source: ACR; CAR; GS; Plan Vivo; VCS



# Global demand for voluntary carbon credits could increase by a factor of 15 by 2030 and a factor of 100 by 2050.

Up to 100× <7.0-13.0 Commitments to date<sup>1</sup> TSVCM<sup>2</sup> survey NGFS<sup>3</sup> scenarios NGFS "immediate action" 1.5°C pathway with carbon-dioxide removal<sup>3</sup> 3.0-4.0 ~15× ~1.5-2.0 2.0 1.0 0.2 0.1 2020 2030 2050

Voluntary demand scenarios for carbon credits, gigatons per year



### Offset project prices vary significantly



Price ranges (\$) per tonne of CO2 equivalent on selected registries, 2018

