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August 31, 2017

***VIA ELECTRONIC FILING***

Utah Public Service Commission  
Heber M. Wells Building, 4th Floor  
160 East 300 South  
Salt Lake City, UT 84114

Attention: Gary Widerburg  
Commission Secretary

RE: **Docket No. 17-035-36 – In the Matter of Glen Canyon Solar A, LLC and Glen Canyon Solar B, LLC’s Request for Agency Action to Adjudicate Rights and Obligations under PURPA, Schedule 38 and Power Purchase Agreements with Rocky Mountain Power**

Pursuant to Utah Public Service Commission order dated August 25, 2017, in the above referenced matter, the Company hereby submits for electronic filing its Written Direct Testimony. The filing consists of the testimony and exhibits of three witnesses.

Rocky Mountain Power respectfully requests that all formal correspondence and requests for additional information regarding this filing be addressed to the following:

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Sincerely,

Jeffrey K. Larsen  
Vice President, Regulation

Rocky Mountain Power  
Docket No. 17-035-36  
Witness: Rick A. Vail

BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF UTAH

ROCKY MOUNTAIN POWER

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Direct Testimony of Rick A. Vail

August 2017

1 **Q. Please state your name, business address, and present position with PacifiCorp.**

2 A. My name is Rick A. Vail. My business address is 825 NE Multnomah Street,  
3 Suite 1600, Portland, Oregon 97232. My present position is Vice President of  
4 transmission. I am responsible for transmission system planning, customer generator  
5 interconnection requests, transmission service requests, regional transmission  
6 initiatives, capital budgeting for transmission, and administration of the Open Access  
7 Transmission Tariff (OATT). I am testifying on behalf of Rocky Mountain Power, a  
8 division of PacifiCorp.

9 **QUALIFICATIONS**

10 **Q. Briefly describe your education and professional experience.**

11 A. I have a Bachelor of Science degree with honors in electrical engineering with a focus  
12 in electric power systems from Portland State University. I have been vice president of  
13 PacifiCorp's transmission function since December 2012. I was Director of Asset  
14 Management from 2007 to 2012. Before that position, I had management responsibility  
15 for a number of organizations in PacifiCorp's asset management group, including  
16 capital planning, maintenance policy, maintenance planning, and investment planning.  
17 I joined PacifiCorp in 2001.

18 **PURPOSE AND SUMMARY OF TESTIMONY**

19 **Q. What is the purpose of your testimony in this proceeding?**

20 A. Glen Canyon has proposed to interconnect its qualifying facility (QF) projects in a  
21 known transmission-constrained area of PacifiCorp's system in Utah, which may  
22 require the construction of significant facilities or upgrades to provide Glen Canyon  
23 with the only type of interconnection service that is appropriate for QFs, i.e., network

24 resource (NR) interconnection service. Glen Canyon claims that these interconnection-  
25 service-related facilities or upgrades would be unnecessary if PacifiCorp's merchant  
26 function, PacifiCorp energy supply management (ESM), would use a *transmission-*  
27 *service-related* redispatch tool set forth in an amendment to a transmission-service  
28 network operating agreement (NOA) to prevent the need for their construction.

29 To address these claims, I will first discuss what NR interconnection service is  
30 and why it is the only appropriate type of interconnection service for QFs. I will then  
31 walk through the basics of the redispatch tool in the NOA amendment, which provides  
32 an alternative to constructing facilities or upgrades necessary solely to deliver QF  
33 power on firm *transmission* service if redispatching generation resources would be  
34 more economic than construction. Finally, I will address why Glen Canyon's NOA  
35 amendment theories would disrupt these fundamental concepts by applying the NOA  
36 amendment redispatch assumption to a QF's *interconnection* service instead of  
37 PacifiCorp ESM's *transmission* service, which would effectively allow Glen Canyon  
38 to secure a lower-level interconnection service and shift the costs associated with Glen  
39 Canyon's decision to site in a constrained area of PacifiCorp's system to PacifiCorp's  
40 customers through transmission rates.

41 **Q. What other witnesses will be testifying on behalf of PacifiCorp?**

42 A. Direct testimony will also be offered by the following witnesses:

43 **Ms. Kelcey A. Brown**, Director, Market Policy and Analytics, will address why, even  
44 if the NOA amendment applied to interconnection studies, PacifiCorp ESM's  
45 contractual limitations over the transmission path at issue in this case would make Glen  
46 Canyon's interconnection study ineligible for a redispatch alternative under the NOA

47 amendment.

48 **Mr. Daniel J. MacNeil**, Resource and Commercial Strategy Adviser, addresses the  
49 avoided-cost pricing methodology used to establish pricing for QF power purchase  
50 agreements (PPAs), and the separation between that process and various transmission  
51 and interconnection studies performed under the OATT.

52 **TRANSMISSION CONSTRAINTS IN UTAH**

53 **Q. What is a transmission constraint?**

54 A. Any request for interconnection service or transmission service requires PacifiCorp  
55 transmission to study whether the transmission system has sufficient available transfer  
56 capability (ATC) to grant the request. Basically, PacifiCorp transmission must evaluate  
57 whether there is enough room on the system to provide the requested service and  
58 maintain reliable operations. A transmission constraint exists when there is not enough  
59 room, or ATC, on the system to grant a particular request.

60 **Q. Why wouldn't there be enough ATC?**

61 A. ATC may be unavailable because, for example, other customers have already requested  
62 and secured transmission service or interconnection service on a particular path, or  
63 because ATC needs to be held open for reliability reasons, or both.

64 **Q. Are certain areas of PacifiCorp's transmission system in Utah constrained?**

65 A. Yes. Utah, particularly southern Utah, has been a fertile ground for the development of  
66 renewable energy. That area of the state does not, however, have a large population  
67 base and therefore has limited load. In fact, existing generators in southern Utah already  
68 exceed available area load. This means the output of any additional generation must be  
69 exported to load in the Wasatch front. To better illustrate this point, please refer the

70 Exhibit RMP\_\_\_(RAV-1) for the map showing both PacifiCorp’s transmission system  
71 in Utah, as well as generators that have, or have requested, an interconnection. As the  
72 map demonstrates, delivering output from southern Utah (*e.g.*, where Glen Canyon has  
73 chosen to site its project) to the Wasatch front requires crossing multiple constrained  
74 transmission paths that are approaching full commitment of firm transmission capacity  
75 rights. As a result, adding generation south of the constraints will require new  
76 transmission lines to create additional transmission capacity to reliably provide firm  
77 interconnection and transmission service.

78 **Q. This case involves a QF interconnecting with a constrained area of Utah’s**  
79 **transmission system. Why isn’t this a Federal Energy Regulatory Commission**  
80 **(FERC) issue?**

81 A. I understand that interconnection service with a utility’s transmission system is usually  
82 subject to FERC rules, but that the Public Utility Regulatory Policies Act of 1978  
83 (PURPA) directs us to follow the state commission’s rules for QF interconnections  
84 with our transmission system if the QF is selling all of its output to us, as is the case  
85 with Glen Canyon. In Utah, PacifiCorp transmission follows the OATT for processing  
86 interconnection requests for QFs larger than 20 MW in accordance with Utah  
87 Schedule 38.<sup>1</sup>

88 **Q. Does that mean you also follow FERC interconnection cost allocation policies?**

89 A. No. Schedule 38 says we *process* interconnections under the OATT (*e.g.*, queuing and

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<sup>1</sup> See Rocky Mountain Power, Utah Schedule No. 38, at Section II.B (“For interconnections greater than twenty (20) megawatts, the Company will process the interconnection application through PacifiCorp Transmission Services generally following the procedures for studying the generation interconnection described in the Company’s Open Access Transmission Tariff, PacifiCorp FERC Electric Tariff, Fifth Revised Volume No. 11 Pro Forma Open Access Transmission Tariff (OATT), as the same may be changed or updated, on file with the Federal Energy Regulatory Commission (FERC). A copy of the OATT is available on-line at <http://www.oasis.pacificorp.com>.”).

90 studies). We follow Commission policies, not FERC policies, for QF interconnection  
91 cost allocation. I understand these Commission policies are discussed at length in  
92 PacifiCorp’s Request for Declaratory Ruling in Docket No. 17-035-25, explaining that  
93 the Commission’s existing statutes, orders, and rules require a QF to pay for all  
94 interconnection costs associated with an NR interconnection. I will discuss why NR  
95 interconnection service is the appropriate type of interconnection service for QFs in  
96 more detail below.

97 **INCREASED INTERCONNECTIONS CONTRIBUTE TO**  
98 **TRANSMISSION CONSTRAINTS**

99 **Q. Can interconnections contribute to transmission system constraints?**

100 A. Yes. Any request for interconnection service or transmission service requires  
101 PacifiCorp transmission to study whether the transmission system has sufficient ATC,  
102 or room on the system, to grant the request.

103 **Q. But why would an interconnection request require ATC when it just involves a**  
104 **generator basically “plugging into” the transmission system?**

105 A. This can be a confusing concept because it is less intuitive for interconnection service  
106 than it is for transmission service. However, for a generator’s interconnection to be  
107 viable, there must be at least *some* ATC *some* of the time, but not necessarily *all* of the  
108 time. How much and what type of ATC is needed to grant an interconnection service  
109 request really depends on the type or priority of the request.

110 **Q. Can you provide an example of a lower-priority interconnection service that may**  
111 **not always be available?**

112 A. Yes. Energy resource (ER) interconnection service is a lower-priority, “as-available”

113 interconnection service that is sometimes referred to as the “plug-in” service.  
114 PacifiCorp transmission studies ER interconnection requests with the assumption that  
115 it is okay for the service to be unavailable if higher-priority interconnection and  
116 transmission service customers are using all of their firm ATC rights. This means the  
117 availability of an ER interconnection customer’s service depends on other customers  
118 not using all of their rights.

119 **Q. Can you provide an example of a higher-priority interconnection service that**  
120 **needs service all the time?**

121 A. Yes. NR interconnection service is a higher-priority service designed for generators  
122 that will be fully integrated into PacifiCorp’s system and whose output will be used to  
123 serve load on firm network transmission service (as opposed to non-firm transmission  
124 service). PacifiCorp transmission studies NR interconnection requests with the  
125 assumption that they need service all the time, even when other higher-priority  
126 interconnection and transmission service customers are using all of their firm ATC  
127 rights.

128 **INTERCONNECTION LEVEL CONTRIBUTES TO UPGRADES NEEDED TO**  
129 **INTERCONNECT, ESPECIALLY IN CONSTRAINED AREAS**

130 **Q. What do these different service priorities mean for an interconnection customer’s**  
131 **study results?**

132 A. In short, the higher the priority of the requested interconnection service and the higher  
133 the transmission constraint level where the interconnection service has been requested,  
134 the more facilities or upgrades will likely be needed to grant the interconnection  
135 service.



136 **Q. Can you provide more detail about the different study assumptions that apply to**  
137 **ER and NR interconnection service?**

138 A. Yes. In accordance with PacifiCorp's OATT interconnection study process, in response  
139 to a request for ER interconnection service, PacifiCorp transmission studies whether  
140 any facilities or upgrades are necessary to simply physically interconnect (or "plug in")  
141 the generating resource to the transmission system in a reliable manner, and nothing  
142 more. This means that the scope of the facility additions is limited to those required to  
143 interconnect the resource and, in some cases, upgrades to resolve local transmission  
144 issues due to the interconnection.

145 In response to a request for NR interconnection service, PacifiCorp  
146 transmission studies the transmission system at peak load, under a variety of severely  
147 stressed conditions, to determine whether, with the new generator at full output, the  
148 aggregate of generation in the local area can be reliably delivered to the aggregate of  
149 system load. This is sometimes referred to as an interconnection deliverability analysis.  
150 This means the scope of the facility additions and upgrades required for NR  
151 interconnection service will include those required to ensure the output of the resource  
152 can be taken by PacifiCorp ESM and delivered to load on firm network transmission  
153 service.

154 **Q. How do transmission constraints affect the facilities or upgrades that might be**  
155 **necessary to grant an interconnection request?**

156 A. Assuming no constraints (meaning firm ATC is available where a generator has  
157 requested an interconnection), it is possible that few or no additional facilities or  
158 upgrades would be required to grant any kind of new interconnection service, whether

159 at an ER or an NR level. As the system becomes more constrained and ATC is reduced,  
160 it may still be possible to grant ER interconnections without the need for significant  
161 facilities or upgrades because that type of service does not have to be available all the  
162 time.

163 The same would *not* be true for NR interconnections, however. As described  
164 above, the interconnection service study includes a deliverability analysis that assumes  
165 the new interconnecting generator, along with all other generators in the local area,  
166 must be capable of delivery to load. If there is not enough room (or firm ATC) on the  
167 system to ensure this level of interconnection will be available, then the NR  
168 interconnection study will identify the facilities or upgrades necessary to create that  
169 additional room (or firm ATC).

170 This is why the higher the priority of the requested interconnection service and  
171 the higher the transmission constraint level where the interconnection service is being  
172 requested, the more facilities or upgrades will likely be needed to grant the  
173 interconnection service.

174 **Q. The term “deliverability analysis” sounds like a transmission service term. Is it?**

175 A. No. The presence of a deliverability analysis in an NR interconnection study does not  
176 convert the interconnection service request into a transmission service request. An NR  
177 interconnection customer is not granted any transmission delivery rights in the  
178 interconnection process. Rather, the deliverability analysis in the interconnection study  
179 reflects the fact that the principal purpose of NR interconnection service is to deliver  
180 the generator’s power to load on a firm basis.

181 Under the OATT, transmission service requests *must* be submitted and studied

182 separately from interconnection service requests, and additional facilities or upgrades  
183 (beyond those identified in the interconnection studies and agreements) could be  
184 required for transmission service requests to be granted.

185 **Q. What do you mean when you say “facilities or upgrades”?**

186 A. New interconnecting generators could require any number of new facilities or upgrades  
187 to existing facilities including, for example, the reconductoring of an existing lines or  
188 the installation of a new line, breakers, switches, or even substations. The facilities or  
189 upgrades identified in an interconnection study could be located: (1) up to the point of  
190 interconnection (POI), in which case they are often referred to by FERC and some  
191 states as “interconnection facilities”; or (2) at or beyond the POI, in which case they  
192 are often referred to by FERC and some states as “network upgrades.”

193 These terms indicate where the facility or upgrade is located (i.e., up to the POI  
194 or at/beyond the POI), not what type of service request triggered the need for them or  
195 how the costs are treated. That is determined by the regulatory body that sets the rules  
196 for the relevant service.

197 **Q. The term “network upgrades” sounds like a transmission service term. Is it?**

198 A. No, “network upgrades” is not exclusively a transmission service term like Glen  
199 Canyon inaccurately claims throughout this proceeding. Network upgrades can be  
200 required for transmission service *and* interconnection service, or both.

201 In addition, NR interconnection service is not the only kind of interconnection  
202 service that could require network upgrades. In the majority of cases, ER  
203 interconnection service will also require network upgrades.

204 **Q. So network upgrades are simply a type of facility or upgrade that could be**  
205 **required for interconnection service or transmission service?**

206 A. Yes.

207 **QF INTERCONNECTIONS IN UTAH**

208 **Q. Are you seeing an increase in the facilities and upgrades needed to grant**  
209 **additional interconnections in Utah?**

210 A. Yes. As our transmission system in Utah becomes increasingly constrained, the  
211 facilities and upgrades necessary to grant additional interconnection requests have also  
212 increased.

213 **Q. Have QF requests for interconnection contributed to these Utah transmission**  
214 **constraints?**

215 A. Yes. Many of the renewable projects siting in southern Utah that I mentioned above  
216 are QF projects. As shown by the chart below, PacifiCorp experienced a spike in Utah  
217 QF requests to interconnect with PacifiCorp's transmission system in Utah in 2013.

<b>Year</b>	<b>Total Utah QF interconnection applications received (in MW)</b>	<b>Total Utah QF interconnections put in service</b>
2010	95	0
2011	157	0
2012	286	0
2013	1,097	1
2014	955	0
2015	312	226
2016	816	673

218 **Q. Has this increased level of Utah QF interconnection requests continued?**

219 A. Yes. We currently have approximately 1,000 MW of Utah QF interconnection requests  
220 in the queue.

221 **Q. Could you receive more QF interconnection requests?**

222 A. Yes. We could receive brand new QF interconnection applications, or the non-QF  
223 projects that have already requested interconnection in Utah and are currently pending  
224 in the queue could switch to QF interconnection requests. Federal law requires  
225 PacifiCorp transmission to study and provide (subject to the facility or upgrade  
226 requirements identified in the study) interconnection service to any requesting party.

227 **Q. Can projects switch between non-QF and QF?**

228 A. Yes.

229 **Q. Can an interconnection customer request a change from non-QF to QF at any  
230 time during the interconnection study process?**

231 A. Yes, although it often requires PacifiCorp transmission to restudy the request.

232 **Q. How many Utah non-QF interconnection requests are pending in your  
233 interconnection queue?**

234 A. We have approximately 5,200 MW of Utah non-QF interconnection requests in the  
235 queue.

236 **Q. Could you just let QF generators interconnect at an ER level to reduce the  
237 necessary facilities and upgrades to grant interconnection service?**

238 A. No. After FERC issued an order that I understand clarified that firm transmission must  
239 be used to deliver QF power, even when the QF sites in a constrained area of the system,  
240 PacifiCorp transmission began providing QFs with NR interconnection service. I will

241 address this topic further in the next section.

242 **FIRM TRANSMISSION AND INTERCONNECTION SERVICE**  
243 **MUST BE USED TO DELIVER QF POWER**

244 **Q. What do you understand about what FERC has said about transmission**  
245 **arrangements for QF power where the transmission system is constrained?**

246 A. In 2013—around the same time that PacifiCorp was experiencing an influx of QF  
247 interconnection requests across its system, including in Utah—FERC issued an order  
248 that I understand clarified that PURPA requires a utility to deliver QF power on firm  
249 transmission, even if the QF sites in a constrained area of the system.<sup>2</sup> As I will discuss  
250 below, this affects the obligations of two different customers of PacifiCorp  
251 transmission: (1) PacifiCorp ESM as the transmission customer who must obtain firm  
252 transmission service; and (2) QFs who must obtain a level of interconnection service  
253 that enables that firm transmission service, i.e., NR interconnection service.

254 **Q. What do you know about the facts of the *Pioneer* case?**

255 A. I understand the case involved a QF, Pioneer Wind Park I, LLC (Pioneer), siting its  
256 project in a constrained area of PacifiCorp's Wyoming transmission system.  
257 PacifiCorp's merchant function proposed to address this issue with a PPA provision  
258 that stated that Pioneer would be curtailed ahead of other existing generators to the  
259 extent necessary to remain within PacifiCorp's merchant function's existing  
260 transmission rights until additional ATC was created through construction of additional  
261 transmission.

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<sup>2</sup> *Pioneer Wind Park I, LLC*, 145 FERC ¶ 61,215 (2013) (*Pioneer*).

262 **Q. Did FERC agree with this approach?**

263 A. No. I am not a lawyer, but my understanding is that FERC found that the PPA provision  
264 violated PURPA by proposing to curtail the QF as if it were a non-firm transmission  
265 service customer. I understand FERC made it clear that, even under transmission-  
266 constrained circumstances, a utility's merchant function must make *firm* network  
267 transmission service arrangements for QF power and only curtail the QF power if there  
268 are system emergency conditions.

269 **Q. Did PacifiCorp transmission need to refine its QF interconnection practices after**  
270 **the *Pioneer* order?**

271 A. Yes. At that time, PacifiCorp transmission was not requiring QFs to obtain NR  
272 interconnection service. But the FERC-required firm *network* transmission service that  
273 a utility's merchant function must use for delivering QF power to load aligns only with  
274 the comprehensive, higher-priority *network* resource (or NR) interconnection service  
275 that, as I described above, is specifically designed to enable a generator to deliver its  
276 power to load on network transmission service. PacifiCorp transmission refined its QF  
277 interconnection study process to interconnect QFs using high-priority NR  
278 interconnection service rather than "as-available" ER interconnection service.

279 **Q. What is the practical impact of interconnecting QFs using NR interconnection**  
280 **service where the system is constrained?**

281 A. NR interconnection service can require expensive facilities or upgrades because of the  
282 deliverability analysis component of the interconnection study, particularly where the  
283 QF has chosen to site its project in a constrained area of the utility's transmission  
284 system, as Glen Canyon has chosen to do. As I described above, generation in southern

285 Utah (where Glen Canyon has sited its project) already exceeds available area load.  
286 This means the deliverability component of the NR interconnection studies for  
287 interconnection requests in that area must analyze what facilities or upgrades will be  
288 required to deliver that power to load in the Wasatch front. This will require crossing  
289 several constrained transmission paths and will therefore likely require significant  
290 facilities or upgrades to create the additional ATC necessary to reliably provide firm  
291 interconnection service.

292 When those interconnection-service-related facilities or upgrades are identified  
293 in the QF's NR interconnection study, and PacifiCorp's ability to provide the  
294 interconnection service is contingent on their construction, then the QF (as the  
295 interconnection customer) is responsible for bearing the costs or operational  
296 consequences of its siting choice, consistent with this Commission's rules.

297 To be clear, this does not mean every QF interconnection will require expensive  
298 facilities or upgrades. If the QF chooses to locate its project in an area without  
299 transmission constraints, it is possible that few or no additional facilities or upgrades  
300 would be required to grant any kind of new interconnection service, whether at an ER  
301 or an NR level.

302 **Q. What do you mean by costs or operational consequences?**

303 A. In some cases the facilities and upgrades identified as necessary to provide NR  
304 interconnection service may have already been identified in PacifiCorp's long-term  
305 transmission plans or as necessary to accommodate a higher-queued customer's  
306 request. Under those circumstances, the NR interconnection customer (here, the QF) is  
307 not responsible for the facilities or upgrades. PacifiCorp transmission cannot, however,



308 provide NR interconnection service until the identified facilities or upgrades are  
309 completed. I would consider these “operational” consequences rather than “cost”  
310 consequences.

311 Where a QF’s NR interconnection request requires facilities or network  
312 upgrades that are not required by PacifiCorp’s long-term transmission plan or for a  
313 higher-queued customer’s request, the QF interconnection customer is responsible for  
314 bearing the cost of those facilities or upgrades consistent with state commission  
315 PURPA interconnection policies, and NR interconnection service cannot be provided  
316 until the facilities or upgrades are completed. I would consider these both cost and  
317 operational consequences.

