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Issue: Forecasting and Budgeting
Witness: Timothy M. Nelson
Type of Exhibit: Rebuttal Testimony
Sponsoring Party: KCP&L Greater Missouri Operations Company
Cases No.: HC-2012-0259 and HC-2010-0235
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MISSOURI PUBLIC SERVICE COMMISSION

CASES NO.: HC-2012-0259 and HC-2010-0235

ADDITIONAL REBUTTAL TESTIMONY

OF

TIMOTHY M. NELSON

ON BEHALF OF

KCP&L GREATER MISSOURI OPERATIONS COMPANY

Kansas City, Missouri
June 2013

REBUTTAL TESTIMONY

OF

TIMOTHY M. NELSON

Cases No. HC-2012-0259 and HC-2010-0235

Q: Please state your name and business address.

A: My name is Timothy M. Nelson. My business address is 1200 Main Street, Kansas City, Missouri 64105.

Q: Are you the same Timothy M. Nelson who pre-filed Rebuttal Testimony in this matter on July 2, 2012?

A: Yes.

Q: On whose behalf are you testifying?

A: I am testifying on behalf of KCP&L Greater Missouri Operations Company ("GMO" or the "Company").

Q: What is the purpose of your Rebuttal Testimony?

A: In rebuttal to the testimony of Ag Processing Inc. ("AGP") witness Donald E. Johnstone, I describe the forecasting and budgeting process used for the Lake Road Plant steam system, which is also described by Company witnesses Joseph G. Fangman and Gary L. Gottsch in their testimony in these cases. While the stated purpose of Mr. Fangman's Direct Testimony in Case No. HC-2010-0235 "is to describe the process for preparing forecasts and annual sales budgets for steam operations at the St. Joseph Lake Road Generating Station and to describe my contact with Aquila's steam customers at the St. Joseph Lake Road Generating Station," Mr. Johnstone nevertheless criticizes GMO for what he calls an "area of silence" regarding GMO's predecessor Aquila's forecast of its

natural gas usage. See Johnstone Rebuttal at 3 (HC-2010-0235) (Nov. 5, 2010). My testimony here, as well as my Rebuttal Testimony filed on July 2, 2012 in Case No. HC-2012-0259, is intended to provide for the Commission a more complete understanding of GMO's forecasting and budgeting process.

Q: Mr. Johnstone criticizes the hedged gas volumes for 2006 and 2007 in his Supplemental Direct Testimony. Please describe the forecasting and budgeting process used for the 2006 and 2007 hedged gas volumes.

A: There are six main steps to the forecasting and budgeting process: (1) gather historical steam customer loads; (2) collect the steam customers' expectations for their future steam loads and use this to create the steam load forecast; (3) develop a forecast of customer loads given both historic and expected customer needs and any other considerations that would impact customer loads; (4) determine the expected coal higher heating value ("HHV") for Boiler 5 and any other plant operational considerations; (5) obtain the natural gas and coal pricing; and (6) use the collected data to calculate the expected fuel burn volumes. Finally, when this process is complete, the forecasted natural gas burn volumes are forwarded to Mr. Gottsch to be used for the natural gas hedging process.

Q: Was this same process used for the 2009 hedged gas volumes?

A: Yes. See Nelson Rebuttal at 3-7 (HC-2012-0259) (July 2, 2012). This process was used for each year of hedged gas volumes. However, I note that AGP has not complained about the 2008 hedge costs. Nevertheless, the hedging program that is the subject of AGP's complaint in Case Nos. HC-2010-0235 and HC-2012-0259 is the same program that operated in 2008.

Q: How are the Lake Road Plant steam customers' historical loads obtained?

A: Lake Road Plant staff oversees the steam metering that measures the customers' steam use and maintains records of the customers' steam load volumes. As described in his Direct Testimony in these cases, Mr. Fangman maintained regular contact with the steam customers to monitor their activities that could affect load. He would provide to me the information regarding anticipated load requirements that steam customers provided to him.

