

**BEFORE THE
PUBLIC SERVICE COMMISSION OF UTAH**

In the Matter of the Complaint of)
McLeodUSA Telecommunications)
Services, Inc., against Qwest Corporation) Docket No. 06-2249-01
for Enforcement of Commission-)
Approved Interconnection Agreement.)

**SURREBUTTAL TESTIMONY
OF
SIDNEY L. MORRISON**

On behalf of

McLeodUSA Telecommunications Services, Inc.

May19, 2006

PUBLIC VERSION

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I. INTRODUCTION AND PURPOSE OF TESTIMONY

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Sidney L Morrison. My business address is 550 Sunset Lakes Boulevard SW, Sunset Beach, North Carolina 28468-4900.

Q. ARE YOU THE SAME SIDNEY MORRISON WHO FILED DIRECT TESTIMONY IN THIS PROCEEDING ON APRIL 14, 2006?

A. Yes, I am.

Q. ON WHOSE BEHALF IS YOUR SURREBUTTAL TESTIMONY BEING SUBMITTED?

A. McLeodUSA Telecommunications Services, Inc. (hereafter “McLeodUSA”).

Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?

A. My surrebuttal testimony responds to the rebuttal testimony of Qwest Corporation’s (“Qwest’s”) point witness on engineering issues, Robert J. Hubbard,¹ filed in this docket on May 12, 2006, and I will address the rebuttal testimony of Qwest witness William R. Easton,² as it relates to Qwest’s Power Reduction and Power Restoration offerings.

¹ Rebuttal Testimony and Exhibits of Robert J. Hubbard, Utah Public Service Commission Docket No. 06-2249-01, May 12, 2006 (“Hubbard Rebuttal”).

² Rebuttal Testimony and Exhibits of William R. Easton, Utah Public Service Commission Docket No. 06-2249-01, May 12, 2006 (“Easton Rebuttal”).

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II. RESPONSE TO QWEST WITNESS ROBERT HUBBARD

24

**Q. HAVE YOU REVIEWED THE REBUTTAL TESTIMONY OF QWEST
WITNESS ROBERT HUBBARD?**

25

26

A. Yes, I have. Mr. Hubbard is Qwest's point witness on central office power engineering
and design.

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**Q. DO YOU HAVE ANY GENERAL COMMENTS REGARDING MR. HUBBARD'S
REBUTTAL TESTIMONY?**

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A. Yes, I have several. First, Mr. Hubbard's rebuttal testimony is internally inconsistent on
an issue that is very significant to this case. For instance, compare page 6, lines 2 – 8 of
Mr. Hubbard's rebuttal testimony, where he testifies (incorrectly, in my opinion) that
Qwest sizes DC power plant based on the List 1 drain of Qwest's equipment and List 2
drain of competitive local exchange carrier ("CLEC") equipment, to page 10, lines 4 – 5
of Mr. Hubbard's rebuttal testimony where he testifies (incorrectly, in my opinion) that
Qwest sizes DC power plant based on orders (or List 2 drain) of Qwest and CLECs. DC
power plants cannot be sized in both of the ways that Mr. Hubbard describes
simultaneously, and I explain that DC power plant is actually sized by Qwest neither one
of these ways.

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Second, my surrebuttal testimony will show that Mr. Hubbard either seriously
misunderstands Qwest's own engineering manuals/requirements and efficient
engineering practices or is intentionally ignoring them in an attempt to salvage Qwest's
fundamentally flawed position in this case. Though I provided a significant amount of
information from power engineering manuals in my direct testimony that refutes Qwest's

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46 position in this case, Mr. Hubbard did not even attempt to address them in his rebuttal
47 testimony.

48 Third, Mr. Hubbard's testimony makes it appear as if Qwest has absolutely no
49 idea what to expect with regard to the power draw associated with McLeodUSA's
50 collocated equipment. He claims that Qwest must know the precise forecasted power
51 usage of McLeodUSA's and other CLECs' in the central office in order to design DC
52 power plant in the manner described in its engineering manuals and a manner in which
53 Qwest sizes DC power plant for its own equipment, or else it must size DC power plant
54 for CLECs based on List 2 drain. This is simply not true. Qwest has a host of
55 information available to it to engineer and size DC power plant, including the precise
56 amount and type of equipment housed therein, number and type of circuits to be served
57 by the equipment, power draw measurements taken by Qwest over time, office wide busy
58 hour usage, as well as many years of combined experience engineering central office
59 power systems. Mr. Hubbard would have the Commission believe that Qwest power
60 engineers are "asleep at the wheel" with regard to forecasting and planning for future
61 power draw requirements (at least for CLECs), and that Qwest's engineers focus solely
62 on power cable orders for CLECs when sizing DC power plant despite the fact that
63 Qwest knows for a fact that CLECs' actual usage will be far below that level. While
64 engineering power systems in a central office is difficult and sophisticated work, there are
65 precise guidelines to follow in order to provide clear direction in the face of this
66 complexity and ensure reliability and safety for all power users. And addressing complex
67 power engineering forecasts and augments for the central office is precisely what Qwest
68 has employed and trained its power engineers to do.

69 Fourth, Qwest’s position rests on the premise that it has “partitioned” DC power
70 plant capacity for CLECs, such that a certain amount of DC power plant (i.e., the level of
71 amperage associated with the CLEC power cable order) will be reserved and available to
72 the CLEC at all times. Again, Qwest is wrong, as the DC power plant is a shared
73 resource of the central office, and there is no such “partitioning” going on in Qwest
74 central offices – nor should there be.

75 Fifth, in a final attempt to salvage a Qwest position that utterly fails to square
76 with Qwest’s own engineering manuals, the stated positions of its affiliates and common
77 sense, Mr. Hubbard provides an example that purportedly shows an instance wherein a
78 CLEC’s collocated equipment would draw List 2 drain (or an amount close to this level).
79 However, the example he provides is so far-fetched that the power systems in central
80 offices are not designed to accommodate it such an unlikely event. Mr. Hubbard’s
81 example assumes away the existence of a backup AC power source that would electrify
82 equipment in the central office in the case of a commercial AC power failure. This
83 single, highly unlikely, example certainly is not demonstrative of the need to size DC
84 power plant based on List 2 drain.

85

86 **A. Qwest’s Contention that DC Power Plant Is Sized Based on the**
87 **Ordered Amperage of CLEC Power Cables Is Incorrect and**
88 **Inconsistent With Qwest’s Own Power Engineering Manuals**
89

90 **Q. WHAT IS THE PRIMARY DISAGREEMENT BETWEEN YOU AND MR.**
91 **HUBBARD?**

92 A. Mr. Hubbard testifies that Qwest sizes the shared DC power plant of the central office
93 (e.g., batteries, rectifiers, generators) for Qwest’s equipment based on List 1 drain, while

94 at the same time sizing DC power plant for CLECs' equipment based on CLEC power
95 cable orders (or a higher List 2 drain).³ I, on the other hand, contend that DC power plant
96 is sized by Qwest based on the total List 1 drain (or peak "busy hour" usage under normal
97 operating conditions) of all equipment powered by the DC power plant in the central
98 office.

99

100 **Q. IS THIS PARTICULAR DIFFERENCE OF OPINION SIGNIFICANT?**

101 A. Yes, very significant. The issue is significant because the DC Power Measuring
102 Amendment should be interpreted, and, in turn, the DC Power Plant charge should be
103 applied, by Qwest in a manner consistent with the way in which this DC power plant
104 equipment is engineered and sized within Qwest's central offices – a point on which
105 Qwest agreed in another state.⁴ Yet, Mr. Hubbard's assertion that central office
106 engineers size DC power plant according to CLEC orders for power cables is flatly false
107 and contrary to Qwest's own engineering manuals and requirements.

108

109 **Q. PLEASE ELABORATE ON HOW MR. HUBBARD'S ASSERTION THAT**
110 **QWEST SIZES DC POWER PLANT BASED ON CLEC POWER CABLE**
111 **ORDERS CONFLICTS WITH QWEST'S POWER ENGINEERING MANUALS**
112 **AND REQUIREMENTS.**

113 A. This inconsistency becomes quite evident when Mr. Hubbard's assertion that Qwest sizes
114 DC power plant for CLECs based on List 2 drain ["Qwest uses the ordered amount to
115 size the power plant capacity made available to CLECs" and "Qwest assumes that the

³ Hubbard Rebuttal, page 6, lines 2 – 8.

