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Reducing Switching Noise and Losses in Two-Stage Electric Power Converters

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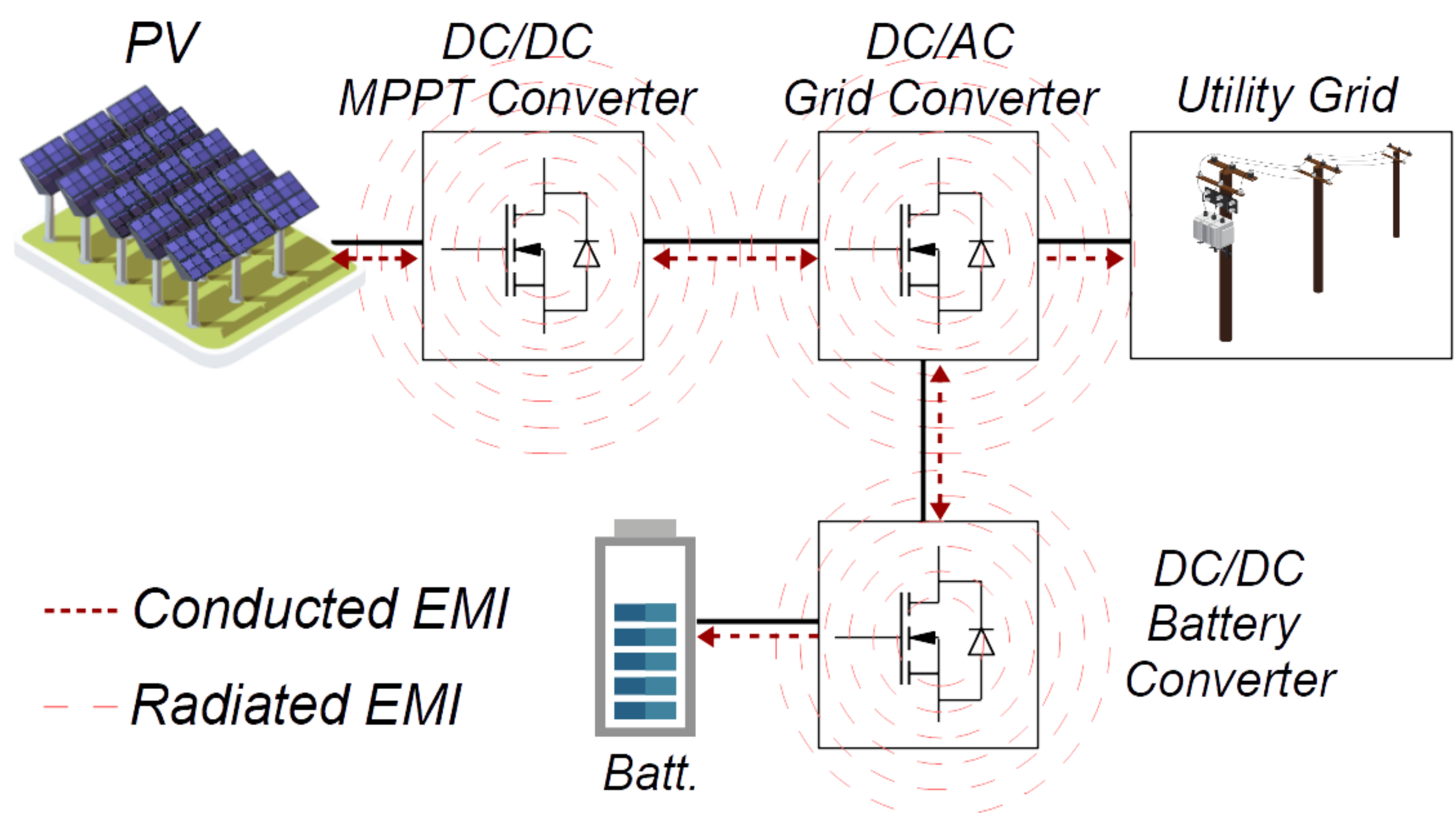
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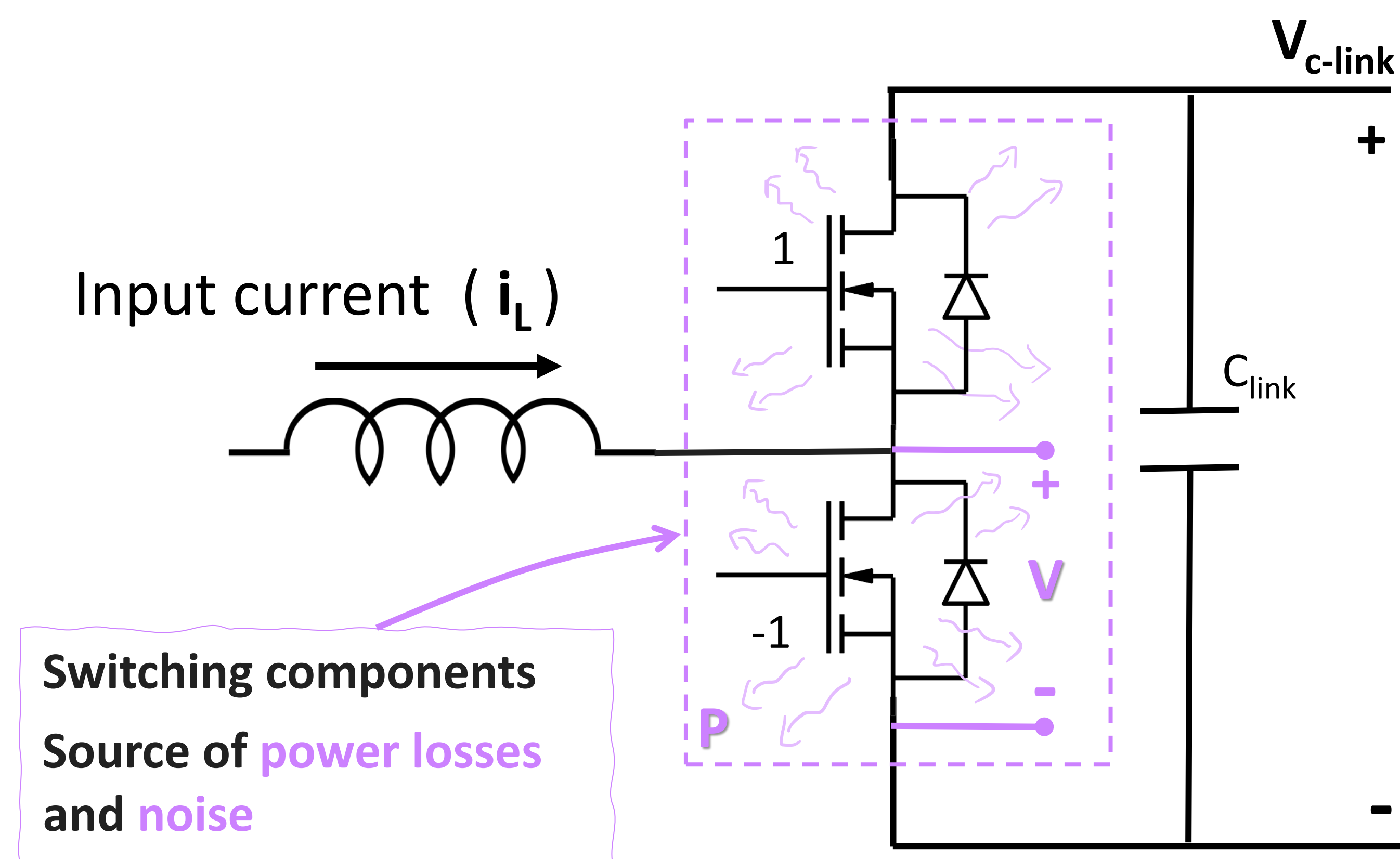
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