

1 Q. Please state your name and business address for
2 the record.

3 A. My name is Keith D. Hessing and my business
4 address is 472 W. Washington Street, Boise, Idaho.

5 Q. By whom are you employed and in what capacity?

6 A. I am employed by the Idaho Public Utilities
7 Commission as a Public Utilities Engineer.

8 Q. Are you the same Keith Hessing that previously
9 submitted direct testimony in this proceeding?

10 A. Yes, I am.

11 Q. What is the purpose of your supplemental direct
12 testimony?

13 A. My testimony addresses the valuation of
14 Monsanto's interruptibility as those service arrangements
15 are described in Monsanto's current Electric Service
16 Agreement (ESA) with PacifiCorp. Monsanto is a Special
17 Contract customer of PacifiCorp receiving electric service
18 pursuant to Tariff Schedule 400 and a Special Contract
19 between the Parties dated November 5, 2007 (Case No. PAC-E-
20 07-05, Order No. 30482).

21 Q. Please summarize your testimony.

22 A. The ESA describes three interruptible products
23 provided to PacifiCorp by Monsanto. These products are
24 System Integrity interruptibility, Economic Curtailment
25 interruptibility and Non-Spinning Reserve interruptibility.

1 I accept PacifiCorp's valuation of the System Integrity and
2 Economic Curtailment products. I use PacifiCorp's
3 valuation of the Non-Spinning Operating Reserve product and
4 add a value for capacity. I propose a value for all three
5 products of [REDACTED] per year for a one year contract,
6 [REDACTED] per year for a two year contract and [REDACTED]
7 [REDACTED] per year for a three year contract.

8 Q. What is your understanding of the structure of
9 the current ESA between Monsanto and PacifiCorp as it
10 relates to the value of interruptibility and the rates
11 Monsanto pays?

12 A. The ESA requires that Monsanto's revenue
13 requirement be established as if it were a totally firm
14 customer and then be reduced by the value of three
15 interruptible products that Monsanto sells back to
16 PacifiCorp.

17 Q. Has Monsanto's firm service revenue requirement
18 been established in this case?

19 A. Not at the time of this filing. However, it is
20 my understanding that it will be established before the end
21 of 2010, while this portion of the case is on-going.

22 Q. According to the ESA what are the three
23 interruptibility products that Monsanto supplies to
24 PacifiCorp?

25 A. The three products currently provided in the ESA

1 are; 1) Non-Spinning Operating Reserves (188 hours),
2 2) Economic Curtailment (850 hours) and 3) System Integrity
3 interruptions (12 hours). Although the current ESA expires
4 December 31, 2010, Monsanto has expressed a continued
5 willingness to provide this same level of interruption to
6 PacifiCorp beyond 2010. (Transcript P. 15)

7 Q. Has PacifiCorp proposed values for Monsanto's
8 three interruptible products in this case?

9 A. Yes it has. PacifiCorp witness Paul Clements
10 presents those in his testimony.

11 **SYSTEM INTEGRITY**

12 Q. Please summarize the product and the value
13 proposed by PacifiCorp for System Integrity Interruptions.

14 A. PacifiCorp proposes a value of [REDACTED] per year
15 based on the results of a Front Office model run. Front
16 Office model results are based on forecasted energy prices
17 and described in more detail in PacifiCorp's testimony.
18 System Integrity Interruptions are available for up to 12
19 hours per calendar year. The interruptions can be up to
20 162 MW for a "voltage event" and up to 95 MW for a "double
21 contingency" event. PacifiCorp is not required to provide
22 notice prior to these emergency interruptions. During
23 these types of events load is shed to stabilize the system.
24 These types of interruptions are relatively rare.

25 Q. Do you accept the Company's estimate of the value

1 of this product?

2 A. Yes. Any and all customers are subject to
3 interruption to preserve system integrity, that is, to keep
4 all or part of PacifiCorp's system from going down in an
5 unplanned event. In my view the acceptance of this payment
6 is recognition by PacifiCorp and acknowledgement by
7 Monsanto that its load will always be considered first for
8 this type of interruption. No other customer receives
9 payment for system integrity interruptions even though all
10 other customers can be affected. I believe the value for
11 the System Integrity product reasonably reflects the
12 expected value of the interrupted energy.