⁴ Mr. Hubbard testified in Iowa: "Qwest's interpretation of the overall structure and language of the DC Power Measuring Amendment is consistent with how power plants are sized and built." Hubbard Iowa Reply Testimony, Iowa Docket FCU-06-20, p. 3, lines 12 – 14.

116 order is based on List 2 Drain”]⁵ is compared to the following excerpt taken verbatim
117 from Bellcore technical document “Power Systems Installation Planning” BR-790-100-
118 652, wherein it is describing the power study procedure used for sizing DC power plant
119 as follows: *****BEGIN CONFIDENTIAL** [REDACTED]

120 [REDACTED]
121 [REDACTED]
122 [REDACTED]
123 [REDACTED]

124 [REDACTED] A plain reading of this language clearly shows that DC
125 power plant is not sized based on List 2 drain, as Mr. Hubbard claims, but on List 1 drain
126 of all equipment in the central office. There are numerous additional inconsistencies
127 between Mr. Hubbard’s claims and Qwest’s engineering manuals and requirements as
128 shown by my direct testimony at pages 31 – 35.

129
130 **Q. BUT MR. HUBBARD SUGGESTS THAT THE INTRODUCTION OF LOCAL**
131 **COMPETITION AND COLLOCATED CLECS SOMEHOW CHANGED THE**
132 **WAY IN WHICH QWEST MUST ENGINEER AND SIZE DC POWER PLANT**
133 **IN ITS CENTRAL OFFICES.⁶ IS HE CORRECT?**

134 A. No. The engineering documents to which I refer that show the flaws in Mr. Hubbard’s
135 view existed prior to 1996 and are still relevant today, meaning that regardless of the
136 number of power users in the central office, DC power plant is to be sized based on the
137 aggregate List 1 drain of the equipment being powered. In other words, DC power plant
138 is sized to accommodate *loads* and not *carriers*. To the extent that any of these

⁵ Hubbard Rebuttal, page 6, lines 7 – 8 and lines 3 – 4.
⁶ Hubbard Rebuttal, page 14, lines 21 – 23.



139 engineering practices would have required modification when the number of power users
140 in a central office increased due to the introduction of local competition, the referenced
141 manuals would have undoubtedly been updated over the past decade to reflect these
142 changes. Instead, these manuals specifically warn against the engineering practices that
143 Qwest advocates here and states that sizing DC power plant based on List 2 drain will
144 result in *****BEGIN CONFIDENTIAL [REDACTED] END CONFIDENTIAL*****
145 of the DC power plant facilities.⁷

146

147 **Q. YOU PROVIDED IN YOUR DIRECT TESTIMONY A SIGNIFICANT AMOUNT**
148 **OF INFORMATION FROM QWEST’S OWN ENGINEERING MANUALS THAT**
149 **REFUTES QWEST’S REBUTTAL TESTIMONY IN THIS CASE. DID QWEST**
150 **EVEN ATTEMPT TO EXPLAIN THESE GLARING INCONSISTENCIES?**

151 A. No. Though I pointed to no fewer than 5 power engineering manuals used to size and
152 engineer DC power plant in central offices that all refute Qwest’s testimony, Mr.
153 Hubbard does not even attempt to address one of them. As such, we are left with Mr.
154 Hubbard’s unsupported assertion that proper engineering practices have changed to
155 require DC power plant to be based on CLEC power cable orders, but these “changes”
156 have not been embodied in any technical documentation. This is extremely hard to
157 believe.

158

159 **B. Qwest’s Testimony That It Must Size DC Power Plant To List 2 Drain**
160 **For CLECs Due To Unforecasted CLEC Usage is False**
161

⁷ See, Direct Testimony of Sidney Morrison, filed April 14, 2006 (“Morrison Direct”), page 33, line 740 – page 34, line 763.

162 Q. MR. HUBBARD CLAIMS THAT THE PURPORTED DIFFERENCE IN THE
163 WAY QWEST SIZES DC POWER PLANT FOR CLECS' EQUIPMENT VERSUS
164 QWEST'S EQUIPMENT IS REASONABLE BECAUSE "QWEST DOES NOT
165 KNOW, AND CANNOT REASONABLY FORECAST, THE DRAW THAT CLEC
166 EQUIPMENT WILL TAKE, SO QWEST USES THE ORDERED AMOUNT TO
167 SIZE THE DC POWER PLANT CAPACITY MADE AVAILABLE TO CLECS."⁸
168 IS MR. HUBBARD CORRECT?

169 A. No. I explained in my direct testimony that Qwest has a host of information at its
170 disposal to appropriately plan for the total power draw that will be demanded of the
171 central office DC power plant.⁹ Further, Qwest has many years of experience in
172 designing DC power plants within central offices and knows full well to expect nothing
173 close to List 2 drain in terms of usage, and therefore, not to size the central office power
174 plant to the List 2 drain associated with CLEC power cables. Mr. Hubbard's insistence
175 that Qwest's power engineers have only one piece of data (i.e., the power cable order of
176 the CLEC) and is blind to all other information at Qwest's disposal (including actual,
177 measured busy hour drains of the central office) when sizing DC power plant is simply
178 not believable. There have been collocators of various types in Qwest COs for a long
179 time using the DC power plant. That experience alone would tell the Qwest engineers
180 about the amount of DC power a collocator would use.

181
182 Q. MR. HUBBARD PROVIDED CONFIDENTIAL EXHIBIT RJH_1 WHICH
183 SHOWS THE ORDERED AMPERAGE OF THE POWER CABLES SERVING
184 MCLEODUSA'S COLLOCATIONS IN UTAH AS WELL AS THE MEASURED

⁸ Hubbard Rebuttal, page 6, lines 6 – 8.

⁹ Morrison Direct, pages 39 – 40.

185 **USAGE FOR THESE COLLOCATIONS. DOES THIS EXHIBIT ILLUSTRATE**
186 **THE PROBLEM WITH QWEST’S PURPORTED DC POWER PLANT**
187 **ENGINEERING PRACTICES FOR CLECS AND THE MANNER IN WHICH**
188 **QWEST APPLIES THE POWER PLANT CHARGE?**

189 A. Yes. This exhibit shows that, on average, McLeodUSA’s power usage is *****BEGIN**
190 **CONFIDENTIAL [REDACTED] END CONFIDENTIAL***** of the amperage associated with
191 McLeodUSA’s order for power cables. Or, in other words, the “as ordered” amount
192 exceeds the “as consumed” amount by almost *****BEGIN CONFIDENTIAL [REDACTED]**
193 **END CONFIDENTIAL*****. Given Mr. Hubbard’s claims that Qwest builds DC power
194 plant based on CLEC power cable orders and given Qwest’s Power Plant rate application
195 on “as ordered” amperage, Exhibit RJH_1 shows that Qwest’s engineering practices will
196 lead to significant oversizing of DC power plant facilities in the central office and much
197 higher Power Plant charges for McLeodUSA.

198 Importantly, there are both engineering reasons and business reasons for CLECs
199 ordering power cables that are capable of carrying much larger amounts of power than
200 the power they will actually consume. And since McLeodUSA pays Qwest for these
201 power cables when ordered, Qwest is not harmed by this engineering practice.

202
203 **Q. ABOVE YOU ADDRESSED QWEST’S CLAIM THAT IT MUST SIZE DC**
204 **POWER PLANT BASED ON CLEC POWER CABLE ORDERS BECAUSE**
205 **QWEST WOULD ALLEGEDLY HAVE NO IDEA WHAT TO EXPECT WITH**
206 **REGARD TO MCLEODUSA’S POWER USAGE. HAS EXHIBIT RJH_1**
207 **PROVIDED BY MR. HUBBARD SHOWN THIS TO BE INACCURATE?**

208 A. Yes. I am representing McLeodUSA in complaints against Qwest regarding its
209 application of the Power Plant charge in Utah, as well as Colorado, Arizona, Washington
210 and Iowa. Qwest has provided exhibits similar to Utah Exhibit RJH_1 showing “as
211 ordered” and “as consumed” data for McLeodUSA in all of these states. After reviewing
212 this data across states, I am beginning to see general trends forming in the data. In
213 general, I am observing that, based on Qwest’s own measurements, Qwest could expect
214 McLeodUSA to actually consume anywhere from between about *****BEGIN**
215 **CONFIDENTIAL** [REDACTED] **END CONFIDENTIAL***** of the ordered
216 amperage of its power cables. I should note that this number is general across states and
217 is specific to McLeodUSA.¹⁰ Following Mr. Hubbard’s logic, we would have to believe
218 that Qwest power engineers would simply ignore this data clearly showing “across the
219 board” and significant differences between the ordered amperage of the power cables and
220 the power consumed when sizing DC power plant and, instead, blindly add additional DC
221 power plant equipment to accommodate CLEC orders for power cables. Such actions on
222 Qwest’s part would not be prudent or consistent with its engineering manuals. Though I
223 am not suggesting that Qwest should use this McLeodUSA data as an engineering
224 standard, I *am* saying that Qwest’s claim that it does not know what to expect with regard
225 to McLeodUSA’s power draw is not supported by the facts – as the data clearly shows
226 that McLeodUSA’s power usage will consistently fall well below the amperage of its
227 power cables (by design). This trend holds true regardless of state or central office. And
228 since telecommunications equipment power consumes power in a similar manner

¹⁰ I should also note that I am not endorsing this data be used by Qwest to size DC power plant. The purpose of this data is to show that Mr. Hubbard’s claim that Qwest must size DC power plant for CLECs based on CLEC power cables orders (or List 2 drain) because it would have no idea what to expect in terms of CLEC power usage is factually inaccurate.

