59. With $\omega = (1800)(2\pi/60) = 188.5$ rad/s, we apply Eq. 11-47:

$$P = \tau\omega \quad \Longrightarrow \quad \tau = \frac{74600\,\text{W}}{188.5\,\text{rad/s}}$$

which yields $\tau = 396$ N·m.