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Representing Southwest Energy Efficiency
Project (SWEEP) and Utah Clean Energy
(UCE)

BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

In the In the Matter of the Application of
Rocky Mountain Power for Authority to
Increase its Retail Electric Utility Service Rates
in Utah and for Approval of its Proposed
Electric Service Schedules and Electric Service
Regulations


Docket No. 09-035-23

**CORRECTED "REDLINED" PRE-FILED DIRECT TESTIMONY
OF RICHARD COLLINS**

**ON BEHALF OF
SOUTHWEST ENERGY EFFICIENCY PROJECT
(SWEEP) and
UTAH CLEAN ENERGY (UCE)**

SWEEP and UCE submit the Pre-filed Testimony of Richard Collins in this docket.

DATED this 8th day of April, 2010.

/s/ 
Representing SWEEP

/s/ _____
Representing UCE

1 **Q. Please state your name and occupation.**

2 A. My name is Richard S. Collins. I am an Associate Professor of Economics and Finance
3 at Westminster College located at 1840 South 1300 East, Salt Lake City, UT 84108.

4 **Q. On whose behalf are you filing testimony in this Docket?**

5 A. I am testifying on behalf of the Southwest Energy Efficiency Project, also known as
6 SWEEP as well as Utah Clean Energy. SWEEP is a public interest organization
7 dedicated to advancing energy efficiency as a means of promoting both economic
8 prosperity and environmental protection in Arizona, Colorado, New Mexico, Nevada,
9 Utah, and Wyoming. Utah Clean Energy (UCE) is a state-based non-profit public
10 interest group working to advance energy efficiency and renewable energy, and the
11 economic and environmental benefits those resources provide, in the public policy and
12 utility regulatory arenas in Utah.

13 **Q. Have you submitted testimony to this Commission before?**

14 A. Yes. I submitted testimony in Docket Nos.03-035-14, 05-035-08, 05-035-09, 06-035-41
15 and 06-035-76, 07-035-93 and 08-035-38.

16 **Q. Do you have experience in utility regulatory matters?**

17 A. Yes. Prior to my employment at Westminster College, I worked for the Public Service
18 Commission of Utah for approximately 13 years.

19 **Q. Please describe some of your responsibilities at the Commission.**

20 A. I provided technical advice to the Commission on rate proceedings and a variety of other
21 issues. I was responsible for tracking PacifiCorp’s IRP planning process, avoided cost,
22 demand-side management, cost of capital, and deregulation issues. In addition, I helped
23 write orders and wrote or coauthored a series of technical reports on deregulation issues

1 for the Commission and the legislature.

2 **SUMMARY OF TESTIMONY**

3 **Q: What is the purpose of your testimony in this docket?**

4 A: I am advocating that the Utah Commission adopt a four tier residential rate schedule in
5 order to send appropriate price signals to residential customers to encourage them to
6 consume electricity more efficiently. The Company and its ratepayers could face
7 dramatic changes in the next few years if growth in demand accelerates and new, more
8 expensive generation resources are required. Large rate increases have occurred in recent
9 rate cases and are expected to continue in the coming years as witnessed by the
10 Company’s rapid filing of rate cases. The Commission has the opportunity to mitigate
11 the negative impacts of these projected rate increases by adopting innovative rate designs
12 which send strong price signals to ratepayers. Rates should be designed to send price
13 signals to customers who are both responsible for a large portion of the growth in
14 electricity sales and have the ability to respond to price changes. Rates should reflect the
15 true cost of higher fuel prices and the higher costs of new generation resources. Rates
16 should be designed to have minimal impact on essential uses of electricity. The rates
17 should invoke a demand response from customers and encourage ratepayers to invest in
18 more efficient appliances and other energy-savings measures.

19 This proposal calls for an inverted rate design for residential customers with four separate
20 tiers. Given the increase allocated to residential ratepayers SWEEP and UCE
21 recommend that the customer charge be increased by only \$0.25 and that the bulk of the
22 rate increase be concentrated on the third and fourth tiers. Ultimately, the Commission
23 should strive for an inverted rate design where the last tier reflects the full marginal cost

1 of providing new electricity including transmission and emission costs. The first tier
2 should be designed to keep prices lower for those customers who are not placing large
3 demands on the system.

4 This proposal is similar to the current rate design except that an additional tier is
5 established for usage above 2000 kWh. Thus, the four tiers or blocks are structured as 0-
6 400 kWh for block one, 401-1000 kWh for the second block, 1001 to 2000 for the third
7 block, and a fourth block that applies to usage above 2000 kWh. A fourth tier is
8 necessary because of the large relative usage in this last tier. A high price in this fourth
9 tier provides a strong incentive for ratepayers with electricity use in this block to save
10 money. This will encourage them to make strategic adjustments to their electricity
11 consumption which will mitigate their bill impacts.

