

### 24.2.3 Capital Requirements

How much capital will be needed? Table 24.1 presents estimates of the amounts of capital that will be required to support the two scenarios of PV market growth. In the year 2010, modules are assumed to cost \$1.50/Wp, and systems to cost \$3.00/Wp (in 2000 constant dollars). If so, the global PV industry will be doing between \$3.8 and \$23.8 billion of module shipments, and between \$7.7 and \$43.6 billion of system installations in the year 2010, under the 25% and 50% growth rate scenarios, respectively. The amounts of capital that will be required to support these levels of growth are estimated as follows:

*PV factory investment requirements:* The investment cost of PV factory capacity is on the order of \$2 to \$3 million per MW/year of capacity in the year 2001. This is expected to decline to \$1 million per MW/year of capacity as the scale of the new factories continues to increase (i.e. a 100 MW/year factory will cost \$100 million to build). Assuming that the PV factory capacity will require an investment of \$1 million per MW/year over the next 10 years, the amount of capital to be raised for investment in PV factories will be between \$3.1 and \$19.0 billion.

*Working capital requirements:* The operations of the factories and sales distribution channels for PV equipment must also be financed, including inventory and receivables. Assuming that 60 days of work-in-process inventory, 60 days of finished goods inventory, and 90 days of receivables need to be financed, the PV industry will require between \$1.9 and \$11.9 billion for working capital financing.

*End-user financing requirements:* Market indicators suggest that as much as 80 to 90% of the PV market will require end-user financing. Assuming that grid-connected systems represent 50% of the world market, and that 80% of the end users receive an average 80% loan, and assuming that off-grid rural electrification represents 30% of the world market, and that 50% of those end users receive an average 80% loan, then the end-user financing requirement to support PV industry growth will be \$20.6 to \$82.8 billion over the next 10 years.

**Table 24.1** Global capital requirements to fund PV growth

	25%/Year growth scenario	50%/Year growth scenario
Annual amounts in 2010:		
PV shipments	2561 MW/year	15 858 MW/year
Module revenues	\$3.8 billion/year	\$23.8 billion/year
System revenues	\$7.7 billion/year	\$43.6 billion/year
Cumulative amounts 2000–2010:		
PV shipments	11 700 MW	47 000 MW
Module revenues	\$23.4 billion	\$94.0 billion
System revenues	\$46.8 billion	\$188.1 billion
Global capital requirements (US \$):		
PV factory investment	\$3.1 billion	\$19.0 billion
Working capital	\$1.9 billion	\$11.9 billion
End-user financing	\$20.6 billion	\$82.8 billion
<b>Total capital required</b>	<b>\$25.6 billion</b>	<b>\$113.7 billion</b>

Source: Eckhart, Overview, 2001