

Jody K. Burnett (A0499)
Robert C. Keller (4861)
WILLIAMS & HUNT
257 East 200 South, Suite 500
P.O. Box 45678
Salt Lake City, Utah 84145-5678
Telephone: 801 521-5678
Fax: 801 364-4500

Stephen F. Mecham (4089)
CALLISTER NEBEKER & MCCULLOUGH
10 East South Temple Suite 900
Salt Lake City, Utah 84133
Telephone: 801 530-7300
Fax: 801 364-9127

Attorneys for Respondent

BEFORE THE ELECTRICAL FACILITIES REVIEW BOARD

<p>PACIFICORP, an Oregon corporation, Petitioner, v. THE CITY OF WEST JORDAN Respondent</p>	<p>PRE-FILED TESTIMONY OF Joseph E. Beste for West Jordan City Docket No. 05-999-08</p>
---	--

October 24, 2005

1 **Q. Please state your name and business address.**

2 A. My name is Joseph E. Beste and my business address is 2060 East 2100 South, Salt
3 Lake City, Utah.

4 **Q. By whom are you employed and for whom are you appearing in this proceeding?**

5 A. I work at Caldwell Richards Sorenson (“CRS”), an engineering consulting firm, and I
6 am appearing on behalf of West Jordan City.

7 **Q. What is your position at CRS?**

8 A. I am the executive Vice President.

9 **Q. Do you have an expertise or a particular area of concentration?**

10 A. I oversee the Energy and Industrial Real Estate Development sectors of the consulting
11 firm.

12 **Q. How long have you been involved in consulting on energy and siting projects?**

13 A. More than 30 years. I have attached my resume as Exhibit 1 to this testimony.

14 **Q. What projects have you done recently in the energy area with CRS?**

15 A. We performed an assignment for Murray City. This assignment was an “Operation
16 and Performance Survey” of the Murray City Power Department. This assignment
17 involved the assessment and recommendation of all of the systems within the
18 electrical utility, including the generation and purchase of power, the transmission
19 and distribution of power and the management of the utility.

20 **Q. What items did the operational management include?**

21 A. Three Items: (1). Assessment of the generation assets in terms of future needs, (2)
22 Forecasting of future loads and strategies to hedge and/or reduce risk, and (3)
23 Performing system design analysis to provide better functionality and reduced risk.

24 In regard to the forecasting of future loads and strategies to reduce risk, we identified
25 the Costco site and the nearby future development area as a substantial new load that
26 needed to be planned for within their system. Fortunately, Murray City Power had its
27 central substation quite close to the future load area and plenty of land area to expand
28 the substation to accommodate new load if required.

29 In regard to performing System design analysis to improve function and reduced
30 risks, we identified single point connection with Utah Power & Light (“UP&L” or
31 “PacifiCorp”) as a major operating risk and potential for an outage problem,
32 especially in an equipment maintenance situation. Unfortunately, this outage actually
33 occurred while we were completing our assignment. Our recommendation was to
34 secure a second supply point from UP&L.

35 **Q. What other recent assignments have you performed?**

36 A. We performed an Electrical Utility & Power Analysis Study for the Utah Transit
37 Authority. We analyzed the electrical performance of 22 TRAX substations for the
38 TRAX line running from Sandy to the Delta Center and the line running from the
39 Downtown Salt Lake City to the University of Utah. Specifically, we analyzed the
40 electrical performance of each substation providing power to UTA. The analysis
41 included both sides of the meter, which means we looked at the shape and quality of
42 the power provided by UP&L and we looked at the quality of DC Power that UTA
43 delivered to its system. We determined that UTA could substantially improve its load
44 shape, reduce demand, and increase power factor by taking certain actions. UTA is
45 currently reviewing the report and is deciding how to proceed. UP&L was very

46 helpful in the process and offered to monetarily assist UTA in achieving a reduction
47 in the demand and difficult load.

48 **Q. Do you have other relevant experience?**

49 A. Yes. I own an alternative energy consulting company for which I have selected the
50 path for and provided technical specifications for several transmission lines and
51 corresponding substations.

52 **Q. Tell us about your background in real estate.**

53 A. I have developed many projects; commercial and industrial projects in numerous
54 states and foreign countries. I have consulted with banks, insurance companies, real
55 estate trusts on their mortgage portfolios and asset real-estate asset portfolios. In the
56 process of doing due diligence for insurance companies on acquisition of properties
57 for their portfolios, I developed an extremely detailed method of performing site due
58 diligence and to reduce risk and create value.