12 **Q: Could you give a summary of your conclusions and recommendations?**

13 A: SWEEP and UCE recommend that the Commission reject the Company’s proposed
14 residential rate design. The Company proposes to collect the bulk of the additional
15 revenue requirement assigned to the residential class through an increase in the customer
16 charge. This proposal will do nothing to increase the incentives to use electricity more
17 efficiently and will not reduce cost in the long run. The Company’s proposal places the
18 largest rate increases, in percentage terms, on the low usage customers. This penalizes
19 the customers who are placing minimal demands on the system. Such inappropriate price
20 signals should be avoided. In addition, this low usage is highly correlated with low
21 income users. During the summer months, SWEEP and UCE recommend a four tiered
22 rates for Schedule 1 that contains a more accentuated inverted structure. By using relative
23 prices to send strong price signals to customers, the Commission can expect a demand

1 response. For commercial and industrial rate structures, SWEEP and UCE recommend
2 that the Commission order the Company to investigate a rate design that would be based
3 on historic usage. BC Hydro has implemented such a rate structure and the Company
4 should evaluate its adoption for the next rate case. The Commission should implement
5 rates that encourage commercial and industrial customers to reduce their volumetric use
6 and more efficiently utilize energy so that fewer costs are placed on the system. Rates
7 that reduce use at peak times are strongly encouraged.

8 **BACKGROUND**

9 **Q: What are the fundamental considerations that the Commission should take into**
10 **account when setting rate design?**

11 **A:** As explained in previous testimony, James Bonbright, utility ratemaking expert, outlines
12 in relative order of importance the basic criteria for ratemaking as listed below.

Table 1: Bonbright’s Criteria for Ratemaking	
1. Does the rate provide adequate revenue recovery to the utility?	4
2. Does the rate promote fairness in cost allocation (equity between customer classes)?	
3. Does the rate promote efficient resource use?	16
4. Is the rate practical to implement (understanding, acceptance)?	7
5. Is the rate easy to interpret (noncontroversial)?	18
6. Does the rate provide revenue stability for the utility?	19
7. Does the rate provide bill stability for customers?	20
8. Does the rate avoid undue discrimination among customers?	21

22

23 Bonbright’s criteria for rate design are as relevant today as they were when he first wrote

1 them.¹ When designing rates the Commission should reconsider its priorities and place
2 greater emphasis on the efficient use of resources. This criterion should be ranked just
3 below the goal of adequate revenue recovery and on par with equitable cost allocation. In
4 the case of conflict between other ratemaking criteria, the Commission should choose
5 efficient pricing as its priority. Economic theory tells us that allocative efficiency occurs
6 when prices equal marginal costs; however if the Commission were to price all kWh sales
7 at marginal cost then the utility would over collect its revenue requirement and earn
8 excessive profits. This is always true if the marginal cost of electricity is greater than its
9 average cost. This condition currently exists for the Rocky Mountain Power system, as
10 new plant and equipment is more costly than older plant and equipment in rate base.
11 Thus, additional investment in new generation plant requires an increase in general rates
12 to cover the higher cost. Inverted tiered rates are an efficient way to relay this
13 information to customers.

14 **Q: Why should the Commission consider this change in residential rate design at this**
15 **time?**

16 **A:** The Commission should implement a four tiered rate design at this time in order to get
17 ahead of the curve and mitigate the impacts of anticipated growth of PacifiCorp’s system.
18 Growth of electricity sales has abated in the past year or so which reflects the current
19 downturn of the economy. However, further growth is anticipated once the economy has
20 partially or fully recovered. Energy prices are inherently volatile as witnessed by the
21 price of oil and natural gas in the past few years. However, it remains clear that energy
22 costs have the real potential to increase dramatically during period of normal or high

1 See *Principles of Public Utility Rates* by James C. Bonbright, Albert L. Danielsen, and David R. Kamerschen (Hardcover - Mar 1, 1988).

1 economic growth. By sending a price signal now, consumers can make strategic
2 decisions on the purchase of new energy-efficient appliances such as refrigerators, air
3 conditioning systems and other electronic equipment. If consumers know that additional
4 electricity consumption will lead to higher marginal rates and higher bills, they will act in
5 ways to mitigate the impact. Given the time delays associated with the regulatory
6 process, it is better to send the signals now than to wait for a crisis. Another potential
7 risk that will ultimately be borne by ratepayers is the risk of more stringent environmental
8 regulations. These new regulations could concern mercury emissions, further reductions
9 in SO₂ or NOX, or the regulation CO₂. For example, if federal legislation is passed to
10 address global climate change, such as a cap and trade or a carbon tax, the cost of coal-
11 fired generation will increase resulting in higher rates for Rocky Mountain Power’s
12 customers. Some critics of such legislation are predicting that utility rates in some areas
13 of the country could double. The rate impact will ultimately depend on how the
14 legislation is structured. However, the quickest way for the Commission to address this
15 situation of potentially large price increases for ratepayers is to promote the most
16 efficient utilization of existing energy sources.