318 **Q. Is identifying these NR interconnection facilities or upgrades in the QF**  
319 **interconnection agreement rather than as part of the transmission arrangements**  
320 **consistent with FERC PURPA policies?**

321 A. Based on my understanding, I believe so. For example, in the *Pioneer* order  
322 I mentioned, FERC states that PURPA requires a utility to make firm transmission  
323 arrangements for the QF power, but that “[t]his is not to suggest that the QF is exempt  
324 from paying interconnection costs, which may include *transmission* or distribution  
325 costs directly related to installation and maintenance of the physical facilities necessary  
326 to permit interconnected operations.”<sup>3</sup>

327 Transmission facilities or upgrades necessary to accommodate an NR  
328 interconnection (which includes the interconnection service deliverability components  
329 I describe above) are directly related to the installation of physical facilities necessary

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<sup>3</sup> *Pioneer* at n.73 (internal citations omitted and emphasis added).

330 to permit a QF's interconnection.

331 **Q. Is identifying these NR interconnection facilities or upgrades in the QF**  
332 **interconnection study and agreement consistent with this Commission's QF**  
333 **interconnection policies?**

334 A. I understand that PacifiCorp's Request for Declaratory Ruling in Docket No. 17-035-25  
335 discusses at length how the Commission's existing statutes, orders, and rules already  
336 require a QF to pay for all interconnection costs associated with an NR interconnection.

337 **Q. Glen Canyon claims that "network upgrade" costs are not interconnection costs**  
338 **and cannot be assigned to QF interconnection customers. How do you reconcile**  
339 **that claim with offering QFs a type of interconnection service that may require**  
340 **those kinds of upgrades?**

341 A. Glen Canyon is incorrect and has made confusing and contradictory statements on this  
342 issue.

343 As I describe above, network upgrade costs are frequently identified as required  
344 for interconnection service, including both ER and NR interconnections. Glen  
345 Canyon's initial, non-QF interconnection study is a good example of this. Glen Canyon  
346 claims the study identified approximately \$15 million in "interconnection costs" and  
347 \$400 million in "network upgrade" costs.<sup>4</sup> This is not true. That study estimated  
348 approximately \$15 million for an ER interconnection, \$11.8 million of which were  
349 *network upgrades*.<sup>5</sup> For instance, these ER-interconnection-related network upgrades  
350 included construction of a brand new substation where none currently exists. The NR-

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<sup>4</sup> Glen Canyon Request for Agency Action, Docket No. 17-035-36, at pp. 6-7 (June 7, 2017) (Glen Canyon Request).

<sup>5</sup> Rocky Mountain Power, Request for Declaratory Order, Docket No.17-035-25 at p. 10 (May 1, 2017).

351 interconnection-related requirements included additional network upgrades, reflecting  
352 the fact that NR interconnection is a higher-priority service, as I describe above.

353 Glen Canyon has contradicted itself on this issue, stating that “certain network  
354 upgrades might be required to accommodate an interconnection under some  
355 circumstances.”<sup>6</sup> Glen Canyon was unable to elaborate further, however, explaining  
356 that it “is not able to describe all circumstances under which Network Upgrades might  
357 be required to accommodate an interconnection.”<sup>7</sup> Glen Canyon did, however, concede  
358 “that there might theoretically be circumstances under which Network Upgrades *might*  
359 be required to accommodate an interconnection, although it is not currently aware of  
360 any such circumstances.”<sup>8</sup>

361 Glen Canyon attempts to define away QF cost responsibility for  
362 interconnection-service-related network upgrades with sweeping and inaccurate  
363 conclusions that network upgrades can never be part of the “interconnection costs”  
364 associated with a QF’s interconnection.<sup>9</sup> These conclusions are inconsistent with its  
365 other statements, not to mention with Utah rules we follow for QF interconnections.

366 **Q. Please elaborate on the state rules you follow for QF interconnections in Utah.**

367 A. The Commission’s interconnection rules applicable to the processing of QF  
368 interconnections with PacifiCorp’s transmission system less than or equal to 20 MW  
369 are a good example. These rules state that level 3 interconnection costs include  
370 “upgrades,” which the Commission’s rules define as additions and modifications *past*

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<sup>6</sup> See Exhibit RMP\_\_\_(RAV-2), Glen Canyon’s Responses to Rocky Mountain Power’s First Set of Data Requests, Glen Canyon’s Response to Request 1.7.

<sup>7</sup> See Exhibit RMP\_\_\_(RAV-3) , Glen Canyon’s Responses to Rocky Mountain Power’s Second Set of Data Requests, Glen Canyon’s Response to Request 2.6(a).

<sup>8</sup> *Id.*

<sup>9</sup> Glen Canyon Request at pp. 21-22.

371 *the point of interconnection.*<sup>10</sup> This distribution “upgrades” definition seems to me to  
372 be identical to the transmission “network upgrades” definition I noted above. Both of  
373 these “upgrades” are required for interconnection service, and the costs of the  
374 “upgrades” are allocated to the interconnection customer under these rules.<sup>11</sup>

375 **Q. How would you correct Glen Canyon’s inaccurate claims about the term**  
376 **“network upgrade”?**

377 A. When PacifiCorp transmission is trying to determine the appropriate allocation of costs  
378 for a particular request, the critical questions we focus are (1) what type of service  
379 request triggered the need for the facility or upgrade at issue, and (2) whose rules do  
380 we follow for that service. Terms like “interconnection facilities” or “network  
381 upgrades,” by themselves, merely indicate where the facility or upgrade is located (up  
382 to the POI or at/beyond the POI).

#### 383 **GLEN CANYON’S NR INTERCONNECTION**

384 **Q. What will be the costs or operational consequences associated with Glen Canyon’s**  
385 **NR interconnection?**

386 A. The outcome of Glen Canyon’s NR interconnection study (which is still pending) will  
387 depend on whether the facilities or upgrades necessary to accommodate an  
388 NR interconnection in an area with zero firm ATC are already identified as required  
389 for a higher-queued request.<sup>12</sup> If they are, then Glen Canyon’s ability to obtain an  
390 NR interconnection will be contingent on construction of those facilities. If Glen

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<sup>10</sup> Utah Admin. Code R746-312-2(35).

<sup>11</sup> Utah Admin. Code R746-312-10(2)(g)(v)(“Upon completion of the facilities study and receipt of agreement of the interconnection customer to pay for interconnection facilities *and upgrades* identified in the facilities study, the public utility shall approve the interconnection request.”)(emphasis added).

<sup>12</sup> PacifiCorp’s long-term transmission plan does not include any facilities or upgrades that would create additional ATC in that area.

391 Canyon's NR interconnection requires facilities or upgrades that are not required for  
392 any other higher-queued request, then Glen Canyon's NR interconnection study will  
393 make Glen Canyon responsible for bearing the cost of those facilities or upgrades  
394 consistent with the Commission's PURPA interconnection policies, and PacifiCorp  
395 transmission will be unable to provide Glen Canyon NR interconnection service until  
396 they are constructed.

397 **Q. What happens if the Commission decides that the facilities or upgrades necessary**  
398 **to grant Glen Canyon's NR interconnection should not be identified in Glen**  
399 **Canyon's interconnection study? Does the need for those facilities or upgrades go**  
400 **away?**

401 A. No, that need does not go away. If the Commission orders that PacifiCorp transmission  
402 not identify the facilities or upgrades necessary to grant Glen Canyon's  
403 NR interconnection in Glen Canyon's interconnection study, then PacifiCorp  
404 transmission would need to identify them in the study evaluating the requirements for  
405 providing PacifiCorp's merchant function firm transmission service to deliver the QF's  
406 power to load. That is a separate service governed by a separate transmission service  
407 agreement between PacifiCorp's transmission function and PacifiCorp's merchant  
408 function (as the transmission customer), as opposed to the interconnection service  
409 agreement between PacifiCorp transmission and the QF (as the interconnection  
410 customer).

411 **Q. Would identifying Glen Canyon’s NR interconnection facilities or upgrades in**  
412 **PacifiCorp’s merchant function’s transmission service study impact what entity**  
413 **is responsible for incurring the cost of them?**

414 A. Yes. PacifiCorp’s merchant function is the transmission customer, so the costs  
415 identified in the transmission service study—including any additional facilities or  
416 upgrades necessary to accommodate Glen Canyon’s NR interconnection service, if the  
417 Commission orders they be removed from Glen Canyon’s interconnection study—are  
418 included in PacifiCorp’s transmission rates and paid for by PacifiCorp’s customers.

419 **Q. Has Glen Canyon recognized this cost impact to PacifiCorp’s customers?**

420 A. Yes. Glen Canyon has recognized that the cost of facilities or upgrades identified as  
421 necessary to accommodate PacifiCorp’s merchant function’s transmission service to  
422 deliver QF power on firm transmission “could be borne by PacifiCorp’s transmission  
423 customers, including RMP, and thus potentially by RMP’s retail customers, as part of  
424 transmission service charges.”<sup>13</sup>

425 **Q. But doesn’t Glen Canyon claim that PacifiCorp can prevent the need for**  
426 **constructing the facilities or upgrades necessary for Glen Canyon’s NR**  
427 **interconnection by using some kind of redispatch tool?**

428 A. Yes, Glen Canyon claims a *transmission*-service-related redispatch tool can be used to  
429 avoid the facilities or upgrades necessary to accommodate Glen Canyon’s NR  
430 *interconnection* service, which confuses two very different services. I will discuss this  
431 in more detail in the next section.

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<sup>13</sup> See Exhibit RMP\_\_\_(RAV-4), Glen Canyon’s Responses to Rocky Mountain Power’s First Set of Data Requests, Glen Canyon’s Response to Request 1.3(a).

432 **OVERVIEW OF PACIFICORP'S NOA AMENDMENT**

433 **Q. Please describe PacifiCorp's NOA amendment.**

434 A. The NOA amendment provides PacifiCorp's merchant function—the transmission  
435 service customer responsible for making firm delivery arrangements for QF power,  
436 even if the QF power sites in a constrained area of the transmission system—a  
437 redispatch alternative to constructing the facilities or upgrades necessary for its  
438 *transmission* service.

439 **Q. What is the redispatch alternative?**

440 A. PacifiCorp's merchant function can avoid constructing the facilities or upgrades  
441 necessary for its *transmission* service if it limits (or “redispatches”) the operation of its  
442 generation resources to maintain operations within its existing *transmission* service  
443 rights. If NOA amendment redispatching is available for a particular transmission  
444 service request and PacifiCorp's merchant function decides it is more economic than  
445 construction, it must limit the schedules of QF resources last.

446 **Q. What was the intended purpose of this tool?**

447 A. PacifiCorp proposed the NOA amendment to protect PacifiCorp's customers from the  
448 cost of facilities or upgrades solely necessary to deliver QF power using firm network  
449 transmission service.

450 **THE NOA AMENDMENT DOES NOT APPLY TO INTERCONNECTION SERVICE**

451 **Q. How do you respond to Glen Canyon's claim that the NOA amendment was also**  
452 **intended to prevent the need for facilities or upgrades identified in a QF's NR**  
453 **interconnection study?**

454 A. Glen Canyon is wrong. The NOA amendment filing, the NOA amendment language,

455 and FERC’s order approving it demonstrate that the NOA amendment has nothing to  
456 do with state-jurisdictional QF interconnection service (or interconnection service of  
457 any kind). It only discusses the firm transmission service PacifiCorp’s merchant  
458 function must arrange to deliver QF power, which is governed by a FERC-jurisdictional  
459 network transmission service agreement and a FERC-jurisdictional network operating  
460 agreement (the NOA).

461 PacifiCorp even explicitly clarified in its NOA amendment filing that it was  
462 “not proposing any modification to its OATT, including, but not limited to, the  
463 *interconnection process*, the transmission service reservation process, or the  
464 transmission planning process. Rather, the NOA amendment simply allows PacifiCorp  
465 to meet its PURPA must-take obligations by providing firm *transmission* service to  
466 deliver QFs, while at the same time avoiding the need to undertake potentially  
467 uneconomic transmission expansions.”<sup>14</sup>

468 **Q. But Glen Canyon says the NOA amendment was designed for generators who will**  
469 **have “DNR” status. Isn’t that the same as the “NR” interconnection you’ve been**  
470 **describing?**

471 A. No. DNR stands for designated network resource, which is the designation a  
472 transmission customer asks for when it submits a network transmission service request  
473 (TSR). This TSR is sometimes referred to as a DNR application or a request to  
474 designate a generator as a network resource.

475 NR is an interconnection term. As I discussed above, the principal purpose of  
476 NR interconnection service is to deliver the generator’s power to load on a network

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<sup>14</sup> *PacifiCorp*, Docket No. ER15-741, Network Operating Agreement Amendment at p. 2 (Dec. 24, 2014) (emphasis added).



477 transmission. Another way of saying this is to prepare the interconnecting generator for  
478 DNR status when the separate TSR study is performed. For example, OATT Section  
479 38.2.2.1 defines NR interconnection service, stating that:

480 *Network Resource Interconnection Service Allows Interconnection*  
481 *Customer's Large Generating Facility to be designated as a Network*  
482 *Resource, up to the Large Generating Facility's full output, on the same*  
483 *basis as existing Network Resources interconnected to Transmission*  
484 *Provider's Transmission System, and to be studied as a Network*  
485 *Resource on the assumption that such a designation will occur.*

486 **Q. Does having an NR interconnection mean that no other facilities or upgrades will**  
487 **be necessary for DNR status?**

488 A. No. Interconnection—even NR interconnection—is not itself a delivery service. An  
489 NR interconnection does not give the generator any right to transmit its output, nor  
490 does it guarantee that network transmission service will be available to deliver the  
491 generator's output without the need for additional facilities or upgrades. That  
492 determination is not made until a TSR is submitted and studied, which is a completely  
493 separate process from the interconnection request and study, and which could identify  
494 facilities or upgrades (in addition to those required for the interconnection) as necessary  
495 for FERC-jurisdictional transmission service.

496 FERC has emphasized the importance of the separation between  
497 interconnection service and transmission service, stating that “each generator, or other  
498 transmission customer, seeking to use the transmission system to deliver power from  
499 the generator must take transmission service and pay the transmission provider's

500 transmission service rates separate from paying for any interconnection-related  
501 network upgrade costs.”<sup>15</sup>

502 **Q. How would Glen Canyon’s theory that the NOA amendment applies to QF**  
503 **interconnections affect the originally intended purpose of the NOA amendment?**

504 A. As I noted above, PacifiCorp proposed the NOA amendment to protect PacifiCorp’s  
505 *customers* from the cost of facilities or upgrades solely necessary to deliver QF power  
506 on firm network transmission if redispatching generation resources would be more  
507 economic than construction. Glen Canyon’s NOA amendment theories would  
508 transform the FERC-jurisdictional transmission-service NOA amendment into a  
509 mandatory state-jurisdictional QF interconnection study assumption that protects *QFs*  
510 from the interconnection costs caused by their decision to site in a constrained area of  
511 the transmission system—at the expense of PacifiCorp’s customers.

512 **Q. What do you mean when you say Glen Canyon would turn the NOA amendment**  
513 **into a mandatory QF interconnection study assumption?**

514 A. Glen Canyon suggests that the Commission can simply require PacifiCorp’s merchant  
515 function to “timely notify” PacifiCorp transmission that PacifiCorp’s merchant  
516 function will use its NOA amendment (that applies to a separate study of PacifiCorp  
517 *ESM’s transmission* service request) and to “request consistent interconnection and  
518 transmission studies for the [Glen Canyon] resources to avoid unnecessary network  
519 upgrades.”<sup>16</sup> In other words, Glen Canyon appears to think that PacifiCorp’s merchant  
520 function can tell PacifiCorp’s transmission function to adjust the manner in which it  
521 studies Glen Canyon’s interconnection request.

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<sup>15</sup> *Interstate Power and Light Company v. ITC Midwest, LLC*, 144 FERC ¶ 61,052 at P 36 (2013).

<sup>16</sup> Glen Canyon Request at p. 24.

522 **Q. Are there problems with this “timely notification” concept?**

523 A. Yes. First of all, as described in detail above, the result of this would expand the NOA  
524 amendment beyond the transmission service study to which it was intended to apply in  
525 a way that shifts costs to PacifiCorp’s retail customers. Even if that were not the case,  
526 this “timely notification” idea ignores the highly regulated nature of the interactions  
527 between a utility’s merchant function and transmission function.

528 **Q. Can you provide more detail?**

529 A. As described above, Glen Canyon’s interconnection service is subject to this  
530 Commission’s rules and governed by an interconnection agreement between  
531 PacifiCorp transmission and Glen Canyon as the interconnection customer.  
532 PacifiCorp’s merchant function is not a party to that interconnection service request,  
533 study process, or agreement, and it must receive Glen Canyon’s written permission to  
534 access any Glen Canyon interconnection information.

535 The transmission service used to deliver Glen Canyon’s power, on the other  
536 hand, is subject to FERC rules and is governed by a transmission-service agreement  
537 and NOA between PacifiCorp’s transmission function and PacifiCorp’s merchant  
538 function. Glen Canyon is not a party to that transmission service request, study process,  
539 or agreement.

540 Glen Canyon’s “timely notification” idea asks this Commission to essentially  
541 blend these separate services—which are subject to separate rules and provided to  
542 separate customers—into one intermingled request and study process. No OATT  
543 process contemplates an entity, particularly a utility’s merchant function, interfering  
544 with another customer’s service request in this manner. Glen Canyon also fails address

545 whether and how the FERC Standards of Conduct, which set forth strict standards for  
546 communications between a utility’s merchant function and transmission function,  
547 apply to this “timely notification.”

548 **Q. Are there other problems with this “timely notification”?**

549 A. Yes. PacifiCorp’s merchant function does not make a decision about whether it is in  
550 the best interest of its customers to use its NOA amendment redispatch alternative to  
551 constructing the facilities or upgrades necessary for its transmission service until it  
552 knows what those facilities or upgrades are and whether the NOA amendment  
553 redispatch can be used to avoid them. PacifiCorp’s merchant function does not have  
554 that information until it receives a transmission service study—a study that is issued  
555 separately, and typically after, the QF has requested and received an interconnection  
556 study.

557 This highlights one more reason that the “timely notification” concept  
558 inappropriately blends two services taken by two separate customers subject to two  
559 different processes and regulatory jurisdictions, turning a transmission customer’s  
560 *option* to choose redispatch over construction where it makes economic sense for  
561 customers into a *mandatory* interconnection study assumption.

562 **Q. But Glen Canyon claims PacifiCorp transmission informed Glen Canyon that**  
563 **PacifiCorp merchant could provide a letter containing the “timely notification”**  
564 **you described above. How do you respond?**

565 A. I understand that a PacifiCorp transmission employee told Glen Canyon that Glen  
566 Canyon’s interconnection study assumptions could be revised in response to a letter

567 from PacifiCorp's merchant function.<sup>17</sup> This was an inaccurate description of  
568 PacifiCorp transmission's policies.

569 **Q. Did PacifiCorp transmission do anything to correct this mistake?**

570 A. Yes. PacifiCorp transmission told Glen Canyon, including at an in-person meeting on  
571 March 2, 2017, that Glen Canyon was inadvertently misinformed.

572 **Q. Glen Canyon also claims that the transmission assumptions that PacifiCorp ESM  
573 includes in the avoided cost rate model should dictate how you study QF  
574 interconnections. Do you agree?**

575 A. No. Mr. MacNeil discusses this issue in more detail, but PacifiCorp transmission does  
576 not consider avoided-cost price modeling assumptions in our QF interconnection  
577 studies. We follow the OATT interconnection study process.

578 **Q. What do you believe the Commission should do in this case?**

579 A. I believe the Commission should dismiss Glen Canyon's request for agency action  
580 because it hinges on the application of a *transmission*-service redispatch tool (the NOA  
581 amendment) to protect a QF from its *interconnection* costs through an inappropriate  
582 request from a utility's merchant function to its transmission function concerning  
583 another customer's service.

584 **Q. What if, hypothetically, the NOA amendment could be used to prevent the need  
585 for QF interconnection facilities or upgrades?**

586 A. Even if, hypothetically speaking, the NOA amendment could be used to prevent the  
587 need for a QF's interconnection facilities or upgrades, Ms. Brown, in her direct  
588 testimony, discusses why it would not work in the area in which Glen Canyon chose to

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<sup>17</sup> See Glen Canyon Motion for Preliminary Injunction, Docket No. 17-035-36, at p. 15 (Aug. 11, 2017).

589 site its project.

590 **Q. What does this mean for the facilities or upgrades necessary to grant Glen**  
591 **Canyon's NR interconnection?**

592 A. This means that the facilities or upgrades necessary to grant Glen Canyon's NR  
593 interconnection will need to be constructed. If Glen Canyon does not pay for those  
594 facilities or upgrades, then PacifiCorp's customers will ultimately bear the burden of  
595 paying for these facilities and upgrades.