Q: How are the steam customers' expectations of future steam loads gathered?

A: As described in detail in his testimony in these cases, Mr. Fangman maintains active communications with each of the steam customers both by written communication, such as e-mail, and verbally. See Fangman Direct at 5-7 (HC-2010-0235) (Oct. 22, 2010); Fangman Rebuttal at 4-6 (HC-2012-0259) (July 2, 2012). Mr. Fangman uses his customer contacts to learn about each customer's business plans, plant outages, maintenance, and planned plant expansions, as well as how that impacts their expected steam use. Each time the budgeting and forecasting process is initiated, I contact Mr. Fangman to provide up-to-date information on each customer's projected steam load use.

Q: How is this data used to create the steam load forecast?

A: The starting point for the steam customers' steam load forecast is each customer's historical steam load volumes. Mr. Fangman's up-to-date information on planned plant outages and maintenance is then used to make any necessary adjustments to the steam load forecast. However, in the case of a customer's expansion, the historical steam load volumes are not useful and the steam customer must be relied upon to provide an accurate projection of its steam demand. In the case of a new steam customer or

customer facility, there is absolutely no historical basis to determine its steam demand and the customer's projections must be relied upon entirely.

GMO must rely upon its steam customers, who are the experts in their manufacturing process and who have sole access to non-public proprietary information regarding their business plans, products, and customers, to provide accurate guidance as to their projected demand. Consequently, forecasts are necessarily prepared based on a combination of sales history and on the customer's own projections. Once the steam forecast has been created, it is forwarded to Mr. Fangman for review.

Q: You state above that another step in the forecasting and budgeting process is to determine the expected coal HHV for Boiler 5 and any other plant operational considerations. What information is needed to make this determination?

A: There are three primary pieces of information that are needed regarding the coal HHV and other plant operational considerations for the preparation of the steam budget. The first piece of information is the expected coal HHV for Boiler 5 (the coal-fired boiler), including the types of coal that will be burned and in what ratio. The second piece of information is Boiler 5's expected availability. The third piece of information is Boiler 5's maximum capability in mmBtu of steam.

Q: Why is this information about Boiler 5 needed?

A: This information is needed because the average cost of steam is determined by the fuel mix used to produce the steam. This appears to be what Mr. Johnstone is describing when he discusses natural gas as a "swing fuel" throughout his testimony. Each of the different fuels burned at the Lake Road Plant — gas, coal, and oil — typically widely differ in price. Oil (#2 fuel oil) is normally the most expensive fuel and consequently is

used only as the backup fuel. Coal is normally the cheapest fuel, with natural gas typically falling in between. However, there is not enough steam capacity from the coal-fired boiler to serve all the steam customers' demand. Thus, a mix of coal and natural gas is needed to provide the necessary steam capacity.

The resulting mix of coal and gas determines the average price of fuel used for steam production, as described in greater detail in the Additional Rebuttal Testimony of Company witness Wm. Edward Blunk.

Q: What factors affect the coal to gas fuel mix for the steam system?

A: One thing that impacts the coal to gas fuel mix is the maximum capability of Boiler 5 (in mmBtu of steam).

Boiler 5's maximum steam output capability is impacted by fuel quality. One important aspect of fuel quality is the HHV of the coal, which is commonly expressed in Btu/lb. The limiting factor on Boiler 5 is the throughput capacity of the coal mills. Thus, the higher the HHV of the coal, the more steam Boiler 5 can produce. The lower the HHV, the less steam Boiler 5 can produce. The HHV of the coal burned in Boiler 5 is dependent on both the coal type as well as the coal blend.

Another important aspect of fuel quality is the moisture content of the coal. In addition to the natural variance in moisture as delivered from the coal mine, recent rainfall can have a major impact on the moisture content of the coal, which greatly affects the performance of Boiler 5. Wet coal is more difficult to feed into the boiler and can cause flame stability problems, requiring the need to burn more gas in the boiler for flame stabilization. Wet coal also reduces Boiler 5's coal mill capacity. In addition, the wet coal causes degradation in Boiler 5's heat rate, also limiting its steam output.

