redemption plus interest); system provider installs system; ownership is transferred with contract conclusion; user is responsible for operation and maintenance supported by the system provider.

- Personal credit:
  typical: customer enters loan agreement with the financial institution of his choice to purchase system from a system provider of his choice; for other characteristics see cash and carry, cash sales.
- Operate leasing/renting:
  typical: customer rents system for payment of regular leasing fee; system provider is the owner of the system; system provider is responsible for installation and operation and maintenance of the system.
- Finance leasing/hire-purchase:
  typical: customer leases system for payment of regular leasing fee; system provider owner during basic leasing period; ownership title transferred with payment of remaining amount; system provider installs the system; user responsible for operation and maintenance.
- Fee-for-service:
  typical: dealer, service company (e.g. utility), customer pays regular service fees for electric service through individual power supply system or village power supply system; service provider is the owner of the system and responsible for installation, operation and maintenance.
- Energy service:
  typical: ESCO (energy service company), customer pays regular service fees for services such as light, communication, cooling and so on; service provider is the owner of the system and responsible for installation, operation and maintenance.

## 17.2.3 Decentralised Grid-connected Photovoltaic Systems

### *17.2.3.1 Rooftop PV generators*

Photovoltaic systems can be connected to the public electricity grid via a suitable inverter (Figure 17.21). Energy storage is not necessary in this case. On sunny days, the solar generator provides power for the electrical appliances in a house. Excess energy is supplied to the public grid. During the night and overcast days, the house draws its power from the grid [22, 23].

Photovoltaic systems operating parallel to the grid have a great technological potential [24]. However, without subsidies from government or utilities, they are not yet financially competitive. Therefore, in the last few years in various countries, programmes have been initiated that push the dissemination of grid-connected systems, for example, the 70 000 PV roofs programme in Japan or the 100 000 PV roofs programme in Germany (see Figure 17.22). In addition, national laws on paying higher fees for renewable electricity fed into the grid, like in Germany 99 Pfennig, in Spain 66 Pesetas per kWh, make it more and more attractive for private consumers and investors to become engaged in photovoltaics.