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IDAHO PUBLIC
UTILITIES COMMISSION

BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF THE)	
APPLICATION OF ROCKY)	CASE NO. PAC-E-07-05
MOUNTAIN POWER FOR APPROVAL)	
OF CHANGES TO ITS ELECTRIC)	Rebuttal Testimony
SERVICE SCHEDULES)	of Paul H. Clements

ROCKY MOUNTAIN POWER

CASE NO. PAC-E-07-05

October 2007

1 **Q. Please state your name, business address and present position with the**
2 **Company (also referred to as Rocky Mountain Power).**

3 A. My name is Paul H. Clements. My business address is 201 S. Main, Suite 2300,
4 Salt Lake City, Utah 84111. My present position is Originator/Power Marketer
5 for PacifiCorp Energy. PacifiCorp Energy and Rocky Mountain Power are
6 divisions of PacifiCorp (the Company).

7 **Q. How long have you been in your present position?**

8 A. I have been in my present position since December 2004.

9 **Q. Please describe your education and business experience.**

10 A. I have a B.S. in Business Management from Brigham Young University. I have
11 been employed with PacifiCorp for almost three years as an originator/power
12 marketer responsible for negotiating interruptible retail special contracts,
13 negotiating qualifying facility contracts, and managing wholesale or market-
14 based energy and capacity contracts with other utilities and power marketers. I
15 was the Company representative who negotiated the 2006 electric service
16 agreement with Monsanto. I have managed all Monsanto contract-related issues
17 since late 2004. I also worked in the merchant energy sector for 10 years in
18 pricing and structuring, origination, and trading roles for Duke Energy and
19 Illinova.

20 **Purpose and Summary of Testimony**

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

22 A. The purpose of my testimony is to respond to issues raised in the pre-filed direct
23 testimony of the Commission Staff and Monsanto regarding the valuation of the

1 interruptible products offered by Monsanto. First, I will first address the history
2 of Monsanto's firm and interruptible rates and put into perspective the amount
3 Monsanto is currently paid for its curtailment products. Next, I will address the
4 issues raised by Monsanto regarding the Company's valuation methodologies. I
5 will then address the Commission Staff's recommendation for valuing the
6 Monsanto interruptible products. I will also address the valuation methodologies
7 proposed by Monsanto. Finally, I will recommend an alternative interruptible
8 value to the existing contract amount reflected in the Company's filing, if the
9 Commission elects to establish the value based on the updated projected future
10 value of the interruptible products over the remainder of the initial term of the
11 existing contract, or 2008 and 2009.

12 **Q. Are you adopting a portion of the Supplemental Direct Testimony and**
13 **Exhibits of Mr. Mark T. Widmer addressing these issues?**

14 A. Yes. I am adopting the Supplemental Direct Testimony and Exhibits of Mr.
15 Widmer on issues relating to the value of Monsanto's interruptible product and
16 Monsanto's contract.

17 **Q. Please summarize your testimony.**

18 A. My testimony demonstrates that:

- 19 • Monsanto's current net rate reflects a curtailment credit that has increased
20 significantly in value over the years, such that Monsanto's net rate today is
21 roughly equivalent to Monsanto's rate in 1982, even though the consumer price
22 index has increased 116 percent over this same time period.
- 23 • Under Monsanto's current contract, the Company pays Monsanto approximately

- 1 five times more for its curtailment products than Monsanto pays in its tariff rate.
- 2 • Monsanto's current curtailment contract is significantly more generous than the
3 Company's most recent comparable contract.
 - 4 • The Company's front office model and GRID model used for the curtailment
5 valuation are robust models, used to set the current approved contract price for
6 Monsanto. In addition, the GRID model is used to set power costs in this case,
7 which include an operating reserve component.
 - 8 • The parties have similar value ranges for the economic curtailment component of
9 the Monsanto curtailment contract, a value generally tied to market prices.
 - 10 • The operating reserve component of the Monsanto curtailment contract should be
11 set considering the Company's current resource portfolio, rather than
12 manipulating the model results as Monsanto suggests to artificially select specific
13 coal units.
 - 14 • Contrary to Staff's approach, operating reserves cannot be accurately valued
15 using a proxy derived from market price increases. This is because the value of
16 operating reserves is not necessarily tied solely to electric market prices. Using
17 Staff's approach for economic curtailment and system integrity, but the
18 Company's updated front office model value for operating reserves, produces a
19 value for the interruptible products in line with the Company's updated value.
 - 20 • Monsanto's peaker valuation approach incorrectly assumes both that Monsanto's
21 curtailment product is similar to a simple cycle turbine unit and that the Company
22 needs such a unit in its resource portfolio. Adjustments to this valuation
23 approach are necessary to account for differences in the Monsanto product and a

1 simple cycle turbine unit and to more accurately set the price for such a unit.

2 • Based upon test year conventions, the Commission should use the current
3 contract price as an input to net power costs in this case.

4 • Alternatively, the Company proposes a current value of \$9.78 million for the
5 Monsanto curtailment product. As adjusted, Staff's and Monsanto's valuation
6 approaches fall within a range that supports this result.

7 **General Comments on Valuation of Monsanto's Interruptible Products**

8 **Q. On page 21, lines 1-22 of her direct testimony, Monsanto witness Ms.**
9 **Kathryn E. Iverson sets forth a few basic points regarding the valuation of**
10 **Monsanto's interruptible products. Are there any additional points that**
11 **should also be considered by the Commission?**

12 **A.** Yes. Ms. Iverson fails to address the most important point to consider when
13 valuing these types of products. To ensure fairness to all customers, the
14 Commission's primary objective in valuing Monsanto's interruptible products
15 should be to determine the equivalent cost or price the Company would otherwise
16 incur to obtain those products from other resources. By doing so, Monsanto is
17 adequately compensated for providing the products, and other customers are
18 indifferent as to whether the products are provided by Monsanto or from other
19 resources. If the credit paid to Monsanto is below replacement costs, other
20 customers receive the benefit at Monsanto's expense. If the credit paid to
21 Monsanto is above the replacement cost, other customers are providing a subsidy
22 to Monsanto. The ideal result is to value the curtailment credit at the replacement
23 cost.

1 **Q. Please summarize the interruptible products offered by Monsanto and their**
2 **relative value in Monsanto's current contract.**

3 A. The current Monsanto contract provides three products:

4 1. *Operating Reserves.* Monsanto provides 95 megawatts of operating
5 reserves available for 188 hours per calendar year. The Company holds operating
6 reserves to respond to unit outages and maintain reliability. In the current
7 contract, the operating reserve product accounts for about 55 percent of the total
8 value of the interruptible products.

9 2. *Economic Curtailment.* Monsanto provides 67 megawatts of economic
10 curtailment available for 800 hours per calendar year. This product allows the
11 Company to curtail Monsanto's load on a two hour notice for any reason. In the
12 current contract, the economic curtailment product accounts for about 40 percent
13 of the total value of the interruptible products.

14 3. *System Integrity.* Monsanto provides 162 megawatts of system
15 integrity available 12 hours per calendar year. The product allows the Company
16 to curtail Monsanto following a double contingency event, which is two or more
17 overlapping forced outages of large Company generating assets within 48 hours.
18 In the current contract, the system integrity product accounts for less than 5
19 percent of the total value of the interruptible products.

20 **Q. Please summarize the valuation methodologies proposed by the various**
21 **parties in this docket.**

22 A. The Company has used the same methodologies in this case that it used to
23 determine the value set forth in the existing agreement with Monsanto, executed

1 by the parties and approved by the Commission in 2006: 1) the front office
2 “opportunity cost” model (front office model); and 2) the GRID model.

3 The front office model is an Excel based model that utilizes the
4 Company’s forward price curves, the operating characteristics and costs of the
5 Company’s current portfolio of generating assets, and other inputs to determine
6 the marginal cost of obtaining curtailment products from Company resources
7 and/or market purchases instead of purchasing those same products from
8 Monsanto.

9 The GRID model is the deterministic hourly production dispatch model
10 used to set the Company’s net variable power costs. The GRID model
11 incorporates in its analysis the Company’s operating reserves requirements and
12 determines the “avoided cost” of the curtailment products.

13 Commission Staff uses a valuation approach based upon changes in the
14 forward market curves since the current contract was executed. This approach
15 derives a percentage increase for the economic curtailment and system integrity
16 products and applies this same percentage increase to the operating reserve
17 product, without separate analysis.

