$$
\begin{aligned}
T_i^{\text{Vi,In}} &= T_{i+1}^{\text{Vi,In}} e^{-\sigma_{\text{Vi}}\rho_i h} \\
T_i^{\text{IR,In}} &= \left(T_{i+1}^{\text{In,IR}} + \frac{E_{i+1}}{2} \right) e^{-\sigma_{\text{IR}}\rho_i h} \\
T_i^{\text{Out}} &= \left(T_{i-1}^{\text{Out}} + \frac{E_{i-1}}{2} \right) e^{-\sigma_{\text{IR}}\rho_i h} \\
E_i &= \left(\frac{E_{i-1} + E_{i+1}}{2} + T_{i-1}^{\text{Out}} + T^{\text{IR,In}} \right) \left(1 - e^{-\sigma_{\text{IR}}\rho_i h}\right) \\
&\qquad + T_{i+1}^{\text{Vi,In}} \left(1 - e^{-\sigma_{\text{Vi}}\rho_i h}\right)
\end{aligned}
$$

Given an initial condition $T_N^{\text{Vi,In}}$, we can easily calculate all other $T_i^{\text{Vi,In}}$ if we know ρ_i. The other three equations can be written as

$$
\begin{aligned}
& T_i^{\text{IR,In}} - g_i T_{i+1}^{\text{IR,In}} - \frac{g_i}{2} E_{i+1} = 0 \\
& T_i^{\text{Out}} - g_i T_{i-1}^{\text{Out}} - \frac{g_i}{2} E_{i-1} = 0 \\
& E_i - \frac{1-g_i}{2} E_{i-1} - \frac{1-g_i}{2} E_{i+1} \\
& \quad - (1-g_i) T_{i-1}^{\text{Out}} - (1-g_i) T_{i+1}^{\text{IR,In}} = b_i
\end{aligned}
\tag{1}
$$

where

$$
\begin{aligned}
g_i &= e^{-\sigma_{\text{IR}}\rho_i h}, \\
b_i &= T_{i+1}^{\text{Vi,In}} \left(1 - e^{-\sigma_{\text{Vi}}\rho_i h}\right).
\end{aligned}
\tag{2}
$$

This system of equations can be solved given initial conditions $T_N^{\text{IR,In}}$, T_N^{Out} and E_N if ρ_i is known.