Integrates distributed generation and energy storage
- Smart control
- More communication
- Increasing reliability
- More resilient system
- Faster dynamic response

NCREPT as an isolated mode microgrid test bed for verifying converter design and control algorithms of commercial scale high power ac-dc converter.

A Traditional Start-Up Procedure of an AC-DC Converter

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Proposing A New Start-Up Procedure of AC-DC Converter

Analysis of the main reasons behind the inrush current during ac-dc converter start-up procedure:
- Saturation of linear (modulated) current regulators
- Simple open-loop duty cycle control as an ac-dc boost converter
- All IGBTs are enabled after saturation period
- Optimal design of ramp time considering the dc capacitor value

Commercial-Scale Converter Design and Prototyping

Control board based on TI/F28335 DSP
(Digital signal processor)

Fiber optical cable
Commercial-scale converter prototyping

LabVIEW communication interface

Recent publication (latex presented):