CASCADE NATURAL GAS CORPORATION
A Subsidiary of MDU Resources Group, Inc.

222 FAIRVIEW AVENUE N., SEATTLE WASHINGTON 98109-5312 206-624-3900
FACSIMILE 206-654-4039
www.cngc.com

April 30, 2010

Oregon Public Utility Commission
Attn: Vikie Bailey-Goggins
550 Capitol Street NE #215
Salem, OR 97308-2148

Re: UG 167 – Third Party Evaluation of Cascade Natural Gas Corporation's Oregon Decoupling Mechanism

Dear Ms. Bailey-Goggins:

In compliance with Item 8, Order 06-191 in the UG 167 Stipulation agreement, Cascade Natural Gas Corporation herein submits the attached report related to the Independent Third-Party Evaluation of Cascade Natural Gas Corporation's Oregon Decoupling Mechanism.

On March 19, 2010, Cascade submitted a request for a six-week extension to the March 31, 2010, filing deadline of the report to allow adequate time for the independent consultant to finalize the report. An extension was subsequently granted to May 15, 2010, in a ruling made by Judge Allan J. Arlow on March 22, 2010.

If you have any questions concerning this submittal, please contact Allison Spector at 206-381-6834 or Katherine Barnard at 206-381-6824.

Sincerely,

Katherine J Barnard

Katherine J. Barnard
Manager
Regulatory & Gas Supply

BUILDING A WORLD OF DIFFERENCE®

BLACK & VEATCH

Cascade Natural Gas Corporation

Independent Third-Party Evaluation of Oregon Decoupling Mechanism

Final Report

April 2010

BLACK & VEATCH
Building a world of difference®

Table of Contents

Tables

Figures

1.0 EXECUTIVE SUMMARY

The purpose of this report is to present the results of Black & Veatch Corporation's (Black & Veatch) evaluation and investigation of Cascade Natural Gas Corporation's (Cascade, CNGC, or the Company) natural gas revenue decoupling mechanism in Oregon, which is part of the Company's Conservation Alliance Plan (CAP). The primary objective of this evaluation was to determine the effectiveness of the CAP, which became effective on May 1, 2006. Specifically, Black & Veatch evaluated whether the implementation of the decoupling mechanism has been achieved as planned, and whether the mechanism has had a positive impact on the Company's commitment to natural gas conservation programs.

Black & Veatch recognizes that there should be a close interrelationship between the Company's decoupling mechanism and the advancement of cost-effective, economically-efficient conservation programs, and that determining whether this interrelationship exists is the key question to be answered by this evaluation. A properly designed revenue decoupling mechanism should better align the interests of the Company with those of its customers and the energy policies of the State. The mechanism should mitigate CNGC's disincentive to promote energy efficiency (i.e., eliminate its "throughput incentive"), thereby providing its customers with increased opportunities to reduce energy consumption and energy bills as a result of the various energy efficiency and conservation programs supported by the Company.

To determine whether the interrelationship exists between the Company's decoupling mechanism and the advancement of cost-effective economically-efficient conservation programs, Black & Veatch conducted an independent investigation of the decoupling mechanism that included addressing a number of substantive questions, as discussed throughout this report.

On April 19, 2006, the Public Utility Commission of Oregon (Commission) issued a final Order in Docket UG 167 approving a Stipulation granting Cascade's request for approval of its CAP, which included a natural gas revenue decoupling mechanism, subject to certain conditions. Under the terms of the Stipulation**,** Cascade was authorized to implement the CAP mechanism in order to separately track variations in natural gas usage due to conservation and weather. The two resulting deferral accounts track the margin impact of changes in the normalized use per customer for the Company's Residential Service Rate Schedule 101 and its Commercial Service Rate Schedule 104, as well as the impact of weather changes from normal weather for these same rate schedules.

Under the terms of the Stipulation, the Parties agreed that Cascade would sponsor a study, performed by an independent firm, for the purpose of evaluating the effectiveness of the CAP—whose results would be submitted to the Parties listed in the Order as well as to the Commission. This report presents the results of this required evaluation.

The purpose of Cascade's CAP mechanism is to establish procedures for the annual tracking of commodity margin revenue differences occurring from both weather and conservation. Rates are revised annually to reflect changes in both the weather-normalized use per customer and the difference between actual use and weather-normalized use per customer, and the baseline normalized use established in the Company's most recent rate case. The sum of these two rate adjustment components permits the Company to calculate the margin revenue differences experienced between the actual average residential and commercial/industrial (C/I) margin per customer and the margin amounts established at the time the Company's rates were authorized by the Commission. The resulting revenue difference, whether positive or negative, is added to the existing commodity margin for the next annual period by dividing the expected annual commodity margin by the normalized therm sales.

The objectives of this evaluation were established by the Company and other Parties, and they were included in CNGC's Request-for-Proposals (RFP). The specific program elements that were evaluated by Black & Veatch were included in the Evaluation Plan (provided as Appendix B of the RFP) and they were broken down into the following categories:

1. Mechanism Structure and Design
2. Customer Impacts
3. Company Impacts
4. Associated Conservation Efforts and Achievements
5. Societal Impact and Benefits

This Evaluation Plan is provided in Appendix A of this report, along with references to the sections of this report that address each of the questions contained in the Plan.

1.1 Conclusions

Black & Veatch's conclusions resulting from this evaluation are summarized below. These conclusions and the supporting analysis are discussed in more detail in *Section 3, Observations Regarding Structure of Decoupling Mechanism*, and *Section 4, Observations Regarding Impact of Decoupling Mechanism on Conservation Activities*.

1.1.1 Decoupling Mechanism Structure

From a purely computational standpoint, the Company's decoupling mechanism works as designed. The mechanism uses a multi-step process to adjust calendar month data. First, weather normalized sales are calculated for each of the Company's three weather areas by multiplying the monthly number of customers times the difference between normal and actual heating degree days (HDD) times the weather sensitive coefficient for the area. Second, the expected monthly normalized commodity revenue per customer (as determined in the Company's most recent rate case) is calculated. This calculation multiplies the total number of residential customers times the monthly commodity margin. The actual commodity margin is determined as the actual commodity sales (net of the current month unbilled calculation) times the applicable commodity charge. The weather adjustment margin is added to or subtracted from the actual revenue to produce a weather normalized margin. The difference between the weather normalized margin and the expected normalized margin is the conservation adjustment.

The Company's filings that Black & Veatch reviewed have accurately implemented the resulting rate adjustments through CNGC's decoupling mechanism, and the Company stated that it is satisfied with the simplicity and recovery basis of the mechanism. The resulting decoupling adjustments have been minor and Black & Veatch does not believe there is a need to extend the amortization period to lessen the impact on customers, nor should the monthly timing of the rate adjustments be changed. Further, Black & Veatch does not believe that the Company's decoupling mechanism should be extended to CNGC's other rate classes. Black & Veatch also believes that the Company's decoupling mechanism has not led to unfair penalties for customers not participating in conservation programs. Finally, Black & Veatch found no evidence that the Company's decoupling mechanism has created any unanticipated disincentives.

Company representatives stated that they believe the mechanism has removed its disincentive to promote conservation, noting that the Company receives a net margin per customer, thereby accommodating the impacts of conservation and weather. They further stated that the decoupling mechanism has allowed the Company to increase its promotion of conservation, which has resulted in positive environmental impacts.

The Company also noted that the public purpose surcharge is the funding vehicle for conservation, while the decoupling mechanism removes the financial disincentives associated with implementing conservation programs. In that regard, these two ratemaking elements are completely linked from the perspective of the Company, particularly given the fact that local distribution companies (LDCs) in Oregon are not required to have a public purpose fund. The Company also noted that with regard to the public purpose fund rate of 1.5 percent of revenues; 0.75 percent is funded by ratepayers, and 0.75 percent is funded by shareholders—with the later contribution viewed as the "give back" for the Company being granted margin certainty (not earnings certainty). Based upon the results of this evaluation, Black & Veatch agrees with this conclusion.

It should also be noted that the decoupling adjustments impact only one side of the Company's earnings equation, namely utility rate revenues produced through volumetric rates. The decoupling adjustments do not impact the cost or expense risk associated with the Company's earnings. In general, there is broad recognition in the gas utility industry of the role of full and partial decoupling mechanisms for LDCs. As a result, many of Cascade's peer companies have in place ratemaking provisions (e.g., revenue decoupling; Straight Fixed-Variable or SFV rates; and weather normalization adjustment mechanisms) designed to provide an enhanced opportunity to collect revenues consistent with the level of revenues approved by regulators in their last rate cases. To the extent the authorized equity return for the Company is based on a determination which relies upon financial data of other companies, the effect of revenue recovery from decoupling on the Company's risks is already largely accounted for in the returns of the other companies. Therefore, Black & Veatch believes that any adjustment to the Company's authorized rate of return associated with implementation of Cascade's decoupling mechanism is unnecessary and inappropriate. In the larger context, Black & Veatch understands that the Company contributes 0.75 percent of revenues (or about $630,000 in 2008, before taxes) to help fund conservation programs as part of the CAP Stipulation. This effectively reduces the earned return for CNGC by the amount of the contribution, and effectively reduces the authorized return prior to the effect of any decoupling adjustment on Company revenues. It is important to recognize that this sizable contribution effectively means that regardless of the level of return on equity authorized by the Commission, the Company has a diminished opportunity to earn its authorized rate of return. Also, the existence of the earnings sharing mechanism provides an upside cap on the ability of the Company to over earn. In Black & Veatch's view, there is no justification for further reducing the Company's authorized return on equity based on the operation of its decoupling mechanism.

One stakeholder noted that his primary concern is to make sure that the Company's decoupling mechanism is being applied correctly, that only true fixed costs are included, and that the calculation of lost margins is actually based on margins lost "at the margin". Black & Veatch concludes that these concerns have been fully addressed in the Company's decoupling mechanism.

Finally, one stakeholder stated that the evaluation of any decoupling mechanism needs to consider the broader regulatory context within which the mechanism operates. As an example, this stakeholder noted that the Company has an earnings sharing mechanism in place in Oregon. This mechanism has been in place for a number of years and has been modified within the last 18 months. According to this stakeholder, the mechanism has been strengthened from a customer perspective to include tighter bands within which earnings are shared. As a result of this change, the chance of significant over-recovery of costs by the Company due to the decoupling mechanism has been lessened. This stakeholder also noted that the Show Cause Rate Case and the MDU Resources (MDU) Acquisition Case led to lower authorized returns on equity for the Company. As a result, this stakeholder believes that the overall impact of the decoupling mechanism is balanced for both the Company and its customers when CNGC's entire regulatory picture is considered. Black & Veatch concurs with this conclusion.

As part of our review, Black & Veatch reviewed all regulatory filings related to the Company's decoupling mechanism. Based on our review, Black & Veatch concludes that the Company's decoupling mechanism has been implemented properly and that the resulting rate adjustments have been consistent with the associated tariff provisions. We believe that our review of these filings and their subsequent amendments, indicate that the public interest is protected through the current CAP process. Therefore, Black & Veatch believes that the Company's decoupling mechanism is fundamentally sound and the elimination of the mechanism would be harmful to the Company, its customers, and the environment. However, Black & Veatch believes that certain issues pertaining to the ongoing operation of the mechanism should be addressed, as discussed in this report.

1.1.2 Conservation Programs

Participation in conservation programs by Cascade's residential customers steadily increased during the evaluation period. The C/I data do not show as clear a pattern, as no programs were available to this sector prior to decoupling, and the data do not show an increasing trend. In total, conservation activity has increased, coincident with the advent of decoupling in the Company's service area. Consistent with the increase in Cascade customer participation in conservation programs, the Company's conservation-related expenditures have increased during the evaluation period. As conservation results in lower energy usage, the increased savings resulting from the Company's conservation programs have a direct positive impact on the environment.

Total therm savings has increased significantly during the evaluation period, although savings per participant levels have decreased and total savings have fallen short of the targets established in the Company's 2008 Integrated Resource Plan (IRP) although the total savings in 2009 were approximately 88 percent higher than in 2008. The short-fall in 2009 is most likely the result of the economic downturn resulting in customers not having the available funds to spend on discretionary measures. Other factors, such as code changes and the impact of the recession on new construction may also be responsible for lower customer participation. Furthermore, the amount of therms saved per participant among the low income sector dropped in half between 2006 and 2007, and has remained at that level ever since. It should be noted that the Company began using the deemed savings approach to estimating savings in 2006, similar to the methodology used in Northwest Natural Gas Company's (NWNG) conservation programs, whereas prior estimates were taken from REM/Rate audit results. This change in estimating methodology may have also impacted the level of reported savings.

Black & Veatch also examined whether decoupling has led to higher levels of spending by the Company on marketing and outreach to customers, more messages and educational materials for customers related to the benefits of conservation, and processes put into place to facilitate customers' participation in programs. This outcome is documented in the body of this report as having indeed occurred. However, in spite of the high degree of collaboration between the Company and the ETO on print and other media, a few concerns were expressed by the Company about the effectiveness of the ETO's outreach efforts.

Prior to the implementation of the decoupling mechanism, the Company did not have a conservation-dedicated staff position. Since then, the Company created a Conservation Department in 2006. Today, there are three staff members in the Company's Conservation Department including its Director. Furthermore, decoupling clearly has had a direct and positive effect on Cascade's embracing of conservation as evidenced by the involvement and messages of employees from senior management as well as Company staff.

During Black & Veatch's interviews with Company and stakeholder representatives, we received both positive and negative comments regarding the ETO's conservation efforts. First, the positive comments focused on the ETO's experience and cost-effectiveness in delivering its programs, and the fact that they have

existing programs in place that could be quickly transferred to Cascade. The negative comments relate primarily to limitations in the ETO's outreach efforts within the Company's service territory to date, its governance structure and responsiveness to gas company needs.

Cascade's 2008 IRP refers to a conservation potential analysis that indicates that over the IRP's 20-year planning horizon the technical potential associated with cost-effective conservation measures to be approximately 24 million therms in Oregon. As a result, significant additional conservation potential exists in the Company's Oregon service territory.

According to reports provided by Cascade, residential customer satisfaction levels decreased from 4.5 in 2006 to 4.4 in 2007. Overall customer service ratings increased and then remained the same between 2008 and 2009. Black & Veatch's customer surveys asked about customers' perceptions regarding the quality of service received from Cascade post decoupling indicate that the majority of customers believe that quality of service has remained the same, but 15 percent of the Company's residential customers and 17 percent of its C/I customers believe it has improved either slightly or significantly. There was no statistically significant difference in the reported level of customer satisfaction between participants and non-participants.

1.2 Recommendations

Black & Veatch's recommendations resulting from this evaluation are summarized below. These recommendations are discussed in more detail in *Section 4, Recommendations*.

1.2.1 Decoupling Mechanism Structure

1. The Company's decoupling mechanism should be made permanent. Furthermore, the decoupling rate adjustments should continue to apply only to the Company's residential and general service rates. At the same time, some potential modifications to the Company's decoupling mechanism, as described below, should be considered for implementation in the Company's next rate case filing.
2. Review and update the use per HDD factors utilized in the Company's weather normalization equation and factors in its next rate case.
3. Eliminate the use of unbilled volumes in the monthly decoupling adjustment calculations since there is no demonstrated need to have such an adjustment reflected in CNGC's decoupling mechanism.
4. Analyze the Company's Rate 104 class to determine if splitting the class based on meter size and type (or other reasonable basis) would result in two or more sub-groups that exhibit more homogeneous load and cost characteristics.
5. The deferral and recovery aspect of the Company's CAP adjustments should, at a minimum, consider the real-time recovery of the weather adjustment component. Under real-time recovery, the weather component of the CAP adjustment would be added to each cycle bill.
6. Consider other decoupling methods that reduce the impact on customers below the poverty level and target these customers for conservation programs designed to reduce average use per customer.
7. Consider the possible adoption of SFV rates as an alternative ratemaking method to achieve revenue decoupling for the Company. This ratemaking approach has been adopted in some states and is simple, cost-based, economically-efficient, and does not create any intra-class subsidies.

1.2.2 Conservation Programs

1. Although participation levels are high and increasing, the extent of awareness of the role of Cascade in the promotion of conservation remains low among residential customers.
2. Further, the next ETO Oregon Residential Awareness and Perception Study should sample by utility rather than at the regional level, so that accurate findings by utility sponsor can be obtained. The data should also then be reported by utility sponsor so that the ETO and the sponsors can determine whether their customers are being adequately served. Although ETO staff question the cost-effectiveness of increasing the number of awareness survey participants in Cascade's service territory, and has raised issues regarding the value of using awareness surveys as an indicator of participation or satisfaction with participation, Black & Veatch believes that such surveys remain a widely accepted evaluation tool and that a larger sample size would provide data for the Company's service territory at the same level of precision as other sponsoring utilities.
3. The ETO's mailing of energy kits to the Company's customers drove the residential average therm savings per participant numbers down in 2009. Black & Veatch believes that the ETO should refocus its efforts on delivering programs that generate higher savings impacts per participant.
4. The ETO's recommendation that its furnace replacement program be refocused because portions of the market have been saturated is not relevant to Cascade, which has significant additional furnace-related conservation potential within its service area. Black & Veatch believes that the ETO's furnace rebate program should continue to be offered to all Cascade's residential customers.
5. Behavior-based programs are a new trend in the conservation community. While there are several promising new tools (e.g., on-line audits, bill disaggregation, etc.), this next generation of programs may be more relevant for highly energy efficient market segments such as other areas that are being served by the ETO (i.e., the Portland area). It would be of considerable concern if behavior-based programs were to replace or even dominate the portfolio in Cascade's service territory given the remaining opportunities for equipment-based and comprehensive weatherization programs.

2.0 INTRODUCTION

This report summarizes the results of Black & Veatch's investigation of Cascade's natural gas revenue decoupling mechanism in Oregon, which is part of the Company's CAP. The primary objective of this evaluation was to determine the effectiveness of the CAP, which became effective on May 1, 2006. Specifically, Black & Veatch evaluated whether the implementation of the decoupling mechanism has been achieved as planned, and whether the mechanism has had a positive impact on the Company's commitment to natural gas conservation programs. The time period for this evaluation is 2004 through 2009.

Black & Veatch recognizes that there should be a close interrelationship between the Company's decoupling mechanism and the advancement of cost-effective, economically-efficient conservation programs, and that determining whether this interrelationship exists is the key question to be answered by this evaluation. A properly designed revenue decoupling mechanism should better align the interests of the Company with those of its customers and the energy policies of the State. The mechanism should mitigate CNGC's disincentive to promote energy efficiency (i.e., eliminate its "throughput incentive"), thereby providing its customers with increased opportunities to reduce energy consumption and energy bills as a result of the various energy efficiency and conservation programs supported by the Company.

To determine whether the interrelationship exists between the Company's decoupling mechanism and the advancement of cost-effective economically-efficient conservation programs, Black & Veatch conducted an independent investigation of the decoupling mechanism that included addressing a number of substantive questions, as discussed throughout this report.

2.1 Background and Structure of Decoupling Mechanism

On April 19, 2006, the Commission issued a final Order in Docket UG 167 approving a Stipulation granting Cascade's request for approval of its CAP, which included a natural gas revenue decoupling mechanism, subject to certain conditions. Under the terms of the Stipulation**,** Cascade was authorized to implement the CAP mechanism in order to separately track variations in natural gas usage due to conservation and weather. The Parties further agreed that Cascade would sponsor a study, performed by an independent firm, for the purpose of evaluating the effectiveness of the CAP—whose results would be submitted to the Parties listed in the Order as well as to the Commission.

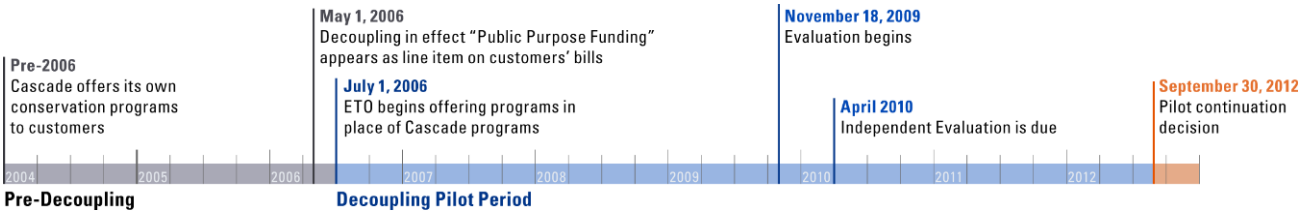
The purpose of Cascade's CAP mechanism is to establish procedures for the annual tracking of commodity margin revenue differences occurring from both weather and conservation. Rates are revised annually to reflect changes in both the weather-normalized use per customer and the difference between actual use and weather-normalized use per customer, and the baseline normalized use established in the Company's most recent rate case. The sum of these two rate adjustment components permits the Company to calculate the margin revenue differences experienced between the actual average residential and C/I margin per customer and the margin amounts estimated at the time the Company's rates were authorized by the Commission. The resulting revenue difference, whether positive or negative, is added to the existing commodity margin for the next annual period by dividing the expected annual commodity margin by the normalized therm sales.

Cascade maintains separate Conservation Variance and Weather Variance deferral accounts (i.e., the Decoupling Mechanism) as regulatory assets or liabilities. Each month, Cascade calculates the difference between the weather-normalized actual margin and the expected margin for each applicable rate schedule. The expected margin is calculated as the baseline average commodity per customer multiplied by the current customer count. The resulting dollar amount difference is recorded in the Conservation Variance deferral

account. Cascade also calculates the difference between non-weather normalized actual margin and the expected margin for its applicable rate schedules, and the resulting difference is reduced by subtracting the dollar amount recorded in the Conservation Variance deferral account with the remainder recorded in the Weather Variance deferral account. Temporary surcharges or refund amounts are applied to the Margin Commodity Rate over the following annual amortization period—with the potential for a different amortization period if the rate changes are considered excessive.

Figure 2-1 presents a timeline of key milestones related to the Company's decoupling mechanism and this evaluation. For purposes of this evaluation, the pre-decoupling period is characterized as the period prior to May 2006, when the decoupling mechanism took effect. The decoupling mechanism's pilot period is assumed to be represented by activities after May 2006 through September 2010, at which time the Commission will determine whether the Company's decoupling mechanism should be continued.

Figure 2-1
Cascade's Revenue Decoupling Mechanism—Timeline of Key Milestones



2.2 Conservation Programs

Prior to the implementation of its decoupling mechanism, Cascade offered a limited selection of conservation programs to its residential customers. Cascade began its partnership with the Oregon Low Income Weatherization Assistance Program in 1979 and has had weatherization programs for all customers since at least 1981. In May 2006, a "public purpose surcharge" took effect on Cascade customers' bills to help fund conservation programs that would subsequently be implemented by the ETO. Cascade and its shareholders provide additional funds to the ETO to deliver programs to Cascade's customers on the Company's behalf. The ETO took over conservation program implementation on July 1, 2006, as a result of a transition initiated by the Company following the Commission's authorization of the decoupling mechanism and the public purpose surcharge.

The left-hand column of Table 2-1 lists the conservation programs offered by Cascade prior to implementation of decoupling, together with the applicable customer segment and the date each program started. The right-hand column presents a list of comparable programs subsequently offered to Cascade's customers by the ETO after July 1, 2006.

It is recognized by Black & Veatch that this is an evaluation of the decoupling mechanism and not of the ETO. However, the simultaneous introduction of the decoupling mechanism and the ETO's program offerings required Black & Veatch to isolate the effects of each, to the extent possible, in order to identify the effects of the decoupling mechanism alone.

