Witness OCS – 2D
Phase II, Part 1

BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

In the Matter of the Application of	**)**	**Docket No. 09-035-15**
Rocky Mountain Power for	**)**	**Direct Testimony**
Approval of its Proposed Energy	**)**	**Lori Smith Schell**
Cost Adjustment Mechanism	**)**	**For the Office of**
	)	**Consumer Services**

REDACTED

June 16, 2010

Direct Testimony on Issues Relating to Hedging and
Reliance on Market Energy in Connection with an ECAM

Q. WHAT IS YOUR NAME, OCCUPATION AND BUSINESS ADDRESS?

A. My name is Lori Smith Schell. I am the founder and President of Empowered Energy, which has its business address at 174 North Elk Run, Durango, Colorado, 81303.

Q. PLEASE DESCRIBE EMPOWERED ENERGY.

A. Empowered Energy is a Colorado-based independent consulting firm that provides market and regulatory analysis of natural gas, power, and emissions markets. Empowered Energy provides industry expertise and quantitative skills to analyze these markets. Empowered Energy also works with end-users and energy providers to evaluate how the costs and benefits of emerging technologies are impacted by changes in natural gas, power, and emissions markets.

Q. HAVE YOU PREVIOUSLY TESTIFIED IN THIS DOCKET?

A. Yes. I provided direct testimony in this docket on November 16, 2009, that discussed the stated goals of PacifiCorp Energy's Risk Management Policy and showed that, with respect to natural gas, PacifiCorp Energy was generally in compliance with the then-current hedging targets stated in its Risk Management Policy.

Q. ON WHOSE BEHALF ARE YOU APPEARING?

A. Empowered Energy is a subcontractor to GDS Associates, Inc. ("GDS") for work done in this proceeding. GDS was retained by the Utah Office of Consumer Services ("OCS") to review Rocky Mountain Power's natural gas risk management policies and procedures. Accordingly, I am appearing on behalf of the OCS.

Q. HAVE YOU PREPARED ANY EXHIBITS IN SUPPORT OF YOUR TESTIMONY?

A. Yes. I have prepared Exhibit OCS-2.2[1] and Exhibit OCS-2.3, which are attached to this testimony. Exhibit OCS-2.2 contains two pages of summary data related to PacifiCorp's reported Net Power Costs ("NPC") over time. Exhibit OCS-2.3 contains a graph related to OCS-2.2.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is twofold. I will first show that the volume-based hedge targets found in PacifiCorp Energy's Risk Management Policy appear to be high given the historical magnitude of system balancing activity required. I will then discuss the implications of this finding relative to PacifiCorp Energy's recent decision to replace its volume-based hedge targets with a To-Expiry Value-at-Risk ("TEVaR") metric. The Risk Management Policy applies to hedging of both natural

[1] Exhibit OCS 2.1 was provided in Phase I of this docket.

gas and electricity, and to each of PacifiCorp's three main divisions: PacifiCorp Energy, Pacific Power, and Rocky Mountain Power.

Q. CAN YOU BRIEFLY DESCRIBE THE VOLUME-BASED HEDGE TARGETS IN PACIFICORP ENERGY'S RISK MANAGEMENT POLICY?

A. The volumetric-based hedge targets in PacifiCorp Energy's Risk Management Policy: (1) Are applicable to both natural gas and electricity; and, (2) [redacted]

Q. IS THERE VARIABILITY IN THE PERCENTAGE OF PACIFICORP ENERGY'S HEDGED VOLUMES OVER TIME?

A. Yes. Because of the dynamic nature of natural gas markets, electricity markets, generation unit availability, and customer demand, all having their own volatility, forecasts of future natural gas and electricity requirements change over time. Changes in generation unit availability and customer demand are components of operational risk, and result in

dynamic changes to the actual percentage of natural gas and electricity requirements that are hedged for any given time period.

Q. WHAT IMPACT DOES OPERATIONAL RISK HAVE ON PACIFICORP ENERGY'S HEDGED VOLUMES?

A. Previous hedges may have to be liquidated if actual load is lower than forecast or if actual generation is higher than forecast. In contrast, additional volumes may have to be procured if actual load is higher than forecast or if actual generation is lower than forecast. There will always be a need for system balancing activity, though the magnitude and direction of such system balancing activity cannot be determined until real-time load and generation conditions make themselves manifest.

