If the scope of equation 2.8.6 is to make zero the carbon stock change at the first year in which the historical HWP start to be counted then the emissions ($Outflow_{(i)}$) calculated from the resident carbon stock ($C_{(t_0)}$) by the decay function in year t0 should be equivalent to the Inflow(i) in the year t0 (minus the portion of carbon lost from the Inflow because of its decay in the same year t0). Therefore at time t0:

$$Inflow_{(i)} = Outflow_{(i)}$$

(being the Inflow(i) at year t0 equivalent to the average of the last 5 years: $Inflow_{(i)} = Inflow_{average}$)

Where:

$$Inflow_i = Inflow_{average} * e^{-k/2}$$

Please note that I do not use the term provided in equation 2.8.5 (i.e. $\left[\frac{(1-e^{-k})}{k}\right]$) since is not understandable on which assumption is based (Please, authors provide the assumption you made for deriving that element or use the term provided here). The term $e^{-k/2}$ is based on the assumption that the $Inflow_i$ enter in service continuously during the year (i) so that the entire $Inflow_i$ can be assumed to have been resident in the HWP for 6 months (half year) during the year (i).

$$Outflow_i = C_{(t_0)} * e^{-k}$$

Therefore:

$$C_{(t_0)} * e^{-k} = Inflow_{average} * e^{-k/2}$$

$$C_{(t_0)} = \frac{Inflow_{average} * e^{-k/2}}{e^{-k}}$$

$$C_{(t_0)} = \frac{Inflow_{average} * e^{-k/2}}{e^{-k}}$$