Finally, it is important to note in reviewing these conclusions that Cascade's customers were not provided any direct communications by the Company concerning the decoupling mechanism per se, and would thus not be expected to have awareness of "decoupling" as a mechanism or a term. Rather, according to interviews with Company staff, the communications provided were indirectly related to decoupling, and concerned: 1) the implementation of the public purpose surcharge on their gas bill, and 2) communications about the energy

conservation programs offered by the ETO as of July 1, 2006. Since it is unlikely that customers would be able to respond to questions about "decoupling," this evaluation sought to measure awareness and responses to the indirect factors of the public purpose surcharge and the heightened marketing and outreach associated with ETO's programs.

Table 2-1
Conservation Programs Available to Cascade's Customers

Cascade Programs (Pre-2006)	ETO Programs (2006 to Present)
• Residential - Weatherization Program – low income since 1979; insulation for all residential customers since 1981 • Residential - High-Efficiency Furnace - Heating and Cooling Rebate Program - 2004 • Residential - High-Efficiency Water Heaters - Heating and Cooling Rebate Program - 2004 • Residential - Low Income Weatherization Program - 2004	• Residential – High-Efficiency Furnace - Heating and Cooling Rebate Program - 2006 • Residential - High-Efficiency Water Heaters - Heating and Cooling Rebate Program - 2006 • Residential - Low Income Weatherization Program - 2006 • Residential - New Homes and Products - Audit Program - 2005 • Residential - Existing Homes - Audit Program - 2006 • Residential - Energy Savings Kits - General Improvement Program - 2006 • C/I - Existing Buildings - Audit Program - 2006 • C/I - New Buildings - Audit Program - 2007 • C/I - Production Efficiency - Audit Program - 2009

2.3 Assessment Objectives and Areas of Inquiry

The objectives of this evaluation were established by the Company and other Parties, and they were included in CNGC's RFP. The specific program elements that were evaluated by Black & Veatch were included in the Evaluation Plan (provided as Appendix B of the RFP) and they were broken down into the following categories:

1. Mechanism Structure and Design
2. Customer Impacts
3. Company Impacts
4. Associated Conservation Efforts and Achievements
5. Societal Impact and Benefits

This Evaluation Plan is provided in Appendix A of this report, along with references to the sections of this report that address each of the questions contained in the Plan.

In addition to the questions contained in the Evaluation Plan, Black & Veatch used the following generic evaluation criteria to conduct its specific review of the Company's decoupling mechanism:

- Ability to meet desired design objectives:
  - Enhances utility's fixed cost recovery
  - Removes utility's disincentive to promote energy efficiency
  - Other customer-related benefits
- Any limitations on the recovery of margin deficiencies
- Ability to avoid large and abrupt rate adjustments
- Simple to administer
- Others as identified through stakeholder interviews

2.4 Project Approach

Our project approach included the following four tasks.

2.4.1 Project Initiation

Black & Veatch conducted a project initiation meeting with the Company and other Parties to commence the project, review the objectives, and confirm the overall evaluation approach, work plan, and schedule. Black & Veatch also submitted an initial data request to the Company to obtain the necessary background information and supporting data to conduct its evaluation.

2.4.2 Develop Data to Respond to the Evaluation Plan Questions

This task involved significant data collection and analysis related to both qualitative and quantitative assessments of the Company's decoupling mechanism.

2.4.3 Evaluate CNGC's Decoupling Mechanism

In this task, Black & Veatch evaluated the Company's decoupling mechanism according to the questions contained in the Evaluation Plan. These questions were supplemented with others based on Black & Veatch's knowledge of the revenue decoupling mechanisms approved in other states. Black & Veatch used quantitative measures (e.g., total margin revenue, rate adjustment levels, bill impacts, and so forth) to assess the performance of the Company's decoupling mechanism. Black & Veatch also relied upon more qualitative measures (e.g., changes in the business objectives and activities of the Company's marketing staff) to conduct this assessment.

The Black & Veatch project team interviewed a number of individuals from the following Parties to solicit their inputs as part of this task:

- Cascade
- Commission Staff
- Citizens' Utility Board of Oregon
- Northwest Industrial Gas Users
- NW Energy Coalition

Black & Veatch also interviewed several representatives of the ETO and a small sample of Community Action Agencies (CAAs) that serve Cascade's customers.

Black & Veatch reviewed numerous documents that were provided by the Company in response to multiple data requests, as well as material that was provided by the ETO or available on its web site. These documents are listed in Appendix B.

Finally, as part of this task, Black & Veatch conducted telephone surveys of random samples of the Company's residential and commercial customers. Appendices C and D provide the residential and commercial survey instruments, respectively, that were used to conduct these surveys.

2.4.4 Prepare Written Report

To conclude this project, Black & Veatch prepared this report to summarize the observations, conclusions, and recommendations resulting from this evaluation.

3.0 OBSERVATIONS REGARDING STRUCTURE OF DECOUPLING MECHANISM

The purpose of this section is to summarize Black & Veatch's observations and conclusions regarding the structure and Company's application of the decoupling mechanism. It begins with a discussion of the structure and design of the decoupling mechanism, followed by a discussion of the impact of the mechanism on customers and the Company.

3.1 Mechanism's Structure and Design

3.1.1 Application of Decoupling Mechanism

A properly designed revenue decoupling mechanism should better align the interests of the Company with those of its customers and the energy policies of Oregon by mitigating the utility's disincentive to promote energy efficiency (i.e., eliminate its "throughput incentive") and, thereby, removing the Company's disincentives for providing customers with increased opportunities to reduce energy consumption and energy bills through the various energy efficiency and conservation initiatives supported by the Company.

As part of the evaluation of the Company's current decoupling mechanism, Black & Veatch began by reviewing the Commission's Order 06-191 approving the Company's CAP of which the decoupling mechanism was an integral part. Under the Order, the Company's decoupling mechanism is comprised of two deferral accounts, which track the margin impact of changes in the normalized use per customer for the Residential Service Rate Schedule 101 and the Commercial Service Rate Schedule 104, as well as the impact of weather changes from normal weather for the same schedules. The mechanism does not apply to other rate schedules. The calculation of the deferral amounts occurs monthly and results in either a regulatory asset or liability associated with the actual consumption occurring in the month. CNGC files annually with the Commission to adjust its base rates (i.e., the Delivery Charge per therm) and its Temporary Adjustment per therm. As part of its annual Purchased Gas Adjustment (PGA) filing, CNGC files detailed schedules for all of its deferral accounts, including those related to the decoupling mechanism. In addition, Black & Veatch reviewed each filing and the subsequent revisions made pursuant to the Commission's Orders.

3.1.2 Weather Normalization and Conservation Adjustments

The mechanics of the decoupling adjustment include calculating both a weather component and a conservation component. The decoupling mechanism uses a multi-step process to adjust calendar month data. First, weather normalized sales are calculated for the three weather areas by multiplying the monthly number of customers times the difference between normal and actual HDD times the weather sensitive coefficient for the area and month. Second, the expected monthly normalized commodity revenue per customer as determined in the most recent rate case is calculated. This calculation multiplies the Company's total residential customers times the monthly commodity margin. Third, the actual commodity margin is determined as the actual commodity sales net of the current month unbilled calculation times the applicable commodity charge. The weather adjustment margin (current commodity charge multiplied by the weather adjustment volume) is added to or subtracted from the actual revenue to produce a weather normalized margin. The difference between the weather normalized margin and the expected normalized margin is the conservation adjustment. The following equations illustrate the monthly calculation.

$$DA_i = W_i + C_i$$ (the basic decoupling formula)

$$W_i = CUST_{ij} * (NHDD_{ij} - AHDD_{ij}) * HSF_{ij} * CCC_i$$ (the weather adjustment)

and

$$C_i = (\sum_{j=1}^{3} CUST_{ij} * ECM_i) - (W_i + (CCC_i * ACS_i))$$ (the conservation adjustment)

Where:

DA_i is the ith monthly decoupling adjustment

W_i is the ith monthly weather adjustment stated in dollars

C_i is the ith monthly conservation adjustment stated in dollars

$CUST_{ij}$ is the ith monthly number of customers in the jth customer zone

$NHDD_{ij}$ is the normal heating degree days for the ith month in the jth climate zone

$AHDD_{ij}$ is the actual heating degree days in the ith month in the jth zone

HSF_{ij} is the heat sensitive factor for the ith month in the jth zone

CCC_i is the current commodity charge in the ith month

ECM_i is the expected commodity margin per customer in the ith month

ACS_i is the actual commodity sales net of unbilled adjustment in the ith month

The net result of these equations is that the total of the weather and conservation adjustments plus actual commodity revenues equals the monthly expected commodity margin. Thus the decoupling mechanism adjusts the Company's actual revenue per customer in each month to equal the expected revenue per customer from its last rate determination. This can be seen by rearranging the terms of the conservation equation as follows:

$$\sum_{j=1}^{3} CUST_{ij} * ECM_i = C_i + (W_i + (CCC_i * ACS_i))$$

On an annual basis, the total of the two components of the decoupling mechanism produce results as expected as shown in Table 3-1. Although the sign of the conservation component in 2008 is reversed from the theoretical expectation, the overall result is consistent with the underlying process of adjusting the average base rate revenue to the target revenue for each year.[1]

[1] The total annual adjustment is the difference between the expected normalized revenue from a rate schedule and the actual revenue for the year. This difference is split between conservation and weather by calculating the weather adjustment and subtracting that number from the total adjustment to derive the conservation component. Since the

Table 3-1
Annual Residential Weather and Conservation Adjustments

CAP Adjustment	2006	2007	2008	2009
HDDs	Warmer	Warmer	Colder	Warmer
Weather	$52,322	$174,723	($542,023)	$13,041
Conservation	$47,950	$380,156	($358,680)	$83,051
Total	$100,272	$554,879	($900,703)	$96,092

When viewing the separate components on a monthly and annual basis, the resulting adjustments appear to produce counter-intuitive results. The weather normalization component follows the expected logic of either increasing or decreasing revenues based on the underlying weather conditions. However, the margin impact based on normalized use per customer does not follow the expected pattern of increasing revenue to reflect conservation since average use declines in each year. Instead, the adjustment actually decreases revenue in some months, and in one year, suggesting that conservation has not occurred. Table 3-2 provides an example of these monthly results while Table 3-1 illustrates the one year in which the conservation adjustment produces a counterintuitive result.

Table 3-2
FY 2007 Residential Weather and Conservation Adjustments

CAP Adjustment	Dec. 2006	Jan. 2007	Feb. 2007	Apr. 2007	May 2007
HDDs	Warmer	Colder	Warmer	Colder	Warmer
Weather	$87,965	($117,202)	$22,322	($9,578)	$54,215
Conservation	$379,587	$102,598	($267,960)	$272,013	($79,255)
Total	$467,552	($14,604)	($245,638)	$262,435	$25,040

As the table illustrates, the component for weather follows the weather pattern and the conservation component follows no discernable pattern. Since the Company's sales data represents both billed sales and unbilled volumes, the impact of the unbilled calculation may account for the random changes in the direction of the conservation component. There may also be issues related to the weather normalization process since one would expect over time that the use per HDD would change as a result of factors such as the appliance life cycle/replacement rate, the mix of new homes added to the population, and the effects of other utility-related conservation programs impact on the thermal envelope. This result may occur since under the weather portion of the Company's decoupling mechanism, the use per HDD factor established in each Company rate case does not change between rate cases. Nevertheless, one would not expect to see the conservation adjustment shown in Table 3-2 reflecting an increase in sales regardless of weather. Other reasons for the unexpected results could be a change in the mix of residential customers by climate zone since the calculation for the conservation adjustment is made at the aggregate level, as opposed to the three weather areas being

conservation component is derived as a residual amount under the weather component estimation process, the resulting sign may be reversed from the expected positive sign during periods where conservation occurred.

used to calculate weather normalization. It is reasonable to assume that higher HDDs are consistent with higher margin contribution—all else being equal. The implication of these findings relates to whether or not the Company's decoupling mechanism as calculated actually matches fixed cost recovery within quarterly financial reporting periods. On an annual basis the decoupling mechanism matches fixed cost recovery. The calculation is essentially a comparison of margin recovery as the difference between actual margin and base margin by rate schedule.

As a result, Black & Veatch believes that the weather normalization equation and factors should be updated in the Company's next rate case to address the fact that a number of factors can over time impact the manner in which weather affects the adjustments to customers' actual gas usage. For example, conservation programs impact weather related changes in usage by reducing heat loss, improving appliance efficiencies and altering the customer response to HDDs. This result may necessitate changing the balance point for requiring heat in the customer's home. In other words, the traditional definition of HDDs based on 65 degrees Fahrenheit may need to be reconsidered. In addition, the measure of the marginal response to temperature variations most certainly changes over time (e.g., consider the impact of the average furnace and water heater life on use per customer). Assuming an average life of 20 years for a furnace and 10 years for a tank style water heater, the appliance replacement rate per year on average is 5 percent for furnaces and 10 percent for water heaters. Since the newer appliances are much more efficient than the appliances replaced, the marginal response to weather will change. By recalibrating the use per HDD factors at least once every five years, the resulting CAP adjustments will better reflect the actual gas usage characteristics of the Company's customer base.

Where growth occurs more rapidly in a sub-area of the Company's service area, the rapid change in housing stock as reflected by the percent of homes built to the most current building code standards will also change the customers' marginal response to weather. In addition, the implementation of tankless water heaters changes the pattern of peak hour loads because of its different usage pattern and impacts the capacity planning for a sub-area of its gas system. When the utility's peak hour load grows, system capacity including pipeline, storage, transmission and distribution capacity are all affected even though the design day capacity may not change. It is important to understand the dynamics of the utility's gas system to assure safe and reliable service to customers. By updating the utility's weather and gas sendout models for design day and design hour load conditions, a current picture of the impacts of conservation and weather on customers' gas usage will permit a more accurate assessment of the underlying costs and resulting benefits.

With regard to unbilled revenues, Black & Veatch understands that this measure needs to be included in the Company's financial reports. However, we do not believe that there is a demonstrated need to include an unbilled adjustment as part of the underlying computation of CNGC's decoupling mechanism.

Black & Veatch observed similar results in the Company's Commercial Rate 104 rate class. The above discussion equally applies to that class—with one added condition. Rate 104 is likely less homogeneous than the Company's residential class. This issue was noted by Company representatives who stated that it may be worth looking at how homogeneous the Company's commercial group is, and the appropriateness of having different levels of margin recovery for different commercial sub-groups (i.e., the current decoupling mechanism is based on a usage assumption of 3,200 therms/year for all commercial customers). This suggests that disaggregating this class into a small sub-class and one or more larger sub-classes may improve cost matching and result in more efficient rates.

A few stakeholders noted that they preferred NWNG decoupling mechanism because it provides weather adjustments within each of the utility's billing cycles. Under the NWNG mechanism, adjustments are made

in each monthly billing cycle, based upon the actual weather (i.e., HDDs) experienced during that time period. In other words, there is no delay between the time when the actual weather is experienced and the rate adjustment is made. When Black & Veatch discussed this issue with Company representatives, they stated the Company's billing system that was in place when the decoupling mechanism was implemented did not have the ability to make real-time adjustments for weather. Therefore, it was agreed that weather adjustments would be made based upon weather during the previous year. The Company further noted that the new billing system currently being installed by CNGC also will not be able to accommodate billing cycle-based weather adjustments due to this system feature not being cost-effective given Cascade's small customer base in Oregon.

Under real-time recovery, the weather component of the CAP adjustment would be added to each cycle bill. There are several advantages for both customers and the Company from this approach. When weather is colder than normal, the weather adjustment component helps reduce customer bills by partially offsetting the greater level of purchased gas costs associated with customers' higher gas usage. During warmer than normal cycles, customers pay slightly more for fixed delivery service, but have lower overall bills because of their gas cost savings with lower usage. The net result is the creation of more stable bills for customers. The use of a real-time adjustment also eliminates issues of cross-subsidy because each customer is assessed a rate adjustment for the variation in revenues caused by the weather at approximately the same time at which the variation occurred. When the weather adjustment is deferred for an extended period of time, future customers are assessed rate adjustments that reflect past revenue variations. As a result, there is a potential to exacerbate winter bills when a colder than normal season follows a warmer than normal season. In addition, given the weather differences for the three sub-areas of the CNGC service area, there is the possibility of cross-subsidies between areas caused by the deferral account that would not exist for real-time weather adjustments. Table 3-3 illustrates that the Bend and Baker/Ontario sub-areas had different patterns of gas usage resulting in an implicit cross-subsidy between the two sub-areas. The same is also true for the Pendleton sub-area.

Table 3-3
Heating Degree Day Comparisons for Bend and Baker/Ontario

Sub-Area	Normal HDD	2006	2007	2008	2009
Bend	6,689	6,576	6,450	5,982	6,571
Percent of Normal	--	98.1%	96.4%	89.4%	98.2%
Baker/Ontario	7,155	7,378	7,104	6,976	7,565
Percent of Normal	--	103.1%	99.3%	97.5%	105.7%
Pendleton	5,294	5,264	5,320	4,961	5,594
Percent of Normal	--	99.4%	100.5%	93.7%	105.7%

In two of the four years, Baker/Ontario has been colder than normal while Bend has been warmer than normal in all four years. For the Company's system average weather weighted by customers, the system has been warmer than normal in three of the four years. In two of those years, customers in the Baker/Ontario area would have paid a greater share of the system short-fall in fixed cost revenue through the decoupling mechanism because of higher than average usage, thus creating an unintended cross-subsidy. Using real-time weather adjustments by sub-area is a sound alternative for eliminating this cross-subsidy. Therefore, Black &

Veatch believes that the use of real-time weather adjustments in the Company's CAP mechanism should be considered.

3.2 Mechanism's Impact on Customers

3.2.1 Impact on Customer Bills

The annual bill impact of the Company's decoupling mechanism for the average customer in each of the Company's applicable rate classes is summarized in Table 3-4. The average bill for residential customers and C/I customers is based on actual annual use.

Table 3-4[2]
Decoupling Adjustment and Typical Bills for Residential and C/I Customers

	2006	2007	2008	Total
Residential Decoupling Adjustment	$8.98	($12.17)	$2.17	($1.02)
Residential Total Bill	$955.48	$898.01	$934.76	$2,788.26
Residential Decoupling Adjustment as a Percentage of Residential Total Bill	0.94%	(1.36%)	0.23%	(0.04%)
C/I Decoupling Adjustment	$24.53	($29.65)	$3.63	($1.49)
C/I Total Bill	$3,692.29	$3,537.65	$3,628.38	$10,858.31
C/I Decoupling Adjustment as a Percentage of C/I Total Bill	0.66%	(0.84%)	0.10%	(0.01%)

Based on the above table, the total impact of the adjustments has been very small for the typical bill each year. The annual results follow the expected outcome for the operation of the decoupling mechanism.

From a customer perspective, the residential bill impacts resulting from operation of the Company's decoupling mechanism have been quite small. The greatest impact on the delivery charge portion of the customers' bills in any single year has been less than $0.02 per therm. As a result, it is reasonable to characterize the magnitude of the total CAP adjustment on an annual basis, as minor. Table 3-5 provides the average monthly impact of the Company's decoupling adjustments over a range of bills for each year during the evaluation period.

[2] The 2006 data represents the amounts to be billed in 2007 and so forth.

Table 3-5
Residential Average Monthly Bill Impacts From Decoupling Adjustments

Year	Therms per Month				
	25	50	100	150	200
2007	($0.30)	($0.59)	($1.18)	($1.77)	($2.36)
2008	$0.42	$0.85	$1.69	$2.54	$3.39
2009	($0.07)	($0.15)	($0.29)	($0.44)	($0.58)
2010	$0.45	$0.91	$1.81	$2.72	$3.63

Table 3-6 provides the monthly bills based solely on the gas cost component for each year as a comparison to the decoupling impact on residential customers. The gas cost component at the lowest monthly cost of gas is over 42 times greater than the total decoupling adjustment. This emphasizes the importance of the gas cost component in influencing customer conservation decisions.

Table 3-6
Residential Bills – Gas Costs Only

Year	Therms per Month				
	25	50	100	150	200
2007	$22.56	$45.12	$90.23	$135.35	$180.47
2008	$22.91	$45.82	$91.64	$137.46	$183.28
2009	$23.66	$47.32	$94.63	$141.95	$189.26
2010	$19.08	$38.17	$76.34	$114.51	$152.68

Table 3-7 provides the total monthly bills over the evaluation period as a comparison to the decoupling impact on residential customers shown in Table 3-5. This comparison illustrates the relative inconsequential nature of the decoupling adjustment relative to customers' bills. As a result of the limited magnitude of the deferral accounts resulting from the decoupling mechanism, Black & Veatch does not believe that there is a need to extend the amortization period to lessen the impact on customers.

Table 3-7
Residential Monthly Bills - Total

Year	Therms per Month				
	25	50	100	150	200
2007	$32.98	$62.95	$122.90	$182.85	$242.80
2008	$33.22	$63.44	$123.88	$184.33	$244.77
2009	$34.91	$66.83	$130.66	$194.48	$258.31
2010	$30.54	$58.08	$113.17	$168.25	$223.33

3.2.2 Impact on Low Income Customers

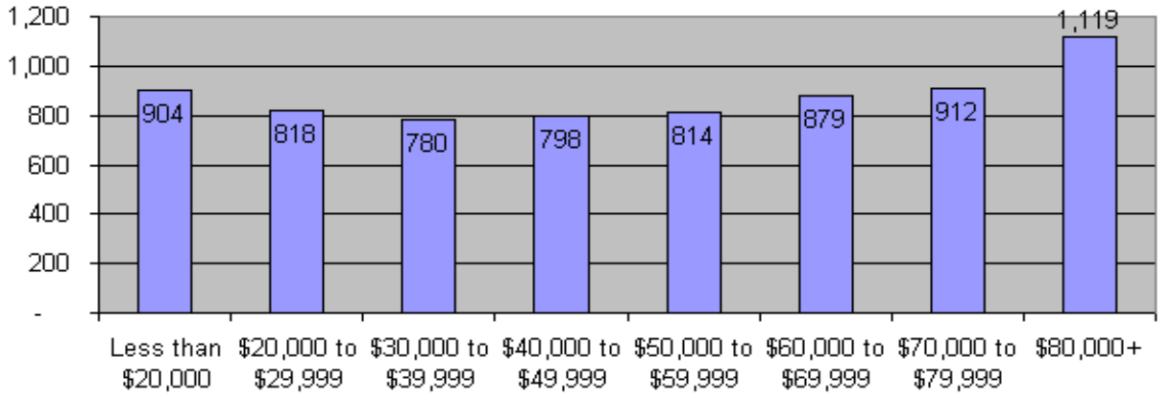
Based on data from the American Community Survey from 2006-2008 for the state of Oregon, it is possible to estimate the impact of the decoupling adjustments on gas customers from the Company's service area using the Public Use Microdata (PUMS) Areas in Oregon that most closely align to the CNGC service area. Recognizing that one of the PUMS areas also includes gas service to customers of Avista Utilities, there is not a perfect match of data to CNGC customers for one of the PUMS areas. Despite the fact that not all customers in the PUMS sample are CNGC customers, we have a profile of various groups of customers based on reported monthly bills and income along with other descriptive data. This data demonstrates that the lowest of low income customers ($10,000 or less of annual household income) had an average gas bill of almost $1,000 per year.[3] The data suggests that customers below the poverty level are likely to have gas usage in excess of the average use per customer. This implies that volumetric recovery of the decoupling adjustments has a disproportionate impact on the rates of low income customers. Since the impacts of the decoupling adjustments were shown above to be small, there should not be a concern over the bill impacts of the decoupling mechanism for the Company's low income segment of customers. However, we believe there is a broader concern related to the impact of volumetric recovery of the fixed cost of delivery service on the Company's customers below the poverty level and the need to eliminate cross-subsidies in the base rates, as discussed in detail below.

