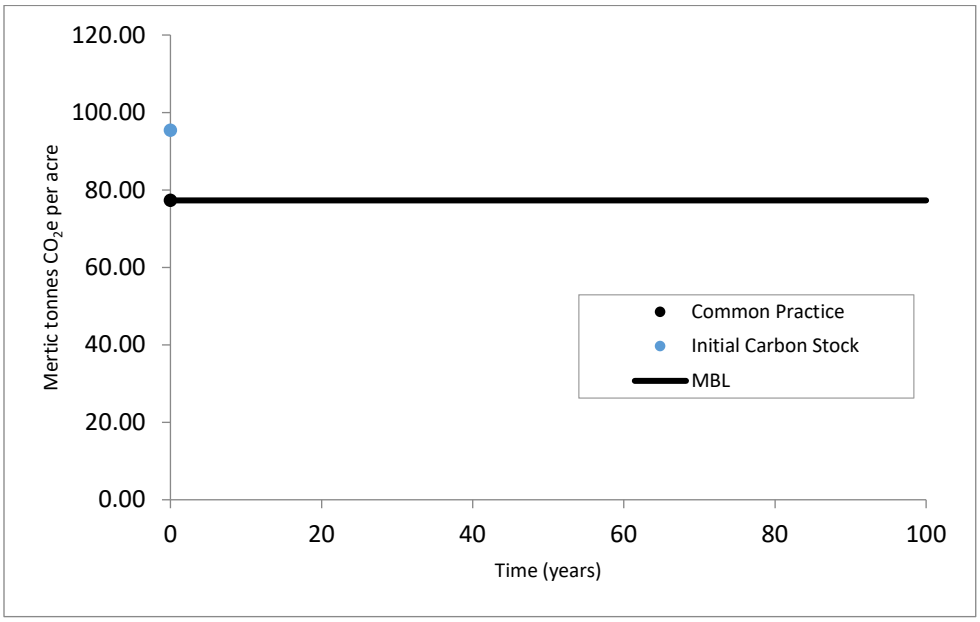


*Figure 1. Common Practice vs. Initial Carbon Stocks.*

Figure 1 shows the Initial Carbon Stocks (standing live above-ground carbon) plotted against the Common Practice statistic. Soil survey data from NRCS and USFS FIA for the subject counties in Kentucky, TN, and West Virginia indicate that the Project Area is 100 percent Forest Service Types IV – VII (See Initial OPDR Appendix A). Based on this analysis, the total common practice carbon stock is **1,848,091.15 $tCO_2e$**. The weighted average common practice carbon stock on a per acre basis is **77.30 $tCO_2e$**.

Initial carbon stocks were determined using the inventory data and approved volume and biomass equations appropriate for the Project's Supersection and species as published and approved by ARB. The species observed in the project are listed in the Worksheet Calculations workbook submitted as part of the initial verification along with their cubic foot volume and biomass equation assignments. The total above-ground standing live carbon stock at the beginning of the initial reporting period was **2,281,927.22 $tCO_2e$**, which is above the common practice. The weighted average above-ground standing live carbon stock per acre was **95.44 $tCO_2e$**.

