Model Feeder Criteria - Revised on 4/21/10 (Sheet 1 of 2)

	(Revisions are shown in Red)	13 KV	23 KV	Comments
1a	Typical Maximum Feeder MVA Rating Based on Feeder Breaker	12.7	22.0	Load Not to Exceed other Equipment Ratings; (Feeder Ratings vary depending on Feeder Configuration and Equipment Ratings)
1b	Typical Operating capacity based on 75% of Maximum Normal Feeder Utilization	9.5	16.5	Based on Max Breaker Rating; Switch load to adjacent feeders in 6 steps (maximum)
2	Ideal Customers per Feeder	2100	3600	Based on 4.5 KVA per Customer; High Customer Count Limit(HCCL) < 4320
3a	* Customers per Line Section	263	450	Recommended Customers per Feeder / 8 Line Sections per Feeder
3b	* Max KVA of TX's Connected (KVAT) per Line Section	2000	3460	13KV as per previous revisions; Used 1.73 factor for 23KV
	* Both conditions (Customers & KVAT) must be taken into consideration; Switches can be installed for other special reasons; Consult with Planning Dept.			
4a	Maximum Feeder Main Exposure	9 Miles	15 Miles	OH & UG Feeder Main only: (Breaker Protected only)
4b	Maximum Total Circuit Exposure	27 Miles	46 Miles	For Momentary Interruption Analysis. Includes Feeder Main, Reclosers and Laterals (OH Only)
5a	OH Feeder Radial Extremity: Max MVA/Customers	3.2 or 700	5.5 or 1200	23KV: Based on MVA lost similar to that of a 23KV AFS Feeder; 13KV: used 1.73 factor
5b	UG Feeder Radial Extremity: Max MVA/Customers	2.1 or 470	3.7 or 800	UG repair takes 150% times longer than an overhead repair
5c	Radial 3 Phase Fusing: Fuse Small Wire if possible (#2 or smaller): No Key Cust/Large Motors>100HP/Capacitor Banks/ Closed Delta Banks.			
6a	Ideal Customers per OH Lateral (per phase)	100	170	1st Stage Fuse: Use 65 A KS fuse (13 & 23 KV)
6b	Ideal Customers per URD Loop (per phase)	120	210	1st Stage Fuse: 80 Amp K or S&C Fuse type (13 & 23 KV)

	Model Feeder Criteria (13KV & 23 KV) Revised on 4/21/10 (Sheet 2 of 2)
	* All OH & UG Feeder Conductor installations require Planning's Review & Approval
* 7	**Feeder Pull Off Direct Buried duct (URD)**: Use 1000 MCM AL in 1-6" PVC w/spare duct.
	If more than 2 Feeder Pull Offs can be installed in new or existing Duct Bank: Use 1000 MCM Cu
	For any other feeder section in Duct bank (if more than 2 feeders can be installed): Use 1000 MCM Cu
	Feeder UG Dip or Tie: Use single 1000 MCM AL in 1-6" PVC (Consult Planning if spare duct is needed)
* 8	**Feeder OH Main:** Vertical or modified vertical construction using 568 AL feeder wire
	New Feeder Radial Branches/Extension: Use 568 or 3/0 AL.
	Existing Feeder Radial Branches/Extension: Minimum 1/0 AL or Cu.
9	**Feeder Tie Points**: As required to provide adequate Emergency Capacity (Typical 3 Feeder Ties to adjacent feeders)
10	**Automatic Feeder Switch (AFS):** 1.5 AFS per feeder placed at pick-up points to sectionalize up tp 1/2 customers (13 / 23 KV Feeders)
11	**Arrester Spacing:** Per DERM 2.9.1 for vertical or modified vertical construction.
12	**Reclosers** Reclosers are required to meet Distribution Protection Guidelines, including our Reach Factor policy, Arc Flash OSHA requirements, Protection of Small Wire (<#1/0) when fuses are not appropriate,etc. Reclosers are normally installed on feeder radial branches, but in some cases, installation of reclosers on the feeder main involving feeder ties are effective to improve reliability. Reclosers are also installed for special applications, to isolate special customers, and/or to improve Reliability. For example: • To sectionalize the feeder in order to reduce CI, Clm, Lbar & CMI. • Special attention should be given to feeders with long exposure violating the Model Feeder "Feeder Main" miles of exposure criteria. (13KV = 9 miles; 23KV = 15 miles) In some cases, the installation of reclosers on radial branches can convert a non-model feeder into a Model Feeder, thus improving reliability. • Always consider zone sequence application along with reclosers to reduce MAIFI. Due to the numerous variables involved and the complexity of the subject matter, all recloser installations need to be reviewed and approved by Planning using good engineering judgement after considering all distribution protection guidelines.