BEFORE THE UTAH PUBLIC SERVICE COMMISSION

In the Matter of the Investigation and the Consolidation of Dockets of the Formal Complaints Against Questar Gas Company Relating to Back-Billing	))))	Docket No. 08-057-11 Division Report

TRANSPONDER PRE-DIVIDE EXCEPTIONS AND BACK-BILLING ISSUES

Division of Public Utilities

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EXECUTIVE SUMMARY

In the 1990's, Questar Gas Company (QGC) began to investigate the use of Automated Meter Reading (AMR) technology as a means of increasing efficiency and billing accuracy. The preferred technology involved attaching to the meter a "transponder," which would record and, when queried from a specially equipped vehicle, transmit via a radio signal the natural gas usage as registered on the meter. In order for the transponder to record and transmit the correct amount of natural gas passing through the meter, the transponder's pre-divide parameter needs to be set to match the type of meter, either a one or two-foot meter. If the pre-divide parameter is set incorrectly, the transponder will record and transmit an incorrect usage amount. The existence of incorrectly set pre-divide parameters, known as pre-divide exceptions, and the resulting over- or under-billing, is the focus of this report.[1]

After determining that AMR technology would significantly benefit its customers, QGC began installing the transponders in 1996. By 2006, QGC had essentially ended the installation phase of its AMR program, having installed approximately 875,000

[1] During routine and concentrated testing, as described herein, QGC identified other problems leading to incorrect recording and transmission of usage. All such problems are reported by QGC in its response to Joint Data Request (JDR) 1.05. The scope of this investigation, however, is limited to those errors in recording resulting from incorrectly set pre-divide parameters or pre-divide exceptions, as described herein.

transponders. Even though QGC visually inspected the transponders at the time of installation and followed up with a manual comparison of the transponder's and meter's recorded usage within a relatively short time period after installation, evidence of incorrectly set pre-divides, or pre-divide exceptions, soon arose. The existence of pre-divide exceptions was confirmed when, in 2006, QGC began to systematically test transponders for pre-divide exceptions and other recording and transmitting problems.

Findings

As of June 2008, Questar Gas Company ("QGC" or "Company") has notified 517 customers – 400 residential customers and 117 commercial customers – that the transponder attached to their natural gas meter was reporting an incorrect usage.[2] Of the 400 residential customers, the transponders for 374 residential customers, or approximately 94%, had under-reported usage by half; for the other 26 residential customers, the transponder reported twice the actual usage. The Commercial customers notified of erroneous reporting exhibit a similar pattern. Approximately 97%, 114 out of the 117 commercial customers, had transponders that under-reported their usage by half.

The total amount under-billed to customers equals $908,786, divided between residential and commercial in the amounts of $546,083 and $362,699, respectively. The largest residential amount under-billed is approximately $7,500, while the smallest amount under-billed is approximately $1.83. The range of commercial under-billings is

[2] Company's response to Joint Data Request (JDR) 1.27 (updated June 11, 2008).

between $94 and $17,068. The range of over-billings are between $208 and $3,349, and $1,443 and $2,323 for residential and commercial customers, respectively.

While QGC anticipates finishing a complete inspection of all installed transponders in 2009, inspections to date indicate an error rate, the proportion of installed transponders with pre-divide exceptions, between 8 in 10,000 and 1 in 1,000, or between 0.08% and 0.10%. Even though this estimated range is based on an incomplete inspection program, QGC data of recent inspections indicate that the final error rate will be closer to the lower end of this range, 0.08%. For example, in response to a joint data request, QGC reports finding approximately seven pre-divide exceptions for every 10,000 transponders inspected, or 0.07%.[3]

There are several benefits to switching to AMR. For example, on approximately a monthly basis, QGC currently reads and records natural gas usage as measured by meters for approxiamtely 875,000 customers. QGC estimates that the installation of transponders and the use of AMR technology save approximately $5.3 million annually in labor costs related to reading meters. Over ten years, on a present value basis, the savings could be as high as $41 million. Other savings or benefits include an increase in QGC employee safety, reduced incidents of intrusions with customer property, fewer unfavorable encounters between employees and customer's pets, and more accurate meter reading and recording of data. Additionally, the AMR technology allows for

[3] Questar Gas Company's response to joint data request (JDR 1.105) from the Committee of Consumer Services and the Division of Public Utilities.

recording data not previously available for regulatory use such as, forecasting peak usage.

In addition to testing performed by the manufacturer prior to delivering the transponders, QGC employed several measures to ensure the accuracy of the transponders prior to installation or attachment to meters. Despite these efforts, we know that a small number of transponders were installed incorrectly. Given the evidence at hand, however, the Division believes the Commission's rules requiring testing and setting accuracy limits for meters, when applied to only the transponders themselves, appear to have been followed prior to their installation.

In addition to the testing prior to installation, QGC initiated post installation inspections and testing. Within days of installation, a QGC employee visually inspected newly installed transponders to verify that meters were properly advancing. Furthermore, in addition to the above measures, once all of the transponders had been retrofitted, QGC initiated its Meter and Transponder Inspection Program (MTIP), which includes physical inspection of metering equipment.

Because Commission rules do not currently address transponders, it is not clear whether the Commission's testing period rules apply to these transponders. While the Division cannot say that rules were broken with regard to follow-up inspection and testing of transponders, the Division is nevertheless of the opinion that waiting until the completion of all retrofit transponder installations before initiating the MTIP was not a prudent decision. The Division is, however, confident that this error will be corrected

once the MTIP has completed its first round of inspections and all meters and transponders are thereafter tested at least every three years.

In addition to the labor savings, the deployment of AMR technology has substantially reduced the number of estimated bills, thereby increasing billing accuracy for customers. This has obviously contributed to the reduction in the percentage of bills requiring adjustment due to billing error (from all sources, including erroneous meter readings, equipment failure, etc.). These reductions in labor costs and billing errors have been achieved at a total cost of $37.2 million for the installation of transponders. We therefore find that the decision to install transponders was both reasonable and prudent.

At the May 16, 2008 technical conferences, Questar representatives demonstrated how transponders are installed on meters. This showed that the installation process used was relatively simple. The Division previously noted that while later revisions from the transponder manufacturer are clearer, the instructions for installation that were originally provided were somewhat confusing. While the Division recognizes that human error may occur with such a large number of installations, we think it likely that some proportion of incorrect pre-divide settings is attributable to these instructions. Still, the overall error rates – at least with regard to pre-divide settings – were low. It is hard for us to conclude that there was a pattern of unreasonable or imprudent behavior with regard to the installation process.

As indicated in its response to data requests, it was not until the summer of 2007 that QGC realized that there was a systematic problem with pre-divide settings. It was

at that time that the Company began investigating an expedited means of finding and correcting errors. We note that, although QGC's billing system is theoretically capable of detecting reading and recording errors, or other problems with meters and transponders, the billing system could not adequately detect pre-divide exceptions. While we can accept that the software may not have been designed with the capability of detecting transponder setting errors, it is hard to see how software that includes anti-theft logic could fail to detect a 50% decrease in usage (or 200% increase in the few cases of over-billing). It is difficult for us to conclude that the Customer Care and Billing CIS System was effective in the case of the pre-divide exceptions at issue in this case.

Therefore, we cannot conclude that Questar was prudent in its failure to detect pre-divide errors over such substantial periods of time for those existing customers from whom baseline data were available. We also question why individual pieces of information pointing to pre-divide errors were not used to make a realization of a wider problem. We therefore strongly recommend that the Company either install new, more sensitive software or change the upper and lower limits that trigger examination of individual accounts. We also recommend that mechanisms or processes be put into place to share information between billing and service personnel such that when common problems are identified through different operations, such problems are more likely to be identified in a timely manner.

As explained by QGC, when transponder pre-divide exceptions were first discovered, customers were back-billed for a period of six months. Questar Gas claims that it changed over to 24 month back-billing after discussing the matter with Rea

Petersen, Manager of the Customer Service Section of the Division. According to the Company, Ms. Petersen concurred with a decision to change to 24-month back-billing, based not upon any specific customer complaints but based upon a generally posed scenario presented by QGC employees. However, Division personnel have neither documentation nor recollection of this discussion. Unfortunately, QGC has not retained any documentation of this discussion or decision. In the future, we recommend that the making of such a decision should be accompanied by a recording of the processes and persons involved in making the decision.

Furthermore, while we do not find the 24-month back-billing decision to have been imprudent, we do believe that it might have been wise to seek an exception to, or to modify, the back-billing tariff to allow for payback periods greater than back-billed period. Longer payback periods may potentially ease the burden of a prospective 100% increase in bills for up to 24 months. Thus, we recommend that the time allowed customers to pay-back any back-billed amount be extended up to twice the back-billed period.

Based on our investigation, the Division concludes that once it was aware of the problem, Questar Gas Company moved appropriately and expeditiously to work with its transponder vendor to develop software that would allow for the discovery of incorrect pre-divide settings. Once individual transponder errors were identified, the Company complied with Commission rules in notifying individual customers of the problem and the need to back-bill.

Because Commission rules leave the status of transponders unclear with regard to accuracy and testing, Division therefore recommends that the Commission initiate a rulemaking on the subject. The purpose of rule revision would be to clarify the treatment of a transponder as being either part of a meter (as the Division advocates) or separate from it and having is own set of standards and requirements.

One of the key questions in this docket is whether, and for what time period, QGC should be permitted to back-bill customers. A substantial number of the complaints filed in the case state, in essence, that the under-billing was Questar's and, therefore, they should have to bear the loss. However, this result is precluded on legal and fairness grounds. Based on our readings of state statutes, Commission rules, prior precedent, and approved tariffs, we recommend that QGC be allowed to back-bill customers up to six months in cases were the transponder was set so as to under-record the actual usage.

With six months of back-billing, approximately $190,000 will be collected from under-billed customers. These funds will go toward the CET and 191 balancing accounts and therefore will relieve the ratepayer's burden to replenish shortages in those funds. However, six months of back-billing, in the absence of any further Commission action, will result in $621,000 remaining uncollected from the under-billed customers; this amount would eventually be paid by Questar's other customers through the balancing accounts. However, about $98,000 that is at risk to Questar would remain uncollected and be a loss to the Company.

Finally, the Division addresses the question of whether it would be appropriate for the Commission to require that Questar compensate ratepayers for the under-collection to the 191 and CET accounts that resulted from incorrectly set transponders and the failure to recognize such errors over a long period of time. The Division feels that it would be appropriate for the Commission to enter an accounting order requiring some compensation by the Company to the 191 and/or CET accounts. The potential total of such compensation is $621,000. However, this may be overly harsh in view of mitigating factors such as the inherent inability to detect usage variations for new accounts and building, as well as time lags in detecting transponder errors due to seasonal factors. While the exact treatment and sharing of the burden for under-billings awaits further discussion and detailed accounting, the Division feels that it would be reasonable for the Commission to require at least a portion of the shortage in 191 and/or CET under-collections to be compensated by Questar Gas.

INTRODUCTION

OBJECTIVE OF INVESTIGATION

Based on its internal analysis and evaluation, Questar Gas Company (QGC) has deployed Automated Meter Reading (AMR) technology, which involves the attachment of an external device to the meter for the purposes of recording and transmitting the usage as recorded by the meter, in its franchised Utah territory. The device, known as a transponder and discussed herein, if correctly installed, will record and transmit an

accurate reading to a passing vehicle via a radio signal. When installed incorrectly, the transponder will likely either over- or under-record the actual usage from the meter and, subsequently, cause the over- or under-billing of the customer. The purpose of this report is to investigate issues associated with transponders with a specific installation problem known as a "pre-divide error" in order to determine the effect on ratepayers, investigate QGC's role and responsibilities in these matters, and provide recommendations to the Commission on the extent of time QGC should be allowed to back-bill customers, and other related issues.

DEFINITION OF PROBLEM

Definition of Problem[4]

To facilitate implementation of automated meter-reading technology (AMR), QGC began installing transponders on its meters in 1996. A transponder is a device attached to the meter that automatically records the natural gas passing through the meter. When queried, the transponder transmits the stored information via a radio signal to a specially equipped vehicle, thus eliminating the need for the meter-reader to manually read and record the usage as recorded on the dials of the meter. As long as the transponder is set correctly, the transponder will record and send the correct reading. If

[4] The following discussion is adopted from, "Answer of Questar Gas Company," Docket No. 08-057-11, April 15, 2008; Questar Gas Company's response to data requests; and information provided at a Commission-scheduled technical conference held on May 16, 2008.

the transponder is set incorrectly, however, then the transponder will send either too large or too small of a reading, depending on the setting of the "pre-divide."[5]

Questar uses two types of transponders, identified as either a "3.4" or a "VRT" transponder. As QGC explains, "A pre-divide is a parameter or setting used by one of the types of transponders, specifically the VRT transponder, used by the Company. The pre-divide parameter represents a multiplier value to correctly equate a number of revolutions of the meter drive mechanism to a specific quantity of gas."[6]

In general, there are two types of meters, a one-foot meter or a two-foot meter. A one-foot meter is a meter whose drive mechanism is set such that one revolution of the meter's drive mechanism represents one cubic foot of gas passing through the meter; a hundred revolutions is equal to 100 cubic feet passing through the meter. On a two-foot meter, the drive mechanism is set such that a single revolution of the meter driver mechanism equates to two cubic feet of gas having passed through the meter; 50 revolutions is equal to 100 cubic feet and a hundred revolutions is equal to 200 cubic feet passing through the meter. As gas passes through the meter, an arm on the meter turns a corresponding arm on the transponder. The pre-divide setting indicates the number of revolutions of the transponder's arm it takes in order for the transponder to record 100 cubic feet.

For example, for a two-foot meter, the meter's drive mechanism must make 50 revolutions to equal 100 cubic feet of gas. Therefore, for a two-foot meter, the correct

[5] Questar Response to Division Data Request 1.01 (Update, June 19, 2008).