229 regardless of carrier, and all carriers are required to size power cables to the higher List 2
230 drain, I would expect to see similar trends for other CLECs as well as Qwest.

231 Furthermore, though Exhibit RJH_1 shows a small degree of fluctuation between
232 power measurement periods (about *****BEGIN CONFIDENTIAL [REDACTED] END**
233 **CONFIDENTIAL***** across the state), since the true trigger for DC power plant sizing
234 is the aggregate List 1 drain of the central office, the DC power plant would
235 accommodate the peak load of all powered equipment in the central office. Company-
236 specific fluctuations in power usage for collocations would be “smoothed out” when they
237 are combined with the much larger busy hour drain of the rest of the central office,
238 including Qwest’s equipment.

239

240 **Q. IS IT YOUR TESTIMONY THAT THE “AS ORDERED” AND “AS**
241 **CONSUMED” AMOUNTS ARE CORRELATED?**

242 A. No. Though I have described a general trend that has emerged when analyzing this data
243 across states (i.e., that the “as ordered” amount significantly exceeds the “as consumed”
244 amount in all instances), I agree with Mr. Hubbard’s testimony at page 8, line 17, where
245 he states that there is no correlation between ordered amounts and actual usage – and that
246 the lack of this correlation is a critical point. However, I completely disagree with the
247 conclusion he draws from this observation, i.e., “that the only prudent course of action at
248 the time the order is placed is to engineer in accordance with the ordered amounts.”¹¹

249 The reason this is not a prudent course of action is because Qwest knows for a fact that
250 McLeodUSA’s power usage will be below the “as ordered” amperage because this
251 outcome is required by Qwest’s own engineering manuals and is shown in the power

¹¹ Hubbard Rebuttal, page 8, lines 19 – 20.

252 measurements Qwest takes, as well as the other information available to Qwest on the
253 collocation application, for instance. Hence, the reason “as ordered” and “as consumed”
254 amounts are not correlated is because they both spring from different engineering
255 requirements (List 2 drain versus List 1 drain, respectively) and are, therefore, not
256 correlated by design. This means that there is also no correlation between the “as
257 ordered” amperages of Qwest’s power cables and Qwest’s “as consumed” power.

258

259 **Q. DO YOU EXPECT QWEST TO PROJECT MCLEODUSA’S POWER USAGE IF**
260 **MCLEODUSA ITSELF CANNOT DO SO, AS MR. HUBBARD CLAIMS AT**
261 **PAGE 11 OF HIS REBUTTAL?¹²**

262 A. No, this is not my testimony. However, I do expect Qwest to properly size power
263 systems in its central office – including adhering to its own engineering manuals and
264 good engineering practices – and this would require sizing DC power plant based on the
265 aggregate List 1 drain of the central office.

266 Further, Mr. Hubbard’s criticism misses the point. By sizing according to
267 established engineering practices, Qwest will have no need to precisely forecast the
268 individual, real-time power usage of McLeodUSA when sizing DC power plant because
269 it will already be monitoring McLeodUSA’s power usage within the aggregate busy hour
270 drain of the central office. Hence, to the extent that Qwest is sizing DC power plant
271 properly, Mr. Hubbard’s concern would be rendered moot.

272

273 **Q. ARE YOU SAYING THAT QWEST REALLY DOESN’T NEED TO KNOW AT**
274 **THE OUTSET WHAT MCLEODUSA’S BUSINESS PLAN/FORECAST IS OR**

¹² Hubbard Rebuttal, page 11, lines 11 – 13.

275 **WHEN ITS EQUIPMENT WILL BE FULLY CARDED, AS MR. HUBBARD**
276 **INSINUATES QWEST DOES?**¹³

277 A. First, Mr. Starkey explains that McLeodUSA does indeed provide forecasts for circuits to
278 Qwest, and amends those forecasts if need be. Hence, Qwest does have a good idea of
279 McLeodUSA’s business plan/forecast and when (or, maybe more appropriately, if)
280 McLeodUSA’s equipment will be fully carded. That being said, these factors are not all
281 that relevant to the exercise of sizing DC power plant in a central office. Mr. Hubbard
282 alleges that my testimony explaining that CLECs order power cables based on capacity
283 they will ultimately need is true but irrelevant. I disagree. When McLeodUSA orders
284 these larger power cables, it pays for them in the form of nonrecurring and recurring
285 charges, and McLeodUSA pays more, the larger the capacity of the cable. So, the power
286 cables – regardless of size – are “bought and paid for” by McLeodUSA. However, when
287 McLeodUSA originally orders its power cables, McLeodUSA’s actual usage is zero
288 because its equipment is not up and running yet, as Mr. Hubbard recognizes. Once
289 McLeodUSA collocates equipment – equipment that Qwest is made aware of in the
290 collocation application – and begins to draw power, McLeodUSA’s busy hour drain will
291 be “added to the mix” of the central office and monitored by Qwest. Certainly, Qwest
292 has sufficient information to determine if the usage consumed by McLeodUSA’s
293 collocated equipment would exceed the DC power plant augmentation threshold when
294 combined with the remaining List 1 drain of the central office. It is this aggregate busy
295 hour usage that will then be used by Qwest to size the DC power plant. Since Qwest
296 sizes DC power plant based on aggregate List 1 drain of the central office,
297 McLeodUSA’s future business plans or the date on which McLeodUSA’s equipment will

¹³ Hubbard Rebuttal, page 9, lines 5 – 7.

298 be fully carded (if it ever is) is really irrelevant. If that day comes, Qwest will observe
299 the power drain associated with these changes in the aggregate busy hour drain of the
300 central office through routine monitoring and can plan to meet the total drain of the
301 central office accordingly.

302

303 **Q. DOES THE FACT THAT THERE WAS NO USAGE TO TAKE INTO ACCOUNT**
304 **WHEN MCLEODUSA ORIGINALLY ORDERED ITS POWER CABLES MEAN**
305 **THAT QWEST SHOULD HAVE BUILT ITS DC POWER PLANT TO**
306 **ACCOMMODATE THE AMPERAGE ASSOCIATED WITH MCLEODUSA'S**
307 **POWER ORDER?¹⁴**

308 A. No. Indeed, the fact that there was no usage associated with McLeodUSA's order for a
309 175 amp power cable, for instance, exposes the folly of Qwest building 175 amps of DC
310 power plant to accommodate this power cable order. A more appropriate way in which to
311 address this situation – and the way Qwest's engineering manuals require this situation to
312 be handled as well as the manner in which Mr. Hubbard concedes it sizes DC power plant
313 for its own equipment – is for Qwest to monitor the total List 1 drain of the central office
314 and ensure that its DC power plant can accommodate this peak usage level. Conceivably,
315 McLeodUSA could order and install power cables (which it would pay for through
316 separate nonrecurring and recurring charges), never draw 1 Amp of power, but following
317 Qwest's logic, Qwest would purportedly build 175 amps of DC power plant capacity and
318 begin billing McLeodUSA \$1,363.72 (175 x \$7.7927) in monthly charges associated with
319 the Power Plant charge. However, since Qwest did not actually build the 175 amp worth
320 of DC power plant for McLeodUSA's power cable order, McLeodUSA would be paying

¹⁴ Hubbard Rebuttal, page 10, lines 5 – 8.

