

## INTRODUCTION:

- With ever-increasing electricity consumption, conventional thermal power plants have been renovated and new generations from renewable energy resources have been built to address environmental concerns.
- This has added operational stresses to the existing transmission corridors, making some of the transmission lines operating at or near to their rated transmission capacity..
- Building new transmission corridor (HVAC or HVDC) or converting existing HVAC into HVDC systems is either restricted by high implementation cost or delayed due to the land licensing process, low public acceptance, and environmental issues.
- In this project a hybrid AC/DC power transmission method is proposed particularly for thermally constrained short transmission line, which directly uses the existing ROW to transport both AC and DC power.
- The objective is to achieve increased transmission capacity by up to 50% of the existing AC transmission, with less than 50% implementation cost

## Approach

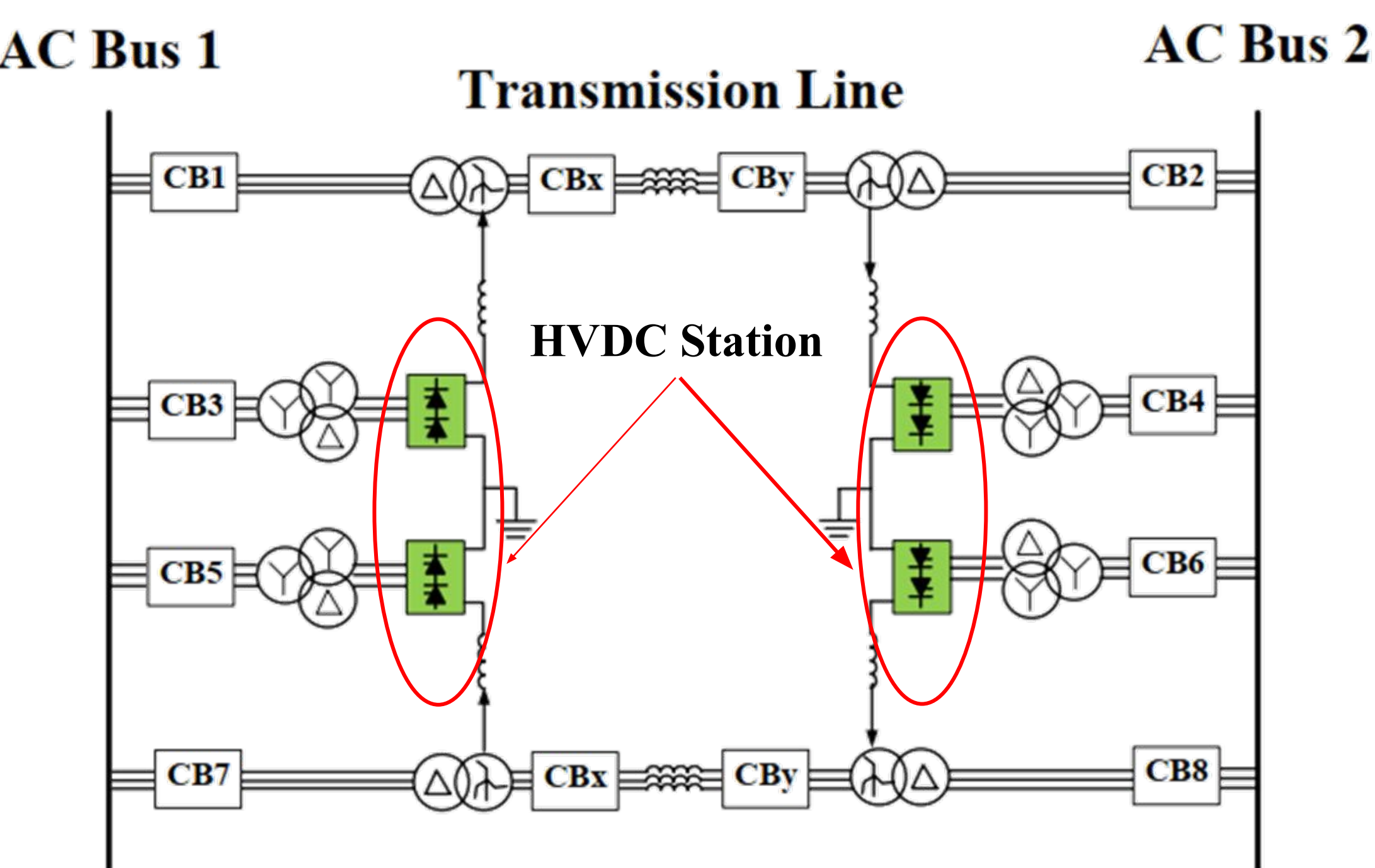


Fig. 2. Hybrid AC/DC Power Transmission Approach

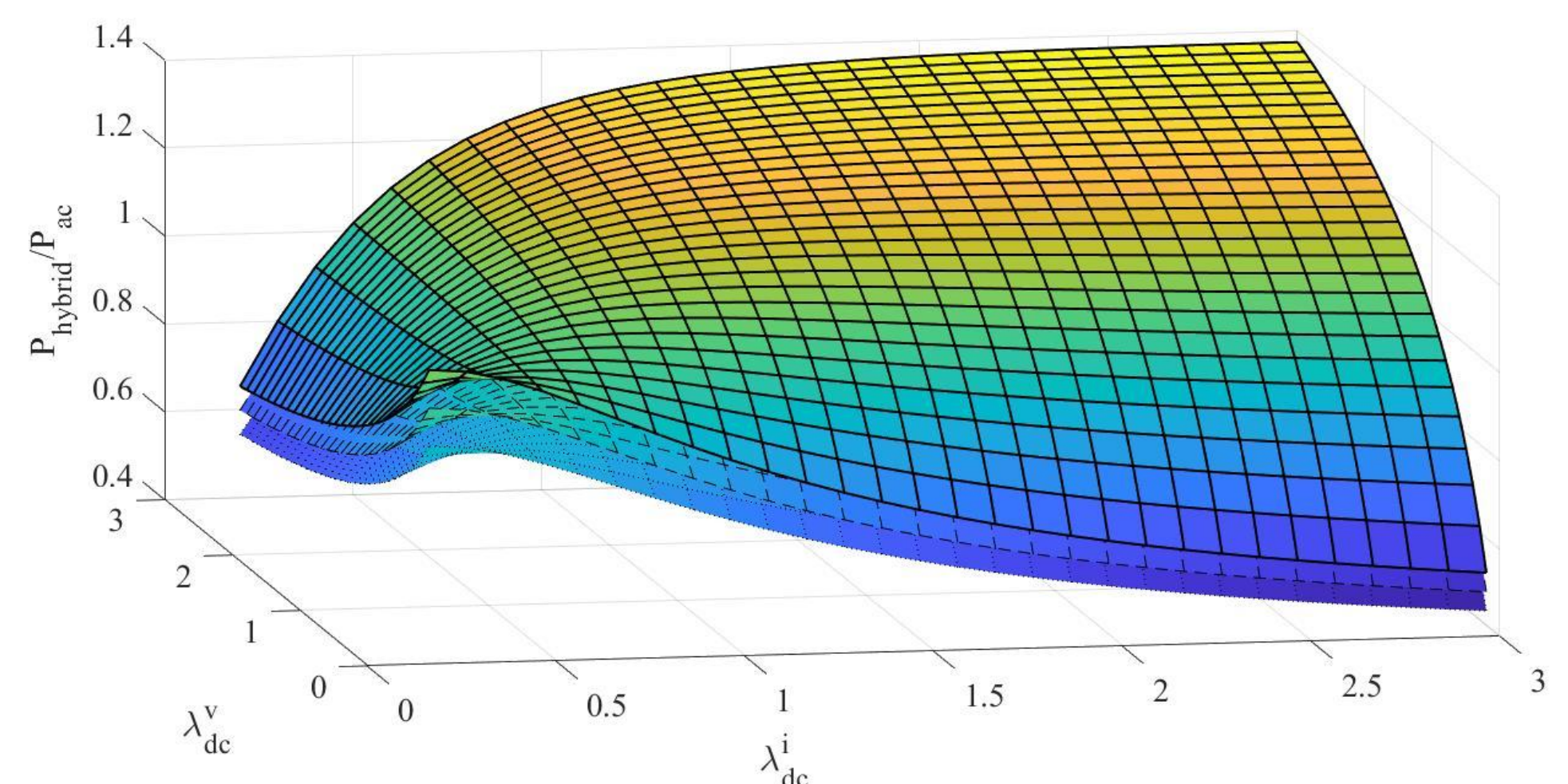