59 **Q. What is the purpose of your testimony?**

60 A. The purpose of my testimony is to respond to the testimony of PacifiCorp witnesses
61 Darrell Gerrard and Carol Hunter. My testimony shows that there are other
62 technically feasible sites for PacifiCorp's substation other than PacifiCorp's preferred
63 site on 3200 West that are acceptable to the city of West Jordan. Any of my proposed
64 sites will still allow PacifiCorp to meet its obligation to provide safe, reliable,
65 adequate, and efficient service to its customers.

66 **Q. Have you reviewed PacifiCorp's filings in this proceeding?**

67 A. Yes, and I have asked PacifiCorp for more data to prepare for this hearing. I have not
68 yet seen everything that I asked for, but I believe PacifiCorp intends to provide the
69 requested information to me before the November 7th hearing in this matter.

70 **Q. Although you have not received all of the electrical data requested do you have**
71 **an opinion as to the need for a new substation in the West Jordan area?**

72 A. Yes, UP&L needs at least one new substation in the West Jordan area.

73 **Q. Does this site need to be in the “critical area,” the “target area” or the “100%**
74 **capacity area” that PacifiCorp has identified?**

75 A. No, but it does need to be within two to three miles or closer to fit most of the circuit
76 patterns. Three to six miles would be electrically acceptable depending upon loads.

77 **Q. Does that mean that even the Jordan Landing site, assuming it is available,**
78 **would not diminish the electrical, safety, reliability, or operational effectiveness**
79 **of PacifiCorp’s system?**

80 A. Yes.

81 **Q. Would the Jordan Landing site limit PacifiCorp’s ability to transfer load among**
82 **various circuits?**

83 A. No, provided adequate feed lines are available.

84 **Q. Have you reviewed PacifiCorp’s electrical, safety, operational, and reliability**
85 **criteria for siting substations?**

86 A. I asked for a copy of that criteria but PacifiCorp does not have any such criteria.

87 **Q. Have you reviewed UP&L’s preferred site on 3200 West?**

88 A. Yes.

89 **Q. In your opinion, does the substation have to be located at that site in order for**
90 **UP&L to provide safe, adequate, reliable, and efficient service to the residents of**
91 **West Jordan and other customers?**

92 A. No. Several sites could accommodate PacifiCorp's statutory mandate to provide safe,
93 adequate, reliable, and efficient service. As far as I can tell, the only reason the site at
94 3200 West is important to UP&L is because it has purchased the property there and
95 existing distribution circuits in the area.

96 **Q. What other sites did you find that would work and that are technically feasible?**

97 A. Without the benefit of analyzing load data and circuit maps for which I am waiting, I
98 found five sites where UP&L could develop an additional substation for increasing
99 transforming capacity in the area. After I get the load data and have had an
100 opportunity to review it, I will inform the Board at the hearing on November 7th if any
101 adjustments to my site proposals are required.

102 **Q. Would any of your proposed sites cause inefficiencies or operational problems**
103 **for UP&L?**

104 A. No, electrically they should not.

105 **Q. Are the sites in or near the target area?**

106 A. One site is in the target area and the other four are very near the target area.

107 **Q. Do these sites fit the criteria that UP&L has outlined in the selection process?**

108 A. Yes, I have filled out a preliminary review sheet based upon their criteria; it is
109 attached as Exhibit 2. In this analysis I have added a factor to consider nearby future
110 load growth. I have attached maps showing the location of the five sites labeled

111 Exhibit 3.1 – 3.8. There is no Exhibit 3.6. I have also attached a short description of
112 each site as Exhibit 4.

113 **Q. Are these sites acceptable to the City of West Jordan?**

114 A. In a discussion with the city and a cursory review of these sites the city said they
115 would be acceptable.

116 **Q. Why did you recommend five sites instead of one or two?**

117 A. This is normal procedure in selecting a substation location, due to variances in the
118 cost of construction, ability to transfer load between sites, and acceptability to the
119 public. We recommend and seriously review several sites, in case the public support
120 is down or some unforeseen problem exists with one of the sites such as inadequate
121 grounding.