17 **Q: Why is it the Commission’s responsibility to address this issue? Why can’t we leave**
18 **these issues to market forces?**

19 A well functioning market system has proved to be the most efficient mechanism to
20 allocate scarce resources ever developed. It is relative prices that send the signal to
21 producers to increase production during times of scarcity and for consumers to reduce
22 consumption. Thus, the most effective way to encourage people to change their
23 consumption patterns is to change prices. Witness what happened in the automobile

1 market in response to rising gasoline prices, however, it should be noted that the price
2 change has to be rather dramatic to really change behavior. Unfortunately, in the electric
3 utility industry, a competitive market at the retail level does not exist for consumers.
4 Thus, it is the responsibility of the Public Service Commission to provide guidance to the
5 Company and its customers, and to set prices that will produce efficient results. Rate
6 design is generally regarded as merely a mechanism for collecting the revenue due to the
7 utility. However, in today’s environment the Commission should put greater emphasis
8 on using rate design as a mechanism to send pricing signals to ratepayers that promotes
9 energy efficiency, which in turn will help lower costs in the future. The Commission
10 must be mindful of the state of the electricity market in Utah; we are short of generation
11 and will face rising costs and rates to meet the growing demand. Reducing demand now
12 will mitigate the need for future rate increases. This produces the counterintuitive results
13 that higher rates today will result in lower rates in the future. The goal of efficient
14 pricing of electricity should only be sacrificed when there is conflict with revenue
15 recovery.

16 **RESIDENTIAL RATE DESIGN**

17 **Q: Could you provide a critique of the Company’s recommendations for rate design for**
18 **residential customers? Please begin with your thoughts on the customer charge.**

19 **A:** The Company proposes to collect the vast majority of the residential revenue increase by
20 raising the customer charge from \$3.00 to \$5.55, an 85 percent increase on top of a
21 significant increase in the customer charge in the last rate case. This proposal will result
22 in a dramatic percentage increase in the overall costs for low users. Customers using less
23 than 100 kWh per month will see their summer bill increase by nearly 23 percent, while

1 customers using 400 kWh per month will see a 7.3 percent increase. Ratepayers who use
2 1000 kWh experience a 2.8 percent increase in their summer bill while a very large users
3 of 2000 kWh experiences a 1.5 percent increase. So the more electricity one uses the
4 lower their bill increase is in terms of percentages. The percentage increase by usage
5 level is almost identical for winter bills with the lower usage customers shouldering the
6 largest rate increases in percentage terms. This large disparity in rate increase
7 percentages results solely from the impact of the customer charge. It unduly burdens the
8 low-usage customers, and sends an inappropriate price signal to high use customers. As I
9 explain later in my testimony, the low usage customers are not responsible for the large
10 increase in usage and the corresponding costs placed on the system. It is the larger users
11 who are placing an inordinate burden on the system. For both efficiency and equity
12 reasons the Commission should only raise the customer charge minimally if at all. We
13 recommend an increase of \$0.25 to \$3.25.

14 **Q: Are there other reasons why the Commission should not pursue a large increase in**
15 **the customer charge?**

16 **A:** The collection of more revenue in a fixed charge robs the Commission of the opportunity
17 to send price signals through a volumetric charge to customers that place high costs on
18 the system. Company representatives have maintained in public meetings that residential
19 cooling has added considerably to the system peak, a fact confirmed in confidential
20 information contained in Appendix A. According to a study performed by the Public
21 Service Company of Colorado, the average annual residential central air conditioning
22 load is about 2700 kWh per year. The air conditioning load in Utah is likely to be similar.
23 The air conditioning load is predominantly in the five summer month period with

1 concentrated usage in the months of July and August precisely when the PacifiCorp
2 system hits its peak. This information is relevant because both weather and usage patterns
3 of residential customers are remarkably similar between the Utah and Colorado
4 jurisdictions.

5 **Q: Are there other reasons you object to the proposed increase in the Customer**
6 **charge?**

7 A: Yes, when I worked at the Commission, one of my responsibilities was to occasionally
8 take complaint calls. Complaints about the customer charge was one of the more
9 common complaints received by Commission staff. Customers were confused about the
10 logic behind the charge and when provided with an explanation, most still could not
11 understand why the charge was necessary. If the Commission insisted on a customer
12 charge, customers wanted the charge to be as low as possible.

13 **Q: What do you propose for a rate design that will efficiently price electricity and help**
14 **keep rates down in the future?**

15 A: SWEEP and UCE propose increasing the number of summertime tiers from three to four
16 and increasing the rate differentials between tiers. In addition, we recommend that the
17 Commission institute a two tier rate structure for the winter with the demarcation
18 between tier set at 700 kWh with a small price differential. We recommend that the
19 summertime rates for the first two tiers remain the same which is consistent with the
20 Company’s proposal. For the third tier we recommend a rate that is approximately two
21 thirds higher than the first tier base rate. The fourth tier is priced at approximately 100
22 percent higher than the first tier. The suggested rates and tiers are shown in the tables
23 below. The first, Table 1, shows existing rates and the second, Table 2, shows the

1 proposed rate structure.

