

**Concept Question 4-20:** What is the major advantage of a CMOS over an NMOS circuit as a digital inverter?

Although there are several advantages to using CMOS over pseudo-NMOS circuits in digital inverters, arguably the major advantage is the drastic reduction in static power consumption. That is, ignoring leakage currents (which we do not discuss in detail in the text), CMOS inverters do not consume power when they are not switching. In contrast, in a pseudo-NMOS inverter, the pull-up resistor always consumes power because a current flows through it (from  $V_{DD}$  to  $V_{out}$ ).