13 **ECONOMIC CURTAILMENT**

14 Q. Please summarize the product and the value
15 PacifiCorp proposes for the Economic Curtailment provisions
16 of the ESA.

17 A. The Economic Curtailment provisions of the ESA
18 allow PacifiCorp to interrupt 67 MW of Monsanto load for up
19 to 850 hours per calendar year on two hours notice. The
20 ESA contains provisions that allow Monsanto to buy through
21 these interruptions at market rates if it desires. During
22 high priced hours PacifiCorp often exercises this
23 interruption.

24 PacifiCorp proposes that this product be valued
25 based on the average of Front Office and GRID model runs

1 for the year 2011. This average is [REDACTED]. Both
2 Front Office and Grid use forecasted energy prices that
3 drive the valuation results.

4 Q. Do you accept the value proposed by PacifiCorp
5 for this product?

6 A. Yes. The two models used to establish the [REDACTED]
7 [REDACTED] value of this product were run with and without
8 Economic Curtailment. The difference in the model runs
9 estimated the value of the product and the two values were
10 averaged. The GRID model is a production costing model and
11 the Front Office model uses energy price forecasts to
12 estimate costs. Both models estimate energy costs using
13 energy price forecasts. I believe that the value of this
14 product is appropriately established in the expected energy
15 market.

16 **NON-SPINNING OPERATING RESERVES**

17 Q. Please summarize the product and the value
18 PacifiCorp proposes for Non-Spinning Operating Reserves as
19 provided for in the ESA.

20 A. In the ESA, Monsanto agrees to provide Non-
21 Spinning Operating Reserves of 95 MW that can be used for
22 188 hours in a calendar year on 10 minutes notice. Again,
23 PacifiCorp uses Front Office and GRID model runs with and
24 without the Monsanto Non-Spinning Operating Reserve
25 provisions to estimate the value. Using either model, the

1 values for 2011 are [REDACTED]; therefore, the average is
2 [REDACTED].

3 Q. Do you agree that PacifiCorp's proposal correctly
4 estimates the value of the Non-Spinning Operating Reserve
5 product provided by Monsanto?

6 A. I believe that PacifiCorp has reasonably
7 estimated the energy value of providing the reserves.
8 However, I believe there is an additional capacity
9 component that must be added to properly value the product.

10 Q. Please provide a brief discussion of Operating
11 Reserves.

12 A. The North American Electric Reliability
13 Corporation (NERC) and the Western Electricity Coordinating
14 Council (WECC) require electric utilities to hold operating
15 reserves. They require reserve amounts of 5% of each
16 utility's hydro generation and 7% of each utility's thermal
17 generation. One-half of each of these amounts is required
18 to be spinning reserves and the other half can be non-
19 spinning reserves, which are also called ready reserves.
20 Spinning reserve requirements are met by resources that can
21 be applied to load immediately and that can ramp to the
22 required amount within 10 minutes. Non-spinning reserve
23 resources must begin to be applied to load within 10
24 minutes and provide the full requirement some time later.
25 There are other reserve requirements that do not directly

1 pertain to this issue that I will not discuss here.

2 Q. Why does this specific Monsanto interruptibility
3 product only qualify as non-spinning reserves?

4 A. By WECC definition interruptible loads can only
5 be used to satisfy non-spinning reserve requirements.

6 Q. How does PacifiCorp hold required spinning and
7 non-spinning reserves?

8 A. Reserve requirements are held in a least cost
9 way. In its simplest form, reserve requirements are held
10 by resources with the lowest variable operating costs that
11 remain after the Company has dispatched its resources to
12 meet load, make opportunity sales and meet other firm
13 obligations. The resources held to meet reserves must also
14 meet the start-up and/or ramping requirements previously
15 discussed.

16 The marginal resource serving load in
17 PacifiCorp's resource stack varies dramatically over the
18 course of a year. It is affected by high loads, low loads,
19 water conditions, electric market prices, maintenance
20 schedules, fuel costs for natural gas and coal and wind
21 generation. Therefore, at various times of the year,
22 reserves are held by combinations of hydro units, coal
23 units, combined cycle and simple cycle gas fired units and
24 contracts such as Monsanto's.

