Extreme weather events threaten the power delivery infrastructure causing an extended disruption of electricity supply to the critical services. Recent fire-related damages caused by high-voltage transmission lines coupled with dry weather are costing billions of dollars annually, with the only practical solution being de-energizing the lines and disrupting the power supply to millions of customers. Most impacts are observed at the mid and low voltage distribution systems due to inadequate incorporation of resilience at the distribution level. The changing nature of the grid and extreme weather events motivate new mechanisms to manage grid operations by leveraging smart grid technologies. For example, the recent extended outage in Texas due to resource adequacy concerns from an unusual cold front motivates new operational solutions to partially support critical and non-critical services. This tutorial will introduce the approach to model and quantify the impacts of extreme weather events on the power distribution grid and discuss planning and operational solutions to improve the distribution grid resilience. The use cases will be demonstrated using standard distribution test feeders.