



Final Forecast for Forest Carbon Capture

Álfaskeið, Grímsnes- og Grafningshreppi

FOREST^{CARBON}**CO₂**

 skógræktin

Table of contents

Introduction	3
Project location	4
Prerequisites of the Carbon Capture forecast.....	5
Final forecast for Álfaskeið	6
Carbon units.....	7

Introduction

This report gives the final carbon capture forecast for the project Álfaskeið in Grímsnes- and Grafningshreppur, South Iceland. The project is owned by Skógarálfar ehf. The project start date was in September 2023.

The total project area is 141,5 ha of which plantable area is estimated 132,7 ha, according to the afforestation plan. To be safely within boundaries of the planted area, the owner has requested that the designated area for the current calculations to be 130 ha.

Information on site conditions and planning was obtained from the project design report by Jón Þór Birgisson, forestry adviser. Further information on seedling numbers and species composition was provided by the project owner.

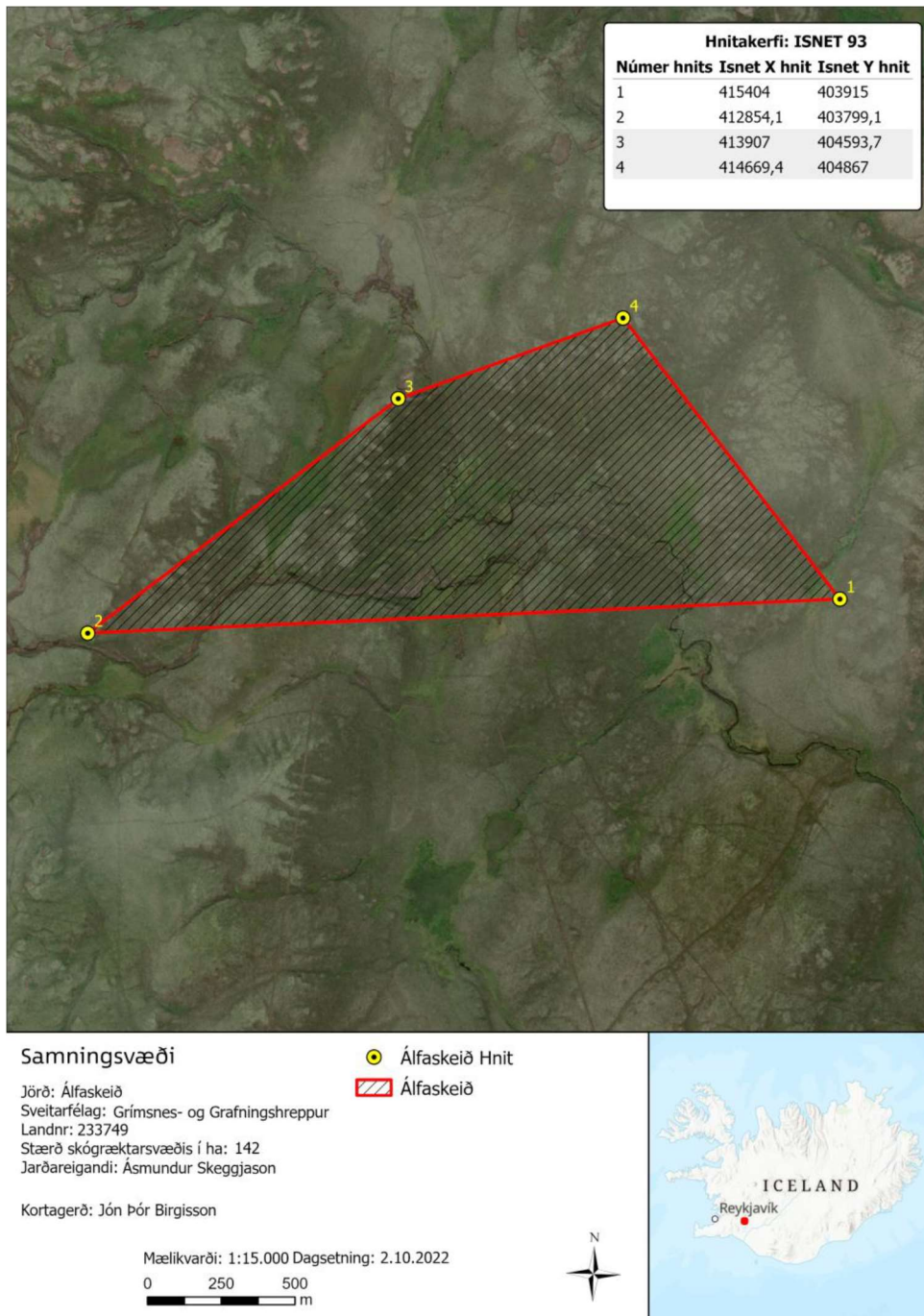
The carbon sequestration data was generated using the Icelandic Forest Carbon Calculator (<https://reiknival.skogur.is/>) which is a forest growth model based on long-term studies on various tree species across the country.

