Inverter leg voltage

Can a four-leg voltage source inverter reduce the number of IGBTs?
This paper presents a new three-phase four-leg voltage source inverter (VSI),which achieves a high cost effectiveness for mega-watt level system applications. The proposed four-leg inverter adopts the integrated topology with thyristors and insulated-gate bipolar transistors (IGBTs),which aims to reduce the number of IGBTs.

What is a four-leg inverter?
The proposed four-leg inverter adopts the integrated topology with thyristors and insulated-gate bipolar transistors(IGBTs),which aims to reduce the number of IGBTs. In order to handle the zero sequence current,a neutral leg via incorporating IGBTs is artfully integrated with the regular phase legs.

What is the circuit topology of four-leg DC/AC inverter?
Fig. 1 : Circuit topology of four-leg DC/AC inverter. neutral impedance connected to the fourth leg is Vdn. The voltage between a reference 'o' of the inverter and the neutral of the load is denoted by Vno. In order to prevent short-circuiting the DC source

How many switching states does a four-leg inverter have?
Normally,a four-leg inverter consists of 2 4 = 16possible switching states,while for the new topology,the states of thyristors have to be considered beside the states of IGBTs. The relationship between phase voltage and switching states of phase a are summarized in Table 1,where the UT stands for "Upper Thyristor".

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The four-leg inverter output stage uses three bridge legs to generate the phase output voltages with reference to the neutral point potential, which is defined by the fourth ...

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This paper presents a three-phase four-leg-based split-source inverter (SSI) topology to reduce its instantaneous common-mode (CM) voltage. The proposed topology ...

Compared with two-level inverters, three-phase three-leg multilevel inverters are usually preferred in medium and high-power applications because of their high-performance ...

This paper uses a finite control set (FCS) model predictive control (MPC) technique to control the output voltage of a 3-phase 4-leg multilevel inverter with a minimum number of ...

The modulation strategy thereby completely eliminates the common-mode potential produced by traditional modulation techniques with traditional three-phase inverter ...

Various discontinuous modulation schemes for three-phase inverters have been investigated [7-10]. Furthermore, using the inverter voltage equations expressed in terms of ...

When developing smart grids applications, it is often desirable to generate unbalanced voltages in order to compensate different events in the grid. Besides, the power ...

The main feature of a three phase inverter, with an additional neutral leg, is its ability to deal with load unbalance in a standalone power supply system [7],[12]. The goal of ...

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