18 Monsanto proposes two valuation methods: 1) the Company’s front office
19 model with several adjustments to the inputs and calculations; and 2) a
20 comparison to the value of a combustion turbine, referred to as a “peaker
21 valuation.”

1 **Monsanto Contract History and Interruptible Credit Perspective**

2 **Q. Ms. Iverson states that “Monsanto should rightfully expect certain benefits**
3 **as a result of their commitment to curtail loads” (page 37, lines 21-22) and**
4 **that “Monsanto’s interruptible contract should offer a hedge against market**
5 **exposure” (page 27, lines 25-26). Does Monsanto’s rate history demonstrate**
6 **that it has, in fact, enjoyed the benefit of stable and low cost power for many**
7 **years?**

8 A. Yes. Exhibit No. 58 shows Monsanto’s rate for the period from 1982 through
9 2007. Beginning in 2000, the rate is broken out into a “tariff rate” and a “net
10 rate”, where the tariff rate represents the rate prior to any credit for interruptible
11 products and the net rate represents the rate to Monsanto after applying the credit
12 for interruptible products. Prior to 2000, the interruptible credit was not
13 specifically identified as a separate item and Monsanto had a single contract rate.

14 As demonstrated by the graph, Monsanto’s net rate today is roughly
15 equivalent to Monsanto’s rate in 1982. That means Monsanto is paying the same
16 net rate today that they did 25 years ago even though the consumer price index
17 has increased 116 percent over this same time period.

18 **Q. Has Monsanto’s interruptible contract acted as a hedge against market**
19 **exposure?**

20 A. Yes. As further demonstrated by the graph in Exhibit No. 58, Monsanto’s
21 interruptible credit has steadily increased since 2000 as the cost to provide electric
22 service has increased. In fact, Monsanto’s interruptible credit in 2007 is
23 approximately 500 percent higher than it was in 2000, while Monsanto’s tariff

1 rate is only 51 percent higher. In other words, Monsanto's interruptible credit has
2 increased 10 times more, on a percentage basis, than Monsanto's tariff rate over
3 the same time period.

4 **Q. What factors have led to the larger increase in the interruptible credit when**
5 **compared to the increase in the tariff rate?**

6 A. Monsanto's tariff rate and its interruptible credit do not move in lockstep fashion
7 relative to one another for several reasons. One factor is that new resource costs
8 are higher than the Company's embedded cost of energy supply. Monsanto's
9 interruptible products have been valued based on the current market value of
10 energy supply, while Monsanto's tariff rates have been based on the Company's
11 embedded cost of energy supply, which contains only a small fraction of the
12 higher costs of new energy supply.

13 Another significant factor is the method by which the interruptible value
14 and the tariff rates have been established in past Monsanto contracts. Tariff rates
15 have been established by using cost of service models based on a historical
16 normalized test period. The interruptible value, however, has been based on
17 market driven models that utilize forecasted energy values. For example, the cost
18 of service in the current Monsanto contract was based on Company cost data from
19 a historical test period of 12 months ending September 2005, but the interruptible
20 value in that same contract was based on the projected energy value (market
21 curves) for the 2007 through 2009 time period. Because energy costs for 2007
22 and beyond are steadily increasing, use of a forecast approach resulted in a higher
23 credit for Monsanto reflecting future costs increases, even though Monsanto's

1 tariff rates did not reflect those same future cost increases.

2 **Q. Is it reasonable to expect that Monsanto's interruptible products will always**
3 **act as a perfect hedge and offset 100 percent of any changes to its tariff rate?**

4 A. No. There is a significant difference in the volumes that Monsanto provides in
5 interruptible product compared to the volumes that Monsanto buys at the tariff
6 rate. Monsanto currently buys approximately 1,322,121 MWhs at the tariff rate
7 and provides approximately 73,404 MWhs of interruptibility. That is a ratio of 18
8 to 1, meaning for every one MWh Monsanto provides or "sells" in the form of
9 interruptible product it buys 18 MWhs at the tariff rate. In order for changes in
10 the interruptible value to completely offset changes to the tariff rate, changes to
11 the interruptible value would have to occur at a magnitude 18 times greater than
12 changes to the tariff rate. That means if the tariff rate goes up by \$5 per MWh,
13 Monsanto's interruptible value would have to increase by \$90 per MWh to
14 completely offset the increase to the tariff rate. For this reason, Monsanto's net
15 rate will increase when energy costs are increasing.

16 **Q. Please describe Monsanto's historical approach to contracting for its**
17 **interruptible products and the associated implications for the valuation of**
18 **these products.**

19 A. Monsanto has always executed shorter term agreements with PacifiCorp,
20 historically five years or less, for its interruptible products. This contracting
21 approach results in the value of the interruptible products being driven largely by
22 both the current market value of those products and the Company's requirement
23 for products of that type at the point in time in which the value is determined. The

1 market value of the interruptible products can be volatile as the electricity markets
2 go through cycles of over and under capacity utilization. In addition, the
3 Company's requirements for the capacity and energy products offered by
4 Monsanto are constantly changing as load forecasts change and the Company
5 acquires new resources. This shorter term contracting approach leads to
6 variability in Monsanto's interruptible product value, with the value sometimes
7 being higher than the long term cost of capacity and sometimes lower than the
8 long term value of capacity.

9 **Q. On a per MWh basis, can you put into perspective the value Monsanto**
10 **receives for its interruptible product versus the price Monsanto pays for its**
11 **retail electric service?**

12 A. Under the terms of the current contract which went into effect on January 1, 2007,
13 Monsanto currently receives \$168.93¹ per MWh in compensation for its
14 curtailment product and pays only \$36.56 per MWh to the Company for its firm
15 retail electric service. That equates to a ratio of 4.6 to 1, meaning Monsanto
16 receives almost five times as much for the MWhs it "sells" to the Company
17 compared to the MWhs it buys from the Company.

18 **Q. How do the interruptible values in Monsanto's current contract compare to**
19 **the interruptible values in the Company's contracts with other interruptible**
20 **industrial customers?**

21 A. Monsanto's current contract has the most favorable terms for a customer of any of
22 the Company's curtailment contracts. The Company's most recent comparable
23 contract was executed in late 2006 with a large industrial customer in Rocky

¹ Based on 73,404 MWhs of curtailment and a \$12.4 million curtailment credit.

1 Mountain Power's service territory. The specific details of the curtailment
2 products offered by this customer differ only slightly from those offered by
3 Monsanto. The price for this contract was based upon the same valuation models
4 the Company used in Monsanto's current contract and in this case.

5 The other customer's credit is based on a value of \$4.16 per kilowatt
6 month for operating reserves and \$61.71 per megawatt hour for economic
7 curtailment. Extrapolating these values to the number of megawatts and hours of
8 operating reserves and economic curtailment products Monsanto offers equates to
9 an equivalent value of \$8.1 million per year, \$4.3 million less than Monsanto's
10 current contract price of \$12.4 million.

11 **The Company's Valuation Models**

12 **Q. Do you agree with Monsanto's contention that the Company's models are not**
13 **the most appropriate method to determine the value of Monsanto's**
14 **interruptible product?**

15 **A.** No. The Company's front office model and GRID model are robust models,
16 which the Company has used for several years for a range of commercial and
17 regulatory purposes, including setting the value of Monsanto's current contract.
18 There seems to be general support for the result these models produce for the
19 economic curtailment component, with Monsanto acknowledging that the
20 economic curtailment component of the Company's models "could possibly
21 provide one reference point for valuation." (Iverson Direct Testimony, p. 36, lns.
22 9-10). Monsanto's criticisms are limited to the operating reserve and system
23 integrity valuations produced by the Company's models.

1 As explained below, because the front office model calculates the
2 incremental or lowest cost way for the customer to obtain reserves, and the GRID
3 model calculates the value of the highest cost reserves carried prior to the addition
4 of the Monsanto contract, these two models together provide the appropriate
5 range for valuation of Monsanto's operating reserves.