25 Q. How are fixed capacity costs taken into

1 consideration when resources to be held in reserve are
2 selected?

3 A. They are not. Capital costs and fixed contract
4 costs are considered sunk costs. They do not vary with
5 resource selection. Normally capital costs have all been
6 approved for recovery from customers through established
7 rates. This is not to say that capital costs and other
8 fixed costs were never considered. They were considered at
9 an earlier time when they were approved for recovery from
10 customers.

11 Q. How does this relate to the capacity value of
12 Non-Spinning Operating Reserves supplied by Monsanto to
13 PacifiCorp?

14 A. Reserves must be held in all hours of the year.
15 Reserves are held by setting aside resource capacity. This
16 capacity cannot be used for any other competing purpose
17 during the set aside period. Variable costs are incurred
18 when the resource is heated up and standing-by and when
19 reserves are called upon to meet energy requirements. All
20 operating reserves are capacity held in reserve.
21 Therefore, all have a capacity cost component.

22 Q. How would you determine the value of the capacity
23 required to provide Non-Spinning Operating Reserves?

24 A. The value could be established by allocating
25 capacity costs to Non-Spinning Operating Reserves based on

1 the percent of time each resource holds these reserves with
2 and without the Monsanto operating reserve contract. This
3 would require two GRID model runs and an hourly analysis of
4 the percent of time each resource holds reserves. This
5 would have to be done for every hour of the two runs or
6 17,520 hours (2 x 8,760). It would also require a capacity
7 cost for each resource. The difference in the capacity
8 costs allocated to Non-Spinning Reserves from the two
9 calculations would be the annual value of the Monsanto Non-
10 Spinning Operating Reserve product. While this type of
11 methodology might produce the most accurate results, the
12 sheer amounts of data and calculations are administratively
13 impractical.

14 In the alternative, I propose the use of a
15 surrogate methodology to determine a capacity value for
16 Monsanto Non-Spinning Operating Reserves. I applied the
17 methodology to two of PacifiCorp's existing resources. The
18 first resource was Gadsby (Units 4, 5 and 6). Gadsby units
19 4, 5 and 6 are three simple cycle aeroderivative units that
20 can provide Non-Spinning Operating Reserves even when cold.
21 They are also the type of units that would likely be
22 constructed if non-spinning reserves were all that was
23 needed. The capacity costs of the units are among the
24 lowest of those currently owned by PacifiCorp.

25 I calculated the replacement value of the

1 Monsanto Non-Spinning Reserve product using the 2009 plant
2 in service for Gadsby gas fired units from PacifiCorp's
3 FERC Form 1, which I converted to a levelized cost by
4 applying a levelized carrying charge rate. The levelizing
5 assumptions were based on the Staff filing in this case.
6 To that value I added assumed annual fixed Operation and
7 Maintenance costs for new aeroderivative units taken from
8 PacifiCorp's 2008 Integrated Resource Plan. This
9 methodology estimates a capacity value for the Monsanto
10 Non-Spinning Operating Reserve product of [REDACTED].
11 Staff's Confidential Exhibit No. 134 shows these
12 calculations.

13 The other PacifiCorp resource that I selected is
14 Currant Creek. Currant Creek is a combined cycle
15 combustion turbine with a higher capacity cost. A study
16 performed by PacifiCorp shows that in the absence of the
17 Monsanto reserve product, Currant Creek picks up a larger
18 share of the displaced reserve requirement than the Gadsby
19 units. I applied the same methodology that I applied to
20 the Gadsby units to the Currant Creek unit. I calculated a
21 Monsanto Non-Spinning Operating Reserve capacity value of
22 [REDACTED]. This calculation is also shown on Staff's
23 Confidential Exhibit No. 134.

24 Q. Which capacity value do you propose the
25 Commission use?

1 A. I propose that the Commission use the calculated
2 capacity costs associated with Currant Creek because
3 Currant Creek picks up more of the required reserves when
4 the Monsanto reserve product is removed. The results of
5 Company GRID runs showed this to be the case.

