Organization of Under Frequency Load Shedding Modeling Data for Planning Coordinator Use

PJM Planning Committee Meeting
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Background

- It will be necessary for PJM, as a Planning Coordinator, to do simulations of UFLS implementation
  - Program Design and Evaluation
    - PRC-006-1
    - PRC-006-RFC-01
    - PRC-006-SERC-1
  - Event Analysis
    - PRC-009

Proposal

- It's extremely hard for us to line up the raw UFLS data with the power flow models
- We are proposing that the 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

Current – Data Sheets

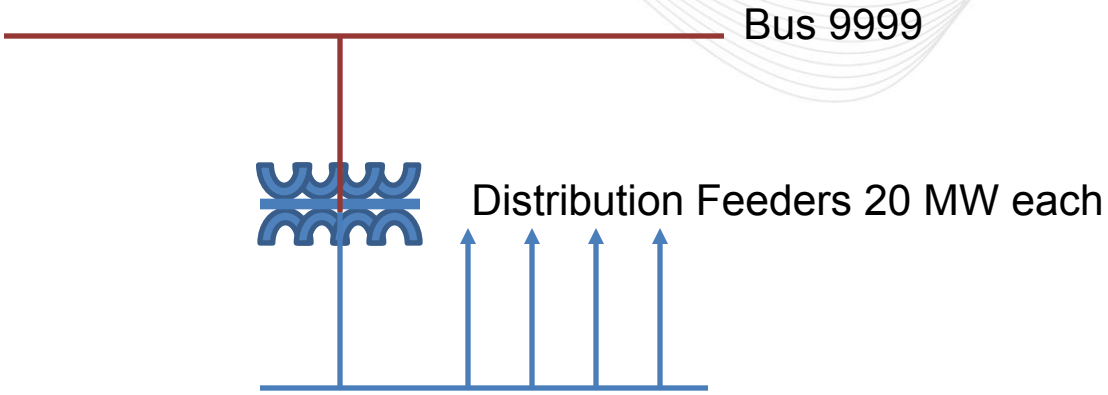
Company	Substation	Circuit Name	Frequency Pickup (Hz)	Total Trip Time (sec)	Net Load (MW)	Electrically Nearest EHV Bus 100 kV or higher
PECO	Angora	Angora_130	59.3	0.18 s	2.87	Grays Ferry 230 kV

Proposal – Data Sheets

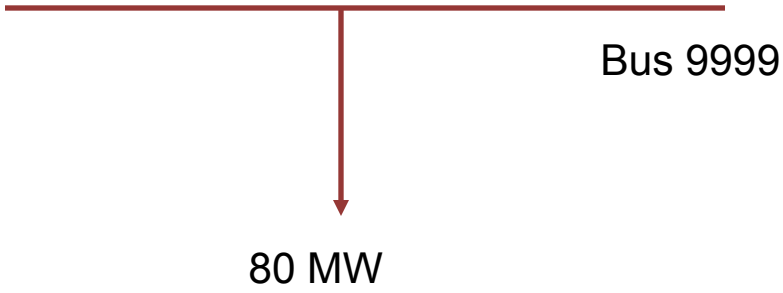
Company	Substation	Circuit Name	Frequency Pickup (Hz)	Total Trip Time (sec)	Percent of Load (%)	Bus Number	Bus Name
PECO	Angora	Angora_130	59.3	0.18 s	50.00	213454	GRFRRY69.0

For Example

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                    /
```

Summary

- Some companies already provided us with this data
- I'm available to discuss this further with your planners or relay engineers
  - Mark Kuras, 610-666-8924, kuras@pjm.com
- Will become another line item in the TO/TOP Matrix in the Planning tab
- Like to have this data by May 2012

Questions