

Power Capacity Allocation Among Multiple Renewable Power Plants: A Perspective from System Strength

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Large-scale renewable energy projects consisting of renewable power plants (RPPs) managed by different stakeholders may suffer weak system strength. Consequently, only a limited amount of renewable power capacity can be delivered, or the insufficient system strength could incur stability issues. The allocation of system strength constrained power capacity among different RPPs deserves investigation, which is critical to their respective benefits. To this end, the system strength demand of each RPP is quantified based on its allowable power capacity. A power capacity allocation approach is proposed, ensuring that the RPPs efficiently and fairly utilize system strength. Case studies show that RPPs with longer electrical distances deliver less renewable capacity due to their greater impact on system strength.