Q. WHAT IMPACT HAS SYSTEM BALANCING ACTIVITY HAD ON PACIFICORP ENERGY'S HEDGE TARGETS?

A. Although the Company acknowledges this issue, it does not appear that system balancing activity has been explicitly considered by PacifiCorp Energy in setting its hedge targets.

Q. WHAT IMPACT SHOULD SYSTEM BALANCING ACTIVITY HAVE HAD ON PACIFICORP ENERGY'S HEDGE TARGETS?

A. The fact that system balancing activity is almost inevitable should lower PacifiCorp Energy's volume-based hedge targets in order to avoid the

transaction costs associated with hedges that may need to be liquidated due to reduced real-time loads and/or increased generation.

Q. IS IT POSSIBLE TO ESTIMATE THE MAGNITUDE OF HISTORICAL SYSTEM BALANCING ACTIVITY?

A. Yes. "Total System Balancing Sales" and "Total System Balancing Purchases" have in the past been included as separate megawatt-hour ("MWh") volume categories in the NPC study that PacifiCorp includes with each rate case filing. I have relied on the reported values in each of these MWh volume categories as reported in the NPC study filed in Utah Docket No. 09-035-23, and in five earlier NPC studies that were provided in response to Division of Public Utilities ("DPU") Data Request 4.3 in Utah Docket No. 09-035-15.

Q. HOW DID YOU ORGANIZE THE DATA FROM THE SIX NPC STUDIES?

A. Exhibit OCS-2.2 contains a two-page summary that shows the MWh value categories for each of the six NPC studies that I analyzed for purposes of this testimony. The left-hand column lists the MWh value categories included in the analysis. The three columns for each NPC study include the MWh values for each category in the left-hand column, with those MWh values then subtotaled in various ways as one moves through the next two columns to the right.

Redacted

Q. HOW DID YOU QUANTIFY THE LEVEL OF SYSTEM BALANCING ACTIVITY FROM THE SUMMARY SHEETS PROVIDED IN EXHIBIT OCS-2.2?

A. The level of system balancing activity is determined as a percentage of "Total MWh Requirements" in a two-step process. First, the total MWh of system balancing activity is calculated by adding together the total MWh of "System Balancing Sales" and the total MWh of "System Balancing Purchases." Second, the total MWh of system balancing activity is divided by the "Total MWh Requirements" to calculate the system balancing activity as a percentage of PacifiCorp Energy's total MWh requirements.

Q. WHAT WAS THE RANGE OF SYSTEM BALANCING ACTIVITY AS A PERCENTAGE OF PACIFICORP ENERGY'S "TOTAL MWH REQUIREMENTS" FOR THE SIX NPC STUDIES?

A. The total system balancing activity for the six NPC studies ranged from a low of 8 percent to a high of 17 percent of PacifiCorp Energy's "Total MWh Requirements," with a volume-weighted average of about 14 percent.