[6] Questar Response to Division Data Request 1.01 (Update, June 19, 2008).

pre-divide setting for the VRT transponder is 50. If the pre-divide on a transponder attached to a two-foot meter is incorrectly set at 100, then 50 revolutions of the meter drive mechanism will register only 50 cubit feet on the transponder, or half of the gas that actually passes through the meter. This is an example of an "under-count," which will result in an under-billing to the customer. Alternatively, if a transponder attached to a one-foot meter is set incorrectly at 50, then 100 revolutions of the meter's drive mechanism, equal to 100 cubic feet, ***will register as 200 cubic feet*** on the transponder. This is an example of an "over-count," which will result in an over-billing to the customer. In both of these examples, the meter's set of dials will have recorded the correct volume so that, the correct amount of gas passing through the meter can be determined by comparing two manual reads of the dials: one before or at the time the transponder was installed and another later reading.[7]

The pre-divide parameter is a configurable setting initially set by the manufacturer of the meter. A field technician with a special hand-held transmitting device is able to change or set the pre-divide value to match the transponder's setting to the type of meter. A pre-divide that is set incorrectly is referred to as a "pre-divide exception." At least four different manufacturer's meters, and those associated with the VRT transponders, are present on QGC's system: American Meter, Rockwell, Sprague, and Stand-Alone. Although the meters are marked with a code designating them as either a one-foot or two-foot meter, the physical appearance of the meters are quite similar, especially among the American Meters. A technician attaching the transponder

[7] Questar response to Division data request, DPU 1.01 (Updated, June 19, 2008).

to a meter must carefully match the meter with the correct transponder pre-divide setting. Despite the visual and electronic indicators, several pre-divide exceptions have occurred. According the QGC's response to the Joint Data Request (JDR) 1.27, QGC has identified and notified the customer of record for 517 pre-divide exceptions out of approximately 875,000 installed transponders. [8] This equates to a total error rate or proportion of pre-divide exceptions of approximately 6 out every 10,000 installed transponders (or 0.06%). Over 92% of the pre-divide exceptions are associated with the American Meters, while most of these are associated with the American two-foot meter, where the pre-divide is set such that the transponder under-records the actual amount of gas passing through the meter by half. (See Table 1)

Table 1: Pre-Divide Exceptions by Meter Manufacturer

Manufacturer	Freq	Percent
American 1 ft	29	5.61%
American 2 ft	451	87.23%
Rockwell	23	4.45%
Sprague	13	2.51%
Stand-Alone	1	0.19%
	517	100.00%

[8] See discussion on error rates in the "History of Questar's AMR Program and the Incorrectly Set Transponders," section of this report.

History of Questar's AMR Program and the Incorrectly Set Transponders

As explained by QGC, "During the mid-1990s due to the ever-increasing number of meters, and a desire to increase the accuracy and reduce the costs of meter reading, Questar Gas evaluated the use of AMR [Automatic Meter Reading] technology." [9] The preferred technology for implementing AMR involved installing "transponders" on existing and new meters. After concluding that, "AMR technology would provide a substantial benefit"[10] to ratepayers, QGC began installing transponders in 1996. To date, Questar has installed approximately 875,000 transponders. (See Table 2 for more installation details).

Table 2: Transponder Installations by Year

Year	Installations	Cumulative Installations	Inspections	Cumulative Inspections	
1996	500	500			
1997	7,500	8,000			
1998	30,000	38,000			
1999	60,000	98,000			
2000	105,000	203,000			
2001	110,000	313,000			
2002	105,000	418,000			
2003	135,000	553,000			
2004	140,000	693,000			
2005	145,000	838,000			
2006	37,000	875,000	38,436	38,436	Actual
2007			220,381	258,817	Actual
2008			330,000	588,817	Projected
2009			286,183	875,000	Projected

[9] "Answer of Questar Gas Company," Docket No. 08-057-11, April 15, 2008, p. 3.

[10] Answer of Questar Gas Company," Docket No. 08-057-11, April 15, 2008, p. 3.

The 517 transponders at issue in this docket, those transponders with pre-divide exceptions, were installed between 2002 and 2008. (See Table 3 for more details).

Table 3: Number of Installations by Year (Pre-Divide Exceptions)

First Installation	February 2, 2002
Last Installation	January 16, 2008

	Frequency	Cumulative Frequency
2002	1	1
2003	18	19
2004	188	207
2005	92	299
2006	177	476
2007	38	514
2008	3	517

This implies an error rate (the proportion of installed transponders with pre-divide exceptions) of 6 out of 10,000 $\left[0.00059 = 517/(875,000)\right]$ or approximately 0.06%. To date, however, inspections for all 875,000 transponders are incomplete. QGC has undertaken two means of checking for pre-divide errors. The Meter and Transponder Inspection or MTIP program involves a physical inspection of metering equipment. Assuming QGC is on target with inspections for 2008, total MTIP inspections equal approximately 423,817 transponders[11], which implies an error rate of slightly more than 1 out of 1,000$\left[0.0012 = 517/(423,817)\right]$. QGC also has a method of checking pre-divides

[11] Questar Gas Company reports completing 38,436 MTIP inspections in 2006 and 220,381 inspections in 2007, or a total of 258,817 inspections for the two years. Questar also projects that it will complete another 330,000 inspections in 2008. To date, July 2008, assuming a uniform monthly inspection total, Questar could reasonably have inspected approximately 423,817 transponders (= 258,817 + 330,000/2). (See Table 2)

remotely via the transponder itself. According to the Company, these inspections either are or will be completed soon.

In response to a verbal data request from the Division,[12] QGC indicated that a total of 623,000 transponders were installed by contractors, 25,000 were installed by Questar employees, and 23,300 were installed by American Meter.[13] From the response to Joint Data Request 1.27, Questar has identified 300 pre-divide exceptions on transponders installed by contractors, 31 installed by Questar employees, and 186 installed by American Meter, yielding error rates of 0.05%, 0.12%, and 0.80% respectively. The overall average error rate is 0.08% or eight pre-divide exceptions for every 10,000 installed transponders. (See Table 4)

Table 4: Incorrectly Set Transponders V. Total Installed Transponders

	Total	Incorrect	Ratio	Percent	Rate
Contractor	623,000	300	0.0005	0.05%	5 out of 10,000
American Mtr	23,300	186	0.0080	0.80%	8 out of 1,000
Questar Employee	25,000	31	0.0012	0.12%	1 out of 1,000
Total	671,300	517	0.0008	0.08%	8 out of 10,000

[12] The data request was made over the phone on or about July 2, 2008 to Brent Bakker. The Division notes the total installed transponders indicated in this data response does not match the toal provided by Questar Gas Company in JDR 1.27.

[13] This totals to 671,300 installed transponders, which is far less than the 875,000 reported elsewhere by Questar Gas Company. The Division is following up with Questar in an attempt to reconcile these two totals.

AMR Benefits

On approximately a monthly basis, QGC reads and records natural gas usage through approximately 875,000 customer meters. In response to one data request, QGC estimated that, prior to the installation of transponders and using approximately 141 meter readers, the annual cost of meter reading was in excess of $6.8 million. Using AMR technology, Questar estimates that this same activity now costs only approximately $1.5 million, a savings of $5.3 million annually. Using the basic information provided by QGC in its data responses, the Division estimates that, on a present value basis, the savings over ten years could be as high as $41 million. (See Appendix A)

HISTORY OF TRANSPONDER PRE-DIVIDE EXCEPTIONS AND BACK-BILLING

HISTORY OF ISSUES COVERED BY THIS DOCKET

(This section presents a brief overview of the history of transponder issues involved in this docket. The reader should note that detailed discussion of several key issues is reserved for the sections that follow.)

During the month of March 2008, several formal complaints were filed with the Utah Public Service Commission (Commission) against QGC regarding recent bills requesting back payment for unbilled gas. Preceding these complaints, QGC discovered meter recording errors for a small percentage of the transponders attached

to certain meters. When these errors were discovered, QGC adjusted the bills of customers affected. Through increased electronic inspection processes, additional transponder recording errors were found starting in January 2008. Prior to that time, only informal complaints were made (to the Division of Public Utilities). Once formal complaints were filed in March 2008, the Division submitted memoranda to the Commission recommending that three of the formal complaints be set for hearing.[14] On On March 28, the Committee of Consumer Services (Committee) filed a Memorandum requesting that the Commission consolidate the complaints under one docket.[15]

On April 1, 2008, the Commission issued an Order Consolidating Dockets and Notice of Procedural Conference ("Order"). The Order consolidated the dockets for each of the complaints and ordered the Division to investigate the matter. A procedural conference was convened on April 17, 2008 by Administrative Law Judge Steven Goodwill. On April 21, 2008, a scheduling order was issued by the Commission, which first scheduled a Technical Conference on May 15, 2008 but was later changed, due to a scheduling conflict, to May 16, 2008, at the Questar Gas Offices. The scheduling order also established July 9, 2008 as the date the Division was to file a Report of Investigation with a recommendation and supporting testimony. August 8, 2008 was the date set for reply comments to the Division's report by interested parties, and August 15, 2008 the date for any surrebuttal or replay comments. A hearing date of August 21-22 was set with public witness day on August 21, 2008.

[14] See, e.g., Memorandum from the Division of Public Utilities to the Public Service Commission Regarding McMain vs Questar, dated March 27, 2008.

[15] Memorandum from the Committee of Consumer Services to the Public Service Commission of Utah Regarding Questar Transponder Issue, dated March 28, 2008.

On July 2, the Division requested a delay of seven business days in the schedule and on July 7, the Commission issued a second scheduling order, which set July 18 as the revised date for the Division's Report, and July 30 as a date set for a Status and Scheduling Conference. August 19 was set as the date for reply comments or rebuttal testimony to the Division's report and August 26 as the date for surrebuttal testimony or reply comments.

BACKGROUND

Transponder Installation

As previously discussed, QGC began investigating AMR technology in the mid-1990s. Questar Gas began installing the transponders that provided for AMR in 1998. Between 1998 and December 2005, Questar Gas installed transponders on essentially all of its meters.[16] (Questar Gas Answer, April 15, 2008) QGC's initial installation involved a transponder known as a "3.4" model. Between 1998 and 2002, 3.4-model transponders were installed on about 40% of QGC's meters, mostly in areas away from the Wasatch Front. However, in 2002, the 3.4 model transponder's manufacturer, Elster Integrated Solutions, LLC ("Elster"), ceased production of the 3.4-model. In its place, Elster introduced the so-called "VRT" transponder. Elster and Questar Gas believed that the VRT transponder was superior to the 3.4 model. For instance, the VRT model has a longer battery life, can report the meter reads from the past 35 days (the 3.4 model could only report the current meter read), has fewer parts, and costs less per unit. VRT transponders also make use of an adjustable setting called a "pre-divide"

[16] Questar Gas was unable to install transponders on a small number of meters due to the physical location of the meter or to the meter's use or configuration. Questar Gas continues to install transponders on those meters as it is able.

that was not available in the 3.4 model. The pre-divide setting is a multiplier value that is used to equate a number of revolutions in different sized meters with the actual volume of gas consumer. The pre-divide is set differently for different meter sizes. Thus a VRT transponder, unlike the 3.4 model, is able to work with more than one meter size.[17] However, the pre-divide must be set properly for the type of meter on which it is installed. An incorrect pre-divide setting will result in erroneous transponder readings.

Between 2002 and March 2008, QGC performed retrofit installations of approximately 500,000 VRT transponders. Also, since 2002, both nearly all new meter sets and meter replacements installed on residences, small commercial and small industrial businesses are equipped with VRT transponders.

Testing and Inspection of Transponders

According to QGC's April 15 "Answer," transponders are tested and inspected both before and during installation. Elster tests transponders prior to shipment and the Company or its installation contractors test each transponder shortly after it is installed. During the period in question, field testing was used to determine whether the transponder was advancing, however, the testing was not designed to identify specifically pre-divide exceptions.

[17] Questar Gas uses several different sizes of gas meters, depending on customer gas requirements and usage. Meter size is determined by the customer's natural gas requirements. The most common sizes, used mostly for residential and small commercial customers, have natural gas flows of either one or two cubic feet and are known respectively as "1-foot" or "2-foot" meters.

Questar Gas began it Meter and Transponder Inspection Program (MTIP) in July 2006. From that time until January 2008, the MTIP included the inspection of about 313,500 meters and transponders. The MTIP revealed that 199 meters, found at an average rate of about nine per month, had VRT transponders with incorrect pre-divide settings (about 0.06% of all transponders inspected). (Questar Gas April 15, 2008 Answer.) These transponders were incorrectly recording either double or one-half the actual gas used, and QGC either credited[18] or back-billed[19] each affected customer as errors were found.

Change in Bill Adjustments

Prior to September 2007, QGC had back-billed for errors caused by incorrect transponder settings for a period of up to six months prior to the discovery of the error. QGC had been characterizing the errors as "slow registering meters" which, under the Tariff at § 8.02, could only be back-billed for "[o]ne-half the period since the last meter test, or 6 months, whichever is less." (Questar Gas April 15, 2008 Answer.)

According to QGC's account (contained in its April 15 Answer at page 7), in May of 2007, it was decided that "the transponder recording error was more accurately described as a recording error and, pursuant to the Tariff, should be back-billed for a period of up to 24 months." QGC claims that "The Division observed that limiting back-billing to only a six-month period would place an unreasonable burden upon other

[18] Pursuant to Utah Admin. Code R746-320-9.C.4, Questar Gas computed the overcharges back to the date the transponder was installed and either credited the customer or refunded the entire overcharge amount with interest.

[19] Utah Admin. Code R746-320-8.A.1 defines a "backbill" as "that portion of a bill, other than a levelized bill, which represents charges not previously billed for service that was actually delivered to the customer before the current billing cycle."

customers due to increasing costs of gas not billed. Accordingly, beginning in about September of 2007, Questar Gas began back-billing those customers with transponder-related billing errors for up to a 24-month period preceding the discovery of the error." The Division does not agree with this account of its role in this matter and will address this issue fully in a later section.

Increase in Discovery of Transponder Errors

At some point in the spring or summer of 2007, as MTIP inspections found increasing numbers of pre-divide errors, QGC began to realize the potential scope of pre-divide setting errors and began to work toward a method of discovering such errors more quickly. In about September of 2007, QGC began working with Elster to develop a faster and more efficient method to find and correct all incorrect pre-divide settings. (Questar Gas April 15 Answer.) Until then, no specific methods existed for this process. In the late fall of 2007, software provided by Elster allowed the Company to query every transponder's pre-divide setting during normal AMR. However, this process was found to be slow. "Though the software was effective in identifying transponder pre-divide setting errors, its use significantly slowed the meter reading process."

QGC had also realized that about 60% of the incorrect pre-divide settings were found on transponders attached to the American 2-foot meter type. (These meters are typically used for small businesses or large residences.) An incorrect pre-divide setting on a transponder attached to an American 2-foot meter generally causes the transponder to record and report only half of the natural gas flowing through the meter, resulting in an under-billing. QGC thus moved to inspect those transponders first and in

January 2008 developed a method to limit the pre-divide inquiry to American 2-foot meters.

From February to March 2008, the Company used the new AMR reading method to check transponder pre-divide settings for more than 82,000 meters (about 9% of all transponders installed on Company meters). This process combined with the continued MTIP resulted in the identification of approximately 411 more transponders with incorrect pre-divide settings,[20] a percentage in line with those found in the MTIP. (Questar Gas April 15, 2008 Answer.) Upon the completion of testing of American 2-foot meters, QGC began checking other meter types using the transponder checking software. By the end of this year, the Company estimates that it will have tested essentially all retrofitted transponders for pre-divide setting errors. It should be noted, therefore, that until all inspections are complete, final summary data and accounting regarding pre-divide error will not be available. This report therefore uses either data available as of the date of specific data request responses or Division estimates based upon the data received to-date.