Q: Are there other factors that affect the coal to gas fuel mix for the steam system?

A: Yes. Boiler 5's availability also affects the coal to gas fuel mix. Boiler 5's availability depends on the number of hours of planned outages and unplanned outages (also known as forced outages). Boiler 5's planned outages are usually scheduled for 1-3 weeks in the fall depending on the scope of work needed. Boiler 5's forced outage rate is typically very low and thus does not have a large impact on coal to gas fuel mix. Both planned and forced outages are accounted for in steam budget projections.

Q: Do any of the Lake Road Plant electric turbines affect the coal to gas mix for the steam system?

A: Yes. There are three electric turbines (Lake Road Turbines 1, 2, & 3) that are supplied from this common steam system that also supplies the steam customers. Since Boiler 5 is normally operating near its maximum output already, the operation of the electric turbines does not increase its output of steam. However, when these electric turbines operate they are allocated a portion of the coal mmBtu's pursuant to a methodology established in a prior case.

Q: Is this forecasting process the same as the forecasting process described in your testimony in Case No. HC-2012-0259 for the 2009 budget?

A: Yes.

Q: Of the factors discussed above in rebuttal to Mr. Johnstone's criticism of GMO's natural gas usage, which has the greatest impact on the forecast of natural gas volumes?

A: There are many variables that impact the forecast of natural gas volumes. Mr. Johnstone criticizes in his Supplemental Direct, as well as in his Direct Testimony, GMO's reliance

on its customers' projections and its alleged inflexibility in responding to changes in customer demand. However, the variance Mr. Johnstone alleges between the forecasted usage and actual usage, while an incomplete analysis as described by Mr. Blunk in his Additional Rebuttal Testimony, is based upon the projections that steam customers provided to GMO, and the fact that those customers continued to assure GMO that they would meet their demand, as described by Mr. Fangman throughout his testimony in these cases.

It is the steam customers' load projections that have the greatest impact on the forecast of natural gas volumes. As I discuss above, GMO relies upon its customers' projections of their demand in creating the forecast, as customers are in the best position to know what their demand will be. Historical volumes cannot serve as a predictor of customer demand where there is a new customer or a customer expands its facility. As described in the Direct Testimony of Mr. Fangman, customers AGP, Triumph Foods, and Albaugh Chemicals all had plans for growth during the relevant period. See Fangman Direct at 8-10 (HC-2010-0235) (Oct. 22, 2010); Fangman Rebuttal at 7-9 (HC-2012-0259) (July 2, 2012). Since Boiler 5 already operates near its maximum capability, every additional mmBtu of steam must be sourced fully from natural gas.

Q: From what other source could GMO have obtained a forecast for the customers' steam demand?

A: If an existing customer's future usage patterns and quantities mirror what they have used in the past, then their historical steam usage can be used as a guide. But in the case of a plant expansion or when there is a new customer, there is no source for a forecast of a customer's demand other than that customer. Only the steam customers have access to

their non-public proprietary information regarding their business plans and production plans needed to provide accurate guidance for their projected steam volumes.

Q: Should GMO have foreseen that the steam customers' projected steam demand would not be realized?

A: No. GMO did not have the necessary information to do so. Without access to the detailed confidential information about the steam customers' business plans, products, or their customers, it would be impossible to make such projections or for GMO to second guess the judgments of its steam customers. Any criticism of GMO now occurs with the benefit of hindsight. GMO properly relied on its steam customers' projections of their demand in creating its forecasts, as those projections were what was known and knowable at the relevant point in time.

Q: Mr. Johnstone states at page 4 of his Supplemental Direct Testimony that he questions the administration of the steam hedging program. After the budget forecasting process was complete, at what time was the natural gas volume decision made and forwarded to Mr. Gottsch?