6 **Q. Please describe how the Company's front office model values Monsanto's**
7 **operating reserves.**

8 A. The Company's front office model determines the marginal or incremental cost of
9 providing operating reserves from the Company's existing resource portfolio.
10 This model determines, on an hourly basis, the most economic or least cost means
11 by which the Company can provide operating reserves. From a customer's
12 perspective, this method determines the replacement cost or opportunity cost of
13 the operating reserve megawatt provided by Monsanto. It calculates what the
14 customer would be willing to pay for the next megawatt of operating reserves if it
15 needed to acquire additional reserves.

16 **Q. Please describe how the Company's GRID model values Monsanto's**
17 **operating reserves.**

18 A. The GRID model provides a system-wide view of both the need for operating
19 reserves and the system incremental benefit of providing those operating reserves
20 on an hour-by-hour basis. The GRID model includes the existing portfolio of
21 Company resources, which includes Company owned physical assets, power
22 purchase agreements, and contracts for interruptible products (such as operating
23 reserves) with other industrial customers. GRID determines the amount of

1 operating reserves the system requires and then allocates resources to meet that
2 requirement. GRID allocates operating reserves on the plants that are highest cost
3 to lowest cost because it is less expensive to carry reserves on higher cost
4 resources.

5 To determine the value of Monsanto's operating reserve product, a base
6 case GRID run without Monsanto's resource is performed. Then, Monsanto's
7 operating reserve contract is added at "zero cost" and the model is rerun. The
8 difference between the two studies is the value of the operating reserve contract.
9 This value represents the value of the highest cost, or most expensive, operating
10 reserves that would no longer be required if Monsanto's operating reserve product
11 is available instead.

12 **Q. What other reasons support the use of the GRID model to establish the value**
13 **of the interruptible products?**

14 A. The Company uses the GRID model to determine net power costs in this rate
15 case, including the cost of the Company's operating reserves. Since Monsanto's
16 interruptible credit is included as a component of net power costs, it is logical to
17 use the same model to determine the value of the interruptible products provided
18 by Monsanto.

19 **Q. Do the Company's methods produce erratic swings in value?**

20 A. No. The results of the Company's front office model and the GRID model are
21 within \$1.6 million in year 2008 and within \$1.7 million in year 2009. These
22 differences are acceptable when the total value produced by the models is
23 approximately \$10 million.

1 **Q. Do you agree with Ms. Iverson's assessment on page 28, lines 3-10 of her**
2 **direct testimony that the Company's models do not adequately reflect**
3 **avoided capacity costs?**

4 A. No. Both the front office model and the GRID model incorporate capacity values
5 based on the levels at which the market currently values capacity. Both models
6 utilize the Company's forward price curves, which include an implied capacity
7 component. Market prices include some consideration for capacity costs, because
8 in an efficient market, market prices drive the addition of new capacity or the
9 mothballing of excess capacity.

10 **Q. Is Monsanto a long-term "capacity-focused" resource that provides certain**
11 **long term benefits to customers as Ms. Iverson claims? (page 23 line 20 –**
12 **page 24 line 2).**

13 A. No. The Company typically acquires long term resources through the acquisition
14 of Company owned power plants or through long term power purchase
15 agreements for output from power plants owned by other entities. In the case of
16 Company owned power plants, the customer can depend on the resource being
17 available for customer benefit for its 25 or more year asset life because the
18 Company owns and typically operates the asset. In the case of a long term power
19 purchase agreement for output from a unit owned by another entity, the Company
20 typically requires that the contract include liquidated damages and other
21 performance guarantees that provide adequate replacement power cost protection
22 to the customer in the event the other entity does not perform and deliver the
23 energy.

1 With these requirements, the customer is protected over the long term of
2 the agreement even if the other entity does not perform. The customer also has
3 the benefit of a stable, fixed cost for the resource, avoiding cost fluctuations
4 associated with shorter-term arrangements.

5 In the case of the current Monsanto contract, the initial term of the
6 contract is only three years, far shorter than the Company's long-term purchased
7 power contracts. Additionally, there are no guarantees that the customer will be
8 protected if Monsanto fails to perform in the future and the Company must
9 acquire replacement energy.

10 **Q. Ms. Iverson argues that the Company's updated front office model utilized to**
11 **value operating reserves is not valid and instead the Company should simply**
12 **update its 2002 reserves valuation (page 31, line 7 – page 33, line 4). Does**
13 **this approach accurately reflect the current value of operating reserves?**

14 **A.** No. Ms. Iverson's approach is seriously flawed in that it does not accurately
15 reflect the Company's current portfolio of resources. In 2002, the front office
16 model utilized the Cholla coal unit and the Gadsby gas units, among other
17 resources, to determine the opportunity cost of carrying reserves on Company
18 owned resources. This approach was correct at the time in that those units were
19 the most economic resources owned by the Company at that time from which the
20 Company could meet its operating reserve requirement.

21 Since 2002, the Company added the 540 MW (approximate) Currant
22 Creek unit and the 560 MW (approximate) Lakeside unit. These combined cycle
23 plants, along with the 120 MW (approximate) Gadsby combined cycle units,

1 provide 1,220 MWs of gas fired capacity that, depending on gas prices, are often
2 the most economic resources on which to hold operating reserves. To ignore these
3 new significant resource additions and force the models to artificially use Cholla
4 in the operating reserve valuation is inappropriate and produces inaccurate results.

5 **Q. Can you explain why the results of the Company's GRID model show that**
6 **the Cholla unit and other units are at times the avoided operating reserve**
7 **resource when the Monsanto operating reserve resource is added to the**
8 **model, even with the gas fired capacity that has been added since 2002?**

9 A. The Company's Cholla unit is in the reserve stack in both the front office and
10 GRID models. Because the models utilize a slightly different approach for valuing
11 reserves, the front office model does not select Cholla as a reserve unit, while the
12 GRID model occasionally does. The potential value that comes from Monsanto
13 avoiding the use of Cholla for operating reserves is thus captured accurately in the
14 models, albeit not at the artificially high level suggested by Monsanto.

15 As I described earlier, the GRID model meets the reserve requirement
16 from the available portfolio of resources, starting with the lowest cost reserves
17 and then working up to the highest cost reserves, until the requirement is met. At
18 times the Company's coal units, particularly the relatively high marginal cost coal
19 unit Cholla, may be needed and may be the most economic (lowest cost) resource
20 to meet a portion of the operating reserve requirement. This is likely often the
21 case during some off peak periods or shoulder months when the gas fired
22 resources are not as economic and thus not operating and available to provide
23 operating reserves.

1 **Q. Do you agree with Ms. Iverson's contention on page 39, lines 9-18 of her**
2 **direct testimony that the Company has fundamentally changed its valuation**
3 **of system integrity in this case?**

4 A. The Company has changed its valuation to comport with the new definition
5 included in the 2006 contract of the circumstances that will trigger a system
6 integrity interruption. This new definition is set forth in full in Exhibit No. 64.
7 Previously, uncertainty over what could trigger a system integrity interruption
8 made the valuation of the product difficult because it was not possible to predict
9 the value the product provided to customers.

10 Under the current contract, the Company may curtail 162 MW of
11 Monsanto load if the Company simultaneously incurs the forced outage of 500
12 MW of generation, deemed a "double contingency event." The probability of a
13 double contingency event occurring is equal for all hours of the year. However,
14 the Company elected to value the system integrity product using the average on
15 peak price for the calendar year. This approach assigns more value to the product
16 than would occur using an average price for all hours of the year, but it better
17 reflects the value this product brings to customers because the Company would
18 most likely utilize this product during on peak hours.

19 **Commission Staff's Proposed Interruptible Value**

20 **Q. Can you summarize how Commission Staff has proposed a value for**
21 **Monsanto's interruptible product?**

22 A. Commission Staff's proposal starts with the value in the existing contract and then
23 makes an adjustment to that value to account for changes in the market curves that

1 have occurred since the time that the value in the existing contract was
2 established. This approach is applied to all three products: economic curtailment,
3 operating reserves, and system integrity.

4 However, Staff witness Mr. Bryan Lanspery acknowledges that no
5 detailed analysis was done on the operating reserves product due to lack of
6 information:

7 I did not calculate the operating reserve component due to lack of
8 information. Because it was also tied to the increase in market prices, as
9 well as marginal operating costs, I conservatively escalated the operating
10 reserve value by 14% as well. (page 5, lines 12-16)

11 Staff witness Mr. Lanspery does not elaborate on or explain how the operating
12 reserve component is tied to the increase in market prices. He also does not
13 explain how marginal operating costs have increased.