CONSUMER DEMOGRAPHICS

According to Questar's response to a joint data request from the Committee of Consumer Services and the Division of Public Utilities, 517 customers have incorrectly

[20] Of these 411 transponders, 395 were attached to American 2-foot meters.

set transponders.[21] Of these 517 customers, 400 (77%) are residential customers and 117 (23%) are commercial customers. (See Table 5)

Table 5: Total Number of Customers by Class

	Under-Billed	Over-Billed	Total
Residential	374	26	400
Commercial	114	3	117
Total	488	29	517

Of these 517 customers, 488, divided between 374 residential and 114 commercial customers, were under-billed. Those over-billed included 26 residential and 3 commercial customers, which have been repaid with interest.

Of the 26 residential customers over-billed, 3 were on an equal payment plan, 19 were not, and 4 were on an equal payment plan part of the time that they were incorrectly billed. None of the commercial customers over-billed were on equal payment plans. For those residential customers under-billed, 290 or approximately 78% were not on equal payment, while 59 or approximately 16% were. The remaining 25 under-billed residential customers were on an equal payment plan part of the time. Over 95% (109 out of 117) of the commercial customers under-billed were not on equal payment, 3 were on equal payment and 2 were on equal payment part of the time.[22] In

[21] JDR 1.27, updated June 11, 2008.

[22] JDR 1.27, Updated June 11, 2008.

summary, the majority of customers, 309 residential and 112 commercial customers, approximately 81%, were not on equal payment plans. (See Table 6)

Table 6: Customers on Equal Payment

	Yes	No	P	Total
Residential Over-Billed	3	19	4	27
Residential Under-Billed	59	290	25	373
Total	62	309	29	400
Commercial Over-Billed	0	3	0	3
Commercial Under-Billed	3	109	2	114
Total	3	112	2	117

Fifteen customers, nine commercial and six residential customers, out of the 517 are from two counties in Wyoming, Sweetwater and Sublette. All of these customers, except one residential customer from Green River, Wyoming were under-billed. (See Table 7) One residential customer is in Preston, Franklin County, Idaho and was also under-billed.

Table 7: Wyoming Customers

	ZIP	City	County	CUST	OVR/UND
1	82901	Rock Springs	Sweetwater	COMM	UND
2	82901	Rock Springs	Sweetwater	COMM	UND
3	82901	Rock Springs	Sweetwater	COMM	UND
4	82901	Rock Springs	Sweetwater	COMM	UND
5	82901	Rock Springs	Sweetwater	COMM	UND
6	82901	Rock Springs	Sweetwater	COMM	UND
7	82901	Rock Springs	Sweetwater	COMM	UND
8	82935	Green River	Sweetwater	COMM	UND
9	82935	Green River	Sweetwater	COMM	UND
10	83113	Big Piney	Sublette	RES	UND
11	82901	Rock Springs	Sweetwater	RES	UND
12	82901	Rock Springs	Sweetwater	RES	UND
13	82901	Rock Springs	Sweetwater	RES	UND
14	82901	Rock Springs	Sweetwater	RES	UND
15	82935	Green River	Sweetwater	RES	OVR

The other 501 customers are from 16 counties in Utah. Of these 501 customers, 393 or approximately 78% are residential customers and 108 are commercial customers. The majority, 259 residential and 74 commercial customers, 333 in total or approximately 66%, are located in Salt Lake County. Interestingly, the distribution of pre-divide exceptions across the Utah counties does not correspond to the population distribution for the same counties. For example, Salt Lake County with a little over 1 million residents[23] represents only about 40% of the population of the 16 counties, which yields a relative ratio of pre-divide exceptions to population of approximately 167% (=0.66/0.40). In fact, only two counties, Davis and Summit, have similar pre-divide exception proportions to their population proportions. (See Table 8)

In Summary, as reported by QGC, there are:

- 517 customers or transponders with pre-divide exceptions, 400 (77%) residential and 117 (23%) commercial customers;
    - 488 customers (94%) were under-billed, which includes
        - 374 residential customers,
        - 114 commercial customers;
    - 29 customers were over-billed, which includes
        - 26 residential customers;
        - 3 commercial customers;

[23] Population figures are from Utah Government Web Site: http://jobs,utah.gov/jsp/wi/utalmis/gotoPopulation.do, accessed around June 20, 2008.

Table 8: Utah Pre-Divide Exceptions by County

		Transponders				Population (2007)		Relative
	County	Residential	Commercial	Total	Percent	Pop	Percent	Ratio
1	Beaver	0	1	1	0.20%	6,466	0.25%	79%
2	Box Elder	2	0	2	0.40%	47,491	1.85%	22%
3	Cache	6	3	9	1.80%	109,022	4.25%	42%
4	Davis	42	12	54	10.78%	296,029	11.55%	93%
5	Duchesne	0	3	3	0.60%	16,163	0.63%	95%
6	Iron	1	1	2	0.40%	44,813	1.75%	23%
7	Morgan	1	0	1	0.20%	9,265	0.36%	55%
8	Salt Lake	259	74	333	66.47%	1,018,904	39.75%	167%
9	San Juan	0	2	2	0.40%	14,807	0.58%	69%
10	Sevier	0	1	1	0.20%	20,442	0.80%	25%
11	Summit	7	1	8	1.60%	38,412	1.50%	107%
12	Tooele	1	0	1	0.20%	56,536	2.21%	9%
13	Utah	19	5	24	4.79%	501,447	19.56%	24%
14	Wasatch	5	0	5	1.00%	21,951	0.86%	117%
15	Washington	38	2	40	7.98%	140,908	5.50%	145%
16	Weber	12	3	15	2.99%	220,781	8.61%	35%
	Utah Total	393	108	501	100.00%	2,563,437	100.00%	

- By payment plan:
  - Most were not on equal pay
    - 309 residential and 112 commercial customers were not on equal payment plans;
    - 91 residential and 5 commercial customers were on equal payment at one time or another over the disputed billing period.
- By state:
  - 1 under-billed residential customer in Preston, Idaho;
  - 15 Wyoming customers
    - 6 residential and 9 commercial customers;
  - 501 Utah customers
    - 108 commercial and 393 residential customers;
    - The Utah customers were distributed over 16 counties, with 333 customers (66%) in Salt Lake County.

EFFECT ON INDIVIDUAL CUSTOMERS

Of the 517 customers reported by QGC as having an incorrectly set transponder,[24] 400 customers, or approximately 77%, were residential customers. The remaining 117 customers were commercial customers. Of the residential customers, 374, or approximately 94%, were under-billed with the remaining 26 residential customers being over-billed. Of the 117 commercial customers, 3 or approximately 2.6% were over-billed and 114, or approximately 94.4%, were under-billed. Thus, there does not appear to be a discernable difference in the pattern of over- or under billing between residential and commercial customers.

Including both residential and commercial customers, the total amount under-billed equals approximately $908,782 associated with approximately 1,062,836 cubic feet of natural gas. The total amount over-billed equals approximately $41,579 associated with 47,579 cubic feet of gas. Of these totals, residential customers represent over 60% of both the dollars and the natural gas amount.

RESIDENTIAL CUSTOMERS

Months with Under-Recording Transponders in Place

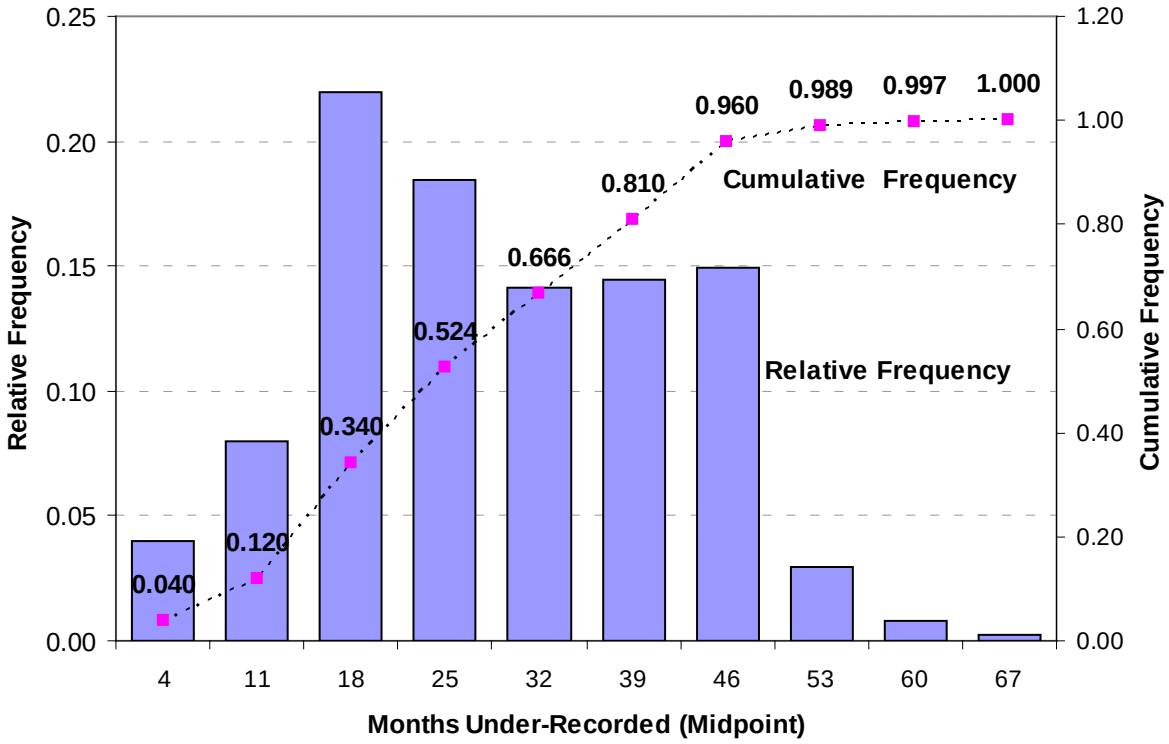
For those 374 customers that were under-billed, the transponders on average under-recorded usage for a little more than two years, approximately 29 months. The shortest under-recording time was just under one month; the longest under-recording

[24] Per Commission rule, all customers with pre-divide exceptions were notified within three months by letter.

time was approximately 71 months or just under six years. Only 13 residential customers that were under-billed had under-recording transponders for 6 months or less; approximately 40% (150 out of 374) had under-recording transponders between 6 months and two years; and approximately 56% of the 374 residential customers (211 out of the 374) had under-recording transponders in place for more than two years. (See Figure 1)

It appears that most of the residential customers with under-recording transponders had those transponders in place for more than two years; very few had those transponders for less than six months.

Figure 1: Months of Under-Recorded Usage - Residential Customers



Classes	LB	UB	Midpoint	Freq	Rel Freq	Cum Freq
1	0.00	7.00	3.50	15	0.04	0.040
2	7.00	14.00	10.50	30	0.08	0.120
3	14.00	21.00	17.50	82	0.22	0.340
4	21.00	28.00	24.50	69	0.18	0.524
5	28.00	35.00	31.50	53	0.14	0.666
6	35.00	42.00	38.50	54	0.14	0.810
7	42.00	49.00	45.50	56	0.15	0.960
8	49.00	56.00	52.50	11	0.03	0.989
9	56.00	63.00	59.50	3	0.01	0.997
10	63.00	72.00	66.50	1	0.00	1.000
			Total	374	1	

Residential Dollars Under-Billed

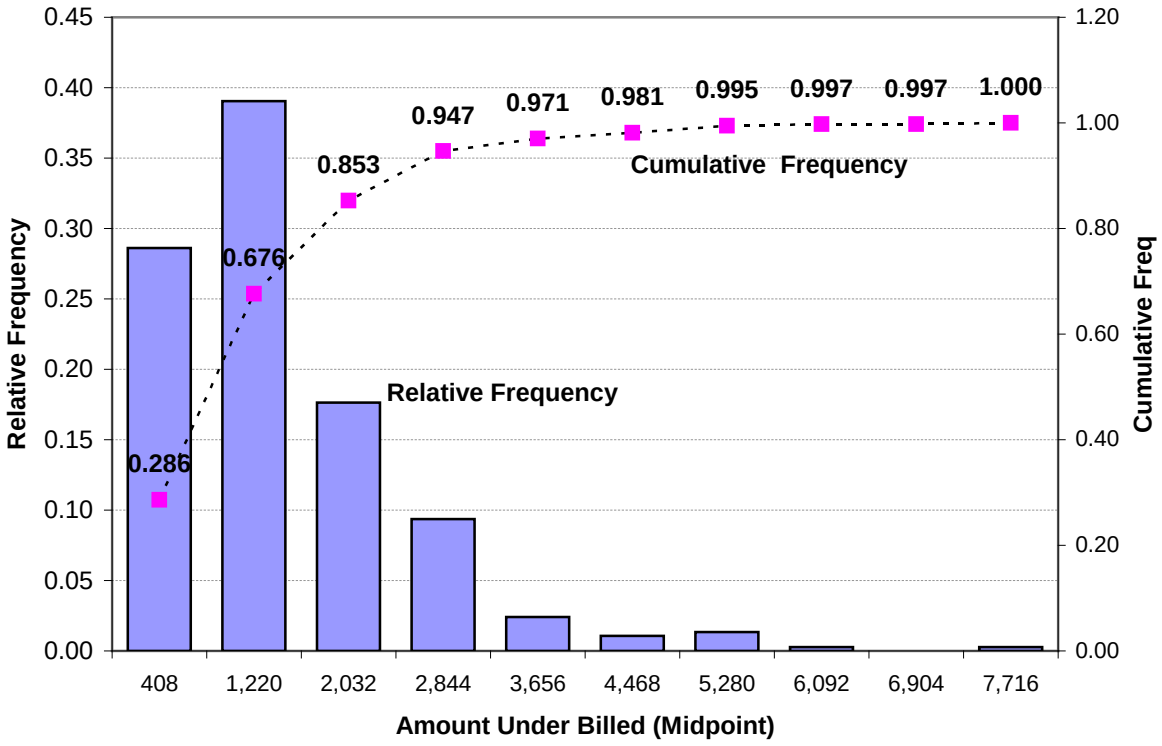
For the 374 residential customers that were under-billed, the total amount under-billed equals approximately $546,083 associated with 641,307 cubic feet of natural gas. The largest individual amount under-billed equals over $7,500 associated with over 8,000 cubic feet of natural gas over a period of 37 months.[25] However, most residential customers (approximately 68%) were under-billed by less than $2,000; and approximately 95% were under-billed by less than $3,250. Of course, this means that 5% or approximately 20 residential customers were under-billed by more than $3,250. (See Figure 2)

However, not all the amount under-billed is subject to back-billing. As previously explained, approximately 56% of those under-billed residential customers were under-billed for more than two years. Another 40% were under-billed between six and 24 months. Thus, depending on the Commission's ruling of how long customers may be back-billed, some portion of the total amount under-billed will not be subject to back-billing. For example, for the customer that was under-billed by more than $7,500, QGC discovered the pre-divide exception on February 8, 2008. In this example, the transponder was installed January 6, 2005. If the Commission ruled that QGC could back-bill 24 months, the amount potentially subject to back-billing would be approximately $4,300. If the Commission rules to only allow back-billing for six months, the amount would be approximately $1,200. [26]

[25] The correlation between the dollar amount and cubic feet of gas under-billed is over 99%.