The above findings for the Company's low income customers are consistent with other utility studies of similarly situated customers. It is important to recognize that not all low income customers are poor and that not all customers below the poverty level are low income. Figure 3-1 provides the results of a recent study conducted for a Midwest gas LDC based on data available for its entire customer base.[4] Figure 3-1 shows that customers (i.e., households) of this LDC with the lowest incomes use more natural gas than the average customer, and use more gas than all other customers except customers in the two highest income groups. This result is supported by the factors that impact gas usage such as the age of the dwelling, the nature of the thermal envelope, the efficiency of the appliance stock, and other relevant variables such as family size.

[3] The reported usage data includes the impact of a number of customers who self-reported an average monthly bill of $10 which appears to be unrealistically low for a residential gas customer since this bill amount would equate to about 7 therms per month.

[4] It should be noted that this information is used here because the Company does not have consumption information broken down by income levels. Black & Veatch has observed similar results for other LDCs for which we have conducted similar income-consumption analyses.

Figure 3-1
Average Annual Residential Consumption by Median Household Income
(Calendar Year 2007)



For this LDC, the annual average use per residential customer was 831 CCF. In contrast, low income customers eligible to participate in that LDC's low income programs had an average annual use of 1,109 CCF, or more than 33 percent higher. Other recent studies of utility-specific data confirm the conclusion that customers with income below the poverty level use more gas than the average residential customer. This suggests that the Company should consider alternative revenue decoupling methods that can reduce the impact on customers below the poverty level and target those customers for conservation programs designed to reduce average use per customer. These alternative options are discussed later in this report.

3.2.3 Impact on Conservation Incentives

In the analysis of customer impacts from decoupling, it is also necessary to address issues related to the impact of rate design on conservation incentives. As noted above, the gas cost component of a customer's bill can be viewed as the largest element of the price incentive to conserve. Given that changes in purchased gas costs are typically larger than the Company's decoupling adjustments themselves, there is no evidence to show that the decoupling mechanism itself has had any substantive impact on conservation program incentives; the major impact on conservation appears to be the incentives that are part of the Company's conservation programs.

3.2.4 Impact on Non-Participants

With respect to the belief by some that non-participating customers are penalized by the Company's decoupling mechanism, it must be remembered that its mechanism enables the recovery of the full cost of delivery service, albeit with a one-year time lag. As such, customers are not penalized when rates are based on the utility's underlying costs of delivery service that have previously been authorized by the Commission. Rather, the price signal faced by customers changes, albeit slightly, in the presence of a revenue decoupling mechanism. This impact may be reduced or minimized, however, through real-time weather adjustments and eliminated through alternative rate designs that accomplish the objectives of decoupling.

The potential impact on non-participating customers was a topic in several of the stakeholder interviews that Black & Veatch conducted. One stakeholder noted that for non-participating customers not to have an economic penalty there needs to be a comprehensive set of conservation programs in which all customers could participate. This individual went on to state their belief that Cascade, through the ETO, has such a

comprehensive set of programs in place. Company representatives stated that they did not believe an economic penalty exists for its non-participating customers.

By including the decoupling adjustment in rates, customers who do not participate in conservation programs may see slightly higher bills as a result of the Company's decoupling mechanism. Given that during the evaluation period the largest portion of the adjustment was related to weather, which impacts all customers, it is reasonable to conclude that the greater benefit of reduced gas costs under normal weather more than offsets the additional charges associated with the conservation component of the decoupling mechanism. Thus, Black & Veatch believes it is inappropriate to suggest that non-participant customers are penalized under the Company's decoupling mechanism. Although we have discussed the deferred nature of the recovery process and believe a real-time adjustment would be an improvement over the deferral method of matching costs and benefits, in general, the bill impacts arising from the Company's decoupling mechanism should not be viewed as penalties in any sense of the term.

Having addressed the penalty issue, there is a more relevant issue related to potential intra-class subsidies among sub-areas of the CNGC service area. The Company's decoupling adjustment is developed volumetrically so that a greater portion of the total adjustment amount is borne by customers in the Baker/Ontario sub-area, due to this area's higher HDDs. One option for addressing this issue is to treat each sub-area separately for ratemaking purposes.

3.2.5 Impact on New Customer Additions (Including Fuel Switching)

It appears that other factors besides the existence of the Company's decoupling mechanism drive the Company's level of new customer additions. For example, it is reasonable to conclude that the underlying economic conditions in the Company's service area influence new meter installations, as depicted in Table 3-8.

Table 3-8
Meter Installations

	2005	2006	2007	2008
Residential	10,860	9,937	3,023	995
C/I	1,178	1,035	602	431

As the national economy began to decline and, in particular the housing sector, growth slowed in the Company's service area as evidenced by the significant decline in new meter installations shown in Table 3-8. As a practical matter, one would not expect decoupling to have an impact on a utility's level of customer additions. To help explain the Company's trend in customer additions, the potential number of fuel switching customers is also a relevant consideration. It would appear that the Company's decoupling mechanism had no discernible impact on fuel switching, as depicted in Table 3-9, because the fuel switching variability from year to year suggests another underlying cause since the number of fuel switching customers, stated as a percentage of total residential meter installations, declines initially and increases in the last year.

Table 3-9
Residential Fuel Conversions

	2005	2006	2007	2008
Number of Residential Customers	1,984	1,029	350	194
Percent of Total Residential Meter Installations	18.3%	10.4%	11.6%	19.5%

The largest percentage increase in fuel conversions occurred in 2008 when the fewest number of new meters were installed.

3.2.6 Recovery of Fixed Costs From New Customers

One stakeholder questioned whether new residential customers should be continue to be reflected in the computations of the rate adjustments under the Company's decoupling mechanism, noting that new residential customers generally have lower usage due to more efficient housing. As a result, the decoupling mechanism may provide an unintended windfall for the Company relative to authorized margin levels as new customers are added.

Company representatives noted that new customer usage may not be the same as the average existing customer, particularly in the C/I market. The Company also acknowledged that its rates have not been reviewed to determine their relationship to cost of service levels by class since 1986. While rates in total produce the Company's revenue requirements, not conducting a cost of service study over such a long time period (during which time the Company has experienced growth and other factors that may contribute to different levels of class costs) creates uncertainty about the precise treatment of new customers in the decoupling mechanism as a matter of equity. It has not been our purpose to review all of these issues; however, there is a theoretical basis for an equity issue as discussed below. Nevertheless, the Company believed it would be harmed if new customers were excluded from the underlying computations in its decoupling mechanism.

The issue of the impact of the Company's decoupling mechanism on recovery of costs from new customers has many facets. While it has not been our purpose to determine the efficacy of the Company's line extension polices or other factors that may impact the recovery of costs from its new customers, we believe that it is reasonable to summarize the theoretical possibilities. There are a variety of conditions that may result in both over and under-recovery of capital costs for new customers. Table 3-10 summarizes the potential outcomes assuming no contributions-in-aid-of-construction from existing customers.[5]

[5] Black & Veatch notes that the Company's Form 2 reported no contributions-in-aid-of-construction (CIAC), suggesting that the cost of adding a new customer includes the actual cost of connecting the customer to the gas system. Further, if CNGC recovers a contribution and reduces the investment by the CIAC amount, the results of the table are applicable based on the relationship to cost less the CIAC amount.

Table 3-10
Potential Capital Cost Recovery Outcomes

New Customer	Capital Cost	Usage	Result
1	New Capital Cost > Average Costs in Rates	Higher or lower than average	Under-recovery of costs
2	New Capital Cost < Average Costs in Rates	Higher or lower than average	Over-recovery of costs
3	New Capital Cost = Average Costs in Rates	Higher or lower than average	No over- or under-recovery

Under the decoupling mechanism, all new customers produce revenue equal to the average margin determined in the Company's most recent rate case through a combination of the delivery charges and decoupling mechanism adjustments that provides average base revenue per customer. Referring back to the discussion of the mechanism, actual revenues are adjusted to the monthly expected commodity margin per customer for that month. Thus, new customers must by definition produce the same average revenue recovered per customer in the most recent rate case. The only event that allows the utility to actually recover the capital cost for new customers is if the new customer has capital costs equal to the average cost included in rates. That is, the actual revenue per customer recovers the embedded costs found just and reasonable by the Commission in the last rate case. Thus, if the new customer requires more or less investment per customer than existing customers there is a mismatch between costs and revenues. The outcome that keeps the Company at the same return is the least likely of the three options. For new Customer 1 above, the under-recovery of costs is likely if the customer requires a meter, regulator, service line and a main extension. The outcome for new Customer 2 is likely where the customer is attached to an existing main and requires only a meter, regulator and service line. Based on Company data, it is reasonable to assume that new Customer 1 is the more representative of the three outcomes. Table 3-11 illustrates that CNGC adds both main and service line for new customers.

Table 3-11
Growth in Customer Mains and Services

	2005	2006	2007	2008
Customers	57,004	60,516	62,705	63,386
Main in Miles	1,316	1,378	1,445	1,469
Services	57,975	61,043	62,619	63,376
Miles/Customer	0.0231	0.0228	0.0230	0.0232

Since the miles of main per customer is relatively constant over this period, it is reasonable to conclude that new customers require new main extensions. Although this observation is consistent with Black & Veatch's experience at other LDCs, it is confirmed by the Company's actual 2008 and 2009 data discussed below. It is also reasonable to conclude that Cascade under recovers costs from new main extensions because the average cost of new main in 2008 was $136,772 per mile based on the cost of new main in the Company's Form 2. Form 2 does not provide accumulated depreciation by account for distribution plant so it is not possible to precisely determine the embedded cost of main in rate base for 2008. If one assumes that the ratio of

accumulated depreciation to total distribution plant is the same as for mains, mains would be about 43 percent depreciated and the resulting cost per mile of main would be $27,514. This means that the decoupling mechanism does not allow the Company to recover the costs associated with new customers. Based on 2008 data, there is a similar result for services. The average cost of a new service line in 2008 was almost $1,500 per service. The average embedded cost of services was $325 per service. Based on this data, it appears that the average new customer costs about $3,000 or more. At this cost, the first year revenue requirement for a new customer would be about $375 but the allowed recovery would be about $272 in 2009. Since the $272 is total revenue, that amount should be reduced by the out-of-pocket expenses associated with a new customer. But, in any case, the Company loses over $100 of earnings per new customer under the decoupling mechanism. The result for 2009 is similar with the average cost of a new residential customer equal to $3,575 per customer. This means even higher losses for new customers in 2009, where the first-year carrying cost would be almost $450 with allowed recovery of $272.

In the evaluation of customer impacts a question was raised regarding spreading these costs across all rate schedules. Black & Veatch believes it is not reasonable to socialize these costs across all customer classes. The costs recovered are maintained within the rate classes where there are conservation programs and where the decoupling mechanism is applied. It would be unreasonable to shift these costs away from those who benefit from and/or cause those costs to be incurred.

3.2.7 Impact on Uncollectible Accounts

Black & Veatch also reviewed the impact of decoupling on the Company's uncollectible accounts. Table 3-12 provides the level and number of uncollectible accounts during this period.

Table 3-12
Cascade's Uncollectible Accounts in Oregon

	2004	2005	2006	2007	2008	2009
Amount	$269,290	$267,088	$335,154	$505,575	$1,234,045	$945,671
Number of Accounts	2,286	2,433	2,973	5,211	5,839	3,874

Based on the data, there appears to be other factors driving uncollectible accounts expense. For 2007, the decoupling adjustment reduced bills and gas costs were unchanged from 2006. Additionally, for 2009, the level of the decoupling adjustment declined from 2008 and gas costs increased, resulting in higher total bills. As a result, it seems reasonable to conclude that factors other than the periodic rate adjustments under the Company's decoupling mechanism impact its uncollectible accounts expense, not the CAP.

3.3 Mechanism's Impact on the Company

Company impacts resulting from its decoupling mechanism cross multiple dimensions such as financial, conservation commitment, staffing resources, regulatory expense, call center impacts, and others. To respond to these issues, Black & Veatch has reviewed a variety of materials provided in response to our data requests. In addition, we have collected other public information related to the Company and conducted interviews of selected Company personnel.

3.3.1 Impact on Fixed Cost Recovery

The financial impact on the Company from its decoupling mechanism includes the ability to offset declines in fixed cost recovery from rates caused by both weather and conservation. Discussions with Company

representatives indicated that they view these impacts in a favorable light. The data supports the conclusion that the Company's decoupling mechanism has, in fact, allowed it to recover fixed costs that otherwise would have been unrecoverable in the absence of filing a general rate case. Black & Veatch notes that over the evaluation period the Company's weighted average HDDs have been below normal by about 2.9 percent, which would have resulted in lower fixed cost recovery for the Company in the absence of its decoupling mechanism. In addition, normalized average residential use has declined by over 6 therms per month over the evaluation period.[6] The decline in use per customer for C/I customers has been about 22 therms per month over the evaluation period.[7] Taken together, the fixed cost impact of conservation amounted to $23.51 per residential customer for 2009, and $59.77 annually per commercial customer in 2009. This would translate into about $1.76 million of lost earnings, or 22 percent of net income as reported for 2008. The weather effect on earnings over the evaluation period is relatively small. In addition, the decoupling mechanism effectively eliminates the impact of weather on earnings as it is designed to do. As noted above, the Company's decoupling causes under-recovery of fixed costs for new customers and negatively impacts its earnings.

The gas cost savings for residential customers using 6 therms less per month in 2010 would be almost $55 while the added charges from the decoupling adjustment in the year with the highest adjustment would be less than $12—an average savings of $43 if that rate adjustment applied in 2010.

3.3.2 Impact on Business and Financial Risks

A second financial issue relates to the impact of the Company's decoupling mechanism on risk and, hence, the authorized equity returns established for the Company. A few stakeholders stated that they believe the decoupling mechanism has reduced the Company's overall business and financial risks and, therefore, its authorized rate of return should be adjusted downward by the Commission. Company representatives noted that the Company's return on equity has declined over time but, without the decoupling mechanism, the situation would probably have been worse. The data confirms that, in the absence of the decoupling mechanism, the Company's earned return would have decreased by a greater amount as expected by the Company.

To fully understand the risk issue as it relates to decoupling requires an understanding of the elements that comprise a utility's business and financial risks and their relationship to how it is treated with other comparable utilities. To begin, it is clear that decoupling adjustments impact only one side of the Company's earnings equation, namely utility rate revenues. The decoupling adjustments do not impact the cost or expense risk associated with the Company's earnings. It is not Black & Veatch's purpose in this report to identify and discuss the risks associated with any particular regulatory environment. In general, there is broad recognition in the gas utility industry of the role of full and partial decoupling mechanisms for LDCs. As a result, many of Cascade's peer companies have in place ratemaking provisions (e.g., revenue decoupling, SFV rates, and weather normalization adjustment mechanisms) designed to provide an enhanced opportunity to collect revenues consistent with the level of revenues approved by regulators in their last rate cases. To the extent the authorized equity return for the Company is based on a determination which relies upon financial data of other companies, the effect of revenue recovery from decoupling on the Company's risks is already largely accounted for in the returns of the other companies (as are other risks such as test year and earning stabilization). Therefore, Black & Veatch believes that any adjustment to the Company's authorized rate of

[6] Based on the difference between the normalized residential use reported in the Company's 2005 and 2009 PGA applications.

[7] Since Black & Veatch did not complete an impact evaluation (i.e., billing analysis correcting for weather and other factors) as part of this evaluation, we can not say whether these reductions are due to weather or conservation.

return due to decoupling is unnecessary and inappropriate. Further, Black & Veatch understands that the Company contributes 0.75 percent of revenues (or about $630,000 in 2008, before taxes) to help fund conservation programs as part of the CAP Stipulation. This effectively reduces the earned return for CNGC by the amount of the contribution, and effectively reduces the authorized return prior to the effect of any decoupling adjustment on Company revenues. It is important to recognize that this sizable contribution effectively means that regardless of the authorized return level determined by the Commission, the Company has a diminished opportunity to earn its authorized rate of return. In Black & Veatch's view, there is no justification for reducing the Company's authorized return on equity based on the operation of its decoupling mechanism. In addition, as noted above, the mechanism contributes to earnings attrition based on customer growth. Further, the existence of an earnings sharing mechanism creates an asymmetric risk for earnings since the upside is capped based on the sharing mechanism and the downside risk is not limited except by the ability of the Company to file and be granted a rate increase.

From the financial community's perspective, the approval of the Company's decoupling mechanism was important to stabilize earnings, to protect its dividend and to allow CNGC shares to trade in the same price earnings range as other LDCs with smaller market capitalizations. Based on our prior discussions with financial analysts who follow gas LDCs, stabilizing revenues is an important consideration in the valuation of the LDC from a market perspective. Prior to approval of the Company's decoupling mechanism, A.G. Edwards (Edwards) described CNGC regulation as "below-average regulatory support (lack of periodic rate increases, weather normalization riders, consumption trackers, etc.)". Edwards appropriately recognized the importance of a decoupling mechanism as a ratemaking tool that provides CNGC with a reasonable opportunity to earn its authorized return. Having a reasonable opportunity to earn its authorized rate of return is a fundamental right of the utility and an integral part of the regulatory compact. This regulatory principle has its foundations in a Missouri case before the U. S. Supreme Court where Justice Brandeis concluded that a utility is permitted an *opportunity to earn the cost of service* including a return of and on the assets devoted to public service. (Missouri *ex rel.* Southwestern Bell Tel. Co. v. Public Service Commission, 262 U. S. 276, 290-291 (1923) - emphasis added).

3.3.3 Impact on the Company's Unregulated Businesses

The Company does not have any unregulated businesses; therefore, our evaluation did not address this issue.

3.4 Conclusion

From a purely computational standpoint, the Company's decoupling mechanism works as designed. The mechanism uses a multi-step process to adjust calendar month data. First, weather normalized sales are calculated for each of the Company's three weather areas by multiplying the monthly number of customers times the difference between normal and actual HDD times the weather sensitive coefficient for the area. Second, the expected monthly normalized commodity revenue per customer (as determined in the Company's most recent rate case) is calculated. This calculation multiplies the total number of residential customers times the monthly commodity margin. The actual commodity margin is determined as the actual commodity sales (net of the current month unbilled calculation) times the applicable commodity charge. The weather adjustment margin is added to or subtracted from the actual revenue to produce a weather normalized margin. The difference between the weather normalized margin and the expected normalized margin is the conservation adjustment.

The Company's filings that Black & Veatch reviewed have accurately implemented the resulting rate adjustments through CNGC's decoupling mechanism, and the Company stated that it is satisfied with the simplicity and recovery basis of the mechanism. The resulting decoupling adjustments have been minor and

Black & Veatch does not believe there is a need to extend the amortization period to lessen the impact on customers, nor should the monthly timing of the rate adjustments be changed. Further, Black & Veatch does not believe that the Company's decoupling mechanism should be extended to CNGC's other rate classes. Black & Veatch also believes that the Company's decoupling mechanism has not led to unfair penalties for customers not participating in conservation programs. Finally, Black & Veatch found no evidence that the Company's decoupling mechanism has created any unanticipated disincentives.

The ultimate test of the current decoupling mechanism remains whether the Company and other Parties believe the mechanism provides an adequate level of fixed cost recovery to completely remove the financial disincentive a utility has to promote conservation. In our interviews, CNGC representatives expressed positive views of the mechanism and believe that it effectively removes the disincentive for the Company to pursue conservation. These individuals also indicated that they saw no reason to have the current decoupling mechanism and rate adjustment process changed. Since the Company's decoupling mechanism is fundamentally sound, there is no reason to recommend a change to it based on the current objectives of the CAP. Company representatives further expressed the view that any changes that would make the mechanism more complex would not result in a better mechanism. Black & Veatch agrees that simplicity has its virtues; nevertheless, we also believe that certain issues pertaining to the ongoing operation of the mechanism should be addressed, as discussed below.

Several other stakeholders commented that they believe the Company's decoupling mechanism is fair to both the Company and its customers as long as the conservation programs are fully funded through the public purpose surcharge, and that the mechanism is generally working as originally intended. No stakeholder comments were received by Black & Veatch that indicated any unanticipated disincentives had been created through the decoupling process.

One point raised by a few stakeholders relates to what is really driving the Company's increased focus on conservation: is it the implementation of the decoupling mechanism, the Commission's directives that are reflected in the Company's IRP, or the initiation of the Company's public purpose funds? Some stakeholders, as well as Company representatives, stated that they believe the decoupling mechanism has, in fact, effectively removed the Company's disincentive to promote conservation. Company representatives correctly noted that participation in the public purpose funding process and the transfer of its conservation programs to the ETO happened simultaneously with the Commission's approval of CNGC's decoupling mechanism. Therefore, they acknowledge that it is not possible to fully separate the impact of the various factors on the Company's level of commitment to conservation incentives.

The Company also noted that the public purpose surcharge is the funding vehicle for conservation, while the decoupling mechanism removes the financial disincentives associated with implementing conservation programs. In that regard, these two ratemaking elements are completely linked from the perspective of the Company, particularly given the fact that LDCs in Oregon are not required to have a public purpose fund. The Company also noted that with regard to the public purpose fund rate of 1.5 percent of revenues; 0.75 percent is funded by ratepayers, and 0.75 percent is funded by shareholders—with the later contribution viewed as the "give back" for the Company being granted margin certainty (not earnings certainty). Based upon the results of this evaluation, Black & Veatch agrees with this conclusion.

As discussed earlier, the decoupling adjustments impact only one side of the Company's earnings equation, namely utility rate revenues produced through volumetric rates. The decoupling adjustments do not impact the cost or expense risk associated with the Company's earnings. To the extent the authorized equity return for the Company is based on a determination which relies upon financial data of other companies, many of

whom have some form of revenue decoupling in place, the effect of revenue recovery from decoupling on the Company's risks is already largely accounted for in the returns of the other companies. Therefore, Black & Veatch believes that any adjustment to the Company's authorized rate of return associated with implementation of Cascade's decoupling mechanism is unnecessary and inappropriate. Further, the Company's contribution of 0.75 percent of revenues (or about $630,000 in 2008, before taxes) effectively reduces the earned return for CNGC by the amount of the contribution, and effectively reduces the authorized return prior to the effect of any decoupling adjustment on Company revenues. It is important to recognize that this sizable contribution effectively means that regardless of the level of return on equity authorized by the Commission, the Company has a diminished opportunity to earn its authorized rate of return. In Black & Veatch's view, there is no justification for reducing the Company's authorized return on equity based on the operation of its decoupling mechanism. In addition, as noted above, the mechanism contributes to earnings attrition to the extent there is customer growth in the decoupled rate schedules.

One stakeholder noted that his primary concern is to make sure that the Company's decoupling mechanism is being applied correctly, that only true fixed costs are included, and that the calculation of lost margins is actually based on margins lost "at the margin". Black & Veatch concludes that these concerns have been fully addressed in the Company's decoupling mechanism.

