

**EXPLANATION OF A PROPOSED AVOIDED LINE LOSS
ADJUSTMENT SETTLEMENT FOR THE CALENDAR YEAR 2009
KENNECOTT AND TESORO QF AGREEMENTS**

October 14, 2008

1 **Background**

2 **Q. Why is the Company required to address avoided line losses for QF**
3 **contracts?**

4 A. In its clarification order dated May 26, 2006 in Docket No. 03-035-14, the
5 Commission set forth on page one the procedure through which avoided line
6 losses for qualifying facilities (QFs) should be considered:

7 “First, we clarify the April Order did not preclude consideration of
8 payments for avoided transmission losses to QFs. The April Order did not
9 approve a generic method for calculating losses. The Commission rejected
10 the two proposed methods due to insufficient evidence upon which to
11 conclude that either method was generally reasonable and met the
12 ratepayer indifference standard. The Commission will consider the
13 reasonableness of payments to QFs for avoided transmission losses on a
14 case-by-case basis when QF contracts including such payments are
15 presented for our approval.”

16 In consideration of the Commission’s order to determine line losses on a case by
17 case basis, the Company evaluated the circumstances unique to the proposed one
18 year Kennecott and Tesoro QF agreements (for a term of calendar year 2009) and
19 made the determination that an adjustment to the price to account for avoided line
20 losses was reasonable and necessary.

21 The purpose of this document is to explain the methodology and analysis
22 utilized to determine the recommended avoided line loss adjustment for the
23 Tesoro and Kennecott calendar year 2009 QF agreements. The Company
24 acknowledges that the methodology and analysis explained herein and used to
25 determine the recommended avoided line loss adjustment for these particular
26 contracts does not set precedence for future QF contracts and does not restrict
27 either the Company or any other interested party from recommending a different
28 methodology or position in future proceedings.

29 **Overview of the Methodology Used to Determine the Avoided Line Loss Adjustment**

30 **Q. What are the general steps the Company proposes be used to determine if an**
31 **avoided line loss adjustment is necessary for the 2009 Kennecott and Tesoro**
32 **QF contracts?**

33 A. The methodology used to determine the avoided line loss adjustment for the 2009
34 Kennecott and Tesoro QF agreements is summarized in the following general
35 steps:

- 36 1. Determine if the QF is located in the Wasatch Front load center,
37 as defined by the combination of the “Utah North” and the “Utah
38 South” transmission nodes/bubbles in the GRID topology.
- 39 2. If the QF is located in the Wasatch Front load center, an
40 adjustment for avoided line losses may be justified. If the QF is
41 not located in the Wasatch Front load center, no adjustment for
42 avoided line losses will be made, unless unique circumstances
43 justify an adjustment (see step 4.)
- 44 3. If the QF satisfies the location condition in step 2, proceed with
45 the “QF Avoided Line Loss Calculation” explained in more
46 detail below.
- 47 4. Review any unique circumstances applicable only to that
48 particular QF that may impact line losses. For example, is the
49 QF at the end of a long isolated radial line or does the QF utilize
50 any project-specific transmission lines that may impact line
51 losses?

52 **Background on the Development of the “QF Avoided Line Loss Calculation”**

53 **Q. Why is a line loss adjustment analysis necessary?**

54 A. Line losses are a physical reality that occurs when electricity flows from the
55 generator source to the load sync. The avoided cost principle provides for the
56 payment to a QF to equal the value or benefit that the QF brings to the system
57 such that the ratepayer is indifferent as to whether the energy comes from the QF
58 or from another source. Therefore, if the QF contract provides a line loss savings
59 (or, conversely, additional cost) when compared to the avoided resource, an
60 adjustment to the price is justified.

61 **Q. Are line losses calculated in the GRID model run that is used to calculate the**
62 **avoided costs?**

63 A. No. The GRID pricing model used to determine the avoided costs, or price, for
64 QF contracts determines the avoided cost of generation only. While the GRID
65 model does take into account transmission constraints when determining which
66 resource is avoided, the model does not calculate or address any potential benefit
67 or detriment attributable to line losses when the QF is added to the resource
68 portfolio. Therefore, any adjustment for avoided line losses must be done outside
69 of the GRID model.

70 **Q. Is there a definitive method that can be used to precisely measure the impact**
71 **a QF has on line losses on the PacifiCorp system?**

72 A. The Company evaluated several methods to measure the impact a QF has on
73 avoided line losses. The only way to precisely measure line losses is to put one
74 meter at the source point and another meter at the sync point and calculate the

75 losses on that isolated path. This is not feasible or possible on an integrated
76 system with multiple sources and syncs. Nor is it cost effective or practical for
77 the issue at hand. All other approaches are subject to the impact of assumptions
78 and inputs which can greatly influence the results. Therefore, the Company set
79 forth to establish a methodology that utilizes reasonable and applicable
80 assumptions and inputs to reasonably estimate the impact a QF has on line losses.