14 **Q. Is Staff's approach reasonable and appropriate for all three products?**

15 A. No. Staff's approach is reasonable for the economic curtailment and system
16 integrity products but not for the operating reserve product. The value of the
17 economic curtailment product and the system integrity product is directly related
18 to market prices for electricity since curtailing Monsanto allows the company to
19 avoid market purchases. The value of operating reserves, however, is not directly
20 correlated to only electricity market prices but is also heavily influenced by other
21 factors.

22 **Q. What other factors besides the market price for electricity influence the**
23 **value of operating reserves?**

24 A. The cost or value of operating reserves is best described as an opportunity cost or
25 "what if" proposition. In other words, an operating reserve megawatt is only as

1 valuable as the value or profit that could be received for that same megawatt if it
2 were not set aside for operating reserves. It is typically most economic to hold
3 operating reserves on the Company's gas fired resources, namely Gadsby, West
4 Valley, Currant Creek, and Lakeside. The margin or profit on a gas plant is
5 primarily dependent on two things: the price of natural gas and the price of power,
6 also known as the spark spread. Therefore since the value of operating reserves
7 held on gas plants is dependent on the spark spread of the gas plant, the value of
8 operating reserves is correlated not only to the market prices for electricity but
9 also to market prices for natural gas. Exhibit No. 61 illustrates how the value of
10 operating reserves is tied to the spark spread on a gas plant.

11 Since the margin of a gas plant is dependent on both gas and power prices,
12 it is quite possible to have a scenario in which the price of power increases and
13 the price of gas increases by the same amount, resulting in the margin or profit on
14 the gas plant to stay the same. If this is the case, the value of operating reserves
15 will stay the same because, even though power prices went up, the cost to produce
16 that power (the gas cost) went up as well.

17 Another scenario includes a situation where the market price for power
18 increases, but the market price for gas increases by a larger percentage. This is
19 known as a narrowing of the spark spread. If the spark spread narrows, the
20 margin on the gas plant actually decreases even though power costs are
21 increasing, and the value of operating reserves also decreases. Exhibit No. 62
22 illustrates such a scenario.

23 Another factor that impacts the value of operating reserves is the addition

1 of new resources. If new resources are added, and those resources can carry
2 reserves more economically than the resources that carried reserves prior to the
3 addition of the new resource, operating reserves value may go down regardless of
4 any change in energy prices.

5 **Q. What conclusions can you draw from your analysis on the correlation of**
6 **operating reserve value to market prices for electricity?**

7 A. Since the value of operating reserves is not solely tied to market prices for
8 electricity but is instead correlated to market prices for gas and electricity, or the
9 spark spread, and is also impacted by new resource additions, setting the
10 operating reserves value based entirely on the change in the market curves for
11 electricity is not appropriate and does not accurately reflect the value of the
12 operating reserves provided by Monsanto.

13 **Q. If Staff used their methodology for economic curtailment and system**
14 **integrity value but the Company's approach to operating reserve value, what**
15 **is the result?**

16 A. If Staff's proposed value for economic curtailment and system integrity were
17 combined with the Company's updated front office model results for operating
18 reserves², the total interruptible value would be \$10.2 million,³ a value in line
19 with the total interruptible value produced by the updated Company models.

² Based on the updated average value of the Company's front office model for calendar years 2008 and 2009.

³ Based on starting or existing contract values of \$5.43 million for economic curtailment and \$0.1 for system integrity. To arrive at the \$10.2 million, the starting economic curtailment value was increased 14% and the starting system integrity value was increased 17%, as Staff recommends. These values were added to the \$3.85 million average value for operating reserves calculated by the Company's updated front office model for 2008 and 2009.

1 **Monsanto's Methodologies for Valuing the Interruptible Products**

2 **Q. What models has Monsanto utilized to calculate a proposed interruptible**
3 **value?**

4 A. Monsanto utilized a simple average of two model results to derive their proposed
5 curtailment credit. One of the models is the peaker valuation methodology. The
6 second Monsanto methodology utilized an average of the Company's front office
7 model and GRID model results to determine the economic curtailment value and
8 then utilized the Company's front office model with significant changes to the
9 assumptions and inputs to determine the operating reserves value. This second
10 model was discussed in the preceding section.

11 **Q. Do you agree with Ms. Iverson's assessment on pages 23 and 24 of her direct**
12 **testimony, where she compares the interruptible products offered by**
13 **Monsanto to a combustion turbine, implying they are essentially the same?**

14 A. No. The products Monsanto provides are not equivalent to the products available
15 through ownership or lease of a combustion turbine. A combustion turbine is
16 different and more valuable to customers than the Monsanto interruptible products
17 for the following reasons:

18 1. A combustion turbine is available to customers for their benefit 8,410
19 hours per year, assuming a 96 percent availability factor. Monsanto is only
20 offering 1,000 hours of curtailment, which would make the Monsanto
21 interruptible product available only 12 percent of the equivalent time a
22 combustion turbine is available in any given year. In other words, a combustion
23 turbine is available for customer benefit over eight times more than Monsanto is

1 available given the current amount of curtailment offered by Monsanto.

2 2. A combustion turbine can be used to provide load following services,
3 while the Monsanto curtailment products cannot be synced to the electrical grid to
4 provide this service. Load following, or automatic generation control, is when a
5 power plant is directly synced to the grid and can automatically increase or
6 decrease output in response to instantaneous changes in voltage levels on the
7 GRID.

8 **Q. Is it appropriate in this case to use the cost of a combustion turbine as a**
9 **proxy for the value of Monsanto's interruptible products?**

10 A. Arguably not. PacifiCorp's 2007 integrated resource plan (IRP) does not find a
11 need for the simple cycle combustion turbines used in the analysis. The IRP does
12 not call for the addition of these resource types because they are not the most
13 economic means by which the Company can meet the customers' resource needs
14 for the types of products Monsanto provides. Monsanto should not be
15 compensated for providing interruptible products based on the equivalent cost of
16 resources that have been deemed uneconomic and not in the customers' best
17 interest.

18 In any case, it is critical to make several adjustments to account for the
19 differences between the products Monsanto offers and the products available
20 through ownership or lease of a combustion turbine before the results of this
21 methodology are considered.

1 **Q. Please describe the specific adjustments that need to be made to Monsanto's**
2 **peaker valuation method in order to make the results of the method more**
3 **appropriate for determining interruptible value.**

4 A. To account for differences between Monsanto and a combustion turbine,
5 adjustments need to be made to account for availability (the fact that Monsanto
6 provides only 1,000 hours of operation while a combustion turbine offers
7 approximately 8,410 hours of operation) and to account for times when Monsanto
8 does not provide a full 95,000 kW of operating reserves. While an adjustment
9 could be made to account for the fact Monsanto cannot provide load following
10 services, I have not proposed it because it is difficult to quantify. Finally, an
11 adjustment should be made to the capacity or capital cost of the combustion
12 turbine used in Monsanto's analysis to reflect current capacity costs.

13 **Q. Have you prepared an exhibit that demonstrates the necessary adjustments**
14 **to Monsanto's peaker valuation to account for differences between Monsanto**
15 **and a combustion turbine?**

16 A. Yes. Exhibit No. 59 shows the results of Monsanto's peaker valuation method
17 when appropriate adjustments are made to account for availability and for the
18 correct number of megawatts of operating reserves provided by Monsanto. All
19 other inputs are left unchanged. As a result of these two adjustments, the total
20 value of the interruptible products is \$8,210,766.

21 **Q. Have you proposed an adjustment to reflect the current cost for capacity, or**
22 **another option the Company has to obtain similar capacity?**

23 A. Yes. The Company currently owns the option to extend the lease on the West

1 Valley power plant through 2017 at a price of \$6.24 per kW month. The West
2 Valley power plant is a set of five LM 6000 PC quick start simple cycle turbines,
3 all of which can be brought online within 10 minutes and used to meet the
4 Company's operating reserves requirements. If PacifiCorp were to exercise its
5 lease option, it would have full use of this simple cycle plant for the capacity cost
6 of \$6.24 per kW month. PacifiCorp would then provide the gas and pay other
7 O&M costs as it would on a Company owned simple cycle plant. This price is
8 much lower than the \$8.40 per kW month price utilized in Monsanto's Exhibit
9 No. 211 (KEI-7) for the same type of capacity. If the analysis Monsanto
10 performed in Exhibit No. 211 (KEI-7) were run using \$6.24 per kW month for the
11 operating reserve component of the valuation in addition to the adjustments I
12 describe in Exhibit No. 59, the value produced by Monsanto's valuation
13 methodology would be reduced further to \$8,045,485. The full results of this
14 analysis are shown in Exhibit No. 60.