Table 1: Existing Three Tiered Rates for Summertime Residential Usage		
TIER	SPREAD	COST (May through September)
1 st tier	First 400 kWh/mo	(\$0.075292/kWh)
2 nd tier	From 401 kWh to 1,000 kWh/mo	(\$0.089416/kWh)
3 rd tier	Over 1,000 kWh/mo	(\$0.111216/kWh)

2
3
4

Table 2: Proposed Four Tiered Rate Structure for Summertime Residential Usage		
TIER	SPREAD	COST (May through September)
1 st tier	First 400 kWh/mo	(\$0.0759292/kWh)
2 nd tier	From 401 kWh to 1000 kWh/mo	(\$0.089416/kWh)
3 rd tier	From 1001 kWh to 2000 kWh/mo	(\$0. 124215 <u>11.9714</u> /kWh)
4 th tier	Above 2000 kWh/mo	(\$0.14 9058 <u>7235</u> /kWh)

5

6 **Q: What are the rates proposed for the winter usage?**

7 **A:** Table 4 below shows the rate structure that is recommended. The current winter rates are
 8 set at \$0.078009/kWh, SWEEP and UCE are recommending that the first block be
 9 lowered to \$0.076 for the first 700 kWh and the second block be set at \$0.084/kWh.

Table 4: Proposed Four Tiered Rate Structure for Wintertime Residential Usage		
TIER	SPREAD	COST (October through April)
1 st tier	First 700 kWh/mo	(\$0.076/kWh)
2 nd tier	Over 700 kWh	(\$0.084/kWh)

10

11 **Q: What is the rationale for recommending a tiered structure for the winter?**

12 **A:** SWEEP and UCE believe that a consistent pricing message should be sent year round.

1 Rates should be designed from the perspective that additional consumption of electricity
2 will result in higher rates in the future. Most of the anticipated future generation is a
3 result of a growth in summer usage, particularly peak demand. However, winter usage
4 and wintertime peaks are also growing and customers should be encouraged to utilize
5 electricity efficiently in the winter as well as the summer. Thus, we recommend a two
6 tier rate design that has a small differential between the tiers. By lowering the rates for
7 usage between 0 and 700 kWh, there will be a small percentage decrease in winter bills
8 for customers consuming in the range of 0-850 kWh per month. For customers
9 consuming more than 850 kWh per month, there is an increase in bills. These customers
10 will see a higher marginal price under our proposal and thus will be motivated to some
11 degree to limit consumption in the upper tier.

12 **Q: Could you explain why you divided the summertime tiers in such a fashion?**

13 **A:** Using data provided by the Company which shows billing and usage figures by 100 kWh
14 segment for calendar year 2008, I constructed the relative number of customers in each
15 tier or block and calculated their relative usage of kWh. The first three tiers were chosen
16 to be consistent with current tariff, but a fourth tier was added above 2000 kWh.

17 Table 5 below shows the percent of customers with marginal usage in each tier and the
18 corresponding percentage of kWh usage. For the summer season, the first tier (0-400
19 kWh) contains just less than 25 percent of the customers but accounts for only 7 percent
20 of the usage for all of Schedule 1, 2 and 3. It is obvious that these customers are not
21 putting much pressure on system costs. The second tier (401-1000 kWh) contains just
22 over ~~46~~ percent of customers and accounts for 37 percent of the usage. The 3rd tier

1 (1001 to 2000 kWh) contains 24 percent of the customers but uses 39 percent of the
2 usage. And the last tier greater than 2000 kWh contains a ~~5.23~~ percent of the customers
3 but uses over ~~167.6~~ percent of the electricity during the summer months.

Table 5: Existing Tiered Rates Summer Percentage of Bills and Usage (Schedule 1,2&3; 2008)		
Tier	% of bills with marginal consumption in tier	% kWh
<=400	24. 67 %	6.97.0 %
401 - 1000	46. 34 %	36.87.4 %
1001 - 2000	23. 78 %	38.79.3 %
>2000	5. 32 %	17.66.3 %

4
5 **Q: Why is fourth tier desirable or necessary?**

6 **A:** A fourth tier is desirable and I believe necessary in order to get a demand response from
7 the very large users of summer time electricity. Consumers with some consumption in
8 the top two tiers, just 29 percent of customers, consume over ~~565~~ percent of all
9 summertime electricity. If the Commission wants to affect energy consumption in the
10 summertime, this proposal would achieve that end without affecting a large number of
11 customers. The rationale for a fourth tier is that usage over 2000 kWh is mostly caused
12 by air conditioning load and this load coincides with the system peak. High usage
13 customers in the fourth tier are more than likely consuming electricity to meet air
14 conditioning load for a large residence. Such usage can be regarded as discretionary and
15 measures can be taken to lower usage without major lifestyle changes. These measures
16 include raising the thermostat when the house is not occupied or closing some registers to
17 some parts of the house that are not in use. In addition, high prices to high use consumers
18 will send a long run price signal that the most efficient cooling (and other) appliances

1 should be purchased. This long term price signal will provide long term benefits to all
2 ratepayers as lower demand for electricity avoids costly new investment in generation. In
3 addition, the marginal price must be substantial in order to get a demand response. This is
4 analogous to consumer’s response to rising gasoline prices recently. At \$3.00 a gallon
5 there was not much change in consumers’ behavior in terms of decreased usage of
6 gasoline or a change in the composition of automobiles that they purchased, but at \$4.00
7 a gallon and above consumers have both decreased the consumption of gas by driving
8 less and have demanded more fuel efficient automobiles. Thus, a significant price signal
9 is required to change behavior of residential customers with high electricity usage.