Finally, one stakeholder stated that the evaluation of any decoupling mechanism needs to consider the broader regulatory context within which the mechanism operates. As an example, this stakeholder noted that the Company has an earnings sharing mechanism in place in Oregon. This mechanism has been in place for a number of years and has been modified within the last 18 months. According to this stakeholder, the mechanism has been strengthened from a customer perspective to include tighter bands within which earnings are shared. As a result of this change, the chance of significant over-recovery of costs by the Company due to the decoupling mechanism has been lessened. This stakeholder also noted that the Show Cause Rate Case and the MDU Acquisition Case led to lower authorized returns on equity for the Company. As a result, this stakeholder believes that the overall impact of the decoupling mechanism is balanced for both the Company and its customers when CNGC's entire regulatory picture is considered. Black & Veatch concurs with this conclusion.

As part of our review, Black & Veatch reviewed all regulatory filings related to the Company's decoupling mechanism. Based on our review, Black & Veatch concludes that the Company's decoupling mechanism has been implemented properly and that the resulting rate adjustments have been consistent with the associated tariff provisions. We believe that our review of these filings and their subsequent amendments, indicate that the public interest is protected through the current CAP process. Therefore, Black & Veatch believes that the elimination of the Company's decoupling mechanism would be harmful to the Company, its customers, and the environment.

4.0 OBSERVATIONS REGARDING IMPACT OF DECOUPLING MECHANISM ON CONSERVATION ACTIVITIES

As discussed in Section 2, Cascade previously offered a limited selection of conservation programs to its low income residential customers since 1979 and all residential customers since at least 1981. The public purpose surcharge took effect in May 2006 to help fund the Company's conservation programs and, at the same time, the ETO took over program implementation on July 1, 2006.

The purpose of this section is to summarize Black & Veatch's observations and conclusions regarding the impact of the decoupling mechanism on the Company's conservation programs. It begins with a discussion regarding the impact of the mechanism on customer conservation behavior, followed by a discussion of the impact on the Company's conservation behavior. Next, we provide a discussion regarding the ETO's delivery of conservation programs, followed by a discussion of potential additional conservation programs that could be offered by the Company. Next, we provide additional results from Black & Veatch's residential and commercial surveys not discussed in the earlier subsections.

4.1 Mechanism's Impact on Customer Conservation Behavior

Black & Veatch reviewed qualitative and quantitative data from interviews and program records to determine if there have been higher levels of program awareness and program participation since the implementation of the Company's decoupling mechanism, and higher levels of therm savings. Most of those interviewed in this evaluation felt that customer conservation activity had increased since the decoupling pilot was implemented. These anecdotal responses are supported by the data provided to Black & Veatch. Based on a review of the available data on customer participation rates, it is clear that participation levels increased significantly during the time after the decoupling mechanism was implemented, suggesting that this ratemaking solution has had a measurable effect on participation in conservation programs by Cascade's customers.

4.1.1 Awareness of and Participation in Natural Gas Conservation Programs

Evidence from the customer surveys conducted by Black & Veatch provides some indirect insight into the effect of decoupling and the comparative influence of Cascade's efforts versus those of the ETO at encouraging conservation. Again, these findings are considered an indirect commentary on the effect of decoupling because there has been no direct communication with consumers regarding the decoupling mechanism itself; rather customers have been exposed to messages and programs regarding the conservation behaviors that decoupling is intended to encourage.

First, of the 202 CNGC residential customers surveyed, 10 percent report having participated in natural gas conservation programs. For the non-residential sector, of the 100 customers surveyed, the participation rate was reported at 12 percent (e.g., HVAC and insulation rebates).

Results concerning sources of awareness were mixed. When asked about the source of information that led to participation decisions, residential customers mentioned Cascade 5 to 1 over the ETO, and commercial customers mentioned the ETO 8 to 1 over Cascade. Seventy (70) percent of residential customers surveyed noted sources of influence other than either Cascade or the ETO (e.g., Home Depot, plumbing contractors, etc.), whereas only 10 percent of the C/I customers surveyed mentioned other sources. The ETO's strong name recognition in the C/I sector may be due to more recent efforts by the ETO to step up its outreach to this sector.

Unaided awareness of specific residential conservation programs offered in the Company's service area was no higher than 5 percent. However, when prompted, recognition was (as would be expected) much higher. These responses are listed in Table 4-1. Customer awareness of incentives for gas water heating was highest in both cases.

Table 4-1
Residential Customer Awareness of Natural Gas Conservation Programs

Program Name	Percent Aware of Program	
	Unprompted	Prompted
Natural Gas Water Heater Rebate Program	5.4%	37.6%
High Efficiency Gas Fireplace Rebate Program	2.0%	9.9%
High Efficiency Gas Furnace Rebate Program	3.5%	23.3%
Home Comfort Package	0.5%	8.4%
Free Home Energy Analyzer	2.0%	16.3%

Among the Company's C/I customers, 6 percent were able to identify a natural gas conservation program without prompting. When they were read a list of energy efficiency programs, recognition was higher for electric programs over gas programs by a ratio of 2 to 1.

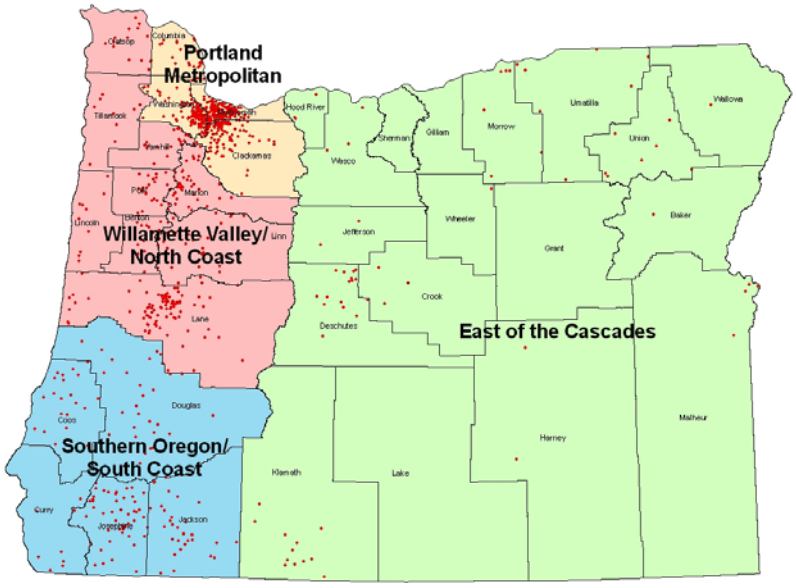
These survey results indicate that customer awareness remains quite low among both segments of population served by Cascade (i.e., households and businesses), confirming concerns on the part of Cascade that the ETO's marketing and outreach efforts to date have not been sufficient.

The ETO conducts its own Oregon Residential Customer Awareness and Perceptions Survey, the last report having been published in November 2009. There were only 28 out of 904 respondents that were Cascade customers (refer to Figure 4-1). The researchers followed a census-based sampling approach aimed to achieve 95 percent/±10 percent at the regional level, which is a logical surveying approach. Unfortunately, this does not provide adequate information at the utility sponsor level since Cascade is grouped into the Eastern Region with other utilities.

4.1.2 Participation Levels and Conservation Expenditures

Figures 4-2 (residential) and 4-3 (C/I) show the actual Cascade customer participation levels according to program data provided by the Company.

Figure 4-1
Location of Sample Points From 2009 ETO Customer Awareness Survey
(Cascade Customers = 28 points out of 904)



Source: Research Into Action, Inc.; ETO's *2009 Oregon Residential Awareness and Perception Study, Final Report*; November 17, 2009; Figure 2-1; page 4.

Figure 4-2
Residential Customer Participation by Year

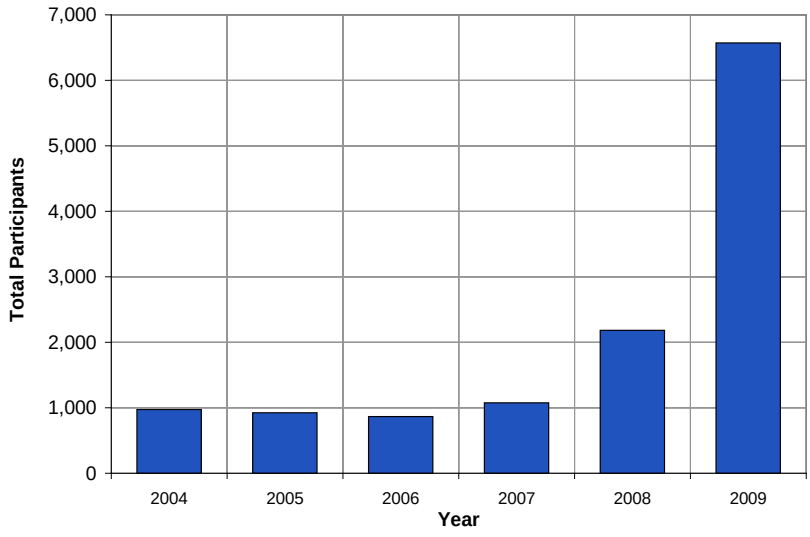


Figure 4-3
C/I Customer Participation by Year

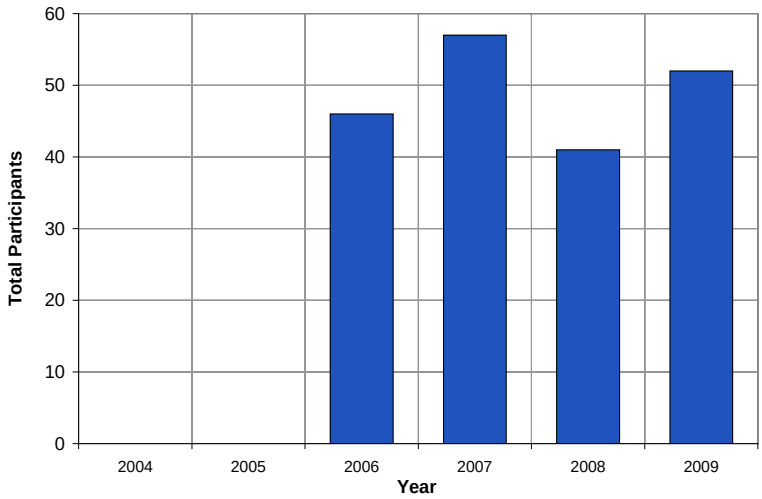


Figure 4-2 clearly shows that residential participation levels increased significantly during the Company's decoupling period.

The C/I data do not show as clear a pattern, as no programs were available to this sector prior to decoupling, and the data do not show an increasing trend since decoupling took effect. Participation by Cascade's non-residential sector has averaged about 50 customers per year since the programs were first offered by the ETO in 2006. The interviews revealed that the ETO was unsuccessful at first in identifying and training adequate numbers of contractors to support the programs in Cascade's service territory, and that training events were either poorly advertised or not offered in locations convenient to this market. The ETO has since increased its efforts to recruit contractors in Cascade's service area to better serve customers. This initial lack of adequate infrastructure for delivery of conservation programs might have contributed to the mixed annual participation levels over the course of this evaluation period.

Consistent with the increasing level of participation in conservation programs by Cascade's customers, the Company's conservation-related expenditures have increased during the evaluation period as shown in Table 4-2.

Table 4-2
Cascade's Annual Conservation-Related Expenditures

Year	Company-Administered Programs			ETO-Administered Programs	Total
	Rebate Programs	Low Income Weatherization	Subtotal		
2004	$374,250	$62,790	$437,040	$0	$437,040
2005	$275,400	$128,340	$403,740	$0	$403,740
2006	$63,650	$9,270	$72,920	$315,330	$388,250
2007	$0	$171,960	$171,960	$934,270	$1,106,230
2008	$0	$181,740	$181,740	$967,080	$1,148,820

These data show that conservation activity has increased and that the increase is coincident with the advent of decoupling in the Company's service area. Another source of information on program participation is available from the 2009 ETO survey noted above. The survey data allow for a comparison of Cascade customer participation versus other companies, both gas and electric. Ignoring the low number of sample points, of the 28 Cascade customers surveyed, the self-reported participation level in the ETO's programs was the second highest among gas customers, with NWNG at 18 percent participation (2009) versus Cascade at 8 percent. Even given this large difference, Cascade's figure represented a doubling in self-reported participation of Cascade customers over 2008, which was 4 percent. Overall participation by gas customers in 2009 was on a par with electric customers, according to the survey results, at 7 percent each.[8]

Based upon the ETO's 2009 Oregon Residential Awareness and Perception Study, general awareness in eastern Oregon (25 percent) is less that in western Oregon (more urban), but awareness among Cascade's customers (which are in eastern Oregon) was 61 percent.

Finally, the 2010 Black & Veatch customer survey, discussed in more detail later in this section, rendered a self-reported participation level of 10 percent among the 202 Cascade residential customers surveyed and 12 percent among the 100 Cascade C/I customers surveyed.

These data show that a key objective of decoupling is being realized in the Company's service area—increased conservation activity—particularly as compared to the participation levels of both electric and other

[8] The ETO noted that its own research indicates customer program participation does not line up very closely with statements of participation from awareness survey respondents, indicating that it appears customers receiving on-site services from weatherization contractors are much more likely to be aware of participating than customers who received ETO rebates for appliances or heating systems. Additionally, the ETO noted that a number of customers who believe they have participated in ETO's programs may not have participated, perhaps due to confusion caused by the existence of State and Federal tax credits. Consequently, the ETO believes that its awareness survey most likely underestimates participation. As a result, the ETO urges caution with regard to using awareness survey data as an indicator of participation, or satisfaction with participation. The ETO stated that, in the future, it will correlate awareness surveys with actual participation as reflected in its program database as part of the reporting process.

gas companies in the region. Increases in conservation activity between 2008 and 2009 were strong among Cascade's customers, indicating that customer participation is moving in the right direction.

4.1.3 Therm Savings

The amount of energy saved by participants is another measure that can be reviewed as evidence of increased conservation activity. One way of looking at therm savings is to compare targets established in the Company's most recent IRP, which was prepared in 2008, based upon a market potential study, against actual achievements.

In its 2008 IRP, Cascade notes on page 28:

> *"Since July 2006, Cascade has relied on the Energy Trust of Oregon (ETO) for the delivery and administration of its conservation programs in Oregon. As mentioned above, 80% of the public purpose funding is transferred to the ETO to design, promote and administer natural gas energy efficiency programs on behalf of Cascade. During 2007, therm savings attributed to Cascade's Oregon service territory amounted to 151,291. Through July 2008, ETO has achieved 49,263 and estimates that 2008 annual therm savings will be approximately 235,660."*

The numbers stated above for 2007 are consistent with updated information provided by Cascade. The Company's conservation programs in total achieved 159,830 therm savings, slightly higher than the 151,291 therms saved as reported in the Company's IRP. However, for 2008, the total savings fell far below the ETO's estimated savings of 235,660 therms. The actual savings were 143,273 therms, lower even than the previous year. This represented a short-fall for the ETO of almost 40 percent of its goal for Cascade's Oregon customers, and a reduction of 5 percent savings when compared to the previous year.

Data for 2009 are shown in Table 4-3 with the target taken from the Company's 2008 IRP, and the actual achieved therm savings figures as provided by Cascade.

Table 4-3
Comparison of Targeted[9] Versus Achieved Therm Savings for 2009

	Residential	Commercial	Low Income	Cascade's Oregon Total
2009 Target	220,597	52,060	10,000	282,657
2009 Actual	139,565	117,044	5,992	262,601
% difference	(37%)	125%	(40%)	(7%)

These data show a continued short-fall relative to the Company's IRP targets although the total savings in 2009 were approximately 88 percent higher than in 2008. The short-fall in 2009 is most likely the result of the economic downturn resulting in customers not having the available funds to spend on discretionary measures. Other factors, such as code changes and the impact of the recession on new construction may also

[9] 2009 target figures are taken from Cascade's 2008 IRP, Table 5-5, page 37.

be responsible for lower customer participation. Savings among existing buildings increased by 63 percent and existing homes by 227 percent, while savings from new buildings, and new homes and products, decreased 21 percent and 42 percent, respectively, from 2008 due to the collapse of the building industry. The ETO expects to increase savings by another 48 percent in 2010. The large savings in the commercial sector were driven by two projects that combined to produce a total of over 45,000 therm savings.

The detailed participant and savings results for each CAP program are provided in Table 4-4, which is based upon data provided by Cascade to Black & Veatch. Green text programs are those provided directly to customers by Cascade and blue represent those programs delivered by the ETO to Cascade's Oregon customers. The table presents participation levels and energy savings per year for Cascade's customers. Average therm energy savings per participant is shown in italics. As noted earlier, 2006 is when the ETO took over delivery of the programs.

The data show that when grouped together, average therm savings per customer has been dropping since the ETO took over delivery of the Company's conservation programs. This appears to be driven largely by the residential sector, where several factors are apparent:

- Change in types of programs offered—high-efficiency furnace and water heater upgrades coupled with weatherization programs[10] that were provided by Cascade from 2004 to 2006 were replaced with new and existing residential home programs and energy kits by the ETO.
- Energy kits—the ETO began distributing low-cost, low-impact energy kits in 2009, resulting in a major downward shift of energy savings per participant in the residential sector. The mailing of these kits are in addition to the ETO's efforts to improve the weatherization of existing homes, which has shown an increase in the number of participants each year with stable average savings per participant.
- New homes—the average therm savings from the new homes program has dropped significantly in each of the last two years. Information was not available as to why this occurred.
- C/I sector programs—in the C/I sector, there was a precipitous drop in average savings per participant between 2006 and 2007, then substantial increases for 2008 and 2009. The 2009 numbers are driven largely by two projects that produced combined savings greater than 45,000 therms.
- Even with the high C/I therm savings, these values did not materially affect the pattern of declining savings per participant for the combined customer group as shown in Table 4-5 due, in large part, to the delivery of energy kits.

[10] Cascade offered "whole house weatherization" programs to income-qualified customers through the Weatherization Assistance Program, and delivered by local CAAs, with rebates provided through this program. All other residential customers were eligible only to receive a basic home inspection complemented by rebates and loans for insulation, windows, and other measures, as appropriate. Rebates were set at a maximum value of 25 percent of the measure cost, not to exceed $350.

Table 4-4
Conservation Program Participation and Savings by Year

	2004	2005	2006	2007	2008	2009
Residential Programs						
Residential Weatherization Participants	65	28				
Residential Weatherization Therms	8,694	4,780				
Average Therms per Participant	*134*	*171*				
New Homes and Products Paricipants		2	285	747	699	731
New Homes Therms			21,298	113,014	45,846	26,472
Average Therms per Participant			*75*	*151*	*66*	*36*
Existing Homes Participants			32	305	469	632
Existing Homes Therms			1,979	19,199	32,689	32,272
Average Therms per Participant			*62*	*63*	*70*	*51*
Energy Savings Kits Participants						5,165
Energy Savings Kits Therms						74,490
Average Therms per Participant						*14*
Res High-Efficiency Furnace Participants	398	388	247			
Res High-Efficiency FurnaceTherms	38,606	37,636	23,862			
Average Therms per Participant	*97*	*97*	*97*			
Res High-Efficiency Water Heaters Participants	92	88	38			
Res High-Efficiency Water Heaters Therms	2,576	2,464	1,064			
Average Therms per Participant	*28*	*28*	*28*			
Low Income Participants	20	28	17	24	42	42
Low Income Therms	7,437	9,259	6,396	3,574	5,914	5,992
Average Therms per Participant	*372*	*331*	*376*	*149*	*141*	*143*
Total Residential						
Total Residential Participants	575	534	619	1,076	1,210	6,570
Total Residential Therms Saved	57,313	54,139	54,599	135,787	84,449	139,226
Average Therms per Participant	*100*	*101*	*88*	*126*	*70*	*21*
C/I Programs						
Existing Buildings Participants			46	54	29	34
Existing Buildings Therms			49,563	20,081	35,798	58,228
Average Therms per Participant			*1,077*	*372*	*1,234*	*1,713*
New Buildings Participants				3	12	16
New Building Therms				3,962	17,502	13,801
Average Therms per Participant				*1,321*	*1,459*	*863*
Production Efficiency Participants						2
Production Efficiency Therms						47,918
Average Therms per Participant						*23,959*
Total C/I						
Total C/I Participants			46	57	41	52
Total C/I Therms Saved			49,563	24,043	53,300	119,947
Average Therms per Participant			*1,077*	*422*	*1,300*	*2,307*
Total Participants	575	534	665	1,133	1,251	6,622
Total Therms	57,313	54,139	104,162	159,830	137,749	259,173
Average Therms per Participant	100	101	157	141	110	39
ETO Programs Highlighted in Blue						
Cascade Programs in Green						

Table 4-5
Residential, C/I and Total Average Therm Savings Trends

	2004	2005	2006	2007	2008	2009
Residential	100	101	88	126	70	21
C/I	--	--	1,077	422	1,300	2,307
Total Company	100	101	157	141	110	39

4.1.4 Impact on Low Income Customers

Other possible evidence for the drop in average therm savings per participant is provided in the low income program discussion below. Table 4-6 shows that the number of participants in both the weatherization program and the Company's Oregon Low Income Bill Assistance (OLIBA) program increased each year, except in one instance where OLIBA numbers dropped by about 20 families between 2006-2007. Participation in the Company's Weather Assistance Program (WAP) almost doubled in the same time frame.

Table 4-6
Low Income Customer Participation in WAP and OLIBA Programs

	Program Year 05-06	Program Year 06-07	Program Year 07-08	Program Year 08-09
Weatherization Program	28	24	42	42
Oregon Low Income Bill Assistance Program	0	261	244	358

Table 4-7 shows participant and therm savings data for Cascade's WAP.

Table 4-7
Therm Savings by Low Income Participants by Year

	2004	2005	2006	2007	2008	2009
Low Income Therms Saved	7,437	9,259	6,396	3,574	5,914	5,992
Low Income Participants	20	28	17	24	42	42
Average Therms Saved per Low Income Participant	372	331	376	149	141	143

It can be seen that the amount of therms saved per participant among the low income sector dropped by about 60 percent between 2006 and 2007, and has remained at that level ever since. It is unclear why this drop

occurred, but it may be due, in part, to the Company's move to the use of the deemed savings methodology, as used by NWNG, as opposed to using REM/Rate audit results prior to 2007.

If the savings values reported to Black & Veatch for 2007 and beyond are in fact from a change in reporting sources, that may explain the reason for the precipitous drop in savings values since 2006, and the relatively constant values ever since. These kinds of considerations would be important in conducting an impact evaluation of the conservation programs, a task that was beyond the scope of this evaluation.

According to the Company's 2008 IRP, as of September 2008, Cascade's Oregon Low Income WAP had served 41 homes and achieved a savings level of 5,277 therms, with a total expenditure of $46,500. However, a balance of $293,660 was still available as of August 30, 2008.[11] Many community agencies that deliver federal WAP services have recently been swamped by increases in WAP funding coupled with American Reinvestment and Recovery Act (ARRA) funding, putting pressure on limited staff resources to deliver services to eligible customers. This may be affecting the amount of savings per participating customer reflected in these numbers above as agencies attempt to deliver services to more customers. In interviews with Company staff, some of whom came directly from the CAA community, it was stated that the Company is working closely with the Oregon Conservation Advisory Group (CAG) to "better understand the capacity of WAP to serve Cascade homes and evaluate strategies designed to increase the level of participation in the program, either through modifications to the program measures, incentives, or delivery approach" (Cascade's 2008 IRP, page 28). The close working relationship between the Company and the CAA community was confirmed during an interview with a CAA agency representative.