15 **Q. What does this analysis demonstrate?**

16 A. This analysis demonstrates that the market for capacity and energy is not always
17 equal to the new build cost of simple cycle combustion turbines. If customers can
18 acquire this type of capacity through more economic sources than new
19 construction, such as this opportunity with the West Valley lease, Monsanto's
20 interruptible products should be evaluated compared to these more economic
21 opportunities.

1 **Recommended Interruptible Value**

2 **Q. What value does the Company recommend the Commission establish for**
3 **Monsanto's interruptibility in conjunction with this proceeding?**

4 A. As explained in the Company's Supplemental Direct Testimony on this issue, this
5 case is filed under current Idaho test year conventions and relies upon a 2006
6 historical test year with known and measurable changes through the end of 2007.
7 The credit or payment to Monsanto for its interruptible product for calendar year
8 2007 is known and measurable in the existing contract and cannot change prior to
9 January 1, 2008. Under these conventions, Monsanto's current interruptible
10 credit of \$12.4 million should not be changed by this case. Accordingly, the
11 Company has reflected Monsanto's current credit of \$12.4 million in its net power
12 costs.

13 If the Commission disagrees with this analysis and instead elects to
14 establish the value based on the updated projected future value of the interruptible
15 products over the remainder of the initial term of the existing contract, or 2008
16 and 2009, the Company recommends an interruptible value of \$9.78 million per
17 year.

18 **Q. How did the Company derive the value of \$9.78 million for the interruptible**
19 **products?**

20 A. This amount represents the average model results of the Company's front office
21 and GRID models for calendar years 2008 and 2009. It is a result that is validated
22 by other relevant data, notably the Company's most recent comparable
23 curtailment contract and the methodologies proposed by other parties in this rate

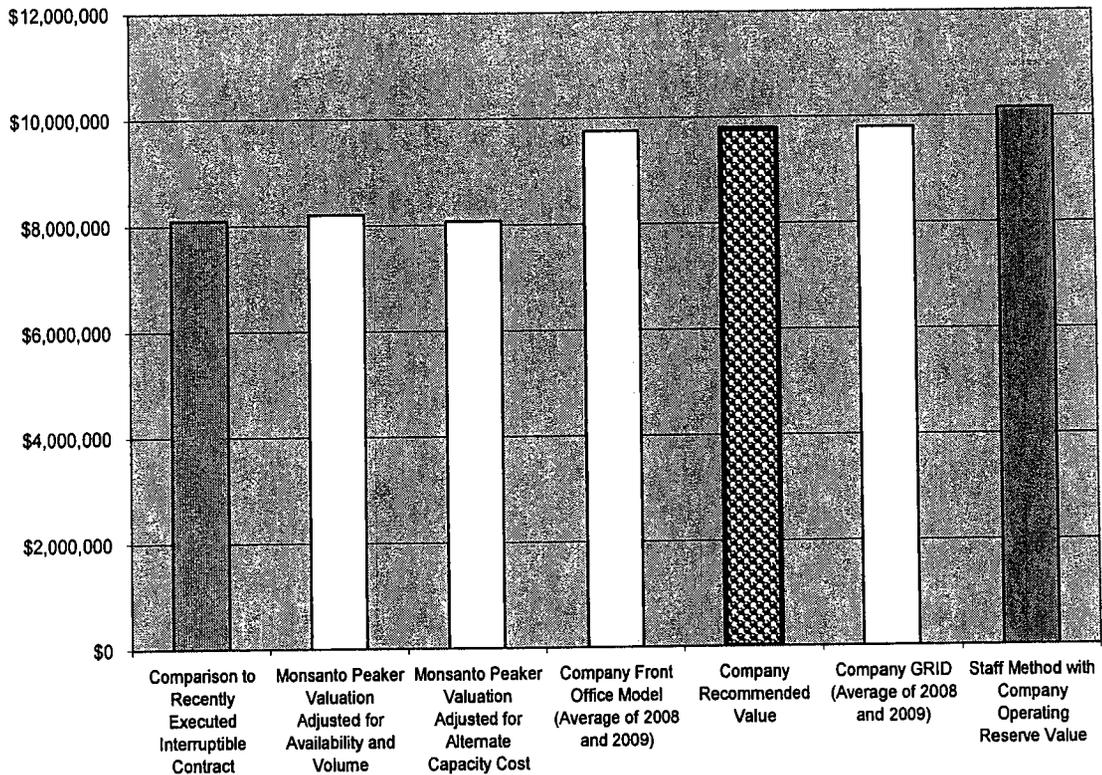
1 case when adjusted to reflect accurate inputs and assumptions.

2 **Q. Can you provide any additional evidence to support this value?**

3 A. I have discussed in my direct and rebuttal testimony the results produced by
4 various valuation models. These models include the Company's front office and
5 GRID models, Monsanto's proposed models with corrected inputs and
6 assumptions, and Staff's proposed model with corrected inputs and assumptions.
7 Corrections to Monsanto's and the Staff's models were previously outlined in my
8 rebuttal testimony and are necessary to ensure these models are relevant, accurate,
9 and appropriately reflect the value the interruptible products provide to customers.

10 As the chart included in Exhibit No. 63 and shown below demonstrates,
11 the range of results of these models is \$8.1 million to \$10.2 million.

Summary of Model Results



1 The Company's recommended value of \$9.78 million is within this range
 2 and should be adopted by the Commission as the value of Monsanto's
 3 interruptible product if the Commission elects to establish the value based on the
 4 updated projected future value of the interruptible products over the remainder of
 5 the initial term of the existing contract, or 2008 and 2009.

6 **Q. What are the primary reasons for the drop in interruptible value from the**
 7 **\$12.4 million in the existing contract to the Company's proposed updated**
 8 **value of \$9.78 million?**

9 **A. The primary reasons for the decrease in value are the addition of new resources**
 10 **that can be used to meet the operating reserves requirement, the narrowing of the**

1 spark spread making the holding of operating reserves on the gas plants less
2 expensive, and the updating of the operating costs of the resources available to
3 meet the operating reserves requirement.