Q. WHAT IS THE SIGNIFICANCE OF THE VOLUME-WEIGHTED LEVEL OF TOTAL SYSTEM BALANCING ACTIVITY?

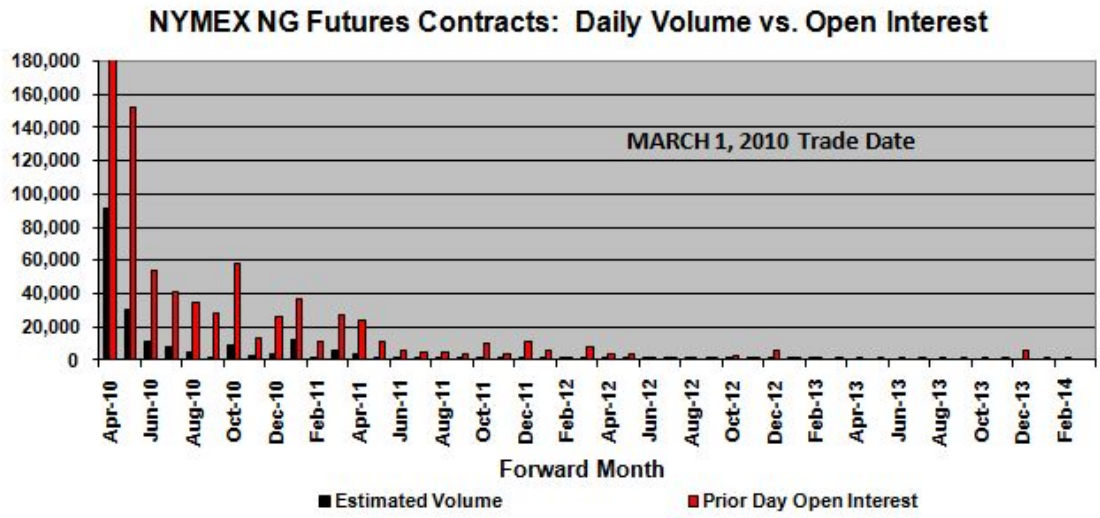
A. In my opinion, this volume-weighted level of historical total system balancing activity indicates the degree to which PacifiCorp Energy's first-year volume-based maximum hedge target could be reduced. By

subtracting the volume-weighted 14 percent historical system balancing activity from the load forecast, a more appropriate revised maximum first-year volume-based hedge target can be determined. More specifically, it can be argued that the first-year maximum volume-based hedge target should be no higher than 86 percent of PacifiCorp's "Total MWh Requirements," rather than the [redacted] percent specified in PacifiCorp Energy's Risk Management Policy.

Q. WHAT CONCLUSIONS DID YOU REACH?

A. Based on my analysis of historical system balancing activity, PacifiCorp Energy's volume-based hedge targets appear to be high. I would recommend considering reducing the Year 1 maximum hedge target to no more than 85 percent of PacifiCorp Energy's forecast "Total MWh Requirements," as illustrated in Exhibit OCS-2.3. This could be accomplished by reducing PacifiCorp Energy's Year 1 hedge targets to no more than [redacted] to allow for limited hedging activity during these months in which market liquidity is more limited. This lack of liquidity in the natural gas futures market is illustrated in the graph below for the (randomly selected) March 1, 2010, trade date.

Redacted



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160 **Q. HOW DOES THE DERIVED MAXIMUM 85 PERCENT YEAR 1 HEDGE**
161 **TARGET COMPARE WITH OTHER COMPANIES?**

162 A. In my experience, 85 percent of total requirements appears to be a good
163 rule of thumb as a maximum hedge target. The 86 percent maximum
164 Year 1 hedge target derived above, based on the Company's actual
165 historical system balancing activity level, would appear to support this rule
166 of thumb. What is most important is the recognition that hedging [redacted]
167 [redacted] of total forecast requirements is too high in light of
168 system balancing requirements that are certain in all but magnitude.

169

170 **Q. WILL REDUCING THE VOLUME-BASED HEDGE TARGETS**
171 **INCREASE RATE VOLATILITY EXPERIENCED BY CUSTOMERS?**

172 A. Yes, it can be argued that PacifiCorp Energy's rate volatility would be
173 expected to increase. But the analysis of this expected increase in rate

volatility must include an examination of whether the increased benefits to ratepayers of reduced hedging-related costs are more than offset by the expected increase in rate volatility. Without a detailed examination of PacifiCorp Energy's hedging-related costs, it is impossible to estimate the relative costs and benefits to ratepayers of reducing PacifiCorp Energy's volume-based hedge targets. The testimony of Paul Wielgus discusses PacifiCorp Energy's hedging-related costs in general, but I would recommend that a more-detailed examination of these costs be undertaken as part of this docket.

Q. ARE THE VOLUME-BASED HEDGE TARGETS STILL PART OF PACIFICORP ENERGY'S RISK MANAGEMENT POLICY?

A. Not in the same manner as they were prior to a recent change by the Company. The volume-based hedge targets have been replaced by the TEVaR metric. The percentage of forecast volumes that is hedged in each of the [redacted] will apparently still be calculated, but more for informational purposes and not for use as a systematic guideline. There is no longer a firm requirement in PacifiCorp Energy's Risk Management Policy to comply with any specific volume-based hedge targets.