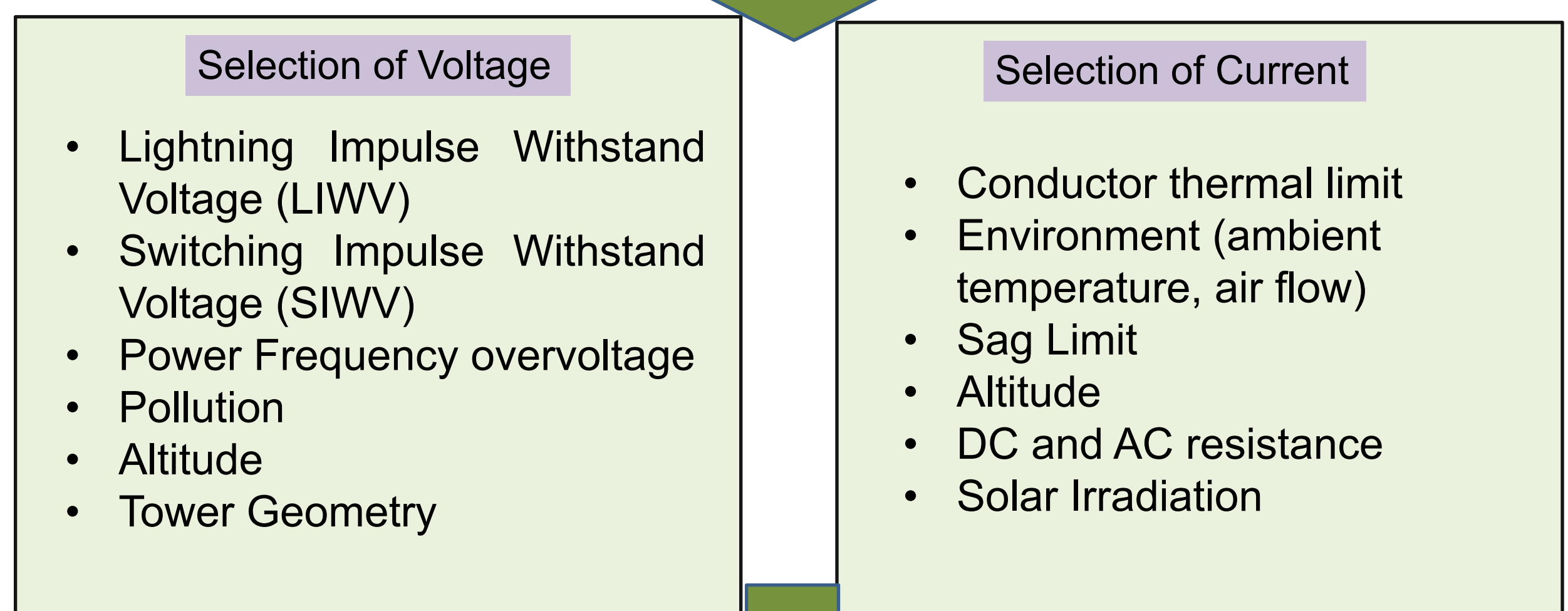
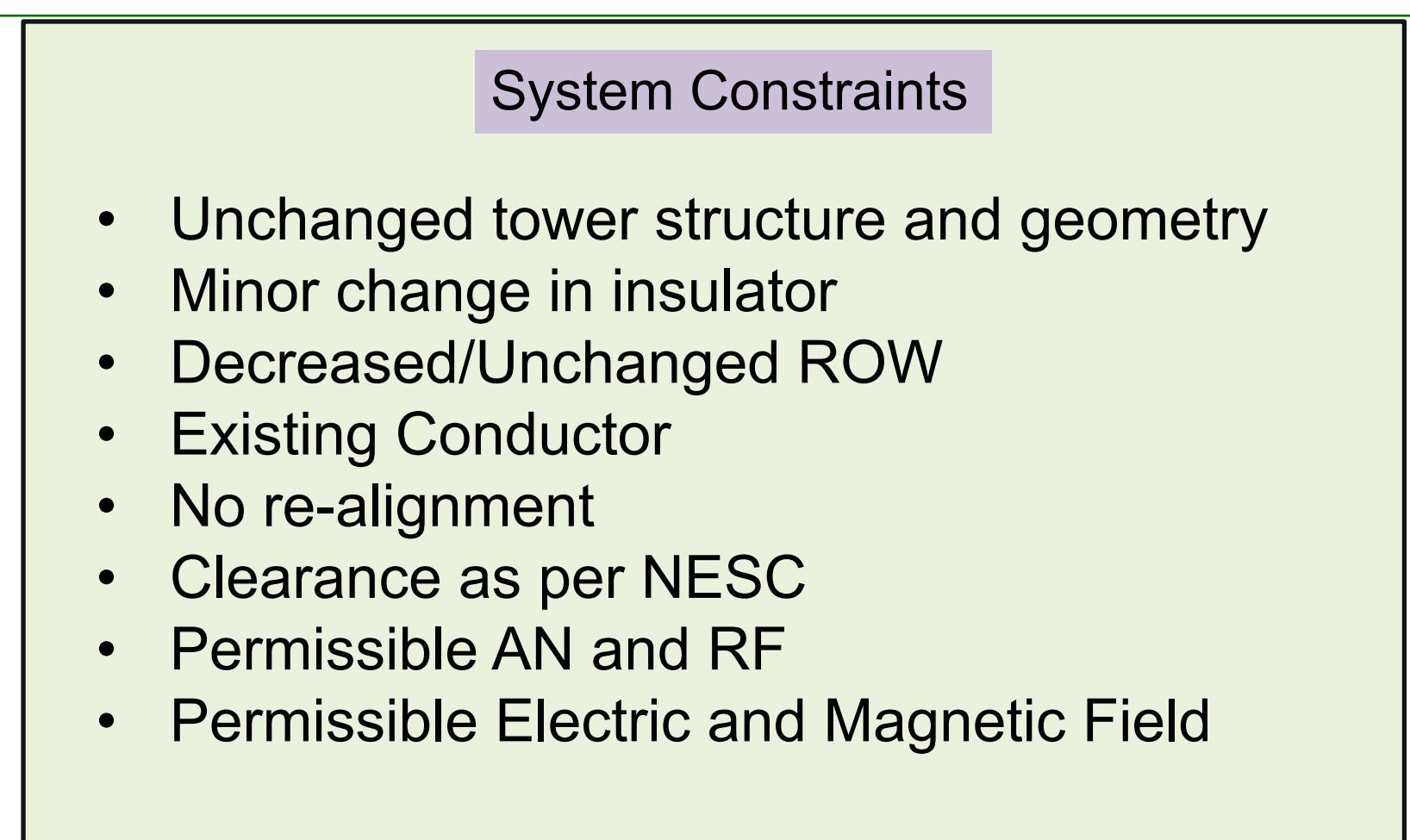
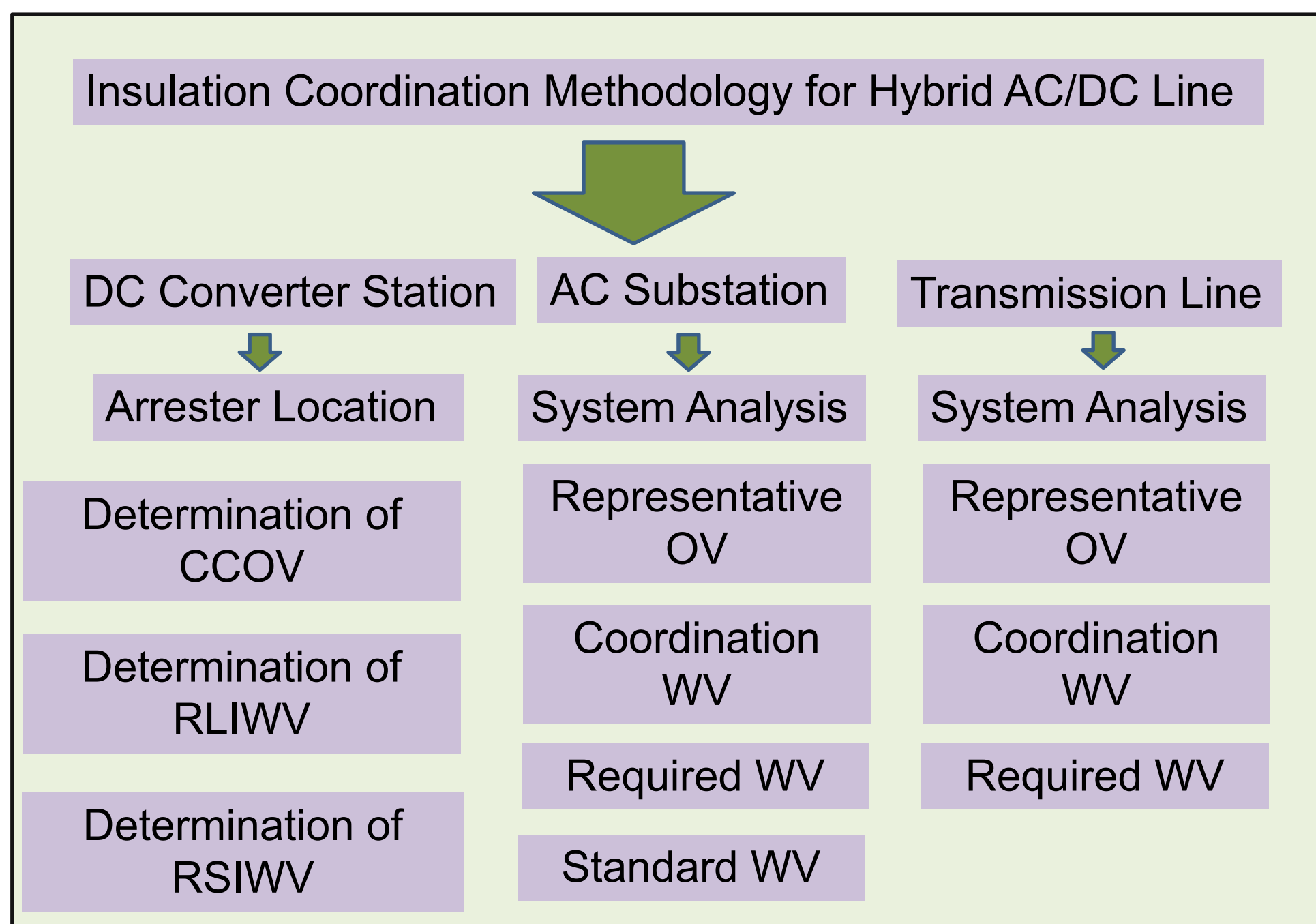


Fig. 3. Power Transmission ratio vs  $\lambda_{\text{dc}}^v$  and  $\lambda_{\text{dc}}^i$

- Power Transmission ratio increases significantly with the voltage level
- With 20% increase in the system voltage around 40% improvement in power transmission is achieved

## Selection of Parameters



Increased Power Transmission  
Lower Cost

## CONCLUSION

- This poster presents the approach of the hybrid AC/DC transmission for short transmission system
- Power transmission ratio largely depends on voltage level
- With the proposed approach a significant increase in power transmission with low cost can be achieved