321 for DC power plant McLeodUSA never used and Qwest never built (assuming Qwest is
322 following proper engineering guidelines).

323

324 **Q. MR. HUBBARD TESTIFIES THAT “A CAREFUL READING” OF YOUR**
325 **TESTIMONY SHOWS THAT MCLEODUSA ONLY PROVIDES A**
326 **DESCRIPTION OF THE EQUIPMENT MCLEODUSA WILL COLLOCATE IN**
327 **THE COLLOCATION ORDER, AND NOT INFORMATION REGARDING**
328 **POWER DRAWS. WOULD YOU LIKE TO COMMENT?**

329 A. Yes. First, it is not my testimony that the collocation application form contains
330 information about actual McLeodUSA power *draws* as Mr. Hubbard insinuates.
331 However, the information that is provided regarding type and amount of equipment
332 (including model numbers)¹⁵ as well as expected circuits supported by type is sufficient
333 for Qwest to determine whether the expected load of this equipment at the expected
334 utilization would necessitate an augment in the shared DC power plant, which may or
335 may not already be nearing the augment threshold based on the total power usage of all
336 existing power users in the central office (including Qwest). And the information that is
337 available to Qwest is certainly sufficient for Qwest to determine that McLeodUSA’s
338 power usage will not come anywhere near List 2 drain. For instance, obviously if
339 McLeodUSA reports to Qwest via the application that it will initially collocate one
340 DSLAM and serve 800 DS0s and 28 DS1s, Qwest knows for certain that McLeodUSA
341 will not be using anywhere near the full capacity of an ordered 175 amp power cable.

¹⁵ With the vendor and model number of telecommunications equipment, a host of technical specification information is available about the equipment, including, oftentimes, the List 1 drain. In a circumstance where List 1 drain is not available through vendor information or through working knowledge, there are engineering processes used to estimate the List 1 drain for the equipment.

342 Furthermore, as indicated in Mr. Hubbard’s Confidential Exhibit RJH_1, Qwest
343 obviously knows the actual power draw of McLeodUSA by collocation, and measures
344 this usage per the terms of the Power Measuring Amendment periodically (see Exhibit
345 RJH_1, columns 5 – 7 of 7), and nothing prevents Qwest from taking these measurements
346 during the busy hour such that it captures McLeodUSA’s peak power usage. Therefore,
347 whether or not the collocation application contains power draw information, Qwest
348 knows this information as evidenced by Qwest’s own exhibit, and Qwest will, over time,
349 observe power usage at the busy hour for the entire central office to ensure that the
350 central office’s shared DC power plant is capable of handling this peak load.

351 There is no conceivable McLeodUSA’s power draw could increase to a level that
352 would even register within the context of the total List 1 drain of the central office. Even
353 if McLeodUSA collocated additional equipment and began winning a large amount of
354 customers, Qwest would be well aware of the power usage increases because
355 McLeodUSA would inform Qwest about the type and amount of the additional collocated
356 equipment as well as the additional circuits served by this equipment in the form of
357 service orders for unbundled network elements (“UNEs”) (as well as disconnects for
358 Qwest’s customers given that most of these new customers would be former Qwest
359 customers, and therefore a near zero net impact on the DC power plant of the central
360 office).

361 Accordingly, Qwest would take into account all information available to it
362 (including a known list of equipment in its central office by type and amount, power
363 drain, past busy hour load patterns, etc.) as well as many combined years of experience in
364 monitoring and sizing DC power systems to size the DC power plant to accommodate the

365 forecasted List 1 drain for that office. This is something Qwest does everyday in the
366 normal course of business.

367

368 **Q. YOU DISCUSS A NEAR NET ZERO IMPACT ON DC POWER PLANT**
369 **REGARDING CUSTOMER MIGRATION. PLEASE ELABORATE ON THIS**
370 **POINT.**

371 A. A vast majority (if not all) of the customers McLeodUSA “wins” would be migrating
372 away from another carrier in that central office (e.g., Qwest or another CLEC), which
373 means that as McLeodUSA experienced an increase in power usage, other carriers would
374 simultaneously experience a comparable decrease in their respective power usage.

375 Hence, unless McLeodUSA adds new customers that were not previously served by a
376 carrier in the central office, the above-mentioned offsetting impact would result in no
377 additional power draw demanded of the DC power plant in the central office, and as such,
378 no augment in DC power plant would be necessary.

379

380 **Q. MR. HUBBARD CLAIMS THAT, “IN QWEST’S EXPERIENCE WITH**
381 **MCLEOD, SOME OF THIS EQUIPMENT IS EQUIPMENT THAT QWEST IS**
382 **NOT FAMILIAR WITH.”¹⁶ WOULD YOU LIKE TO COMMENT?**

383 A. Yes. Mr. Hubbard provides no details regarding his claim, and therefore, I cannot
384 address his purported concerns. However, I find it hard to believe that Qwest is
385 unfamiliar with any piece of equipment McLeodUSA uses, particularly because all
386 equipment collocated in Qwest’s office must meet certain standards and be approved for
387 collocation.

¹⁶ Hubbard Rebuttal, page11, lines 8 – 9.

388

389 **C. Contrary to Qwest’s Claims, McLeodUSA Is Not Attempting To**
390 **Avoid Paying For DC Power Plant That Was Built By Qwest for**
391 **McLeodUSA’s Use**
392

393 **Q. IS MCLEODUSA ATTEMPTING TO AVOID PAYING FOR DC POWER PLANT**
394 **CAPACITY MADE AVAILABLE TO IT BY QWEST?**

395 A. No. The following excerpt from Mr. Hubbard’s reply testimony summarizes the major
396 flaws in Mr. Hubbard’s reasoning:

397 McLeod seems to want to have the originally ordered amount of power
398 still available to them but to reduce their Power Plant charges so that
399 they pay for much less capacity than is available to them.¹⁷
400

401 Since the term “originally ordered amount of power” is actually the “originally ordered
402 amount of power associated with power cables,” this excerpt shows that Mr. Hubbard’s
403 testimony and his assertion related to stranded investment is based on the flawed premise
404 that McLeodUSA (or other CLEC) power cable orders trigger Qwest investment in DC
405 power plant (or, in other words, Qwest sizes DC power plan for CLECs based on List 2
406 drain). I have thoroughly explained that this is not the case and such a view is
407 contradictory to Qwest’s own engineering requirements. Moreover, Mr. Hubbard
408 attempts to suggest that Qwest somehow “partitions” (or dedicates) certain capacity
409 within its DC power plant to accommodate McLeodUSA’s equipment, individually. This
410 is simply not the case. Rather, the DC power plant is shared by all powered equipment in
411 the office, and Qwest does not, and should not, implement such a DC power plant
412 “partitioning” to serve McLeodUSA, Qwest, or any other power user.

¹⁷ Hubbard Rebuttal, page 13, lines 9 – 11.

413

414 **D. Mr. Hubbard’s Example of Power Users Simultaneously Needing List**
415 **2 Drain Is Extremely Far-Fetched and Does Not Support Qwest’s**
416 **Notion of Sizing DC Power Plant Based On the Amperage of CLEC**
417 **Power Cable Orders**
418

419 **Q. MR. HUBBARD, AT PAGE 7 OF HIS REBUTTAL TESTIMONY, PROVIDES AN**
420 **EXAMPLE WHEREIN A CLEC WOULD NEED LIST 2 DRAIN POWER PLANT**
421 **CAPACITY. WOULD YOU LIKE TO RESPOND?**

422 A. Yes. Mr. Hubbard’s very extreme example is far-fetched and suggests that Qwest must
423 engineer its central office DC power plant to accommodate any conceivable situation –
424 which is simply not the case. Mr. Hubbard assumes that Qwest has a complete power
425 failure within a central office and that the batteries are fully discharged. This would
426 mean that, for whatever reason, Qwest chose not to (or was unable to) keep the backup
427 AC generation unit operating,¹⁸ and the commercial power was not restored before the
428 batteries fully discharged. However, Mr. Hubbard provides no reason why Qwest’s
429 backup AC generation would not be used, even though the backup generation (i.e., a
430 diesel engine) could power the telecommunications equipment throughout a central office
431 so long as Qwest poured diesel fuel into it (regardless of when the commercial AC power
432 was restored). This assumption is especially unreasonable when one considers that
433 Qwest would be testing its backup AC generation engine on a weekly basis to ensure that
434 it would work properly when called upon to power the central office load. And even if
435 we assume for the sake of argument that this actually happened, Qwest would stagger the

¹⁸ Mr. Hubbard testifies, “[f]or a time, a diesel engine would be supplying additional backup power for the batteries.” However, Mr. Hubbard never explains why the diesel engine would only be used “for a time” when it could conceivably be used indefinitely, and would certainly be used by Qwest until commercial AC power is restored.