Q. WHAT IS THE PURPOSE OF THE TEVaR?

A. The purpose of the TEVar metric is to calculate the potential impact of price movement related to open positions, which are those volumes that have not been hedged. In this respect, it is the flip side of the former volume-based hedge targets. If the volume-based hedge targets were in place, the TEVaR on any given day would reflect how different market prices paid for the as-yet-unhedged volumes would flow through to impact rates.

Q. HOW IS THE TEVaR USED TO REPLACE THE VOLUME-BASED HEDGE TARGETS?

A. Similar to the volume-based hedge targets, there is a range of acceptable TEVaR values that increases with each [redacted] The increase in the range of acceptable TEVaR values corresponds to the fact that there is less volume hedged in each [redacted] and, consequently, a larger open position to be affected by changes in market prices.

Q. WHAT ARE THE BENEFITS OF SWITCHING TO THE TEVaR METRIC FROM VOLUME-BASED HEDGE TARGETS?

A. The primary benefit of the TEVaR metric is that it is driven by the potential rate impact on ratepayers. The range of acceptable TEVaR values, as I understand it, is based on what PacifiCorp Energy believes to be an acceptable percentage increase in NPC compared to the NPC embedded

in rates. An additional benefit of the TEVaR metric is that it combines the impact of natural gas and electricity hedging into a single metric. This will allow explicit recognition of the off-setting "natural hedge" positions that occur when the Company is, for instance, selling excess electricity generation during the same month that it is buying natural gas to generate that electricity. To the extent that the electricity price moves in the same direction as natural gas prices, the Company would presumably no longer need to enter into transactions to hedge all of the related natural gas price risk, since some of that risk is likely to be mitigated through the higher electricity sales price. This combined view of hedging may actually reduce the total amount of hedging that is required, thereby saving ratepayers some of the hedging-related transaction costs discussed in the testimony of Paul Wielgus.

Q. WHAT MIGHT BE A DOWNSIDE OF SWITCHING TO THE TEVaR METRIC?

A. The TEVaR metric is less transparent than the volume-based hedge targets because it requires input that must be derived and is generally not easily understood (e.g., the historical correlation between commodities, forward price curves, market volatility) as compared to explicit target percentages This is, however, a common issue with most statistical metrics used in risk management, and is highlighted here

primarily because TEVaR, a statistical metric, has replaced a relatively straight-forward and easy-to-understand volumetric-based metric.

Q. HOW MIGHT THE SWITCH TO THE TEVaR METRIC IMPACT PACIFICORP ENERGY'S HEDGING PROCEDURES?

A. The TEVaR metric will require greater coordination of input than did the volume-based hedge target, though the required input should be readily available within the Company. The TEVaR metric provides PacifiCorp Energy with greater decision-making latitude regarding timing of hedges because there is a wide range of market conditions under which the calculated TEVaR metric will remain within the acceptable range. This could likely delay hedging when market conditions appear unfavorable and increase hedging when market conditions appear more favorable, a situation that may or may not benefit ratepayers. Just as importantly, greater decision-making latitude in general could mean greater decision-making latitude down to the specific natural gas and electricity traders. [redacted] greater trader oversight may be appropriate.

Q. DOES YOUR EARLIER RECOMMENDATION TO REDUCE THE LEVEL OF THE VOLUME-BASED HEDGE TARGETS HAVE ANY IMPACT ON THE COMPANY'S PROPOSED RANGE OF ACCEPTABLE TEVaR VALUES?

A. Yes. Reducing the level of the volume-based hedge targets for [redacted] by definition increases the size of that time period's open position. Thus, the Company's proposed range of acceptable TEVaR values for [redacted] would likely have to be increased to correspond to the lower volume-based hedge targets. This somewhat counter-intuitive result might be tempered by other considerations, such as a policy decision to limit the acceptable percentage impact on NPC, or a desire to limit the expansion of the Company's decision-making latitude under the TEVaR metric.