6 Q. Why did you select existing units to represent
7 the capacity costs of holding reserves instead of a new
8 unit?

9 A. The GRID model results that I reviewed indicate
10 that PacifiCorp is entirely capable of holding required
11 non-spinning operating reserves with existing resources if
12 the reserves provided by Monsanto were lost. If the non-
13 spinning operating reserves provided by Monsanto under
14 contract were lost, I do not believe that they would be
15 replaced with a new generating unit. This does not mean or
16 imply that Monsanto's reserves do not have value. I
17 believe that I have captured reasonable values in my
18 proposal using existing PacifiCorp resources as a
19 surrogate.

20 Q. What is the impact on the value of Monsanto's
21 Non-Spinning Operating Reserve product when PacifiCorp adds
22 new resources?

23 A. If the new resource holds Non-Spinning Operating
24 Reserves and is constructed at a higher capital cost
25 (\$/kW), the capacity value of the Monsanto Non-Spinning

1 Operating reserve product should increase.

2 Q. Have you prepared an exhibit that shows the value
3 you recommend for all three interruptible products provided
4 by Monsanto?

5 A. Yes. Staff's Confidential Exhibit No. 135 shows
6 those results. I propose that the combined 2011 value of
7 Monsanto's three interruptible products be established at
8 [REDACTED] per year and that this value be passed to
9 Monsanto as an annual credit. Confidential Exhibit No. 135
10 also shows the values for 2012 and 2013 that PacifiCorp
11 proposes if a multi-year agreement is reached. I have
12 added the capacity value of the Non-Spinning Operating
13 Reserve product to each of the three totals. It is my
14 proposal that the Non-Spinning Operating Reserve capacity
15 value not change during this three year period. For a two
16 year contract (2011 and 2012) I propose a credit of [REDACTED]
17 [REDACTED] and for a three year contract I propose a credit of
18 [REDACTED]. These values are the two year average and
19 three year average of the credit values. As previously
20 discussed these estimates all use Currant Creek as a
21 surrogate to estimate the capacity value of Monsanto's Non-
22 Spinning Operating Reserve product.

23 Q. Do you believe that the methodology you propose
24 that establishes the values of Monsanto's interruptible
25 products can be applied in the future?

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A. Yes I do. The energy values established by Front Office and GRID will change based on forecasted energy price inputs and other variables. Also, the capacity value of Non-Spinning Operating Reserves based on a surrogate resource should be reviewed and updated from time to time.

Q. How do you propose the credit be provided to Monsanto?

A. I propose that the credit be applied to reduce Monsanto's Firm Demand Charge, which is the same way the Schedule 400 credit is currently applied.

Q. Does this conclude your supplemental direct testimony in this proceeding?

A. Yes, it does.

CASE NO. PAC-E-10-07

**EXHIBIT NO. 134 PREPARED AND SPONSORED
BY KEITH HESSING**

IS

**CONFIDENTIAL AND ONLY AVAILABLE TO THOSE
PERSONS WHO HAVE SIGNED PROTECTIVE AGREEMENTS**

Confidential Exhibit No. 134
Case No. PAC-E-10-7
K. Hessing, Staff
12/22/10

CASE NO. PAC-E-10-07

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BY KEITH HESSING**

IS

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Confidential Exhibit No. 135
Case No. PAC-E-10-7
K. Hessing, Staff
12/22/10

CERTIFICATE OF SERVICE

I HEREBY CERTIFY THAT I HAVE THIS 22ND DAY OF DECEMBER 2010, SERVED THE FOREGOING NON-CONFIDENTIAL SUPPLEMENTAL DIRECT TESTIMONY OF KEITH HESSING, IN CASE NO. PAC-E-10-07, BY MAILING A COPY THEREOF, POSTAGE PREPAID, TO THE FOLLOWING:

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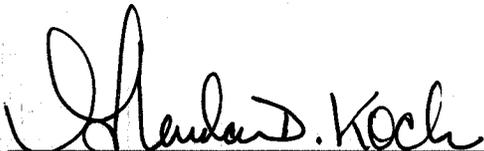
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