10 **Q: Can you explain why you have chosen such a large rate increases for customers in**
11 **the last two rate tiers while keeping the rates the same for the first two tiers?**

12 **A:** The current rate differential between the 1st and 2nd is approximately 19 percent. The
13 current differential between the 1st and 3rd tier is 48 percent. SWEEP and UCE are
14 proposing to keep the rate differential the same between the 1st and 2nd tiers but to
15 increase the rate differential between the 1st and 3rd tier to ~~59~~66 percent. Between the 1st
16 and 4th tier, a ~~100-96~~ percent differential is proposed. The reason for leaving the rates for
17 the first two tiers at current levels is to address equity concerns. Rates for essential energy
18 usage should be kept reasonable. There is a minimum amount of electricity that is
19 required to function in our society and it should be kept affordable, for example, for
20 refrigeration, basic lighting and other essential services. Higher levels of usage by a
21 household represent more of a luxury than necessity and as such should be more sensitive
22 to changes in price. In addition, there is a high correlation between low income
23 customers and low usage, so by keeping rates lower for the first two tiers there are

1 additional benefits in that it will help the poor. High usage customers are generally more
2 affluent and can afford the higher rates. It should be clear that rates were not chosen
3 solely for this purpose; rate structure was selected based on cost causation and with the
4 desire to promote more efficient electricity use.

5 **Q: Have you calculated the revenue that would be collected under your proposal?**

6 **A:** Yes, I have. Using the information and model provided by the Company’s response to
7 SWEEP data request 2.4 and the revenue requirement that the Commission determined
8 for the residential class, I adapted the Company’s model to determine the pricing for each
9 tier based on my assumptions about the appropriate percentage rate spread between tiers.
10 Given these assumptions, the model determines the rates for each tier which will allow
11 for full revenue requirement recovery.

12 **Q: What are the impacts on the different customers segments with your rate proposal?**

13 **A:** Exhibit RSC-1, attached to this testimony, shows the percentage change in bills by 100
14 kWh usage segment under this proposal. For example, in the summer, customers using
15 100 kWh per month experience a 2.25 percent increase. As usage increases to 1000 kWh
16 the percentage increase declines to 0.27 percent. Customers using 2000 kWh experience a
17 ~~7.244.41~~ percent increase while customer using 4000 kWh experience a ~~22.19.21~~ percent
18 increase. For winter usage, customers will see a slight decrease in their bills until about
19 the 850 kWh level and then bills increase after that level. At 1200 kWh/mo there is a
20 ~~1.892.6~~ percent increase while a 2000 kWh/mo customer will see a ~~6.74.16~~ percent
21 increase in their winter bills.

22 **Q: Why not spread out the rate increase more equally between the summertime tiers?**

1 **A:** There are a number of reasons to place higher rate increases on the high use customers.
2
3 As discussed previously, cost causation is a primary reason to set high rates in the higher
4 tiers. The high energy consumption of air conditioning is driving much of the increase in
5 demand, as indicated in confidential Appendix 1. Thus, high use customers are placing
6 more of a cost burden on the system and therefore should pay their proportion of the
7 costs. Second, price increases must be substantial in order to get a demand response and
8 the high end users have more opportunity to cut usage and purchase energy efficient
9 appliances. The marginal prices at the high end of the usage scale will get the biggest
10 bang for the buck because electricity use at these higher levels is regarded as a luxury not
11 a necessity. It is a well known economic tenet that luxury goods have a higher demand
12 response than necessities. It will also encourage high usage households to participate in
13 the Company’s DSM programs, and will send a message to new home buyers to purchase
14 homes that have high energy efficiency ratings, such as ENERGY STAR new homes.

14 **Q:** **One of the issues with a steeply inverted rate schedule is the possibility that the**
15 **Company may be at risk of not collecting its full revenue requirement, as customers**
16 **decrease usage, what do you suggest as a remedy to this issue?**

17 **A:** The Commission should assume that there will be a demand response to the higher prices
18 and could explicitly build the reduction in consumption into the calculation of rates. In
19 the Colorado proceeding Docket No.09-AL-299 in which I testified, PSCo submitted a
20 model developed by Dr. Ahmad Faruqui, which explicitly incorporated an elasticity
21 adjustment for determining revenue requirement. If the Commission determines that an
22 elasticity adjustment is necessary, a copy of that model could be adapted to incorporate
23 elasticity effects into the calculation of the rates.

1 **Q: Are there any other issues involved with implementing this rate proposal?**

2 **A:** Yes, SWEEP and UCE recommend that the Company perform an intensive educational
3 process that informs residential ratepayers of the new rate design and why it is being
4 implemented. This should include communication through bill inserts as well as the
5 mainstream media explaining that an increase usage by customers will lead to higher
6 bills. It should also inform customers about the steps they can take to minimize their
7 electricity consumption in their highest rate tier.