122 **Q. Of the five sites, would you recommend any of them over the others?**

123 A. Yes.

124 **Q. Which sites?**

125 A. Probably the West Jordan annex site or the Welby annex site due to the potential of
126 lower costs and the perceived time to complete construction. These comments are
127 based upon my experience and further data examinations.

128 **Q. Could either one of these sites be in place in time to serve the summer load in
129 2006?**

130 A. Yes, both of them could be, however it will require an immediate effort of all parties
131 involved. There may be statutory time constraints or approvals that could cause
132 problems.

133 **Q. Are any of the sites near new load?**

134 A. Yes, the suggested site near the Welby Station would be immediately adjacent to a
135 proposed 75-acre development, which includes a hospital, a TRAX station, and
136 residential and commercial development.

137 **Q. What would be the new load?**

138 A. An estimate of 10MW based upon a cursory review of future development, which
139 includes a TRAX station, a hospital, and commercial and residential development.

140 **Q. Could the Welby substation be expanded?**

141 A. There might be enough room for another transfer; however, the site contains older
142 equipment that would probably have to be enhanced by newer equipment. This
143 location could also be electrically tied to the West Jordan substation to shift load.

144 **Q. The West Jordan substation site appears to be a very cramped site.**

145 A. Yes, it was probably designed for a much smaller load than it is currently carrying.

146 **Q. Is an expansion and eventual replacement site for West Jordan's substation your
147 second recommended site?**

148 A. Yes. This substation could be used initially to provide relief for the West Jordan sub
149 and future expansion, for possible replacement. Also, it could serve a new West
150 Jordan TRAX substation on the same site.

151 **Q. Could you determine from PacifiCorp's filings if it considered expanding the
152 Welby substation or replacing the West Jordan substation?**

153 A. No, but if it didn't, it should have. They both meet the criteria Mr. Gerrard
154 enumerated on pages 8 and 9 of his testimony. The substations are already in
155 neighborhoods and would most likely meet with less resistance in the community.

156

157 **Q. Did you get a chance to review the 100 potential sites that UP&L proposed for a**
158 **new substation in the West Jordan area?**

159 A. Yes.

160 **Q. Were any of the sites in the critical load area?**

161 A. Yes, I was provided with a list of those proposed substations and a map indicating
162 their locations. 23 of the 100 potential sites were in the critical load area.

163 **Q. Of the 100 sites you said 23 were in the critical load area, did UP&L mention**
164 **why these were not selected for review?**

165 A. No

166 **Q. Did that include the ones that might have been in the 100% load area?**

167 A. Yes.

168 **Q. How many were in the 100% load area?**

169 A. Quite a few. I did not count them all.

170 **Q. Was there any information available with the 100 site list that would have led**
171 **you to any conclusion as to why those sites were not selected?**

172 A. The only information that was provided with the 100 site list was the name of the
173 owner, the parcel number, and the site address.

174 **Q. Was there any other information available?**

175 A. No.

176 **Q. Did UP&L offer any criteria as to how it reduced the list from 100 sites to only**
177 **17 sites?**

178 A. Yes. In the documentation that I received it showed that PacifiCorp used parcel size,
179 vacant land, likely availability, and proximity to target area, as the criteria. However,

180 in Mr. Gerrard's prepared testimony he mentioned the same criteria was used in
181 further evaluating the culled sites of 17, unfortunately, no other written evaluation of
182 that examination process to reduce the 100 sites to 17 was provided.

183 **Q. Did PacifiCorp provide a list of criteria that it utilized in reviewing its proposed**
184 **17 sites**

185 A. Yes, they were displayed on the left hand side of the page document titled "Site
186 Criteria #4 – 17 Site Analysis."

187 **Q. Were any those criteria specifically related to overloaded circuits or future loads**
188 **in the area?**

189 A. No, not that I could tell.

190 **Q. Did the criteria analyze the physical characterizes of the site?**

191 A. Yes, there were three areas in which UP&L considered the physical characteristics of
192 the site. Those three areas were: the "Title Report Review," the "Survey Review"
193 and the "Environmental Condition."

194 **Q. Did UP&L make any comments regarding those three areas in the site criteria**
195 **analysis?**

196 A. The only response filled in on all 17 sites was "No Significant Concerns" regarding
197 these three categories with two exceptions. They were in the Survey Review category
198 on the site located at 6343 South 3200 West and the site located at 6281 South 2700
199 West.