436 restarting of equipment in the central office such that not all equipment comes online at
437 once and any power draw surges associated with restart is spread over time. Mr.
438 Hubbard indicates as much by saying that Qwest makes sure that List 2 drain is available
439 to CLECs “ahead of Qwest’s own switch” – though he provides no information regarding
440 the order in which Qwest restarts equipment after a complete power failure. Given that
441 Mr. Hubbard provides no support for his extraordinary claim that Qwest would bring
442 CLEC equipment back online before Qwest’s equipment, I do not believe it can be relied
443 upon as an indication of the order in which power would be restored in the central office
444 in the case of such an unlikely occurrence.

445

446 **Q. IF QWEST SIZES DC POWER PLANT BASED ON LIST 1 DRAIN OF QWEST’S**
447 **EQUIPMENT, HOW WOULD LIST 2 DRAIN BE AVAILABLE TO QWEST’S**
448 **EQUIPMENT IN THE CASE OF AN EXTREMELY RARE COMPLETE POWER**
449 **FAILURE DESCRIBED BY MR. HUBBARD?**

450 A. That’s a good question that Mr. Hubbard never answers. However, if we follow Qwest’s
451 reasoning that it must size DC power plant based on CLEC orders for power because they
452 may simultaneously need List 2 drain someday (no matter how remote the possibility),
453 then it follows that Qwest would need to size DC power plant for Qwest based on List 2
454 drain because Qwest may need List 2 drain someday (given that the extreme case cited by
455 Mr. Hubbard would interrupt power supply to both CLEC and Qwest equipment). Yet,
456 Mr. Hubbard concedes that it sizes DC power plant based on the List 1 drain of Qwest’s
457 equipment. This is just another example of an internal inconsistency in Mr. Hubbard’s
458 position.

459

460 **Q. MR. HUBBARD CLAIMS THAT YOU RECOGNIZE THE REALITY OF THE**
461 **NEED FOR QWEST TO SIZE DC POWER PLANT FOR CLECS BASED ON**
462 **LIST 2 DRAIN.¹⁹ IS THIS A FAIR CHARACTERIZATION OF YOUR**
463 **TESTIMONY?**

464 A. No, it is not. Mr. Hubbard refers to my direct testimony at lines 240-249, where I explain
465 that two identical pieces of equipment, serving the same number of customers, could
466 have different power draws. This is simply an illustrative example of how
467 telecommunications equipment consumes power – whether that equipment is Qwest’s
468 equipment or McLeodUSA’s equipment. Mr. Hubbard tries to imply that this variation in
469 power consumption is unique to CLEC equipment, which is not true. Hence,
470 McLeodUSA’s and Qwest’s telecommunications equipment consumes power in the same
471 manner, and to the extent that there is a need to size DC power plant for CLECs’
472 equipment due to these fluctuations (as Qwest claims), the same would hold true for
473 Qwest’s equipment – yet, Qwest readily admits that it sizes DC power plant based on List
474 1 drain for its own equipment.

475 This further highlights the discriminatory nature of Qwest’s proposal. That is,
476 though Qwest and McLeodUSA’s equipment consumes power in the same manner,
477 McLeodUSA faces disproportionately higher power charges than does Qwest due to
478 Qwest’s application of the Power Plant charge on an “as ordered” capacity.

479
480 **Q. WHY DON’T POWER ENGINEERS SIMPLY ENGINEER THE DC POWER**
481 **PLANT TO ACCOMMODATE ANY CONCEIVABLE AMOUNT OF DC**

¹⁹ Hubbard Rebuttal, page 6, lines 8 – 11.

482 **POWER PLANT THAT MAY BE DEMANDED BY THE EQUIPMENT**
483 **LOCATED IN A CENTRAL OFFICE?**

484 A. This would be unrealistic, wasteful and unnecessary. As was discussed in my direct
485 testimony, power engineers monitor the actual usage of the DC power plant and augment
486 that equipment over time as the power requirements of the central office change.
487 Installing DC power plant infrastructure that would handle every conceivable level of
488 power draw (no matter how remote the possibility is) would force the wasteful
489 investment in power equipment that will never be used. In a basic example, if a CLEC
490 orders a 200 amp power cable and Qwest’s central office engineer determines that it has
491 excess rectifier capacity of 400 amps, it would be unnecessary, wasteful and contrary to
492 established engineering practices to go forward with installing an additional 200 amps of
493 rectifier capacity.

495 **E. McLeodUSA Is Not Over-Sizing Its Power Distribution Cables, as Mr.**
496 **Hubbard implies, and, if anything, it is Qwest who is oversizing**
497 **facilities within the DC power system**
498

499 **Q. MR. HUBBARD PORTRAYS MCLEODUSA’S CABLE ORDERS AS**
500 **“OVERSIZED.”²⁰ IS THIS AN ACCURATE PORTRAYAL?**

501 A. No. I explained in detail why these cable orders are not over-sized – i.e., they are sized
502 based on List 2 drain and ultimate demand.²¹ Mr. Hubbard goes on to testify that, “there
503 is no engineering reason why McLeod could not add power cable incrementally as it adds

²⁰ Hubbard Rebuttal, page 14, line 10.

²¹ See, e.g., Morrison Direct, pages 20 – 24.

504 equipment in its collocation sites.”²² Again, this is incorrect. I have shown that
505 engineering requirements do, in fact, call for power cables to be sized based on List 2
506 drain. Hence, there is an engineering reason for McLeodUSA to order larger cables
507 instead of sizing them incremental to McLeodUSA’s immediate or short term power
508 demand. Furthermore, periodic cable changes to reflect changing power usage exposes
509 McLeodUSA’s collocated equipment to the increased likelihood of power outages,
510 exposes personnel to risk, and significantly increases McLeodUSA’s costs. Mr. Starkey
511 elaborates on the cost CLECs would incur, based on Qwest Utah’s rates to “swap out”
512 existing power cables for larger sizes. Again, McLeodUSA has bought and paid for these
513 cables when installed (and through monthly recurring charges) and, therefore, Qwest
514 should not care that McLeodUSA has larger power cables in place.

515

516 **Q. DOES MR. HUBBARD’S TESTIMONY INDICATE THAT ANY OVERSIZING**
517 **IN POWER SYSTEM FACILITIES IS ATTRIBUTED TO QWEST’S – NOT**
518 **MCLEODUSA’S – POOR PLANNING?**

519 A. Yes. At page 14 of his rebuttal testimony, Mr. Hubbard testifies that since there was no
520 usage associated with McLeodUSA’s collocation at the time McLeodUSA placed its
521 orders for power cables, “*Qwest had to assume* that McLeod was ordering power based
522 on their assumption that McLeod was going to serve a lot of customers and have a high
523 degree of utilization of their equipment. *This has not proven to be a correct*
524 *assumption...*”

525 As discussed above, such an assumption on Qwest’s part would have been a
526 critical mistake and it is hard for me to believe, based on my experience as a central

²² Hubbard Rebuttal, page 14, lines 12 – 14.

527 office engineer, that Qwest would have made such an assumption – especially given the
528 other information McLeodUSA provides to Qwest on its collocation application enabling
529 Qwest to plan accordingly. Further, since nearly every customer McLeodUSA wins in a
530 Qwest central office is a former customer of Qwest, Qwest is well aware (though UNE
531 orders as well as Qwest line losses) of McLeodUSA’s growth in lines (which could
532 arguably translate to increasing power draw over time).²³ Qwest certainly would not
533 reasonably assume that McLeodUSA would be using anything close to List 2 drain
534 anytime soon given that McLeodUSA’s usage was zero and Qwest did not see a huge
535 migration of customers to McLeodUSA or an increase in the collocated equipment of
536 McLeodUSA.