4.1.5 Other Factors That May Affect Conservation Savings

Grants received by State and local governments as a result of ARRA funding may have increased public awareness and may have resulted in greater participation in the ETO's programs during this time period. WAP funding also significantly increased in the past year. At the State level, there may be additional tax incentives available for conservation investments (refer to the list of other conservation programs in Appendix E).

Finally, factors reported by customers in the survey as influencing their gas usage and conservation decisions include the costs of natural gas and the weather. Although not identified in the evaluation from the data collected, the economy has also had a significant effect on conservation and usage behaviors in other areas of the country.

4.2 Mechanism's Impact on Company Conservation Behavior

Black & Veatch also examined whether decoupling has led to higher levels of spending by the Company on marketing and outreach to customers, more messages and educational materials for customers related to the benefits of conservation, and processes put into place to facilitate customers' participation in the conservation programs. This outcome is documented above as having indeed occurred. Further, Cascade indicated having devoted considerable time and effort prior to the launch of decoupling on "internal marketing" (e.g., informing employees and stakeholders, such as Community Based Organizations) about decoupling, how it affects the way conservation impacts the Company's bottom line, and how the Company would now be in a position to actively promote conservation as a positive initiative for customers and the Company. Extensive training took place with all customer contact staff regarding the ETO's new role in delivering

[11] Cascade's 2008 IRP, page 28.

conservation programs, the content of the programs, and how customers can take advantage of them. In this regard, it is clear that decoupling succeeded in eliminating the corporate barriers to Cascade's active promotion of conservation.

Another outcome of decoupling that Black & Veatch investigated was the existence of any positive expressions from Company management and staff concerning the elimination of disincentives to conservation behaviors, and acknowledgements of support for such programs.

4.2.1 Marketing and Outreach Levels

Based on our Company and stakeholder interviews, it appears there is wide concurrence that decoupling as a cost recovery mechanism has had a positive effect on eliminating the Company's disincentive for encouraging conservation behavior. One would therefore expect that marketing and outreach for programs would increase, resulting in increased levels of customer participation. One way to gauge this is to look at spending levels during the two time periods. Cascade does not disaggregate its conservation budgets into categories for marketing and outreach, and was thus unable to provide data on the amount of funds expended on conservation program marketing and outreach before and after the implementation of decoupling. However, interviews with Cascade management and staff personnel, and the range and content of print materials reviewed, supports the conclusion that the number, frequency, and content of marketing and outreach had increased significantly after the implementation of decoupling. The participation numbers show that the messages and outreach by Cascade in collaboration with the ETO are working to increase participation levels among both the Company's residential and C/I customers.

Cascade representatives reported that the Company did limited advertising prior to the implementation of decoupling with the exception of bill stuffers focused on the existing customer base (i.e., not load growth oriented). The Company did have some communications with appliance dealers regarding conversions and new customers to encourage they utilized Cascade's conservation programs.

The Company eliminated its Marketing Department in 2005 as part of a reduction in its staffing levels. The Company was experiencing significant growth and believed that additional marketing was not required. "You are better off with direct use, (gas heat, etc.)" was the tag line for one campaign, but the Company also recommended that customers choose high-efficiency units.

Company messaging in 2004 and 2005 showed higher dollars for equipment rebates. It also revolved more around savings and keeping the home warm whereas some later messaging encouraged people to make other improvements (e.g., insulation versus new water heater), to "go tankless", or to track their energy usage on-line. Messages since 2006 were more focused on the ETO programs and were produced largely in collaboration between Cascade and the ETO.

Company information was provided to Black & Veatch that lists 53 separate marketing collaborations that took place from July 2006 to December 2009 between Cascade and the ETO promoting conservation messages and programs. The level of post-decoupling communications is clearly significant and covers a wide range of programs, educational materials, contests, and other communications related to conservation activity.

No evaluation has been done by the Company or was provided to Black & Veatch regarding the effects of the conservation education and marketing initiatives on customer actions taken or behavioral changes.

Even though Cascade was removed from having direct responsibility for program implementation, the Company clearly has aggressively promoted conservation programs, trained internal staff, and directed customers to the ETO. However, in spite of the high degree of collaboration on print and other media, a few concerns were expressed by Company representatives about the ETO's outreach efforts, including:

- The effectiveness of the ETO's outreach efforts within Company's rural service territory still needs to be improved.
- The ETO has only recently developed a substantive trade ally program in Cascade's service area. ETO representatives stated that they expect that significant increases in savings among Cascade's customers will occur in the next couple of years, now that a more significant contractor network has been established in eastern Oregon.
- The ETO offered slightly different conservation programs to Cascade's customers than what had been available from Cascade.
- The ETO's programs did not adequately address the small manufacturing sector that dominates Cascade's C/I customer base.
- Sponsoring utilities, including CNGC, continue to push for more influence on the ETO's programs and marketing efforts.
- The Company is concerned with the ETO's decreased focus on equipment rebates in favor of behavioral programs (e.g., the ETO is reducing its furnace rebate program to focus only on limited income and multi-family residences) because, according to Company representatives, the ETO believes that portions of the market for these types of programs is saturated. The Company does not believe that this is the case in its service area given the ETO's historical focus on urban areas. The Company would prefer that the ETO remain focused on equipment rebate programs because it believes that the therm savings from these programs are more reliable.
- The Company also noted frustration over the fact that it cannot obtain information from the ETO regarding which of Cascade's customer have participated in the ETO's conservation programs, and which programs they have participated in, in large part due to problems with accessing data from the ETO's data base. ETO representatives expressed similar frustrations and noted that efforts are underway between the ETO, utilities, and the Commission to address deficiencies in the current data sharing procedures.

Cascade has actively monitored ETO's delivery of services to its customers and reports having participated in forums, as well as communicating directly with the ETO about its concerns over ETO's lack of adequate attention to its more rural eastern Oregon customer base with programs that are tailored to the Company's customers. Similarly, the ETO had lagged in its training and recruiting of contractors in the eastern portion of Oregon, and in its development and delivery of programs relevant to Cascade's smaller manufacturing customers, as its existing C/I programs are more targeted to urban commercial customers.

ETO's Oregon Residential Customer Awareness and Perceptions Survey acknowledged some of these findings regarding the lack of effective marketing and outreach to eastern Oregon region customers, which includes Cascade's service territory. A recommendation was made in the report that the ETO better target these customers, who were generally characterized as "less receptive to energy efficiency," with messages by "increasing their awareness of the benefits of taking energy efficiency actions and by targeting low-cost/no-cost actions that could have immediate effects" (i.e., the value proposition versus the green proposition which is more popular in the urban centers). Cascade representatives reported that the Company continues to work

with the ETO at addressing these needs, which is further evidence of the Company's more aggressive attitude at encouraging conservation activity.

4.2.2 Organizational Changes

According to Cascade representatives, the Company did not have a conservation-dedicated staff position prior to the implementation of decoupling. Two staff members in its Rate Group shared the conservation activities as part of the Group's other duties. The Rate and Conservation Analyst position is now a dedicated position.

The Company created a Conservation Department in 2006. Efforts in this regard started even before the Company received regulatory approval of its decoupling mechanism. The Company knew that conservation was going to require a greater internal focus, but also knew that it would not be adding a significant number of staff since the ETO was taking over the administration of its programs. The Company also has customer relations and field facilitation people who support its conservation programs.

A Rate Conservation Analyst was added to the Conservation Department in January 2007 and the Company's original low income program manager was transferred and became Manager of the Conservation Department in June 2008. Today, there are three staff members in the Company's Conservation Department: Conservation Director, Conservation Administrator, and Low Income Conservation Administrator.

Related to this issue is the Company's acquisition by MDU, which was noted by some stakeholders as having more influence on the Company's culture than the existence of its decoupling mechanism. One stakeholder noted that the Company has become more risk averse, which affects the ability of the ETO to target specific customers due to privacy concerns. The other factor regarding organization noted by one stakeholder is the need for better clarity regarding decision making within the Company, and which decisions can be made locally versus seeking approval from the parent company.

4.2.3 Employee Attitudes

The effect of decoupling on Cascade as a company differs from its effect on customers in two ways. For customers, the effect is indirect and clouded by the effect of the ETO taking over program delivery. For Cascade' employees, the effect is direct because they were specifically made aware of decoupling and its benefits to the Company. So while the positive responses of customers to conservation efforts cannot be directly credited to decoupling or separated out from the switch to the ETO, the reaction of employees to decoupling is distinct from the switch to the ETO.

Decoupling clearly has had a direct and positive effect on Cascade's embracing of conservation as evidenced by the involvement and messages of employees from senior management as well as Company staff. The staff's understanding and support of conservation is apparent and consistent based on the evidence we have collected. The effect of decoupling on the Company's actions and attitudes is evident in interviews with Company staff, and confirmed in interviews with stakeholders.

Company management personnel stated that the task of ramping up to deliver more conservation programs was daunting given the limited staffing and experience of the Company, so the transfer of program responsibility to the ETO was seen as a welcome and logical decision. The ETO's extensive experience and existing suite of program offerings were also mentioned as positive reasons to transfer the programs to the ETO.

Company representatives did state, however, that they have a concern that Cascade's customers have been underserved by the ETO. The data show that Cascade's customers, in fact, are participating at the same average levels as other utility customers (7 percent average), so this perception was not supported by the data. Even so, the ETO survey did identify eastern Oregonians as being less receptive to energy efficiency messaging promoted by the ETO to date, and there was an acknowledgement in interviews that more could be done. At the same time, Cascade staff members were unanimously supportive of the ETO staff, and indicated that their interactions and responsiveness were positive and improving over time. However, there was still a Company view that the ETO's experience and focus to date has been on urban and suburban consumers and businesses. Interviews with ETO staff confirmed that this was the case originally, but that steps are being taken to better address the needs of Cascade and the different characteristics and needs of its customers for conservation services.

4.2.4 Oregon-Focused Conservation-Oriented Organizations Joined by the Company and Public Appearances

Cascade became a member of the following organizations after the approval and implementation of its decoupling mechanism:

- Member of the Oregon Low Income Advisory Committee (member since May 2006)
- Member of the ETO's Conservation Advisory Council (began participating in November 2006, officially joined the Council in 2007)
- Member of Consortium for Energy Efficiency (member since 2007)
- Participant in meetings and discussions held by the Oregon Energy Coordinators Association (OECA) (participant since 2008)
- Participant in meetings of the Advisory Committee on Energy (ACE) (participant since 2008)

In addition to participation in these organizations, Company representatives have made a number of public appearances in the past couple of years related to the Company's conservation activities, as shown in Table 4-8. In addition to these public appearances, Cascade staff members interact on a regular basis with the ETO, given the ETO's role as the implementer of the Company's conservation programs. This interaction includes attending regular meetings with ETO staff, participation in the ETO's Conservation Advisory Council and Utility Roundtable, and participation in other ETO meetings as appropriate. Additionally, one of the three staff members in the Company's Conservation Department is located in Oregon and interacts frequently with CAAs in addition to the ETO.

Table 4-8
Public Appearances and Statements Related to Conservation Made by Company Representatives

Date	Public Appearances
February 10, 2010	Presentation at Kiwanis in Burlington, Washington to discuss the Company's conservation programs and affirmed the Company's commitment to conservation.
February 4, 2010	National DOE webinar, "The Community Energy Challenge in Whatcom County, Washington." Affirmed the Company's commitment to conservation and strong desire to partner with the energy efficiency community on regional events and initiatives encouraging conservation.
September 26, 2009 (ongoing)	Sponsored and provided pro-conservation messaging and public service announcement (PSA) in support of the "Greenest House" reality show filmed in Bellingham, Washington.
August 18, 2009	Discussion regarding CNGC's conservation programs and commitment to conservation with the Skagit Council of Governments, Washington.
April 22, 2009	Presentation on CIP and low-cost, no-cost conservation measures to Lockheed Martin staff residing near Bremerton Naval Base, Washington.
October 2008	Participated in Purchased Gas Adjustment meeting in Salem Oregon, which included a discussion regarding the Company's conservation programs.
July 2008	Participated in Natural Gas Outlook public meeting in Salem, Oregon, and the Company encouraged customers to take advantage of conservation programs to reduce the impact of the anticipated increase in gas costs.
June 2008	Presented at WAP conference to affirm Company's commitment to LI-WAP and conservation.

4.3 ETO Delivery of Programs

As noted earlier, the ETO assumed responsibility for the delivery of Cascade's conservation programs in May 2006. ETO's 2010 budget includes a significant increase for Cascade's service area according to information obtained during Black & Veatch's interview with ETO representatives, reflecting an increase in its plans to address issues cited elsewhere in this report. The ETO representatives interviewed stated that this budget increase will result in savings more commensurate with the level of the Company's funding of conservation programs.

During Black & Veatch's interviews with Company and stakeholder representatives, we received both positive and negative comments regarding the ETO's conservation efforts. First, the positive comments focused on the ETO's experience in delivering conservation programs, and the fact that they had existing programs in place that could be quickly transferred to Cascade. This approach of having Cascade utilize a statewide program implementation agency addresses the fact that Cascade is small and limited in staff resources. One stakeholder stated that Cascade's decision to use the ETO to deliver conservation programs has allowed it to leverage its offerings in terms of programs offered, delivery mechanisms used, and best

practices.[12] Another stakeholder noted that the ETO's delivery of conservation programs, on behalf of Cascade, is much more cost-effective than the Company attempting to implement conservation programs on its own, given that: 1) ETO has established a successful track record; 2) it is able to provide both electric and natural gas programs at the same time; and 3) ETO is able to provide programs and a level of sophistication that CNGC cannot provide due to its size.

The negative comments relate primarily to limitations in the ETO's outreach efforts within the Company's service territory to date, its governance structure and responsiveness to gas company needs, and its branding being seen at times as competing with its utility sponsors.

The following observations can be made concerning the transition to the ETO's programs based on Black & Veatch's interviews:

1. The Cascade and ETO rebate levels were different in many cases, with the ETO's current rebates being generally lower than those that had been offered by Cascade.[13] Cascade indicated it covered the higher rebate payments through a transition phase so as to maintain customer satisfaction.
2. Cascade's low income and weatherization programs delivered through CAAs were fully funded and provided comprehensive weatherization services to low income customers on behalf of the Company at no cost to participants. Cascade also provided insulation rebates to other residential customers. ETO's comparable programs provide rebates for specific measures and equipment instead and thus may result in customers having to cover the balance of project costs.
3. Cascade has offered programs to its C/I customers since November 2005, but there was minimal customer participation prior to the transfer to the ETO in 2006. The ETO programs represent a continued focus by the Company on ensuring that conservation options are available for its C/I customers.

In addition to the ETO programs, Cascade's customers may also be able to participate in other conservation programs offered by their electric service providers, the State of Oregon, or federal agencies. These programs are listed in Appendix E. While Black & Veatch has no program records related to participation by Cascade's customers in these programs, questions on the customer surveys provided some information about the types and sponsorship of programs customers have participated in during the evaluation period.

There are no utility representatives on the ETO Board. Company representatives do not believe that the ETO views itself as an implementation vendor to the utilities, and the contract does not adequately protect utility interests when compared to contracts that would be more typical of an implementation vendor delivering programs for a utility. The struggle that the utilities have had in obtaining any level of participation at the ETO Board level is significant. The ETO was created by the State Legislature and the electric utilities, but was joined voluntarily at a later time by the gas companies. Thus, while it is generally perceived as a positive

[12] It should be noted that Cascade is obligated to use a third-party implementer for its programs, but it does not have to use the ETO. The decision by Cascade to participate in the ETO's programs was considered as the most advantageous for the Company at the time.

[13] Company interview: "Equipment rebate programs and rebate levels were somewhat different (e.g., ETO's levels were lower and efficiency levels were higher). The Company did not want customers to be caught in the middle. The ETO took over after July 1, 2006, but Cascade processed its higher customer rebates for about three months after that."

opportunity for Cascade to have programs delivered on a cost-effective basis to its customers, there remain issues concerning the relationship and value of service rendered by the ETO.

One stakeholder stated that there could be better communication between the ETO and the utilities, and noted that the Utility Roundtable that is being implemented is one approach to improving communications. This stakeholder further stated that the ETO should offer more gas programs and it should have a better understanding of what is occurring in the gas commodity market, noting that gas utilities are more directly impacted by commodity prices than are electric utilities.

Cascade has also been concerned recently about the ETO's promotion of its own brand rather than acknowledging Cascade as a sponsor. Even so, Cascade indicated that its staff works well with the ETO staff, and have worked with them prior to the ETO taking over the Company's conservation programs. The Company is able to express its concerns about receiving an adequate return on the Company's investment in the ETO and that it may not be receiving full value (e.g., trade ally trainings not being convenient to the Cascade service territory). C/I vendors may be more aware of opportunities than residential trade allies since they serve a larger market and can more easily access the ETO training programs.

Another issue regarding the ETO efforts relates to a lack of attention to small manufacturing customers, who predominate in Cascade's industrial sector. The Company's industrial sales customers are eligible to participate in programs delivered by the ETO due to former equity issues. The ETO always was supposed to focus on industrial sales customers, but it was expressed by Company representatives that it has not done so for either Cascade or NWNG. ETO representatives indicated that the ETO has plans to increase its focus on industrial customers over the next few years to rectify this situation.

4.4 Potential Additional Programs

According to Black & Veatch's interviews with ETO staff, the ETO expects that significant increases in savings among Cascade's customers will occur in the next few years, now that a more significant contractor network has been established in eastern Oregon.

Cascade's 2008 IRP refers to a conservation potential analysis that estimates the technical potential associated with cost-effective conservation measures to be approximately 24 million therms in Oregon over the IRP's 20-year planning horizon. The study points to a list of measures that all show reasonable $/therm savings potential, when evaluated on a levelized basis. The conservation measures listed as being the most cost-effective include: (Cascade's 2008 IRP, Table 5-3, page 35)

- Residential Measures
  - AFUE 90 to hydrocoil combo, Z1 and Z2
  - Tank upgrade (50 gallon gas) high-efficiency alternative and new
  - Adding wall insulation
  - Heating upgrade (AFUE 90)
- C/I Measures
  - High-efficiency cooking equipment (new and replacement)

These measures were shown to have the most favorable levelized cost per therm and were all below $0.20/therm installed.

The Company's IRP further identifies areas for future consideration that include the impacts associated with modifications to building codes together with the cost-effectiveness of newer technologies, such as the next generation of high-efficiency water heaters (0.70 efficiency factor) and high-efficiency hybrid heat pumps. The applicability of these measures within Cascade's service territory will be analyzed for potential future incorporation into the Company's conservation program filings.

Aside from which specific measures are feasible, the participation data suggest that the ETO should focus more attention on achieving more comprehensive savings per participant in the residential sector. The level of savings per household participant since the ETO took over suggests that there is significantly more that can be done to achieve higher therm savings per household, at least back to the levels achieved by Cascade prior to 2006. Thus a refocus on comprehensive delivery and less focus on distribution of energy kits would seem called for based on the data.

In terms of new potential conservation initiatives, ETO representatives reported that they would like to see Cascade increase its on-bill financing program to include a level of payment that is linked to energy savings. While the electric utilities are required to do this, it is optional for gas utilities. The ETO would also like to increase the leveraging of Cascade's key account management and government affairs personnel to obtain greater exposure to community groups for conservation outreach purposes. Finally, the ETO would like to increase the number of jointly sponsored presentations made to the community by its staff and Cascade's staff.

The industry experience with on-bill financing programs is mixed. However, other tools do exist that may provide useful information to Cascade customers to help them save energy as well as direct them to existing programs. For example, on-line energy audits and comparative bill products, such as those that provide a customer's consumption data compared to a control group of neighbors' performance, are all gaining popularity as tools to help encourage behavioral changes as well as better direct customers to programs.

The question was posed, "Will decoupling help encourage the continuation of conservation efforts regardless of the fluctuations in the cost of gas?" This evaluation produced no evidence to be able to address this question, as it is speculative. The continuation of Company-sponsored conservation efforts is a matter of regulatory and legislative directive in Oregon at this time and is not associated with the price of energy. That being said, the relationship between the cost of gas and customer conservation efforts is being investigated by Cascade. The Company's 2008 IRP indicates that the "Company continues to explore the incorporation of price elasticity in its future forecasts of demand. The integration of this variable in future demand forecasting models will be dependent upon the practicality of its application and significance of its effect." (Cascade's 2008 IRP, p. 82)

4.5 Additional Information Based on Customer Survey Responses

This subsection provides additional information collected from the residential and C/I customer surveys conducted by Black & Veatch as part of this evaluation dealing with topics other than participation levels and customer awareness of the Company's conservation programs.

4.5.1 Number of Conservation Programs Offered and Potential Savings

As shown in Table 4-9, there is positive agreement among the Company's residential and C/I customers that more conservation programs are available than was the case four years ago, and that participation in these programs would help reduce natural gas bills. However, other survey statements received mixed results from customers indicating that messages are either not being communicated adequately or are not accepted by these groups.

Table 4-9
Customer Survey Results – Number of Conservation Programs Offered and Potential Savings

On a scale of 1 to 5 where 1 = "Completely Disagree" and 5 = "Completely Agree," please rate your level of agreement with the following statements		
	Residential Responses	**C/I Responses**
Cascade Natural Gas makes it easier for me to implement conservation measures in my home/business.	2.93	2.91
I am penalized for or get no benefit from implementing energy efficiency improvements in my home/business.	2.30	2.71
The upfront cost of installing energy efficiency improvements outweighs the benefits.	2.95	3.10
Participating in Cascade Natural Gas-sponsored energy efficiency programs will help lower my natural gas bill.	3.50	3.57
Participating in Cascade Natural Gas-sponsored energy efficiency programs can help lower my natural gas usage and lower the amount of my natural gas bill.	3.61	3.64
I would pay more for a higher efficiency natural gas appliance (equipment).	3.21	2.95
I have seen an increase in advertising about natural gas conservation compared to four years ago.	2.93	3.80
There are more programs available to help me reduce natural gas usage in my home compared to four years ago.	3.50	3.62

4.5.2 Impact on Customer Service Ratings

According to satisfaction reports provided by Cascade, residential customer satisfaction levels decreased from 4.5 in 2006 to 4.4 in 2007. Overall customer service ratings increased and then remained the same between 2008 and 2009. Both years had targeted goals of 4.5 on a 5 point scale of satisfaction. The cumulative average for all questions over the course of both years was 4.61.

Black & Veatch's customer surveys asked about customers' perceptions regarding the quality of service received from Cascade post decoupling, and satisfaction with Cascade. The results, shown in Table 4-10, indicate that the majority of customers believe that quality of service has remained the same, but 15 percent of the Company's residential customers and 17 percent of its C/I customers believe it has improved either slightly or significantly. Mean satisfaction scores are also quite positive at 8.05 and 7.72 (on a ten point scale), for residential and C/I customers, respectively. There was no statistically significant difference in the reported level of customer satisfaction between participants and non-participants.

Table 4-10
Customer Survey Results – Quality of Service

"Since 2006, do you think the quality of service from Cascade Natural Gas has improved significantly, slightly improved, remained the same or gotten worse?"		
	Residential Responses (%)	**C/I Responses (%)**
Improved significantly	5.9%	3.0%
Improved slightly	8.9%	14.0%
Remained the same	81.7%	78.0%
Gotten worse	3.5%	5.0%
"How satisfied are you with the service you receive from Cascade Natural Gas?"		
	Mean Score	**Mean Score**
Mean score on a 10 point scale with 10 = Very satisfied	8.0	7.7

4.5.3 Motivations for Conserving or Choosing Natural Gas

There is no evidence to suggest that the Company's decoupling mechanism has had any direct effect on customer motivations to either use or conserve natural gas, although it has clearly reduced the Company's disincentive to advance cost-effective conservation programs. Rather, the price of natural gas and the weather appear to be key motivators of customers' gas usage. The customer surveys asked respondents about the level of importance of various factors in encouraging conservation behaviors and gas usage; Figures 4-4 and 4-5 show the results.