200 **Q. What were the comments?**

201 A. The sites were not feasible because the parcels were too small. Both sites are owned
202 by Taylorsville Bennion Improvement District.

203 **Q. In selecting a site, are there other physical characteristics that should be**
204 **reviewed?**

205 A. Yes, there are quite a number of them probably too numerous to list.

206 **Q. Could you give us an example of some site characteristics you might have**
207 **selected?**

208 A. For example, both “soil characteristics” relative to the earthquake potential and
209 liquefaction should be considered. The known faults along the Wasatch Front and the
210 presence of old river bottom land provides plenty of concerns for earth quake
211 damage. Earthquake site analysis for these concerns is a mature technology in
212 California and around the Pacific Rim. “Soil resistance” is a key characteristic in
213 substation grounding. This value is generally governed by IEEE Standard 81-1983,
214 which is a guide to measuring earth resistivity, ground impedance, and earth surface
215 potentials of grounding systems. Generally the most accurate measuring of soil
216 resistance is using the WENNER 4-point method. The number of measurements
217 needed depends upon variability of the soil and whether or not there are dramatic
218 differences between resistance beneath the ground’s surface. The test takes
219 approximately three days to perform.

220 **Q. Under the criteria heading of “financial feasibility,” did UP&L supply copies of**
221 **the cost estimates or any information about cost used to judge the information**
222 **that is listed in the summary table. Cost options such as lower, higher,**
223 **significantly higher, etc.?**

224 A. No

225 **Q. Under the heading of “Environmental Conditions,” did UP&L review these**
226 **sites?**

227 A. PacifiCorp’s response on the summary sheet was “no significant concerns.”

228 **Q Was a professional environmental engineering firm engaged to review the public**
229 **records?**

230 A. I don’t know.

231 **Q Did PacifiCorp personnel with an environmental background perform analysis**
232 **on the site selection?**

233 A. No, not that I am aware of.

234 **Q. Under the site survey review, did PacifiCorp deliver any site survey for**
235 **development purposes or written reports?**

236 A. No, not that I am aware of.

237 **Q. Under the title report segment did UP&L supply you with copies of all of the**
238 **title reports that it pulled on those locations?**

239 A. No.

240 **Q. Under the category of “Impact of Distribution Lines and Poles”, were any**
241 **connection diagrams drawn?**

242 A. No.

243 **Q. Did UP&L supply you with any copies or comments about the number of**
244 **overhead poles?**

245 A. No.

246 **Q. In the categories of “limited distance from transmission” and “limited distance**
247 **from distribution,” UP&L made reference in its site criteria analysis summary**

248 to an “ideal location,” “short extension,” “long extension,” and “significant
249 extension.” Do you know what those distances are?

250 A. No.

251 Q. Did PacifiCorp supply the information upon which those categories were
252 defined.

253 A. No.

254 Q. Of the 17 sites UP&L selected, 11 of those 17 sites were outside the critical area.
255 Did PacifiCorp provide any information as to why it selected these specific sites?

256 A. No.

257 Q. So, out of the 17 sites only 6 were inside the critical area?

258 A. Yes.

259 Q. PacifiCorp also provided you with Exhibit DG-10 listed on page 2 of 2, is that
260 correct?

261 A. Yes it did.

262 Q. In its analysis of those 17 sites, did UP&L give any reasons why they were not
263 acceptable?

264 A. Yes.

265 Q. What were the reasons for not accepting the 17 proposed sites?

266 A. It appears that six either had unwilling sellers or they were currently under contract.
267 Five sites were too costly. One site contains three houses, one was very costly and
268 one didn't have the proper setback. Another site was too narrow and too costly.

269 Q. Were there other sites proposed?

270 A. Yes, another five sites. The principal reason for not selecting them was that they
271 were out of the critical area or other problems such as being too narrow.