[26] See discussion below.

Figure 2: Dollar Amount Under-Billed - Residential Customers



Classes	LB	UB	Midpoint	Freq	Rel Freq	Cum Freq
1	1.80	813.80	407.80	107	0.29	0.286
2	813.80	1625.80	1219.80	146	0.39	0.676
3	1625.80	2437.80	2031.80	66	0.18	0.853
4	2437.80	3249.80	2843.80	35	0.09	0.947
5	3249.80	4061.80	3655.80	9	0.02	0.971
6	4061.80	4873.80	4467.80	4	0.01	0.981
7	4873.80	5685.80	5279.80	5	0.01	0.995
8	5685.80	6497.80	6091.80	1	0.00	0.997
9	6497.80	7309.80	6903.80	0	0.00	0.997
10	7309.80	8121.80	7715.80	1	0.00	1.000
			Total	374	1	

Residential CCF Under-Billed

The quantity of natural gas, measured in cubic feet, follows a similar pattern as the dollar amount under-billed. For those 374 residential customers under-billed, the total under-billed gas equals 641,307 cubic feet. Most of these customers, over 63% were under-billed for less than 2,000 cubic feet, and approximately 97% were under-billed for less than 5,000 cubic feet. The single greatest amount was over 8,000 cubic feet, while the least amount was 2 cubic feet. (See Figure 3)

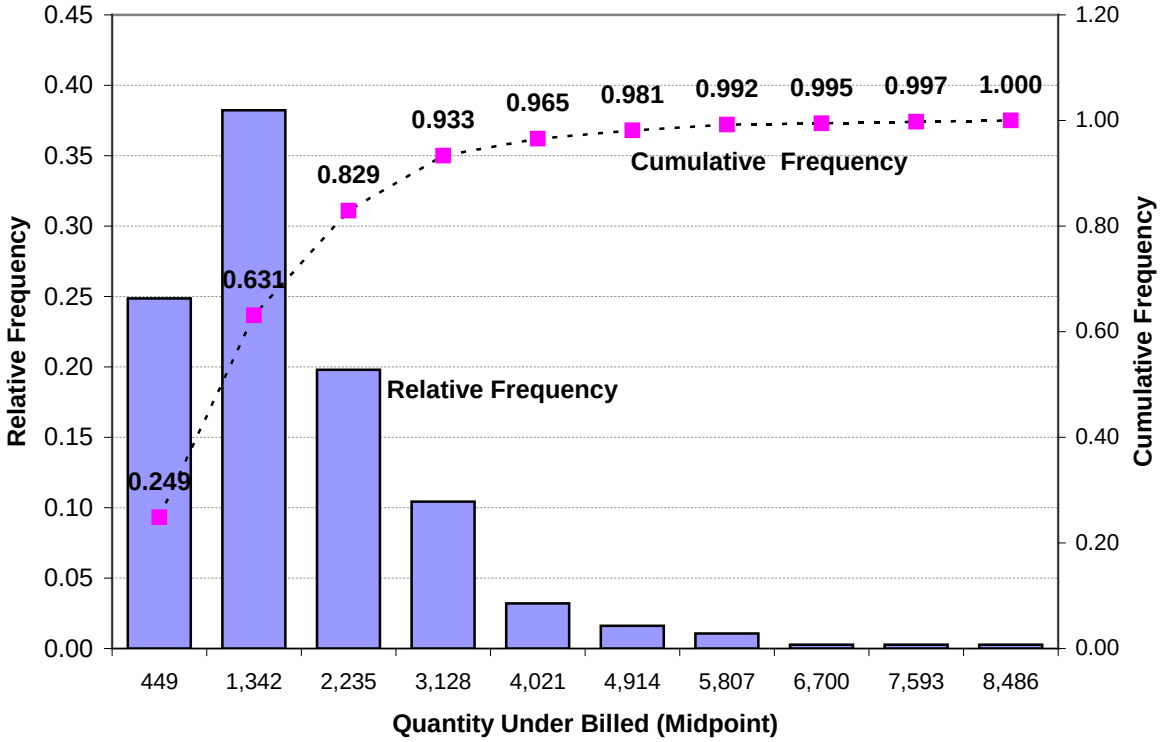
Residential Customers Over-Billed

Twenty-six residential customers were over-billed for a total of approximately $39,256 with 45,404 cubic feet of associated natural gas. The largest single amount over-billed was $3,349 with 4,231 cubic feet of associated gas. The smallest amount over-billed was a little over $207 with 221 cubic feet of associated gas. All over-billed residential customers received refunds for the total amount over-billed.

In summary, 400 residential customers were found to have pre-divide exceptions.

- 374 were under-billed by a total of $546,083, with associated 641,307 cubic feet of natural gas;
- 26 were over-billed for a total of $39,256, with associated 4,231 cubic feet of natural gas.

Figure 3: Cubic Feet Under-Billed – Residential Customers



Classes	LB	UB	Midpoint	Freq	Rel Freq	Cum Freq
1	2.00	895.00	448.50	93	0.25	0.249
2	895.00	1788.00	1341.50	143	0.38	0.631
3	1788.00	2681.00	2234.50	74	0.20	0.829
4	2681.00	3574.00	3127.50	39	0.10	0.933
5	3574.00	4467.00	4020.50	12	0.03	0.965
6	4467.00	5360.00	4913.50	6	0.02	0.981
7	5360.00	6253.00	5806.50	4	0.01	0.992
8	6253.00	7146.00	6699.50	1	0.00	0.995
9	7146.00	8039.00	7592.50	1	0.00	0.997
10	8039.00	8932.00	8485.50	1	0.00	1.000
			Total	374	1	

COMMERCIAL CUSTOMERS

Commercial Customers Over-Billed

The three commercial customers that were over-billed were in the Salt Lake City area. The amount over-billed ranged from $10.30 to $1,443.48, for a total of $2,323.20 over-billed. , the transponders, which were added to existing meters for these three customers, were in place for an average of 14 months before Questar identified the over-billing error. Once Questar discovered the problem, Questar notified each customer on average within one month. The longest notification period was approximately one and half months. (See Table 9)

Table 9: Over-Billed Commercial Customers

	Amount	CCF
Average	$774.40	725
Total	$2,323.20	2,175

Customer	Zip	Area	Amount	CCF	Months In Place	Set Date
1	84119	SLC	-$1,443.48	-1,369	12	9/22/2005
2	84106	SLC	-$869.42	-795	15	4/19/2005
3	84115	SLC	-$10.30	-11	15	8/16/2006

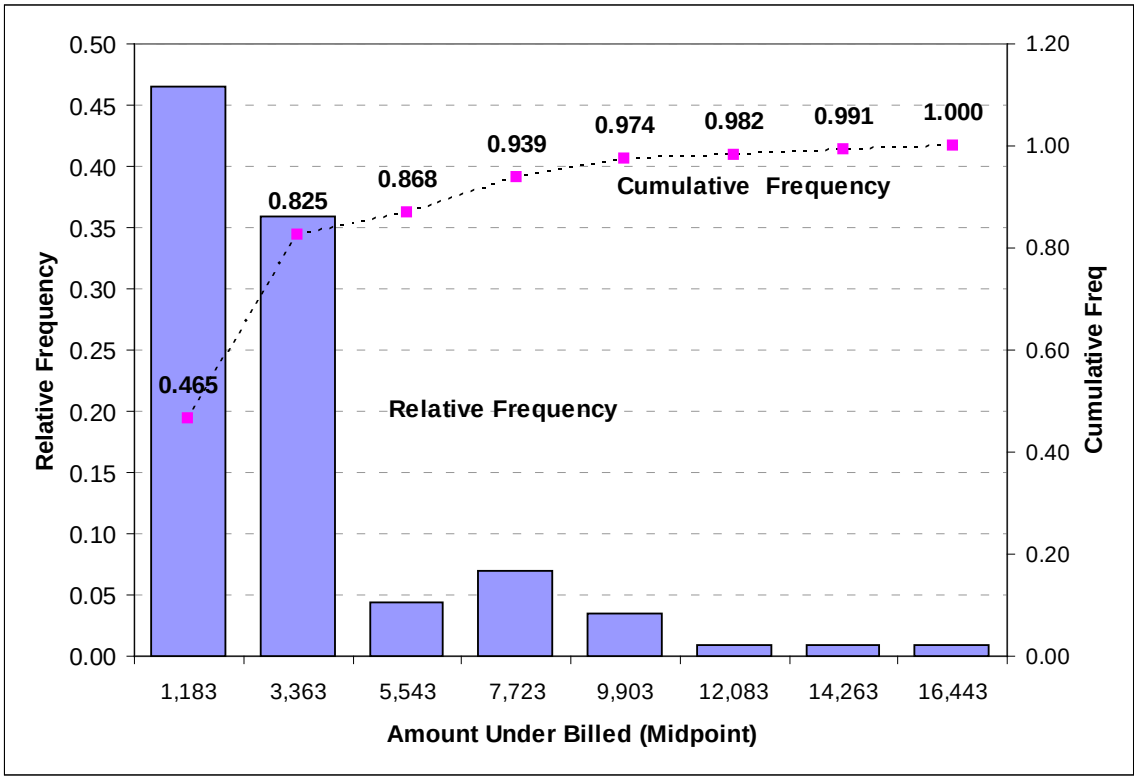
Commercial Customers Under-Billed

Of the 114 commercial customers with incorrectly set transponders, 62 (54.4%) had the transponder in place for more than two years before the problem was discovered, 48 (42.1%) had the transponder in place between 6 months and two years, and 4 (3.5%) less than 6 months.

The amount under-billed ranged from $93.88 to $17,067.67. Fifty-three of the 114 under-billed commercial customers were under-billed by less than $2,273 and

82.5% were under-billed by less than $4,453. Seven out of 114, approximately 6%, were under-billed by more than $8,813. (See Figure 4)

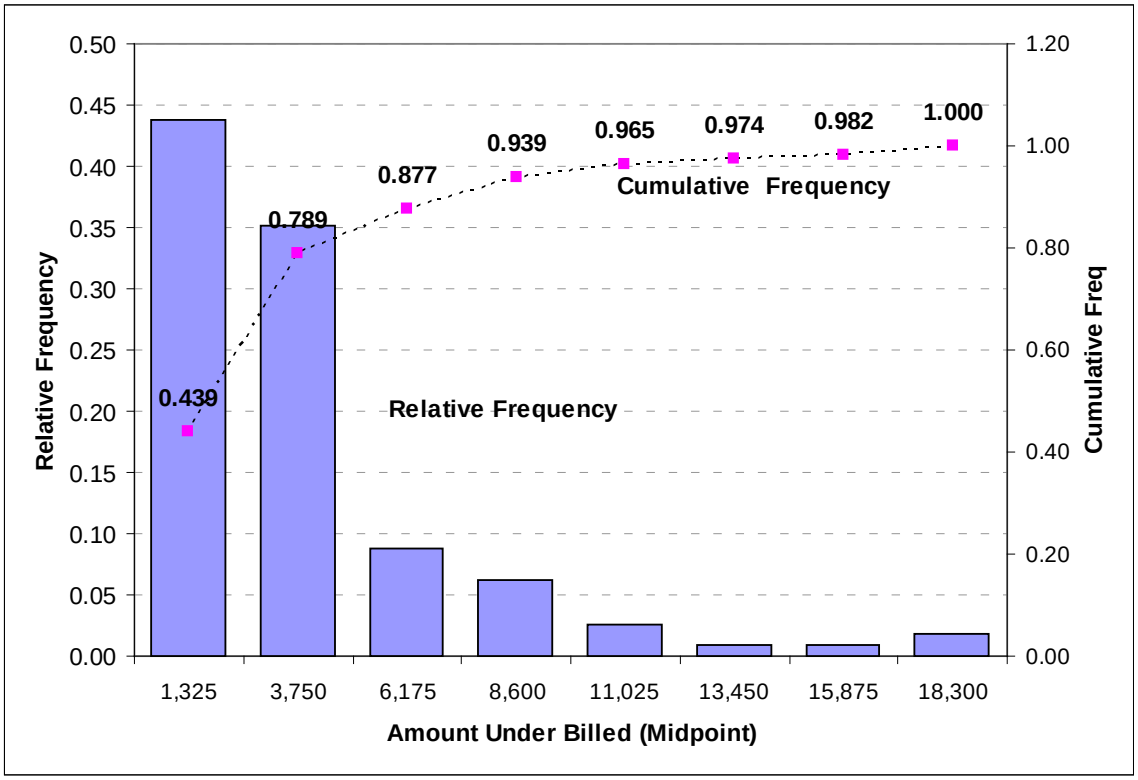
Figure 4: Dollar Amount Under-Billed - Commercial



Classes	LB	UB	Midpoint	Freq	Rel Freq	Cum Freq
1	93.00	2273.00	1183.00	53	0.46	0.465
2	2273.00	4453.00	3363.00	41	0.36	0.825
3	4453.00	6633.00	5543.00	5	0.04	0.868
4	6633.00	8813.00	7723.00	8	0.07	0.939
5	8813.00	10993.00	9903.00	4	0.04	0.974
6	10993.00	13173.00	12083.00	1	0.01	0.982
7	13173.00	15353.00	14263.00	1	0.01	0.991
8	15353.00	17533.00	16443.00	1	0.01	1.000
			Total	114	1	

The quantity of gas under-billed for these commercial customers follows a similar distribution. Approximately 80% were under-billed for less than 4,962 CCF. Four were under-billed for more than 12,237 cubic feet. The quantity under-billed ranged from 112 cubic feet to 18,995 cubic feet. (See Figure 5)