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

5 **A. Yes.**

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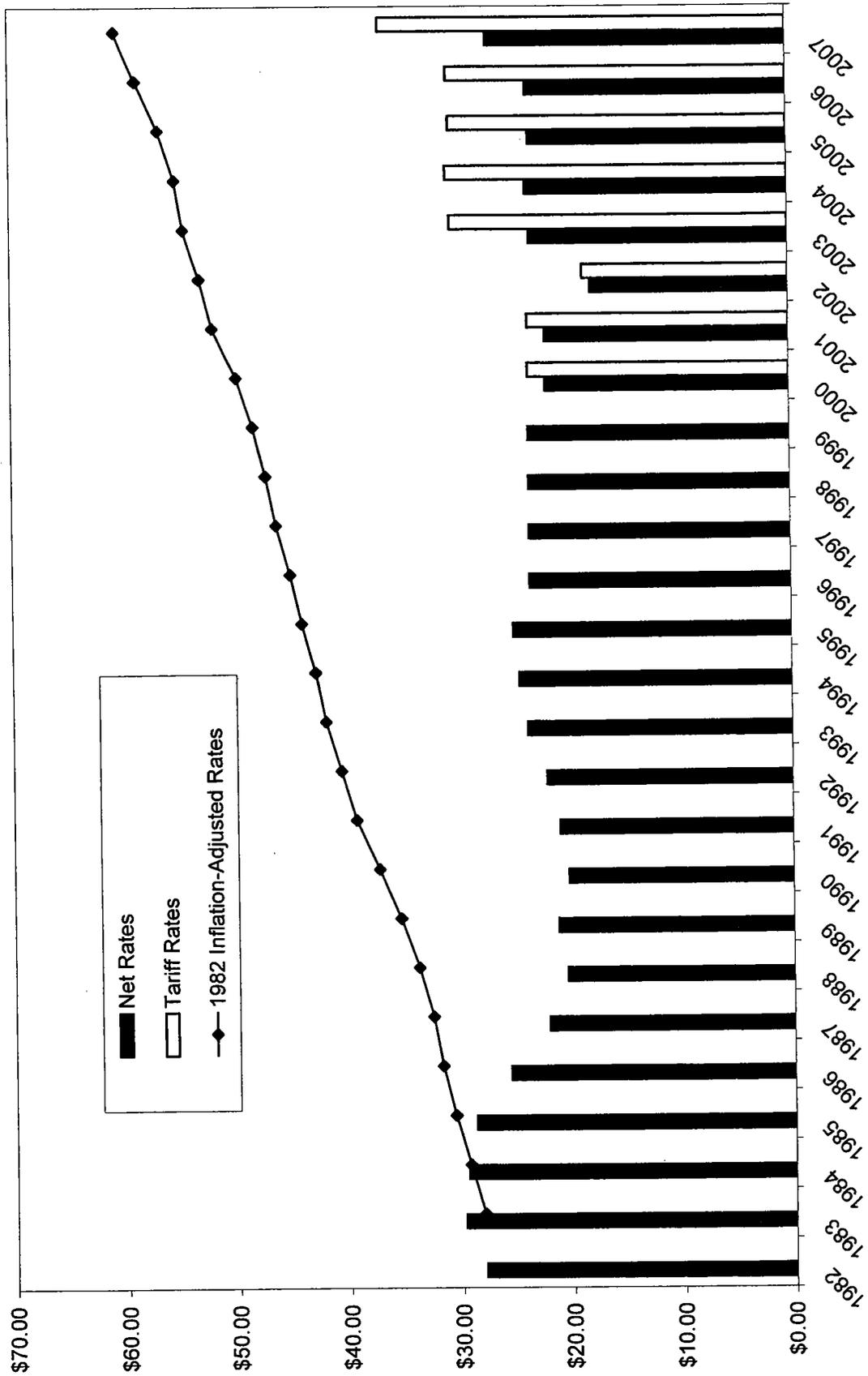
ROCKY MOUNTAIN POWER

Exhibit Accompanying Rebuttal Testimony of Paul H. Clements

Monsanto Historical Rate Chart

October 2007

Monsanto Rate History 1982-Present



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Case No. PAC-E-07-05

Exhibit No. 59

Witness: Paul H. Clements

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ROCKY MOUNTAIN POWER

Exhibit Accompanying Rebuttal Testimony of Paul H. Clements

Peaker Valuation – Revised for Availability and Volume

October 2007

ROCKY MOUNTAIN POWER

Peaker Valuation with Adjustments for Availability and Appropriate Capacity Volumes

	Operating Reserves		Economic Curtailment SCCT Frame (2 Frame "F") (3)	Total
	Intercooled Aero SCCT (1)	or SCCT Aero (2)		
Avoided Capital:				
1 Avoided Capacity Cost (\$/KW-year) (1)	\$100.79	\$92.94	\$47.89	
2 Capacity (kW)	90,708	90,708	67,000	
3 Adjustment for Reserve Margin	12%	12%	12%	
4 Capacity adjusted for Reserves	101,593	101,593	75,040	
5 Value	\$10,239,554	\$9,442,050	\$3,593,666	
6 Adjustment for Availability	-92.6%	-92.6%	-68.3%	
7 Adjusted Value	\$757,727	\$698,712	\$1,139,192	
Avoided Energy:				
8 Hours curtailed	188	188	800	
9 MWH Curtailed	17,860	17,860	53,600	
10 Avoided Energy Cost (\$/MWH) (1)	\$68.04	\$81.61	\$90.70	
11 Value	\$1,215,194	\$1,457,555	\$4,861,520	
12 Avoided Energy Cost - System Integrity (2)	\$132,270	\$158,650		
13 Total Value	\$2,105,191	\$2,314,916	\$6,000,712	
14 Total Value	\$2,210,054	\$2,210,054	\$6,000,712	\$8,210,766

(1) PacifiCorp 2007 IRP, page 95
(2) Includes the 12 hours of system integrity

1 **Explanation of Company Adjustments to Monsanto's Peaker Valuation**

2 **Adjustment for Availability**

3 *Reason Adjustment is Required*

4 The adjustment for availability is based on the fact that Monsanto only offers 188
5 hours per year of operating reserves interruptions and 800 hours per year of
6 economic curtailment interruptions but the Intercooled Aero SCCT or SCCT Aero
7 used in the operating reserve comparison and the SCCT Frame 2 Frame "F" used
8 in the economic curtailment comparison are available for ratepayer benefit
9 approximately 96%, or 8,410 hours per year. Given these measurable differences
10 in hours of availability for Monsanto compared to the combustion turbines, an
11 adjustment for availability differences is required.

12 *How Adjustment is Calculated*

13 An adjustment equal to the exact full difference in the actual hours of availability
14 each year is justifiable. In other words, if Monsanto only provides 188 hours of
15 operating reserves but a simple cycle is available 8,410 hours per year, the
16 capacity value assigned to the Monsanto product should be 97.8% ($1 - 188/8,410$)
17 lower than the value assigned to a proxy simple cycle.

18 However, for purposes of this valuation, it is reasonable to assume that,
19 while available 8,410 hours per year, a simple cycle combustion turbine will not
20 be economic to run as a baseload resource but instead will be used during peak
21 times and other periods when capacity is needed. Therefore, for a more
22 conservative analysis, the availability adjustment is based on a comparison of the
23 number of hours Monsanto is available to the number of hours a Company owned

1 simple cycle plant is reasonably expected to operate or produce energy each year.

2 To determine this number, I used actual data from the recent operating history of
3 the Company owned Gadsby simple cycle plants for years 2005 and 2006. The
4 Gadsby units are three Company owned LM 6000 PC quick start simple cycle
5 plants located in Salt Lake City, Utah. Based on historical data for 2005 and
6 2006, the number of hours a simple cycle unit of this type will operate each year
7 is 2,525 hours.

8 Therefore, based on the operating information of the Company's own
9 plants, the capacity portion of Monsanto's operating reserves evaluation needs to
10 be adjusted downward by 92.6% ($1 - 188/2525$) to account for the lower
11 availability of Monsanto when compared to a Company owned simple cycle.
12 Similarly, the capacity portion of Monsanto's economic curtailment evaluation
13 needs to be adjusted downward by 68.3% ($1 - 800/2525$) to account for the lower
14 availability.

15 Adjustment for Volume Differences

16 *Reason Adjustment is Required*

17 Another adjustment is required to account for the fact that Monsanto does not
18 always provide a full 95,000 kW of operating reserves. In Monsanto's valuation
19 detailed in Exhibit 211 (KEI-11), Monsanto has applied the full capacity value of
20 an Intercooled Aero SCCT or an SCCT Aero to 95,000 kW of operating reserves.
21 The number of megawatts of operating reserves used in the analysis needs to be
22 adjusted to reflect the fact that Monsanto does not constantly provide 95,000 kW
23 of operating reserves. Section 2.2.3 of Exhibit A of the Electric Service

1 Agreement between PacifiCorp and Monsanto Company dated as of May 18,
2 2006 reads as follows:

3 If two furnaces are operating and the third is unavailable due to Economic
4 Curtailment, Monsanto will curtail one furnace. The furnace so curtailed
5 will be the largest operating furnace.

6 If Monsanto's 67 MW furnace is curtailed for economic curtailment, only one of
7 the remaining two furnaces, assumed to be 47 MW and 48 MW, is available for
8 operating reserves during that time period.

9 *How Adjustment is Calculated*

10 With 800 hours of economic curtailment available to the Company, Monsanto's
11 67 MW furnace is often curtailed for economic curtailment during the peak
12 periods of the summer months. Therefore, during the valuable peak summer
13 periods when capacity is tight due to high loads and operating reserves are most
14 valuable, Monsanto only offers approximately 48 MW of operating reserves
15 instead of the 95 MW that is assumed to be offered constantly in Monsanto's
16 valuation. However, since the "peaker valuation" model does not differentiate
17 between on peak and off peak periods, I made no attempt to account for the fact
18 that most of the reduced operating reserve volumes occur during on peak periods.