8

9 **OTHER ISSUES FOR COMMISSION CONSIDERATION**

10 **Q: What are your thoughts on Time of Use (TOU) rates?**

11 **A:** Generally, I believe that real time TOU rates sends the most accurate price signals to
12 customers regarding the costs that they are placing on the system. The Commission
13 should continue its investigation into TOU rates for larger customer classes and adopt
14 TOU rates where feasible. For residential customers, TOU rates should be optional. One
15 set of customers that may benefit from TOU rates is customers that participate in net
16 metering. However, for the residential class as a whole the Commission should be
17 cautious and wait until proper a cost-benefit analysis is performed that evaluates the
18 benefits associated with TOU rates and compares it to the substantial costs of its
19 implementation. For example, the Company should monitor the results of the Public
20 Service Company of Colorado’s Smart Grid experiment in Boulder, Colorado.

21 **Q: Do you have any recommendations regarding innovative rate designs to encourage**
22 **conservation and energy efficiency by commercial and industrial customers?**

1 **A:** Yes I do. I would like to bring to the attention of the Company, the Commission, and
2 other stakeholders an innovative rate design that has been adopted for industrial
3 customers by BC Hydro in Canada. BC Hydro’s rates are reviewed and approved by a
4 provincial regulatory body, the British Columbia Utilities Commission. I am not
5 recommending adoption of this rate design for RMP at this time, but I do believe it merits
6 further consideration and possible implementation in Utah in the future; e.g., in the next
7 rate case that the Company files.

8 **Q:** **What rate design has BC Hydro adopted for large industrial customers?**

9 **A:** For its very large customers served by the transmissions grid at 60 KV or higher voltage
10 (approximately 300 large customers in the case of BC Hydro), a two tier rate structure
11 has been adopted for energy charges. A copy of this tariff is attached as Exhibit RSC-3
12 along with some graphics that help explain the concept. The way the tariff works is that
13 each customer is assigned a baseline electricity load based on its average monthly energy
14 (GWh) consumption over the previous 12 months. Then going forward, the customer
15 pays a relatively low energy rate (2.608 cents per kWh) for consumption each month up
16 to 90% of its baseline consumption, but a significantly higher price of 7.360 cents per
17 kWh for consumption above the baseline. This tariff was adopted in lieu of a flat rate of
18 3.1 cents per kWh. New customers pay this flat rate for the first 12 months of their
19 service, until they are assigned a baseline load and then after the first year are shifted
20 onto the two tier rates. Each company’s baseline load is then adjusted every 12 months.
21 This two tier rate structure provides a much stronger economic incentive for energy
22 efficiency and conservation of energy use on the margin, compared to traditional flat

1 energy rates.

2 **Q: Could this type of rate design also be applied to smaller industrial customers and**
3 **larger commercial customers?**

4 **A:** Yes it could. BC Hydro has not adopted inverted block rates for such customers yet, but it
5 is studying options for doing so.

6 **Q: What are your proposals for the other rate classes?**

7 **A:** I do not make explicit recommendations for other rate classes

8 **Q: Could you summarize your recommendations?**

9 **A:** I recommend that the Commission use rate design to meet goals that will benefit all
10 ratepayers in the long run. Given the large growth in demand and the necessity to build
11 new more expensive generation plant, the Commission should use its pricing powers to
12 send a strong message to higher usage customers that it is in their self interest to utilize
13 electricity more efficiently. I recommend that the Commission reject the Company’s rate
14 design proposal and adopt the proposal developed in my testimony. The Commission
15 should increase the customer charge by just \$0.25 per month and recover additional
16 revenues through volumetric charges. The Commission should implement a steeply
17 inverted tiered rate with the highest two tiers receiving the bulk of the rate increase. This
18 will send a clear signal to higher usage customers that it is their financial interest to invest
19 in energy efficient appliances and cut back on use where possible. The Company’s own
20 IRP has identified energy efficiency as one of its most cost-effective resources. The
21 Commission can help in the acquisition of this resource with appropriate pricing. In
22 addition, the Commission should order the Company to better educate customers about

1 the tiered rate structure and ways customers can minimize their consumption in higher
2 rate tiers. Finally, the Company (or the Commission) should investigate tiered rates for
3 commercial and customers along the lines of rates now implemented by BC Hydro, report
4 on its findings, and propose such rates in the future if it appears that they would be
5 feasible and beneficial in Utah.

6 **Q:** **Does that conclude your testimony?**

7 **A:** Yes it does.