596 **Q. Does this conclude your direct testimony?**

597 A. Yes.

Rocky Mountain Power  
Exhibit RMP\_\_\_\_(RAV-1)  
Docket No. 17-035-36  
Witness: Rick A. Vail

BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF UTAH

ROCKY MOUNTAIN POWER

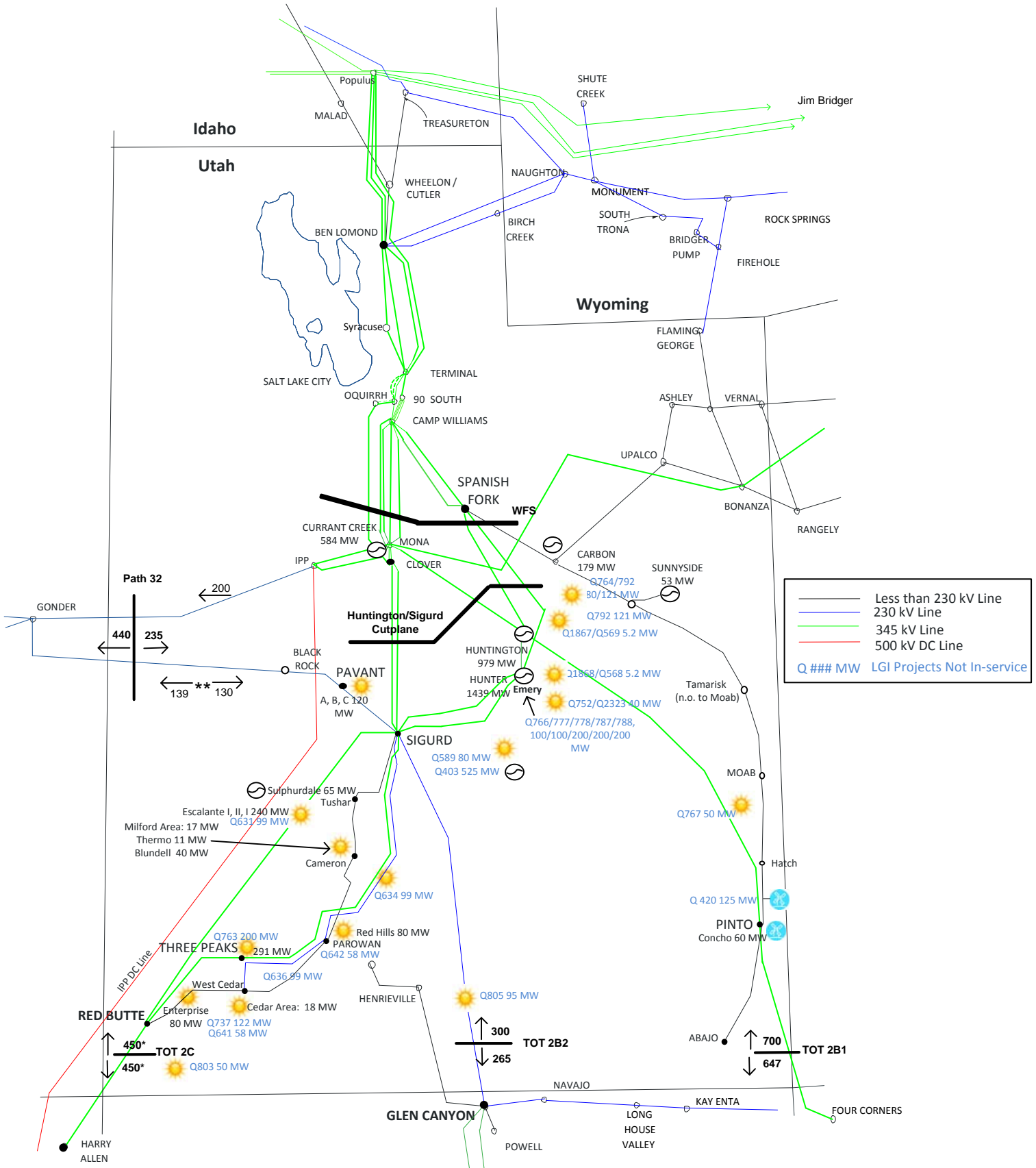
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Exhibit Accompanying Direct Testimony of Rick A. Vail

Utah Transmission and Generation Map

August 2017

# Utah Transmission with Existing Southern Utah Generation and LGI Applicants through Q0805



\*Temporary  
 \*\* Limited by underlying 69 kV and 46 kV system



Rocky Mountain Power  
Exhibit RMP\_\_\_\_(RAV-2)  
Docket No. 17-035-36  
Witness: Rick A. Vail

BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF UTAH

ROCKY MOUNTAIN POWER

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Exhibit Accompanying Direct Testimony of Rick A. Vail

Glen Canyon's Responses to Rocky Mountain Power's First Set of Data Requests,  
Glen Canyon's Response to Request 1.7

August 2017

- 1.7 Please refer to pages 21-23 of Glen Canyon's Request for Agency Action. Is it Glen Canyon's position that a transmission provider could never determine that a transmission system network upgrade is needed to accommodate an interconnection request? If the answer is no, please describe the circumstances under which this could occur.

**OBJECTIONS:** Glen Canyon objects to this request as vague and ambiguous, overly broad, calling for speculation, calling for legal conclusions, invading attorney-client privilege, and not reasonably calculated to lead to the discovery of admissible evidence, and because referenced documents or procedures speak for themselves. Without waiving these objections, Glen Canyon responds generally as follows to this request:

**RESPONSE:** It is Glen Canyon's understanding that certain network upgrades might be required to accommodate an interconnection under some circumstances.

Rocky Mountain Power  
Exhibit RMP\_\_\_\_(RAV-3)  
Docket No. 17-035-36  
Witness: Rick A. Vail

BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF UTAH

ROCKY MOUNTAIN POWER

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Exhibit Accompanying Direct Testimony of Rick A. Vail

Glen Canyon's Responses to Rocky Mountain Power's Second Set of Data Requests,  
Glen Canyon's Response to Request 2.6(a)

August 2017

2.6 In response to request 7 of PacifiCorp’s first set of discovery requests to Glen Canyon, Glen Canyon states that “It is Glen Canyon’s understanding that certain network upgrades might be required to accommodate an interconnection under some circumstances.”

**OBJECTIONS:** Glen Canyon objects to each subpart of this request as vague and ambiguous, overly broad, calling for speculation, calling for legal conclusions, invading attorney-client privilege, and not reasonably calculated to lead to the discovery of admissible evidence. Without waiving these objections, Glen Canyon responds generally as follows to each individual subpart of this request:

- a. Please describe in detail any and all circumstances under which network upgrades might be required to accommodate an interconnection. Please provide any support for Glen Canyon’s position.

**RESPONSE:** Glen Canyon is not able to describe all circumstances under which Network Upgrades might be required to accommodate an interconnection. However, it is Glen Canyon’s understanding generally that there may theoretically be circumstances under which Network Upgrades *might* be required to accommodate an interconnection, although it is not currently aware of any such circumstances. Moreover, PacifiCorp is in possession of the documents and information necessary to answer this request, which Glen Canyon sought in discovery and PacifiCorp refused to supply. For example, Glen Canyon’s Data Request No. 1.5 to PacifiCorp asked for the following:

**Glen Canyon Solar Data Request No. 1.5**

“On page 17 of the Motion to Dismiss, you state that ‘sometimes these enormously expensive upgrades are caused by QFs choosing to site in constrained areas—upgrades that did not appear avoidable under FERC’s OATT.’ Please identify all circumstances in which this has occurred and provide all available documentation to support your statement.”

In its response, PacifiCorp refused to either identify any such circumstances or to produce any such documents.

Rocky Mountain Power  
Exhibit RMP\_\_\_\_(RAV-4)  
Docket No. 17-035-36  
Witness: Rick A. Vail

BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF UTAH

ROCKY MOUNTAIN POWER

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Exhibit Accompanying Direct Testimony of Rick A. Vail

Glen Canyon's Responses to Rocky Mountain Power's First Set of Data Requests,  
Glen Canyon's Response to Request 1.3(a)

August 2017

- 1.3. Page 3 of Glen Canyon’s Request for Agency Action states that the cost of unnecessary and uneconomic network upgrades “could fall on PacifiCorp and its customers under applicable regulations and precedent.”

**OBJECTIONS:** Glen Canyon objects to each subpart of this request as overly broad, calling for legal conclusions, invading attorney-client privilege, and not reasonably calculated to lead to the discovery of admissible evidence. Without waiving these objections, Glen Canyon responds generally as follows to each individual subpart of this request:

- a. Please explain with specificity how Glen Canyon believes these costs could “fall on” customers.

**RESPONSE:** See Request. These costs could be borne by PacifiCorp’s transmission customers, including RMP, and thus potentially by RMP’s retail customers, as part of transmission service charges.

Rocky Mountain Power  
Docket No. 17-035-36  
Witness: Kelcey A. Brown

BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF UTAH

ROCKY MOUNTAIN POWER

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Direct Testimony of Kelcey A. Brown

August 2017

1 **Q. Please state your name, business address, and present position with PacifiCorp**  
2 **d/b/a Pacific Power (PacifiCorp).**

3 A. My name is Kelcey A. Brown. My business address is 825 NE Multnomah Street, Suite  
4 600, Portland, Oregon 97232. My title is Director, Market Policy and Analytics. In that  
5 role, I am responsible for post-analytical analysis of market operations, market policy  
6 analysis, administration, and maintenance of PacifiCorp merchant contracts and load  
7 forecasting. I am testifying on behalf of Rocky Mountain Power, a division of  
8 PacifiCorp.

### 9 **QUALIFICATIONS**

10 **Q. Briefly describe your professional experience.**

11 A. I have been employed by PacifiCorp since May 2011. I have been the Director of  
12 Market Policy and Analytics since July 2015. My responsibilities at PacifiCorp are  
13 primarily related to the Energy Imbalance Market (EIM), energy supply management  
14 (ESM) contract administration, and short-term load forecast. Before July 2015,  
15 I worked as the Manager of Load Forecast and as a Senior Consultant in the regulatory  
16 net power costs department. Before joining PacifiCorp, I worked at the Public Utility  
17 Commission of Oregon from November 2007 through May 2011. During my time  
18 there, I sponsored testimony in several dockets involving net power costs, integrated  
19 resource planning, and various revenue and policy issues. From 2003 through 2007, I  
20 was an economic analyst with Blackfoot Telecommunications Group, where I was  
21 responsible for revenue forecasts, resource acquisition analysis, pricing, and regulatory  
22 support. I have a Bachelor of Science degree in business economics from the University



23 of Wyoming, and I have completed all course work towards a master's degree in  
24 economics from the University of Wyoming.

25 **Q. Have you testified in previous regulatory proceedings?**

26 A. Yes. I have filed testimony or sworn affidavits with the PSC, as well as the Oregon,  
27 Idaho, Washington, and Wyoming state utility commissions and the Federal Energy  
28 Regulatory Commission (FERC).

29 **PURPOSE AND SUMMARY OF TESTIMONY**

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

31 A. Glen Canyon proposes to site a large solar facility in a known transmission-constrained  
32 area. This means the only way to interconnect to and deliver power from the Glen  
33 Canyon qualifying facilities (QFs) across the PacifiCorp transmission system is the  
34 Sigurd-to-Glen-Canyon 230kV transmission line (Sigurd-GC line). PacifiCorp's  
35 merchant function, PacifiCorp ESM, only has 95 megawatts (MW) of rights over the  
36 Sigurd-GC line—rights it holds to comply with an obligation to the Arizona Public  
37 Service Company (APS) under a legacy transmission contract filed with FERC. Glen  
38 Canyon sized its QF projects to exactly 95 MW in hopes of entirely displacing  
39 PacifiCorp ESM's existing use of those rights so Glen Canyon could secure an  
40 interconnection without the need to construct additional facilities or upgrades. Glen  
41 Canyon's sole support for this displacement theory is a transmission-service redispatch  
42 protocol set forth in an amendment to a transmission network operating agreement  
43 (NOA) between PacifiCorp's merchant and transmission functions, approved by FERC  
44 in 2015. As discussed in detail in Mr. Rick A. Vail's direct testimony, the NOA  
45 amendment as proposed to and approved by FERC applies only to transmission service,

46 not interconnection service. In addition, even if the NOA amendment could be applied  
47 to Glen Canyon's interconnection service, PacifiCorp ESM's contractual limitations  
48 over the Sigurd-GC line under the APS agreement would make Glen Canyon's  
49 interconnection study ineligible for a redispatch alternative under the NOA  
50 amendment. In other words, there is no redispatch solution to prevent building the  
51 upgrades PacifiCorp transmission identifies as necessary to grant Glen Canyon's  
52 interconnection request.

### 53 **OVERVIEW OF NETWORK OPERATING AGREEMENT**

54 **Q. What is the NOA?**

55 A. The NOA is a contract between PacifiCorp ESM and PacifiCorp transmission that  
56 describes the operating details of the network transmission service PacifiCorp ESM  
57 takes from PacifiCorp transmission. As a result of PacifiCorp's FERC filing requesting  
58 an amendment to that agreement, the NOA now contains the transmission-service  
59 redispatch feature that Glen Canyon makes the center of its case.

60 **Q. What is network transmission service?**

61 A. Network transmission service is one of the two types of transmission service available  
62 under PacifiCorp's OATT. Generally speaking, network transmission service is used to  
63 serve load because it is designed to flexibly deliver the output of multiple generating  
64 resources (called designated network resources or DNRs) to load at different locations.  
65 Customers taking network transmission service sign a network transmission service  
66 agreement and a NOA.

67 **Q. Does the NOA apply to point-to-point service also?**

68 A. No. Point-to-point service is a separate type of transmission service, to which the NOA

69 does not apply. Point-to-point service is less flexible than network transmission service  
70 because, as the name suggest, it is from one specific point to another. Customers taking  
71 point-to-point transmission service sign a point-to-point service agreement only.

72 **Q. What is the NOA amendment?**

73 A. As described in more detail in Mr. Vail’s direct testimony, the NOA amendment refers  
74 to section 8.1 of the NOA, which permits PacifiCorp ESM, as the transmission  
75 customer responsible for delivering QF power on firm transmission service to  
76 PacifiCorp’s customers, to request in the transmission service process only, a redispatch  
77 of existing DNRs in order to secure firm transmission to deliver the output of a QF in  
78 lieu of building transmission service network upgrades solely to deliver that power.

79 **Q. Why is this NOA-amendment transmission-service redispatch tool relevant to**  
80 **Glen Canyon’s interconnection service?**

81 A. Glen Canyon argues that PacifiCorp ESM must invoke the NOA amendment’s  
82 transmission-service redispatch option over the Sigurd-GC line so Glen Canyon can  
83 secure an interconnection without the need to construct additional facilities or upgrades  
84 that would otherwise be necessary to grant interconnection service.

85 **Q. Is that the function of the NOA amendment?**

86 A. No. As described in detail in Mr. Vail’s direct testimony, PacifiCorp proposed and  
87 FERC approved the NOA amendment specifically to protect PacifiCorp’s customers  
88 from the cost of upgrades solely necessary to deliver QF power on the FERC-required  
89 firm network transmission, even when a QF sites in a constrained area of PacifiCorp’s  
90 transmission system, if redispatching generation resources would be more economic  
91 than construction. The NOA amendment FERC filings and NOA amendment language

92           itself apply to transmission service; they do not discuss or contemplate applying this  
93           transmission redispatch tool to QF interconnection service.

94           **OVERVIEW OF PACIFICORP RIGHTS OVER THE SIGURD-GC LINE**

95   **Q.    Please explain the nature of PacifiCorp ESM’s rights over the Sigurd-GC line.**

96   A.    The Sigurd-GC line is owned by PacifiCorp. PacifiCorp transmission provides FERC-  
97           jurisdictional transmission service over that line to multiple customers under the rates,  
98           terms, and conditions of PacifiCorp’s OATT. PacifiCorp ESM is one of PacifiCorp  
99           transmission’s transmission customers, and PacifiCorp ESM has 95 MW of northbound  
100          transmission rights on that line.

101   **Q.    Please explain the nature of those 95 MW of northbound transmission rights.**

102   A.    PacifiCorp ESM has a designated network resource (i.e., contracted energy purchase)  
103           that is delivered using network transmission service on the Sigurd-GC line in the winter  
104           season. During the summer season, PacifiCorp ESM holds a 95 MW point-to-point  
105           reservation over this path. In other words, the type of transmission service PacifiCorp  
106           ESM holds over this line varies by the time of year.

107   **Q.    Why does PacifiCorp ESM have 95 MW of reserved capacity on the Sigurd-GC  
108          line?**

109   A.    To satisfy existing contractual obligations with APS in the summer (point-to-point),  
110           and to deliver power to its customers in the winter (network). PacifiCorp and APS are  
111           parties to an intertwined set of legacy contracts that allow PacifiCorp ESM to schedule  
112           energy from APS to PacifiCorp load in the winter months and require PacifiCorp ESM  
113           to continue holding transmission rights through the summer months to facilitate APS’s  
114           right to call on the path.

115 **Q. What are the APS contracts and what do they require?**

116 A. The first agreement is a 1990 Asset Purchase and Power Exchange Agreement (the  
117 Exchange Agreement).<sup>1</sup> The basic premise of the Exchange Agreement is that the  
118 electric power needs of PacifiCorp's customers are highest in the winter months and  
119 the electric power needs of APS's customers are highest in the summer months.  
120 Therefore, each company agrees to provide power to the other in those respective  
121 seasons of need. PacifiCorp is a buyer in the winter and a seller in the summer under  
122 the Exchange Agreement. The energy is required to be scheduled on a day-ahead basis  
123 for each hour and has additional limitations on the amount that can be requested in each  
124 hour and across the applicable month.

125 **Q. What is the second contract with APS?**

126 A. The second agreement is a 1995 FERC-jurisdictional transmission agreement, the  
127 Restated Transmission Agreement, under which each party provides to the other access  
128 over its respective transmission system.<sup>2</sup> Under section 5.01 of the Restated  
129 Transmission Agreement, APS has 100 MW of bidirectional transfer rights over  
130 PacifiCorp's system "between the Glen Canyon/Four Corners Substations and the  
131 Borah/Brady Substations in Idaho."

132 **Q. How does PacifiCorp use its 95 MW transmission reservation?**

133 A. In the winter months, PacifiCorp takes power from APS at the Glen Canyon substation  
134 under the Exchange Agreement and designates the Exchange Agreement as a network  
135 resource (or DNR) under the OATT so it can deliver the Exchange Agreement power  
136 using network transmission service. In the summer months, PacifiCorp is a seller under

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<sup>1</sup> The Exchange Agreement and Amendment No. 1 thereto is attached as Exhibit RMP\_\_\_\_(KAB-1).

<sup>2</sup> The Restated Transmission Agreement is attached as Exhibit RMP\_\_\_\_(KAB-2).

137 the Exchange Agreement and needs no northbound capacity for purposes of delivering  
138 the Exchange Agreement power to load. Therefore, the Exchange Agreement is not a  
139 DNR in the summer, and PacifiCorp ESM’s transmission rights become point-to-point  
140 transmission service. Specifically, PacifiCorp holds only a 95 MW point-to-point  
141 reservation under the OATT during the summer months.

142 **Q. If PacifiCorp ESM does not need the 95 MW to deliver the Exchange Agreement**  
143 **power to load in the summer, then why does it hold the 95 MW point-to-point**  
144 **reservation?**

145 A. The point-to-point reservation allows PacifiCorp to continue to honor its obligations  
146 under the Restated Transmission Agreement for the remainder of the year. As I  
147 mentioned, APS has a contractual entitlement to move up to 100 MW of power  
148 “between the Glen Canyon/Four Corners Substations and the Borah/Brady Substations  
149 in Idaho.” PacifiCorp ESM holds the 95 MW point-to-point reservation on the  
150 Sigurd-GC line to comply with this requirement and make sure transmission rights are  
151 available should APS choose to call on them. Although this type of “call right” on firm  
152 transmission would be unusual under a more current FERC open access transmission  
153 structure, this type of arrangement was more common when this legacy transmission  
154 contract was executed in 1995—before FERC had even established the OATT.

155 **Q. Does APS call on its rights on this path often?**

156 A. No. Although APS may invoke its rights infrequently, PacifiCorp must nevertheless  
157 hold the rights available to APS to honor its contractual obligations.

158 **Q. Then does PacifiCorp ESM really need to hold point-to-point service in the**  
159 **summer on this particular line to comply with the contract?**

160 A. Yes. The contract explicitly states that APS has contractual entitlement to move up to  
161 100 MW “between the Glen Canyon/Four Corners Substations and the Borah/Brady  
162 Substations in Idaho.” If PacifiCorp ESM does not hold transmission rights out of Glen  
163 Canyon, it would not be complying with that portion of the contract.

164 **APPLICABILITY OF NOA AMENDMENT TO GLEN CANYON QFs**

165 **Q. What is your understanding about what Glen Canyon has requested of PacifiCorp**  
166 **in this case?**

167 A. As I understand it, Glen Canyon sized its QF projects to exactly 95 MW in hopes of  
168 entirely displacing PacifiCorp ESM’s existing use of its 95 MW of transmission rights  
169 on the Sigurd-GC line so Glen Canyon could secure an interconnection without the  
170 need to construct additional facilities or upgrades. Glen Canyon’s sole support for this  
171 displacement theory is the NOA amendment transmission service redispatch protocol.

172 **Q. Does Glen Canyon’s theory about applying the NOA amendment in this way**  
173 **work?**

174 A. As discussed in detail in the direct testimony of Mr. Vail, the NOA amendment applies  
175 only to transmission service, not interconnection service. In addition, even if the NOA  
176 amendment redispatch protocol could be applied to Glen Canyon’s interconnection  
177 service study assumptions, the NOA amendment redispatch option does not work on  
178 the Sigurd-GC line.

179 **Q. Why doesn’t the NOA amendment work on the Sigurd-GC line?**

180 A. First, because of where Glen Canyon decided to site its power projects, the Sigurd-GC

181 line is the only way their output could be delivered. The Sigurd-GC line is essentially  
182 a radial connection between the Glen Canyon QFs and PacifiCorp's load, and there is  
183 only one other DNR in the area: the APS Exchange Agreement, which is only a DNR  
184 in the winter months.

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

186 A. Interconnecting to a radial path makes redispatch a less helpful tool because backing  
187 down resources elsewhere on the system has no impact on the Glen Canyon QFs'  
188 deliverability. Thus, the only way to redispatch PacifiCorp's resources to accommodate  
189 Glen Canyon is for PacifiCorp to cease imports of power at the Glen Canyon substation  
190 under the APS Exchange Agreement. A more typical redispatch scenario would involve  
191 a new resource that is more integrated on the transmission system (*i.e.* are not sited so  
192 remotely), in which case dispatch scenarios are possible to accommodate the output of  
193 the QF using a portfolio of owned and contracted resources.

194 **Q. What is the second reason?**

195 A. Even if PacifiCorp ESM could overcome the challenges to redispatching posed by the  
196 location of Glen Canyon's projects, PacifiCorp ESM simply lacks the correct type of  
197 transmission service year-round to use the NOA amendment. As I explained,  
198 PacifiCorp only has network transmission service over this path (and the Exchange  
199 Agreement is only a DNR) in the winter. PacifiCorp ESM has point-to-point service in  
200 the summer. The NOA is a creature of *network* transmission service under the OATT.  
201 The NOA amendment (or even the more general concept of redispatching resources),  
202 simply do not apply to *point-to-point* transmission service.



203 **Q. If PacifiCorp cannot redispach its own resources, can PacifiCorp “redispach-**  
204 **away” third parties’ transmission rights under the NOA amendment?**

205 A. No, and that is the critical third reason why the NOA amendment would not work on  
206 the Sigurd-GC line. PacifiCorp holds the 95 MW of transmission rights on the  
207 Sigurd-GC line to honor a contract with APS—the same line that would be required to  
208 deliver the output of the Glen Canyon QFs. PacifiCorp ESM cannot interfere with APS’  
209 long-held, FERC-approved delivery rights to enable the delivery of the Glen Canyon  
210 QFs. Stated differently, PacifiCorp cannot allocate to Glen Canyon that which it does  
211 not have.

212 **Q. Did PacifiCorp intend the NOA amendment to interfere with third party rights,**  
213 **like APS’ rights?**

214 A. No, just the opposite. PacifiCorp was clear with the FERC when it filed the NOA  
215 amendment that “the NOA amendment would not diminish the transmission capacity  
216 reserved for service to any existing transmission customers.”<sup>3</sup> FERC’s order approving  
217 the NOA amendment recognized this commitment, stating in response to intervenors  
218 that had raised concerns about the NOA amendment interfering with other customers’  
219 transmission service, “PacifiCorp asserts that the proposal will not affect any other  
220 network customer’s network allocation, all network loads will continue to be served on  
221 a firm basis, and the physical transmission entitlements of other transmission customers  
222 will be preserved.”<sup>4</sup> In other words, both PacifiCorp and FERC recognized that  
223 PacifiCorp ESM’s obligation to deliver QF power on firm transmission could not  
224 interfere with third-party rights, like APS’ rights on the Sigurd-GC line.