19 Instead, I simply calculated the weighted average volume of operating
20 reserves Monsanto provides over the course of a year as follows:

21
$$\frac{(800 \text{ hours} * 48,000 \text{ kW}) + [(8760 \text{ hours} - 800 \text{ hours}) * 95,000 \text{ kW}]}{8760 \text{ hours}}$$

22

23 This results in a weighted average volume of 90,708 kW of available operating
24 reserves.

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ROCKY MOUNTAIN POWER

Exhibit Accompanying Rebuttal Testimony of Paul H. Clements
Peaker Valuation – Revised for Capacity Costs, Availability, and Volume

October 2007

ROCKY MOUNTAIN POWER

Peaker Valuation with Updated Avoided Capacity Cost and Adjustments for Availability and Capacity Volumes

	Operating Reserves		Economic Curtailment SCCT Frame (2 Frame "F") (3)	Total
	Intercooled Aero SCCT (1)	or SCCT Aero (2)		
Avoided Capital:				
1	Avoided Capacity Cost (\$/kW-year) (1)	\$74.88	\$74.88	\$47.89
2	Capacity (kW)	90,708	90,708	67,000
3	Adjustment for Reserve Margin	12%	12%	12%
4	Capacity adjusted for Reserves	101,593	101,593	75,040
5	Value	\$7,607,281	\$7,607,281	\$3,593,666
6	Adjustment for Availability	-92.6%	-92.6%	-68.3%
7	Adjusted Value	\$562,939	\$562,939	\$1,139,192
Avoided Energy:				
8	Hours curtailed	188	188	800
9	MWH Curtailed	17,860	17,860	53,600
10	Avoided Energy Cost (\$/MWH) (1)	\$68.04	\$81.61	\$90.70
11	Value	\$1,215,194	\$1,457,555	\$4,861,520
12	Avoided Energy Cost - System Integrity (2)	\$132,270	\$158,650	
13	Total Value	\$1,910,403	\$2,179,143	\$6,000,712
14	Total Value		\$2,044,773	\$8,045,485

(1) PacifiCorp 2007 IRP, page 95

(2) Includes the 12 hours of system integrity

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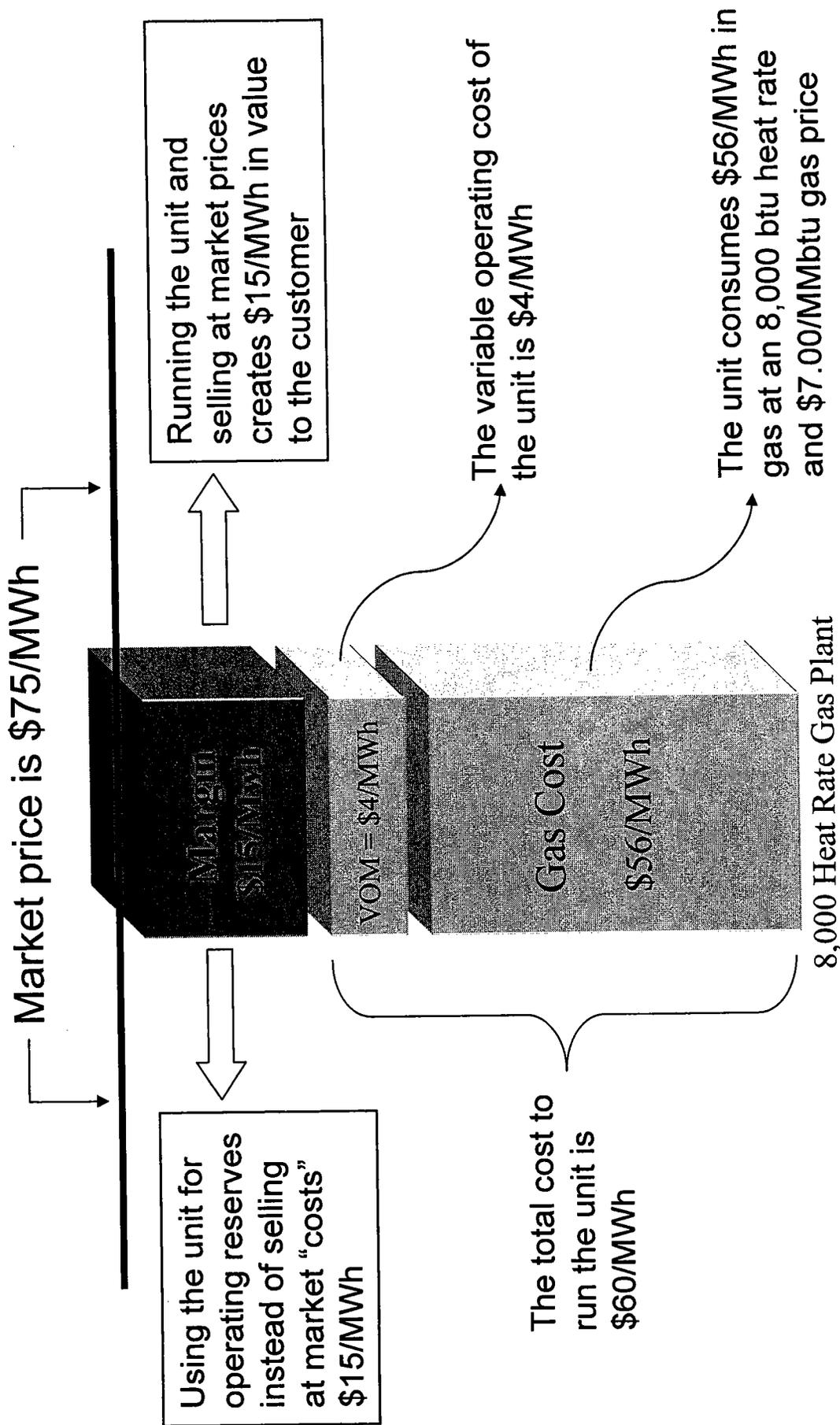
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Impact of Spark Spread on Reserve Value

October 2007

Impact of Spark Spread on Operating Reserve Value



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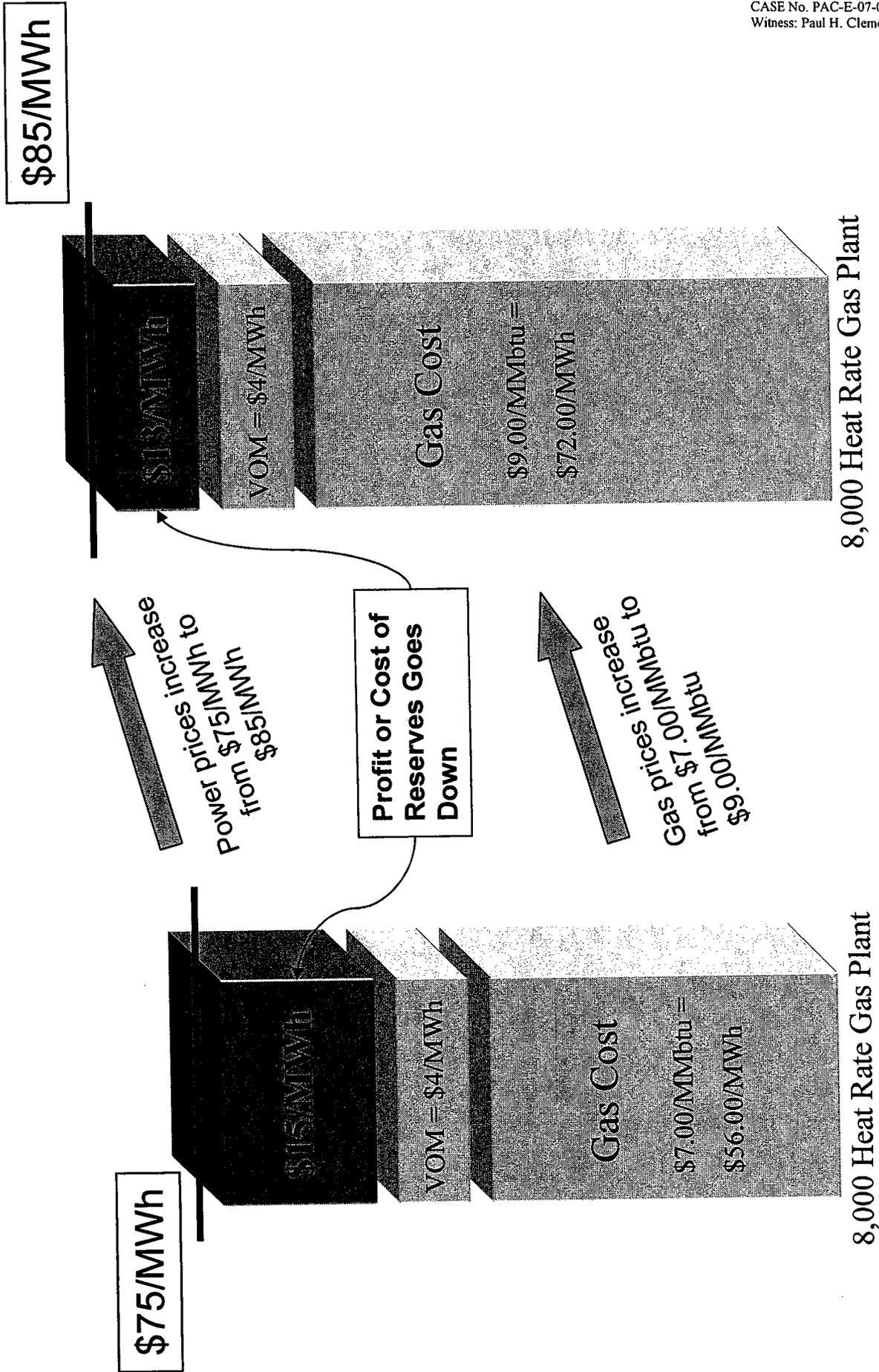
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Impact of Spark Spread Change on Reserve Value