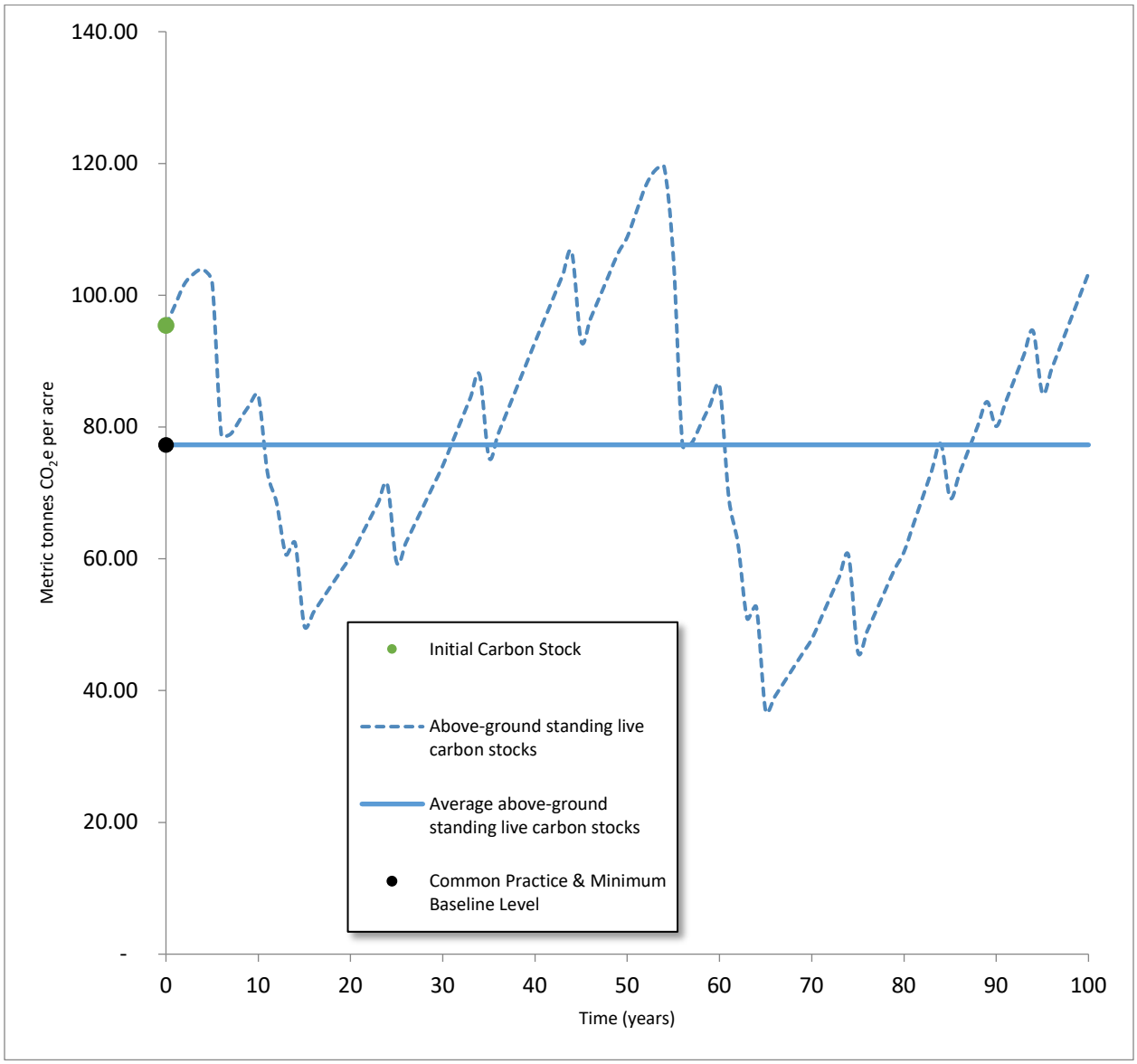


*Figure 2. Baseline Above-Ground Standing Live Carbon Stocks.*

Figure 2 plots above-ground standing live carbon stocks against time. The baseline features heavier removals in the first decade of the projection, consistent with a pattern of ownership common to the region by which, in the absence of forest regulations, larger commercial forest owners will seek to extract the maximum value from the asset. Harvesting intensity after the initial drawdown maintains a periodic redistribution of age classes, thereby maintaining long term productivity. The decrease in harvest intensity during decades 2 through 5 and again in the last 4 decades of the projection leads to an appreciation in timber stocks. The results show the average above-ground standing live carbon stocking per acre, which constitutes the baseline and is a result of modeling the legal constraints as the basis for the project baseline, does not fall below the MBL.