Figure 4-4
Customer Survey Results – Factors That Impact Amount of Gas Used by Residential Customers

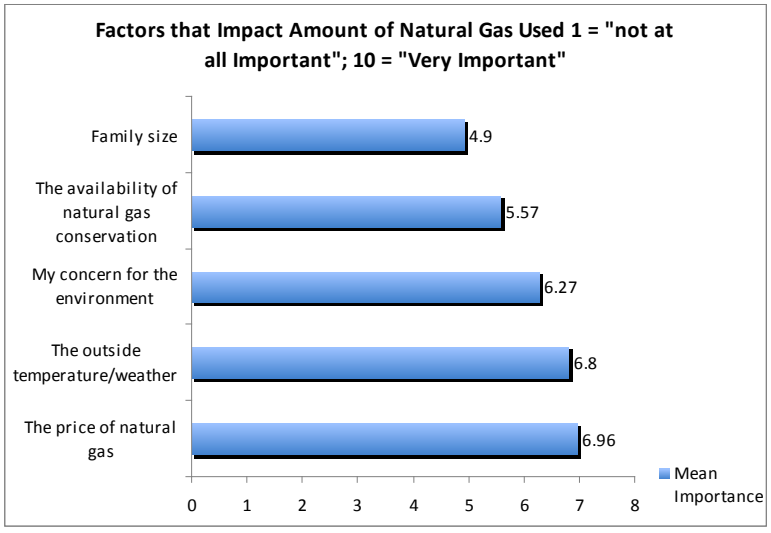
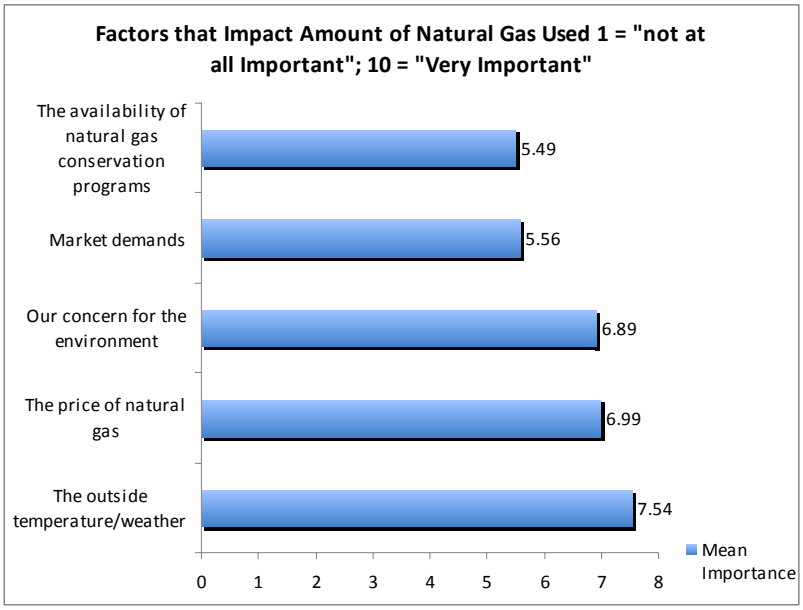


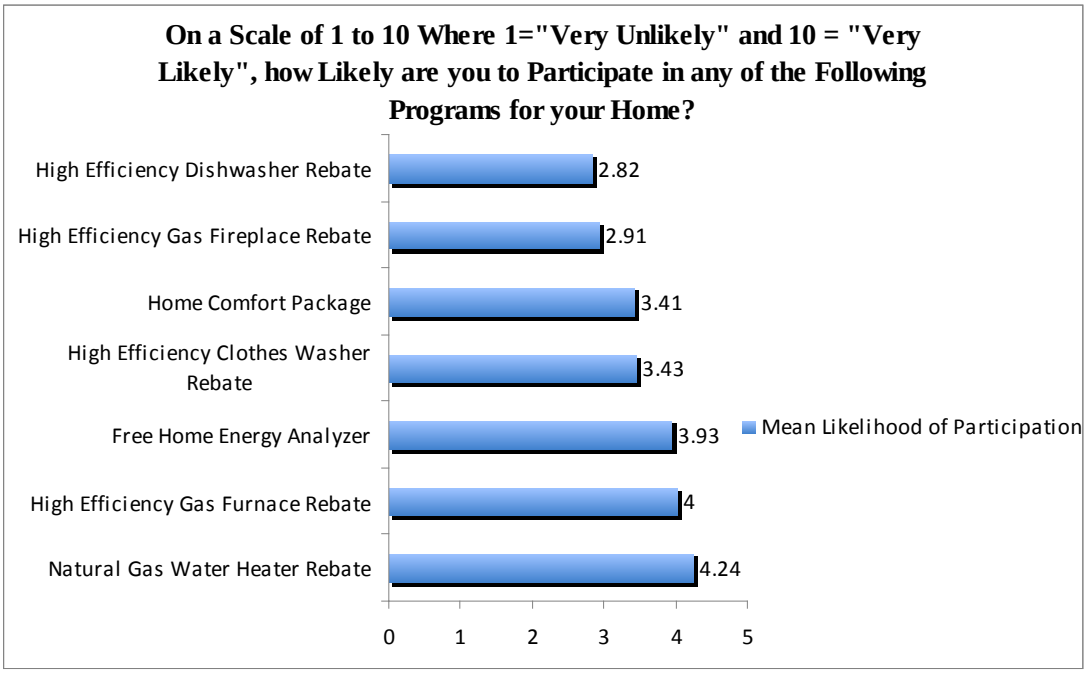
Figure 4-5
Customer Survey Results – Factors That Impact Amount of Gas Used by C/I Customers



4.5.4 Sales of Energy Efficient Appliances

Black & Veatch's evaluation did not include obtaining sales data in the Company's service area related efficient appliances. Data on participation in appliance programs discussed earlier provides an indication of high-efficiency appliance purchases before and after the implementation of decoupling. In addition, customers responding to the survey indicated their future intentions regarding taking conservation actions. Respondents were also asked to indicate their intentions to participate in conservation programs in the future, several of which include the purchase of high efficient gas appliances. The answers are summarized in Figure 4-6 below.

Figure 4-6
Customer Survey Results – Likelihood of Participating in Residential Programs



These findings in Figure 4-6 show that, on average, respondents are most interested in natural gas water heater upgrades but that, in all cases, the mean likelihood of participation fell below a score of 5, which would be neutral. This suggests that Cascade's customers are on balance relatively conservative in their intentions toward conservation investments, as compared to their more urban counterparts based on a review of other surveys.

4.6 Conclusions

Black & Veatch reviewed qualitative and quantitative data from interviews and program records to determine if there have been higher levels of program awareness and program participation since the implementation of the Company's decoupling mechanism, and higher levels of therm savings per participant. Most of those interviewed in this evaluation felt that customer conservation activity had increased since the decoupling pilot was implemented. These anecdotal responses are supported by the data provided to Black & Veatch. Based on a review of the available data on CNGC customer participation rates, it is clear that participation levels increased significantly during the time after the decoupling mechanism was implemented, suggesting that this ratemaking solution has had a measurable effect on participation in conservation programs by Cascade's customers.

Of the 202 CNGC residential customers surveyed, 10 percent report having participated in natural gas conservation programs. For the non-residential sector, of the 100 customers surveyed, the participation rate was reported at 12 percent (e.g., HVAC and insulation rebates).

Survey results indicate that customer awareness remains quite low among both segments of population served by Cascade (i.e., households and businesses), confirming concerns on the part of Cascade that the ETO's marketing and outreach efforts to date have not been sufficient.

Participation in conservation programs by Cascade's residential customers steadily increased during the evaluation period. The C/I data do not show as clear a pattern, as no programs were available to this sector prior to decoupling, and the data do not show an increasing trend. In total, conservation activity has increased, coincident with the advent of decoupling in the Company's service area. Consistent with the increase in Cascade customer participation in conservation programs, the Company's conservation-related expenditures have increased during the evaluation period. As conservation results in lower energy usage, the increased savings resulting from the Company's conservation programs have a direct positive impact on the environment.

Total therm savings has increased significantly during the evaluation period, although savings per participant levels have decreased and total savings have fallen short of the targets established in the Company's 2008 IRP although the total savings in 2009 were approximately 88 percent higher than in 2008. The short-fall in 2009 is most likely the result of the economic downturn resulting in customers not having the available funds to spend on discretionary measures. Other factors, such as code changes and the impact of the recession on new construction may also be responsible for lower customer participation. Furthermore, the amount of therms saved per participant among the low income sector dropped in half between 2006 and 2007, and has remained at that level ever since. It should be noted that the Company began using the deemed savings approach to estimating savings in 2006, similar to the methodology used in NWNG's conservation programs, whereas prior estimates were taken from REM/Rate audit results. This change in estimating methodology may have also impacted the level of reported savings.

Black & Veatch also examined whether decoupling has led to higher levels of spending by the Company on marketing and outreach to customers, more messages and educational materials for customers related to the benefits of conservation, and processes put into place to facilitate customers' participation in programs. This outcome is documented above as having indeed occurred. However, in spite of the high degree of collaboration between the Company and the ETO on print and other media, a few concerns were expressed by the Company about the effectiveness of the ETO's outreach efforts.

Prior to the implementation of the decoupling mechanism, the Company did not have a conservation-dedicated staff position. Since then, the Company created a Conservation Department in 2006. Today, there are three staff members in the Company's Conservation Department including its Director.

Decoupling clearly has had a direct and positive effect on Cascade's embracing of conservation as evidenced by the involvement and messages of employees from senior management as well as Company staff. The staff's understanding and support of conservation is apparent and consistent based on the evidence we have collected. Furthermore, since the implementation of the decoupling mechanism, the Company has joined and participates in a number of conservation-oriented organizations.

During Black & Veatch's interviews with Company and stakeholder representatives, we received both positive and negative comments regarding the ETO's conservation efforts. First, the positive comments focused on the ETO's experience and cost-effectiveness in delivering its programs, and the fact that they have existing programs in place that could be quickly transferred to Cascade. This approach of having Cascade

utilize a statewide program implementation agency addresses the fact that Cascade is small and limited in staffing resources. The negative comments relate primarily to limitations in the ETO's outreach efforts within the Company's service territory to date, its governance structure and responsiveness to gas company needs.

Cascade's 2008 IRP refers to a conservation potential analysis that indicates that over the IRP's 20-year planning horizon the technical potential associated with cost-effective conservation measures to be approximately 24 million therms in Oregon. As a result, significant additional conservation potential exists in the Company's Oregon service territory.

According to reports provided by Cascade, residential customer satisfaction levels decreased from 4.5 in 2006 to 4.4 in 2007. Overall customer service ratings increased and then remained the same between 2008 and 2009. Black & Veatch's customer surveys asked about customers' perceptions regarding the quality of service received from Cascade post decoupling indicate that the majority of customers believe that quality of service has remained the same, but 15 percent of the Company's residential customers and 17 percent of its C/I customers believe it has improved either slightly or significantly. There was no statistically significant difference in the reported level of customer satisfaction between participants and non-participants.

5.0 RECOMMENDATIONS

The purpose of this section is to provide Black & Veatch's recommendations resulting from its evaluation.

5.1 Decoupling Mechanism Structure

1. The Company's decoupling mechanism should be made permanent. Furthermore, the decoupling rate adjustments should continue to apply only to the Company's residential and general service rates—where there is both significant heat sensitive load and the availability of targeted conservation programs. At the same time, some potential modifications to the Company's decoupling mechanism, as described below, should be considered for implementation in the Company's next rate case filing.
2. Review and revise the use per HDD factors utilized in the Company's weather normalization equations and factors in its next rate case. Given the impact of conservation programs, natural gas appliance replacements, differential growth rates by sub-area of the Company's service territory, and the changing mix of customers, Black & Veatch believes that it is appropriate to recalibrate the Company's weather normalization models. As discussed in Section 3, the above factors can over time impact the manner in which weather affects the level of adjustments to customers' actual gas usage.
3. Eliminate the use of unbilled volumes in the monthly decoupling adjustment calculations since there is no demonstrated need to have such an adjustment reflected in CNGC's decoupling mechanism.
4. Analyze the Company's Rate 104 class to determine if splitting the class based on meter size and type (or other reasonable basis) would result in two or more sub-groups that exhibit more homogeneous load and cost characteristics. For the small commercial class of customers, it may be useful to divide the current class to more accurately analyze weather and conservation impacts. Currently, the class encompasses a broad range of customers that tend to impact average use differently. It is also reasonable to expect that the load characteristics of some of the larger customers differ from those of the typical or average customer. By segregating the commercial class into two sub-groups based on size, the marginal weather impacts may differ with smaller customers exhibiting characteristics similar to residential customers, and larger customers within the commercial class having their own load characteristics. For some utilities, rates do not distinguish between residential and small commercial customers. Rather, the small general service class includes both residential and commercial customers up to an annual usage threshold. The potential for improving the accuracy of weather and conservation information of by splitting the commercial class in this manner should be further evaluated.
5. An important issue in the operation of any utility revenue decoupling mechanism relates to the timing of the revenue adjustments necessary to recover the utility's fixed costs. Under the Company's decoupling mechanism, all lost revenues are deferred for recovery in the subsequent year's rates. The deferral and recovery aspect of the Company's CAP adjustments should, at a minimum, consider the real-time recovery of the weather adjustment component. Under real-time recovery, the weather component of the CAP adjustment would be added to each cycle bill. There are several advantages for both customers and the Company from this approach. When weather is colder than normal, the weather adjustment component helps reduce customer bills by partially offsetting the greater level of purchased gas costs associated with customers' higher gas usage. During warmer than normal cycles, customers pay slightly more for fixed delivery service, but have lower overall bills because of gas cost savings. The net result is the creation of more stable bills for consumers. The use of a real-time adjustment also eliminates issues of cross-subsidy because each customer is assessed a rate adjustment for the variation in revenues caused by the weather at approximately the same time at

which the variation occurred. When the weather adjustment is deferred for an extended period of time, future customers are assessed rate adjustments that reflect past revenue variations. As a result, there is a potential to exacerbate winter bills when a colder than normal season follows a warmer than normal season. In addition, given the weather differences for the three sub-areas of the CNGC service area, there is a possibility of cross-subsidy between areas with the deferral account that does not exist for real-time weather adjustments.

6. Consider other decoupling methods that reduce the impact on customers below the poverty level and target these customers for conservation programs designed to reduce average use per customer.
7. Consider the possible adoption of SFV rates as an alternative ratemaking method to achieve revenue decoupling for the Company. This ratemaking approach has been adopted in some states and is simple, cost-based, economically-efficient, and does not create any intra-class subsidies.

5.2 Conservation Programs

1. Although participation levels are high and increasing, the extent of awareness of the role of Cascade in the promotion of conservation remains low among residential customers.
2. Further, the next ETO Oregon Residential Awareness and Perception Study should sample by utility to achieve 95 percent / ±10 percent rather than at the regional level, so that accurate findings by utility sponsor can be obtained. The data should also then be reported by utility sponsor so that the ETO and the sponsors can determine whether their customers are being adequately served. Although ETO staff question the cost-effectiveness of increasing the number of awareness survey participants in Cascade's service territory, and has raised issues regarding the value of using awareness surveys as an indicator of participation or satisfaction with participation, Black & Veatch believes that such surveys remain a widely accepted evaluation tool and that a larger sample size would provide data for the Company's service territory at the same level of precision as other sponsoring utilities.
3. The ETO's mailing of energy kits to the Company's customers drove the average residential therm savings numbers per participant down in 2009. Black & Veatch believes that the ETO should refocus its efforts of delivering programs that generate higher savings impacts per participant.
4. The ETO's recommendation that its furnace replacement program be refocused because portions of the market have been saturated is not relevant to Cascade, which has significant additional furnace-related conservation potential within its service area. Black & Veatch believes that the ETO's furnace rebate program should continue to be offered to all Cascade's residential customers.
5. Behavior-based programs are a new trend in the conservation community. While there are several promising new tools (e.g., on-line audits, bill disaggregation, etc.), this next generation of programs may be more relevant for highly energy efficient market segments such as other areas that are being served by the ETO (i.e., the Portland area). It would be of considerable concern if behavior-based programs were to replace or even dominate the portfolio in Cascade's service territory given the remaining opportunities for equipment-based and comprehensive weatherization programs.

APPENDIX A
EVALUATION PLAN

Evaluation Plan

	Question	Report Section References
Mechanism Structure and Design		
1	How well has the Company's decoupling mechanism removed the disincentive to promote energy efficiency (EE)?	1.1.1 3.3.1 3.4
2	a. What customer classes were included within the scope of the decoupling mechanism? b. What other core customer classes belong in this mechanism?	1.0 1.1.1 3.1.1 3.2.6 3.4
3	Was it necessary due to the magnitude of deferrals amortized to extend the amortization period to lessen impact on customers?	1.1.1 3.2.1 3.4
4	Are there aspects of the Company's decoupling mechanism that the evaluator would recommend be reexamined in light of alternative models or best practices?	1.1.1 1.2.1 3.1.2 3.2.2 3.2.4 3.4 5.1
5	Did the mechanics of the decoupling mechanism accurately carry out the provisions of the Specified Parties and the Commission as expressed Order 06-191?	1.1.1 3.1.1 3.4
6	To what extent did the decoupling mechanism remove the relationship between the utility's sales and profits?	1.1.1 3.3.1 3.4
7	To what extent did the decoupling mechanism mitigate the utility's disincentive to promote EE?	1.1.1 3.3.1 3.4
8	What are the primary drivers of fluctuations in use within CNGC's service territory? How has this changed since decoupling?	3.1.2 3.2.1
9	Have any unanticipated disincentives been created through decoupling?	1.1.1 3.4
10	Should fixed cost rate impacts be immediately tied to the events that caused them? Should adjustments be seen annually or monthly?	1.1.1 3.4
11	Was the decoupling mechanism fair to both CNGC customers and the Company?	1.1.1 3.2.1 3.2.2 3.3.1 3.4
Customer Impacts		
A) General Customer Impact		

	Question	Report Section References
1	What percentage of customers are now participating in DSM activities? What was the percentage before decoupling?	1.1.2 4.1.1 4.1.2 4.1.3 4.6
2	Have CNGC customers had reasonable protection from wild rate swings or "rate shock" as a result of the decoupling mechanism? In what ways has CNGC's program assured customers are not penalized or feel a disincentive for undertaking EE improvements?	1.1.1 3.2.1 3.2.4 3.4
3	What has been the impact of CNGC's decoupling mechanism on customer bills/rates? Were rate increases allocated fairly across all relevant customer classes? How would this have looked shared across all available rate schedules?	1.1.1 3.2.1 3.4
4	Have customers received an economic penalty for conservation via a surcharge in rate if/when consumption fell below the expected level?	3.2.4
5	Has CNGC's decoupling mechanism helped create or maintain the customer incentive for efficient use of gas?	3.2.3 4.1.3 4.5.1 4.5.3
6	Was there any discernable effect on service quality due to the existence of the mechanism?	1.1.2 4.5.2 4.6
7	Overall, have the associated rate adjustments of decoupling been harmful, beneficial, or neutral to customers? Consider all changes that would not have normally occurred under the traditional ratemaking system.	1.1.1 3.2.1 3.4 4.5.3
8	Has Cascade's billing system adequately adjusted to decoupling and minimized customer inconvenience/confusion?	3.1.2
9	How has decoupling affected the Company's relationship with its customers? Are there safeguards in place to ensure customers are credited/charged the correct share of the revenue adjustment?	1.1.1 1.1.2 3.4 4.5.1 4.5.2 4.6
10	What are the major drivers for changes in therm usage for our customers?	3.2.1 3.2.2 3.2.3 4.1.2 4.5.3
11	What comments (both positive and negative) have been collected regarding conservation efforts performed through the Energy Trust of Oregon in the past three years?	1.1.1 1.1.2 4.2.1 4.3 4.6

	Question	Report Section References
11a	Has there been any change in customer service ratings?	1.1.2 4.5.2 4.6
12	What impact, if any, did decoupling have on uncollectible, new hookups, and other actions?	3.2.5 3.2.6 3.2.7
13	Are customers not participating in DSM activities unfairly penalized through decoupling mechanism?	1.1.1 3.2.4 3.4
B) Low Income Impact		
1	Has decoupling resulted in a demonstrated shift (expansion or decrease) in the number of CNGC customers receiving bill assistance and weatherization services? If so, how?	4.1.4
2	What do Community Action Agencies report with regard to the value and capacity of CNGC to support and deliver weatherization and bill assist programs?	4.1.4
3	What proportion of total conservation measures and incentives offered by Cascade are distributed via CNGC's Low Income Conservation Program in Oregon?	4.1.4
4	Were there any changes in CNGC's avoided costs during the pilot period that may have contributed to any changes in customer participation and savings from company sponsored low income DSM programs?	3.2.6 4.5.3
4a.	Identify any other factors that may have contributed to an increase in low income DSM savings and expanded offerings.	1.1.1 4.1.4 4.1.5 4.6
5	What is the approximate cost experienced by a typical customer for funding of DSM programs and recovery of decoupling deferrals?	3.2.1
C) New Customers Impact		
1	Do new customers have a material impact on the fixed cost recovery for CNGC that could lead to over (or under) recovery of costs?	3.2.5 3.2.6
Company Impacts		
A) Corporate Culture Impacts		
1	What, if any, organizational changes resulted from CNGC's decoupling efforts?	1.1.2 4.2.2 4.6
2	What, if any, new or revised DSM-focused customer education and marketing was implemented during the pilot period? What were the primary messages and estimated costs? Any attributable therm savings?	4.2.1
2a.	Has there been a shift in advertising messages from load growth to conservation?	4.2.1
3	Did decoupling affect the incentive to promote new customer connections or fuel switching? If so, how?	3.2.5 3.2.6

	Question	Report Section References
4	How did CNGC employees and trade allies view the Company's behavior/commitment in regards to conservation?	4.2.1 4.2.3
5	What, if any, additional staff and subcontractor positions were added by the Company after decoupling?	1.1.1 4.2.2 4.6
6	Have any of Cascade's officers or staff been publicly quoted in conferences or other public events as a strong advocate for conservation?	4.2.4
7	What conservation-oriented organizations did CNGC join/belong to before and after decoupling?	4.2.4
B) Financial Impacts		
1	What, if any, effect did decoupling have on the utility's ability to recover its fixed costs?	1.1.1 3.1.2 3.3.1 3.4
2	What, if any, effect did decoupling have on business/financial risks?	1.1.1 3.3.2 3.4
3	Does decoupling materially reduce the risk associated with investment in a gas utility?	1.1.1 3.3.2 3.4
3a.	If yes, should magnitude be quantified or simply be "taken into consideration in setting ROE"?	1.1.1 3.3.2 3.4
4	Has decoupling had any effect on non-regulated CNGC business activities?	3.3.3
5	Did CNGC experience any unexpected changes in revenue flows during the pilot period (i.e., the result of random factors such as weather, natural gas prices, economic conditions, other)?	3.1.2 3.2.1
6	What was the size of the decoupling adjustment(s) made so far, by customer class and by percent of revenue?	3.2.1
Associated Conservation Efforts and Achievements		
1	Have DSM efforts resulting from decoupling been successful when compared to other efforts documented in recent studies of similar sized natural gas utilities in the Northwest?	4.1.1 4.1.2
2	What conservation services have been expanded since decoupling?	1.1.2 2.2 4.5.1 4.6
3	How many residential and commercial customers have received conservation assistance since launch of conservation efforts? Since launch of decoupling?	4.1.2 4.1.3
4	How much funding was invested in DSM prior to decoupling vs. during decoupling period?	1.1.2 4.1.2 4.6
5	Does the Energy Trust of Oregon believe DSM funding levels been adequate for effective implementation and performance standards?	4.3

	Question	Report Section References
6	What, if any, additional therm conservation strategies might be considered by the Company?	1.2.2 4.4 4.6 5.2
7	Do the current DSM program structure, funding, and practices provide optimal delivery?	1.2.2 4.6 5.2
Societal Impact and Benefits		
1	Has decoupling changed customer motivations for conserving or choosing natural gas? How so?	3.2.3 4.5.3
2	Can CNGC's decoupling be tied to a direct or indirect environmental benefit?	1.1.1 1.1.2 3.4 4.6
3	Has general awareness of the benefits of conservation and associated incentive program increased in our CNGC customers?	4.1.1 4.5.1 4.5.3
4	Will decoupling help encourage the continuation of conservation efforts regardless of fluctuations in the cost of gas?	1.2.2 4.4 5.2
5	Has there been an increase in sales of energy efficient appliances since Cascade began their DSM efforts?	4.5.4
6	What harm would be caused to the company, customers, and environment if decoupling was removed?	1.1.1 3.4
7	Was the decoupling pilot mechanism recognized in any public reports issued by credit rating agencies or financial analysts? Which ones and when?	3.3.2

APPENDIX B
DOCUMENTS REVIEWED

Documents Reviewed

Black & Veatch Data Requests

During the course of the project, Black & Veatch requested the following information from the Company. In some cases, the Company responded with specific information in direct response to the request and Black & Veatch reviewed that information. In other cases, the Company provided documents that contained the information requested; a list of these documents are provided after the list of data requests.