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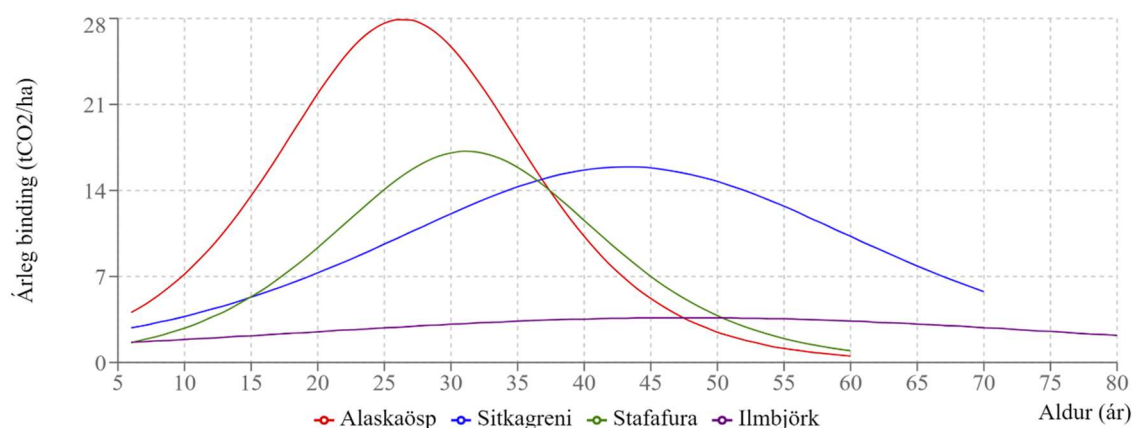
Project location



Prerequisites of the Carbon Capture forecast

The table shows the hectares planted for each tree species and the predicted site classes (Source: <https://reiknival.skogur.is/>.) The total planted area is 130 ha.

Tree species	Land area (ha)	Site index
<i>Black cottonwood</i>	6	AÖ16
<i>Sitka spruce</i>	43	SG14-19
<i>Lodgepole pine</i>	46	SF15
<i>Downy birch</i>	2	IB8