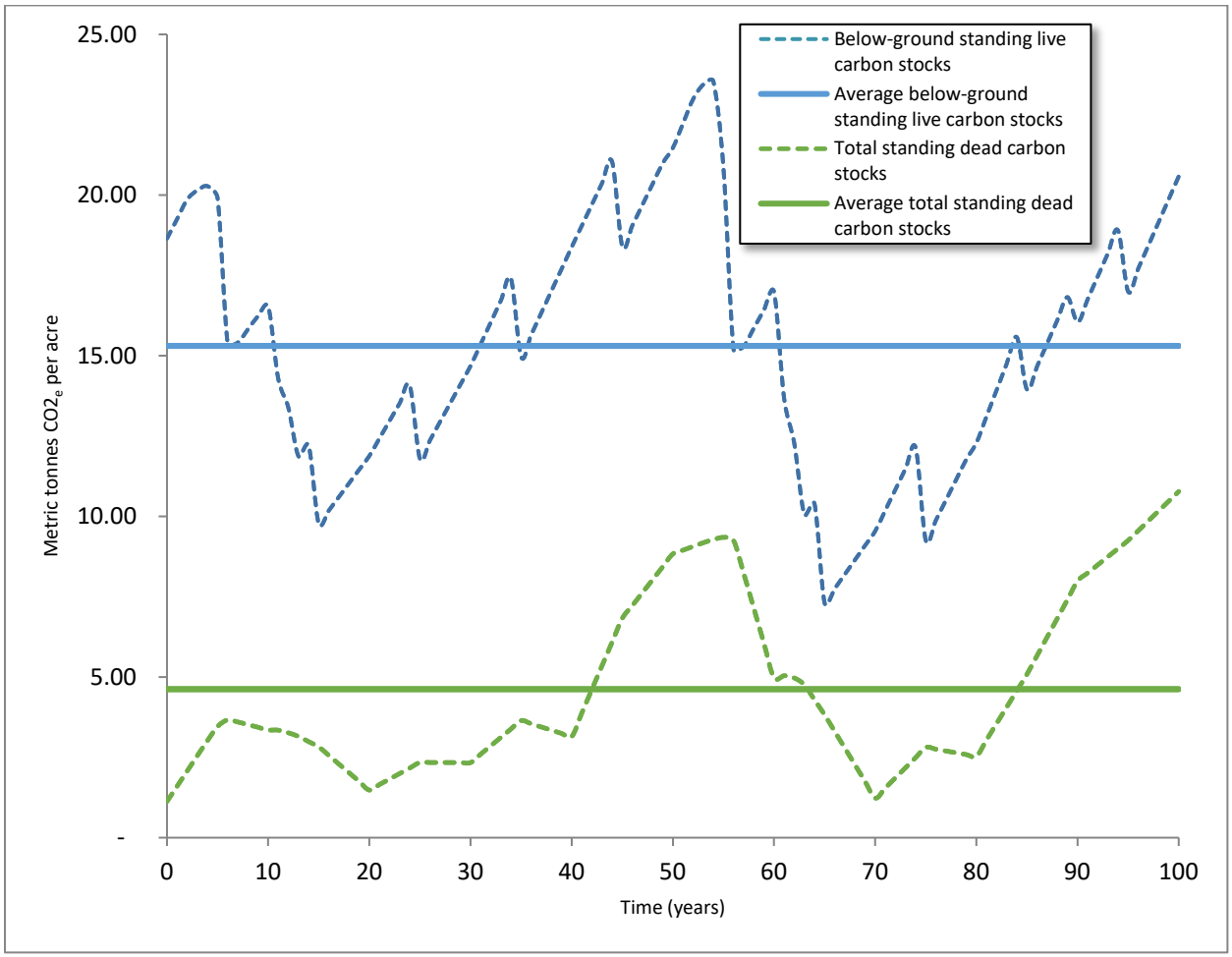


*Figure 3. Additional Baseline Carbon Pools.*

Additional pools were modeled and quantified in the same fashion as the above-ground standing live carbon stocks in the previous step. These additional pools were below-ground carbon stocks and standing dead carbon stocks (Figure 3). A diagram of the final baseline incorporating all required carbon stocks is also provided below, in Figure 4.