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<sup>3</sup> *PacifiCorp*, Docket No. ER15-741, Network Operating Agreement Amendment at p. 2 (Dec. 24, 2014).

<sup>4</sup> *PacifiCorp*, 151 FERC ¶ 61,170 at P 23 (2015).

225 **Q. What if APS doesn't call on PacifiCorp ESM's 95 MW of rights on the Sigurd-GC**  
226 **line? Doesn't that mean that capacity could be used for Glen Canyon?**

227 A. No. As discussed in more detail in Mr. Vail's testimony, FERC has stated that a utility  
228 can only use *firm* transmission for QFs, even if the QF sites in a constrained area. This  
229 ensures that the utility can meet its PURPA obligation to take the QF power. PacifiCorp  
230 ESM must hold firm transmission rights for APS, which precludes using those same  
231 firm rights for delivery of Glen Canyon's QF power. Two firm obligations cannot share  
232 a single transmission reservation.

233 **CONCLUSION**

234 **Q. What is your recommendation to the Commission?**

235 A. Glen Canyon's Request for Agency Action should be rejected because PacifiCorp  
236 simply cannot do what Glen Canyon is requesting.

237 **Q. Does this conclude your direct testimony?**

238 A. Yes.

Rocky Mountain Power  
Exhibit RMP\_\_\_(KAB-1)  
Docket No. 17-035-36  
Witness: Kelcey A. Brown

BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF UTAH

ROCKY MOUNTAIN POWER

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Exhibit Accompanying Direct Testimony of Kelcey A. Brown

Exchange Agreement and Amendment No. 1

August 2017

UT 17-035-36  
Glen Canyon Solar 1.12

Attachment Glen Canyon Solar 1.12

**ASSET PURCHASE AND POWER EXCHANGE AGREEMENT**  
**BETWEEN**  
**PACIFICORP**  
**AND**  
**ARIZONA PUBLIC SERVICE COMPANY**

**EXECUTION COPY**

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**Exhibits:**

- 1.08 Description of Common Facilities at the Cholla Generating Station**
- 1.09 Methodology for Establishing Combustion Turbine Incremental Cost**
- 1.10 Existing APS Combustion Turbines**
- 3.10 Schedule of Exceptions to Environmental Representations**

**ASSET PURCHASE AND POWER EXCHANGE AGREEMENT**

**September 21, 1990**

**PARTIES**

The Parties to this Agreement, dated this 21st day of September, 1990, are PacifiCorp Electric Operations, an assumed business name of PacifiCorp, an Oregon corporation (PacifiCorp), and Arizona Public Service Company, an Arizona corporation (APS). APS and PacifiCorp are sometimes referred to collectively as "Parties" and individually as "Party."

**RECITALS**

WHEREAS, PacifiCorp and APS are engaged in the generation, transmission and distribution of electric power and energy; and

WHEREAS, the electric power needs of PacifiCorp's customers are highest in the winter months and the electric power needs of APS' customers are highest in the summer months; and

WHEREAS, the Parties have resolved to enhance the efficient operation of their respective systems by taking advantage of the diversity of their respective loads and generation facilities; and

WHEREAS, the Parties have entered into a series of contracts on this date to achieve such efficiencies; and

**1 - ASSET PURCHASE AND POWER EXCHANGE AGREEMENT**

WHEREAS, the Parties intend to continue to study and discuss additional arrangements which will enhance efficiency and inure to the benefit of their respective customers;

NOW, THEREFORE, in consideration of the mutual covenants set forth below, the Parties agree as follows:

**AGREEMENT**

1. **Definitions.** For purposes of this Agreement, the following terms shall have the following meaning when used with initial capitalization, whether singular or plural:

1.01 "APS Mortgage" means the Indenture of Mortgage and Deed of Trust, dated as of July 1, 1946, between Central Arizona Light and Power Company (now APS) and Security-First National Bank of Los Angeles (now Security Pacific National Bank), as Trustee, as amended or supplemented from time to time.

1.02 "Assets" means Unit 4 (including APS' rights and subject to APS' obligations under the General Electric Agreement) a 37.23% undivided interest in the Common Facilities, a 37.23% share of the Cholla Coal Inventory and a 37.23% share of the Cholla Materials and Supplies Inventory.

1.03 "Base Purchase Price" means the amount established in Subsection 2.03.

1.04 "Cholla Coal Inventory" means coal owned and being held by APS for use at the Cholla Generating Station as

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of the Closing Date, not including the separate inventory of lower-sulphur coal held for use in Cholla Unit 3.

1.05 "Cholla Materials and Supplies Inventory" means materials, supplies and spare parts owned and being held by APS for use at the Cholla Generating Station as of the Closing Date.

1.06 "Cholla Generating Station" means the four-unit coal-fired steam electric generating plant near Holbrook, Arizona.

1.07 "Closing Date" means the date of the Closing of this Agreement as provided for in Section 9.

1.08 "Common Facilities" means those facilities described in Exhibit 1.08 which are common to two or more generating units at the Cholla Generating Station, including Unit 4.

1.09 "CT Incremental Cost" means the incremental operation and maintenance expense, the incremental fuel cost and, if applicable, the CT start-up charge, calculated in accordance with the methodology set forth in Exhibit 1.09.

1.10 "Existing Combustion Turbines" means single-cycle combustion turbines owned by APS on the Closing Date as described in Exhibit 1.10.

1.11 "Four Corners" means the 345 kV switchyard at the Four Corners Generating Station.

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**1.12 "General Electric Agreement" means the Agreement dated November 12, 1981 between APS and General Electric Company.**

**1.13 "GNP Price Deflator" means the Gross National Product (GNP) Price Deflator (Implicit) as published by the Bureau of Economic Analysis (BEA).**

**1.14 "Navajo" means the Navajo Generating Station 500 kV switchyard and the point of interconnection to be established by the Parties' near Glen Canyon to be established as part of the Glen Canyon/Navajo Loop-In Project (as defined in the Transmission Agreement).**

**1.15 "Necessary Regulatory Approvals" means:**

**(a) Final approval by the Federal Energy Regulatory Commission (FERC), pursuant to Section 203 of the Federal Power Act, of the sale and acquisition of the Assets under this Agreement, or the disclaimer of jurisdiction thereof;**

**(b) Final approval by the Arizona Corporation Commission, pursuant to § 40-285 of the Arizona Revised Statutes, of the sale of the Assets under this Agreement;**

**(c) Final approval or acceptance for filing of this Agreement by the FERC pursuant to Section 205 of the Federal Power Act;**

**(d) Final approval or acceptance for filing of the Long-Term Power Transactions Agreement and the Transmission**

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**Agreement by the FERC pursuant to Section 205 of the Federal Power Act; and**

**(e) Required filings and the expiration of the waiting period under the Hart, Scott, Rodino Antitrust Improvements Act of 1976, as amended.**

**1.16 "Other Agreements" means:**

**(a) The Long-Term Power Transactions Agreement dated September 21, 1990 (the "Power Agreement"), between the Parties;**

**(b) The Transmission Agreement dated September 21, 1990 (the "Transmission Agreement"), between the Parties;**

**(d) The Cholla Unit 4 Operating Agreement dated September 21, 1990 (the "Operating Agreement"), between the Parties.**

**1.17 "Palo Verde" means the Palo Verde 500 Kv switchyard.**

**1.18 "Permitted Liens" shall mean (a) the rights and interests of PacifiCorp under this Agreement and the Other Agreements; (b) the General Electric Agreement; (c) mineral rights and reservations; and (d) imperfections of title and/or encumbrances which, individually and in the aggregate, do not materially detract from the value or marketability of the Assets or interfere with their present use.**

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**1.19 "Pinnacle" means Pinnacle West Capital Corporation, an Arizona corporation.**

**1.20 "Prudent Utility Practice" means either any of the practices, methods and acts engaged in or approved by a significant portion of the electrical utility industry prior to the time the Prudent Utility Standard is applied or any of the practices, methods or acts which, in the exercise of reasonable judgment in the light of the facts known at the time the Prudent Utility Standard is applied, could have been expected to accomplish the desired result at the lowest reasonable cost consistent with reliability, safety and expedition.**

**1.21 "Supplemental Payment" means the payment described in Subsection 2.05.**

**1.22 "Term of this Agreement" means the period commencing on and after the Closing Date and ending on the date as of which Unit 4 has been retired from service and all costs of terminating Unit 4 have been paid.**

**1.23 "Unit 4" means Unit 4 of the Cholla Generating Station, as more specifically described in Exhibit A of the Operating Agreement.**

**1.24 "Viable Site" means a site approved in advance by PacifiCorp and APS with access to natural gas, a diesel oil delivery system and high voltage transmission where combustion turbines owned by PacifiCorp can be sited and operated on a**

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commercially-reasonable basis, consistent with applicable laws and regulations.

1.25 "Westwing" means both the 230 kV and 500 kV switchyards at the Westwing Substation.

2. Sale and Purchase of Assets.

2.01 Assets to Be Sold. Subject to all terms and conditions of this Agreement, APS agrees to sell and PacifiCorp agrees to buy the Assets.

2.02 Instruments of Conveyance and Transfer. At Closing, APS shall deliver to PacifiCorp such warranty deeds, bills of sale, certificates of title, endorsements, assignments, consents and other good and sufficient instruments of conveyance and assignment as shall be effective to vest in PacifiCorp marketable title in and to the Assets, subject to no security interests, liens or encumbrances, except Permitted Liens, and shall assign to PacifiCorp an undivided interest in all contracts, permits, authorizations, leases, water rights, easements and rights-of-way used and useful to PacifiCorp's ownership or operation of the Assets and the interests of APS under the General Electric Agreement. PacifiCorp agrees to do and perform such acts as may be necessary for PacifiCorp to obtain necessary permits and authorizations.

2.03 Base Purchase Price. The Base Purchase Price for the Assets shall be \$221 Million. The Base Purchase Price shall be adjusted as provided in Subsections 2.07 and 5.02.

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**2.04 Payment at Closing.** The Base Purchase Price, as adjusted pursuant to Subsections 2.07 and 5.02, and the Supplemental Payment provided for in Subsection 2.05 shall be paid by wire transfer at the Closing.

**2.05 Supplemental Payment.** The Base Purchase Price does not reflect APS' original cost basis in the share of the Cholla Coal Inventory and the Cholla Materials and Supplies Inventory being acquired by PacifiCorp. Therefore, PacifiCorp shall make a Supplemental Payment at Closing in an amount equal to 37.23% of APS' original cost basis in the Cholla Coal Inventory and the Cholla Materials and Supplies Inventory as of the Closing Date as reflected on APS' books and records.

**2.06 No Assumption of Certain Liabilities.** Except as otherwise specifically provided for in this Agreement or in the Other Agreements, PacifiCorp shall assume no debt, liability, or obligation of APS associated with the Assets or any related contracts, permits, licenses, rights-of-way or other property interests, whether arising from contract, tort, or otherwise.

**2.07 Proration of Property Taxes.** Real property taxes and personal property taxes shall be prorated between APS and PacifiCorp as of the Closing Date. APS will pay real property taxes for the first half of 1991 on or about November 1, 1991, and for the second half of 1991 on or about May 1, 1992. Each of these payments will be prorated between APS and

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PacifiCorp based upon days of ownership in 1991. APS shall bill PacifiCorp and PacifiCorp shall pay its share of each of these payments before the date of APS' payment to the taxing authorities.

2.08 Sales, Transfer, and Other Taxes. Any sales, transfer, purchase, use, or similar tax which may be payable by reason of the sale of all or a portion of the Assets shall be borne by APS.

3. Representations and Warranties of APS. APS represents and warrants as follows:

3.01 Organization and Powers of APS. APS is an Arizona corporation, duly organized and existing under the laws of the State of Arizona. True and correct copies of APS' articles of incorporation and bylaws have been delivered to PacifiCorp. APS has all requisite corporate power and authority to own and operate the Assets.

3.02 Authority Relative to Agreement. Subject to obtaining the approval of its Board of Directors, no other corporate action on the part of APS is necessary for the execution, delivery and performance of this Agreement. Subject to APS obtaining necessary releases and consents pursuant to Subsection 8.03, this Agreement will not violate any terms of any contractual or other obligation, restriction, or commitment of any kind or nature to which APS or Pinnacle is a party or by which any of their assets are bound.

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**3.03 Effect of Agreement.** This Agreement has been duly and validly executed and delivered by APS and constitutes a valid and legally binding agreement enforceable against APS in accordance with its terms (except as the foregoing may be limited by (a) general principles of equity and (b) bankruptcy, insolvency, reorganization, arrangement, moratorium, or other laws or equitable principles relating to or affecting the enforcement of creditors' rights generally, subject to obtaining Necessary Regulatory Approvals and the approval of the APS Board of Directors.

**3.04 Cost Basis.** APS estimates that as of December 31, 1990, its books and records will reflect that the total original cost, depreciated, of Unit 4 will be approximately \$214.7 Million and 37.23% of the total original cost depreciated of the Common Facilities will be approximately \$29.3 Million. As of August 31, 1990, APS' total original cost basis in the Cholla Coal Inventory was \$12,456,000 and its total original cost basis in the Cholla Materials and Supplies Inventory was \$13,280,000. Accounting records supporting the aforementioned values were prepared in accordance with generally accepted accounting principles and the FERC Uniform System of Accounts, and present fairly the depreciated book value of the Assets as of the dates referred to above.

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**3.05 Changes in Condition. Except as disclosed by APS to PacifiCorp in writing, since the date of this Agreement there has not been:**

(a) any change in the original cost, depreciated, of the Assets, except for additional depreciation, or changes in the ordinary course of business which in the aggregate have not been materially adverse;

(b) any damage, destruction, or loss (whether covered by insurance or not) materially adversely affecting the Assets;

(c) any material change in the manner of operation of the Assets; or

(d) any material transaction entered into by APS relating to the Assets other than in the ordinary course of business and consistent with past practices.

**3.06 Unit 4 Output. Except as may otherwise be specifically provided for in the Other Agreements, there are no contracts or other arrangements in place whereby any of the output of Unit 4 has been sold, dedicated or committed.**

**3.07 Access. APS holds all easements and rights of way necessary for access to and operation of all of the Assets.**

**3.08 Coal Supply. APS has contracts and options in place which are sufficient to provide a firm coal supply of compatible coal for Unit 4 until at least 2010.**

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**3.09 Water Supply.** To the best of APS' knowledge, APS has sufficient water rights in place for the operation of Unit 4 at its rated capacity for its expected useful life.

**3.10 Compliance with Laws.** To the best of APS' knowledge, except as set forth in Exhibit 3.10, APS' operation of the Assets has been and is in material compliance with all applicable laws, rules, orders, regulations, or restrictions, except (a) any past noncompliance that has been cured and (b) noncompliance that does not materially interfere with the operation of the Assets. Except as set forth in Exhibit 3.10, APS has received no notice of violation or notice of non-compliance and knows of no violation or noncompliance with respect to any law, regulation, or governmental restriction applicable to the Assets, including but not limited to any federal, state or local law, rule, order, regulation, ordinance or restriction relating to protection of the environment and pollution control, or to the control, handling, treatment and disposal of hazardous substances, toxic chemicals, herbicides and pesticides such as the Clean Air Act (as amended), the Federal Water Pollution Control Act (as amended), the Comprehensive Environmental Response, Compensation and Liability Act (as amended) the Resource Conservation and Recovery Act (as amended), the Toxic Substances Control Act (as amended) and any regulations thereunder and also including, but not limited, to any other federal, state or local statutes,

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regulations, or ordinances related to land use and zoning, energy and industrial facilities siting, or occupational health and safety that would materially interfere with the operation of the Assets.

**3.11 Condition of Properties.** All the Assets are in good condition and state of repair, subject only to ordinary wear and tear, and are suitable for the purposes for which they are normally used.

**3.12 No Brokers.** APS has not employed any broker or finder in connection with the transactions contemplated by this Agreement, and it has taken no action which would give rise to a valid claim against any party for a brokerage commission, finder's fee, or other like payment.

**3.13 Adequacy of Representations and Warranties.** None of the warranties, representations, or statements made by APS in this Agreement, or the information, lists, financial statements, documents, or certificates required to be furnished by APS pursuant to this Agreement, contain or will contain any untrue statement of a material fact when made or omit or will omit or misstate a material fact when made necessary in order to make the statements contained herein or therein not misleading.

**4. Representations and Warranties of PacifiCorp.**  
PacifiCorp represents and warrants as follows:

**13 - ASSET PURCHASE AND POWER EXCHANGE AGREEMENT**

**4.01 Organization and Powers of PacifiCorp.**

PacifiCorp is an Oregon corporation, duly organized and existing under the laws of the State of Oregon. PacifiCorp has all requisite corporate power and authority to own, operate, and lease its properties, and to carry on its business as now being conducted.

**4.02 Authority Relative to Agreement.** Subject to obtaining the approval of its Board of Directors, the execution, delivery, and performance of this Agreement by PacifiCorp have been duly authorized by all necessary corporate action. This Agreement will not violate any terms of any contractual or other obligation, restriction, or commitments of any kind or nature to which PacifiCorp is a party.

**4.03 Effect of Agreement.** This Agreement has been duly and validly executed and delivered by PacifiCorp and constitutes a valid and legally binding agreement of PacifiCorp enforceable against PacifiCorp in accordance with its terms (except as the foregoing may be limited by (a) bankruptcy, insolvency or similar laws affecting creditors' rights generally and (b) equitable principles of general applicability), subject to obtaining Necessary Regulatory Approvals and the approval of the PacifiCorp Board of Directors.

**4.04 No Brokers.** Except for Kidder Peabody & Co., Inc., PacifiCorp has not employed any broker or finder in

connection with the transactions contemplated by this Agreement, and it has taken no action which would give rise to a valid claim against any party for a brokerage commission, finder's fee, or other like payment by APS.

**4.05 Adequacy of Representations and Warranties.**

None of the warranties, representations, or statements made by PacifiCorp in this Agreement, or the information, documents, or certificates required to be furnished by PacifiCorp pursuant to this Agreement, contain or will contain any untrue statement of a material fact when made or omit or will omit or misstate a material fact when made necessary in order to make the statements contained herein or therein not misleading.

**5. Covenants of APS.** APS covenants and agrees as follows:

**5.01 Conduct of Business.** APS shall manage and operate the Assets until the Closing consistent with Prudent Utility Practice and in accordance with its past practices and shall engage in no material transactions relating to the Assets out of the ordinary course of business.

**5.02 Insurance.** Until the Closing, APS shall continue to carry insurance currently in effect related to the Assets, insuring the Assets against loss or damage by fire and other risks, and public liability to the extent required by the General Electric Agreement and consistent with Prudent Utility Practice and in accordance with its past practices. If APS

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sustains losses related to the Assets prior to Closing, the Base Purchase Price shall be reduced to the extent such loss is not covered by insurance. Any insurance proceeds payable in respect to any such losses shall be applied to the repair of the Assets, subject to the terms of the APS Mortgage. APS is not presently aware of any claim or circumstance related to the Assets which might result in a claim which would be insured against.

5.03 Authorization by Board of Directors. APS shall cause a meeting of its Board of Directors to be duly called and held as soon as reasonably practicable for the purpose of voting on the transactions contemplated by this Agreement and the Other Agreements. If the transactions are disapproved at such meeting of the APS Board of Directors, this Agreement shall terminate without liability on the part of either Party or the need for further action by either Party and shall be of no further force or effect.

5.04 Access to Premises and Information. Subject to Subsection 6.02, until the Closing, APS shall allow PacifiCorp and its authorized agents and representatives to have full access to the Assets, and the books, files and records of APS relating to the Assets at any reasonable time and in any reasonable manner and will furnish PacifiCorp at such times such financial and operating data and other information with respect to the Assets as PacifiCorp may

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reasonably request in connection with its evaluation of the transactions contemplated by this Agreement. APS shall provide material, nonpublic information to PacifiCorp only if it is expressly requested in writing to do so by PacifiCorp. Any investigation or inquiry made by PacifiCorp pursuant to this Agreement shall not in any way affect or lessen the representations and warranties made by APS in this Agreement, or the survival of its representations and warranties, provided that if PacifiCorp discovers or ascertains any information which it believes does affect, lessen, contradict, or violate any of the representations and warranties made by APS, it shall promptly, in writing, communicate such fact and/or circumstances to APS. Upon receipt of any such notice, APS shall use its best efforts to the extent practicable, at its own expense, to remedy any breach or violation of its representations or warranties contained in this Agreement.

**5.05 Conditions and Best Efforts.** APS shall use its best efforts to effectuate the transactions contemplated by this Agreement and to fulfill all of the conditions of the Parties' obligations under this Agreement and shall do all such acts and things as reasonably may be required to carry out APS' obligations hereunder and to consummate and complete this Agreement, including, without limitation of the foregoing, APS will, as promptly as practicable, make application for Necessary Regulatory Approvals. Prior to filing applications,

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prefiled testimony or responses to data requests in the course of obtaining Necessary Regulatory Approvals, APS shall provide such materials to PacifiCorp for its information.

**5.06 Claims.** Prior to Closing, APS shall make diligent inquiry of its management employees as to their knowledge of any existing or potential claims against APS related to the Assets, and shall disclose to PacifiCorp any previously undisclosed information regarding such claims.

**5.07 Properties, Contracts, and Other Data.** APS shall deliver the following information to PacifiCorp as soon as reasonably possible, but in no event later than November 1, 1990:

(a) **Real Property.** A description of each parcel of real property included in the Assets.

(b) **Equipment Leases.** A list and copy of all leases by which APS is a lessee or lessor of personal property relating to the ownership or operation of the Assets.

(c) **Contracts.** A list and copy of all contracts to which APS is a party related to the ownership or operation of the Assets.

(d) **Litigation.** A list and description of all pending or, to the knowledge of APS, threatened suits, actions, arbitrations, claims, administrative proceedings, or other proceedings or governmental investigations related to the

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Assets to which APS is or may be made a party, or to which any of the Assets is or may be made subject.

(e) Water Rights. Documentation of all water rights applicable to the operation of the Assets.

(f) Easements and Rights-of-Way. A description of, or copies of, all easements and rights-of-way by which any of the Assets are affected or which provide access to or across any of the Assets.

(g) Personal Property. A description of all tangible personal property not affixed to Unit 4 which is owned by APS which is included in the Assets as may have an individual value of \$100,000 or more.

(h) Licenses, Permits, Authorizations, etc. A description of all approvals, permits, authorizations, consents, licenses, orders, and restrictions (other than restrictions contained in applicable laws and regulations of any governmental agency, whether federal, state, or local) relating to the Assets.

5.08 Marketable Title to Assets. At Closing, APS shall deliver to PacifiCorp good and marketable title to all the Assets, whether real, personal, mixed, tangible or intangible, subject to no security interest, lien, or encumbrance, except for Permitted Liens.

