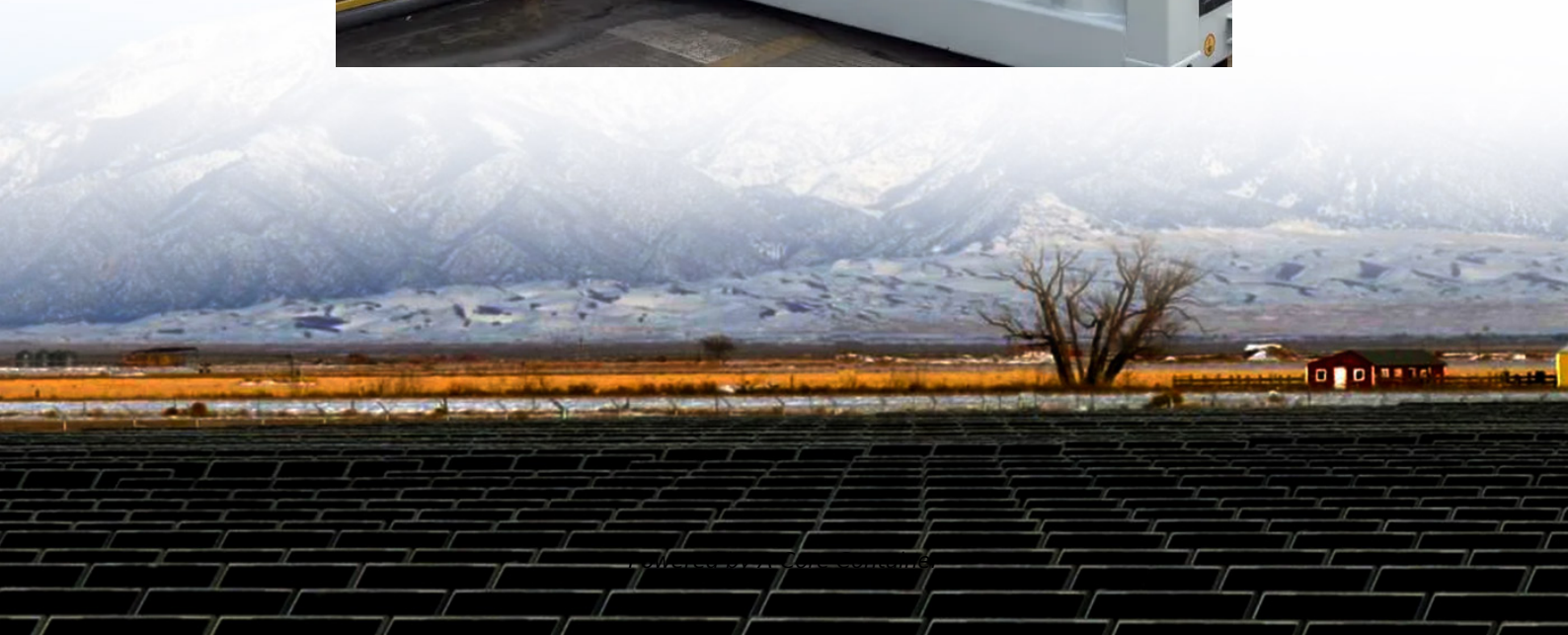


A-Core Container

Production of high-voltage and high-frequency inverters



Overview

What is a high frequency inverter?

In many applications, it is important for an inverter to be lightweight and of a relatively small size. This can be achieved by using a High-Frequency Inverter that involves an isolated DC-DC stage (Voltage Fed Push-Pull/Full Bridge) and the DC-AC section, which provides the AC output.

What is a high frequency variable load inverter architecture?

This thesis presents a high frequency variable load inverter architecture along with a physical prototype and efficiency optimizing controller. The inverter architecture consists of two constituent inverters, one connected directly through the load and the other connected through an immittance converter, which acts as a lossless power combiner.

Which power supply topologies are suitable for a high frequency inverter?

The power supply topologies suitable for the High-Frequency Inverter includes push-pull, half-bridge and the full-bridge converter as the core operation occurs in both the quadrants, thereby, increasing the power handling capability to twice of that of the converters operating in single quadrant (forward and flyback converter).

Can a high-frequency variable load inverter directly drive widely variable loads?

Typically a tunable matching network is used to transform the varying load into a efficiency and impairing transient response. This thesis presents the design, physical prototype, controller, and experimental results of a high-frequency variable load inverter architecture (referred to as HFVLI) that can directly drive widely variable loads.

How do hfvli inverters work?

The HFVLI system requires two inverters having adjustable relative phases

and independently adjustable output voltages and an immittance converter. To reduce the prototype complexity, it was decided to utilize controllable lab power supplies to provide supply modulation. Here we detail the design of the constituent inverters and associated output.

Which inverter has the most load current?

However, as can be seen in the system parameters for load (a), the majority of the load current is supplied by inverter A, which also experiences the majority of the losses. This disparity is due to the voltage dependent losses of the inverters.

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