Q. WHAT DO YOU CONCLUDE?

A. I conclude that the Company's volume-based hedge targets should be reduced to reflect historical system balancing requirement levels. I conclude that the use of the TEVaR metric in lieu of the volume-based hedge targets is generally acceptable, but that the acceptable range of TEVaR values should be re-examined for three reasons. First, the Company's proposed acceptable range of TEVaR values is linked to the former volume-based hedge targets, which appear to have been too high. Second, there may be operational or policy reasons to limit the acceptable range of TEVaR values. Third, the wider range of acceptable TEVaR values that would be associated with the recommended lower volume-based hedge targets may have to be balanced with the greater decision-

making latitude that such a wide range of acceptable TEVaR values enables.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

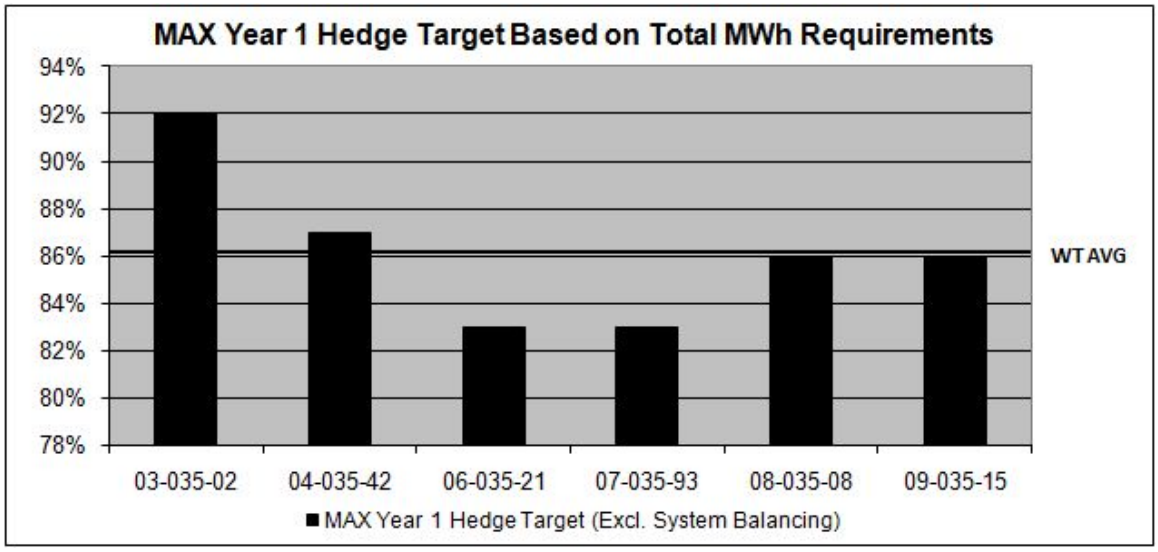
A. Yes

PacifiCorp Net Power Cost Analysis: Summary Statistics by Rate Case, with Derived Maximum Year 1 Hedge Target

