

## SIPS for enhanced Transfer capacity

### SC C4 PS 3

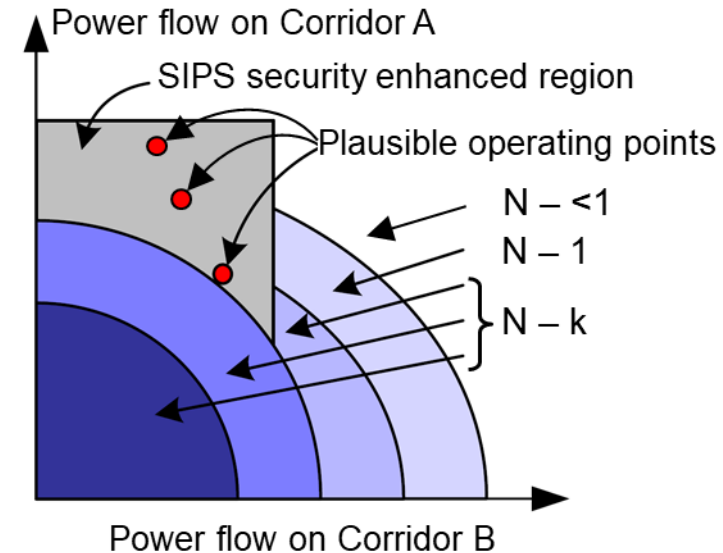
Q15: What system studies, success criteria, coordination and considerations shall be accounted for when designing special protection schemes or other critical system level protection for managing system stability as the power system and generation mix are changing rapidly?

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# What is the value of SIPS?

## SIPS - System Integrity Protection Schemes:

- Designed to add an additional layer of defence against large disturbances
- Increase security of operation, for N-1, N-k & N-<1
  - Enable operation outside general security criteria
  - Increase secure power transfer capacity
  - Decrease sensitivity to severe/ multiple contingencies
- Typical SIPS actions: load shedding, generation tripping, controlled network split, fast HVDC ramp
- SIPS solutions
  - are economically efficient means to increase resilience,
  - but are technically complex and involves additional risks



# Managing the capacity problem with SIPS

- Implementation of SIPS solutions to provide transfer capacity outside conventional N-1 security region will enable increased trading and thus strengthening the security on a system wide level as well as providing sustainable grid development means.
- A larger use of SIPS integrated in “normal” operation would result in:
  - Making the system operator more accustomed to the type of system.
  - Increasing the maturity of SIPS into conventional solutions.
  - Enabling acceptance for more advanced / novel means of operating the grid.