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Impact to Reserve Value from Change in Spark Spread



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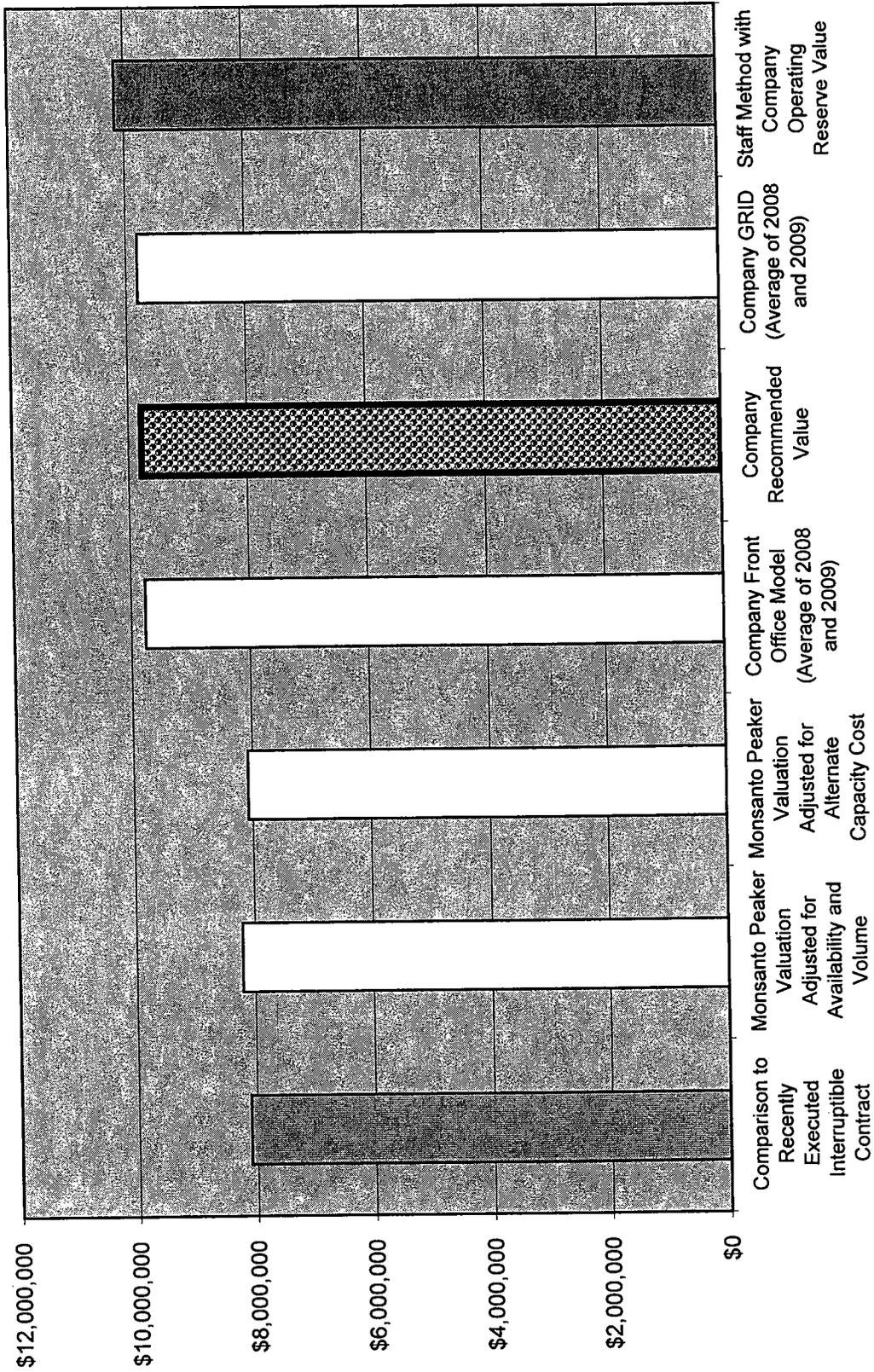
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Comparison of Model Results

October 2007

Summary of Model Results



<u>Model</u>	<u>Model Result</u>
Comparison to Recently Executed Interruptible Contract	\$8,100,000
Monsanto Peaker Valuation Adjusted for Availability and Volume	\$8,210,766
Monsanto Peaker Valuation Adjusted for Alternate Capacity Cost	\$8,072,121
Company Front Office Model (Average of 2008 and 2009)	\$9,750,000
Company Recommended Value	\$9,775,000
Company GRID (Average of 2008 and 2009)	\$9,800,000
Staff Method with Company Operating Reserve Value	\$10,161,000

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Exhibit Accompanying Rebuttal Testimony of Paul H. Clements
Existing Contract System Integrity Definition

October 2007

1 **System Integrity Definition in the Existing Monsanto Contract**

2 The system integrity terms and conditions found in Exhibit A of the
3 Monsanto contract put in place in 2006 (effective January 1, 2007) read as
4 follows:

5 **3. System Integrity Interruptions**

6 PacifiCorp may request System Integrity Interruptions of up to 162
7 MW if the System Integrity Interruption is voltage related and up to 95
8 MW if the System Integrity Interruption is caused by a Double
9 Contingency Event. A Double Contingency Event shall mean the forced
10 outage of two or more PacifiCorp generating units totaling 500 MW or
11 more of capacity. To qualify as a Double Contingency Event, two or more
12 forced outages totaling 500 MW or more of capacity must occur within 48
13 hours of each other and must overlap for at least one hour. Once a Double
14 Contingency Event begins, PacifiCorp may request System Integrity
15 Interruptions at any time during the next 48 hours. After 48 hours after a
16 Double Contingency Event begins, PacifiCorp may no longer request
17 System Integrity Interruptions in response to that specific Double
18 Contingency Event. Monsanto will interrupt its available furnace load
19 accordingly upon telephone notification. Under emergency conditions,
20 such interruption may occur without advance notice to Monsanto.
21 Otherwise, PacifiCorp shall give Monsanto not less than two (2) hours
22 notice of the potential for interruption for System Integrity purposes and
23 advance notice when such interruption will end.

24 3.1 System Integrity Interruptions shall be available to
25 PacifiCorp all hours of every day, and have priority over any other
26 interruption or curtailment option implemented at that time.

27 3.2 The interrupted service shall be restored when no longer
28 needed to maintain System Integrity.

29 3.3 A System Integrity Interruption shall not relieve Monsanto
30 of any hours under any other interruption or curtailment option. (For
31 example, if a two-hour System Integrity Interruption occurs during a five-
32 hour Economic Curtailment, Monsanto will be considered to have been
33 economically curtailed for only three hours, but the Economic Curtailment
34 shall end at the time stated in the Curtailment Notice.)

35 3.4 A System Integrity Interruption in response to a Double
36 Contingency Event shall last no longer than two consecutive hours in any
37 48 hour period.