1-1. Please provide electronic copies of the following documents:

- All Commission orders issued related to the Conservation Alliance Plan (CAP).
- All compliance and informational filings with respect to the CAP including weather variance deferral account, conservation variance account adjustments, along with all supporting calculations and work papers.
- The August 15, 2005 PGA Application.
- Weather normalization reports including the Company's Spring Earnings Review Filings, PGA applications, and other weather normalized report submittals.
- A description of the weather normalization methodology used by the Company to the extent not included above.
- Annual financial reports and 10Ks for each of the previous five years.

1-2. Please provide copies of any filings or other written comments filed by stakeholders related to the CAP.

1-3. To the extent not provided in the above responses, please provide a list of the following on a monthly basis since the Company's CAP became effective:

- Margin revenue factors.
- Excesses and deficiencies in deferral accounts related to the CAP.
- Annual adjustment and true-up calculations as approved to the extent not covered above.
- Rate adjustments billed to customers by component if more than a CAP-based adjustment is included.

1-4. Provide for each year since the CAP began: a) the customer classes included within the scope of the CAP program, and b) the annual customer bill impacts by rate schedule and by typical monthly bills for customers under each rate schedule.

1-5. Please provide for each of the past five years: a) total number of customers by rate schedule, b) the total number of customers participating in conservation programs by rate schedule and program, and c) annual energy savings (in dollars and gas usage) by rate schedule and program.

1-6. To the extent developed for the Company during the previous five years, please provide any analysis of avoided costs associated with conservation programs broken out by fixed and variable costs and by components, if available.

1-7. Please provide copies of any reports prepared by financial analysts regarding the financial performance of the Company from one year prior to the effective date of the CAP through the latest report available.

1-8. To the extent available, please provide a list of analysts that currently cover the Company along with their contact information.

1-9. For each day during the period where the CAP has been effective, provide the normal and actual Heating Degree Days (HDDs).

1-10. Provide the cycle billed therms for each month and each rate schedule from the initial effective date of the CAP to the present. Include the start and stop date for each cycle reading.

1-11. For any meeting with stakeholders related to the CAP, please provide a copy of any notes, memoranda or reports resulting from such meeting.

1-12. Please identify the names of Company representatives that are proposed by the Company to be interviewed during this project, including contact information (e-mail and phone).

1-13. Please identify the potential list of stakeholders (e.g., the Energy Trust of Oregon), including name(s) of representatives, the organization represented, contact information (e-mail and phone) and the customer group or groups represented by the stakeholder.

1-14. Please provide a copy of the latest cost-of-service study presented by the Company to the Commission.

1-15. Please provide a copy of the Company's billing determinants used to set its current base rates subject to the CAP. If base rates have changed during the effective period of the CAP please provide the billing determinants associated with each such change.

1-16. Please identify the conservation programs of other utilities in the Oregon service area that have the potential to impact the Company's gas use by customers under the CAP programs. Include electric programs, federal and state programs and tax incentives and any private programs impacting gas consumption.

1-17. Please provide the results of any analyses that have been conducted by the Company relative to customer comments collected over the past five years related to: a) the CAP program, b) the Company's conservation incentives and programs, c) conservation efforts performed through the Energy Trust of Oregon.

1-18. Please provide the results of any customer satisfaction surveys that have been conducted during the past five years.

1-19. Please provide for each of the previous five years by rate schedule: a) number and amount of uncollectible accounts, and b) the number of new customer hookups.

1-20. Please provide, for each of the previous five years by rate schedule, the number of customers receiving bill assistance and weatherization services.

1-21. Please provide, for each of the previous five years, the percentage of total conservation measures and incentives offered by Cascade that were distributed through the Company's Low Income Conservation Program in Oregon.

1-22. Please provide copies of the Company's organizational charts and staffing levels by Department at the end of each year from 2005 to 2008, and the current organizational chart and staffing levels.

1-23. Please provide: a) the Company's budget for DSM-oriented customer education and marketing programs for each of the five previous years, and b) identify any DSM-oriented customer education and marketing programs that have been initiated since the CAP has been in effect.

1-24. Please provide samples of the Company's print advertising used during each of the five previous years.

1-25. Please provide any available statistics related to the level of fuel switching that has occurred during each of the five previous years.

1-26. Please list the conservation-oriented organizations that the Company was a member of for each of the five previous years.

2-1. For Rate Schedules 101 and 104, please provide the schedules effective for each year, beginning with the schedule effective December 2005 and each following year through December 2009.

2-2. Please provide the exhibits in each PGA filing as an Excel spreadsheet for each year 2005 through 2009, as they pertain to the decoupling mechanism-related calculations and provide supporting work papers.

2-3. Please confirm that the adjustments as calculated in Sheets 191-194 are made by adding or subtracting from the values contained in the rate schedules for the previous year.

2-4. Please provide the weather normalization model including the data, regression equations and statistics for each monthly model in Excel spreadsheet format. Please explain the process used to account for cycle billing, if any.

2-5. Please provide the 2009 average cost of connecting a new customer broken down by the installed cost of meter and regulator, service line and main extension. Also provide the average length of service and the average length of main per new customer.

2-6. Does Cascade have actual and normal HDDs by day? If so, please provide that data file in Excel spreadsheet format.

2-7. Please provide a copy of the latest Annual Report to the Commission Oregon Supplement to FERC Form 2.

2-8. Please provide a copy of the agreement between Cascade and ETO.

2-9. Please provide the calendar year 2005 actual HDDs for each of Cascade's three weather areas.

2-10. Please provide an annual bill frequency for 2008 residential customers using only customers with 12 months of bills? (Note: just need the count of bills by one hundred dollar increments to $1,000, 250 dollar increments to $3,000 and $500 increments above $3,000. Also, please provide the approximate number of Avista gas customers in Cascade's service area in northwest Oregon.

Documents Provided by the Company and Reviewed by Black & Veatch

- A.G. Edwards, Financial Analyst Report – Cascade Natural Gas Corporation (January 26, 2005; August 22, 2005; December 14, 2005; January 30, 2006; and July 12, 2006).
- Cascade Natural Gas Corporation, 2004 Annual Report.
- Cascade Natural Gas Corporation, 2005 Annual Report.
- Cascade Natural Gas Corporation, 2006 Annual Report.
- Cascade Natural Gas Corporation, 2007 Customer Satisfaction Survey Results as of December 31, 2007, Excerpts.
- Cascade Natural Gas Corporation, 2008 Customer Satisfaction Survey Results as of December 31, 2008.
- Cascade Natural Gas Corporation, 2009 Customer Satisfaction Survey Results as of December 31, 2009.
- Cascade Natural Gas Corporation, 2008 Customer Satisfaction Survey Results, Southern Region, 4th Quarter.
- Cascade Natural Gas Corporation, 2009 Customer Satisfaction Survey Results, Southern Region, 3rd Quarter.
- Cascade Natural Gas Corporation, 2005 Distributor Presentation.
- Cascade Natural Gas Corporation, 2004 Integrated Resource Plan (December 2004).
- Cascade Natural Gas Corporation, 2008 Integrated Resource Plan (December 15, 2008).
- Cascade Natural Gas Corporation, 2005 Purchased Gas Adjustment (PGA) Tariff Filing (August 15, 2005).
- Cascade Natural Gas Corporation, 2006 Purchased Gas Adjustment (PGA) Tariff Filing (August 31, 2006).
- Cascade Natural Gas Corporation, 2006 Purchased Gas Adjustment (PGA) Tariff Filing - Revised (October 11, 2006).
- Cascade Natural Gas Corporation, 2007 Purchased Gas Adjustment (PGA) Tariff Filing (August 31, 2007).
- Cascade Natural Gas Corporation, 2007 Purchased Gas Adjustment (PGA) Tariff Filing – Revision 1 (October 12, 2007).
- Cascade Natural Gas Corporation, 2007 Purchased Gas Adjustment (PGA) Tariff Filing – Revision 2 (October 23, 2007).
- Cascade Natural Gas Corporation, 2008 Purchased Gas Adjustment (PGA) Tariff Filing (August 29, 2008).
- Cascade Natural Gas Corporation, 2008 Purchased Gas Adjustment (PGA) Tariff Filing - Revised (October 10, 2008).
- Cascade Natural Gas Corporation, 2009 Purchased Gas Adjustment (PGA) Tariff Filing (August 31, 2009).

- Cascade Natural Gas Corporation, 2009 Purchased Gas Adjustment (PGA) Tariff Filing - Revised (October 13, 2009).
- Cascade Natural Gas Corporation, Baseline Monthly Commodity Margin per Customer Based Upon Weather Normalized Therm Sales as Reflected in the 2005 Purchased Gas Adjustment Application – State of Oregon.
- Cascade Natural Gas Corporation, CAP Stipulation (April 14, 2006).
- Cascade Natural Gas Corporation, Conversion Sales Performance Tracking.
- Cascade Natural Gas Corporation, Federal Energy Regulatory Commission (FERC) Form 2, 2008.
- Cascade Natural Gas Corporation, Form 10-K for Period Ending September 20, 2004.
- Cascade Natural Gas Corporation, Form 10-K for Period Ending September 20, 2005.
- Cascade Natural Gas Corporation, Form 10-K for Period Ending September 20, 2006.
- Cascade Natural Gas Corporation, General Commercial Service Rate, Schedule No. 104, Effective December 12, 2009.
- Cascade Natural Gas Corporation, General Residential Service Rate, Schedule No. 101, Effective December 12, 2009.
- Cascade Natural Gas Corporation, Heating Degree Days – Baker, Bend and Pendleton.
- Cascade Natural Gas Corporation, Low Income Program Customers Served by Year, 2005-06 to 2008-09.
- Cascade Natural Gas Corporation, Meter Installations, CY 2008 and 2009.
- Cascade Natural Gas Corporation, Number of Conservation Program Participants and Therm Savings.
- Cascade Natural Gas Corporation, Number of Oregon Customers by Rate Schedule.
- Cascade Natural Gas Corporation, Oregon Billed Therms by Rate Schedule.
- Cascade Natural Gas Corporation, Oregon CAP Weather Variance Deferral, Deferral Period: 5/1/06 – 6/30/07.
- Cascade Natural Gas Corporation, Oregon Weather Normalization Therm Adjustment (March 23, 2010).
- Cascade Natural Gas Corporation, Other Conservation Programs in CNGC's Service Territory.
- Cascade Natural Gas Corporation, Rate Schedule 101 Bill Frequency, Calendar Year 2008.
- Cascade Natural Gas Corporation, Spring Earnings Review and Statement of Operations and Rate of Return – Twelve Months Ended September 30, 2005 (April 27, 2006).
- Cascade Natural Gas Corporation, Spring Earnings Review and Statement of Operations and Rate of Return – Twelve Months Ended September 30, 2006 (April 30, 2007).
- Cascade Natural Gas Corporation, Spring Earnings Review and Statement of Operations and Rate of Return – Twelve Months Ended September 30, 2007 (April 30, 2008).
- Cascade Natural Gas Corporation, Spring Earnings Review and Statement of Operations and Rate of Return – Twelve Months Ended September 30, 2007 - Revised (May 23, 2008).

- Cascade Natural Gas Corporation, Spring Earnings Review and Statement of Operations and Rate of Return – Twelve Months Ended September 30, 2008 (April 30, 2009).
- Cascade Natural Gas Corporation, UG 167, Conservation Alliance Plan, Deferred Account Details – Twelve Months Ended June 30, 2006.
- Cascade Natural Gas Corporation, UG 167, Conservation Alliance Plan, Deferred Account Details – Twelve Months Ended June 30, 2007.
- Cascade Natural Gas Corporation, UG 167, Conservation Alliance Plan, Deferred Account Details – Twelve Months Ended June 30, 2008.
- Cascade Natural Gas Corporation, UG 167, Conservation Alliance Plan, Deferred Account Details – Twelve Months Ended June 30, 2009.
- Cascade Natural Gas Corporation, UG 167, Safety & Customer Service Performance Indicator Report (February 29, 2008).
- Cascade Natural Gas Corporation, UG 167, Safety & Customer Service Performance Indicator Report (February 27, 2009).
- Cascade Natural Gas Corporation, Uncollectible Cascade Natural Gas Accounts in the State of Oregon.
- Cascade Natural Gas Corporation, Various Conservation-Oriented Communications:
    - Bill Stuffers (September 2004, November 2004; April 2005; September 2005; November 2007; and December 2007).
    - Community Matters, Oregon (September 2009).
    - ETO News Release (June 28, 2006).
    - Natural Gas Pricing Mailer (August 2008).
    - Oregon Home Energy Analyzer Mailer.
    - Oregon Tankless Water Heater Mailer.
    - Oregon Washer/Dryer Conservation Sweepstakes Mailer.
    - Warm Neighbor News (January 2006).
- Cascade Natural Gas Corporation, Weather Normalization Methodology – Oregon Decoupling.
- Cascade Natural Gas Corporation and Energy Trust, Customer Information Transfer Agreement.
- Cascade Natural Gas Corporation and Energy Trust, Public Purpose Funds Transfer Agreement.
- Community Action Directors of Oregon and Oregon Energy Coordinators Association, UG 167 Petition to Intervene (February 1, 2006).
- Energy Trust of Oregon, 2009 Oregon Residential Awareness and Perception Study (November 17, 2009).
- Energy Trust of Oregon, material available on web site.
- NW Energy Coalition and Natural Resources Defense Council, UG 167 Petition to Intervene (January 26, 2006).

- Northwest Industrial Gas Users, UG 167 Petition to Intervene (January 30, 2006).
- Public Utility Commission of Oregon, Order 06-011, Proposed Tariff for Gas Service (January 10, 2006).
- Public Utility Commission of Oregon, Order 06-191, Request for Authorization to Establish a Decoupling Mechanism and Approval of Tariff Sheets No. 30 and No. 30-A, Final Order (April 19, 2006).
- Public Utility Commission of Oregon, Order 06-239, Request for Authorization to Establish a Decoupling Mechanism, Supplemental Order (May 16, 2006).
- Stifel, Nicolaus& Company, Inc., Financial Analyst Report – Cascade Natural Gas Corporation (January 26, 2005; April 22, 2005; July 26, 2005; September 8, 2005; November 16 2005; December 1, 2005; January 27, 2006; April 28, 2006; July 10, 2006; and July 27, 2006).
- U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration (PHMSA), Office of Pipeline Safety (DOT), DOT Form PHMSA F7100.1-1, 2005; 2006; 2007; and 2008.

APPENDIX C
RESIDENTIAL CUSTOMER SURVEY INSTRUMENT

Residential Survey

May I please speak to [customer contact name]?

My name is _____ and I am calling from Black & Veatch Corporation. We are conducting research on behalf of Cascade Natural Gas Corporation related to:

- The Company's residential natural gas conservation programs;
- Customer awareness of, and attitudes towards, natural gas conservation;
- Customer participation in Cascade Natural Gas' conservation programs;
- Customer perceptions regarding the cost of natural gas; and
- Customer perceptions regarding the quality of service from Cascade Natural Gas.

Is this a convenient time to continue?
1 – Yes; go to Background
2 – No; go to Better Time

Better Time
The survey should last about 20 minutes, and can be arranged for a time convenient to your schedule. Is there another time we could contact you?
1 – Yes; schedule appointment
2- No; thank you for your time

Background
Involvement in this survey is entirely voluntary. You may decline to answer any of the survey questions you do not wish to answer and may terminate the survey at anytime. All information you provide will be considered confidential. The survey will take about 20 minutes.

If you have questions regarding this survey, please contact Allison Spector, Cascade Natural Gas Director of Conservation at (206) 381-6834.

Are you ready to continue?
1- Yes; go to Begin Survey
2 – No; go to Better Time

Begin Survey
I will begin the survey now. Please keep in mind that your answers to the following questions should be based on your natural gas usage.

Residential Survey

1. Do you currently participate in any natural gas conservation or energy efficiency rebate programs for your home?

- ☐ Yes
- ☐ No (If no, go to question 4)

2. Which of the following residential natural gas conservation or energy efficiency rebate programs do you currently participate in or have participated in the past four years?

- ☐ Natural Gas Water Heater Rebate
- ☐ High Efficiency Gas Fireplace Rebate
- ☐ High Efficiency Gas Furnace Rebate
- ☐ Home Comfort Package
- ☐ High Efficiency Clothes Washer Rebate
- ☐ High Efficiency Dishwasher Rebate
- ☐ Free Home Energy Analyzer
- ☐ None of the above

3. What was the source of information that led you to participate in any natural gas conservation or energy efficiency rebate programs?

- ☐ Cascade Natural Gas Corporation
- ☐ Energy Trust of Oregon
- ☐ Home Depot, Plumbing and Heating Contractors etc.
- ☐ On my own
- ☐ Other: Please specify

4. What natural gas conservation programs are you aware of? List any responses: (Unaided awareness)

4a. I am going to read you a list of programs for saving natural gas and ask which of these programs you are aware of: (aided awareness)

- ☐ Natural Gas Water Heater Rebate
- ☐ High Efficiency Gas Fireplace Rebate
- ☐ High Efficiency Gas Furnace Rebate
- ☐ Home Comfort Package
- ☐ High Efficiency Clothes Washer Rebate
- ☐ High Efficiency Dishwasher Rebate
- ☐ Free Home Energy Analyzer

Residential Survey

5. On a scale of 1 to 10 where 1 = "Very Unlikely" and 10 = "Very Likely", how likely are you to participate in any of the following programs for your home?

	1	2	3	4	5	6	7	8	9	10
Natural Gas Water Heater Rebate										
High Efficiency Gas Fireplace Rebate										
High Efficiency Gas Furnace Rebate										
Home Comfort Package										
High Efficiency Clothes Washer Rebate										
High Efficiency Dishwasher Rebate										
Free Home Energy Analyzer										

6. On a scale of 1 to 5 where 1= "Completely Disagree" and 5= "Completely Agree", please rate your level of agreement with the following statements

	1	2	3	4	5
Cascade Natural Gas makes it easier for me to implement conservation measures in my home/business.					
I am penalized for or get no benefit from implementing energy efficiency improvements in my home/business.					
The upfront cost of installing energy efficiency improvements outweighs the benefits.					
Participating in Cascade Natural Gas-sponsored energy efficiency programs will help lower my natural gas bill.					
Participating in Cascade Natural Gas-sponsored energy efficiency programs can help lower my natural gas usage and lower the amount of my natural gas bill.					
I would pay more for a higher efficiency natural gas appliance.					
I have seen an increase in advertising about natural gas conservation compared to four years ago.					
There are more programs available to help me reduce natural gas usage in my home compared to four years ago.					

7. Since 2006, my natural gas bill has:

- ☐ Increased dramatically
- ☐ Increased slightly
- ☐ Remained the same
- ☐ Decreased somewhat
- ☐ Decreased dramatically

8. Since 2006, do you think the quality of service from Cascade Natural Gas has (select one):

- ☐ Improved significantly
- ☐ Slightly improved
- ☐ Remained the same
- ☐ Gotten worse

9. There are many factors that can have an impact on the amount of natural gas used. On a scale of 1 to 10, where 1 = "Not At All Important" and 10 = "Very Important", please rate the importance of each of the following factors in your decision to use natural gas:

	1	2	3	4	5	6	7	8	9	10
The price of natural gas										
The availability of natural gas conservation programs										
My concern for the environment										
The outside temperature/weather										
Family size										

10. Overall, on a scale of 1 to 10 where 1 = "Very Dissatisfied" and 10 = "Very Satisfied", how satisfied are you with the service you receive from Cascade Natural Gas?

_____ Rating

11. How much do you feel Cascade's outreach efforts in the past four years influenced your awareness of/participation in these conservation programs?

☐ Significant influence

☐ Some influence

☐ Not much influence

☐ No influence

☐ I am not aware of any outreach being conducted by Cascade

12. Has the amount that you pay for natural gas?

☐ Increased

☐ Decreased

☐ Stayed the same

13. Over the last four years has your natural gas usage:

☐ Increased

☐ Decreased

☐ Stayed the same

14. Which of the following organizations provide incentives and rebates for installing energy efficiency measures in residences?

☐ Cascade Natural Gas

☐ Energy Trust of Oregon

☐ Oregon Department of Energy

☐ All of the above

☐ None of the above

15. Why do you think (response from above) has been promoting energy conservation programs these past four years?"

16. Have you implemented natural gas conservation measures on your own in the past four years?

☐ Yes

☐ No

17. Which of the following natural gas appliances have you implemented conservation measures?

☐ Heating

☐ Water heating

☐ Cooking

☐ Drying

☐ Insulation/Weatherization

☐ Other: Please specify

Classification Questions

18. What type of residence do you live in?

☐ Single family home

☐ Duplex or two family home

☐ Condominium

☐ Mobile home

☐ Apartment in building with less than 5 units

☐ Apartment in building with 5 or more units

☐ Other: please specify

19. Do you own or rent this residence?

Own ☐

Rent/Lease ☐

20. How many people live in this residence full time? (Do not include people away at school or in the military)

_____ people

☐ None

21. What is the highest level of education you have completed?

- ☐ Elementary school or less
- ☐ Some high school
- ☐ Graduated high school
- ☐ Some college
- ☐ Graduated college
- ☐ Post-graduate degree

22. Please indicate the number of people in your household in each of the following age ranges.

	1	2	3 +
Under 5 years old	☐	☐	☐
5 – 18 years old	☐	☐	☐
19 – 24 years old	☐	☐	☐
25 – 34 years old	☐	☐	☐
35 – 44 years old	☐	☐	☐
45 – 54 years old	☐	☐	☐
55 – 64 years old	☐	☐	☐
65 years or older	☐	☐	☐

23. What is the age of the household member (or one of the household members) in whose name this residence is owned, being bought, or rented?