6. Covenants of PacifiCorp. PacifiCorp covenants and agrees as follows:

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**6.01 Conditions and Best Efforts.** PacifiCorp shall use its best efforts to effectuate the transactions contemplated by this Agreement and to fulfill all of the conditions of the Parties' obligations under this Agreement and shall do all such acts and things as reasonably may be required to carry out PacifiCorp's obligations hereunder and to consummate and complete this Agreement, including without limitation of the foregoing, promptly making application for Necessary Regulatory Approvals. Prior to filing applications, prefiled testimony or responses to data requests in the course of obtaining Necessary Regulatory Approvals, PacifiCorp shall provide such materials to APS for its information.

**6.02 Confidentiality.** All material nonpublic information requested and obtained by PacifiCorp from APS shall be used by PacifiCorp solely for the purposes of evaluation of the transaction contemplated by this Agreement. PacifiCorp shall use its best efforts to assure that such information will be kept confidential and will not be made available to any person, other than those of its employees, agents, and advisors involved in evaluating the transactions, without APS' prior consent. If this Agreement should terminate without being performed, then PacifiCorp shall either promptly destroy or return to APS all of such nonpublic information.

**6.03 Authorization by Board of Directors.**  
PacifiCorp shall cause a meeting of its Board of Directors or

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the Executive Committee of its Board of Directors to be duly called and held as soon as reasonably practicable for the purpose of voting on the transactions contemplated by this Agreement and the Other Agreements. If the transactions are disapproved at such meeting of the PacifiCorp Board of Directors or the Executive Committee of its Board of Directors, this Agreement shall terminate without the need for further action by either Party and shall be of no further force or effect.

**6.04 Assumption of Certain Liabilities.** In addition to the liabilities assumed by PacifiCorp pursuant to Subsection 6.05 or the Other Agreements, PacifiCorp agrees to assume losses, debts, liabilities and obligations of every kind and nature whatsoever (whether arising from contract, tort, or otherwise) (a) accruing after the Closing with respect to the Assets and (b) arising after Closing under any contract, permit, authorization, lease, water right, easement, and right-of-way assigned to PacifiCorp pursuant to Subsection 2.02 hereof.

**6.05 General Electric Agreement.** PacifiCorp acknowledges that, for Federal income tax purposes, it is acquiring the rights and interests of APS as the "Property Owner" in the General Electric Agreement and in that portion of the Assets constituting the "Property" under such Agreement subject to the rights and interest of the General Electric

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Company (or its successor and assign) as "Tax Lessor" under such Agreement, the consequences of which acquisition shall be governed by 26 Code of Federal Regulations, Section 5c.168(f)(8)-2(a)(7). PacifiCorp assumes and covenants and agrees to hold APS harmless with respect to the obligations of the "Property Owner" under the General Electric Agreement, including specifically, but without limiting the foregoing, the covenants, representations, agreements, and undertakings set forth in Section 3(f) through 3(m), inclusive; Section 3(o); Sections 5, 6, 8; and Sections 11(a) and (d) of such Agreement. PacifiCorp further acknowledges, covenants, and agrees that, for purposes of the General Electric Agreement, it is assuming APS' interest as the "Property Owner" in such Agreement with respect to the "Property," including the "Deemed Lease" and the deemed "Installment Loan Payments," without relieving APS of any of its obligations to the General Electric Company (or its successor or assign) as "Tax Lessor" under such Agreement; and that PacifiCorp will furnish a written consent and will file a statement and will provide to the General Electric Company sufficient information for it to file a statement, in both cases, at the time and in the manner provided in 26 Code of Federal Regulations, Section 5c.168(f)(8)-2(a)(5) and will take all necessary steps and will provide any additional information that General Electric Company may require so that it can take all necessary steps in order to preserve the benefits of the

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General Electric Company (or its successor or assign) as "Tax Lessor" under the General Electric Agreement.

7. Conditions Precedent to APS' Obligations. All of the obligations of APS to be discharged prior to or at Closing are subject to the fulfillment, prior to or at Closing, of each of the following conditions:

7.01 Board of Directors' Authorization. The performance of the transactions provided for in this Agreement and the Other Agreements shall have been duly authorized by the PacifiCorp Board of Directors or the Executive Committee of PacifiCorp's Board of Directors under delegated authority.

7.02 Representations, Warranties, and Covenants of PacifiCorp. All representations and warranties made in this Agreement by PacifiCorp shall be true as of the Closing Date as fully as though such representations and warranties had been made on and as of the Closing Date, and as of the Closing Date, PacifiCorp shall have complied in all material respects with all covenants made by it in this Agreement.

7.03 Opinion of Counsel for PacifiCorp. PacifiCorp shall have furnished APS with an opinion of Stoel Rives Boley Jones & Grey, counsel for PacifiCorp, dated the Closing Date, in form and substance satisfactory to APS' counsel, Snell & Wilmer, to the effect that:

(a) PacifiCorp is an Oregon corporation duly organized and existing under the laws of the State of Oregon;

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(b) PacifiCorp has all requisite corporate power and authority to enter into this Agreement and perform its obligations hereunder;

(c) The execution, delivery and performance of this Agreement have been duly authorized by all necessary corporate action;

(d) This Agreement has been duly and validly executed and delivered by PacifiCorp and constitutes a valid and legally binding agreement enforceable against PacifiCorp in accordance with its terms (except as the foregoing may be limited by (a) bankruptcy, insolvency or similar laws affecting creditors' rights generally and (b) equitable principles of general applicability).

7.04 Necessary Regulatory Approvals. Necessary Regulatory Approvals shall have been obtained and be in effect at the Closing Date without required material changes to this Agreement or the Other Agreements or conditions to regulatory approval which are materially adverse to APS. Provisions of regulatory orders establishing the accounting or ratemaking treatment of any gain arising from the transactions provided for in this Agreement or the Other Agreements shall not excuse APS from Closing.

7.05 Litigation. At the Closing Date, there shall not be in effect any order, decree, or injunction of a court of competent jurisdiction restraining, enjoining, or prohibiting

the consummation of the transactions contemplated by this Agreement or the Other Agreements (each Party agreeing to use its best efforts, including appeals to higher courts, to have any such order, decree or injunction set aside or lifted), and no action shall have been taken, and no statute, rule, or regulation shall have been enacted, by any state or federal government or governmental agency in the United States which would prevent the consummation of such transactions.

8. Conditions Precedent to PacifiCorp's Obligations.

All of the obligations of PacifiCorp to be discharged prior to or at the Closing are subject to the fulfillment, prior to or at the Closing, of each of the following conditions:

8.01 Board of Directors' Authorization. The performance of the transactions provided for in this Agreement and the Other Agreements shall have been duly authorized by the APS Board of Directors.

8.02 Representations, Warranties, and Covenants of APS. All representations and warranties made in this Agreement by APS shall be true as of the Closing Date as fully as though such representations and warranties had been made on and as of the Closing Date, except for representations and warranties specifically referring to another date, and as of the Closing Date APS shall have complied in all material respects with all covenants made by it in this Agreement.

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**8.03 Third Party Consents.** APS shall have obtained (a) the release of the Assets from the APS Mortgage, (b) the agreement by General Electric Company to file the appropriate statement with respect to the assumption by PacifiCorp of the interests of APS under the General Electric Agreement and (c) the written consent of third parties, including government agencies, in form and substance satisfactory to PacifiCorp and its counsel, to APS' assignment to PacifiCorp of any of the contracts, permits, licenses, easements, rights-of-way and authorizations used and useful to PacifiCorp's ownership or operation of the Assets which cannot be transferred or assigned without the consent of such parties.

**8.04 Necessary Regulatory Approvals.** Necessary Regulatory Approvals shall have been obtained and be in effect at the Closing Date without required material changes to this Agreement or the Other Agreements or conditions to approval which are materially adverse to PacifiCorp.

**8.05 Title.** PacifiCorp shall have received commitment for title insurance reports issued by title insurance companies acceptable to PacifiCorp disclosing that title to each parcel of real property included in the Assets is marketable, subject only to Permitted Liens and such other matters as shall have been approved by PacifiCorp. APS shall not be required to provide title insurance to PacifiCorp with respect to this transaction, and the costs of the title

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insurance commitment reports shall be borne equally by APS and PacifiCorp.

**8.06 Opinion of Counsel for APS.** APS shall have furnished PacifiCorp with an opinion of Snell & Wilmer, counsel for APS, dated the Closing Date, in form and substance satisfactory to PacifiCorp's counsel, Stoel Rives Boley Jones & Grey to the effect that:

(a) APS is an Arizona corporation, duly organized and existing under the laws of the State of Arizona.

(b) APS has all requisite corporate power and authority to own, operate, and lease its properties, and to carry on its business as now being conducted.

(c) The execution, delivery and performance of this Agreement by APS have been duly authorized by all necessary corporate action, and to the best knowledge of Snell & Wilmer after due inquiry, all consents and approvals required under any indenture, mortgage, deed of trust, loan agreement, debt instrument, direct or indirect guarantee or agreement, to which APS or Pinnacle is a party or by which either of them is bound or to which the Assets are subject for APS to consummate the transactions contemplated by this Agreement and the Other Agreements have been obtained, other than those which, if not obtained, would not, in the aggregate, have a material adverse effect on such transactions; in rendering such opinion Snell & Wilmer may rely as to matters of fact upon certificates of

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officials of APS, provided that the extent of such reliance is set forth in such opinion.

(d) The Agreement has been duly and validly executed and delivered by APS and constitutes a valid and legally binding agreement enforceable against APS in accordance with its terms (except as the foregoing may be limited by (i) general principles of equity; (ii) bankruptcy, insolvency, reorganization, arrangement, moratorium, or other laws or equitable principles relating to or affecting the enforcement of creditors' rights generally; and (iii) the qualification that certain waivers, procedures, remedies, and other provisions of the Agreement may be unenforceable under or limited by the law of the State of Arizona; however, such law does not in Snell & Wilmer's opinion prevent the practical realization of the benefits intended by the Agreement). Notwithstanding the foregoing, Snell & Wilmer need not express any opinion regarding (x) the merits or ultimate outcome of any lawsuit seeking to rescind or enjoin, or otherwise challenging the transactions contemplated by the Agreement or (y) the waiver of partitionment referenced in Subsection 20.05 or (z) the enforceability of provisions dependent upon agreements to be entered into by the Parties after the Closing.

8.07 Litigation. At the Closing Date, there shall not be in effect any order, decree, or injunction of a court of competent jurisdiction restraining, enjoining, or prohibiting

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the consummation of the transactions contemplated by this Agreement or the Other Agreements (each Party agreeing to use its best efforts, including appeals to higher courts, to have any such order, decree or injunction set aside or lifted), and no action shall have been taken, and no statute, rule, or regulation shall have been enacted, by any state or federal government or governmental agency in the United States which would prevent the consummation of such transactions.

9. Closing.

9.01 Time and Place. The Closing of the transactions contemplated by this Agreement (the "Closing") shall take place at 10:00 a.m. on January 11, 1991, or if all of the conditions to the Parties' obligations to close have not been satisfied or waived by that date, on the fifth business day after all such conditions have been satisfied or waived, or on such other date as may be mutually agreed. However, if the Closing has not occurred by March 8, 1991, either Party may by written notice to the other terminate this Agreement without liability and this Agreement and the Other Agreements shall thereafter be of no further force or effect; provided, however, that a Party may not so terminate this Agreement at any time during which it is in material default of any of its representations, warranties, covenants, or agreements hereunder. The Closing shall be held at the offices of Snell & Wilmer, Suite

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3100 Valley Center Building, Phoenix, Arizona, or at such other place as the Parties may mutually agree.

9.02 Further Assurances. From time to time after the Closing, each Party, upon the request of the Other Party, shall without further consideration execute, deliver, and acknowledge all such further instruments of transfer and conveyance and do and perform all such other acts and things as either Party may reasonably require to more effectively carry out the intent of this Agreement.

10. Survival of Warranties, Indemnities, Etc.

10.01 Representations, Warranties, and Covenants of the Parties to Be Continuing. All representations, warranties, covenants and indemnification of the Parties, and all liability therefor, shall survive the Closing and any investigations made by or on behalf of the Parties for a period of six years .

10.02 Indemnification by APS. APS shall indemnify, defend, and hold harmless PacifiCorp and its successors and assigns from and against any claim, demand, obligation, liability, loss, cost, damage, or expense, including interest, penalties, and reasonable attorneys' fees caused by or arising out of:

(a) Any debt, liability, obligation, or lien of APS with respect to any or all of the Assets except for Permitted Liens and the liabilities assumed by PacifiCorp under this Agreement or the Other Agreements.

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(b) Any breach or default in the performance by APS of any covenant or agreement of APS contained in this Agreement;

(c) Any breach of warranty or inaccurate or erroneous representation made by APS herein or in any schedule or exhibit hereto, or in any certificate or other instrument delivered by or on behalf of APS pursuant hereto;

(d) Any negligent act of any APS agent or employee in connection with the performance of this Agreement, or

(e) Any liability arising out of any and all actions, suits, proceedings, claims, demands, judgments, costs, and expenses incident to any of the foregoing.

PacifiCorp's damages for a breach of a representation or warranty by APS of which PacifiCorp has notice prior to Closing and which is not remedied by APS pursuant to Subsection 5.04, shall be limited to \$10 million.

PacifiCorp and its successors and assigns shall promptly notify APS of any matter arising under the foregoing indemnification provision. APS may contest and defend in good faith any claim of third parties covered by this Subsection, provided such contest is made without cost or prejudice to PacifiCorp, and provided that within ten days of APS' receipt of notice of such claim, APS notifies PacifiCorp of its desire to defend and contest such claim.

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If APS does not notify PacifiCorp of its desire to contest the claim, APS shall reimburse PacifiCorp on demand for any payment actually made by PacifiCorp at any time after the Closing Date with respect to any claim, demand, obligation, liability, loss, cost, damage or expense to which the foregoing indemnity relates.

**10.03 Indemnification by PacifiCorp.** PacifiCorp shall indemnify and hold harmless APS and its successors and assigns from and against any claim, demand, obligation, liability, loss, cost, damage, or expense, including interest, penalties, and reasonable attorneys' fees caused by or arising out of:

(a) The liabilities assumed by PacifiCorp under this Agreement or the Other Agreements;

(b) Any breach or default in the performance by PacifiCorp of any covenant or agreement of PacifiCorp contained in this Agreement;

(c) Any breach of warranty or inaccurate or erroneous representation made by PacifiCorp herein or in any schedule or exhibit hereto, or in any certificate or other instrument delivered by or on behalf of PacifiCorp pursuant hereto;

(d) Any negligent act of any PacifiCorp agent or employee in connection with the performance of this Agreement; or

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(e) Any liability arising out of any and all actions, suits, proceedings, claims, demands, judgments, costs, and expenses incident to any of the foregoing.

APS and its successors and assigns shall promptly notify PacifiCorp of any such matter arising under the foregoing indemnification provision. PacifiCorp may contest and defend in good faith any claim of third parties covered by this Subsection, provided such contest is made without cost or prejudice to APS, and provided that within ten days of APS' receipt of notice of such claim, PacifiCorp notifies APS of its desire to defend and contest such claim.

If PacifiCorp does not notify APS of its desire to contest the claim, PacifiCorp shall reimburse APS on demand for any payment actually made by APS at any time after the Closing Date with respect to any claims, demand, obligation, liability, loss, cost, damage or expense to which the foregoing indemnity relates.

**11. PacifiCorp Use of Existing Combustion Turbines.**

11.01 Subject to the other provisions of this Section 11, during the Term of this Agreement, PacifiCorp shall have the right to cause APS to operate up to 200 MW of the Existing Combustion Turbines to generate electrical power on PacifiCorp's behalf.

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**11.02 PacifiCorp's right to the output of the Existing Combustion Turbines shall be secondary to APS' use of the Combustion Turbines for the following purposes:**

**(a) Present and future service to APS' retail customers, including interruptible customers (including associated spinning and ready reserves).**

**(b) Service under existing and amended APS firm wholesale and nonfirm wholesale partial and full requirements contracts (including associated spinning and ready reserves).**

**(c) Service under future APS firm and nonfirm wholesale power contracts with customers principally located in Arizona who have total system loads of less than 300 MW (including associated spinning and ready reserves).**

**(d) Service under the Inland Power Pool Agreement, Service Schedule B (Emergency Assistance) in any hours of which deliveries of such emergency assistance have already commenced. Priority of any individual transaction under such service shall not extend beyond three consecutive days.**

**11.03 APS shall retain day-to-day operational control of the Existing Combustion Turbines and local transmission and keep all operating permits in place. APS shall operate and maintain the Existing Combustion Turbines and local transmission consistent with Prudent Utility Practice as related to APS' system needs and shall use its best efforts to assure that such combustion turbines are available for PacifiCorp's use. However, APS does not warrant that such combustion turbines and local transmission will be operational when needed**

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by PacifiCorp. If the Existing Combustion Turbines suffer sufficient wear or obsolescence so that they cannot be kept in good working order at a reasonable cost, at the discretion of APS, they may be retired from service.

11.04 To the extent it makes use of the Existing Combustion Turbines, PacifiCorp shall reimburse APS for the CT Incremental Cost associated with PacifiCorp's use of such combustion turbines. In accordance with the methodology established in Exhibit 1.09, such CT Incremental Cost shall be established by the APS dispatcher or scheduler at the time of the schedule request. APS' dispatcher or scheduler shall use best efforts to utilize the lowest incremental cost fuel and resource then available among the Existing Combustion Turbines to produce such power for PacifiCorp.

11.05 PacifiCorp shall make use of combustion turbine capacity available to it as a result of Sections 12 and 13 before making use of its rights under this Section 11.

**12. Installation of PacifiCorp Combustion Turbines.**

12.01 APS shall install combustion turbines (of a design and type and meeting other reasonable criteria and conditions specified in writing by PacifiCorp within six months after Closing) with capacity of 150 MW at Viable Sites and shall use its best efforts to complete installation of such turbines by December 31, 1996. Such new combustion turbines and related real property shall be owned by PacifiCorp, and, as provided for

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in Subsection 18.04, PacifiCorp shall pay all reasonable costs including all capital and operating, fuel and maintenance costs associated with such combustion turbines and transmission facilities necessary to integrate such combustion turbines with APS' existing high-voltage transmission system. PacifiCorp shall advance capital costs to APS as needed in response to APS' requests for funds in order that APS will not be required to advance such funds on behalf of PacifiCorp.

12.02 Combustion turbines and transmission facilities constructed pursuant to Subsection 12.01 shall be operated and maintained by APS in accordance with Prudent Utility Practice and in consultation with PacifiCorp. APS shall use its best efforts to assure that such combustion turbines will be available for PacifiCorp's use but APS shall not warrant that such combustion turbines will be operational when needed by PacifiCorp.

12.03 Combustion turbines installed pursuant to Subsection 12.01 which are not being operated on PacifiCorp's behalf, shall be available for operation on behalf of APS and APS shall reimburse PacifiCorp for the CT Incremental Cost associated with such use in accordance with the methodology established in Exhibit 1.09.

12.04 Within 30 days after the date of commercial operation of the combustion turbines pursuant to Subsection 12.01, PacifiCorp shall pay APS \$20 million in consideration of

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the rights and services provided pursuant to this Section 12, in addition to the costs payable pursuant to Subsection 12.01.

**13. Joint Development of Additional Combustion Turbines and Sharing of Unused Cholla Capacity.**

13.01 Subject to Subsection 18.04, during the Term of this Agreement PacifiCorp shall have the right to participate as owner of up to a 50 percent share of additional combustion turbines that APS elects to install in Arizona. PacifiCorp may obtain such rights until such time as it has ownership of 300 MW of such combustion turbine capacity.

13.02 APS shall give PacifiCorp written notice of its intent to install additional combustion turbines in Arizona at least 52 months prior to their proposed in-service date and PacifiCorp shall give APS written notice of its intent to participate at least 48 months prior to the proposed in-service date.

13.03 APS shall be responsible for the operation and maintenance of combustion turbines installed pursuant to this Section 13 in accordance with Prudent Utility Practice and shall consult with PacifiCorp regarding the operation and maintenance of combustion turbines in which PacifiCorp has an ownership interest. APS shall use its best efforts to maintain the availability of combustion turbines in which PacifiCorp has an ownership interest, but shall not warrant that such combustion turbines will be operational when required by PacifiCorp.

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13.04 Subject to Subsection 18.05 and to system limitations, APS shall provide PacifiCorp with firm transmission for the output of combustion turbines acquired by PacifiCorp pursuant to this Section 13 to PacifiCorp's system and PacifiCorp shall pay APS for such transmission based upon an APS system firm transmission rate of general applicability.

13.05 PacifiCorp and APS shall have a reciprocal right to the use of each other's unused capacity in jointly-owned combustion turbines installed pursuant to this Section 13 and shall provide reimbursement for the CT Incremental Cost associated with such use in accordance with the methodology established in Exhibit 1.09. Subject to Subsection 18.05, APS shall provide PacifiCorp nonfirm transmission rights to PacifiCorp's system to the extent PacifiCorp makes use of APS' unused combustion turbine capacity pursuant to this Subsection and PacifiCorp shall pay APS for such transmission based upon an APS nonfirm transmission rate of general applicability.

13.06 To the extent Unit 4 is not being operated on PacifiCorp's behalf, or reserved for purposes of maintaining regulating margin or spinning reserves, any unused generating capability (the extent of which capability shall be determined by PacifiCorp in its sole discretion) shall be made available to APS; however, APS shall not use such unused generating capability to supply Supplemental Energy under the Power Agreement. If APS elects to use such generating capability, APS shall pay

the Incremental Cost of such generation as established pursuant to Appendix E of the Power Agreement. Unused generating capability from Cholla Units 1, 2 and 3 (the extent of which capability shall be determined by APS in its sole discretion) shall be made available to PacifiCorp by APS on the same basis; however, PacifiCorp shall not use such unused generating capability in an hour for which it has declined to purchase Supplemental Energy under the Power Agreement.

14. Scheduling of Combustion Turbines. PacifiCorp and APS shall preschedule their respective proposed use of combustion turbines pursuant to Sections 11, 12 and 13 and Cholla units pursuant to Subsection 13.06 by 1000 hours MST on each work day observed by both Parties immediately preceding the day(s) of proposed use of such combustion turbines. The CT Incremental Cost or the Incremental Cost, as the case may be, shall be established at the time of the schedule request. PacifiCorp and APS may make changes in such preschedules to reflect actual system conditions, but shall endeavor to afford each other as much advance notice as practicable of any such changes, recognizing that the use of combustion turbines may be required on an emergency basis.

15. Transmission.

15.01 In addition to the transmission rights provided for in Section 13, during the Term of this Agreement, PacifiCorp shall have a firm right to schedule a net of 350 MW

of power at (a) Navajo/Four Corners (the split to be determined by APS), (b) the Cholla Generating Station switchyard, (c) the Existing Combustion Turbines, (d) Combustion Turbines installed pursuant to Section 12 and (e) Palo Verde/Westwing, subject to the limitations set forth in Subsection 15.02.

