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(57) Abstract :

Multi-level inverters (MLIs) with reduced number of switches indulges to use multiple number of isolated DC sources at the input. Consequently, Total standing voltage (TSV) goes higher, and cost of the MLIs rises. Generally, all the DC input sources are also underutilized for most of the topologies. Whereas, most of the switched capacitor (SC-MLIs) draw high inrush current from the source which is 5 to 6 times the load current. Thus, current stress, VA rating, and conduction loss of the switches gets very high. Efficiency of the SC-MLIs fall drastically with increase in load power. To trade-off the limitations a modified 15-level inverter is designed using 9 switches, 4 diodes, 9 gate drivers, 2 capacitors, and 2 PV panels. The proposed MLI draws very small amount of inrush current from the source of magnitude close to load current. In addition, TSV, VA rating of the inverter are lesser. The efficiency of the inverter is calculated as 98% at 512 W.

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