CLAIMS

1. A Triple Input Smart Power Supply (TRISP) for one or more electronic loads using DC as final power source prioritize in the order solar photo voltaic (SPV) power, utility power, battery power comprising:

   a DC-to-DC ATX power supply for providing the predefined voltage range;

   an AC-to-DC converter to generate 15V DC power supply from the utility power source using PFC techniques;

   an “OR”ing power switching logic circuit to the solar ,the utility and the battery ;

   a solar panel of adequate capacity to supply power to the one or more electronic loads;

   a battery for providing necessary power back-up to the one or more electronic loads;

   a voltage regulated and a current limited charger circuit for providing necessary charging to the battery; and

   a display unit capable of working on the predefined voltage range,

   wherein the “OR”ing circuit logic intelligently prioritizes full use of the solar power to the one or more electronic loads, and compensates any power deficiency of the solar power source first from the utility power source and, in the absence of utility power, from the battery ensuring seamless changeover between the triple input sources to provide an uninterrupted power supply to the one or more electronic loads, where in the ORed logic circuit does not include a voltage / current regulator other than for providing charging current to the battery.

2. The triple input smart power supply as claimed in claim 1, wherein DC-to-DC ATX power supply comprises solid state switching technology to provide efficiency greater than 90%.

3. The triple input smart power supply as claimed in claim 1, wherein the solar panel is capable of directly powering the one or more electronic loads.

4. The triple input smart power supply as claimed in claim 1, wherein the battery is charged from solar power or utility power or both based on the availability.

5. The triple input smart power supply as claimed in claim 1 comprises a micro controller circuit for monitoring load power and providing status indication of the selected power source used and the remaining backup time.

6. The triple input smart power supply as claimed in claim 5, wherein the micro controller circuit provides information on the remaining backup time, and forces the one or more electronic loads to shut down when the battery is nearing exhaustion.

7. The triple input smart power supply as claimed in claim 1, saves 58 to 65% of power in PC-UPS configuration without the solar panel.

8. The triple input smart power supply as claimed in claim 1, wherein one or more desktop PCs are directly powered from solar power source and keeps the battery charged when operated between 10am and 4pm (when sufficient sun light is available), saving utility power during normal working hours, on reasonably sunny days.

9. The triple input smart power supply as claimed in claim 1, wherein the intelligent switching mechanism enables to utilize even a smaller quantity of power developed in solar panel whereas balance power requirement is met from utility power source.

10. The triple input smart power supply as claimed in claim 1, wherein the current limiting circuits is determined based on the AH rating of the battery.

11. The triple input smart power supply as claimed in claim 1, wherein the one or more electronic loads comprises one or more desktop Personal Computers (PCs), the predefined voltage range comprises 10 V to 16 V DC, the DC-to-DC ATX power supply comprises 10-16V DC-DC ATX PC power supply, the solar panel comprises

range 50-80Wp for Standard Desktop PC, the battery comprises 12V, 7AH SMF battery, and the display unit comprises LED/LCD PC monitor.

12. The triple input smart power supply as claimed in claim 11, wherein the back-up time of the desktop PC increased to 80 to 110 minutes for standard desktop PC and 12V 7AH SMF battery.

13. The triple input smart power supply as claimed in claim 11, produces a power saving of 1747200 units and thereby a cost saving of rupees 14.2 million for 10000 desktop PCs working in for 8 hours per day for 312 days excluding the benefit from usage of solar energy, and savings of 24,96,000 units of energy and 20.47 million of rupees per annum if connected to the solar panel.

14. The triple input smart power supply as claimed in claim 11, provides an efficiency of 90% which is incomparable with that of a normal SMPS whose efficiency is only 35%, when used along with online UPS system.

15. The triple input smart power supply as claimed in claim 11,reduces the harmonics significantly injected to power line from the uninterruptable power systems

16. The triple input smart power supply as claimed in claim 11, provides improved power factor.

17. The triple input smart power supply as claimed in claim 1, is capable of using a battery with different capacity and/or technology resulting in different backup times.

18. The triple input smart power supply as claimed in claim 11, wherein the solar panel comprises a high power solar panel array when a large number of desktop PCs and electronic loads need to work under one roof from a common low voltage DC (<21V) power bus.

19. The triple input smart power supply as claimed in any of the preceding claims, wherein the triple input smart power supply can be designed as portable and mobile power sources using 50-80 Wp solar panels.

20. The triple input smart power supply as claimed in claim 12, wherein triple input smart power supply reduces usage of polluting battery and achieve multifold backup time by the improved efficiency.

21. The triple input smart power supply claimed, in PC-UPS configuration utility power consumption is reduced to 15% only when powering from solar power.