537

538 **F. Qwest Is Backing Away From Its Argument That CLEC Orders for**
539 **Power Cables Cause Qwest To Invest in DC Power Plant, Presumably**
540 **Because This Argument Has Been Shown To be False**
541

542 **Q. MR. HUBBARD CLARIFIED HIS IOWA TESTIMONY WHEREIN HE**
543 **CLAIMED THAT A MCLEODUSA ORDER FOR A 175 AMP POWER CABLE**
544 **WOULD “DEFINITELY” RESULT IN QWEST AUGMENTING ITS DC POWER**
545 **PLANT. WOULD YOU LIKE TO RESPOND?**

546 **A.** Yes. The testimony from Iowa to which I referred in my direct is provided below:

547 When McLeod submits orders asking for large amounts of power such as
548 425 amps, 300 amps, 225 amps, or even 175 amps, this will definitely
549 trigger a power plant capacity growth job.²⁴
550

²³ However, as I explain, since McLeodUSA’s customers are largely former customers of other carriers in the central office, McLeodUSA winning a customer from another carrier in the central office (including Qwest) amounts to a net offset in power draw requirements on the DC power plant for that central office.

²⁴ Hubbard Rebuttal Testimony, Iowa Utilities Board Docket No. FCU-06-20, page 8, lines 12-14.

551 As you can tell, despite Mr. Hubbard’s testimony in Utah that what he really “meant by
552 that statement is that the larger the order, the closer or more likely Qwest would be to
553 augment its power plant[.]”²⁵ that is clearly not what Mr. Hubbard’s Iowa testimony says.
554 Mr. Hubbard’s use of the word “definitely” leaves no room for interpretation in my
555 judgment.

556 Moreover, Mr. Hubbard’s most recent explanation in Utah – that he meant that
557 the larger the order, the more likely the augment – does not support Qwest’s claim that
558 DC power plant augments/investment are incremental to McLeodUSA orders for power
559 cables. Rather, it really shows that the only way in which a McLeodUSA order for power
560 will trigger a DC power plant augment is if the shared DC power plant resource of the
561 central office is so close to peak capacity based on the existing List 1 drain of all power
562 users, that the expected busy hour usage associated with McLeodUSA’s equipment
563 would exceed this threshold. In this case, McLeodUSA just happened to be “the next in
564 line” to request power from a shared resource that was already exhausted through the
565 power draw of other carriers’ equipment. Mr. Starkey explains that McLeodUSA is not
566 the “cost causer” in this instance because the need for DC power plant investment is not
567 incremental to McLeodUSA’s order.

568
569 **Q. IS THERE A REASON WHY MR. HUBBARD FOUND IT NECESSARY TO**
570 **CLARIFY HIS IOWA TESTIMONY?**

571 A. Yes. The evidence in Iowa did not support Mr. Hubbard’s claim that a CLEC power
572 cable order would trigger a DC Power Plant growth job. As McLeodUSA demonstrated,
573 Qwest’s own exhibits in Iowa showed that numerous McLeodUSA orders for power

²⁵ Hubbard Rebuttal, page 12, lines 1 – 2.

574 cables of 175 amps and greater triggered no DC power plant investment or augmentation
575 on Qwest's part.

576

577 **G. Other Issues**

578

579 **1. Qwest's view on DC Power Plant sizing is not appropriate in either**
580 **the "real world" or in a forward-looking environment**

581

582 **Q. MR. HUBBARD STATES THAT YOU AND MR. STARKEY "SEEM TO WANT**
583 **TO FOCUS ON HOW QWEST DESIGNS A DC POWER PLANT IN THE REAL**
584 **WORLD" AND CLAIMS THAT THIS SO-CALLED "ACTUAL COST"**

585 **METHODOLOGY IS INCONSISTENT WITH TELRIC METHODOLOGY.²⁶**

586 **WOULD YOU LIKE TO COMMENT?**

587 **A.** Yes. Mr. Hubbard's insinuation is absurd. Mr. Starkey addresses TELRIC methodology
588 issue in his testimony. However, what Mr. Hubbard is claiming is that TELRIC pricing
589 principles require Qwest to develop a power plant rate for CLECs based on ordered
590 capacity of power cables. Not only is this not the manner in which Qwest's cost study is
591 structured (as explained by Mr. Starkey), but such an "as ordered" assumption in
592 developing a power plant rate would certainly not be least-cost, efficient or forward-
593 looking (some of the tenets of TELRIC pricing). As Qwest's own engineering manuals
594 demonstrate, such an assumption would model a network that *****BEGIN**
595 **CONFIDENTIAL [REDACTED] END CONFIDENTIAL***** power plant, which
596 would lead to power charges that significantly exceed the forward-looking costs and
597 artificially high rates assessed on CLECs for collocation power.

²⁶ Hubbard Rebuttal, page 5, lines 4 – 7.

598

599

**Q. ARE YOU ARE SAYING THAT A PROPER TELRIC COST STUDY WOULD
ASSUME THAT DC POWER PLANT IS SIZED BASED ON AGGREGATE
PEAK POWER USAGE IN THE CENTRAL OFFICE?**

600

601

602

A. Yes. While Mr. Hubbard criticizes Mr. Starkey and me for focusing on the manner in which DC power plant are sized in the “real world,” this “real world” power plant sizing is the appropriate focus since a forward-looking, least-cost network would still size DC power plant in this manner. While I take no position on Qwest’s collocation cost study and the rate for Power Plant that is produced by it, Mr. Starkey informs me that the cost study does, indeed, develop the Power Plant rate based on used amps – not ordered amps. This is consistent with the way in which DC power plant would be sized in the “real world” as well as in a forward-looking network design.

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611

**Q. IF WE ASSUME FOR THE SAKE OF ARGUMENT THAT MR. HUBBARD IS
CORRECT AND QWEST ACTUALLY SIZES DC POWER PLANT BASED ON
CLEC POWER CABLE ORDERS, WOULD THIS CHANGE YOUR OPINION
THAT SUCH A PRACTICE IS NOT FORWARD-LOOKING?**

612

613

614

615

A. Absolutely not. If Qwest were able to demonstrate that it actually did size DC power plant based on the ordered amperage of CLEC power cables, as Mr. Hubbard claims, this would show that Qwest is defying established, proper engineering practice and oversizing DC power plant in its central offices. CLECs should not be held accountable (in this case, in the form of higher DC Power Plant charges vis-à-vis Qwest) for Qwest disregarding its own engineering practices and introducing engineering inefficiencies. In

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620

621 my view, this is a textbook example of discrimination in the provisioning of bottleneck
622 facilities by an incumbent local exchange carrier.

623

624 **2. Mr. Hubbard’s Testimony is misleading in a number of additional**
625 **respects**
626

627 **Q. MR. HUBBARD TESTIFIES THAT YOU ARE “CONFUSED” ON THE ISSUE**
628 **OF DECOMMISSIONING COLLOCATION SITES.²⁷ DOES MR. HUBBARD**
629 **SUPPORT HIS CLAIM OF ALLEGED CONFUSION?**

630 A. No. Mr. Hubbard never cites to any issue on which I am confused. In the sentence
631 immediately following his claim of confusion, Mr. Hubbard confirms that my
632 interpretation of Qwest’s data request is correct.²⁸ Then, Mr. Hubbard goes on to explain
633 that since McLeodUSA’s original orders for power cables, “Qwest has experienced a
634 reduction in the number of operating collocators, thus, a reduction in the amount of drain
635 on an existing power plant” – a point with which I have no reason to disagree. And since
636 I don’t disagree with Mr. Hubbard’s statement that Qwest’s lower power drain doesn’t
637 impact the amount of power associated with McLeodUSA power cable order²⁹ or
638 Qwest’s obligation to provide the usage associated with this order,³⁰ it is apparent that the
639 alleged confusion stems from my opinion that McLeodUSA is not obligated to pay the

²⁷ Hubbard Rebuttal, page 12, line 13.

²⁸ Hubbard Rebuttal, page 12, lines 13 – 16.

²⁹ Hubbard Rebuttal, page 12, lines 19 – 20.

³⁰ Hubbard Rebuttal, page 12, lines 20 – 21. Though Mr. Hubbard uses the term “capacity,” as I have demonstrated above, List 2 drain would only be needed under the most remote and extreme circumstances.

640 Power Plant charge based on the ordered amount for power cables.³¹ This is the crux of
641 this case.

642

643 **Q. WOULD YOU LIKE TO COMMENT ON THE QUESTION POSED AT PAGE 13**
644 **LINES 1 – 4 OF MR. HUBBARD’S REBUTTAL TESTIMONY?**

645 A. Yes. This questions states, “If *Qwest* has seen a reduction in the number of collocators
646 and a reduction in the amount of power needed is there avenue that *McLeod* can proceed
647 that would reduce their power plant charges?” (emphasis added) This question makes no
648 sense. Contrary to Mr. Hubbard’s insinuation, a reduction in the number of collocators
649 (or power drain, for that matter) in Qwest’s central offices would have no impact on
650 whether McLeodUSA wants to reduce the amperages of its power cables and
651 fuses/breakers. There is simply no relationship between the size of power distribution
652 cables of McLeodUSA and the number of collocators in a central office, indicated by the
653 fact that McLeodUSA ordered its power cables in the 1999-2000 time frame, and it has
654 not reduced the amperages of these cables despite the reduction in collocators (and load)
655 that Mr. Hubbard describes.