15.02 PacifiCorp's transfer rights shall be subject to Subsection 15.03 and shall be limited as follows:

(a) Except as further limited by paragraphs (b), (c) and (d), PacifiCorp may not make a transmission request which, in and of itself, (1) results in a net schedule of more than 350 MW or (2) results in total exports from APS' control area of more than 350 MW. PacifiCorp's net schedule shall be calculated as the algebraic sum of transfers into APS' control area and PacifiCorp generation internal to APS' control area (counted as positive values) and transfers out of APS' control area (counted as negative values).

(b) PacifiCorp shall not have the right to schedule a net of more than 100 MW at Navajo.

(c) When the output of Unit 4 is reduced below 150 MW for any reason, PacifiCorp's right to schedule deliveries to Palo Verde from Navajo/Four Corners shall be reduced megawatt-for-megawatt to the extent Unit 4 output is reduced below 150 MW.

(d) Transfers of power and energy under this Section 15 shall not include Firm Capacity acquired by APS from

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**PacifiCorp under the Power Agreement and delivered by PacifiCorp at Navajo/Four Corners.**

**15.03 Prior to November 1, 1996, at any time when any unit of Palo Verde is not operating during the months of May through October, APS shall have a right to schedule up to 175 MW of power into its system at Navajo/Four Corners, and such schedule shall have priority over PacifiCorp's transfer rights pursuant to Subsection 15.01 to the extent APS is otherwise unable to transfer 175 MW of Palo Verde replacement power into its system from Navajo/Four Corners. Such 175 MW priority shall be over and above the transfer capability south from Navajo/Four Corners required by APS in connection with firm transfer requirements existing as of the date of this Agreement associated with installed capacity and firm power contracts. To the extent APS is using its 175 MW priority right to transfer Palo Verde replacement power into its system, PacifiCorp shall provide an additional point of delivery for up to 175 MW of Firm Capacity under the Power Agreement at the Cholla Generating Station 500 kV switchyard (to the extent there is available Cholla Unit 4 generating capacity in excess of 200 MW). This additional point of delivery shall diminish megawatt-for-megawatt to the extent APS' 175 MW priority is not used for transfer of Palo Verde replacement power.**

**Subsequent to November 1, 1996 and for the balance of the Term of the Power Agreement, APS' 175 MW priority transfer**

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right and potential deliveries of Firm Capacity or Exchange Capacity pursuant to the Power Agreement at the Cholla Generating Station 500 kV switchyard, as described above, shall be reduced megawatt-for-megawatt as Firm Capacity or Exchange Capacity under the Power Agreement is increased above 175 MW; provided, however this shall not affect APS' delivery rights pursuant to Subsection 7.5 of the Power Agreement. APS' 175 MW priority right shall terminate when a Meade-Phoenix line is in service.

15.04 PacifiCorp shall preschedule its transmission requirements no later than 1200 hours MST on each work day observed by both Parties immediately preceding the day(s) of delivery, or as otherwise mutually agreed by the Parties' dispatchers or schedulers. APS shall deliver in accordance with PacifiCorp's preschedules which comply with the provisions of Subsections 15.01, 15.02 and 15.03. All deliveries shall be deemed to be made during the hours and in the amounts as accounted for in the APS and PacifiCorp system logs. However, if scheduled deliveries are interrupted due to an Uncontrollable Force as defined in Section 17 or in accordance with Subsection 15.05, such schedules shall be adjusted to reflect such interruption.

15.05 In the event it is necessary to curtail transmission service to PacifiCorp under this Section 15 because, in APS' discretion, consistent with Prudent Utility

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Practice, the transmission system over which PacifiCorp is being provided transmission service is in jeopardy, APS and PacifiCorp shall first proportionately curtail nonfirm transactions that would mitigate such jeopardy and then shall reduce firm transactions proportionately to a level that removes such jeopardy to APS' transmission system. Prior to any curtailments, APS, if possible, shall notify PacifiCorp and to the extent practicable, PacifiCorp shall operate the phase-shifting transformers in which it has rights in such a manner to mitigate the need for schedule curtailment. PacifiCorp shall not be required to curtail its firm transfers in order to protect APS transactions entered into after the Closing Date which are unrelated to now-existing firm power contracts and installed capacity or the replacement thereof.

16. Prepaid Availability and Transmission Charge. The Parties have agreed to use best efforts to develop certain transmission facilities in the Transmission Agreement. At the time of the installation of the first tower which is part of the construction of additional transmission facilities that will afford PacifiCorp at least 150 MW of additional firm transfer capability as set forth in Section 7.01 of the Transmission Agreement, PacifiCorp shall pay APS \$9.5 million. PacifiCorp shall pay APS an additional \$9.5 million upon the commercial operation of such facilities as an availability and transmission charge.

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17. Uncontrollable Force. Neither Party to this Agreement shall be considered to be in default in the performance of any obligation hereunder if failure to perform shall be due to an Uncontrollable Force. The term "Uncontrollable Force" means any cause beyond the control of the Party affected, including, but not limited to, threat of failure of facilities, failure of facilities, flood, earthquake, storm, fire, lightning, epidemic, war, riot, civil disturbance, labor disturbance, sabotage, restraint by court order or public authority, which by exercise of due foresight, such Party could not reasonably have been expected to avoid, and which by exercise of due diligence would not be able to overcome. The Parties shall not, however, be relieved of liability for failure of performance if such failure is due to causes arising out of removable or remediable causes which it fails to remove or remedy with reasonable dispatch. Any Party rendered unable to fulfill any obligation by reason of an Uncontrollable Force shall exercise due diligence to remove such inability with all reasonable dispatch. Nothing contained herein, however, shall be construed to require a Party to prevent or settle a strike against its will.

18. Billing and Payment.

18.01 APS shall bill PacifiCorp by the fifteenth day of each month, by regular mail, for all CT Incremental Costs associated with PacifiCorp's use of APS' Existing Combustion Turbines incurred by PacifiCorp pursuant to Sections 11 and 13

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and Cholla Units 1, 2 and 3 Incremental Cost amounts pursuant to Subsection 13.06. Invoices shall be based upon the CT Incremental Cost and/or the Incremental Cost as established by the Parties prior to delivery. PacifiCorp shall pay such invoices within fifteen days of receipt by wire transfer. Simple interest shall accrue on any amount not paid when due at a rate of 125 percent of the prime rate as established by the Morgan Guaranty Trust Company of New York during the period of delinquency.

18.02 APS shall net against any amounts invoiced pursuant to Subsection 18.01 any CT Incremental Cost amounts owing to PacifiCorp by APS for APS' use of PacifiCorp's combustion turbines pursuant to Subsections 12.03 and 13.05 and any Incremental Cost amounts owing to PacifiCorp for APS' use of PacifiCorp's Cholla Unit 4 pursuant to Subsection 13.06.

18.03 For a period of 18 months following the receipt of each invoice from APS pursuant to Subsection 18.01, PacifiCorp shall have the right from time to time to audit records and workpapers supporting the invoice by providing reasonable advance notice to APS of its intent to do so. If PacifiCorp's audit suggests to PacifiCorp that an adjustment to any invoice is appropriate, the Parties shall attempt to negotiate a billing adjustment and failing that shall arbitrate the matter pursuant to Section 19. Any billing adjustment in PacifiCorp's favor shall bear simple interest at the rate

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described in Subsection 18.01 from the date the original invoice was first paid by PacifiCorp.

18.04 Procedures and methods for payment of capital and operating costs associated with combustion turbines installed on PacifiCorp's behalf pursuant to Sections 12 and 13 shall be established in separate combustion turbine installation agreements that shall be negotiated in good faith by the Parties as required.

18.05. The provision of transmission services, the establishment of points of delivery and the payment of transmission charges pursuant to Subsections 13.04 and 13.05 shall be provided for in separate transmission service agreements that shall be negotiated in good faith by the Parties as required.

19. Arbitration.

19.01 Except in regard to claims arising under Sections 9 or 10, if any dispute arises under this Agreement, the Parties shall arbitrate the matter before an arbitrator who is an attorney or engineer familiar with contracts governing the operation of electrical systems. Any arbitration shall be commenced within a year of when a dispute arises and shall be commenced by either Party submitting to the other a Notice of Arbitration. The Parties shall have 30 days following the submittal of a Notice of Arbitration by either Party to attempt to mutually agree upon an arbitrator. If the Parties are unable to agree on an arbitrator within that time, either Party may

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request that a judge of the United States Court of Appeals for the Ninth Circuit designate an arbitrator.

19.02 The arbitrator shall have discretion to establish a schedule and procedure for the arbitration and may conduct the arbitration based upon written submittals. The arbitrator may afford the Parties any or all of the discovery rights provided for in the Federal Rules of Civil Procedure.

19.03 At the commencement of the arbitration hearing, each Party shall submit a proposed Arbitration Award and the arbitrator shall be required to adopt in full the proposed Arbitration Award of one of the Parties and the Arbitration Award selected shall be final and binding on the Parties.

19.04 The Party whose proposed Arbitration Award is not selected shall pay all the costs of the arbitration, including the costs and the attorneys' fees of the prevailing Party.

20. Assignment.

20.01 Either Party may assign any interest in this Agreement to any mortgagee, trustee or secured party as security for the bonds or other indebtedness of such Party, present or future.

20.02 Either Party may assign all its rights under this Agreement to any corporation acquiring all or substantially

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all of the property of such Party or to any corporation into which such Party is merged or consolidated.

20.03 Except as provided for in Subsections 20.01 and 20.02, this Agreement shall not be assigned to any third party without the written consent of the other and such consent shall not be unreasonably withheld. Each Party shall provide the other a right of first refusal, on reasonable terms and conditions to be agreed upon, in regard to any proposed sale of its respective interest in Units 2 and 3 or Unit 4.

20.04 No assignment of this Agreement shall operate to discharge the assignor of any duty or obligation hereunder without the written consent of the other Party.

20.05 Upon acquisition of title to the Assets by PacifiCorp, the Assets will become subject to the Lien of PacifiCorp's Mortgage and Deed of Trust to Morgan Guaranty Trust Company of New York, dated January 9, 1989. To comply with the terms and conditions thereof, the parties agree (and all conveyances of the Assets to PacifiCorp will recite) that:

So long as the Assets or any part thereof as originally constructed, reconstructed or added to are used or useful for the generation of electric power and energy, or to the end of the period permitted by applicable law, whichever first occurs, the parties waive the right to partition whether by partitionment in kind or sale and division of the proceeds thereof and agree that they will not resort to any action at law or in equity to partition, and further waive the benefit of all laws that may now or hereafter authorize such

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partition of the properties comprising the  
Assets.

**21. Miscellaneous.**

**21.01 Amendment.** This Agreement may be amended only by an instrument in writing executed by the Parties which expressly refers to this Agreement and states that it is an amendment hereto.

**21.02 Section and Paragraph Headings.** The section and paragraph headings contained in this Agreement are for reference purposes only and shall not in any way affect the meaning or interpretation of this Agreement.

**21.03 Waiver.** Any of the terms or conditions of this Agreement may be waived at any time and from time to time, in writing, by the Party entitled to the benefit of such terms or conditions.

**21.04 Choice of Law.** This Agreement shall be subject to and be construed under the laws of the State of Arizona.

**21.05 Notices Prior to Closing.** Prior to Closing, all notices, requests, demands, and other communications given by APS or PacifiCorp shall be in writing and shall be deemed to have been duly given when faxed, when delivered personally in writing or when deposited into the United States mail, to the following addresses:

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Glen Canyon Solar 1.12

Attachment Glen Canyon Solar 1.12

Parties hereto, and supersedes all prior agreements and understandings, oral and written, among the Parties hereto with respect to the subject matter hereof.

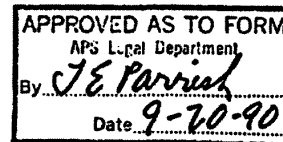
IN WITNESS WHEREOF, the Parties have signed this Agreement as of the date first above written.

PacifiCorp Electric Operations

By *[Signature]*  
Title: President

Arizona Public Service Company

By *[Signature]*  
Title: Chairman



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Glen Canyon Solar 1.12

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If to APS, to: Arizona Public Service Company  
ATTENTION Russell D. Hulse  
P.O. Box 53999, Station 9078  
Phoenix, AZ 85072-3999

With a copy to: Arizona Public Service Company  
ATTENTION Thomas E. Parrish  
P.O. Box 53999, Station 9820  
Phoenix, AZ 85072-3999

If to PacifiCorp, to: PacifiCorp Electric Operations  
ATTENTION Dennis P. Steinberg  
700 NE Multnomah Street  
Portland, OR 97232

With a copy to: Stoel Rives Boley Jones & Grey  
ATTENTION George M. Galloway  
900 SW Fifth Avenue, Suite 2300  
Portland, OR 97204

or to such other address as APS or PacifiCorp may designate in writing.

**21.06 Notices Subsequent to Closing.** All notices, requests, demands and other communications given by APS or PacifiCorp subsequent to Closing shall be deemed to have been duly given when faxed, when delivered personally in writing or when deposited into the United States mail, to the following addresses:

To APS: Arizona Public Service Company  
Corporate Secretary  
P.O. Box 53999  
Phoenix, AZ 85072-3999

To PacifiCorp: PacifiCorp Electric Operations  
Vice President, Power Systems  
920 S.W. Sixth Avenue  
Portland, OR 97204-1236

**21.07 Integrated Agreement.** This Agreement and the Other Agreements constitute the entire agreement between the

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## **ASSET PURCHASE AND POWER EXCHANGE AGREEMENT**

### **Exhibit 1.08**

#### **DESCRIPTION OF COMMON FACILITIES**

1. **Well fields, piping including header in plant and well field transformer**
2. **Reverse osmosis unit, demineralizers and caustic acid/tanks**
3. **Fire protection equipment:**
  - Tanks**
  - Pumps**
  - Building**
  - Fire protection loop (excludes boilers)**
4. **Coal handling equipment:**
  - Railroad siding**
  - Railroad Loop**
  - Unloading facilities**
  - Control facilities**
  - Stack-out tower**
  - Reclaim system**
  - Crushers #1, 2 and 3**
  - Reversible belt**
  - Transport belts up to splitter gates at silos**
  - Coal handling switchgear building**
  - E & I shops for coal handling**
  - Coal pile lighting**
  - Belt scales**
  - Coal pile base**
5. **Fuel oil equipment:**
  - Fuel oil unloading**
  - Tank**
  - Pumps**
  - Loop header to Units 2, 3 and 4**
6. **Rolling stock diesel oil tank and pumps**

7. **Limestone system:**
  - Limestone unloading
  - Belts
  - Stack-out
  - Ball mill
  - Reagent feed tanks
  - Reagent feed pumps
  
8. **Bottom ash disposal system:**
  - Disposal sump
  - Disposal pumps
  - Piping to bottom ash pond
  - Bottom ash pond
  - Siphon reclaim line
  
9. **General water system:**
  - Sump
  - Transfer make up tank
  - Pumphouse
  - Pumps
  - Ash sluice pumps
  
10. **Economizer ash pumps (not piping)**
  
11. **Fly ash handling system:**
  - Fly ash silo & bag house
  - Slurry disposal tanks
  - Slurry disposal and flushing pumps
  - Slurry disposal building
  - Piping to fly ash pond
  - Fly ash pond
  
12. **Truck scales**
  
13. **Drainage system:**
  - Sumps
  - Pumps
  - Ditches
  - Storm water retention basin
  - Sedimentation pond
  - Oily water separators
  - Pumps and piping to bottom ash sump

14. **Sewage treatment system:**
  - Lift stations
  - Piping
  - Treated sewage pumps to sedimentation pond
  
15. **Miscellaneous buildings:**
  - Weld shop
  - Transformer oil storage tanks
  - Receiving warehouse
  - Operations relief offices/E & I shop
  - Vehicle maintenance building
  - Dozer maintenance shed
  - Storage sheds (metal clad)
  - Waste/Hazard oil storage area
  - Limestone switchgear building
  - Common switchgear building
  - Stand-by transformers
  - Water lab & equipment
  - Service building
  - Planning facility building
  - Labor pool building
  - Insulation shop
  - Paint shop
  - Locomotive maintenance building
  - Gas pumps
  - Lube oil storage building
  - Turbine building
  - Lube oil storage tank
  - Guardhouse
  - Issuing warehouse
  - Administration buildings
  - Maintenance tool building--turbine
  
16. **Parking lots**
  - 2 paved on east side
  - 1 dirt on west side
  
17. **Roads--nonunit specific**
  
18. **General area lighting**
  
19. **Cathodic protection**

20. **Rolling stock:**
  - 2 locomotives
  - 3 bulldozers
21. **Gantry cranes**
22. **Fencing**
23. **Phone system**
24. **Land (total plant, including well field)**
25. **Fossil Management Information System Computers**
26. **Office equipment**
27. **Lab, machine & shop equipment**
28. **Vehicles**

## **ASSET PURCHASE AND POWER EXCHANGE AGREEMENT**

### **Exhibit 1.09**

#### **CT INCREMENTAL COST**

This Exhibit sets forth the method for establishing the CT Incremental Cost (\$/MWh) associated with PacifiCorp's use of APS' Existing Combustion Turbines pursuant to Subsection 11.04 and in the future the CT Incremental Cost (\$/MWh) associated with both Parties reciprocal right to the use of each other's turbines when additional combustion turbines are installed pursuant to Subsections 12.03 and 13.05.

The CT Incremental Cost (\$/MWh) for PacifiCorp's use of the Existing Combustion Turbines shall equal the sum of (1) the deemed incremental operation and maintenance expense (\$/MWh) as determined in Section 1.0 below, and (2) the Incremental Fuel Cost (\$/MWh) as determined in Section 2.0 below, plus (3) if applicable, a CT start-up charge as determined in Section 3.0 below.

**1.0 Incremental Operating and Maintenance Expense.** For all energy PacifiCorp receives from the Existing Combustion Turbines pursuant to Subsection 11 of this Agreement, the incremental operation and maintenance expense shall be deemed to be \$3.00 per megawatt-hour; provided, that on January 1, 1992 and on each January 1 thereafter through the Term of this Agreement, such amount shall be adjusted in accordance with the percentage change in the GNP Price Deflator over the immediately preceding twelve month period.

**2.0 Incremental Fuel Cost.** The incremental fuel cost (\$/MWh) for all energy PacifiCorp receives from the Existing Combustion Turbines pursuant to Subsection 11 of this Agreement shall be determined by the APS dispatcher or scheduler based on his best effort forecast of the incremental natural gas or oil cost and incremental heat rate associated with the generating units that will produce such energy.

**3.0 CT Start-Up Charge.** In the event, solely due to PacifiCorp's request for energy from the Existing Combustion Turbines, APS is required to start-up a combustion turbine(s) PacifiCorp shall pay a start-up charge determined by the APS dispatcher or scheduler based upon his best-efforts forecast of the incremental cost of starting up and bringing such combustion turbine(s) to synchronous speed and minimum load. Such start-up costs would consist of start-up fuel and auxiliary electrical power and a forecast of such cost would be made available to PacifiCorp dispatchers for future reference in a form, as updated from time to time, similar to page 3 of this Exhibit.

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 Glen Canyon Solar 1.12

Attachment Glen Canyon Solar 1.12

**GAS/OIL COMBUSTION TURBINE UNITS - START-UP COST AND TIME**  
 (All Costs in 1990 \$)

	56	56	55	21	19	55	54
START-UP WITH GAS	WEST PEX	OCOTILLO	SAGUARO	DOUGLAS	YUCCA	YUCCA	YUCCA
START UP CRITERIA	UNITS 1&2	UNITS 1&2	UNITS 1&2	UNIT 1	UNITS 1&2	UNIT 3	UNIT 4
GAS MBTU PER START	115	115	115	-	5.7	14.8	-
GAS \$/MBTU	2.53	2.53	2.53	-	2.53	2.53	-
GAS \$/START	291	291	291	-	14	37	-
AUX M/H PER START	0.25	0.25	0.25	-	0.30	0.25	-
AUX M/H \$/M/H	13.78	13.78	13.78	-	13.78	13.78	-
AUX M/H \$/START	3	3	3	-	4	3	-
CHEN AND WATER \$/START	-	-	-	-	-	-	-
TOTAL \$/START	294	294	294	-	19	41	-
TIME REQD. PER START (HRS)	0.37	0.37	0.37	-	0.08	0.18	-

	WEST PEX	OCOTILLO	SAGUARO	DOUGLAS	YUCCA	YUCCA	YUCCA
START-UP WITH OIL	UNITS 1&2	UNITS 1&2	UNITS 1&2	UNIT 1	UNITS 1&2	UNIT 3	UNIT 4
OIL MBTU PER START	104.8	104.8	104.8	9.8	5.7	14.8	14.8
OIL \$/MBTU	4.18	4.18	4.18	4.18	4.18	4.18	4.18
OIL \$/START	438	438	438	24	24	62	62
AUX M/H PER START	0.3	0.3	0.3	0.3	0.3	0.25	0.18
AUX M/H \$/M/H	13.78	13.78	13.78	13.78	13.78	13.78	13.78
AUX M/H \$/START	4	4	4	4	4	3	2
CHEN AND WATER \$/START	-	-	-	-	-	-	-
TOTAL \$/START	442	442	442	28	28	65	64
TIME REQD. PER START (HRS)	0.37	0.37	0.37	0.20	0.08	0.18	0.13

Start-up is defined as the time from lite-off to MINIMUM LOAD.  
 Fuel costs are per the 1989 Long Range Fuel Forecast.  
 Chemical and water costs have been escalated to 1990 \$.  
 Auxiliary M/H cost (\$13.78/M/H) is the 1990 average fuel and incremental CEM expense per M/H per the 1989 LRF, dated 12/15/89.  
 Maintenance costs per start are included. These costs are captured in the Variable CEM calculation.

PPA - August 1990

**ASSET PURCHASE AND POWER EXCHANGE AGREEMENT**

**Exhibit 1.10**

**APS EXISTING COMBUSTION TURBINES**

<u>Unit</u>	<u>Megawatts</u>
Yucca CT 1	19
Yucca CT 2	19
Yucca CT 3	55
Yucca CT 4	54
Douglas CT 1	21
Saguaro CT 1	55
Saguaro CT 2	55
Ocotillo CT 1	56
Ocotillo CT 2	56
West Phoenix CT 1	56
West Phoenix CT 2	56



**Exhibit 3.10**

**Cholla Unit 4 - Known and Alleged Material  
Environmental Violations**

1. On October 29, 1987, the U.S. Environmental Protection Agency (EPA), Region IX, issued a Notice of Violation under the Clean Air Act based on its finding that Arizona Public Service Company (APS) had failed to maintain a continuous emissions monitoring system (CEMS) on Unit 1 of the Cholla Plant. During settlement negotiations, EPA alleged several violations related to Unit 4. Those allegations include:
  - a. Unit 4 was operated for periods of time during which its pollution control was not operated (bypass events) in violation of 40 C.F.R. § 60.11(d);
  - b. The CEMS on Unit 4 was inaccurate in violation of 40 C.F.R. § 60.45; and
  - c. Quarterly excess emissions reports did not contain all required information in violation of 40 C.F.R. § 60.7(c).

