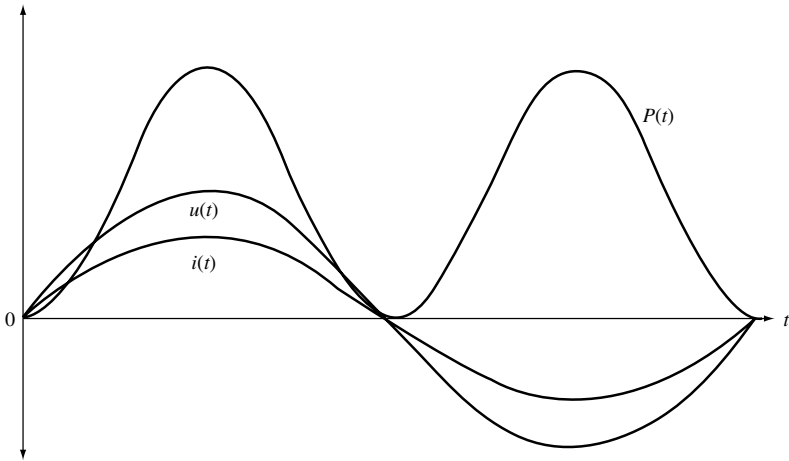**Figure 19.16**   Maximum power point (MPP) for different module temperatures

Figure 19.17   Pulsewise injection of power into single-phase grids needs energy storage

As a consequence, the actual power injected into the grid becomes

$$P(t) = u(t) \cdot i(t)$$
$$= u_{\mathrm{o}} \cdot \sin(\omega t) \cdot i_{\mathrm{o}} \cdot \sin(\omega t)$$
$$= u_{\mathrm{o}} \cdot i_{\mathrm{o}} \cdot \sin^2(\omega t)$$
$$= ui[1 + \sin(2\omega t)]$$

These power pulses with a frequency of 100 Hz are also shown in Figure 19.17. Since the PV generator provides continuous and quasi-constant power and since power injection