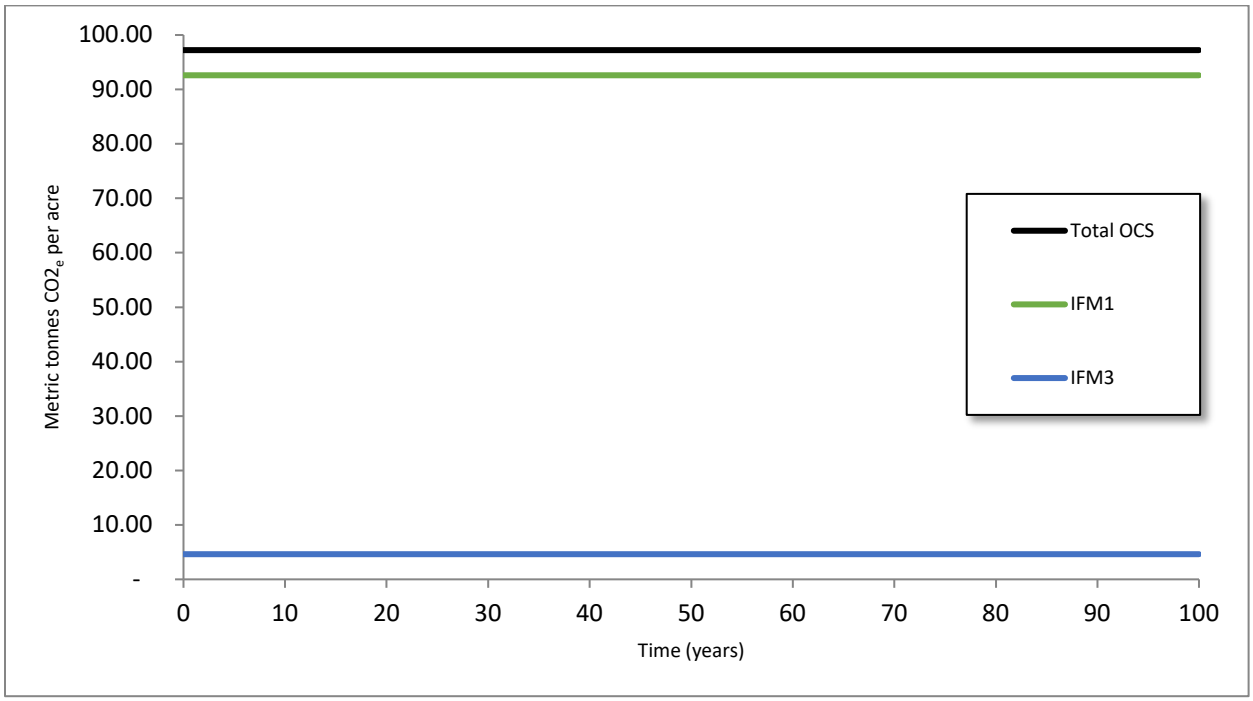


*Figure 4. Final Baseline for IFM-1 and IFM-3 carbon pools.*

The arrangement of the baseline treatments over time and space creates timber product value in yields during some periods and appreciation in other periods. The baseline also adheres to best management practices in streamside management zones where required and is in line with the baseline scenario characterization and legal constraints. The development case for each acre, and the management regime at the landscape level, yield an acceptable return on investment for the forest owner while also maintaining compliance with all applicable laws and regulations. Annual changes in baseline stocks reflects maximum return from timber harvesting with sustained periodic productivity and a harvest and growth pattern that indefinitely serves multiple management objectives.

