



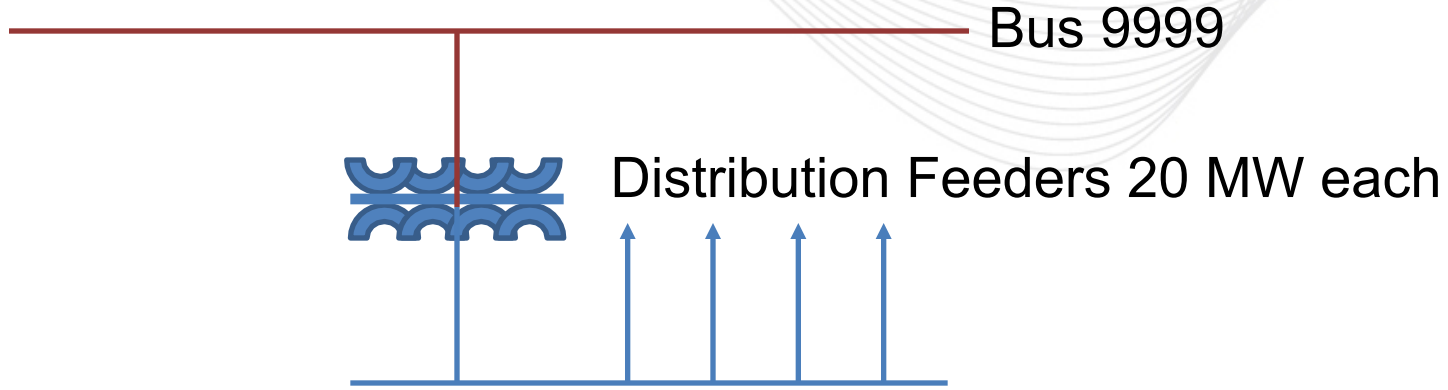
# Under Frequency Load Shedding Modeling Data for Planning Coordinator Use

Mark Kuras  
Senior Lead Engineer  
NERC Compliance

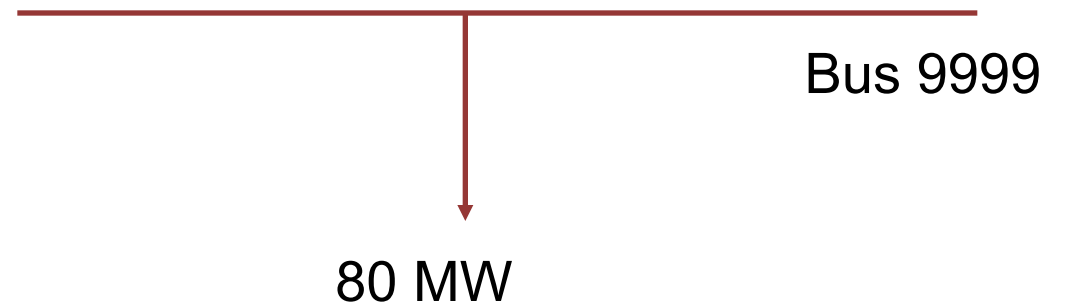
- For PJM, as a Planning Coordinator, to do simulations of UFLS implementation as required once every five years
  - Program Design and Evaluation
    - PRC-006-5
    - PRC-006-SERC-03

- It's extremely hard for us to line up the raw UFLS data with the power flow models
- TO planners (familiar with the power flow models) get together with the TO protection engineers (responsible for UFLS) and align the data
  - The PSS/E dynamics models in DYRE format
  - UFLS data with associated bus numbers

Reality



Power Flow Model



Say we wanted to model UFLS on one of the distribution feeders at 59.3 Hz with a 6 cycle delay

I	'LDS3xx'	LID	GBUS	GID	SC	f1	t1	tb1	frac1	f2	t2	tb2	frac2
	9999'LDS3BL'	1	0.00	0.00	0.00	59.30	0.10	0.00	0.25				/

- Also need to update our Off-Nominal Frequency Protection Database for generators
- Only modeled if the unit will trip before the last step of UFLS
- We have requested this information before

- I'm available to discuss this further with your planners or relay engineers
  - Mark Kuras, [mark.kuras@pjm.com](mailto:mark.kuras@pjm.com)
- This request will also be copied to the PC, SOS, RSCS
- Due to me by September 8, 2023
- Please let me know if the due date is not attainable