	Wt Avg %	Docket No. 03-035-02			Docket No. 04-035-42			Docket No. 06-035-21		
System Balancing Sales + System Balancing Purchases		6,301,051			9,057,573			12,592,861		
As % of TOTAL MWH REQUIREMENTS		8%			13%			17%		
Resultant Maximum Year 1 Hedge Target	***86.314%***	***92%***			***87%***			***83%***		
		MWh	**MWh**	**MWh**	**MWh**	**MWh**	**MWh**	**MWh**	**MWh**	**MWh**
NET SYSTEM LOAD		51,266,515			55,686,356			56,255,387		
Total Net System Load			51,266,515			55,686,356			56,255,387	
SPECIAL SALES FOR RESALE										
Total Long Term Firm Sales		7,318,517			4,877,122			3,136,591		
Total Short Term Firm Sales		16,397,577			4,862,850			9,323,200		
Total System Balancing Sales		4,696,267			5,904,652			6,782,736		
TOTAL SPECIAL SALES FOR RESALE			28,412,361			15,644,624			19,242,527	
TOTAL MWH REQUIREMENTS				79,678,876			71,330,980			75,497,914
PURCHASED POWER & NET INTERCHANGE										
Total Long Term Firm Purchases		10,700,385			10,540,979			8,870,949		
Total Seasonal Purchased Power		-			-			-		
Total Qualifying Facilities Power		-			-			1,872,473		
Total Mid-Columbia Contracts		-			1,477,360			1,954,230		
Total Long Term Firm Purchases			10,700,385			12,018,339			12,697,652	
Total Storage & Exchange		-			39,624			(142,536)		
Total Short Term Firm Purchases		13,967,622			1,756,250			1,758,000		
Total System Balancing Purchases		1,604,784			3,152,921			5,810,125		
Total Short Term Purchases			15,572,406			4,948,795			7,425,589	
TOTAL PURCHASED POWER & NET INTERCHANGE				26,272,791			16,967,134			20,123,241
GENERATED POWER										
Total Coal Generation		45,137,145			45,338,211			44,931,879		
Total Natural Gas Generation		3,150,571			3,936,300			5,784,522		
Total Other Generation		5,118,369			5,089,338			4,658,272		
Total Generated Power			53,406,085			54,363,849			55,374,673	
TOTAL GENERATED POWER				53,406,085			54,363,849			55,374,673
TOTAL MWH SUPPLIED				79,678,876			71,330,983			75,497,914

PacifiCorp Net Power Cost Analysis: Summary Statistics by Rate Case, with Derived Maximum Year 1 Hedge Target

	Docket No. 07-035-93			Docket No. 08-035-38			Docket No. 09-035-23		
System Balancing Sales + System Balancing Purchases	13,784,457			10,481,240			10,532,234		
As % of TOTAL MWH REQUIREMENTS	17%			14%			14%		
Resultant Maximum Year 1 Hedge Target	*83%*			*86%*			*86%*		
		a							
	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh
NET SYSTEM LOAD	58,581,918			59,856,832			58,244,381		
Total Net System Load		58,581,918			59,856,832			58,244,381	
SPECIAL SALES FOR RESALE									
Total Long Term Firm Sales	3,230,370			2,613,726			2,299,512		
Total Short Term Firm Sales	12,534,800			7,447,200			5,297,000		
Total System Balancing Sales	6,593,286			7,089,132			8,191,332		
TOTAL SPECIAL SALES FOR RESALE		22,358,456			17,150,058			15,787,844	
TOTAL MWH REQUIREMENTS			80,940,374			77,006,890			74,032,225
PURCHASED POWER & NET INTERCHANGE									
Total Long Term Firm Purchases	5,068,630			4,804,920			4,661,053		
Total Seasonal Purchased Power	100,400			100,800			83,200		
Total Qualifying Facilities Power	2,355,710			3,236,877			2,671,022		
Total Mid-Columbia Contracts	2,066,378			1,715,479			1,353,938		
Total Long Term Firm Purchases		9,591,118			9,858,076			8,769,213	
Total Storage & Exchange	(224,997)			(199,352)			(222,725)		
Total Short Term Firm Purchases	5,762,200			1,504,920			1,481,720		
Total System Balancing Purchases	7,191,171			3,392,108			2,340,902		
Total Short Term Purchases		12,728,374			4,697,676			3,599,897	
TOTAL PURCHASED POWER & NET INTERCHANGE			22,319,492			14,555,752			12,369,110
GENERATED POWER									
Total Coal Generation	45,284,210			45,965,629			45,342,552		
Total Natural Gas Generation	7,656,568			9,629,974			9,097,903		
Total Other Generation	5,680,107			6,855,527			7,222,656		
Total Generated Power		58,620,885			62,451,130			61,663,111	
TOTAL GENERATED POWER			58,620,885			62,451,130			61,663,111
TOTAL MWH SUPPLIED			80,940,377			77,006,882			74,032,221


MAX Year 1 Hedge Target Based on Total MWh Requirements
94%
92%
90%
88%
86%
84%
82%
80%
78%
WT AVG
03-035-02
04-035-42
06-035-21
07-035-93
08-035-08
09-035-15
MAX Year 1 Hedge Target (Excl. System Balancing)