_____ Years old

24. Please check the category that best describes your total 2008 household income, before taxes, for people living in your residence:

- ☐ Under $15,000
- ☐ $15,000 to just under $25,000
- ☐ $25,000 to just under $35,000
- ☐ $35,000 to just under $50,000
- ☐ $50,000 to just under $75,000
- ☐ $75,000 to just under $100,000
- ☐ $100,000 to just under $150,000
- ☐ $150,000 to just under $200,000
- ☐ $200,000 and over
- ☐ Prefer not to answer

APPENDIX D
COMMERCIAL CUSTOMER SURVEY INSTRUMENT

Commercial Survey

May I please speak to [customer contact name]?

My name is _____ and I am calling from Black & Veatch Corporation. We are conducting research on behalf of Cascade Natural Gas Corporation related to:

- The Company's commercial natural gas conservation programs;
- Customer awareness of, and attitudes towards, natural gas conservation;
- Customer participation in Cascade Natural Gas' conservation programs;
- Customer perceptions regarding the cost of natural gas; and
- Customer perceptions regarding the quality of service from Cascade Natural Gas.

Is this a convenient time to continue?
1 – Yes; go to Background
2 – No; go to Better Time

Better Time
The survey should last about 20 minutes, and can be arranged for a time convenient to your schedule. Is there another time we could contact you?
1 – Yes; schedule appointment
2- No; thank you for your time

Background
Involvement in this survey is entirely voluntary. You may decline to answer any of the survey questions you do not wish to answer and may terminate the survey at anytime. All information you provide will be considered confidential. The survey will take about 20 minutes.

If you have questions regarding this survey, please contact Allison Spector, Cascade Natural Gas Director of Conservation at (206) 381-6834.

Are you ready to continue?
1- Yes; go to Begin Survey
2 – No; go to Better Time

Begin Survey
I will begin the survey now. Please keep in mind that your answers to the following questions should be based on your company's operating strategy as it relates to energy and natural gas use and not your personal perceptions or values. If you are responsible for managing multiple locations, please respond only for the location you are the most familiar with.

Commercial Survey

1. Does your business currently participate in any energy efficiency rebate programs?

☐ Yes

☐ No (If no, go to question 4)

2. Which of the following programs does your company currently participate in or has you participated in the past four years?

	Not Participated	Participating Now	Previously Participated	Don't Know
☐ Customized Incentive Solutions				
☐ Compressed Air Systems				
☐ Motors and Drives				
☐ Operations and Maintenance				
☐ Technical Assistance				
☐ Lighting and Lighting Controls				
☐ Heating and Cooling				
☐ Insulation				
☐ Solar Electric				
☐ Solar Water Heating				

3. What was the source of information that led you to participate in any energy efficiency rebate programs?

☐ Cascade Natural Gas Corporation

☐ Energy Trust of Oregon

☐ Home Depot, Plumbing and Heating Contractors etc.

☐ On my own

☐ Other: Please specify

4. What natural gas conservation programs are you aware of? List any responses: (Unaided awareness)

4a. I am going to read you a list of energy conservation programs and would like to know which of the following programs you are aware of.

- ☐ Customized Incentive Solutions
- ☐ Compressed Air Systems
- ☐ Motors and Drives
- ☐ Operations and Maintenance
- ☐ Technical Assistance
- ☐ Lighting and Lighting Controls
- ☐ Heating and Cooling
- ☐ Insulation
- ☐ Solar Electric
- ☐ Solar Water Heating

5. On a scale of 1 to 10 where 1 = "Very Unlikely" and 10 = "Very Likely", how likely are you to participate in any of the following programs for your business?

	1	2	3	4	5	6	7	8	9	10
Customized Incentive Solutions										
Compressed Air Systems										
Motors and Drives										
Operations and Maintenance										
Technical Assistance										
Lighting and Lighting Controls										
Heating and Cooling										
Insulation										
Solar Electric										
Solar Water Heating										

6. On a scale of 1 to 5 where 1 = "Completely Disagree" and 5 = "Completely Agree", please rate your level of agreement with the following statements

	1	2	3	4	5
Cascade Natural Gas makes it easier for us to implement conservation measures in our business.					
Our company is penalized for or gets no benefit from implementing energy efficiency improvements.					
The upfront cost of installing energy efficiency improvements outweighs the benefits.					
Participating in Cascade Natural Gas-sponsored energy efficiency programs will help lower our natural gas bill.					
Participating in Cascade Natural Gas-sponsored energy efficiency programs can help lower our natural gas usage and lower the amount of our natural gas bill.					
My company would pay more for higher efficiency natural gas equipment over standard equipment.					
We have seen an increase in advertising about conservation compared to four years ago.					
There are more programs available to help our business save energy compared to four years ago.					

7. Since 2006, our natural gas bill has:

☐ Increased dramatically

☐ Increased slightly

☐ Remained the same

☐ Decreased somewhat

☐ Decreased dramatically

7.b. Why is that?

8. Since 2006, do you think the quality of service from Cascade Natural Gas has (select one):

☐ Improved significantly

☐ Slightly improved

☐ Remained the same

☐ Gotten worse

9. There are many factors that can have an impact on the amount of natural gas used. On a scale of 1 to 10, where 1 = "Not At All Important" and 10 = "Very Important", please rate the importance of each of the following factors in your decision to use natural gas:

Factors	1	2	3	4	5	6	7	8	9	10
The price of natural gas										
The availability of natural gas conservation programs										
Our concern for the environment										
The outside temperature/weather										
Market demands										

10. Overall, on a scale of 1 to 10 where 1 = "Very Dissatisfied" and 10 = "Very Satisfied", how satisfied are you with the service you receive from Cascade Natural Gas?

_____ **Rating**

11. Over the last four years has your company's natural gas usage:

- ☐ Increased
- ☐ Decreased
- ☐ Stayed the same

12. Which of the following organizations provide incentives and rebates for installing energy efficiency measures in businesses?

- ☐ Cascade Natural Gas
- ☐ Energy Trust of Oregon
- ☐ Oregon Department of Energy
- ☐ All of the above
- ☐ None of the above

13. Why do you think (response from above) has been promoting energy conservation programs these past four years?

14. Has your company implemented natural gas conservation measures on its own during the past four years?

- ☐ Yes
- ☐ No

15. For which of the following services has your company implemented natural gas conservation measures?

- ☐ Heating
- ☐ Water heating
- ☐ Cooking
- ☐ Drying
- ☐ Other: Please specify:

Classification Questions

16. Including yourself, how many employees work at your location? [if necessary, read list and record one answer]

- ☐ 1
- ☐ 2-4
- ☐ 5-9
- ☐ 10-19
- ☐ 20-99
- ☐ 100-499
- ☐ 500+
- ☐ Don't know

17. How many employees work at this company across all locations? [if necessary, read list and record one answer]

- ☐ 1
- ☐ 2-4
- ☐ 5-9
- ☐ 10-19
- ☐ 20-99
- ☐ 100-499
- ☐ 500+
- ☐ Don't know

18. How many locations does your company have? [if necessary, read list and record one answer]

- ☐ 1
- ☐ 2-4
- ☐ 5-9
- ☐ 10-99
- ☐ 100-499
- ☐ 500+
- ☐ Don't know

19. In what country is your organization headquartered?

☐ U.S.

☐ Other country (please specify)_____(If outside the US → **SKIP TO QUESTION 19)**

20. In what state is your organization headquartered?

_____ [enter state]

21. Where are major decisions made on energy efficiency investments? Would you say: [read list and check one]

☐ Headquarters

☐ Local office

☐ Other: Please specify _____

Industry

22. What is the primary nature of your business? [if necessary, read list and select one]

Agriculture, Forestry, Fishing and Hunting

Aquatic and Fitness Centers

Auto Services

Commercial Buildings

Cold Storage

Data Centers

Food Service

Grocery Stores

Health Care

Hospitality

Industry

Landfills

Laundry

Manufacturing and Small Industrial

Multifamily Properties

Other Businesses

Private Education

Wood Products

APPENDIX E
OTHER CONSERVATION PROGRAMS AVAILABLE TO CASCADE'S CUSTOMERS

Other Conservation Programs Available to Cascade's Customers

Company	Energy Trust Energy Efficiency Programs	Description	Benefit	Sector
ETO	Do-It Yourself Energy Audit Document	Audit Program		Commercial
ETO	Pencil It Out - Cost Benefit Tool	Audit Program		Commercial
ETO	Onsite Assistance	Audit Program		Commercial
ETO	Technical Assistance	Audit Program		Commercial
ETO	Early Design Assistance	Audit Program		Commercial
ETO	New Building Assistance	Audit Program	Cash Incentives	Commercial
ETO	Technical Assistance	Audit Program		Industrial
ETO	Customized Incentive Solutions	Audit Program	Cash Incentives	Industrial
ETO	Compressed Air Systems	Compressed Air Systems	Cash Incentives	Industrial
ETO	Heat Pumps	Heating and Cooling	Cash Incentives	Industrial
ETO	Air Conditioning	Heating and Cooling	Cash Incentives	Industrial
ETO	Natural Gas Equipment	Heating and Cooling	Cash Incentives	Industrial
ETO	Lighting and Lighting Controls	Lighting	Cash Incentives	Industrial
ETO	Motors + Drives	Motors and Drives	Cash Incentives	Industrial
ETO	Operations and Maintenance	Operations and Maintenance	Cash Incentives	Industrial
ETO	Solar Electric	Solar Electric	Cash Incentives	Industrial
ETO	Solar Water Heating	Solar Water and Pool Heating	Cash Incentives	Industrial
ETO	Insulation	Weatherization	Cash Incentives	Industrial
ETO	Clothes Washers	Appliances	Cash Incentives	Residential
ETO	New Refrigerators and Freezers	Appliances	Cash Incentives	Residential
ETO	Dishwashers	Appliances	Cash Incentives	Residential
ETO	Refrigerator and Freezer Recycling	Appliances	Cash Incentives	Residential
ETO	Energy Star Appliance Cash Rebates	Appliances	Cash Rebates	Residential
ETO	Home Performance with Energy Star	Audit Program		Residential
ETO	Home Energy Review	Audit Program		Residential

Company	Energy Trust Energy Efficiency Programs	Description	Benefit	Sector
ETO	Online Home Energy Analyzer	Audit Program		Residential
ETO	New Home - Energy Performance Score	Audit Program		Residential
ETO	No Cost & Low Cost Solutions	General Tips		Residential
ETO	Find a Contractor	General Tips		Residential
ETO	Energy Calculator	General Tips		Residential
ETO	Duct Sealing	Heating and Cooling	Cash Incentives	Residential
ETO	Duct Insulation	Heating and Cooling	Cash Incentives	Residential
ETO	Heat Pumps	Heating and Cooling	Cash Incentives	Residential
ETO	Gas Furnaces	Heating and Cooling	Cash Incentives	Residential
ETO	Direct-Vent Gas Unit Heaters	Heating and Cooling	Cash Incentives	Residential
ETO	Direct-Vent Gas Fireplace	Heating and Cooling	Cash Incentives	Residential
ETO	Gas Boilers	Heating and Cooling	Cash Incentives	Residential
ETO	Hydroelectric Power for Homes Installation	Hydroelectric Power	Cash Incentives	Residential
ETO	Change a Light, Change the World Fundraiser	Lighting	Fundraiser	Residential
ETO	Affordable Compact Fluorescent Light Bulbs	Lighting	Incentive Pricing	Residential
ETO	Compact Fluorescent Light Bulb Recycling	Lighting		Residential
ETO	Small Wind for Homes Installation	Wind	Cash Incentives	Residential
ETO	Solar Electric Home Installations	Solar Electric	Cash Incentives	Residential
ETO	Solar Water + Pooling Heating Installations	Water Heating	Cash Incentives	Residential
ETO	Water Heating Professional Installation	Water Heating	Cash Incentives	Residential
ETO	Water Heating Self-Installation	Water Heating	Cash Incentives	Residential
ETO	Air Sealing	Weatherization	Cash Incentives	Residential
ETO	Insulation Professional Installation	Weatherization	Cash Incentives	Residential
ETO	Insulation Self-Installation	Weatherization	Cash Incentives	Residential
ETO	Windows	Weatherization	Cash Incentives	Residential

Company	Energy Trust Energy Efficiency Programs	Description	Benefit	Sector
Central Electric Co-op	Commercial/Industrial Lighting Program	Lighting	Cash Rebate	Commercial
Central Electric Co-op	Commercial/Industrial Lighting Program	Lighting	Cash Rebate	Industrial
Central Electric Co-op	Energy Star Appliance Program	Appliances	Cash Rebate	Residential
Central Electric Co-op	Energy Star New Home Program	Audit Program	Cash Rebate	Residential
Central Electric Co-op	Heat Pump Program	Heating and Cooling	Cash Rebate	Residential
Central Electric Co-op	NW Energy Efficient Manufactured Home Energy Star Program	Home Purchase	Cash Rebate	Residential
Central Electric Co-op	Variable Frequency Drive Program	Irrigation	Cash Rebate	Residential
Central Electric Co-op	Pump Motor Program	Motors and Drives	Cash Rebate	Residential
Central Electric Co-op	Sprinkler Equipment Program	Sprinklers	Cash Rebate	Residential
Central Electric Co-op	Electric Water Heater Program	Water Heating	Cash Rebate	Residential
Central Electric Co-op	Weatherization Program	Weatherization	Cash Discount	Residential
City of Milton Freewater	Commercial/Industrial Lighting	Lighting	Cash Rebate	Commercial
City of Milton Freewater	Commercial/Industrial/Agricultural Energy Improvements	Process Improvement	Cash Rebate	Commercial
City of Milton Freewater	Commercial/Industrial Lighting	Lighting	Cash Rebate	Industrial
City of Milton Freewater	Commercial/Industrial/Agricultural Energy Improvements	Process Improvement	Cash Rebate	Industrial
City of Milton Freewater	Energy Star Appliances	Appliances	Cash Rebate	Residential
City of Milton Freewater	Energy Conservation Loan Program	Appliances	Low Interest Loan Program	Residential
City of Milton Freewater	Surge Suppression and Uninterruptible Power Supply	General Tips		Residential
City of Milton Freewater	Energy Conservation Loan Program	Heating and Cooling	Low Interest Loan Program	Residential
City of Milton Freewater	Weatherwise Heat Pumps	Heating and Cooling	Cash Rebate	Residential
City of Milton Freewater	Energy Star Homes	Home Purchase	Cash Rebate	Residential

Company	Energy Trust Energy Efficiency Programs	Description	Benefit	Sector
City of Milton Freewater	Radio Energy Management System	Utility Operated System	Electric Bill Discount	Residential
City of Milton Freewater	Weatherwise Insulation	Weatherization	Cash Rebate	Residential
City of Milton Freewater	Weatherwise Windows	Weatherization	Cash Rebate	Residential
City of Milton Freewater	Energy Conservation Loan Program	Weatherization	Low Interest Loan Program	Residential
Idaho Power	Flex Peak Management	Audit Program		Commercial
Idaho Power	Easy Upgrades	Large Energy Improvement Projects	Cash Incentives	Commercial
Idaho Power	Building Efficiency	Large Energy Improvement Projects	Cash Incentives	Commercial
Idaho Power	Custom Efficiency	Large Energy Improvement Projects	Cash Incentives	Commercial
Idaho Power	Flex Peak Management	Audit Program		Industrial
Idaho Power	Easy Upgrades	Large Energy Improvement Projects	Cash Incentives	Industrial
Idaho Power	Building Efficiency	Large Energy Improvement Projects	Cash Incentives	Industrial
Idaho Power	Custom Efficiency	Large Energy Improvement Projects	Cash Incentives	Industrial
Idaho Power	See Ya Later Refrigerator	Appliances	Cash Incentives	Residential
Idaho Power	Home Products Program	Appliances	Cash Incentives	Residential
Idaho Power	Heating and Cooling Efficiency Program	Heating and Cooling	Cash Incentives	Residential
Idaho Power	A/C Cool Credit	Heating and Cooling	Electric Bill Credit	Residential
Idaho Power	Energy Star Homes Northwest	Home Purchase	Cash Incentives	Residential
Idaho Power	Cash Rebate Advantage	Home Purchase	Cash Rebate	Residential
Idaho Power	Irrigation Efficiency Rewards	Irrigation	Cash Incentives	Residential
Idaho Power	Irrigation Peak Rewards	Irrigation	Demand Credit	Residential
Idaho Power	Energy House Calls	Lighting	Free Services	Residential
Idaho Power	Energy Efficient Lighting	Lighting		Residential

Company	Energy Trust Energy Efficiency Programs	Description	Benefit	Sector
Idaho Power	Home Improvement Program	Weatherization	Cash Incentives	Residential
Idaho Power	Energy House Calls	Weatherization	Free Services	Residential
Idaho Power	Weatherization Assistance for Qualified Customers	Weatherization	Free Services	Residential
Mid-State Electric Co-op	Tax Credits Available	General Conservation	Tax Credit	Commercial
Mid-State Electric Co-op	New Commercial Energy Efficiency Program	Large Energy Improvement Projects	Cash Rebate	Commercial
Mid-State Electric Co-op	Existing Commercial Energy Efficiency Program	Large Energy Improvement Projects	Cash Rebate	Commercial
Mid-State Electric Co-op	Lighting Cash Rebate Program	Lighting	Cash Rebate	Commercial
Mid-State Electric Co-op	Tax Credits Available	General Conservation	Tax Credit	Industrial
Mid-State Electric Co-op	New Commercial Energy Efficiency Program	Large Energy Improvement Projects	Cash Rebate	Industrial
Mid-State Electric Co-op	Existing Commercial Energy Efficiency Program	Large Energy Improvement Projects	Cash Rebate	Industrial
Mid-State Electric Co-op	Lighting Cash Rebate Program	Lighting	Cash Rebate	Industrial
Mid-State Electric Co-op	Appliances	Appliances	Cash Rebate	Residential
Mid-State Electric Co-op	Duct Sealing	Heating and Cooling	Cash Rebate	Residential
Mid-State Electric Co-op	Heat Pumps	Heating and Cooling	Cash Rebate	Residential
Mid-State Electric Co-op	Energy Star Homes	Home Purchase	Cash Rebate	Residential
Mid-State Electric Co-op	Manufactured Homes	Home Purchase	Cash Rebate	Residential
Mid-State Electric Co-op	CFL Lighting	Lighting	Cash Rebate	Residential
Mid-State Electric Co-op	Water Heater	Water Heating	Cash Rebate	Residential
Mid-State Electric Co-op	Windows	Weatherization	Cash Rebate	Residential
Mid-State Electric Co-op	Weatherization	Weatherization	Cash Rebate	Residential
Oregon Trail Electric Co-op	Commercial Lighting Retrofit Program	Lighting	Cash Rebates	Commercial
Oregon Trail Electric Co-op	Energy Smart Grocer			Commercial
Oregon Trail Electric Co-op	Energy Star Appliance Program	Appliances	Cash Rebate	Residential

Company	Energy Trust Energy Efficiency Programs	Description	Benefit	Sector
Oregon Trail Electric Co-op	Heat Pump Program - Performance-Tested Comfort System	Heating and Cooling	Cash Rebate	Residential
Oregon Trail Electric Co-op	Energy Star Manufactured Home Program	Home Purchase	Cash Rebate	Residential
Oregon Trail Electric Co-op	Irrigation Sprinkler and Pump Motor Program	Irrigation	Cash Rebate	Residential
Oregon Trail Electric Co-op	Solar Photovoltaic (PV) Program	Solar Electric	Cash Rebate	Residential
Oregon Trail Electric Co-op	Freeze Resistant Cattle Fountain Program	Stock Watering Tank	Cash Rebate	Residential
Oregon Trail Electric Co-op	Water Heater Program	Water Heating	Electric Bill Credit	Residential
Oregon Trail Electric Co-op	Showerhead Program	Water Heating	Free Low-Flow Showerheads	Residential
Oregon Trail Electric Co-op	Low-Income Weatherization Program	Weatherization	Funding for Low Income	Residential
Umatilla Electric Co-op	Appliance Cash Rebate Program	Appliances	Cash Rebate	Residential
Umatilla Electric Co-op	Home Energy Audit	Audit Program		Residential
Umatilla Electric Co-op	Heat Pump Program	Heating and Cooling	Cash Rebate or Low Interest Financing	Residential
Umatilla Electric Co-op	Water Heater Cash Rebate Program	Water Heating	Electric Bill Credit	Residential
Umatilla Electric Co-op	Weatherization Program - Insulation & Windows	Weatherization	Cash Rebate or Low Interest Financing	Residential
State of Oregon	Clothes Washers	Appliances	Tax Credit	Residential
State of Oregon	Dishwashers	Appliances	Tax Credit	Residential
State of Oregon	Refrigerators	Appliances	Tax Credit	Residential
State of Oregon	State Home Oil Weatherization Program	Audit Program	Cash Incentives and Tax Credits	Residential
State of Oregon	Fuel Cells	Fuel Cells	Tax Credit	Residential
State of Oregon	Central Air Conditioning Systems	Heating and Cooling	Tax Credit	Residential
State of Oregon	Duct Sealing	Heating and Cooling	Tax Credit	Residential
State of Oregon	Ductless Heat Pumps	Heating and Cooling	Tax Credit	Residential
State of Oregon	Furnaces and Boilers	Heating and Cooling	Tax Credit	Residential

Company	Energy Trust Energy Efficiency Programs	Description	Benefit	Sector
State of Oregon	Geothermal Space Heating/Ground-source Heat Pumps	Heating and Cooling	Tax Credit	Residential
State of Oregon	Heat Pump Systems	Heating and Cooling	Tax Credit	Residential
State of Oregon	Heat Recovery and Energy Recovery Ventilation System	Heating and Cooling	Tax Credit	Residential
State of Oregon	Wood and Pellet Stoves	Heating and Cooling	Tax Credit	Residential
State of Oregon	Solar Space Heating	Heating and Cooling	Tax Credit	Residential
State of Oregon	Northwest Energy Efficient Manufactured Housing Program	Home Purchase	Incentives through Utility	Residential
State of Oregon	Solar Electric Systems	Solar Electric	Tax Credit	Residential
State of Oregon	Solar Water Heating	Water Heating	Tax Credit	Residential
State of Oregon	Wastewater Heat Recovery	Water Heating	Tax Credit	Residential
State of Oregon	Water Heaters	Water Heating	Tax Credit	Residential
State of Oregon	Wind Electric Systems	Wind	Tax Credit	Residential
Federal Government	Energy-Efficient Commercial Buildings Tax Deduction	General Improvements	Tax Deduction	Commercial
Federal Government	Residential Energy Conservation Subsidy Exclusion	Renewable Energy Investments - Solar	Subsidy	Residential
Federal Government	Energy-Efficient Mortgages	Renewable Energy Investments - Solar	Federal Loan Program	Residential
Federal Government	Residential Energy Efficiency Tax Credit	General Improvements	Tax Credit	Residential
Federal Government	Residential Renewable Energy Tax Credit	Renewable Energy Investments	Tax Credit	Residential