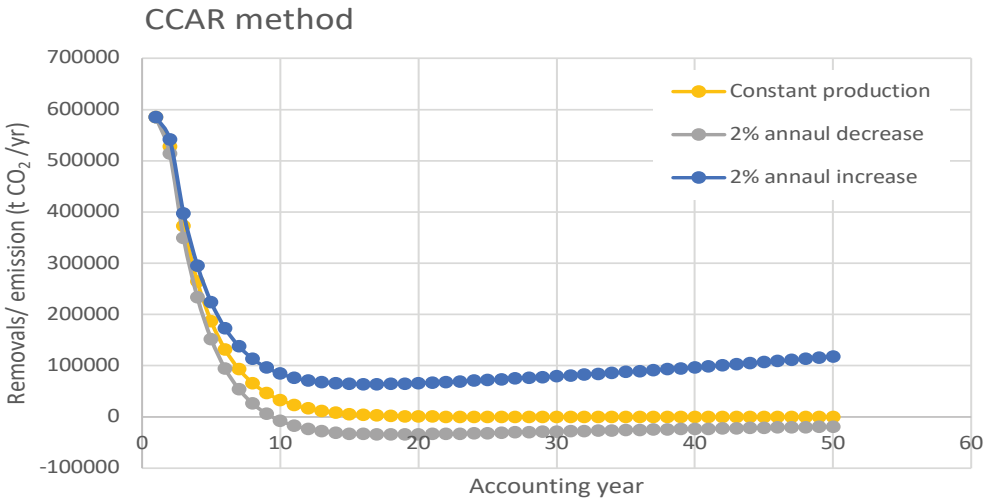

Figure A.3: A projected estimate of accountable HWP removals/emissions under the CCAR scheme using a hypothetical mill with a pulp production of 225 000 tC/yr as an example assuming a constant or 2% annual increase of decrease in production output.

The 100-year approach appears to be the most robust from a scientific point of view, but this is still sensitive to assumptions on the time products are in use. The 100-year approach would be the preferred option, but only if data can be provided on product time in use for the industry.

The LCA approach clearly overestimates C retention in wood products. The corresponding half-life of paper using a FLC96 of 0.74 (Skog & Nicholas, 1998) is 220 years. This is greater than the half-life of lignin (150 years) in natural ecosystems (Dittmar, 2001), which is theoretically unlikely. Although it is acknowledged that the 1st order half lived are overly conservative, the 100-year approach and multiple time decay models show that differences are quite small (Miner (2006). Uncertainty analysis by Pingoud et al (2011) show that the level of uncertainty for first order decay short life products (2-4 year half-lives) is only 9-20% and most published half- life values for paper do not exceed 6 years (Miner, 2006).

Although the life-cycle retention value (FLC96) for different products (Skog and Nicholson, 1998), may largely overestimate HWP removals, the risk of claiming excessive credits due to removals is limited due to the cap applied under the C Tax Act (Table A.1). Moreover, since the annual accounting of future emissions might be argued as a payment of tax in advance, this downside may be seen to be compensated by the over estimation of removals. The LCA approach covers more HWP categories (see Skog and Nicholson 1998, Christie and Scholes, 1995) and will not have a large influence in differences in claimed credits if emissions are not accounted (Table A.6).

Table A.6: The proposed impact of using the LCA approach for annual accounting HWP removals and emissions for mills with various pulp production using the average paper FLC96 factor of 0.74.