81 **Q. Is there a means by which the impact a QF contract has on line losses can be**
82 **reasonably estimated?**

83 A. Yes. The Company, following discussions with and after receiving input from
84 Tesoro, Kennecott, the Division of Public Utilities, and the Committee of
85 Consumer Services, has developed a methodology that it recommends be used to
86 determine the avoided line loss adjustments to be included in the 2009 Tesoro and
87 Kennecott QF contracts. The Company has defined this method as the “QF
88 Avoided Line Loss Calculation.” The Company acknowledges that this method is
89 a result of collaborative discussions between the interested parties regarding these
90 two particular contracts and that no party is bound by this method, either in part or
91 in whole, in future QF proceedings.

92 **Details of the “QF Avoided Line Loss Calculation” Methodology**

93 **Q. What are the detailed steps included in the QF Avoided Line Loss**
94 **Methodology?**

95 A. The QF avoided line loss methodology utilizes, as a starting point, output from
96 the GRID model run that was used to calculate the avoided costs for the specific
97 QF contract and PacifiCorp’s FERC OATT rate for line losses. Further

98 adjustments are then applied based on whether the QF contract includes
99 provisions that reflect firm delivery of energy and capacity, such as minimum
100 monthly delivery amounts and liquidated damages for failure to deliver the
101 amounts nominated in advance, or whether the contract is non-firm in nature.

102 The GRID model includes several transmission nodes or bubbles that
103 represent major locations of load and/or resources. These locations are often
104 connected by high voltage transmission paths, which are also modeled in GRID
105 consistent with their rated capacities and other constraints. When calculating the
106 avoided cost, GRID determines which resource is backed down or avoided when
107 the QF is added as a resource. The avoided resource may or may not be in the
108 same transmission bubble as the QF resource, as GRID will optimize the available
109 transmission between all bubbles and dispatch the system economically. The
110 GRID output file contains a summary of the number of megawatt hours that were
111 avoided in each transmission bubble as a result of the addition of the QF. The
112 sum of the avoided megawatt hours in all the bubbles equals the total amount of
113 megawatt hours provided by the QF. Therefore, it is possible to determine the
114 percentage of the total megawatt hours that the avoided resource was a resource
115 outside the transmission bubble where the QF is located.

116 Both the Kennecott and the Tesoro QF facilities are located in the Utah
117 North transmission bubble, which, along with the Utah South transmission
118 bubble, define the Wasatch Front load center. The Utah North transmission
119 bubble consists primarily of the northern Salt Lake valley and parts of southeast
120 Idaho and southwest Wyoming, and the Utah South transmission bubble consists

121 of the area from approximately Mona to the south half of the Salt Lake valley.
122 After reviewing the GRID output, it was determined that there are no current
123 transmission constraints between the Utah North transmission bubble and the
124 Utah South transmission bubble, so these two bubbles were considered to be a
125 single bubble representing the Wasatch Front load center in this analysis. This
126 particular area contains a significant sized load but is primarily a large importer of
127 energy from the other bubbles. Therefore, it is reasonable to assume that locating
128 a resource inside this Wasatch Front load center (the Utah North and Utah South
129 bubbles) will reduce the need to import energy from outside this area, thus
130 decreasing the amount of physical losses that will occur as power does not have to
131 travel as far to serve the load in this area.

132 To calculate a reasonable estimation of the amount of avoided line losses
133 attributable to the 2009 Kennecott and Tesoro QF contracts, the Company
134 calculated the percentage of the total megawatt hours that the Kennecott and
135 Tesoro QF contracts, respectively, avoided that were outside the Utah North and
136 Utah South transmission bubbles (the Wasatch Front load center) and multiplied it
137 by the PacifiCorp FERC OATT transmission level line loss rate of 4.48%. The
138 Company incurs the “cost” of line losses at the tariff rates contained in
139 PacifiCorp’s FERC OATT. The tariff does not differentiate line loss rates based
140 on any factor other than delivery voltage. Therefore, the tariff rate is an
141 appropriate reflection of the financial avoided cost of line losses and is used in
142 these calculations.