Figure 5: Cubic Feet Under-Billed - Commercial



Classes	LB	UB	Midpoint	Freq	Rel Freq	Cum Freq
1	112.00	2537.00	1324.50	50	0.44	0.439
2	2537.00	4962.00	3749.50	40	0.35	0.789
3	4962.00	7387.00	6174.50	10	0.09	0.877
4	7387.00	9812.00	8599.50	7	0.06	0.939
5	9812.00	12237.00	11024.50	3	0.03	0.965
6	12237.00	14662.00	13449.50	1	0.01	0.974
7	14662.00	17087.00	15874.50	1	0.01	0.982
8	17087.00	19512.00	18299.50	2	0.02	1.000
			Total	114	1	

Of the customers under-billed, 474 have paid some portion of their back-bill to QGC, 296 or 62% (=296/474) have paid more than half of the back-billed amount including, 175 or 37% (= 175/474) that have paid the entire back-billed amount. On average, the amount paid by the under-billed customers is $334. However, the amounts paid range from zero to $7,034, with the total amount paid at $158,178. The total adjusted amount equals $555,821, leaving approximately $158,178 in dispute for those customers having paid a portion of the back-billed amount. (See Table 10)

Table 10: Amounts Paid by Under-Billed Customers

	Average	Max	Min
Adjustment Amount	$1,173	$8,763	$12
Paid	$334	$7,034	$0
Months	18	24	0
Total Adjustment Amount	$555,821		
Total Paid	$158,178		
Difference	$397,643		

Refunds have been given to all over-billed customers. The total amount collected by QGC through over-billing from pre-divide exceptions equals $40,939. (See Table 11)

Table 11: Amounts Refunded to Over-Billed Customers

	Average	Max	Min
Adjustment Amount	$1,279	$3,320	$10
Refunded	$1,279	$3,320	$10
Months	26	47	0
Total Adjustment Amount	$40,939		
Total Refunded	$40,939		
Difference	$0		

Some customers that were under-billed and received back-bills from QGC repaid a portion of those bills before the Commission consolidated the dockets and opened its investigation. Similarly, some customers with pre-divide exceptions were over-billed, which, when discovered by QGC, refunded the over-billed amounts. Of the 517 customers reported to have pre-divide exceptions, 29 (approximately 6%) were over-billed. The total amount over-billed equaled approximately $41,579, a dollar amount associated with over 47,000 cubic feet of natural gas. The total amount under-billed equalled $908,782 representing 1,062,836 cubic feet of natural gas. This puts the total volume of natural gas associated with incorrectly set transponders at 1,110,415 cubic feet and the total amount at $949,890.69. (See Table 12)

Table 12: Summary of Amounts and Quantities

Amount Over-Billed ($)

Customer		Frequency	Total	Average	Maximum	Minimum
Commercial		3	$2,323.20	$774.40	$1,443.48	$10.30
Residential		26	$39,255.55	$1,509.83	$3,349.09	$207.65
	Total	29	$41,578.75	$1,433.75		

Amount Under-Billed ($)					
Commercial	114	$362,699.05	$3,181.57	$17,067.67	$93.88
Residential	374	$546,083.15	$1,460.12	$7,699.83	$1.83
Total	488	$908,782.19	$1,862.26		
Quantity Over-Billed (CF)					
Commercial	3	2,175	725	1,369	11
Residential	26	45,404	1,746	4,231	221
Total	29	47,579	1,641		
Quantity Under-Billed (CF)					
Commercial	114	421,530	3,698	18,995	112
Residential	374	641,307	1,715	8,481	2
Total	488	1,062,836	2,178		
Total CF	517	1,110,415	2,148		
Total Cost of CF		$950,360.94	$1,838.22		
Average Cost per CF		$0.8559			
Total Adj CF		1,814,478			
Cost of Adj Total CF		$1,552,941.04			

The actual or corrected total volume of gas going to meters with incorrectly set transponders was 1,814,478 CCF.[27] Using an average cost per CCF from those over- or under-billed, the estimated total cost of the natural gas going through those meters with pre-divide exceptions equals $1,552,172.61 (=$0.86*1,814,478).

27 See Questar data response Joint Data Request 1.27 (column Qty Billed Incl Adj).

THE PRECISE ACCOUNTING AND REGULATORY TREATMENT OF UNBILLED GAS ASSOCIATED WITH TRANSPONDER ERRORS

Revenues collected from customers are classified as Commodity and Supplier Non-gas (SNG) revenues (which are not weather normalized) and Distribution Non-gas (DNG) revenues (which are weather normalized).

The Commodity and SNG expenses are recorded at actual levels for gas volumes that were purchased during the month and for gathering and transportation services billed to QGC for the purchased gas volumes. Revenues for the current month, based on customer billings, are booked as gas volumes used, as measured by the customer's meter, times the current approved DNG, SNG and Commodity rates. Gas volumes that are not correctly recorded by the transponder would not be reflected in the appropriate DNG, SNG and Commodity gas revenues for the month. Each month, the expenses incurred for gas purchases, gathering and transportation services and the revenues collected under the SNG and Commodity rates are compared and the difference is booked into the 191 account as either an under-collection or over-collection. At least twice a year, the balance in the 191 account is amortized. If the balance is under-collected, a 191 amortization rate is increased to collect from all customers the under-collected amount. If the balance is over-collected, a 191 amortization rate is decreased to give back to customers the over-collected amount. The under-billed SNG and Commodity revenues resulting from the transponder issues would show as an under-collection from customers booked into the 191 account, to be collected at a later date from all customers when the account is adjusted in a pass-

through filing. As a result, of the transponder errors revenues from under-billed volumes were underreported since these volumes were not recorded. There were not any unbilled costs, only unbilled revenue.

Corrected billings to customers were calculated using the approved rate that was in effect at the time of the error. QGC billing system has within it the approved tariff rates broken out by month so when the errors are corrected, the revenue is calculated using the correct rate as approved for the month during which the error occurred. When customers pay the under-billed amounts, the corresponding SNG and Commodity revenue components are adjusted in the 191 account. DNG costs are matched against DNG revenues. The DNG expenses are the expenses addressed in a general rate case. These expenses are booked as actual expenses incurred by the Company for each month. Actual DNG revenues collected from customers who were under-billed due to pre-divide errors was understated since the volumes were understated due to the transponder errors. However, because QGC has a Conservation Enabling Tariff (CET) in effect since July 1, 2006, that allows the QGC to collect a set amount of revenue per customer each month, the revenue that is booked by the Company is the allowed revenue based on the CET. The DNG revenues collected (based on volumes) are compared to the allowed CET revenue (based on customers) and the difference is booked to the 191.9 account. Because of transponder setting errors, there was an under-collection from customers based on the unreported volumes, but the under-billed customers were properly accounted for in the allowed CET revenue calculation. The difference between the allowed CET DNG revenue and missed volumetric DNG

revenue would be collected at a later date when the CET balance would be amortized and rates adjusted to reflect that amortization. As with the Commodity and SNG costs, DNG costs have been booked based on actual costs incurred, and there are only unbilled DNG revenues which are accounted for as a difference between allowed and collected revenues in the CET balancing account. When under-billed customers pay those bills, an offsetting adjusting entry is made in the CET balancing account to reflect the collection of those missed DNG revenues.

IDENTIFICATION OF POTENTIAL ADJUSTMENTS TO THE CET, 191 ACCOUNT

The CET has no effect on the expenses of the Company since QGC can only collect what is approved in the DNG rate, which is determined in a rate case. Through the normal course of business, QGC experiences problems associated with under-billing due to meters that stop recording, start recording slowly or, on some occasions, from customers who try to bypass the meter altogether. All costs associated with the transponder errors were within the normal cost of business; no additional costs to the Company were incurred. If the Company had incurred additional costs those would not be collected from customers since the CET sets the amount of revenue the Company is allowed to collect from customers.

The 191 Account and the CET (191.9) account only reflect over- or under-collected revenues. The transponder errors resulted in revenues in both accounts being

under-collected. If nothing is done, or if the error was not detected, the Company would collect that missed revenue from **all customers** when the rates are adjusted in pass-through and CET amortization filings. The gas portion of the 191 accounts are balancing accounts to reflect the differences between actual costs incurred for purchase of gas and the revenues collected from the currently allowed Commodity and SNG rates. In the case of the transponders, the gas was purchased and paid for. It was not billed to the customer that used it and the difference was recorded in the gas portion of the 191 account. The CET portion of the 191 account (191.9) reflects the difference between the allowed DNG revenue the Company correctly recorded and missed DNG revenues that were not collected because of the faulty transponder readings.

When customers pay back-billed amounts, the revenues are netted against the balances that are in the 191 and 191.9 accounts, which then reduces the amount to be collected in the future from all customers. If the Commission decides the Company should lose some or all the benefits of that revenues in question, then entries would be made to the 191 and 191.9 accounts to write off the under collected revenues and then a loss would be booked to the income statement (below the line).

DETERMINATION OF EXISTING UTILITY PROCESSES RELATED TO TESTING OF NEW EQUIPMENT, CHECKS WITHIN THE BILLING SYSTEM AND RISK CONTROLS

The Public Service Commission has established rules regarding the testing and accuracy of gas meters. Under Rule R746-320-3 (C), new and reinstalled meters “shall

be no more than one percent fast or two percent slow." Sub-section (D) further requires that meters be tested to meet these accuracy requirements prior to installation. Sub-section (E) then prescribes maximum time periods during which individual meters are to be tested (unless the Commission approves a statistical sampling method as an alternative). These periods are based upon meter capacity, with the smallest sizes requiring meter testing no less often than every ten years. For meters used by most residential and small commercial customers at issue in this case, testing is required between either every ten years for very small users and five years for most others. For some larger homes or commercial businesses (those whose meters have capacities between 600 and 1,500 cubic feet per hour), testing every three years is required.

As will be discussed more fully below, the Division feels that, for regulatory purposes, the combination of a transponder with a meter should be treated as a single unit, together constituting the "meter." Thus, we examine whether the rules for testing and accuracy of meters were complied with transponders used in the AMR program.

In its response to Data Request DPU 1.07, Questar Gas states that Elster "provides quality verification and testing of new transponders." For instance, Elster's testing "involved giving each transponder a service load and verifying that no counts were missed…" Each unit was "also tested while under a predetermined range of temperatures and environmental conditions to ensure that it will properly communicate with a mobile interrogation device." In addition to this factory testing, the installation procedures described in the attachments to Questar's response to Joint Data Request 1.07 include various actions, including so-called "spin tests" that were used to ensure

that each transponder's mechanics functioned properly, i.e. it moved smoothly one unit for each revolution of its drive mechanism. The Company also demonstrated how these processes were performed during the May 16 technical conference. The evidence in this docket indicates strongly that the billing errors that are at issue were not caused by faulty transponders but rather by faulty installations involving incorrect setting of the pre-divide function on VRT model transponders. The Commission's rules requiring testing and setting accuracy limits for meters, when applied to the transponders themselves, seem to have been followed prior to their installation.

In addition to installation procedures, "Within days of installation, a QGC employee physically visited newly installed transponders to take reads and ensure that they were advancing. Because this test occurred very shortly after the initial installation…" it was possible to detect non-reading transponders but not necessarily pre-divide setting errors." Any transponders that "failed to advance or that were set incorrectly were reset, repaired or replaced." (Response to DPU 2.01) It is not known how many pre-divide errors were found in these post-installation inspections, as records were not kept at that time on error rates and causes.

In addition to the above measures, Questar Gas decided to initiate its Meter and Transponder Inspection Program (MTIP) once all of the transponders had been retrofitted. This program was begun in July 2006. Under MTIP, each transponder and meter are to be inspected together to determine function and accuracy. According to the data in the response to URA Date Request 2.06, 182 faulty pre-divide settings have been found under the MTIP program (as of June 17, 2008).

For transponders that were installed in the earliest years of the AMR program (1998 and 1999), the MTIP provided for inspection seven or eight years after installation. If a transponder should be treated as a unit with a meter, then this time span would exceed the testing time requirements in R7460320-3 (c) for all meters larger than 300 cubic feet per hour. For the first VRT transponders (installed in 2002 and primarily in Utah County), MTIP inspection in 2006 and 2007 would also be outside of time limitations for larger customers (meters with capacity between 600 and 1,500 cubic feet per hour) whose meters must be tested at least every three years. Following the Division's interpretation of the definition of a "meter" (analyzed in a later section), many of the transponders examined in the MTIP should have been tested sooner. However, because Commission rules do not currently address transponders, and the definition of a "meter" does not explicitly reference them, we do not conclude that Questar knowingly or willfully violated these rules. The Division is nevertheless of the opinion that waiting until the completion of all retrofit transponder installations before initiating the MTIP was not a wise decision. We are, however, reassured that this error will be corrected once the MTIP has completed its first round of inspections and all meters and transponders are thereafter tested at least every three years.

Because Commission rules leave the status of transponders unclear with regard to accuracy and testing, the Division recommends that the Commission initiate a rulemaking on the subject. The purpose of the revision would be to clarify the treatment of a transponder as being either part of a meter (as the Division advocates) or separate from it and having is own set of standards and requirements.

In addition to inspection and testing, transponder pre-divide errors could have been discovered through the use of billing software. It has become routine for utility billing systems to contain program logic designed to detect suspected theft of service cases, i.e. customers that may have tampered with or by-passed a meter. A simple means of detecting such theft of service cases is to do a computer search for accounts where there has been a substantial decrease in recorded customer usage over time. Similarly, an undetected leak can be detected when reported usage substantially increases over a short period of time. In either case, such changes create alerts to customer account staff that then dispatch service personnel to inspect the meter and the lines feeding into it. In its Response to CCS 1.05, Questar indicates that it has such a feature built into its customer billing software, the Customer Care and Billing CIS System. The system was installed in July 2004, and has "edits in place to detect when there is a significant change in a customer's usage pattern."

> Consumption estimation is done for each customer for the purpose of meter read validity. The system uses base load and usage per degree day factors to calculate the high / low values. Meter reads that fall outside the high / low limits are flagged for a billing representative to analyze. If it is determined that the read appears inconsistent with the customer's usage history a service order is generated to send someone to the premises to check the meter and transponder.

In spite of the existence of this billing software feature, only a small number of accounts were found to have pre-divide errors through the billing software and analysis system. Further discussion on this topic appears in the next section of this report.

ANALYSIS OF QUESTAR GAS' ACTIONS FOR REASONABLENESS AND PRUDENCE

An important question that has not been addressed to this point is, "Did Questar Gas behave prudently and reasonably regarding its transponder program?" In particular, we wish to examine Questar's decision making and conduct at the following key points:

a. The decision to deploy transponders on customers' meters.

b. The decision to change from mode 3.4 to VRT transponders

c. Procedures used for installation of transponders

d. Discovery of transponder errors

e. Actions taken after discovery of errors

a. The decision to deploy transponders on customers' meters

Questar began considering a change from manual meter reading to automated meter reading (AMR) in 1995. There are several problems inherent in manual meter reading. First is the simple fact that it is labor and time intensive. To the extent that AMR can speed meter reading, cost savings can be realized for ratepayers. Second, manual meter reading can involve a relatively large number of erroneous billings from a combination of incorrect visual interpretation of the meter index to difficulty transcribing hand-written meter reads. Third, manual meter reading requires direct access to the meter that can be problematic in cases of fenced and locked yards, deep snow,

animals, etc. Such cases result in estimated readings whose inaccuracies can multiply as time goes on.

