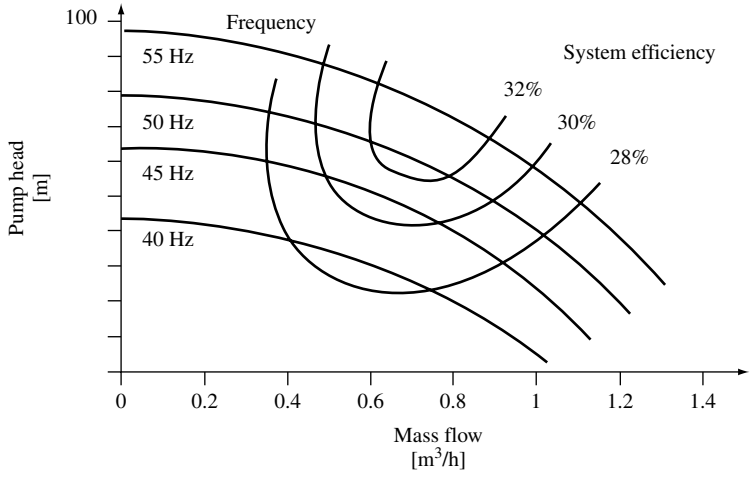

Figure 19.40 Characteristic of a centrifugal pump system

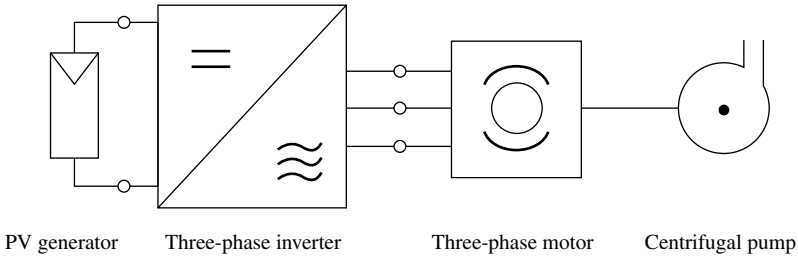

Figure 19.41 Typical layout of an AC PV pumping system

AC output is then rectified as shown in Figure 19.42, providing the desired DC voltage necessary for PWM inversion according to the H-type Bridge explained in Figure 19.36.

Compared to the low-frequency concepts, it becomes obvious that the savings using the HF transformer are widely being compensated by extra components. This might be one of the reasons HF concepts have not widely been used in inverters offered to the market so far.

When operating the high-frequency concept, as described in Figure 19.42, in the PWM mode, in which the desired low frequency is used for modulation, a PWM series of unipolar half-waves result after the rectifier at the secondary windings of the HF transformer. By means of the combination of L and C_2, a unipolar series of sine-shaped half-waves result, which are finally inverted with the H-type bridge as described in Figure 19.43. The 100-Hz pulsewise power injection requests an adequate storage element, which is realized by means of the capacitor C_1. It should be noted that this storage function is realized with C_2 in the topology presented previously in Figure 19.42.

Finally, an HF concept is presented in which AC is directly produced at the secondary side of the HF transformer. In this case, the non-controlled rectifier shown in