656

657 **Q. MR. HUBBARD TAKES ISSUE WITH YOUR DISCUSSION OF LIST 1 DRAIN**
658 **AND LIST 2 DRAIN WHERE YOU STATE THAT LIST 1 DRAIN**
659 **CORRESPONDS WITH THE “AS CONSUMED” CAPACITY.³² PLEASE**
660 **RESPOND.**

³¹ This is apparent because this is the only other issue raised by Mr. Hubbard in this regard. Hubbard Rebuttal, page 12, lines 21 – 22.

³² Hubbard Rebuttal, p. 10, lines 12 – 20.

661 A. Though Mr. Hubbard cites to my direct testimony at page 28, I believe that Mr. Hubbard
662 objects to the following statement found at page 30, lines 664 – 665 of my direct:
663 “Generally, List 1 drain corresponds with the “as consumed” capacity (at the peak
664 level)...” Earlier in the same paragraph, I explained that, “List 1 drain is the average
665 busy hour current during normal plant operation.” Therefore, my statement that List 1
666 drain generally corresponds to “as consumed” capacity, simply means that the “as
667 consumed” amount represents the power consumed at the busy hour – or the level at
668 which DC power plant such as batteries and rectifiers are sized. Mr. Hubbard takes issue
669 with my testimony because, as he states, “actual consumption will fall below List 1 drain,
670 sometimes far below that level.”³³ I agree, however, Mr. Hubbard misses the point.
671 Again, the “as consumed” level referenced in my testimony refers to a specific power
672 draw level, *i.e.*, the peak power consumed at the busy hour, as that specific power draw
673 level is used to size DC power plant. This is an important point because Mr. Hubbard
674 claims that engineering DC power plant based on this “as consumed” or List 1 drain level
675 could lead to Qwest being unable to provide power at the levels CLECs need. However,
676 since DC power plant is sized according to the peak consumption level of the entire
677 central office, Mr. Hubbard’s concern in this regard is misplaced. And to the extent that
678 Qwest is concerned about under-recovering its costs when sizing DC power plant based
679 on List 1 drains and taking power measurements at times other than the busy hour, Mr.
680 Starkey explains that Qwest’s cost study uses fill factors to ensure that Qwest recovers
681 the entire investment in DC power plant even if the power plant is not utilized to full
682 capacity.
683

³³ Hubbard Rebuttal, page 10, line 14.

684 **Q. MR. HUBBARD STATES THAT QWEST CANNOT USE THE INFORMATION**
685 **YOU PROVIDED IN DIRECT TESTIMONY REGARDING TYPICAL**
686 **COLLOCATED EQUIPMENT AND POWER MEASUREMENTS OR RELY ON**
687 **IT TO ENGINEER ITS DC POWER PLANT FACILITIES.³⁴ WAS YOUR**
688 **INTENTION FOR QWEST TO USE THIS INFORMATION FOR**
689 **ENGINEERING DC POWER PLANT FACILITIES?**

690 A. No. The purpose of this data was simply to show what the typical “as ordered” and “as
691 consumed” power requirements would look like. Now that we have more accurate
692 information based on Qwest’s power measurements of McLeodUSA’s power
693 consumption at Utah central offices (Exhibit RJH_1), this data shows that the illustrative
694 data provided in my direct testimony actually understates the amount by which the “as
695 ordered” amounts exceed the “as consumed” amounts.

696
697 **Q. MR. HUBBARD TESTIFIES THAT THE “ISSUE RAISED BY MCLEOD IS A**
698 **NARROW QUESTION OF CONTRACT INTERPRETATION.”³⁵ ARE YOU**
699 **ADDRESSING MCLEODUSA’S INTERPRETATION OF THE CONTRACT**
700 **LANGUAGE OR THE FLAWS IN QWEST’S INTERPRETATION?**

701 A. No. Michael Starkey addresses these issues. However, I’m surprised by this statement
702 considering that Mr. Hubbard dedicates his entire testimony and exhibits in Utah (and
703 other states) to addressing engineering issues and also addressing proper TELRIC-based
704 assumptions in Qwest’s collocation cost study. It is apparent that Qwest sees the value of
705 examining the manner in which Qwest sizes DC power plant as well as the manner in
706 which Qwest develops its Power Plant rate.

³⁴ Hubbard Rebuttal, page 13, line 23 – page 14, line 1.

³⁵ Hubbard Rebuttal, page 4, line 3.

707

708

Q. MR. HUBBARD CLAIMS THAT YOU AND MR. STARKEY “GLOSSED OVER THE REAL ISSUE AND HAVE PROVIDED QUITE A BIT OF TESTIMONY THAT CLOUDS THE REAL REASON THAT WE ARE BEFORE THIS COMMISSION...TO DISCUSS THE LANGUAGE IN THE POWER MEASURING AMENDMENT.”³⁶ IS HE CORRECT?

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712

713

A. No, he is not. First, Mr. Starkey addressed in detail in his direct testimony what Mr.

714

Hubbard refers to as “the real issue” – or the language in the Power Measuring

715

Amendment.³⁷ Further, addressing the manner in which DC power plant is sized and the

716

manner in which Qwest’s DC Power Plant charge is developed and structured – in

717

addition to the specific contract language in question - is not “glossing over” any issue.

718

Indeed, I would submit that these additional issues are critical to demonstrating the

719

unreasonableness and discriminatory nature of Qwest’s application of the DC Power

720

Plant charge on an “as ordered” basis.

721

722

III. RESPONSE TO QWEST WITNESS WILLIAM EASTON

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724

A. Mr. Easton’s Testimony On Qwest’s Power Reduction and Power Restoration Offerings Is Misleading

725

726

³⁶ Hubbard Rebuttal, page 5, lines 1 – 4.

³⁷ See, Starkey Direct, pages 3 – 9.

727 **Q. QWEST STATES THAT “MCLEOD HAS NOT TAKEN ADVANTAGE” OF**
728 **THE POWER REDUCTION OFFERING.³⁸ DO YOU OR MCLEODUSA SEE**
729 **THE POWER REDUCTION OFFERING AS AN “ADVANTAGE?”**

730 A. No. I already addressed the problems with Qwest’s Power Reduction offering in my
731 direct testimony (see, Morrison Direct, pp. 54 – 61) and will not repeat those points here.
732 Further, Mr. Easton’s testimony³⁹ on the Power Reduction and Power Restoration
733 offerings, in my opinion, is irrelevant and has no bearing on how the Parties Power
734 Measuring Amendment provides for the DC Power Plant charge to be assessed or how
735 DC power plant is sized.

736
737 **Q. AT PAGES 16 – 18 OF HIS REBUTTAL, MR. EASTON DESCRIBES THE**
738 **POWER REDUCTION AND POWER RESTORATION OFFERINGS. DO YOU**
739 **AGREE WITH MR. EASTON’S CHARACTERIZATION OF THESE**
740 **OFFERINGS?**

741 A. No, I disagree. As an initial matter, I described the fundamental shortcomings of Qwest’s
742 Power Reduction Offering at pages 55 – 62 of my direct testimony. Suffice it to say,
743 however, that my direct testimony explains in detail the numerous reasons why
744 McLeodUSA has not purchased this offering, and Mr. Easton’s testimony claiming that
745 “McLeodUSA’s dismissal of the Power Reduction option is not a reasonable position[,]”
746 is not supported by the facts. Mr. Easton’s unsupported rhetoric aside, the Power
747 Restoration Offering, which apparently allows a CLEC to restore originally-ordered
748 power after reducing the originally-ordered power through the Power Reduction

³⁸ Hubbard Rebuttal, page 13, line 9.

³⁹ Though Mr. Easton is Qwest’s point witness on the Power Reduction and Power Restoration offerings, Mr. Hubbard briefly addresses these offerings as well.

