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Research topic: Developing an advanced smart house (residential building, apartment) for disaster prevention.

In our laboratory, we are now developing some techniques of sustained power supply for a house when a disaster occurs (such as earthquake and typhoon). The example of basic techniques is indicated follows:

(1) Technique of electric power supply with photovoltaic cell and small storage battery in a house.
(2) Sustained power supply is possible in a house due to distribution line if there is fault at supplying line (self-sustained operation).
(3) If there is fault at distribution line, electric power supply in a house is possible without interruption.
(4) Energy management for self-sustained operation with HEMS.
(5) After the fault at distribution line is restored, supplying line in the house and distribution line will be reconnected automatically.

Figure 1 shows an example of advanced smart house for disaster prevention. This system can be applied above point demand.
Figure 2 shows the power supplying line in smart house and the situation of distribution line. Since the introduced electric storage battery in the PV system is small, we can achieve the advanced smart house in lower cost.

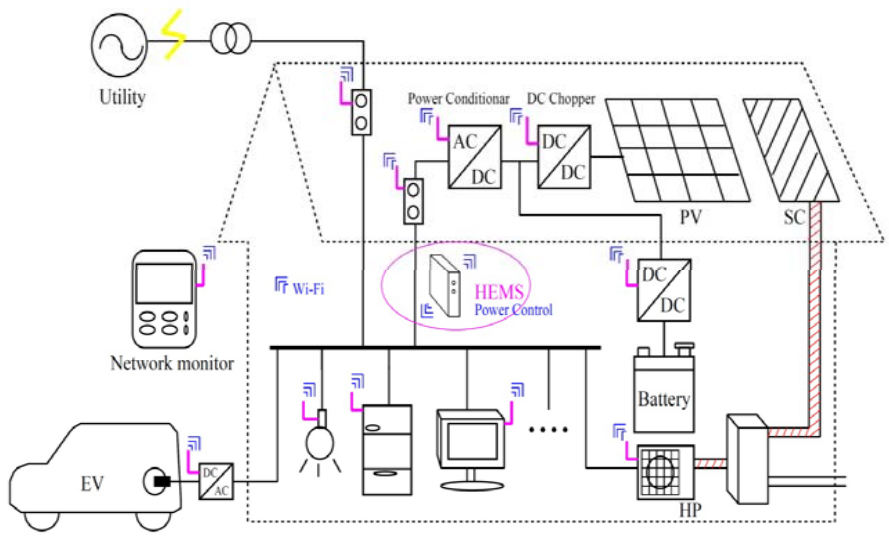

Fig. 1. An example of advanced smart house for disaster prevention.

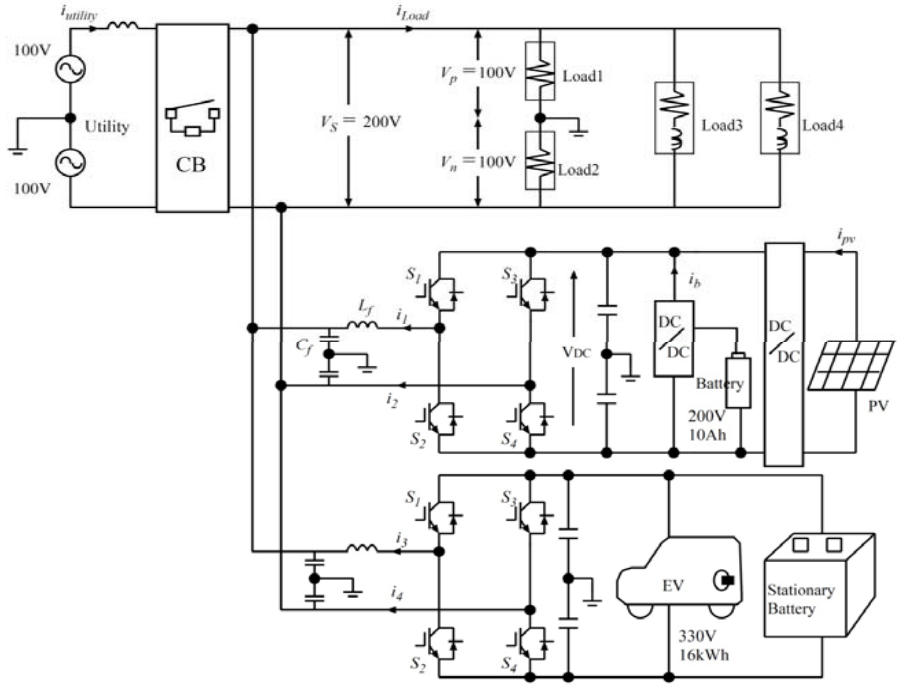

Fig. 2. The power supplying line in smart house and the situation of distribution line.