CERTIFICATE OF SERVICE

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Bill Impacts for SWEEP/UCE's Four Tier Summertime and Two Tier Wintertime Rate Design

kWh	Summer				Winter				Sch I Summer	08GRC	SWEEP Proposed
	Monthly Billing ¹		Change		Monthly Billing ¹		Change				
	Present	Proposed	\$	%	Present	Proposed	\$	%			
100	\$11.12	\$11.37	\$0.25	2.25%	\$11.41	\$11.45	\$0.04	0.35%	Basic	\$3.00	\$3.25
200	\$19.01	\$19.26	\$0.25	1.32%	\$19.58	\$19.41	(\$0.17)	-0.87%	Basic	7.5292	7.5292
300	\$26.91	\$27.16	\$0.25	0.93%	\$27.76	\$27.38	(\$0.38)	-1.37%	kWh1	8.9416	8.9416
400	\$34.80	\$35.05	\$0.25	0.72%	\$35.94	\$35.35	(\$0.59)	-1.64%	kWh2	11.1216	11.9714
500	\$44.17	\$44.42	\$0.25	0.57%	\$44.11	\$43.31	(\$0.80)	-1.81%	kWh3	11.1216	14.7235
600	\$53.54	\$53.79	\$0.25	0.47%	\$52.29	\$51.28	(\$1.01)	-1.93%	kWh4	3.78	3.78
700	\$62.92	\$63.17	\$0.25	0.40%	\$60.47	\$59.24	(\$1.23)	-2.03%	Minimum	\$0.23	\$0.23
720 a					\$62.07	\$60.97	(\$1.10)	-1.77%	HELP	4.82%	4.82%
774 b	\$69.89	\$70.14	\$0.25	0.36%	\$66.55	\$65.79	(\$0.76)	-1.14%	DSM		
800	\$72.29	\$72.54	\$0.25	0.35%	\$68.65	\$68.05	(\$0.60)	-0.87%	Winter		
840 c	\$76.08	\$76.33	\$0.25	0.33%					Basic	\$3.00	\$3.25
900	\$81.66	\$81.91	\$0.25	0.31%	\$76.82	\$76.85	\$0.03	0.04%	kWh1	7.8009	7.6000
1,000	\$91.03	\$91.28	\$0.25	0.27%	\$85.00	\$85.66	\$0.66	0.78%	kWh2	7.8009	8.4000
1,100	\$102.69	\$103.83	\$1.14	1.11%	\$93.18	\$94.46	\$1.28	1.37%	Minimum	\$3.78	\$3.78
1,200	\$114.35	\$116.38	\$2.03	1.78%	\$101.35	\$103.27	\$1.92	1.89%	HELP	\$0.23	\$0.23
1,300	\$126.01	\$128.93	\$2.92	2.32%	\$109.53	\$112.07	\$2.54	2.32%	DSM	4.82%	4.82%
1,400	\$137.66	\$141.48	\$3.82	2.77%	\$117.71	\$120.88	\$3.17	2.69%			
1,500	\$149.32	\$154.03	\$4.71	3.15%	\$125.88	\$129.68	\$3.80	3.02%			
2,000	\$207.61	\$216.77	\$9.16	4.41%	\$166.77	\$173.71	\$6.94	4.16%			
3,000	\$324.19	\$371.10	\$46.91	14.47%	\$248.54	\$261.76	\$13.22	5.32%			
4,000	\$440.76	\$525.43	\$84.67	19.21%	\$330.31	\$349.81	\$19.50	5.90%			
5,000	\$557.34	\$679.76	\$122.42	21.97%	\$412.08	\$437.85	\$25.77	6.25%			

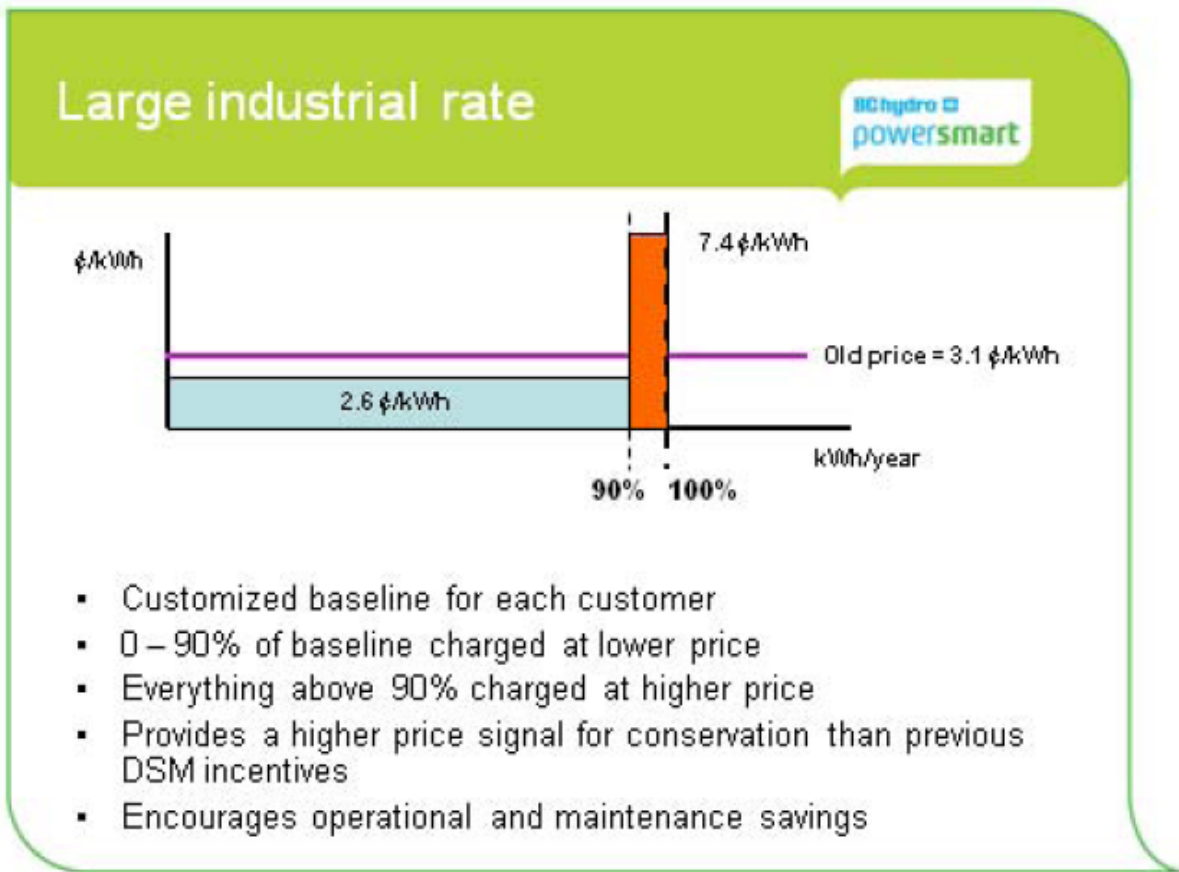
¹ Including HELP, DSM and applicable adjustment.
² Winter average usage; b: Annual average usage; c: Summer average usage.