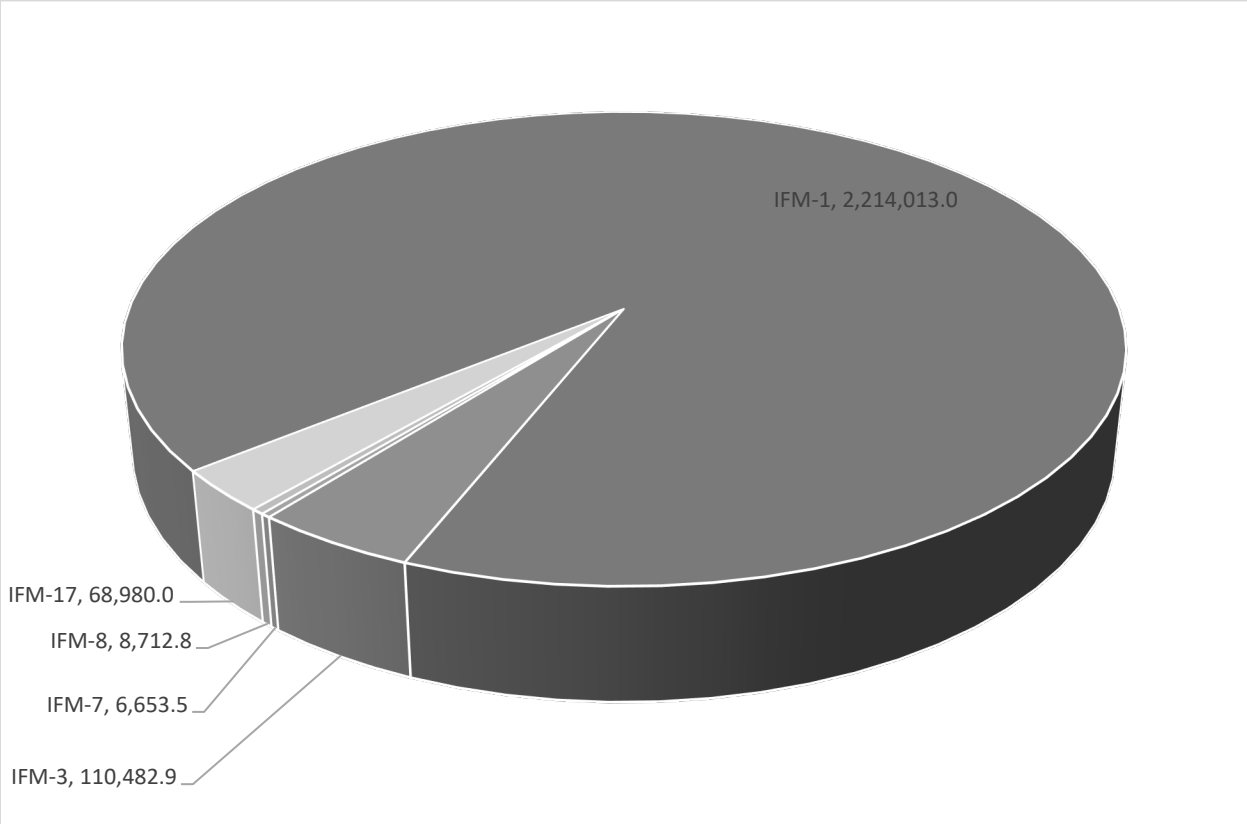


*Figure 5. Final Baseline for all required carbon pools.*

To estimate the amount of baseline carbon transferred to long-term storage in harvested wood products, first the amount of carbon in trees (i.e. standing live carbon stocks) harvested for wood products was determined from the growth and harvest regime used to develop the baseline for onsite carbon stocks. Second, the amount of baseline carbon in harvested wood delivered to the mill was calculated. This is only the carbon in the merchantable wood portion of the trees harvested for wood products prior to delivery to the mill. The stem bark, top, stump and below ground portions are assumed to be immediately emitted to the atmosphere for accounting purposes. The estimates were derived using the same volume and biomass equations to calculate biomass in live trees.

Baseline and project harvest volume projections in cubic feet are shown in a table in Initial OPDR Attachment I. The average of baseline carbon in trees harvested annually and carbon in wood delivered to mill are shown in Figure 6. If applicable, the baseline average is pro-rated for the initial reporting period length.