143 As shown in Attachment 1, the Kennecott QF contract avoided resources
144 which were outside the Utah North and Utah South bubbles 80.30% of the time.
145 Therefore, the starting point for the Kennecott 2009 QF contract line loss
146 adjustment should be an increase to the contract price of 3.60% (4.48% x
147 80.30%.) As shown in Attachment 2, the Tesoro QF contract avoided resources
148 which were outside the Utah North and Utah South bubbles 79.83% of the time.
149 Therefore, the starting point for the Tesoro 2009 QF contract line loss adjustment
150 should be an increase to the contract price of 3.58% (4.48% x 79.83%.)

151 Once this starting point has been determined, the Company evaluated
152 whether a further adjustment could be justified based on whether the QF could be
153 considered a firm resource with a predictable delivery pattern and performance
154 guarantees or a non-firm resource that has no predictable delivery pattern and no
155 performance guarantees. It is reasonable to assume that a firm QF provides more
156 value than a non-firm QF because a firm QF guarantees a certain amount of
157 capacity will be available during a prescribed time period. This differentiation in
158 value is typically reflected in the payment of a capacity payment to firm QFs and
159 no payment of a capacity payment to non-firm QFs. Some parties have argued
160 that this differentiation may need to be reflected in the energy payment as well,
161 one component of which is avoided line losses. While the Company does not
162 believe that the level of “firmness” of a contract has any impact on the physical
163 reality of line losses, the Company is willing to consider, in the case of the 2009
164 Kennecott and Tesoro QF contracts and at the request of other interested parties in
165 this matter, an adjustment to the starting point avoided line loss adjustments

166 described above in order to provide some value differentiation to these non-firm
167 contracts when compared to a firm contract that has a more predictable delivery
168 pattern and includes liquidated damages.

169 To calculate this adjustment to the starting line loss adjustment values, the
170 Company proposes calculating the percentage difference between the firm and
171 non-firm pricing in Utah Schedule No. 37 and then adjusting the starting avoided
172 line loss adjustment values down by the percentage difference in the Utah
173 Schedule No. 37 firm and non-firm prices. The firm (capacity and energy) price
174 for a 20 year term in Utah Schedule No. 37 is \$49.28 per megawatt hour. The
175 non-firm (energy only) price for the same term is \$40.30 per megawatt hour.
176 Therefore, a Schedule No. 37 non-firm contract price is 18.2% lower than a firm
177 contract price. The Company also reviewed the recent quarterly avoided cost
178 filings and the 20 year GRID results for the Kennecott contract and found that the
179 difference between a firm and a non-firm contract price using these alternative
180 data points ranged between approximately 15% and 20%.

181 Both the Kennecott and the Tesoro contracts have terms and conditions
182 that would be considered non-firm, meaning there are no minimum delivery
183 obligations or liquidated damages. Therefore, the Company suggests lowering the
184 starting line loss adjustment values in both the Kennecott and the Tesoro contracts
185 by 18.2% to reflect the value differentiation between firm and non-firm contracts.
186 This results in a recommended line loss adjustment of 2.94% for the Kennecott
187 2009 QF contract and 2.93% for the Tesoro 2009 QF contract.

ATTACHMENT 1

	2009
MWH	
Amps-Colstrip	-
APS	-
APS In	-
BPA FPT	-
Cholla	234
COB	3,979
Colorado	4,144
Four Corners	79,248
Goshen	-
Idaho	-
Jim Bridger	14,993
Mid Columbia	46,599
Mona	27,532
Palo Verde	11,804
Path C	-
Path C North	-
PP-GC	-
SP15	6
Tri-State MP	-
Utah North	11,487
Utah South	35,444
Walla Walla	-
West Main	2,800
Wyoming	(0)
Yakima	-
Other	-
Total	238,272
Percent of MWH in the Utah North and South Bubbles	19.70%
Percent of MWH located outside the Utah North and South Bubbles	80.30%
Starting Line Loss Adjustment for Kennebecott	3.60%
FERC OATT RATE	4.48%

ATTACHMENT 2

	2009
MWH	
Amps-Colstrip	-
APS	-
APS In	-
BPA FPT	-
Cholla	117
COB	2,867
Colorado	3,481
Four Corners	60,190
Goshen	-
Idaho	-
Jim Bridger	12,661
Mid Columbia	36,566
Mona	22,033
Palo Verde	8,673
Path C	-
Path C North	-
PP-GC	-
SP15	6
Tri-State MP	-
Utah North	9,262
Utah South	28,282
Walla Walla	-
West Main	2,012
Wyoming	-
Yakima	-
Other	-
Total	186,150

Percent of MWH in the Utah North and South Bubbles 20.17%

Percent of MWH located outside the Utah North and South Bubbles 79.83%

Starting Line Loss Adjustment for Tesoro 3.58%

FERC OATT RATE 4.48%