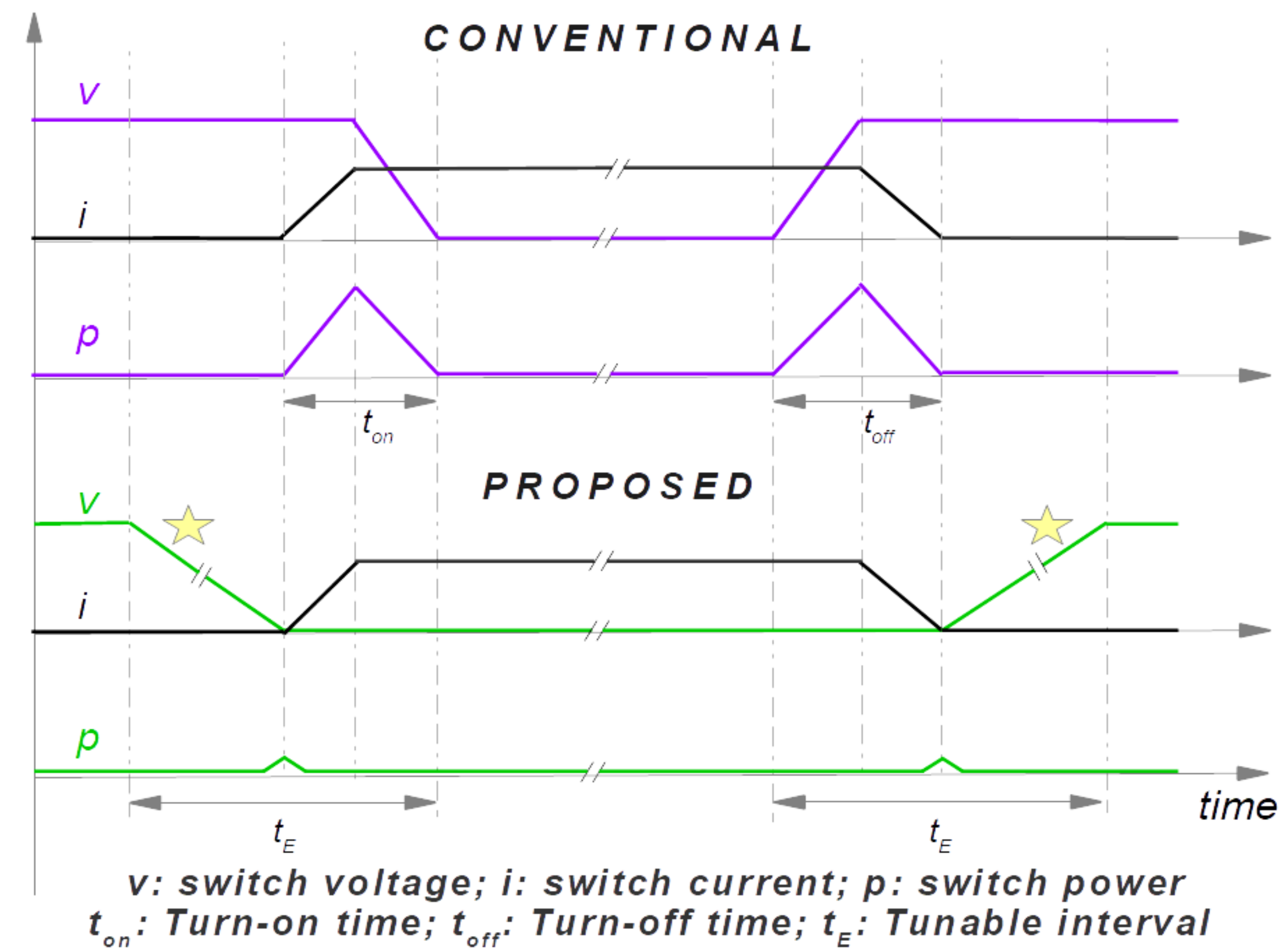
Our control strategy for Power Electronic Converters can reduce energy loss and noise at the source!



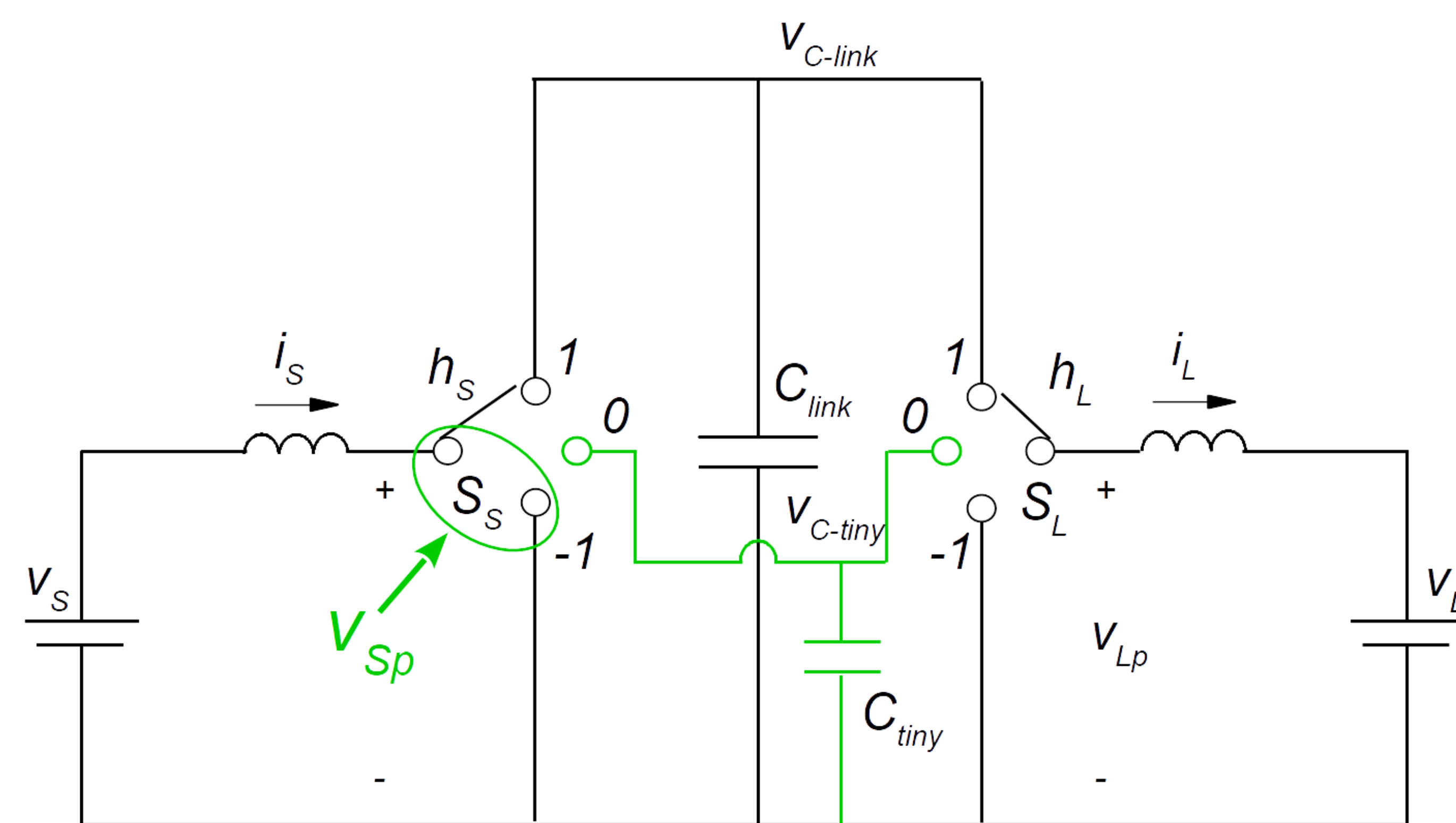
