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292 **Q THE COMPANY CLAIMS IT CANNOT IDENTIFY THE VOLTAGE OF**
293 **DISTRIBUTION LINES BELOW 69 KV. HOW CAN YOU CLAIM THAT VERY**
294 **LARGE LOAD AND EXTRA LARGE LOAD CUSTOMERS TAKE SERVICE AT**
295 **PRIMARY VOLTAGES?**

296 **A** ComEd has provided evidence that confirms my statement. In addition, such service
297 arrangements are consistent with my experience, and also are common practice in
298 the industry.

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299 **Q** **WHAT EVIDENCE HAS COMED PROVIDED?**

300 A In its response to Data Request No. IIEC 1.08, the Company provided a document
301 titled 2006 ComEd Distribution System Loss Factors (“the 2006 Loss Study”). This
302 document describes the Company’s most recent study of distribution losses
303 associated with its customer classes. The document is important because it identifies
304 the distribution components – by voltage level – that electricity must pass through to
305 serve the various customer classes. The particular customer groupings used in the
306 2006 Loss Study perfectly match the rate classes identified in the COSS.

307 With the detailed information provided in the 2006 Loss Study, I was able to
308 identify the percentage of load for each class that passes through the individual
309 primary and secondary components.

310 I have reproduced the pertinent data from the 2006 Loss Study in IIEC
311 Exhibit 3.1.

312 **Q** **WHAT DOES THIS EXHIBIT SHOW?**

313 A IIEC Exhibit 3.1 shows the percentage of class load that passes through various parts
314 of the Company’s primary and secondary systems. Perhaps the easiest way to
315 understand the exhibit is to walk through the data for one individual customer class.

316 I have excerpted the data pertaining to Single Family w/o Space Heating (SF)
317 customers from IIEC Exhibit 3.1 and show it in Table 3.

TABLE 3		
Percentage of Load Passing Through Various System Components – Single Family Without Space Heating Class		
<u>Line</u>	<u>Description</u>	<u>SF</u>
1	HV ESS	---
2	138-69 kV TSS	4%
3	138-34 kV TSS	17%
4	34 kV Lines	17%
5	34-12 kV Dist Cntr	13%
6	34-4 kV Dist Cntr	4%
7	34 kV ESS	---
8	138/69-12 kV TDC	83%
9	12 kV Lines	5%
10	12 kV Feeder	78%
11	12-4 kV Dist Cntr	5%
12	12 kV ESS	---
13	4 kV Feeder	9%
14	AC Ntwrk Feeder	---
15	AC Ntwrk Xfrmr	---
16	AC Ntwrk Sec	---
17	Line Xfrmr	100%
18	480 V DryType Xfrmr	---
19	Sec/Service	95%
20	Transmission	100%

318 Line 20 of Table 3 shows that 100% of the SF class load passes through the
319 transmission system. This is logical since it is the link between generation and
320 distribution. Similarly, line 8 shows that 83% of the SF load passes through a
321 “138/69-12 kV TDC” (*i.e.*, a transmission and distribution center). The remaining 17%
322 passes through a “138-34 kV TSS” (*i.e.*, a transmission service station), and then “34
323 kV Lines” as shown in lines 3 and 4. These two lines confirm that 100% of the SF
324 class load is delivered over the primary distribution system. Using Table 3, we can
325 track the flow of electrical current from the transmission system through primary
326 feeders and lines, and even through the transformers and secondary system.

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327 Perhaps the most important information for our purposes is found in lines 15
328 and 17 where the Company provides the percentage of class load passing through its
329 network and line transformers. This is the key indicator that a class takes service at
330 secondary voltages. Line 17 shows that 100% of the SF class load passes through
331 line transformers. The SF class receives its entire load from the secondary
332 distribution system. Hence, all members of this class utilize both the primary and
333 secondary parts of the distribution system.

334 **Q ARE THERE CUSTOMER CLASSES THAT TAKE ONLY A PORTION OF THEIR**
335 **LOAD FROM THE SECONDARY SYSTEM?**

336 **A** Yes. In Table 4, I have excerpted the data from IIEC Exhibit 3.1 for Medium and
337 Large Load customers. Lines 15 and 17 for the Medium Load 100 kW - 400 kW (ML),
338 and Large Load 400 kW – 1 MW (LL) classes show that the percentage of load
339 passing through a Line or AC Network Transformer, and therefore being defined as
340 secondary, is 85% and 62%, respectively.

