Monitoring of PV connected to grid system was conducted to collect the system performance comparing to PV stand-alone system. Daily solar inputs and load outputs for home applications of the systems were recorded. Balance and surplus of energy in the systems were observed during dry and summer seasons when high solar insolation was recorded. During rainy season with thunder storms, when solar insolation was low and occasionally grid cut-off happened, deficit of energy and grid back-up of the systems were observed. It was found from the data analysis that the battery size of PV connected to grid system was reduced to be 0.5 to 0.7 of that of PV stand-alone system for similar load behaviors. The merit of PV connected to grid system on its reliability during grid cut-off was confirmed and proved to be appropriate for tropical countries where unstable grid occurred during monsoon season.