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Abstract:

Nowadays, renewable energy is a trend in power generation in the world, gradually replacing conventional energy resources as fossil fuels are becoming exhausted and environmental problems are worsening. In particular, solar energy is currently being interested by many countries all over the world. Along with the development, the grid has faced with several risks during operation process when this type of energy resource is integrated. This article examines the impact of solar energy on the local distribution grid and on the grid performance when the fault occurs based on the actual grid pattern, ThuaThienHue-Vietnamese grid and PhongDien Solar photovoltaic Project (PhongDien PV). Using ETAP we have shown how the load flow of the PV system in the grid of ThuaThienHue-Vietnamese. The different levels of PhongDien PV penetration are considered in assumed cases to examine the frequency, voltage and resilience capability of the grid. The results show that the impact of solar power plants on the distribution grid as well as the benefits it brings.