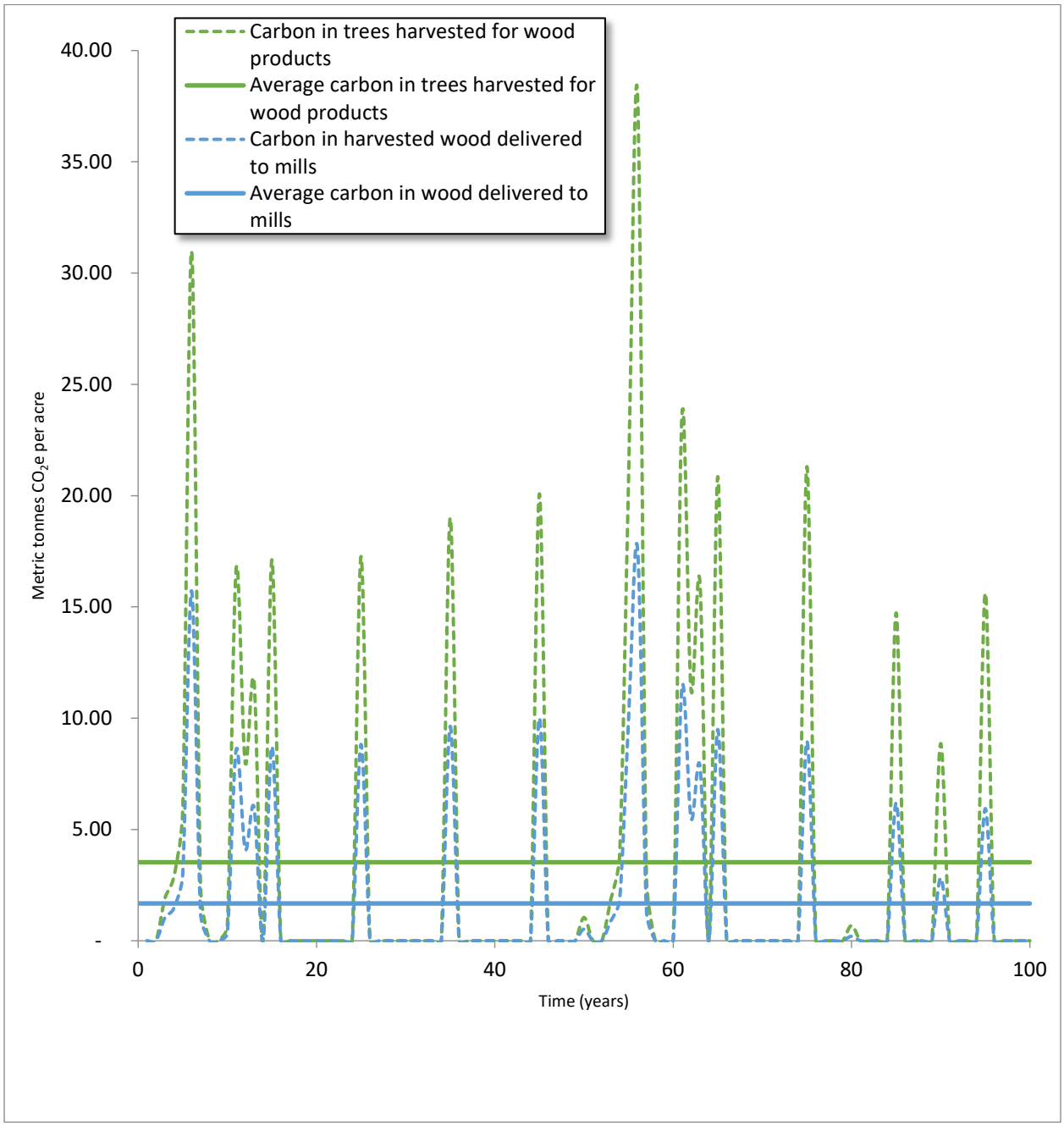


*Figure 6. Baseline carbon in harvested trees and wood delivered to mill*