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(57) Abstract :
ABSTRACT A POWER CONVERSION SYSTEM INTEGRATING THE HIGH-VOLTAGE GAIN DC-DC CONVERTER WITH A DIODE-CLAMPED MULTI-LEVEL INVERTER The present invention relates to a power conversion system integrating the high-voltage gain DC-DC converter with a diode-clamped multi-level inverter. The integrated high voltage gain DC-DC converter and diode clamped multi-level inverter for renewable energy source in standalone applications. The invention presents a high-voltage gain DC-DC converter that efficiently boosts the low voltage from a renewable energy source while minimizing voltage stress on switching devices. The converter is integrated with a diode-clamped multi-level inverter (MLI) to produce an AC output for standalone applications. The proposed high-gain DC-DC converter comprises switched-capacitor topology (1) for high voltage conversion, single-switch operation (2) to minimize complexity and inductor-capacitor network (3) to reduce ripple and voltage stress. A closed-loop control strategy is implemented using a current-mode controller, ensuring a stable DC link voltage even under load variations. To be published with figure 1

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