TABLE 4

Percentage of Load Passing Through Various System Components – Medium Load and Large Load Classes

<u>Line</u>	<u>Description</u>	<u>ML</u> <u>100 - 400 kW</u>	<u>LL</u> <u>400 - 1 MW</u>
1	HV ESS	---	---
2	138-69 kV TSS	4%	4%
3	138-34 kV TSS	20%	20%
4	34 kV Lines	20%	20%
5	34-12 kV Dist Cntr	10%	6%
6	34-4 kV Dist Cntr	5%	1%
7	34 kV ESS	5%	13%
8	138/69-12 kV TDC	---	80%
9	12 kV Lines	8%	11%
10	12 kV Feeder	67%	64%
11	12-4 kV Dist Cntr	3%	---
12	12 kV ESS	10%	25%
13	4 kV Feeder	8%	1%
14	AC Ntwrk Feeder	5%	5%
15	AC Ntwrk Xfrmr	5%	5%
16	AC Ntwrk Sec	5%	5%
17	Line Xfrmr	80%	57%
18	480 V DryTypeXfrmr	---	---
19	Sec/Service	---	---
20	Transmission	100%	100%

341 Q WERE YOU ABLE TO DETERMINE THE PERCENTAGE OF CLASS LOAD THAT
342 PASSED THROUGH PRIMARY AND SECONDARY DISTRIBUTION
343 COMPONENTS FOR EACH CUSTOMER CLASS USING THIS SAME
344 TECHNIQUE?

345 A Yes, I was. The results are shown in Table 5.

TABLE 5

**Percentage of Class Load Carried Over
ComEd's Primary and Secondary Systems**

<u>Line</u>	<u>Customer Class</u>	<u>% Primary</u>	<u>% Secondary</u>
1	Single Family Without Space Heat	100%	100%
2	Multi Family Without Space Heat	100%	100%
3	Single Family With Space Heat	100%	100%
4	Multi Family With Space Heat	100%	100%
5	Watt-Hour	100%	100%
6	Small Load (< 100 kW)	100%	100%
7	Medium Load (100 - 400 kW)	100%	85%
8	Large Load (400 kW - 1 MW)	100%	62%
9	Very Large Load (1 - 10 MW)	100%	0%
10	Extra Large Load (> 10 MW)	100%	0%
11	High Voltage Up to 10 MW	0%	0%
12	High Voltage Over 10 MW*	0%	0%
13	Fixture-Included Lighting	100%	100%
14	Dusk to Dawn Lighting	100%	100%
15	General Lighting	100%	100%
16	Railroad	100%	0%

*The High Voltage class costs are not part of the primary or secondary system, but are identified separately.

346 **Q PLEASE DISCUSS THE RESULTS.**

347 A Table 5 shows that many customer classes are served entirely from the secondary
348 system. These are the Single Family w/o Space Heating, Multi Family w/o Space
349 Heating, Single Family w/ Space Heating, Multi Family w/ Space Heating, Watt-Hour,
350 Small Load, and the three Lighting classes.

351 Table 5 also shows that a number of classes are served entirely from the
352 primary distribution system, with no involvement of secondary facilities. These are
353 the Very Large Load (1 - 10 MW), Extra Large Load (>10 MW), and the Railroad
354 classes. Finally, two classes take service at both primary and secondary voltages.

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355 These are the Medium Load (100 kW - 400 kW class), and the Large Load
356 (400 kW - 1 MW) classes.

357 **Q DOES THE COMPANY'S COSS ALLOCATE SECONDARY COSTS TO**
358 **CUSTOMERS WHO DO NOT USE SECONDARY FACILITIES??**

359 **A**Yes, it does. The Company's COSS combines secondary and primary plant and
360 O&M costs. It then allocates the combined costs (over \$3.8 billion in rate base and
361 nearly \$500 million in expenses) to all customer classes based on their respective
362 class peak demand. By doing so, the Company's COSS grossly overstates the rate
363 base and expenses incurred to serve primary classes, and consequently understates
364 the RORB from them.

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