APS denies that it has violated these regulations, but has installed a new CEMS on Unit 4 to expedite resolution of these allegations. APS currently is negotiating a Consent Decree with the U.S. Department of Justice (DOJ), EPA, and the Arizona Department of Environmental Quality (ADEQ). The draft Decree, which would be binding on APS' successors and assigns, requires the Cholla Plant, including Unit 4, to comply with a written bypass policy, to notify EPA and ADEQ when bypass events occur, and to achieve a minimum quarterly average of 95 percent CEMS data recovery. Stipulated penalties would attach to violations of the bypass notification and CEMS data recovery requirements.

2. On September 6, 1990, ADEQ issued an Order of Abatement to APS. The Order of Abatement alleges several violations at the Cholla Plant. With regard to Cholla Unit 4, the Order alleges that the removal of packing material from the Unit 4 absorber was an event that required a Class B installation permit. The Order of Abatement requires APS to apply for and obtain a Class B installation permit. APS intends to file a Notice of Appeal and a Request for a Hearing with the Arizona Air Pollution Control Hearing Board to protect its right to an appeal. APS has entered into settlement discussions with ADEQ.

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Glen Canyon Solar 1.12

Attachment Glen Canyon Solar 1.12

Arizona Public Service Company

P. O. BOX 53999 • PHOENIX, ARIZONA 85072-3999

JARON B. NORBERG  
EXECUTIVE VICE PRESIDENT  
CHIEF FINANCIAL OFFICER

July 8, 1991

Mr. Dennis P. Steinberg  
Vice President  
PacifiCorp Electric Operations  
700 N. E. Multnomah Avenue  
Suite 1600  
Portland, OR 97232

Re: Closing Arrangements

Dear Mr. Steinberg:

This letter sets forth the understanding between PacifiCorp and Arizona Public Service Company (APS) with respect to certain matters arising under the agreements executed on September 21, 1990 between PacifiCorp and APS, particularly the Asset Purchase and Power Exchange Agreement (the Asset Agreement) and the Long-Term Power Transactions Agreement (the Power Agreement), as we prepare for the closing of these transactions in mid-July 1991, as follows:

1. Closing under Asset Agreement.

PacifiCorp and APS agree that the Closing of the transactions contemplated by the Asset Agreement shall take place at the offices of APS on Monday, July 15, 1991, effective 11:59 p.m. on that date, assuming all conditions to the obligations of the parties to close have been satisfied or waived by that date.

2. Adjustment to Supplemental Payment under Asset Agreement.

Section 2.05 of the Asset Purchase and Power Exchange Agreement requires PacifiCorp to make a Supplemental Payment at Closing in an amount equal to 37.23% of APS' original cost basis in the Cholla Coal Inventory and the Cholla Materials and Supplies Inventory as of the Closing Date as reflected on APS' books and records. PacifiCorp and APS wish to provide for a procedure to adjust the amount of the Supplemental Payment after the Closing to accord with the actual inventories as they exist on the Closing Date.

J2DL0561 58806/30

94 5735

Mr. Dennis P. Steinberg  
July 8, 1991  
Page 2

To achieve this objective, PacifiCorp and APS agree as follows:

(a) The Supplemental Payment will be based on the values of the Cholla Materials and Supplies Inventory and the Cholla Coal Inventory as reflected on the books of APS as of June 30, 1991, \$5,011,111 and \$7,492,995, respectively.

(b) Promptly after the Closing APS shall:

(i) conduct a physical inventory of a Cholla Materials and Supplies Inventory sample, the size and nature of which will be determined by mutual agreement of APS and PacifiCorp to verify the accuracy of the book inventory as of the Closing Date;

(ii) conduct an analysis to determine the value of the coal pile as of the Closing Date;

(iii) conduct a coal pile aerial survey, the scope and nature of which will be determined by mutual agreement of APS and PacifiCorp, to verify the accuracy of the tonnage of the coal pile as of the Closing Date, and to provide the basis for appropriate adjustments;

all in accordance with APS' standard procedures and generally accepted accounting principles. All work papers and computations prepared by APS shall be subject to review and audit by PacifiCorp and Deloitte & Touche. APS shall compute the difference, if any, between the amounts of such inventories as originally reflected on APS' books and records for purposes of calculating the amount of the Supplemental Payment and as determined after the Closing Date. Representatives of PacifiCorp and Deloitte & Touche may be present at the conduct of any such physical inventories.

(c) To the extent such determinations result in a value greater than or less than the amounts reflected in the Supplemental Payment, the amount of the difference shall be paid by PacifiCorp to APS, or refunded by APS to PacifiCorp, as an adjustment of the Supplemental Payment. In addition, PacifiCorp will pay or receive credit for 37.23% of the net change in the Materials and Supplies Inventory value from June 30, 1991 through July 31, 1991 as determined by APS (subject to subparagraph (f) hereof) after July 31, 1991.

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Mr. Dennis P. Steinberg  
July 8, 1991  
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(d) APS shall provide PacifiCorp within 10 business days of the determination a report of its computation of the amounts of the differences under (c), above.

(e) Any payment due which is not in controversy shall be payable within 10 business days of the receipt of the report under (d) above, payable by wire transfer, in immediately available funds to an account designated by the receiving party, and

(f) In the event that PacifiCorp and APS are unable to resolve any differences as to amounts payable, after endeavoring in good faith to do so, the matter shall be determined by Deloitte & Touche, and any amount payable upon resolution of any difference shall be payable within 10 business days after the date of such determination payable by wire transfer in immediately available funds to an account designated by the receiving party.

3. Amendment to Power Agreement.

Pursuant to the Agreement of Settlement and Stipulation among PacifiCorp, APS and the Arizona Corporation Commission, dated June 19, 1991, PacifiCorp agreed, as set forth in Exhibit A thereto, to cap its capacity charges otherwise payable by APS under Appendix A of the Power Agreement. Accordingly, to effect such agreement the definition of "Annual Fixed Cost" in Section 1.2 of the Power Agreement is hereby amended to add at the end of Section 1.2 after the words "set forth in Appendix A," the following proviso:

"provided, however, that in no event shall the Annual Fixed Cost starting in the calendar year 1996 exceed \$9.51/Kw/month plus cumulative annual increases of 1.5 percent per year through 2001, 2 percent per year from 2002 through 2011, and 2.5 percent per year from 2012 through 2020."

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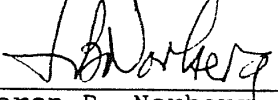
Attachment Glen Canyon Solar 1.12

Mr. Dennis P. Steinberg  
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Page 4

Please execute a copy of this letter below and return it to me, indicating APS' agreement with the matters set forth herein.

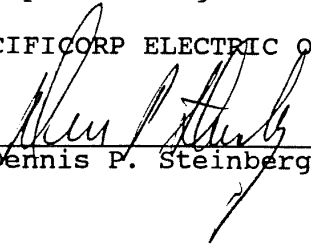
Very truly yours,

ARIZONA PUBLIC SERVICE COMPANY

By   
\_\_\_\_\_  
Jaron B. Norberg  
Executive Vice President  
Chief Financial Officer

Accepted and agreed to:

PACIFICORP ELECTRIC OPERATIONS

By   
\_\_\_\_\_  
Dennis P. Steinberg

J2DL0561 58806/30

Rocky Mountain Power  
Exhibit RMP\_\_\_(KAB-2)  
Docket No. 17-035-36  
Witness: Kelcey A. Brown

BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF UTAH

ROCKY MOUNTAIN POWER

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Exhibit Accompanying Direct Testimony of Kelcey A. Brown

Restated Transmission Agreement

August 2017

UT 17-035-36  
Glen Canyon Solar 1.12

Attachment Glen Canyon Solar 1.12

RESTATED TRANSMISSION AGREEMENT  
BETWEEN  
PACIFICORP  
AND  
ARIZONA PUBLIC SERVICE COMPANY

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RESTATED TRANSMISSION AGREEMENT

PARTIES

The Parties to this Restated Transmission Agreement ("Agreement"), dated this 5<sup>th</sup> day of April, 1995, are PacifiCorp, an Oregon corporation and Arizona Public Service Company, an Arizona corporation ("APS"). APS and PacifiCorp are sometimes referred to collectively as "Parties" and individually as "Party."

RECITALS

WHEREAS, PacifiCorp and APS are engaged in the generation, transmission and distribution of electric power and energy; and

WHEREAS, the Parties have resolved to enhance the efficient operation of their respective systems by taking advantage of the diversity of their loads and generation facilities; and

WHEREAS, on September 21, 1990, the Parties entered into a series of contracts, including a Transmission Agreement, as amended by an October 11, 1990 Letter Agreement and an October 1, 1993 Amendment No. 1 between the Parties to achieve such efficiencies; and

WHEREAS, the Parties intend to continue to study and discuss additional arrangements which will enhance efficiency and inure to the benefit of their customers and, to that end, have executed Amendment No. 1 to the Long-Term Power Transactions Agreement and Asset Purchase and Power Exchange

1 - RESTATED TRANSMISSION AGREEMENT

Agreement ("Amendment No. 1") of even date herewith and have determined that this Restated Transmission Agreement should be substituted for the original Transmission Agreement, as amended; and

WHEREAS, PacifiCorp owns a 345 kV transmission line from Sigurd, Utah that interconnects at the Utah/Nevada border with a 345 kV transmission line owned by the Nevada Power Company that is interconnected with the Harry Allen Substation in Southern Nevada which collectively are hereinafter referred to as the "Sigurd/Harry Allen line;" and

WHEREAS, PacifiCorp and Nevada Power Company have had discussions regarding the potential of significantly increasing the transfer capability between Nevada and Utah either by upgrading the existing Sigurd/Harry Allen line or constructing a parallel line (hereinafter referred to as the "Sigurd Upgrade Project"); and

WHEREAS, APS, along with a number of other entities, is a participant in the Mead-Phoenix project which, among other things, is expected to result in the construction of a 500 kV transmission line from Phoenix, Arizona to the Mead Substation in Nevada (hereinafter referred to as the "Phoenix/Mead line") and an interconnection of the Mead Substation and the Harry Allen Substation at a new substation in Southern Nevada presently referred to as "Marketplace"; and

2 - RESTATED TRANSMISSION AGREEMENT

WHEREAS, it is expected that as a result of the Mead-Phoenix Project, APS will have at least 200 MW of bidirectional firm transmission rights between Phoenix and Marketplace; and

WHEREAS, the Sigurd Substation is interconnected to transmission lines going north to interconnect with Montana Power Company and Idaho Power Company at the Brady Substation, and potentially The Washington Water Power Company (hereinafter referred to as the "Northwest Utilities"), and Idaho Power Company at the Borah Substation; and

WHEREAS, at such time as the Mead-Phoenix Project and the Sigurd Upgrade Project are completed, there will exist a major new transmission path interconnecting utilities in the Desert Southwest with PacifiCorp and the Northwest Utilities; and

WHEREAS, APS and other entities in the Desert Southwest are considering interconnecting the Navajo Generating Station switchyard to the Glen Canyon Generating Station switchyard, hereinafter referred to as the "Navajo Loop-In Project"; and

WHEREAS, the Sigurd Upgrade Project and the Navajo Loop-In Project are not anticipated to be completed in a timely fashion, if at all; and

WHEREAS, APS wishes to engage in the purchase, sale and exchange of power and energy with Northwest Utilities and PacifiCorp wishes to engage in the purchase, sale and exchange of power with utilities in the Desert Southwest; and

3 - RESTATED TRANSMISSION AGREEMENT

WHEREAS, APS and PacifiCorp are concurrently with the signing of this Agreement, contracting with the Western Area Power Administration ("Western") for transmission service between the Glen Canyon 230 kV Substation and Western's 230 kV Pinnacle Peak Substation;

NOW, THEREFORE, in consideration of the mutual covenants set forth below, the Parties agree as follows:

#### AGREEMENT

##### 1. Term

This Agreement shall be effective and shall replace the Transmission Agreement in its entirety upon (i) execution of a Firm Transmission Service Contract between APS, PacifiCorp and the U.S. Department of Energy, Western, Salt Lake City Area Integrated Projects ("Western Transmission Contract") as described in Section 7 and (ii) its acceptance or approval for filing by the Federal Energy Regulatory Commission ("FERC"), and shall terminate on the same date that the Asset Purchase and Power Exchange Agreement dated September 21, 1990 ("Asset Agreement") between the Parties terminates.

##### 2. Regulatory Approval and Termination

2.01 PacifiCorp shall file this Agreement and Amendment No. 1 with the FERC. APS shall file a letter of concurrence supporting PacifiCorp's filing of this Agreement and Amendment No. 1 with the FERC. If the FERC issues an order not accepting either agreement for filing in their entirety and without material change, the Parties shall exercise best

efforts to amend the agreements to comply with the FERC order or negotiate replacement agreements providing similar benefits to both Parties. In the event such amendment or replacement agreements are not executed by the Parties within sixty days following the FERC's issuance of such order, this Agreement and Amendment No. 1 shall terminate and be of no further force or effect and the Transmission Agreement dated as of September 21, 1990, shall remain in full force and effect.

2.02 The rates for service specified herein, and the provisions contained herein for services to be provided without separate charge, shall remain in effect for the term of this Agreement and shall not be subject to change through application to the FERC pursuant to Section 205 of the Federal Power Act absent the agreement of PacifiCorp and Arizona.

3. Phoenix/Mead Line

APS shall work in good faith with other affected entities to cause the Phoenix/Mead Line to be in service by the end of 1996.

4. Navajo Loop-In Project/Alternate Arrangements

If the Navajo Loop-In Project is completed, or if APS or PacifiCorp construct transmission facilities or enter into other commercial arrangements that negate APS' or PacifiCorp's need to maintain its contractual rights under the Western Transmission Contract, either Party may, upon mutual agreement of the Parties, which agreement shall not be unreasonably withheld, terminate its participation in the Western

5 - RESTATED TRANSMISSION AGREEMENT

Transmission Contract. A Party shall not be required to agree to such termination unless, upon its sole determination, such Party determines that it will not incur any additional costs or there will be no adverse operational impacts to its system as a result of such termination.

5. Transmission Interconnection with Northwest Utilities

5.01 During the term of this Agreement, APS shall have 100 MW of net bidirectional firm transfer rights through PacifiCorp's system between the Glen Canyon/Four Corners Substations and the Borah/Brady Substations in Idaho; however, the sum of North-bound transfers and South-bound transfers shall not exceed 300 MW in any hour.

5.02 Upon the later of: (i) the completion of the Phoenix/Mead Line or (ii) May 15, 1997, and for the balance of the term of this Agreement, APS shall have an additional firm right to transfer 150 MW from the Borah/Brady Substation over PacifiCorp's system to the Four Corners/Glen Canyon Substations. In addition to APS' rights to transfer 150 MW from the Borah/Brady Substations to the Four Corners/Glen Canyon Substations, APS shall have the right to make and/or accept deliveries at the Glen Canyon Substation as described in the Western Transmission Contract.

5.03 PacifiCorp shall provide the services described in Subsections 5.01 and 5.02 without charge to APS.

6. PacifiCorp Transfer Rights

6.01 Upon the later of: (i) the completion of the Phoenix/Mead Line or (ii) May 15, 1997, and for the balance of the term of this Agreement, PacifiCorp shall have a firm right to deliver up to 150 MW from the Phoenix terminal of the Phoenix/Mead Line to the Mead Substation (or to the Marketplace Substation, if such is constructed) from APS' firm rights. PacifiCorp's 150 MW Phoenix/Mead delivery rights are in addition to a 350 MW net scheduling right provided under Section 15 of the Asset Agreement. In addition to PacifiCorp's rights to deliver up to 150 MW from the Phoenix terminal of the Phoenix/Mead line to the Mead Substation (or to the Marketplace Substation, if such is constructed), PacifiCorp shall have the right to make and/or accept deliveries at the Pinnacle Peak Substation as described in the Western Transmission Contract.

6.02 Except as provided for in Section 16 of the Asset Agreement, APS shall provide the transmission services described in Subsection 6.01 without charge to PacifiCorp.

7. Western Area Power Administration Transmission Rights

7.01 Except as provided for in Section 4, effective the later of (i) May 15, 1997 or (ii) the completion of the Phoenix-Mead Transmission Project, and for the balance of the term of this Agreement, the Parties shall contract with Western for firm, bidirectional transmission service between the Glen Canyon Substation and Western's Pinnacle Peak Substation in amounts necessary to allow for the transfers specified in

Sections 5 and 6 and to allow for the seasonal exchange provided in Section 3.3 of the Long-term Power Transaction Agreement dated September 21, 1990, as amended. The cost of the aforementioned transmission service (hereinafter referred to as "Western Transfer Rights") shall be shared equally between the Parties unless otherwise mutually agreed.

7.02 APS shall have first priority use of the north-to-south transfer capability available from the Western Transfer Rights. PacifiCorp shall have first priority use of the south-to-north transfer capability available from the Western Transfer Rights.

7.03 At such times as either Party is not making use of its first-priority use of the Western Transfer Rights as set forth in Subsection 7.02, such use shall be made available to the other Party for nonfirm transactions at no charge. It is understood that use by one Party of the other Party's Western Transfer rights, unless otherwise mutually agreed, is on a nonfirm basis and such use may be interrupted or curtailed by the Party with first-priority rights at any time.

7.04 At such times as some or all of the Western Transfer Rights are not available, the Parties shall use best efforts to reschedule deliveries previously scheduled under the Western Transfer Rights to mutually agreed alternate point(s) of delivery; provided, however, a Party shall not be required to interrupt or curtail its other firm schedules at any such alternate point(s) of delivery in order to accommodate



deliveries previously scheduled under the Western Transmission Contract.

8. Scheduling

PacifiCorp and APS shall preschedule their transfer requirements no later than 1000 hours MST on each work day observed by both Parties immediately preceding the day(s) of delivery, or as otherwise mutually agreed by the Parties' dispatchers or schedulers. The Parties shall make delivery in accordance with preschedules, unless otherwise mutually agreed, which comply with the applicable transfer rights set forth in Sections 5 and 6. All deliveries shall be deemed to be made during the hours and in the amounts as accounted for in the APS and PacifiCorp system logs. However, if scheduled deliveries are interrupted due to an Uncontrollable Force as defined in Section 9, such schedules shall be adjusted to reflect such interruption.

9. Uncontrollable Forces

Neither Party to this Agreement shall be considered to be in default in the performance of any obligation hereunder if failure to perform shall be due to an Uncontrollable Force. The term "Uncontrollable Force" means any cause beyond the control of the Party affected, including, but not limited to, failure of facilities, flood, earthquake, storm, fire, lightening, epidemic, war, riot, civil disturbance, labor disturbance, sabotage, restraint by court order or public authority, which by exercise of due foresight, such Party could

not reasonably have been expected to avoid, and which by exercise of due diligence would not be able to overcome. The Parties shall not, however, be relieved of liability for failure of performance if such failure is due to causes arising out of removable or remediable causes which it fails to remove or remedy with reasonable dispatch. Any Party rendered unable to fulfill any obligation by reason of an Uncontrollable Force shall exercise due diligence to remove such inability with all reasonable dispatch. Nothing contained herein, however, shall be construed to require a Party to prevent or settle a strike against its will.

10. Indemnification

Neither Party ("First Party") shall be liable, whether in warranty, tort, or strict liability, to the other Party ("Second Party") for any injury or death to any person, or for any loss or damage to any property, caused by or arising out of any electric disturbance of the First Party's electric system, whether or not such electric disturbance resulted from the First Party's negligent act or omission. Each Second Party releases the First Party from, and shall indemnify and hold harmless the First Party from, any such liability. As used in this Section, (1) the term "Party" means, in addition to such Party itself, its agents, directors, officers, and employees; (2) the term "damage" means all damage, including consequential damage; and (3) the term "persons" means any person, including those not connected with either Party to this Agreement.

10 - RESTATED TRANSMISSION AGREEMENT

11. Assignment

Neither Party shall assign this Agreement without the prior written consent of the other Party, except:

(a) to any corporation into which or with which the Party making the assignment is merged or consolidated or to which the Party transfers substantially all of its assets;

(b) to any person or entity wholly owning, wholly owned by, or wholly owned in common with the Party making the assignment.

Subject to the foregoing restrictions in this Section, this Agreement shall be binding upon, inure to the benefit of and be enforceable by the Parties and their respective successors and assigns.

12. Miscellaneous

12.01 Amendment. This Agreement may be amended only by an instrument in writing executed by the Parties which expressly refers to this Agreement and states that it is an amendment hereto.

12.02 Section and Paragraph Headings. The section and paragraph headings contained in this Agreement are for reference purposes only and shall not in any way affect the meaning or interpretation of this Agreement.

12.03 Waiver. Any of the terms or conditions of this Agreement may be waived at any time and from time to time, in writing, by the Party entitled to the benefit of such terms or conditions.

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UT 17-035-36  
Glen Canyon Solar 1.12

Attachment Glen Canyon Solar 1.12

12.04 Choice of Law. This Agreement shall be subject to and be construed under the laws of the State of Arizona.

12.05 Notices. All notices, requests, demands, and other communications given by APS or PacifiCorp shall be in writing and shall be deemed to have been duly given when delivered personally or when deposited into the United States mail, to the following addresses:

To APS: Arizona Public Service Company  
Corporate Secretary  
P.O. Box 53999  
Phoenix, AZ 85072-3999

To PacifiCorp: PacifiCorp  
Sr. Vice President,  
Wholesale Transactions & Transmission  
700 N.E. Multnomah Blvd.  
Portland, OR 97232

or to such other address as APS or PacifiCorp may designate in writing.

12.06 Integrated Agreement. This Agreement constitutes the entire agreement between the Parties hereto, and supersedes all prior agreements and understandings, oral and written, among the Parties hereto with respect to the subject matter hereof.

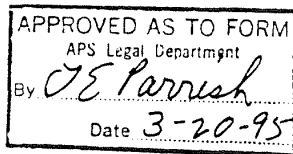
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IN WITNESS WHEREOF, the Parties have signed this  
Agreement as of the date first above written.