Prior to making the commitment to deploy transponders on all its customers' meters, Questar undertook a pilot program of installing them on hard-to-read meters in Little Cottonwood Canyon, Summit County and Salt Lake City. This study found, for example that the 16.5 hours that it had taken to read 71 meters in Little Cottonwood was reduced to 11 minutes. (Presentation at May 16, 2008 technical conference.) The Company therefore decided to install transponders on all its meters over eight years from 1998 to 2006.

Results from the AMR program have been impressive. Questar estimates that its annual labor costs for meter reading have been reduced by just under $5.3 million or about $6 per meter per year. In addition, the number of estimated bills has dropped from 5.40% in 1999 to just 0.65% in 2007, thereby increasing billing accuracy for customers. Finally, the percentage of bills requiring adjustment due to billing error (from all sources, including erroneous meter readings, equipment failure, etc.) has dropped from 1.45% in 1999 to 0.55% in 2007. (Response to JDR 1.3) These annual reductions in labor costs and billing error have been achieved at a total cost of $37.2 million for the installation of transponders. (Response to JDR 1.25) We find this to be a reasonable investment to realize long term savings and therefore that the decision to install transponders was both reasonable and prudent.

b. The decision to change from mode 3.4 to VRT transponders

In 2002, Questar ceased installing the Elster 3.4 model upon which its initial analysis had been based. Approximately 40% of meters had the 3.4 model installed, the majority of which were away from the Wasatch Front. (Questar Gas' April 15, 2008 Answer) Both the Company and Elster saw the new VRT model transponder as superior for a number of reasons. It is less expensive to manufacture, resulting in a cost savings of $8.25 per transponder (saving over $4 million for the remaining 525,000 units). VRT's also have a longer battery life of 18 years compared with the 3.4 model's 12-year battery. (Response to DPU 2.06) The VRT also is able to report meter reads over the prior 35 days, as opposed to just the current reading for the 3.4 transponder. Finally, the VRT also has the "pre-divide" function which allows it to be installed on a wider variety of meters than the 3.4 model.

The 3.4 model transponders could not be used interchangeably on different sized meters - specific transponder types were needed for different meter sizes. The large majority (almost 96%) of meters in the Questar system are 1-foot meters where each rotation of the meter's index dials is registered as one cubic foot consumed. A different version of the 3.4 was needed for each of the 2-foot meters (which records one dial rotation for each two cubic feet of gas used. The same VRT type can be installed on both 1-foot and 2-foot meters by using the pre-divide settings. The factory default setting of VRT's is suitable for 1-foot meters. Under-billing occurred when installation technicians did not change the pre-divide setting when installing on 2-foor meters. Over-billing occurred when technicians erroneously changed the pre-divide for installation on 1-foot meters.

Changing to the VRT model created the opportunity for pre-divide setting errors during installation that did not exist with the 3.4 model transponders. It is unclear whether this was fully appreciated at the time the decision was made. However, inspection results provided by QGC show that 2% of the 2-foot meters installed with VRT transponders (which themselves account for only 2.2% of all customers) had pre-divide errors. Given the overall short- and long-term cost savings to ratepayers from switching to VRT's, this appears to the Division to have been a reasonable and prudent decision.

c. Procedures used for installation of transponders

At the May 16, 2008 technical conferences, Questar representatives demonstrated how VRT transponders are installed on meters. This showed that the installation process used was relatively simple. We have noted, however, that the instructions for installation that were originally provided by Elster (in JDR Response 1.07) were somewhat confusing. Additional instructions revisions from Elster – which become progressively more clear and easy to understand – suggest that Elster was aware of installer confusion and acted to correct the problem. We think it likely that some proportion of incorrect pre-divide settings is attributable to these instructions.

Questar has indicated that its employees and lead contractors received two hours of classroom training before receiving field training from experienced installers. Some follow-up training was offered but no records have been preserved as to how many installers participated in this extra training. (Response to DPU 2.08)

Questar had procedures in-place to ensure that the correct starting point of billing was maintained, that the transponder was accurately recording each revolution of its drive mechanism, and that there were no other apparent mechanical problems. Unfortunately, once the connection between the meter's index drive and the transponder's drive is completed, there is no way to artificially "spin" the meter to ensure that the transponder is recording measured cubic feet correctly. (Only after a large number of pre-divide errors were found in the MTIP program did the Company and Elster develop an electronic means of verifying pre-divide errors at time of installation.)

Of course, installation checks of correct pre-divide settings will only work when the installer correctly understands which type of meter the transponder is being placed upon. Pre-divide setting errors seem to have occurred most often with American 2-foot meters, apparently because they look nearly identical to the American 1-foot meters. (Both types are the same shape and are only slightly different in size. The most easily discernible difference is on the index dials where the smallest dial reads either "one foot" or "two feet.") If an installer thinks that he has set a transponder on a 1-foot meter, as was apparently the case in many instances, the ability to check pre-divide settings after installation will not prevent a pre-divide problem from occurring.

In its post-installation protocols, Questar sent an employee to each meter to ensure that it was recording gas used and that its index read matched the transponder (Response to DPU 2.10). According to the Company, some pre-divide errors (the number is not specified) were found during this manual inspection. Such a follow-up, however, would have difficulty finding a pre-divide error if the installation occurred

during a period of low gas usage. It is somewhat understandable, therefore, that many pre-divide errors would not have been detected until high-volume usage resumed during cold weather. Moreover, as the Company states in its April 15 Answer, "this testing was not designed specifically to identify pre-divide setting errors." (Answer, p. 6)

It should be noted that, with the completion of the transponder retrofit program, all new meters are fitted with transponders at Questar's meter shop. This should significantly reduce the number of erroneous pre-divide settings.

Early in the examination of this case, some parties informally questioned whether it was prudent to rely on contractors for transponder installation. According to Questar,[28] 93% of transponders were field-installed by contractors, with the remaining 7% split nearly evenly between pre-installed transponders supplied by American Meter and field installation by Questar employees. Of these groups, contractors showed the lowest rate of pre-divide errors, only 300 out of 623,000 installations or 0.05%, compared with 0.80% for American Meter and 0.12% for Questar employees.

The Division recognizes that human error is likely to occur with such a large number of installations. Overall error rates – at least with regard to pre-divide settings – were remarkably low. It is hard for us to conclude that there was a pattern of unreasonable or imprudent behavior with regard to the installation process.

[28] Questar's response to JDR 1.27.

d. Discovery of transponder errors

With the advent of the AMR program, virtually all meter readings would be performed without a visual inspection of each meter. Questar seems to have decided that it would be prudent, therefore, to initiate a Meter and Transponder Inspection Program (MTIP) once all of the transponders had been retrofitted. Because the MTIP roughly followed the order in which transponders had been installed, its initial months covered model 3.4 transponders. As indicated in its Response to JDR 1.16, it was not until the summer of 2007 that Questar realized that there was a systematic problem with pre-divide settings.[29] It was at that time that the Company began investigating an expedited means of finding and correcting errors.

Because the MTIP was not begun until all meters had been fitted with transponders, and because most of the problems were with VRT models that were inspected well into the MTIP program, many customers usage was under-recorded and thus under-billed for many months. According to the data provided in JDR Response 1.27, under-billed periods ranged from one to 71 months, with an average under-billing of just over 28 months. This raises the question of whether the Company acted prudently to find these errors in a timely manner before account deficits could grow to high dollar amounts.

As outlined above, Questar had (and still has) a Customer Care and Billing CIS System. One of the features of such a system is software logic to identify accounts

[29] According to the Response to DPU 2.09, the first recorded case of a bill correction due to pre-divide error is in August 2005. The second case was in April 2006. These cases were apparently considered isolated at the time.

where there has been a significant change in usage. Because of the magnitude of billed customer usage changes in this case (either a 50% decrease in billed gas or a 100% increase), one would expect that a large number of the pre-divide errors would have been detected by this system. However, according to Questar's response to DPU 2.10, "During 2004 and 2005, Questar became aware of a few incidents of pre-divide error, through its billing review process. Questar Gas believed these errors were isolated and dealt with them on a case-by-case basis." However, the software failed to identify the large majority of pre-divide error cases. In the spreadsheet the Company used to respond to URA 2.6, there are only 15 accounts that are listed as having had pre-divide errors discovered through the "Billing Edit Review Process."[30]

The Company has suggested that its software may have missed instances where there was no history on that account - i.e. a new customer or new building – so that its software had no base usage period against which to compare. Analysis of the data provided in JDR Response 1.27 shows that 186 of 517 (36%) of pre-divide errors were on new installations. This is, indeed, a disproportionate share of Questar customers, but does not account for the remaining 331 customers whose gas usage was incorrectly reported.

Questar has also suggested that timely discovery of pre-divide errors would have been difficult in cases where transponders were installed during low-usage months (where a large percentage change in usage would have involved only a small volume of

[30] It is unclear if this refers solely billing software filters or also includes analysis of accounts during customers move-ins and move-outs. The spreadsheet also list three discoveries from "meter change."

gas). However, an examination of the data in JDR Response 1.27 shows no apparent pattern of pre-divide errors occurring in cases where the transponder was installed in warmer months. Indeed, installation continued year round and there are a substantial number of accounts whose transponders were set in the winter months and where pre-divide errors were not discovered by the billing software.

It is difficult for us to conclude that the Customer Care and Billing CIS System was effective in the case of the pre-divide errors at issue in this case. While we can accept that the software may not have been designed with the notion of detecting transponder setting errors, it is hard to see how software that includes anti-theft logic could fail to detect a 50% decrease in usage (or 200% increase in the few cases of over-billing). While summer installation errors would have initially been difficult to detect, one would expect that with cold weather, a change in usage would have been detected within six to nine months. It is especially hard to see how this software failed to detect sudden, 50% decreases in the middle of winter – exactly the kind of substantial change that such software should be looking for.[31]

We also wonder how the drastic changes in account payment schedules for equal pay customers failed to trigger a realization of problems with these accounts. We think it reasonable to expect that when an account's monthly payment schedule drops

[31] This becomes more clear if one begins to look at specific accounts. For instance, account #7774280146, a residence, had a transponder installed on January 5, 2006 and in only 25 months accumulated $3,405 in underbilling without being detected by this software. This home's bills dropped from $562 on December 1, 2005 to $223 on February 5, 2006 without triggering any warnings.

by up to one half during periodic recalculation, that some kind of alert or notice, whether by a computer or a human, would be triggered.

In response to DPU 2.11, Questar has provided information on other apparent pre-divide issues for other utilities in Washington and Idaho. The web version of a television news story cites 60 transponder back-billing complaints to the Washington Utilities and Transportation Commission in 2006, 17 in 2007, and 21 so far in 2008. In Idaho, two formal complaints, one in March 2006 and the second in May 2007, were filed with the Idaho Public Utilities Commission. Both relate to pre-divide issues on transponders. We reach no conclusion about whether Questar should have known about these particular cases. However we note that there was a developing body of information that something was going wrong with some transponders, both within Questar's system and in other states.

According to Questar "a few" errors were discovered through billing software. A small number of additional errors seem to have been discovered through post-installation inspection and during customer move-ins and move-outs. According to Questar's response to URA 2.6, a total of 18 transponder pre-divide errors were discovered before the MTIP program began. No one at the Company put these pieces of information together to realize that transponder issues were not isolated. Had this realization come sooner, several months of incorrect billing and under-collection could have been avoided.

The finding of pre-divide errors could also have been accelerated had the MTIP program begun sooner. It would have been advisable for follow-up inspections of transponders to have occurred sooner than the seven or eight years that elapsed for the first transponders that were installed. (This was also arguable contrary to Commission rules, as discussed above.)

It seems clear to us that that most of the billing errors that resulted from incorrect pre-divide settings should have been discovered through changes in reported usage and billing on existing accounts within six to nine months of each transponder's installation. Billing software should have flagged the substantial changes in natural gas usage being reported by the transponders. Indeed, this software problem leads us to wonder if there are actual theft of service cases that are not being detected by the billing system. In addition, the various signs that something was wrong with a significant number of transponders should have been connected.

The definition of "prudence" with regard to public utilities appears at U.C.A. § 54-4-4 (4). While the definition deals primarily with the setting of utility rates and allowance of expenses, the Division believes that this section of statute can provide guidance in determining prudence in other areas within the Commission's jurisdiction. The following guidelines are given for establishing prudence:

> (i) ensure just and reasonable rates for the retail ratepayers of the public utility in this state;
> (ii) focus on the reasonableness of the expense resulting from the action of the public utility judged as of the time the action was taken;
> (iii) determine whether a reasonable utility, knowing what the utility knew or reasonably should have known at the time of the action, would

reasonably have incurred all or some portion of the expense, in taking the same or some other prudent action; and

(iv) apply other factors determined by the commission to be relevant, consistent with the standards specified in this section.

The guidelines focus on "reasonableness" of the utility's actions. For purposes of the discovery of transponder pre-divide errors, the question becomes, "Was it reasonable for Questar Gas not to have discovered these errors for such a long period of time (28 months for the average account)?" We cannot conclude that it was reasonable that Questar was unable to detect pre-divide errors over such substantial periods of time for those existing customers (64% of transponder pre-divide errors) from whom baseline data were available. We also question why individual pieces of information pointing to pre-divide errors were not used to make a realization of a wider problem. At many points, we read that the Company considered errors to be "isolated cases." We therefore strongly recommend that the Company either install new, more sensitive software or change the upper and lower limits that trigger examination of individual accounts. We also recommend that mechanisms or processes be put into place to share information between billing and service personnel such that when common incidents are identified through different operations, future problems are more likely to be identified in a timely manner.

e. Actions taken after discovery of errors

As outlined above, Questar was not aware of the systematic pre-divide problem, believing the cases found to have been isolated occurrences. It was several months after the initiation of the MTIP program (April 2007) that the Company discovered that

pre-divide errors were more common than previously believed and seemed to follow a pattern. (JDR 1.18) Questar then initiated three changes: 1) A change to its interpretation of the tariffs to permit back-billing for 24 (as opposed to six) months; 2) The development of software in its transponder reading system to determine pre-divide settings; and 3) Focusing its pre-divide setting validation efforts on customers with American 2-foot meters.

