

Three-Feeder Distribution Test System

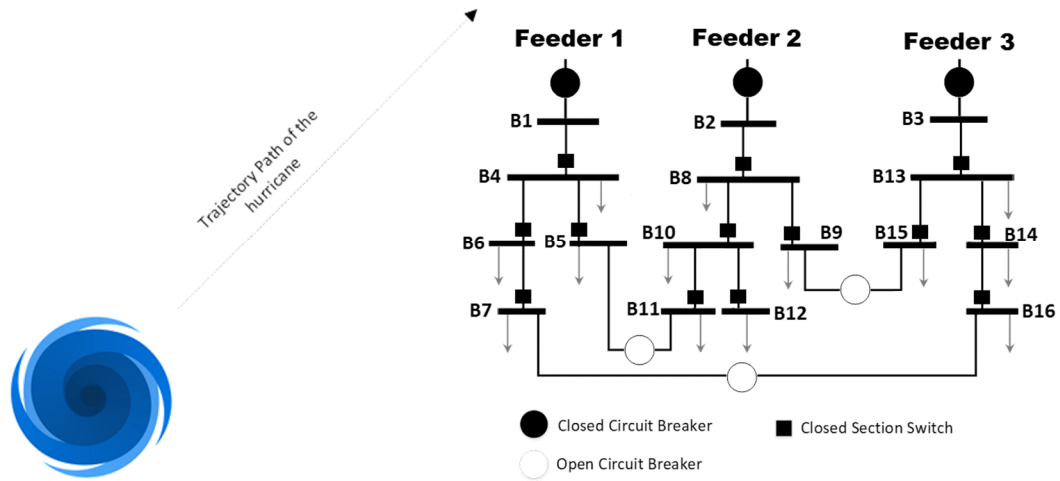


Fig.1 The three-feeder test distribution system and a moving hurricane

Table I. Loading and spatial positioning of the three-feeder distribution system

Bus Number	Load (MW)	[x,y] (coordinates in km)
B1	0.0	[25,20]
B2	0.0	[45,20]
B3	0.0	[60,20]
B4	2.0	[25,15]
B5	3.0	[30,10]
B6	2.0	[20,10]
B7	1.5	[20,5]
B8	4.0	[45,15]
B9	5.0	[40,10]
B10	1.0	[50,10]
B11	0.6	[35,5]
B12	4.5	[40,5]
B13	1.0	[60,15]
B14	1.0	[55,10]
B15	1.0	[60,10]
B16	2.1	[60,5]

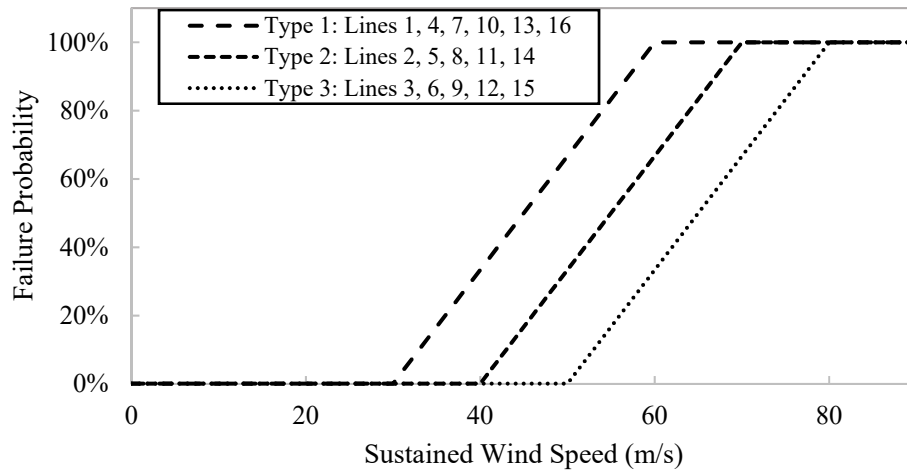


Fig. 2 Fragility curves of the three-feeder distribution system lines, facing different wind speeds

Table II. Characteristics of the hurricane

Hurricane Parameter	Unit	Value
Entry point [x,y]	(km)	[-60,0]
Approach angle	(degree)	45
V _t	(m/s)	6
V _m	(m/s)	55
R _m	(km)	47
x	-	0.7

The wind speed at distance r from the hurricane eye is given by:

$$V_r = V_m \left(\frac{R_m}{r} \right)^x$$