A Simple Power Electronic Converter



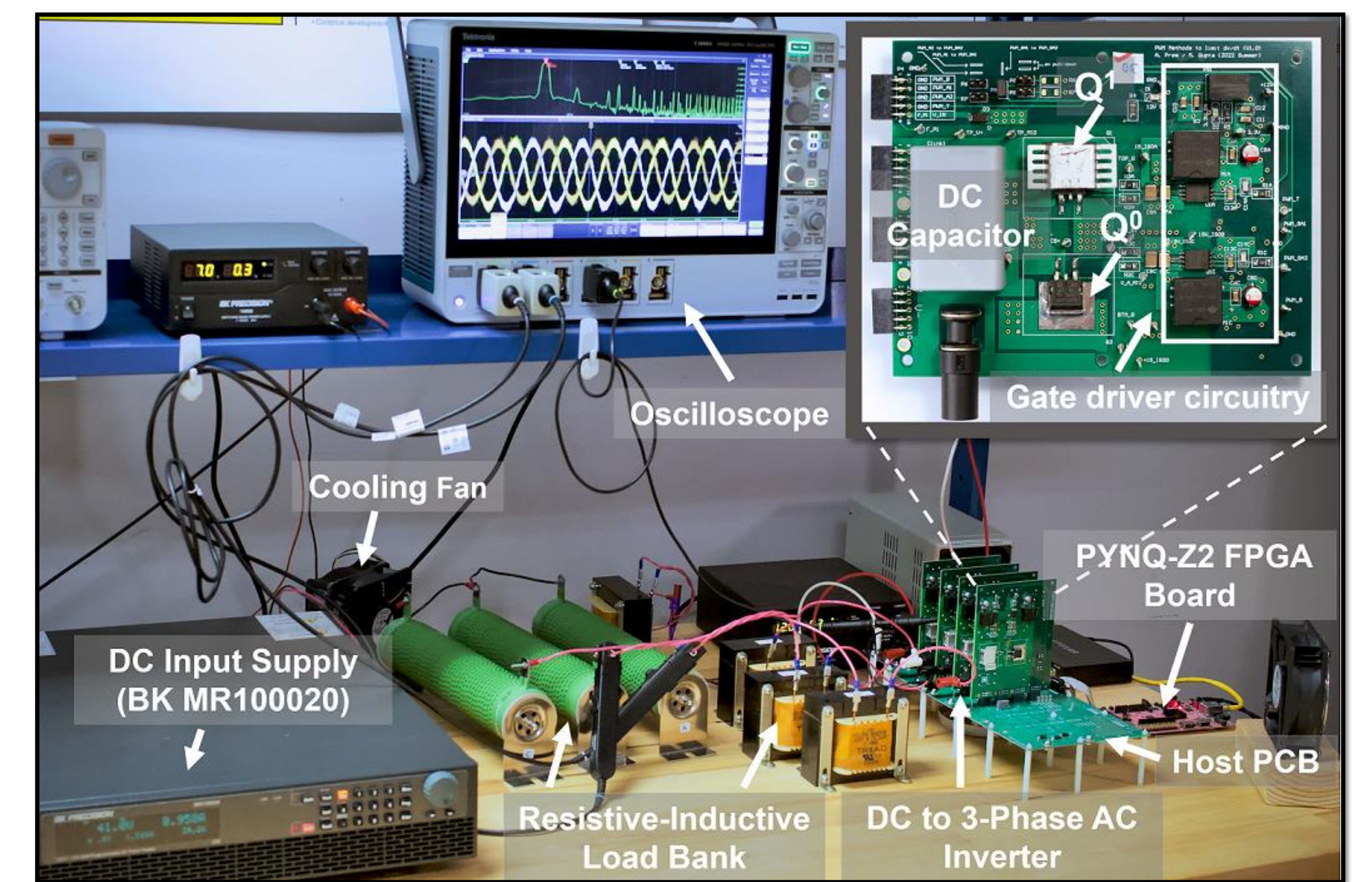
Methodology



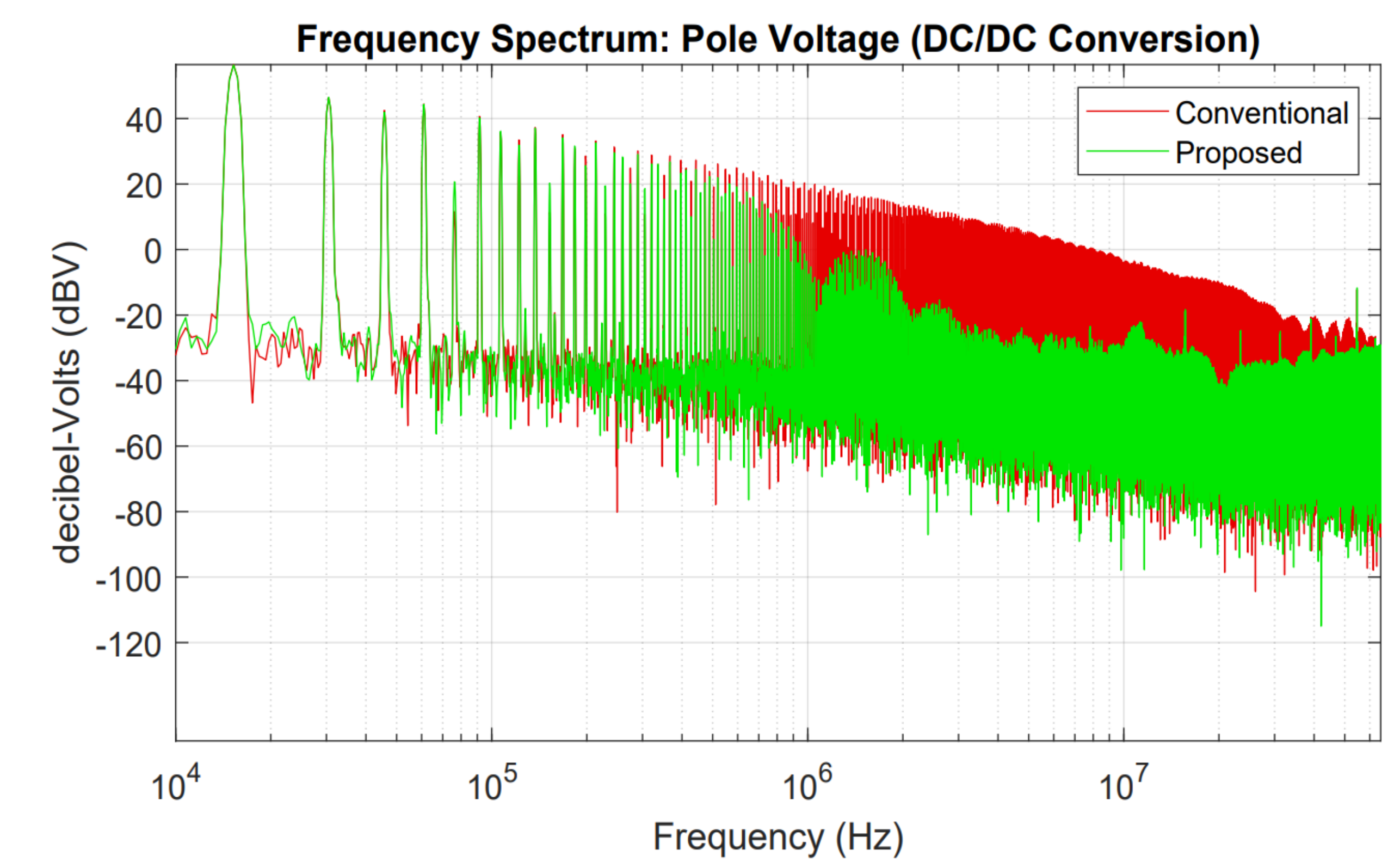
DC/DC Proposed Topology



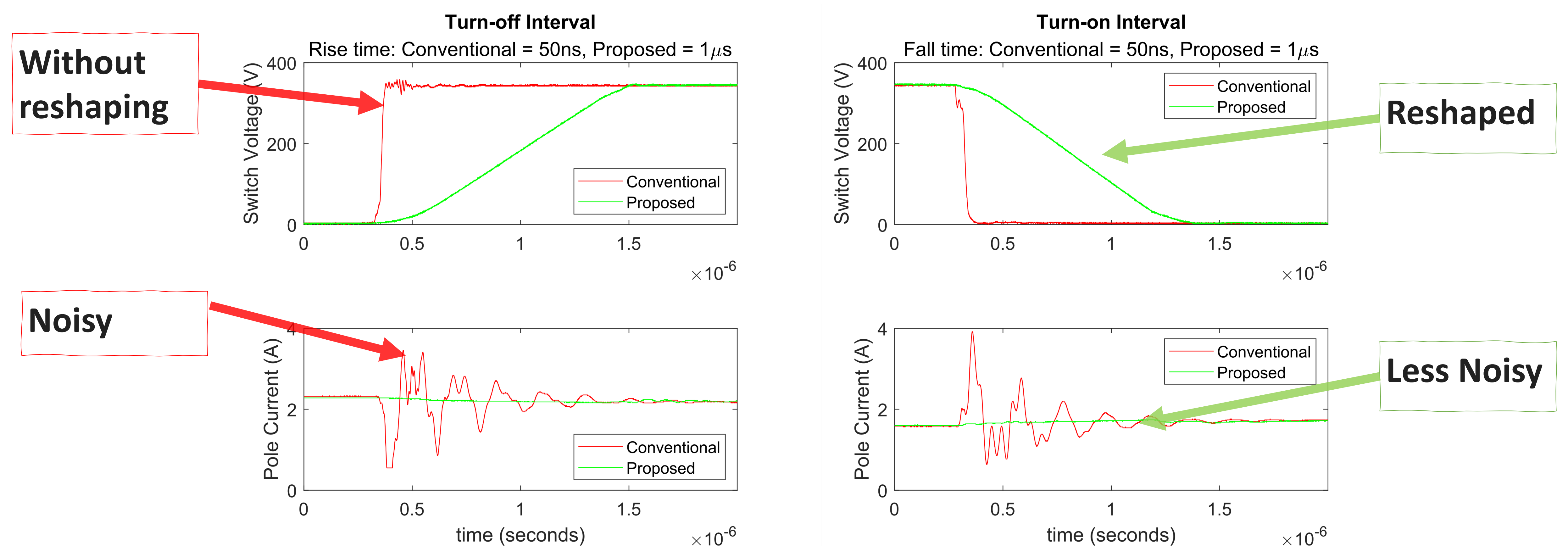
Experimental Test Setup



Pole Voltage Frequency Spectrum



Time Domain Results From The DC/DC Converter Setup



- 8% to 12% efficiency improvement in setup with Silicon switches, operating at 400W
- 2% efficiency improvement in setup with Silicon Carbide switches, operating at 750W
- 20dB to 30dB reduction in electromagnetic noise at frequencies > 1MHz