As outlined in Questar Gas' Answer (filed April 15, 2008) and its response to DPU 2.03, when transponder pre-divide errors were first discovered, customers were back-billed for a period of six months. Questar Gas claims that it changed over to 24 month back-billing after discussing the matter with Rea Petersen, at the time, the Division's lead utility complaint specialist (Ms. Petersen is now manager of the Customer Service Section of the Division). According to the Company, Ms. Petersen concurred with a decision to change to 24-month back-billing, based not upon any specific customer complaints but based upon a generally posed scenario presented by Pam Giles, Questar Gas' Customer Support Supervisor. Both Ms. Petersen and the other Customer Service staff in the Division (with whom the Company regularly interacts on billing matters) were queried and none recalled any conversations with Questar Gas regarding the transponder billing errors in this case prior to receipt of the first informal complaint in October 2007. Division staff also reviewed all complaints received, as well as notes, files, and calendars in an effort to document such conversations. No record has been found. In the Joint Data Request made by the Division and Committee, the Company was asked to provide more documentation of the meetings and/or

conversations with the Division on this question. Questar Gas responded that it also has no documentation of such conversations. Both informal follow-up and the Company's response to DPU 2.03 indicate that the change in back-billing policy happened over the course of several months between May and October of 2007. All communications within the Company on the matter prior to October appear to have been oral and therefore undocumented. Though the change in policy involved interpretation of Commission rules and approved tariffs, no legal opinion appears to have been sought.

As will be discussed more fully below, we believe that a 6-month back-billing is the correct interpretation of existing Commission rules and tariffs. However, given the ambiguity in tariff and rule language, we do not think that QGC acted unreasonably in reaching its conclusion. Indeed, as will be discussed below, there is an argument to be made that, because all of the billing amounts that Questar currently collects are for commodity costs and fixed system costs that operate through balancing accounts, there was a responsibility on behalf of the other ratepayers to collect the amounts that would make up for under-billed gas and delivery costs. We do, however, feel that the making of such a decision should have been accompanied by a recording of the processes and persons involved in the decision making. As discussed above, there exist no records as to who was consulted on this decision and there appears (both from the lack of evidence in data request responses and from oral communication between Division and Company customer service staff on June 13) to have been a lack of legal analysis underlying the decision. While we do not find the 24-month back-billing decision to

have been imprudent, we do believe that it might have been wise to seek an exception to, or to modify, the back-billing tariff to allow for payback periods greater than 24 months, as is permitted in Commission rules (see below and Commission Rule R746-320-8 (E)) in order to ease the burden of a prospective 100% increase in bills for up to 24 months. We also recommend the Commission order a revision to Questar Gas' tariff as a result of this case.

We believe that Questar's decision to work with Elster to develop software to verify pre-divide settings was not only prudent but commendable. As pointed out is the Response to DPU 2.10, had the Company relied solely upon the MTIP program to discover pre-divide errors, it would have been impossible to have found them all until sometime in 2009. This would have increased the volumes of under-billed gas for which other ratepayers would have been forced to absorb the costs. It is, though, unfortunate that, having become aware of the pre-divide issue in April 2007, that it was not until September that the Company began to work with Elster to develop the new software. (April 15, 2008 Answer, P.7)

We also believe that the decision to focus on the verification of pre-divide setting on American 2-foot meters to also have been appropriate, given the pattern that was emerging. This, combined with the software change initiated in January 2008, allowed for relatively quick discovery of errors on the meters that were most likely to have them. As a result, by April 2008 when the transponder issue came to light, most transponder pre-divide errors had already been discovered. Since that time, verification of settings

on other meter types has also been undertaken and most or all of the erroneous settings should have been discovered.[32]

TARIFF ISSUES

One of the key questions in this docket is whether, and for what time period, Questar Gas should be permitted to back-bill customers who were undercharged because of the incorrect setting of transponders. A substantial number of the complaints – both formal and informal – filed in the case state, in essence, "It was Questar's fault; why should I have to pay for their mistake? They should have to bear all of the loss." However, this result is precluded on legal and fairness grounds.

It is likely that the vast majority of QGC customers are unaware that all of the GS-1 gas rate (which is applicable to residential and small commercial customers) currently is allocated into balancing funds intended to meet the costs of acquiring gas, providing DSM programs, and meeting fixed costs.[33] When gas billings are under-collected, as in this case, these balancing funds are replenished by increased rates to all customers. If, as many of the complainants wish, they are absolved of the entire amount that they have been under-billed, 89% of what they do not pay will have been

[32] Note that the data made available to the Division on individual customer accounts and total pre-divide errors and inspections was provided before the completion of the pre-divide setting verification program.

[33] Only the portion of unbilled DNG revenues that is attributable to the period before creation of the CET is at risk to Questar Gas. This represents about 11% of under-billed dollars.

borne by Questar Gas' other customers, a result that does not appear just and reasonable with regard to these other customers.

Complete forgiveness of the back-billed amounts is also unsupportable both by Utah law and case precedents. Utah statute (U.C.A. § 54-3-7) states that "no public utility shall charge, demand, collect or receive a greater or lesser or different compensation for any product or commodity furnished... than the rates… applicable to such products… as specified in its schedules on file and in effect at the time; nor shall any such public utility refund or remit, directly or indirectly, in any manner or by any device, any portion of the rates… so specified…" In this section, utilities are also barred from extending privilege to any person or corporation except such as are regularly and uniformly extended to all others. However, the Commission may, "by rule or order, establish such exceptions from the operation this prohibition, as it may consider just and reasonable..." In addition, U.C.A. § 54-3-8 prohibits utilities from making or granting "any preference or advantage to any person or subject any person to any prejudice or disadvantage."

In interpreting these statutes, both the Commission and the courts have been consistent in declaring that collection of utility bills must be, at least partially, collected in accordance with existing rules and tariffs. The PSC case that has addressed this issue most directly is Covey Apartments v. Questar Gas (Docket No. 01-057-09; Order January 9, 2002). Due to a meter reading error that was perpetuated for almost ten years, the customer was billed for only 10% of actual consumption. About the same time as the error was made, the customer made improvements to the heating system

and attributed the 90% drop in costs to the improvements. The Company back billed 24 months pursuant to Commission rule. The customer's Complaint argued that when a utility was negligent and the customer was damaged as a result of the utility's acts, the customer should be able to pursue that as a defense or counterclaim to the back billing of the utility or the customer should at least be able to pursue their claim in court. After citing U.C.A. § 54-3-7 and 54-3-8, the Commission, concluded that even in circumstances of utility neglect and a showing that neglect caused damages to the customers, a remedy before the Commission does not exist. The Commission stated that even if it felt that it were favorably inclined towards the Complainant, "we believe we are bound by the pronouncements of the Utah Supreme Court which cut decisively the other way." The Covey decision goes on to cite the Utah Supreme Court decision in American Salt v. W. S. Hatch (748 P.2d 1060 (Utah 1987)) which held that even under harsh results, a utility is obligated to follow its tariff and rules in effect at the time of service and that altering the tariff and rules after the service may be retroactive rate making and would be beyond the PSC authority. In its order in Covey, the Commission addressed the issue of the harshness of back-billing, stating that the rule limiting back-billing to 24 months "has adequately ameliorated the hardship on customers under-billed for an extended period.

The Covey apartment decision also addressed the statutory authority of the Commission where there is a monetary dispute. That authority emanates from U.C.A. § 54-7-20, the reparations statute, which allows the Commission to order reparation, with interest, in instances where a utility has charged in excess of its tariff or has charged an

"unjust, unreasonable or discriminatory amount…" In Covey, the ALJ held that the statute speaks in terms of reparations where there is deviation from the tariff. The ALJ held that was not the case in Covey since Questar Gas followed its tariff. The Commission in this case even added a comment of its own after the ALJ decision. The Commission indicated that it does not have equitable powers to grant the relief Covey wanted.

This case is not alone in strictly applying the tariff even under harsh results. Rod Mitchell v. Utah Power and Light (Docket No. 03-035-06, decided January 8, 2004) resulted in a decision similar to Covey. In this case, meters were crossed where customers in one apartment were billed for those in another. Up until the hearing, UP&L claimed that the building owner caused the problem and that UP&L did not cause the problem. It turned out that the Company caused the error. The Commission noted, after reviewing the Company's conduct, "This matter is a very good example of how a complaint should NOT be handled. The series of errors outlined below should cause Utah Power considerable concern." The Commission, after determining that the error was solely the result of UP&L and that the customer expended much time and effort on the matter, stated that

> It is the long established policy of this Commission that customers should pay for the power they consume. That policy is reflected in Commission rules. . . . The public policy behind that rule is sound; customers should pay for the power they consume. The two-year limit provides protection to customers and motivation to the utility to remedy any incorrect billing within that time-period. . . .
>
> Were this a Court with broad equitable powers, ruling in favor of Mr. Mitchell may be appropriate. However, we are constrained to make

> a determination of whether Utah Power acted in accordance with its tariff, and applicable Commission rules. We find that it did so, and reluctantly therefore cannot afford Mr. Mitchell relief from the back bill amount. . . .

Thus even if the PSC wanted to give relief to Mr. Mitchell, it felt constrained to limit its review to a determination of whether the Company complied with the tariff and the Commission rules and could not to take fault into account in deciding these cases.

Similarly, in Lynden Shop v. Questar Gas (Docket No. 02-057-03, decided January 15, 2003) the Company made an error in reading the meter that caused this small auto repair shop to be back billed. The Commission said, "it is unfortunate when such errors occur, and they can be burdensome to customers, particularly when the errors are during the winter months. Nevertheless customers are obligated to pay for gas service they received. The Commission's rules address the need to allow customers time to pay bills from usage from prior period."

The relevant precedents clearly point toward the conclusion that some back-billing must occur in this case. While UCA 54-3-7 does allow the Commission to make exceptions to equal treatment among ratepayers in a customer's class that are "just and reasonable," additional precedent establishes standards that the Commission must follow in order to make exceptions to established precedent and practices. In Questar Gas v. Public Service Commission (34 P.3d 218 (Utah 2001)), the Utah Supreme Court reversed the Commission's decision to refuse to put CO_2 costs into the 191 account even though the tariff itself clearly permitted those costs to be placed in that account. The court, after indicating that the 191 account had been in place for many years as

part of the Company's tariff, held that if the Commission changes its prior practices it must "justify by giving facts and reasons that demonstrate a fair and rational basis for the inconsistency."

In light of the discussion above, the Division does not feel that permitting under-billed customers to be forgiven the full amount that they have been back-billed would be just, reasonable, or lawful. With our understanding of how the under-billing occurred, it seems clear that these customers did consume the volumes of natural gas that Questar claims. While there is no-doubt some merit to the arguments made by some of these customers that, had they known how much they were using they could have conserved, it is difficult to imagine that such customers would have been able to cut their use by a full 50%. Moreover, there are likely some customers who, watching their bills drop by half from one year to the next, knew (or should have known) that something was wrong with the billing. The Division therefore recommends that under-billed customers should be required, in a manner that is consistent with Commission rules and prior precedents, to make some repayment for the unrecovered cost of the natural gas they consumed.

One argument that might be made in opposition to the Division's recommendation that some repayment is due is that Questar Gas did not provide appropriate notice of transponder errors to customers. This argument is unpersuasive, however. Commission rule R746-320-8 (B) states that the account holder may be notified by mail, by phone, or by personal visit of the reasons for the back billing. This must be followed by or include a written explanation of the reasons for the back-billing that should be received by the customer before the due date of the adjusted bill, and

should be of sufficient detail to inform the customer of the circumstances, error or conditions that caused the under billing. Based upon information provided in response to the Joint Data Request 1.27, the Division believes that this portion of the Commission's rules has been met. Virtually all of those who were under-billed received a letter briefly explaining the source of the error.[34] While these letters might arguably have contained more detail, they did inform customers that the radio transponder had undercounted by half but that the original meter had recorded their actual gas usage. Because most letters were sent within a few days of discovery of each transponder error, it appears that most or all were sent prior to the due dates of the back-billed amounts. We are aware, however, of a limited number of cases in which bills were delivered before explanatory letters were sent. While these instances caused distress to some customers, R746-320-8 (B) does not require that an explanation arrive before the bill and thus these cases do not violate rules or the tariff.

There is an additional provision in the Commission's rules that would preclude back-billing a customer. The utility cannot "provide a back-bill more than three months after the utility actually became aware of the circumstances, error, or conditions that caused the under-billing and the correct calculation to be used in the back bill has been determined." R746-320-8(C). The data provided by Questar Gas in its response to Joint Data Request 1.27 show that no customer was notified more than three months from the date on which their transponder was found to have been incorrectly set. The

[34] Ten customers could not be back-billed for various reasons, e.g. death, moved, etc. The Company's spreadsheet responding to JDR 1.27 contains 10 such customers who were not contacted and who were not (and cannot be) back-billed.

large majority of customers were notified within a few weeks of discovery of each error, though it should be noted that there are several instances where customers were notified only a few days ahead of the three month deadline. Nevertheless, the Company appears to have complied with the rule.

It is possible that some readers of R746-320-8(C) would argue that the Company was required to notify customers of under-billing within three months of discovery of the broader problem of transponder pre-divide errors, not just the discovery of each individual's problem transponder. We think that this is an incorrect reading of the rule. According to Questar Gas' response to JDR 1.17, the Company was first aware of the potential extent of the pre-divide problem in the "late spring" of 2007. At that time, the equipment that the Company used to communicate with transponders did not allow for remote detection of pre-divide settings. In order to determine if pre-divide errors existed, it would have been necessary to manually read and compare each meter in order to detect all problems. With nearly 900,000 meters in its system, it is unreasonable to expect that Questar could have found and notified all customers with pre-divide problems within three months of the realization that the problem existed within the system. We conclude that once it was aware of the problem, Questar Gas moved appropriately and expeditiously to work with its transponder vendor to develop software that would allow for the discovery of incorrect pre-divide settings. Once individual transponder errors were identified, the Company complied with Commission rules in notifying individual customers of the problem and the need to back-bill.

The Commission's rules set limits on utility back-billing and allow for collection for up to either six or 24 months gas usage. R746-320-3 deals with the accuracy of natural gas meters and with billing adjustments resulting from meter errors. "If a meter… is more than three percent slow, the utility may bill the customer in an amount equal to the unbilled error for one-half the period since the last test, that one half period shall not exceed six months." R746-320-3 (H)(2). This provision is reflected in Questar Gas' tariff's Billing Adjustments section for "slow registering meters." (Questar Gas Tariff, Section 8.02.)