272 **Q. How many sites of the 17 did UP&L deem acceptable?**

273 A. One.

274 **Q. So, out of the 100 sites, UP&L found only one site acceptable?**

275 A. Apparently.

276 **Q. You said earlier that 23 of the 100 sites were in the critical area. Do you know**
277 **why those other 17 sites in the critical area were not selected for further review?**

278 A. No.

279 **Q. On the five sites that you selected for further review, one was inside the target**
280 **area, correct?**

281 A. Yes.

282 **Q. Where were the other four sites?**

283 A. They were immediately adjacent to the target area.

284 **Q. On your summary sheet of proposed locations you have numbers in the**
285 **transmission and distribution area. What do those numbers relate to?**

286 A. They are the portions of a mile or the number of feet of their respective lines to a
287 system tie point.

288 **Q. In your analysis of these sites which you put together in Exhibit 2, you added a**
289 **category. What was that category?**

290 A. Proximity to new load.

291 **Q. Why is that important?**

292 A. Shorter distribution distances reduce cost.

293 **Q. You have you a category of new load in your analysis. Did you perform some**
294 **analysis?**

295 A. Yes, I performed a preliminary review and have indicated those sites on an aerial map
296 along with the substations that currently supply power from UP&L and potential
297 substation sites.

298 **Q How many areas were there?**

299 A. Seven.

300 **Q. What were they?**

301 A. Site number one is the “South Station development” that will be about 75 acres of
302 residential, commercial development, a hospital, and a Trax station. This site could
303 also be the site for a reliever substation for the Welby sub. Site number two will be
304 small about 8-acres sites that will include a park-and-ride and another Trax station
305 just east of 2700 West along the Union Pacific Railroad right-of-way. This site could
306 be the reliever sub station site for the West Jordan sub. Site number three is the old
307 sugar factory site that the city is redeveloping. Site four is approximately 120 acres
308 of property recently rezoned as light industrial (M-1 zone), about 40 acres of this site
309 is currently under construction and about half of the balance is currently in planning.
310 Site five is an extension of the Jordan Landing area that is currently vacant. It
311 comprises approximately 60-acres of vacant land, some of which is currently under
312 construction. Site six is in a new industrial park that is located out off the old
313 Bingham Highway. There are also several new industrial clients that are looking
314 along that same corridor north of the Old Bingham Highway. Site seven is the “Kraft
315 Maid Manufacturing” site.

316 **Q. What do you think the new load for these seven sites will be?**

317 A. Substantial. I would need to do more analysis to give you a specific answer but it will
318 not be an insignificant amount of load considering the current system is presently
319 overloaded. Furthermore, we don't have any loading information about Oquirrh or
320 Kearns substations that might also supply the area.

321 **Q. CRS prepared one map overlaying the "critical load area" shown in pink with**
322 **the "100% loaded area" shown by the dark blue rectangle and the "target area,"**
323 **designated by the dark blue oval. It appears from the 100% load area that the**
324 **location of the proposed substation is in close proximity and two of your**
325 **proposed locations are inside the 100% loaded area. The other three are just**
326 **outside of the 100% loaded area and the critical area. You prepared**
327 **diagrammatic maps for each of the proposed substations showing potential feed**
328 **and distribution line paths. Did you do any further analysis relative to the cost**
329 **of these options?**

330 A. No, not at this time.

331 **Q. How far out of the target area are the four sites?**

332 A. The furthest is about 300 yards.

333 **Q. Please summarize your recommendations and testimony.**

334 A. PacifiCorp's preferred site on 3200 West is by no means the only site from which
335 PacifiCorp can provide safe, reliable, and adequate service to its customers. Given
336 the public opposition and the City Council's denial of a conditional use permit that a
337 Third Judicial District judge upheld, another site should be found. In addition,
338 PacifiCorp's narrowing of sites was not thorough and its analysis of its preferred site

339 was inadequate. I have found five sites within West Jordan City, all of which are
340 technically feasible and are acceptable to the city. Two of these sites in particular, the
341 expansion of the Welby substation and replacing the West Jordan substation, would
342 have relatively low impact on the community, could be in place before the summer of
343 2006, and would allow PacifiCorp to meet all of its obligations.

344 **Q. Does this conclude your testimony?**

345 A. Yes, but I may have to supplement it once I get the load and circuit information from
346 PacifiCorp.

Certificate of Service

I certify that on October 24, 2005, I caused to be emailed or mailed postage the Testimony of Joseph E. Beste in Docket No. 05-999-08 to the following:

Mark E. Hindley
Richard R. Hall
STOEL RIVES LLP
201 S. Main Street, Suite 1100
Salt Lake City, Utah 84111-4904

R. Jeff Richards
PACIFICORP
201 S. Main Street
Salt Lake City, Utah 84111