A: The timing of the decision of the natural gas volumes coincided with the adoption of the steam budget. Each annual budget updates two years that were included in the prior three-year budget. For example, in July 2005 the budgets for 2006, 2007, and 2008 were prepared. In June 2006, the budgets for 2007 and 2008 were updated, and the budget for 2009 was prepared. Thus, the annual budget process updates the budget for the subsequent two years.

See the table below for the date the budget was made for each of the budget years 2006 through 2009. The volume decision made at this time was based on all of the

information known and knowable at the time. When this process is complete, the forecasted volumes were forwarded to Mr. Gottsch to be used for the steam hedging program.

Budget Year	Budget Date
2006	07/07/2005
2007	06/22/2006
2008	06/19/2007
2009	08/20/2008

Q: Was the annual budget updated or the forecast revised at all during 2006 and 2007?

A: Yes. As described by Mr. Fangman and Mr. Gottsch, hedge positions are based upon budgeted volume numbers that Mr. Fangman receives directly from customers. Mr. Gottsch received updated volumes from our Resource Planning Group in February 2006, June 2006, and July 2007. See Gottsch Direct Schedule GLG-2 (HC-2010-0235) (Oct. 22, 2010). See also Fangman Direct at 7-8 (HC-2010-0235) (Oct. 22, 2010). When given a revised forecast or updated budget, Mr. Gottsch adjusted volumes and hedge plans accordingly. See Gottsch Direct at 12-13 (HC-2010-0235) (Oct. 22, 2010).

Mr. Fangman describes in detail the forecast revision that occurred in February 2006, as well as the updates to the annual budget in 2006 and 2007. See Fangman Direct at 7-9 (HC-2010-0235) (Oct. 22, 2010). Mr. Gottsch explains that the February 15, 2006 forecast revision resulted in the volumes to which he managed the hedges placed on February 16, 2006. All hedge positions for 2006 thus were placed based on a forecast revision that had occurred only the day before. See Gottsch Direct Testimony at 12-13; Schedule GLG-3 (HC-2010-0235) (Oct. 22, 2010). Aquila's remaining hedge purchases were adjusted to meet the new budgeted volumes updated in June 2006 and 2007. Id.

Q: Why is it important to known when the forecasts were created and revised?

A: It is important to look at what was known or knowable to the Company at the time the hedges were placed, and to not judge the Company on the basis of hindsight. Because the forecasts were necessarily reliant upon customer projections, because Mr. Fangman was in frequent contact with customers about any changes to their projected demand, and because the forecasts and budgets were updated when new information was provided to the Company, hedges were prudently placed based on what was both known and knowable at the time that they were placed. Actual steam sales cannot be known in the years prior when forecasts and budgets are created. Thus, GMO's conduct should be judged based upon what it knew at the time the budgets were created and updated.

Q: Does that conclude your testimony?

A: Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

Ag Processing, Inc., Complainant,	)	
	)	Case No. HC-2010-0235
v.	)	Consolidated With
	)	Case No. HC-2012-0259
KCP&L Greater Missouri Operations Company, Respondent.	)	

AFFIDAVIT OF TIMOTHY M. NELSON

STATE OF MISSOURI)
) **ss**
COUNTY OF JACKSON)

Timothy M. Nelson, being first duly sworn on his oath, states:

1. My name is Timothy M. Nelson. I work in Kansas City, Missouri, and I am employed by Kansas City Power & Light Company as Supply Resources Operations Analyst – Senior.

2. Attached hereto and made a part hereof for all purposes is my Additional Rebuttal Testimony on behalf of KCP&L Greater Missouri Operations Company consisting of ten (10) pages, having been prepared in written form for introduction into evidence in the above-captioned docket.

3. I have knowledge of the matters set forth therein. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded, including any attachments thereto, are true and accurate to the best of my knowledge, information and belief.

Timothy M. Nelson

Subscribed and sworn before me this 14th day of June, 2013.

Notary Public

My commission expires: Feb. 4, 2015

NICOLE A. WEHRY
Notary Public - Notary Seal
State of Missouri
Commissioned for Jackson County
My Commission Expires: February 04, 2015
Commission Number: 11391200