Commission rule R476-320-8 deals with natural gas billing adjustments more generally: "A utility may not bill a customer for service provided more than 24 months before the utility actually became aware of the circumstance, error, or condition that caused the under-billing or that the original billing was incorrect." The limitations in this provision can be set aside when under-billing is the result of fraud, theft of service, or denial of access to the meter. This provision is also reflected in Questar Gas' tariff, which lists "All other errors" (i.e. errors that are not due to non-registering, slow, fast, or crossed meters) having a 24 month adjustment limitation. Thus, both Commission rules and the approved tariff suggest that six months and 24 months are the only back-billing options available in this case. At issue is whether or not a transponder with an incorrect pre-divide setting should be treated as a "slow registering meter."

Utah statute does not define the term "meter." Commission Rule R746-320-1 defines "customer meter" as "the device used to measure the volume of gas transferred from a gas utility to a customer." Because all of the relevant statutes and rules

regarding meters were instituted before the development and use of transponders, there is no clear guidance on whether a transponder should be considered a part of or separate from the meter. However, we think the Commission's definition in its rules should be read to suggest that a transponder should be considered integral in function with the meter. As installed and used by Questar Gas, the transponder and the meter together "measure the volume of gas transferred." We also think that a common sense reading of the word "meter" supports this conclusion. The applicable definition in Webster's reads, "an instrument for measuring and sometimes recording the amount of something." (Webster's New Collegiate Dictionary, 1976.) Clearly, a transponder does not and cannot measure the volume of natural gas that a person uses. It does, however, play a role in recording the amount of usage. It is mechanically connected with the meter, it is connected to the mechanisms that turn the meter's recording dials, and it has an internal mechanism for registering usage that it then transmits via radio to a computer. While a transponder is a separate piece of equipment before it is installed on a meter, the Division believes that a common sense interpretation of the role of a transponder is that, once installed, it becomes part of the meter's recording mechanism.[35] We therefore believe that the most appropriate treatment of the incorrectly installed transponders in this case should be as slow registering meters. Applying both Commission rule and the Company's tariff therefore limits back-billing periods to six months.

[35] It should be noted that Rocky Mountain Power is in the process of installing meters that have fully integrated transponders, i.e. they are not separate units that are joined together.

Applying six months of back-billing, while defensible for the reasons listed above, has the effect of relieving some of the hardship that complainants in this case have indicated would be imposed by a 24 month back-billing decision. However, the Division feels that even this lesser total back-billing may nevertheless impose hardship upon some customers if they were to be required to pay off six months of back-billing over six future months. We note that Commission rule R746-320-8 (E) states that "A utility shall permit the customer to make arrangements to pay a back-bill without interest over a time period at least equal in length to the time period over which the back-bill was assessed" (emphasis added). The rules clearly contemplate permitting customers to lengthen payment periods. We therefore recommend that the Commission order six months of back-billing but payable over twelve months. This will serve to reduce the monthly repayment of each customer and assist those customers with fixed monthly income in making repayments without suffering excessive hardship.

Given the difficulty and potential controversy of applying existing Commission rules to transponder errors, the Division also recommends that the Commission initiate rulemaking on the appropriate back-billing treatment of transponder errors.

Based upon the data provided by Questar Gas in its May 16 response to JDR 1.27, back-billing for six months of usage has the estimated accounting implications found in Table 13. (An exact accounting will be possible only once the Company has completed verification of all transponder settings and provided information on all affected customer accounts. These estimates also make no assumptions regarding any potential or additional Commission accounting orders.)

Table 13: Summary Accounting Implications of Six Months of Back-billing

	Total Underbilled	Amount to be **Collected** from Underbilled Customers if Six Month Backbill	Amount Remaining **Uncollected** from Underbilled Customers if Six Month Backbill
All Revenue Accounts	$908,782	$190,119	$718,663
Commodity Cost (191 Acct.)	$650,723	$136,133	$514,590
DNG collected in CET	$160,421	$53,986	$106,435
Pre-CET DNG	$97,638	$0	$97,638
Total DNG Revenue	$258,059	$53,986	$204,073

The table above shows both the total amount of under-billing (as of May 16) and under-billing broken out by account. "Commodity cost" is funds used to purchase gas. This is a balancing account that does not provide profits to Questar Gas – It is used solely for commodity purchases. Shortages (or surpluses) in this account are effectively collected (or refunded) to customers through semi-annual accounting adjustments and changes to consumer rates. The Conservation Enabling Tariff or CET account operates similarly and is intended to cover fixed costs incurred by Questar for gas delivery. Collections into this account are based on a fixed revenue-per-customer amount established by the Commission. Under- or over-collections into this account (resulting from increases or decreases in customers' gas consumption) are also adjusted through periodic changes in customers' billing rates. With both of these accounts, under-collected bills mean less money into these balancing accounts. The result is that under-collected or uncollected customer bills are eventually charged to all of Questar Gas' customers. With the recommended back-billing of six months, approximately $190,000 will be collected from under-billed customers and credited to these two accounts, thus saving other gas customers from making up these otherwise lost revenues. However,

approximately $719,000 will remain uncollected. The result will be a very small additional cost to remaining customers of about 81 cents per customer.

Prior to the enactment of the CET, DNG costs were collected in both a fixed customer basic charge and a volumetric charge. In effect, it is this portion of customer billing that is at risk to the Company if it fails to collect the full amount from customers or if there are significant declines in natural gas usage. With both six months or 24 months of back-billing, we currently estimate that Questar Gas has lost approximately $98,000 that it will not otherwise recover. The Company's revenues are indifferent between 6 month and 24 month back-billing.

DETERMINATION OF APPROPRIATE REGULATORY TREATMENT REGARDING POTENTIAL CUSTOMER AND COMPANY OBLIGATIONS

This report has documented the amount and accounting treatment of under-collected billing amounts. The previous section, by addressing the appropriate period of back-billing, suggests the amount of under-billing that should become the responsibility of the individual customers whose transponders were set incorrectly. This nevertheless leaves a sizeable amount of money that, but for the faulty transponder settings, would have, but now will not be, billed to those customers. This section addresses the question of who should pay to rectify this amount.

As described above, UCA § 54-3-7 and § 54-3-8, as well as related court and Commission decisions, require that the utility and Commission not provide any

preference or advantage to any customer in relation to other customers. If six months of back-billing is ordered and no other action taken, then compliance with these sections of Utah law may be in doubt: Several hundred customers will have received natural gas for several months at one-half the cost published in approved tariffs and the remainder of the customers will have paid a small amount that they would otherwise not have paid. However, UCA § 54-3-7 does grant the Commission the ability to make "just and reasonable" exceptions to the prohibitions contained within that section. One may reasonably interpret the existence of the back-billing limitations in the Commission's rules and in Questar Gas' tariff 8.02 as such exceptions, thus allowing customers who were under-billed for more than six months to receive at least a limited preference with regard to other customers in their rate class.

A related equity issue, however, is whether the slight increase in rates needed to amortize under-collections into the CET and 191 accounts should be permitted to remain or whether the Company, assuming it performed imprudently, should be required to pay amounts equivalent to the uncollected balances that will remain after six months of repayment. Stated differently, should Questar Gas be required to make ratepayers whole for the under-billed dollars that they will pay to balance these accounts?

As explained above, we conclude that, for the most part, Questar Gas behaved prudently in most aspects of this case. However, we cannot reach the same conclusion with regard to the time that it took to discover the pre-divide setting errors on its transponders. This has already cost the Company an estimated $98,000 that it will not

recover through back-billing. The question remains however of becomes what, if any, reparation or additional costs should the Company be made to bear as recompense to ratepayers?

The reparations statute, U.C.A. § 54-7-20, has been determined to be the mechanism to make refunds to customers, but only when the utility has charged amounts in excess of the tariff or has engaged in some form of discrimination. These provisions have become the basis for the strict application of certain principles. These are that, 1) utilities must charge the rates that are on file with the Commission; 2) utilities cannot grant any preference or advantage to one customer over another and therefore generally must collect what is owed them; and 3) they cannot rebate or remit any portion of the rate to any customer either directly or indirectly.

The situation in this case is not, however, directly analogous to those contemplated in U.C.A. § 54-7-20. Questar Gas Company did not grant preferences to certain customers or charge rates contrary to their tariff. Rather, the Division suggests that the Company was imprudent through the failure of its systems and processes to detect errors that have cost ratepayers generally. In some instances of alleged imprudence, we would urge that costs be excluded from recovery in a rate case. However, in this case, the only cost incurred by the Company that would be eligible for recovery in rates would be the cost of installing new software to interrogate transponders for pre-divide settings – A cost which we find to have been prudently incurred, albeit late. However, the next rate case likely will not have these costs included, as they will be outside of the future test year. While this cost may have been

built into the cost of the currently-pending rate case, the settlement and order on revenue requirements in that case precludes exclusion of those costs in that docket as well.

Another possibility is that the Commission may, as part of its decision and resolution of this case, enter an accounting order with regard to entries into the191 (commodity cost) account and/or the CET account. If it is accepted that Questar Gas should have discovered transponder errors sooner and that this has resulted in under-collection for these balancing accounts that cannot be fully recovered through six months of back-billing, then the Commission may wish to require that Questar compensate these accounts for some or all of the amounts ratepayers will be required to make up. One mechanism for doing this would simply be to order that all uncollected amounts (about $621,000) be paid by Questar Gas into the 191 and CET accounts.[36] However, given mitigating circumstances and the effort that the Company has made to find erroneous transponder settings quickly, this approach could be viewed as overly harsh.

Another approach would be to recognize that, even acting quickly and prudently, discovery of all transponder errors would have been unlikely. For instance, customer billing software that detects differences in usage patterns would not have found pre-divide setting errors for new buildings or new accounts. Such accounts make up 36% of the under-billed customers in this case. The Commission might consider exempting the

[36] Ratepayers should be indifferent to whether these dollars are credited to the 191 or CET accounts, as both are built into volumetric rates and are ”trued up” through rate changes to customers.

uncollected amounts attributable to these customers from any re-payments to the 191 and CET accounts. (The dollar amounts involved in this scenario would need detailed accounting that the Division has not, at this stage, undertaken.) However, assuming these 36% of accounts to be similar (in gas used and months under-billed) to other accounts, the amount that the Company would need to credit to the 191 account can be estimated at $329,000 and $68,000 to the CET, with remaining amounts ($185,000 and $38,000, respectively) charged to ratepayers through "true-up" rates. A further potential limitation on the amount of Company-funded "true-up" that the Commission might impose would be due to the fact that the Division's interpretation of existing rules require only six months of back-billing. As we have stated earlier, in some cases (for instance when installation of a transponder occurred in the Spring) it was not unreasonable to have been unable to detect the erroneous pre-divide until winter (i.e. beyond the six month ability to back-bill). Thus, some additional allowance might be made for uncollected amounts past six months of back-billing.

While the exact treatment and sharing of the burden for under-billings awaits further discussion and detailed accounting, the Division feels that it would be reasonable for the Commission to require at least a portion of the shortage in 191 and/or CET under-collections to be compensated by Questar Gas. This would have the effect of relieving some, or perhaps all, of the burden of repaying account under-collections from ratepayers. It would also serve to send a signal to this and other utilities to be more vigilant in testing equipment and validating its effectiveness in the field and to more closely monitor unusual activity in customer accounts. We feel

unprepared, however, to make a specific recommendation at this time as to what dollar amounts or which specific portions of uncollected funds should be compensated and trust that the Commission will be better equipped, after receiving additional evidence and comments in this case, to resolve this remaining question.

CONCLUSIONS AND RECOMMENDATIONS

Based upon its investigation and the foregoing analysis, Division makes the following key conclusions:

1. Error rates in the installation of Questar Gas' transponders have been relatively low, affecting only 0.06% of customers. The majority of transponder errors (93%) resulted in under-billing that led to the back-billing complaints that resulted in this docket.

2. The average dollar amount back-billed by Questar was just under $1,200 per customer. The duration of under-billing ranged from 1 to 71 months with an average period of 28 months. Most back-billed customers have been along the Wasatch Front with a disproportionately high number in Salt Lake County. A few customers reside in Wyoming or Idaho.

3. Based upon analysis of Commission rules and the nature of the transponders in question, the Division concludes that back-billing of customers for the last six months of usage prior to discovery of transponder errors is the most appropriate and lawful

outcome in this case. This will result in the collection of $190,000 that will be credited to the 191 and CET accounts.

4. After thorough investigation of the history of this case and numerous data requests from several parties, the Division concludes that Questar Gas was reasonable and prudent in its decision to install transponders, in its installation practices, in its decision to change to VRT model transponders, and in its actions to solve transponder problems once it realized the nature and scope of the problems. However, we find that the Company's inability to find and correct transponder errors in a reasonable period of time was imprudent with regard to existing customer accounts.

5. With six months of back-billing, approximately $718,000 will remain uncollected from the customers who had transponder errors and who were previously under-billed.

6. Because some of the under-billed gas that resulted from incorrect transponder settings was consumed prior to the initiation of the Conservation Enabling Tariff (CET), Questar has lost approximately $98,000 that it will be unable to recover in any allowable backbilling scenario.

7. In the absence of an accounting order or additional action by the Commission, the remaining unbilled and uncollected amounts (about $621,000) will be amortized to the CET and 191 accounts, payments that have or will be made by all Questar Gas ratepayers. This equates to approximately 70 cents per customer.

In addition to the conclusions above, the Division makes the following recommendations to the Commission:

1. For purposes of determining back-billing, transponders should be considered as a single unit with the gas meter. The Commission should also initiate rulemaking to clarify the relationship between natural gas meters and transponders. This rulemaking should also include how to treat future under-billing due to transponder errors and the appropriate time period for back-billing due to such errors.

2. The Commission should order that under-billed customers in this case be back-billed for the six months preceding the date that Questar Gas discovered a transponder pre-divide setting error on their meters.

3. We further recommend that the Commission require that Questar permit back-billed customers in this case to take up to one year to repay their six months of back-billed usage.

4. Questar Gas' tariff on back-billing should be amended to be consistent with Commission rules that permit back-billing repayment periods that are longer than the actual periods of time during which under-billing occurred.

5. Questar Gas' billing systems should be modified such that they are more likely to discover the kind of usage or billing anomalies that have been seen in this case.

6. Questar Gas should alter its procedures with regard to changes in billing such that they be better documented. Procedures should also be changed to allow more

communication between field technicians and billing personnel to better share information that might suggest problems.

7. Because a substantial portion of the under-collection to the CET and 191 accounts could reasonably have been prevented by Questar Gas, the Commission should enter an accounting order requiring some payment by Questar into these accounts as partial recompense to ratepayers. The Division is not in a position at this time to recommend a specific dollar amount.

8. Once all of its transponders have been tested for pre-divide errors, Questar Gas should provide to the Division and the Commission updated account and other information that will permit a detailed final accounting in this case.

9. Upon completion of transponder testing, the Commission should also require an audit of Questar Gas's customer accounts to ensure that back-billed amounts and any other dollars that are part of a Commission order credited to the proper accounts.