

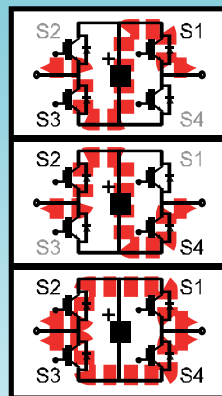
磁気エネルギー回生スイッチ (MERS) による高効率電力変換 High-efficient Electric Power Solutions Using Magnetic Energy Recovery Switch(MERS)

MERSの基本動作 (Basic characteristics of MERS)

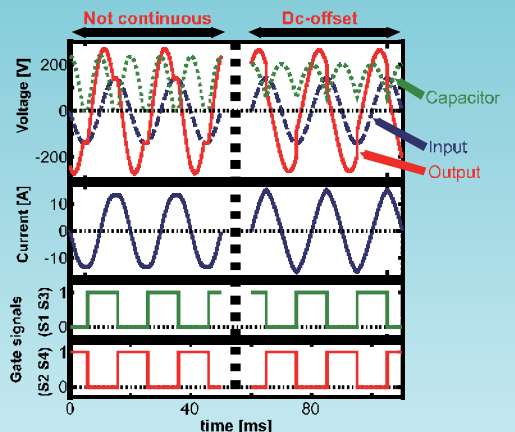
MERSの特徴 / Features of MERS

- Series connected device.
- 簡単な回路構成
Simple configuration.
- 小容量のDCコンデンサ
Small sized dc-capacitor.
- スイッチングロスが少ない
Low switching losses.
- 簡単な制御
Simple control.

可変容量の直列コンデンサとして作用
 Variable series compensation device



Switching pattern
 MERSの動作モード

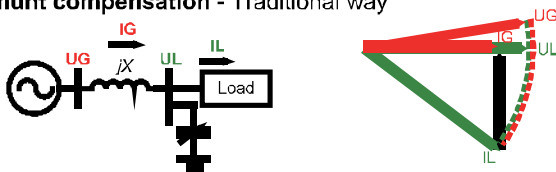


Simulated waveforms
 シミュレーション波形

電圧制御と力率の改善 (Voltage control and power factor correction)

並列補償 - 従来の方法

Shunt compensation - Traditional way

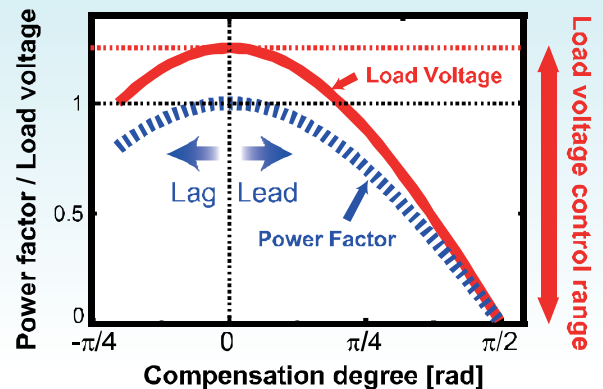


直列補償 - 新しい可能性

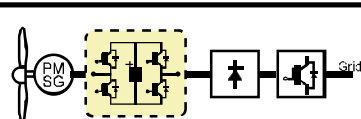
Series compensation - New possibilities



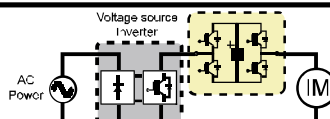
- 直列補償によって電圧制御が可能
 Series compensation enables load voltage control.



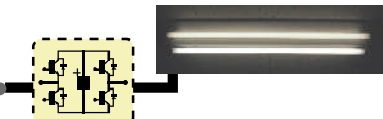
MERSの応用先 (MERS applications)



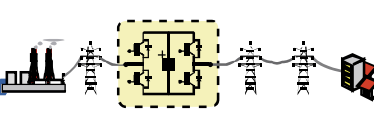
- 風力発電の変換器損失の削減
 Wind generation converter loss reduction.



- 誘導機用インバータの低損失・小型化
 Size and loss reduction of motor drive.



- 蛍光灯が調光可能
 Control light intensity of fluorescent lamp.



- 送電線の容量を増大可能
 Boosting power transmission capacity.

試作機 350-kVA MERS prototype