749 Offering, does nothing to allay the concerns I described in my direct testimony. Like the
750 Power Reduction Offering, the Power Restoration Offering provides for the ability to
751 change power *distribution* facilities, and does not address power plant at all. Further, as
752 described throughout my direct and rebuttal testimony, a CLEC would not (and according
753 to economic signals and engineering practices, should not) reduce the amount of capacity
754 of its power cables or fuses/breakers. Indeed, the existence of the Power Restoration
755 offering demonstrates the folly of an approach of constantly resizing power distribution
756 because it shows that the CLEC may need larger power cables and fuses/breakers in the
757 future. McLeodUSA's dismissal of the Power Reduction is particularly reasonable given
758 that McLeodUSA paid Qwest for the originally-ordered power distribution cables and
759 fuses/breakers.

760 Furthermore, on the one hand Qwest testifies that there is no correlation between
761 "as ordered" amounts associated with power cables and "as consumed" amounts
762 associated with power usage,⁴⁰ and on the other hand, Qwest's Power Reduction offering
763 and Power Restoration Offering creates such a correlation by tying the Power Plant
764 charges CLECs would face (based on "as ordered" amperage) to the ordered amperages
765 associated with power distribution cables (which can apparently be lowered or increased
766 in accordance with Qwest's Power Reduction or Power Restoration Offerings). Qwest is
767 correct that there is no correlation between the two (recall that power distribution is sized
768 on List 2 drain, while DC Power Plant is sized on List 1 drain), and therefore, the premise
769 of the Power Reduction and Power Restoration Offerings is flawed.

770

⁴⁰ Hubbard Rebuttal, page 8.

771 Q. DO YOU DISAGREE WITH MR. EASTON’S STATEMENT THAT THESE
772 OFFERINGS “HAVE BEEN DESIGNED TO OFFER CLECS FLEXIBILITY IN
773 MANAGING THEIR DC POWER REQUIREMENTS”?⁴¹

774 A. Yes, I disagree. Regardless of the reason Qwest designed these offerings, the critical
775 point is that they do not provide CLECs with flexibility in managing their “power
776 requirements.” First, once McLeodUSA’s power cables are installed and paid for, it is
777 unwise and contrary to good engineering practices to swap them out at a later date, only
778 to install smaller power cables which may need swapped out again sometime in the future
779 for larger power cables. Since Qwest has been compensated for installing the originally-
780 ordered power cables, it should not care whether McLeodUSA uses these power cables
781 going forward without future augmentation. Actually, the most flexibility for CLECs to
782 manage their power requirements is provided when they order and pay for larger power
783 cables that can serve ultimate demand, and leave those cables in place regardless of the
784 demand that occurs in the near-term.

785 Additionally, while Qwest insinuates that these options, if purchased by CLECs,
786 would provide Qwest flexibility in its power plant design, this is not actually the case.
787 Qwest has admitted that it does not remove DC power plant equipment or capacity once a
788 CLEC decommissions a collocation space, and would therefore not do so when a CLEC
789 lowers its “as ordered” amount. And since Qwest’s engineering manuals clearly show
790 that Qwest sizes DC Power Plant based on the aggregate List 1 drain of the central office,
791 even if McLeodUSA and other CLECs used the Power Reduction offering to resize their
792 power cables, Qwest would not resize its DC Power Plant in response.

793

⁴¹ Easton Rebuttal, page 17, lines 20 – 21.

794 Q. MR. EASTON TESTIFIES THAT, “IN MY VIEW, THE EXISTENCE OF THESE
795 OFFERINGS MAKES IT CLEAR WHAT QWEST’S INTENT WAS WITH
796 REGARD TO THE DC POWER MEASURING AMENDMENT.”⁴² IS THIS A
797 REASONABLE VIEW?

798 A. No, not in my judgment. This conclusion was preceded by the following testimony from
799 Mr. Easton:

800 If CLECs could reduce the Power Plant charge to measured level through
801 the DC Power Measuring Amendment, these offerings would be largely
802 superfluous and unnecessary. The only way to reconcile the fact that the
803 Power Reduction and Power Restoration offerings were offered to
804 CLECs at the same time the DC Power Measuring Amendment was
805 offered, is to conclude that those elements covered by the Power
806 Reduction and Power Restoration offerings are not covered by the DC
807 Power Measuring Amendment.
808

809 Mr. Easton is incorrect. As explained above, the Power Reduction and Power
810 Restoration offerings apply to resizing power distribution facilities (i.e., power cables and
811 fuses/breakers) and does not even apply to power plant. In fact, as I have explained
812 above, Qwest would not resize the power plant even if McLeodUSA or other CLECs
813 purchased these offerings and reduced their power distribution levels. And even if a
814 CLEC lowered the “as ordered” amounts related to its power cables through the Power
815 Reduction Offering, and, in turn, Qwest applied the DC Power Plant charge to the lower,
816 “as ordered” amount, Qwest would still be applying the DC Power Plant charge on an “as
817 ordered” amount, which is contrary to the Parties’ Power Measuring Amendment.

818 Moreover, since Power Reduction and Power Restoration are never mentioned in
819 the Parties’ Power Measuring Amendment and McLeodUSA does not purchase these
820 offerings, they are truly irrelevant in this context, and the Commission should refrain

⁴² Easton Rebuttal, page 18, lines 16 – 18. See also, Hubbard Rebuttal, page 21, lines 4 – 5.

821 from attempting to discern Qwest's intent with regard to the Power Measuring
822 Amendment based on Qwest's inaccurate description of these irrelevant offerings that do
823 not apply to McLeodUSA in the first instance.

824

825 **Q. MR. EASTON TAKES ISSUE WITH YOUR TESTMONY ON THE COSTS OF**
826 **QWEST'S POWER REDUCTION OFFERING.⁴³ WOULD YOU LIKE TO**
827 **RESPOND?**

828 A. Yes. Mr. Easton testifies as follows:

829 On page 57 Mr. Morrison discusses an example where power is reduced
830 from 60 amps to 20 amps. On page 58 he notes that the up front costs for
831 the Power Reduction offering can exceed \$1,000. Using the Utah Power
832 Plant per amp charge of \$11.7795 for less than 60 amps and \$7.7927 for
833 greater than or equal to 60 amps, the 40 amp savings in capacity
834 achieved through power reduction equates to a monthly savings of
835 \$231.97. Even assuming a power reduction charge of \$4,000, the
836 savings in monthly power capacity charges would offset the power
837 reduction charge in less than 18 months' time.⁴⁴

838

839 Mr. Easton's example ignores a number of important issues I raised in my direct
840 testimony. For instance, I explained that McLeodUSA would incur costs as a result of
841 the retrofitting its power distribution arrangements in addition to Qwest's power
842 reduction charges.⁴⁵ These costs are not considered in Mr. Easton's example. In
843 addition, Mr. Easton's example references power reduction charges in the neighborhood
844 of \$4,000 when those charges could potentially be tens of thousands of dollars – though
845 McLeodUSA cannot know the true extent of these charges since individual case basis-
846 based pricing applies to certain power reduction activities. Significant costs would also
847 be incurred by McLeodUSA to increase the size of its power cables or fuses/breakers if

⁴³ Easton Rebuttal, page 22, line 14 – page 23, line 2.

⁴⁴ Easton Rebuttal, page 22, line 18 – page 23, line 2.

⁴⁵ Morrison Direct, page 58, lines 1331 – 1332.

848 circumstances warrant it in the future. Mr. Starkey addresses the costs of resizing power
849 cables in his rebuttal testimony.

850 Furthermore, I find it ironic that Mr. Easton would reference the “example” at
851 page 57 of my direct testimony because that testimony actually explains why the power
852 reduction offering serves no real purpose (Morrison Direct, page 57) – yet Mr. Easton
853 chose to ignore this concern. Mr. Easton also ignores the issues I raised with regard to
854 the risk associated with augmenting McLeodUSA’s power distribution arrangements
855 (that are already built and running properly), and Qwest’s steadfast refusal to assume any
856 responsibility if their workers knock McLeodUSA’s collocations out of power – thereby
857 rendering McLeodUSA’s customers without service.⁴⁶ Hence, even if up-front costs
858 related to augmenting McLeodUSA’s power distribution can be recouped through
859 monthly savings from lower billed DC Power Plant charges over months or years (Mr.
860 Easton’s flawed example notwithstanding), this power reduction offering presents
861 significant engineering problems and risks, and still does not address the problem related
862 to Qwest’s application of the DC Power Plant charge.

863

864 **Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?**

865 **A.** Yes, at this time.

⁴⁶ Morrison Direct, pages 57 – 59.