Pacificorp

By Brian D. Nichols  
Title: Vice President, Power Systems



Arizona Public Service Company

By Jack Lane  
Title: VP Generation and Transmission

Rocky Mountain Power  
Docket No. 17-035-36  
Witness: Daniel J. MacNeil

BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF UTAH

ROCKY MOUNTAIN POWER

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Direct Testimony of Daniel J. MacNeil

August 2017

1 **Q. Please state your name, business address, and present position with PacifiCorp**  
2 **d/b/a Pacific Power (PacifiCorp).**

3 A. My name is Daniel J. MacNeil. My business address is 825 NE Multnomah Street,  
4 Suite 600, Portland, Oregon 97232. My title is Resource and Commercial Strategy  
5 Adviser at PacifiCorp. In my current role, I provide analytical expertise on a broad  
6 range of topics related to PacifiCorp's resource portfolio and obligations, including  
7 oversight of the calculation of avoided cost pricing in PacifiCorp's jurisdictions. I am  
8 testifying on behalf of Rocky Mountain Power, a division of PacifiCorp.

9 **QUALIFICATIONS**

10 **Q. Briefly describe your professional experience.**

11 A. I received a Master of Arts degree in International Science and Technology Policy from  
12 George Washington University and a Bachelor of Science degree in Materials Science  
13 and Engineering from Johns Hopkins University. Before joining PacifiCorp, I  
14 completed internships with the U.S. Department of Energy's Office of Policy and  
15 International Affairs and the World Resources Institute's Green Power Market  
16 Development Group. I have been employed by PacifiCorp since 2008, first as a member  
17 of the Net Power Costs group, then as manager of that group from June 2015 until  
18 September 2016.

19 **Q. Have you testified in previous regulatory proceedings?**

20 A. Yes. I have filed testimony with the Public Service Commission of Utah (PSC or the  
21 Commission), the Public Utility Commission of Oregon, and the Wyoming Public  
22 Service Commission on topics related to pricing for power purchase agreements for  
23 qualifying facilities (QFs) under the Public Utility Regulatory Policies Act of 1978

24 (PURPA) and other matters. I have also filed testimony with the Federal Energy  
25 Regulatory Commission (FERC) related to ancillary services rates under PacifiCorp  
26 Open Access Transmission Tariff (OATT).

27 **PURPOSE AND SUMMARY OF TESTIMONY**

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

29 A. My testimony will address PacifiCorp's avoided-cost pricing for the Glen Canyon  
30 Solar A and Glen Canyon Solar B qualifying facility projects (together, Glen Canyon  
31 or the Glen Canyon QFs). I will address PacifiCorp's methodology for calculating  
32 avoided-cost pricing for QFs, and how the models we use for those pricing calculations  
33 take transmission limitations into account. I will also address Glen Canyon's arguments  
34 that PacifiCorp's avoided-cost modeling should be determinative in modeling the Glen  
35 Canyon QFs for interconnection service. Specifically, I will address Glen Canyon's  
36 argument that, because Glen Canyon was offered a power purchase agreement (PPA)  
37 at a non-zero price, PacifiCorp energy supply management (ESM) should be required  
38 to invoke its rights under an amendment to the network operating agreement (NOA  
39 amendment) between PacifiCorp ESM and PacifiCorp transmission to redispatch other  
40 PacifiCorp resources in lieu of building the facilities and upgrades necessary to  
41 accommodate Glen Canyon's interconnection to the Sigurd-to-Glen-Canyon 230 kV  
42 transmission line (Sigurd-GC line).

43 **Q. Please summarize your testimony.**

44 A. PURPA and related FERC and state rules require PacifiCorp and other utilities to offer  
45 PPAs to QFs at avoided-cost prices. The essence of avoided-cost pricing is that QFs are  
46 paid a rate commensurate with the savings PacifiCorp would incur—or the costs



47 PacifiCorp would avoid—by accepting the QF’s output and displacing resources owned  
48 or contracted by PacifiCorp. Avoided-cost pricing calculations entail a form of  
49 redispatch analysis, meaning the avoided-cost rate is based on the assumption that in  
50 any given hour PacifiCorp will be dispatching its resources differently to accommodate  
51 the QF’s output. While the modeling we undertake necessarily takes into account  
52 certain transmission limitations to ensure that the avoided-cost scenarios are realistic,  
53 the transmission modeling in the avoided-cost model cannot and does not supplant the  
54 well-established OATT study processes associated with the QF’s generator  
55 interconnection request or PacifiCorp ESM’s request for transmission for delivery of  
56 the QF’s output. In the case of the Glen Canyon QFs, the fact that PacifiCorp offered  
57 the Glen Canyon PPAs at positive avoided-cost pricing has no bearing on whether the  
58 Glen Canyon QFs should be interconnected with PacifiCorp’s transmission system, or  
59 whether PacifiCorp ESM should be able to deliver their output to customers, without  
60 the need for additional facilities or upgrades. The avoided-cost pricing analysis serves  
61 an entirely different purpose and is typically undertaken before the detailed study  
62 processes for interconnection and transmission service are completed. Glen Canyon’s  
63 argument that PacifiCorp’s avoided-cost modeling proves that the output of the Glen  
64 Canyon QFs can be interconnected without transmission upgrades ignores this critical  
65 distinction.

## 66 OVERVIEW OF AVOIDED COST PRICING

67 **Q. Please describe avoided-cost pricing under PURPA.**

68 A. PURPA was designed to encourage the development of certain types of resources.  
69 Power projects that meet certain criteria, *i.e.*, QFs, are eligible to receive a PPA from

70 the utility to which the QF delivers its output. PURPA also provided a pricing scheme  
71 for those QF PPAs based on avoided costs. Avoided costs are “the incremental costs to  
72 an electric utility of electric energy or capacity or both which, but for the purchase from  
73 the qualifying facility or qualifying facilities, such utility would generate itself or  
74 purchase from another source.”<sup>1</sup>

75 **Q. Is there a foundational principle underlying avoided-cost pricing?**

76 A. Yes, a utility’s customers are supposed to be financially indifferent to whether  
77 PacifiCorp purchases power from a QF or acquires that power from some other source.<sup>2</sup>  
78 This indifference standard requires that avoided costs be priced in a manner that ensures  
79 that customers pay no more for the QF power than they would have paid for the  
80 resources that would otherwise be acquired to serve them.

81 **Q. Is avoided-cost pricing standardized for each QF that seeks a PPA?**

82 A. Not for larger projects like Glen Canyon’s. Avoided-cost pricing is standardized only  
83 for small projects under PacifiCorp’s Schedule 37 on file with the Commission, but is  
84 different for projects that exceed the size limit for Schedule 37. Larger projects are  
85 subject to PacifiCorp’s Schedule 38 pricing methodology. The output of each additional  
86 QF added to the PacifiCorp system has a different impact on PacifiCorp’s generation  
87 dispatch. The location, size, capacity factor, and technology associated with each QF  
88 differs, so each Schedule 38 QF has to be analyzed individually to determine the case-  
89 specific avoided-cost rates for which the QF is eligible. Also, the costs to be avoided

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<sup>1</sup> 18 C.F.R. § 292.101 (2017).

<sup>2</sup> *See, e.g.*, In the Matter of the Application of Rocky Mountain Power for Modification of Contract Term of PURPA Power Purchase Agreements with Qualifying Facilities, Docket No. 15-035-53, January 7, 2016, Order at 16-18; In the Matter of the Application of Rocky Mountain Power for Approval of Changes to Renewable Avoided Cost Methodology for Qualifying Facilities Projects Larger than Three Megawatts, Docket No. 12-035-100, December 20, 2012, Order at 13-14 (noting that customer indifference is a “primary” Commission concern in implementing PURPA).

90 change with each additional QF on the system. For example, as additional QFs are  
91 added to the system, higher-cost resources are displaced and capacity needs are pushed  
92 into the future, which impacts the avoided-cost pricing applicable to each QF.

93 **Q. While pricing for each project may be different, does PacifiCorp use a specified**  
94 **avoided-cost pricing methodology, and is it subject to regulatory oversight?**

95 A. Yes, we use a specified pricing methodology that is subject to the ongoing oversight of  
96 the Commission. Under Schedule 38, PacifiCorp regularly files updates with the  
97 Commission providing an explanation of inputs and the Commission-approved method  
98 used to develop indicative prices. Most recently, on August 17, 2017, I sponsored  
99 testimony in Docket Nos. 17-035-T07 and 17-035-37 to present and defend  
100 PacifiCorp's June 21, 2017 Avoided Cost Input Changes Quarterly Compliance Filing.

101 **Q. Please describe the avoided-cost methodology.**

102 A. The Commission has approved PacifiCorp's use of the Proxy/Partial Displacement  
103 Differential Revenue Requirement (Proxy/PDDRR) methodology for determining non-  
104 standard avoided costs under Schedule 38. The Proxy/PDDRR methodology used to  
105 determine avoided costs was first established by the Commission's October 31, 2005  
106 order in Docket No. 03-035-14. The Proxy/PDDRR methodology is used to forecast  
107 avoided fixed costs from a proxy resource and to forecast avoided energy costs  
108 associated with incremental generation from a particular QF.

109 Avoided fixed costs include avoided capital costs, which are based on the  
110 capital cost of a proxy resource expressed as dollars-per-kilowatt. The proxy resource  
111 is identified as the next deferrable generating unit in the PacifiCorp's most recent IRP.  
112 The avoided capital cost is calculated using the operating characteristics and payment

113 factor identified in the IRP for the deferred proxy resource. The avoided fixed costs  
114 also include non-fuel fixed and variable operation and maintenance costs associated  
115 with the deferred proxy resource as reported in the IRP. To convert the proxy plant  
116 capital cost, grossed up for revenue requirement, to an annual cost per kilowatt, the  
117 method uses the IRP resource payment factor as the basis for the real levelized annual  
118 cost of the present value of the investment and adds inflation annually thereafter. The  
119 non-fuel variable operation and maintenance costs are converted into an annual cost  
120 per kilowatt, using the relevant reported capacity factors in the IRP, adjusted for  
121 inflation, and this amount is added to the annual avoided capital cost calculation. This  
122 produces avoided fixed costs that increase over time.

123 **Q. Does the Proxy/PDDRR methodology also address avoided energy (i.e., non-fixed)**  
124 **costs?**

125 A. Yes. The Proxy/PDDRR methodology also produces a forecast of avoided energy costs  
126 associated with a particular QF project. This is achieved by simulating the hourly  
127 operation of PacifiCorp's system using the Generation and Regulation Initiative  
128 Decision Tools (GRID) model. Two GRID runs are performed to calculate hourly  
129 avoided energy cost. The first run is the existing utility system plus the planned  
130 resources contained in the PacifiCorp's preferred portfolio in its most recent IRP. The  
131 second run is the same as the first run with two exceptions: (1) the operating  
132 characteristics of the proposed QF project are added with its energy dispatched at zero  
133 cost; and (2) the capacity of the deferred IRP resource is reduced by an amount equal  
134 to the capacity contribution of the QF project. The difference in production costs  
135 between the two runs is the avoided energy cost.

136 **RELATIONSHIP OF AVOIDED-COST MODELING TO INTERCONNECTION AND**  
137 **TRANSMISSION STUDIES AND REQUIREMENTS**

138 **Q. Is the avoided-cost calculation and PPA negotiation process the same as the**  
139 **interconnection and transmission service request processes?**

140 A. No. There are several steps that a QF must go through to successfully sell power to  
141 PacifiCorp under a QF PPA. The PPA negotiation process is a critical component to  
142 this process, and that is where the avoided-cost pricing calculation comes into play.  
143 However, equally important are two separate processes that serve to interconnect the  
144 project to the transmission system and deliver the output of the project to load.

145 **Q. Who is responsible for requesting a QF interconnection?**

146 A. A QF directly interconnecting with PacifiCorp's transmission system must submit an  
147 interconnection request with PacifiCorp transmission. Mr. Rick A. Vail explains this  
148 process in detail in his direct testimony.

149 **Q. Does Schedule 38 make it clear that the interconnection-service request is separate**  
150 **from the PPA negotiation and avoided-cost pricing calculation process?**

151 A. Yes. The following is an excerpt from Schedule 38, which makes that point clear:

152 In addition to negotiating a power purchase agreement, QFs intending  
153 to make sales to the Company are also required to enter into an  
154 interconnection agreement that governs the physical interconnection of  
155 the project to the Company's transmission or distribution system. The  
156 Company's obligation to make purchases from a QF is conditioned upon  
157 all necessary interconnection arrangements being consummated.

158 It is recommended that the owner initiate its request for interconnection  
159 as early in the planning process as possible, to ensure that necessary  
160 interconnection arrangements proceed in a timely manner on a parallel  
161 track with negotiation of the power purchase agreement.  
162 Interconnection agreements (both transmission and distribution level  
163 voltages) are handled by the Company's power delivery function,  
164 PacifiCorp Transmission Services.

165 **Q. The QF must request interconnection service, but who is responsible for**  
166 **requesting transmission service to deliver a QF's power to retail customer load?**

167 A. PacifiCorp's merchant function, PacifiCorp ESM, must deliver a QF's power to retail  
168 customer load. To initiate transmission service, PacifiCorp ESM submits a transmission  
169 service request (TSR) with PacifiCorp transmission. Mr. Vail also discusses this process  
170 in detail in his direct testimony.

171 **Q. When PacifiCorp ESM runs the GRID model for avoided-cost pricing, does it**  
172 **know the outcome of the QF's interconnection study or ESM's transmission**  
173 **service request for the particular QF?**

174 A. Generally not for the interconnection study, and never for the TSR study. A QF can  
175 request, and PacifiCorp ESM must provide, indicative pricing before the QF has an  
176 interconnection study. In the case of TSR studies, in accordance with the terms of  
177 Schedule 38, PacifiCorp ESM submits a TSR within seven days *after* the execution of  
178 the PPA, so PacifiCorp ESM never has the TSR study when it calculates avoided-cost  
179 pricing.

180 **Q. Do the avoided-cost pricing analyses examine the same factors that PacifiCorp**  
181 **transmission would study in the interconnection or TSR processes?**

182 A. No, they are entirely separate processes, with different study parameters and different  
183 questions to be answered. First, the avoided-cost estimation process is essentially a  
184 study of generation impacts, not transmission. The goal of that study is to project the  
185 incremental resources that could potentially be avoided by the QF power for purposes  
186 of developing an avoided-cost rate. By contrast, the interconnection and TSR study  
187 processes are studies of the physical capability of the transmission system to

188 accommodate the additional requested interconnection or TSR.

189 **Q. If the interconnection and TSR study processes are separate from the avoided-cost**  
190 **calculation, how does the avoided-cost study model interconnection and**  
191 **transmission?**

192 A. The avoided-cost methodology approved by the Commission is a detailed study of the  
193 QF's output and the resulting impacts on PacifiCorp's generation dispatch. This study  
194 assumes the QF resource has secured an interconnection, and it also includes certain  
195 high-level assumptions about known transmission constraints and PacifiCorp ESM's  
196 transmission rights to better estimate the cost savings of backing down other PacifiCorp  
197 resources. In other words, when running dispatch scenarios, the GRID study operates  
198 within the basic parameters of the dispatch runs that formed the basis of the  
199 PacifiCorp's most recent IRP, as I discussed above. What it does not do is identify any  
200 transmission system upgrades that may be required to address reliability or constraint  
201 issues before PacifiCorp transmission can grant the QF's interconnection request or  
202 PacifiCorp ESM's TSR to deliver the QF's power to load. That is the role of the  
203 interconnection and TSR studies.

204 **Q. Glen Canyon claims that the avoided-cost pricing model's transmission**  
205 **assumptions show that Glen Canyon's power can be delivered using PacifiCorp**  
206 **ESM's transmission rights over the Sigurd-GC line. Is that correct?**

207 A. No. Glen Canyon is wrong. Glen Canyon is referring to the fact that the GRID study  
208 modeled PacifiCorp ESM's 95 MW of rights over the Sigurd-GC line as available to  
209 deliver the output of the Glen Canyon QFs. This assumption was included because, as  
210 I explained above, the avoided-cost pricing model reflects certain high-level

211 assumptions about PacifiCorp ESM's transmission rights, and it assumes—for  
212 purposes of estimating the cost savings of backing down other PacifiCorp resources—  
213 that those rights will be used to deliver QF power.

214 **Q. But Glen Canyon claims this avoided-cost rate assumption means that PacifiCorp**  
215 **transmission must assume that PacifiCorp ESM's transmission rights over the**  
216 **Sigurd-GC line are available for purposes of Glen Canyon's interconnection**  
217 **studies.**

218 A. Glen Canyon seems to take the avoided-cost rate pricing assumptions entirely out of  
219 context and interpret them in a manner that would effectively render the OATT study  
220 process unnecessary. Taken to its logical extreme, Glen Canyon's position would  
221 require that any QF that receives a QF PPA at a non-zero price could then skip the  
222 interconnection process because, in Glen Canyon's view, it would have been deemed  
223 capable of interconnecting in the avoided-cost calculations. Glen Canyon's own project  
224 provides an example of the inaccuracy of Glen Canyon's position because, as explained  
225 in more detail in Ms. Kelcey A. Brown's direct testimony, PacifiCorp ESM's  
226 transmission rights over the Sigurd-GC line are not available for Glen Canyon's  
227 interconnection studies.

228 **Q. Glen Canyon also claims that this avoided-cost rate assumption means that**  
229 **PacifiCorp ESM must use its NOA amendment to prevent the need for Glen**  
230 **Canyon's interconnection facilities or upgrades. What is the NOA amendment?**

231 A. As described in more detail by Mr. Vail and Ms. Brown, the NOA amendment refers to  
232 an amendment to the network operating agreement between PacifiCorp transmission  
233 and PacifiCorp ESM related to the network transmission service that PacifiCorp ESM



234 takes from PacifiCorp transmission. In summary, the NOA amendment permits  
235 PacifiCorp ESM under certain circumstances to request, in the TSR process only, a  
236 redispatch of existing designated network resources to make room on the system for  
237 the output of a QF in lieu of building network upgrades that would otherwise be  
238 required to grant the TSR to deliver the QF power to load. Glen Canyon claims that  
239 PacifiCorp ESM should be obligated to invoke this transmission service redispatch  
240 option to displace PacifiCorp ESM's own use of its 95 MW of rights over the Sigurd-  
241 GC line to permit the interconnection of the Glen Canyon QFs.

242 **Q. Do you agree that the transmission assumptions used in developing Glen Canyon's**  
243 **avoided-cost prices mean that PacifiCorp ESM must use its NOA amendment to**  
244 **prevent the need for Glen Canyon's interconnection facilities or upgrades?**

245 A. No, I do not agree. As discussed in detail in Mr. Vail's testimony, the NOA amendment  
246 relates to PacifiCorp ESM's transmission service, not a QF's interconnection service.  
247 In addition, as I describe above, the avoided-cost rate model includes certain high-level  
248 assumptions about PacifiCorp ESM's transmission rights, and it assumes that those  
249 rights will be used to deliver QF power instead of PacifiCorp's resources. This is  
250 quintessential avoided-cost pricing modeling, not a new modeling concept stemming  
251 from the NOA amendment, which I understand FERC approved in 2015. In other  
252 words, the transmission assumptions reflected in the avoided-cost pricing model are  
253 simply intended to estimate the cost savings of *backing down* other PacifiCorp  
254 resources to develop a price that reflects the estimated costs the utility would avoid by  
255 taking the QF power *instead of other power*. They are not intended to model actual

256 transmission availability from a legal or technical perspective, nor the need for  
257 additional facilities or upgrades necessary to interconnect a QF.

258 **Q. Do you have other concerns with Glen Canyon's rationale?**

259 A. Yes. First, as I discussed above, the TSR process is the only place the NOA applies,  
260 and it has nothing to do with the avoided-cost calculation. The GRID study used for  
261 avoided costs simply does not grant transmission service (or interconnection service).  
262 Second, as explained further in Mr. Vail's direct testimony, the NOA amendment does  
263 not apply to a QF's interconnection service. Third, as explained further in Ms. Brown's  
264 testimony, even if the NOA amendment applied to a QF's interconnection, any  
265 assumption that PacifiCorp ESM's rights over the Sigurd-GC line were available for  
266 purposes of Glen Canyon's interconnection would interfere with PacifiCorp ESM's  
267 obligations under a legacy transmission contract with Arizona Public Service Company  
268 (APS), and PacifiCorp ESM does not hold the correct type of transmission service  
269 (network) for using the NOA amendment during half the year, rendering the NOA  
270 amendment useless on the Sigurd-GC line.

271 **Q. Why were these APS legacy contract and transmission-service-type limitations not**  
272 **reflected in the avoided-cost study?**

273 A. As I described above, the GRID model simply does not contain that level of detail and  
274 nuance on the nature of PacifiCorp ESM's contractual rights. That level of granularity  
275 is not necessary for the purposes of producing a reasonable estimate of the PacifiCorp  
276 ESM resources that the Glen Canyon QFs would displace, which is the point of the  
277 avoided-cost study.

278 **Q. Glen Canyon suggests that an earlier avoided-cost calculation of a potential**  
279 **138 MW project only showed curtailments above the 95 MW limit the Sigurd-GC**  
280 **line. Is that relevant?**

281 A. No. PacifiCorp only has long-term rights to move 95 MW over the Sigurd-GC line.  
282 That is a hard limit, a violation of which would cause the Glen Canyon QFs to be  
283 revealed as undeliverable in the avoided cost study. That conclusion reveals nothing  
284 about whether PacifiCorp's 95 MW rights are eligible for redispatch under PacifiCorp's  
285 NOA amendment or whether those rights are available to move QF generation.

286 **Q. Glen Canyon argues that the Commission should compel perfect consistency**  
287 **between the avoided-cost pricing modeling and Glen Canyon's QFs**  
288 **interconnection and TSR studies. Is that position well founded?**

289 A. No. I have already established the differing nature of each study. Because these various  
290 studies all have different parameters and different purposes, perfect consistency  
291 between them is not needed. Having received a non-zero PPA, Glen Canyon would  
292 prefer to have the Commission ignore the separate OATT interconnection process that  
293 may show the need for facilities or upgrades to provide Glen Canyon with  
294 interconnection service.

295 **Q. Glen Canyon suggests that it would be unable to perform under its PPA if it were**  
296 **assessed large amounts of interconnection-related upgrade costs. Is that a valid**  
297 **concern?**

298 A. I cannot speak to the economics of the Glen Canyon QF projects, but all QFs are on  
299 notice that the execution of a PPA does not dictate the outcome of the separate

300 interconnection study processes. Glen Canyon was aware that its QF interconnection  
301 study was not completed when it signed the PPA.

302 **CONCLUSION**

303 **Q. What is your recommendation to the Commission?**

304 A. Glen Canyon's Request for Agency Action should be rejected.

305 **Q. Does this conclude your direct testimony?**

306 A. Yes.

**CERTIFICATE OF SERVICE**

Docket No. 17-035-36

I hereby certify that on August 31, 2017, a true and correct copy of the foregoing was served by electronic mail to the following:

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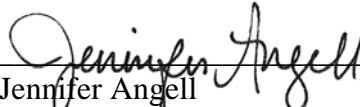
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