kWh	Summer				Winter				Sch 1	08GRC	Proposed
	Monthly Billing ¹		Change		Monthly Billing ¹		Change				
	Present	Proposed	\$	%	Present	Proposed	\$	%			
100	\$11.12	\$11.37	\$0.25	2.25%	\$11.41	\$11.45	\$0.04	0.35%	Summer	\$3.00	\$3.25
200	\$19.01	\$19.26	\$0.25	1.32%	\$19.58	\$19.41	(\$0.17)	-0.87%	Basic	7.5292	7.5292
300	\$26.91	\$27.16	\$0.25	0.93%	\$27.76	\$27.38	(\$0.38)	-1.37%	kWh1	8.9416	8.9416
400	\$34.80	\$35.05	\$0.25	0.72%	\$35.94	\$35.35	(\$0.59)	-1.64%	kWh2	11.1216	12.4215
500	\$44.17	\$44.42	\$0.25	0.57%	\$44.11	\$43.31	(\$0.80)	-1.81%	kWh3	11.1216	14.9058
600	\$53.54	\$53.79	\$0.25	0.47%	\$52.29	\$51.28	(\$1.01)	-1.93%	kWh4	11.1216	14.9058
700	\$62.92	\$63.17	\$0.25	0.40%	\$60.47	\$59.24	(\$1.23)	-2.03%	Minimum	\$3.78	\$3.78
720 a					\$62.10	\$61.00	(\$1.10)	-1.77%	HELP	\$0.23	\$0.23
774 b	\$69.89	\$70.14	\$0.25	0.36%	\$66.55	\$65.79	(\$0.76)	-1.14%	DSM	4.82%	4.82%
800	\$72.29	\$72.54	\$0.25	0.35%	\$68.65	\$68.05	(\$0.60)	-0.87%	Winter	\$3.00	\$3.25
841 c	\$76.10	\$76.35	\$0.25	0.33%	\$76.82	\$76.85	\$0.03	0.04%	Basic	7.8009	7.6000
900	\$81.66	\$81.91	\$0.25	0.31%	\$85.00	\$85.66	\$0.66	0.78%	kWh1	7.8009	8.4000
1,000	\$91.03	\$91.28	\$0.25	0.27%	\$93.18	\$94.46	\$1.28	1.37%	kWh2	\$3.78	\$3.78
1,100	\$102.69	\$104.30	\$1.61	1.57%	\$109.53	\$103.27	\$1.92	1.89%	Minimum	\$0.23	\$0.23
1,200	\$114.35	\$117.32	\$2.97	2.60%	\$117.71	\$112.07	\$2.54	2.32%	HELP	4.82%	4.82%
1,300	\$126.01	\$130.34	\$4.33	3.44%	\$125.88	\$120.88	\$3.17	2.69%	DSM		
1,400	\$137.66	\$143.36	\$5.70	4.14%	\$129.68	\$129.68	\$3.80	3.02%			
1,500	\$149.32	\$156.39	\$7.07	4.73%	\$166.77	\$173.71	\$6.94	4.16%			
2,000	\$207.61	\$221.49	\$13.88	6.69%	\$248.54	\$261.76	\$13.22	5.32%			
3,000	\$324.19	\$377.73	\$53.54	16.52%	\$330.31	\$349.81	\$19.50	5.90%			
4,000	\$440.76	\$533.97	\$93.21	21.15%	\$412.08	\$437.85	\$25.77	6.25%			
5,000	\$557.34	\$690.21	\$132.87	23.84%							

¹ Including HELP, DSM and applicable adjustment.

a: Winter average usage; b: Annual average usage; c: Summer average usage.

BC Hydro Existing Large Industrial Rate



BC Hydro Proposed Small Industrial Rate