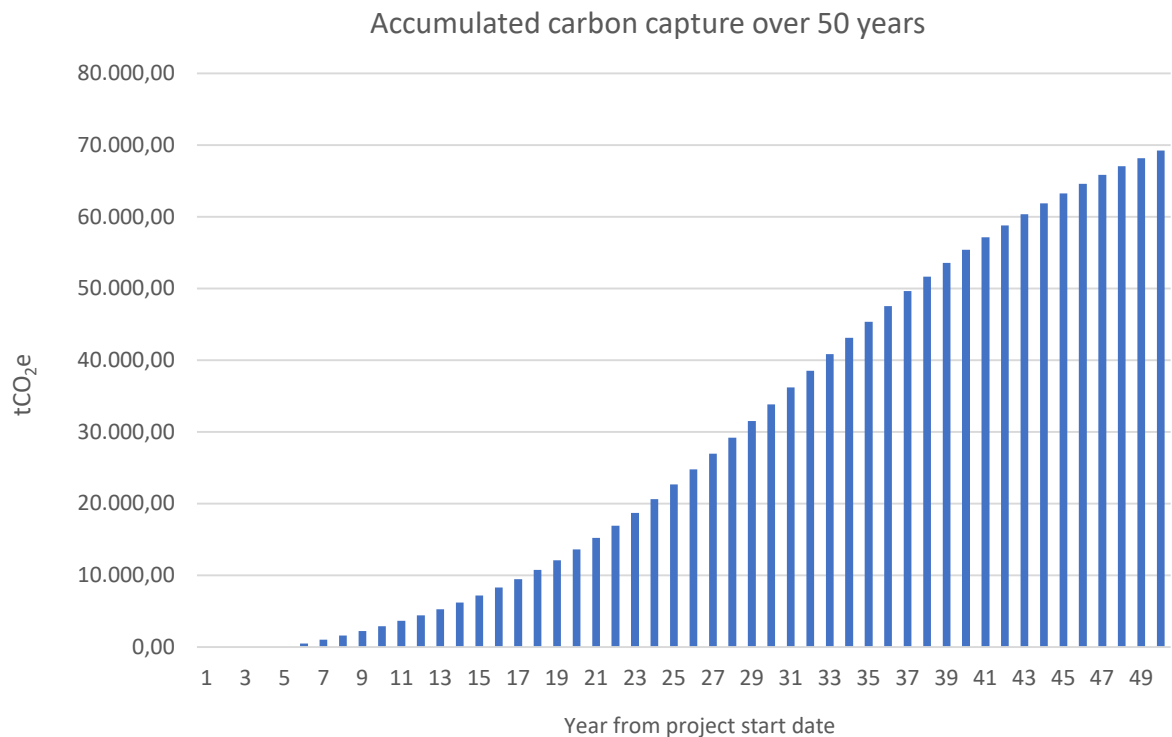
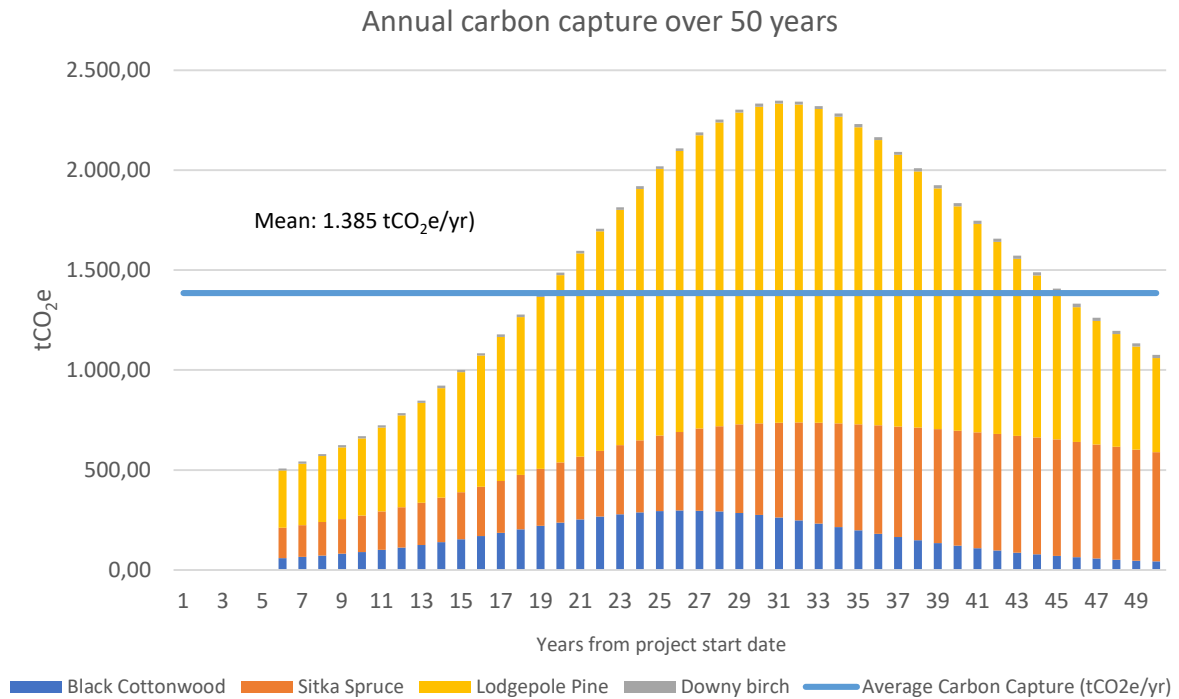
The figure above shows the annual carbon capture over 50 years at South Iceland inland sites, elevation 0-150 m a.s.l., for black cottonwood (alaskaösp), Sitka spruce (sitkagreni), lodgepole pine (stafafura) and downy birch (ilmbjörk). Source: <https://reiknival.skogur.is/>.

Around a quarter of the planted area reaches elevation 150-160 m a.s.l. while other parts are below 150 m. Although the higher sections exceed the boundaries for the current calculation criteria, the validity for separating these areas due to minor differences in elevation is vague and therefore ignored.

In the final forecast presentation, carbon capture for the first five years after the project start date is presently omitted from the final forecast. The calculator assumes a fixed carbon capture in the soil for the whole period, which may not be actual for the first few years due to mechanical soil scarification at the site. This omission will be reevaluated in the next verification.

Final forecast for Álfaskeið

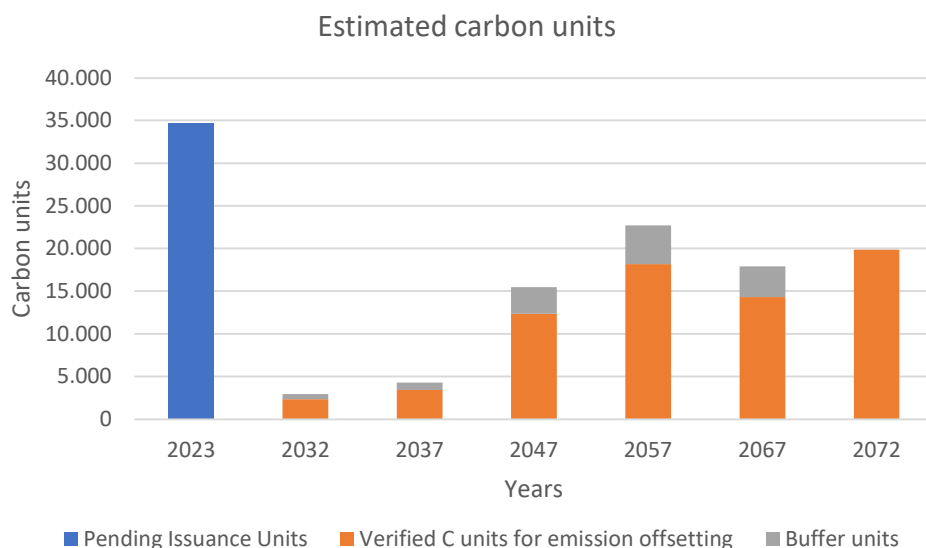
The annual average carbon capture at Álfaskeið is estimated to be 1.385 tCO₂e and the total carbon capture over a 50-year period is estimated to be 69.257 tCO₂e (see figures below).



Carbon units

Summarized in the table below are estimates of carbon units produced in the project Álfaskeið. A total of 34.629 Pending Issuance Units are issued to the project following validation. At each verification, 80% of the verified carbon units can be used for emission offsetting. The rest, 20%, is withheld as buffer units until the project's last date.

Years from project start date (Note: year 10 is optional)	Start of certification period	End of certification period	Total Pending Issuance Units per certification period (50%)	Buffer units (20%)	Verified C units for emission offsetting per certification period (80%)	Total carbon units
5	1.10.2023	1.10.2027	0,0	0,0	0,0	0,0
10	1.10.2028	1.10.2032	1.461,6	584,7	2.338,6	2.923,3
15	1.10.2033	1.10.2037	2.139,1	855,6	3.422,5	4.278,2
25	1.10.2038	1.10.2047	7.729,3	3.091,7	12.366,9	15.458,6
35	1.10.2047	1.10.2057	11.351,5	4.540,6	18.162,4	22.703,0
45	1.10.2058	1.10.2067	8.948,7	3.579,5	14.317,9	17.897,4
50	1.10.2068	1.10.2072	2.998,5	1.199,4	4.797,5	5.996,9
Totals			34.629	13.851	55.406	69.257



The figure above shows the predicted schedule of carbon units' issuance to the project. Following validation, half of the estimated total C units are issued as Pending Issuance Units. The verified C units produced are shown at verification years. Also shown are non-tradable buffer units, which are withheld until the last project date in case of any losses of verified C units from a project.

Carbon unit evolution in Álfaskeið for 50 years following the project start date in 2023. The table continues to the next page.

Vintage	Estimated total carbon units (tCO ₂ e/yr)	Pending Issuance Units (50%) (tCO ₂ e/yr)	Estimated verified carbon units (tCO ₂ e/period)	Buffer units (20%) (tCO ₂ e/period)	Estimated carbon units for emission offsetting (tCO ₂ e/period)
2023	0	0			
2024	0	0			
2025	0	0			
2026	0	0			
2027	0	0	0	0	0
2028	508	254			
2029	542	271			
2030	580	290			
2031	624	312			
2032	669	335	2.923	585	2.339
2033	723	362			
2034	785	393			
2035	847	424			
2036	922	461			
2037	1.001	501	4.278	856	3.423
2038	1.084	542			
2039	1.178	589			
2040	1.277	638			
2041	1.378	689			
2042	1.487	743			
2043	1.597	798			
2044	1.706	853			
2045	1.814	907			
2046	1.919	959			
2047	2.019	1.010	15.459	3.092	12.367
2048	2.109	1.054			
2049	2.188	1.094			
2050	2.252	1.126			
2051	2.302	1.151			
2052	2.332	1.166			
2053	2.348	1.174			
2054	2.342	1.171			
2055	2.320	1.160			
2056	2.282	1.141			
2057	2.230	1.115	22.703	4.541	18.162
2058	2.165	1.082			
2059	2.091	1.046			
2060	2.009	1.005			

2061	1.925	962			
2062	1.834	917			
2063	1.747	873			
2064	1.657	829			
2065	1.572	786			
2066	1.489	745			
2067	1.408	704	17.897	3.579	14.318
2068	1.331	666			
2069	1.261	630			
2070	1.195	598			
2071	1.134	567			
2072	1.076	538	5.997	1.199	4.798
Total	69.257	34.629	69.257	13.851	55.406

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