ORDER NO. 16 109

ENTERED MAR 1 5 2016

BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

UG 288, UM 1753

In the Matters of

AVISTA CORPORATION, dba AVISTA UTILITIES,

FINAL ORDER

Request for a General Rate Revision (UG 288)

and

Application for Authorization to Defer Expenses or Revenues Related to the Natural Gas Decoupling Mechanism (UM 1753)

DISPOSITION: ORDER NO. 16-076 SUPPLEMENTED AND AFFIRMED; DOCKET CLOSED

I. INTRODUCTION

This order addresses the request of Avista Corporation, dba Avista Utilities, for a general rate revision and approval of a deferral mechanism. In Preliminary Order No. 16-076, we adopted the two partial stipulations filed by the parties, set forth our decision on the remaining disputed issues, and approved an application for deferred accounting to implement a decoupling mechanism. Here we supplement that order to more fully describe the parties' positions and the rationale for our decisions.

Overall, we approve an increase to Avista's revenue requirement by \$4,460,000, representing a 4.9 percent increase to the company's previous rates. Avista's has filed new tariffs reflecting this increase, for service effective March 1, 2016.

II. PROCEDURAL HISTORY

On May 1, 2015, Avista Corporation, dba Avista Utilities (Avista) filed Advice No. 15-03-G to effect a general rate increase for its Oregon retail customers of \$8,557,000 (8.0 percent of its annual revenues). In Order No. 15-143, we suspended Avista's filing until March 3, 2016 for investigation of the propriety and reasonableness of the proposed tariffs. Avista, the Citizens' Utility Board of Oregon (CUB), the Northwest Industrial Gas Users (NWIGU), and the Commission Staff all appeared as parties in the investigation.

During the course of the investigation, the parties submitted two partial stipulations and filed testimony and exhibits on disputed issues, but waived the opportunity for cross-examination. Both stipulations and all of the evidentiary materials proffered by each of the parties were received into evidence.

This matter was submitted following oral argument on January 28, 2016.

III. AVISTA'S APPLICATION

According to Avista, the company's rate increase request is attributable to a combination of increasing rate base and general business expenses. Avista states that over 65 percent of the increase (about \$5.6 million) relates to increase in rate base, including replacement and maintenance of Avista's utility system and technology to sustain reliability, safety, and service. The remaining 35 percent (about \$3.0 million) relates to increases in operation and maintenance (O&M) costs and administrative and general (A&G) expenses, as well as a net change in retail revenues since the company's last rate case.

Avista's request is based on a proposed rate of return of 7.72 percent, with a capital structure common equity component of 50 percent and a 9.9 percent return on equity (ROE). The company used a test year based on a forecast for the 2016 calendar year.

Assuming an average usage of 47 therms per month, the average residential bill would increase under Avista's request by \$5.68 per month, or about 8.9 percent, from \$63.65 to \$69.33. That calculation includes the cost of gas. Expressed in terms of the proposed changes to the customer charge and base rate, Avista's proposed residential rate increase is 17 percent.

IV. FIRST PARTIAL STIPULATION

A. Terms of the Stipulation

In their First Partial Stipulation, the parties agree on certain adjustments to the revenue requirement, a decoupling mechanism, issues related to Avista's energy efficiency programs and the Energy Trust of Oregon (ETO), and changes to the basic monthly charges for various schedules. They also agree to refinements to Avista's load forecasting methodology.

1. Revenue Requirement Adjustments

The parties stipulate to numerous adjustments resulting in a \$1.82 million decrease to Avista's proposed revenue requirement. The material changes include reducing working capital by \$116,000, reducing state taxes by \$1,353,000, reducing depreciation by \$278,000, and adjusting rate base to remove Avista's prepaid pension asset (\$605,000 reduction in revenue requirement). The parties also stipulate to a load forecast that results in an \$867,000 increase in revenue requirement. They also agree to reduce the cost of debt from 5.530 percent to 5.515 percent (\$23,000 reduction in revenue requirement).

2. Rate Design

The parties agree to raise the monthly customer basic charge for Residential Service Schedule 410 by \$1 per month, from \$8 to \$9. For General Service Schedule 420 they agree to raise the monthly customer basic charge by \$3 per month, from \$14 to \$17. They propose no change in the monthly rates for Large General Service Schedule 424 and Transportation Service Schedule 456.

These increases do not yield the revenue necessary to meet the full increased revenue requirement. The parties do not agree to increases in the volumetric rates necessary to yield the full revenue requirement.

3. Decoupling Mechanism

The parties agree that Avista will implement a revenue-per-customer decoupling mechanism. To implement this mechanism, Avista filed an application for deferred accounting, which we docketed as UM 1753.

Under the proposed decoupling mechanism, customers will be divided into two rate groups: Residential and Commercial. The mechanism will compare actual decoupled revenues, by rate group, to the allowed decoupled revenues determined on a per-customer basis, with any differences deferred for later rebate or credit. The amount subject to deferral will be based on the difference between actual therm sales, compared with the rate case forecast. Avista will set up two deferral accounts to explicitly account for weather and conservation.

On or before August 1 each year, Avista will file a proposed rate adjustment based on the amount of deferred revenue recovered for the prior January through December period. The rate adjustment will be calculated separately for each rate group, with the applicable surcharge or credit applied on an equal cents-per-therm basis. The proposed rate adjustment will recover or credit the appropriate deferred revenue over a twelve-month period effective November 1.

The amount of the rate adjustment is subject to an annual incremental limit of three percent, with unrecovered balances carried forward.¹ The incremental surcharge is determined by subtracting the annual revenue amount recovered by the current surcharge rate from deferred revenue to be recovered through the proposed surcharge rate, and dividing that amount by the total normalized revenue by rate group for the most recent January through December period. The normalized revenue is determined by multiplying the weather-corrected usage for the period by the billing rates in effect for that period.

The parties add that, by September 2019, there will be an opportunity to review the mechanism and allow parties to recommend changes. Within 12 months after new rates go into effect, Avista will revisit opportunities for real time rate surcharges or credits.

¹ The three percent limitation does not apply if the application of the mechanism results in a credit.

4. Energy Trust of Oregon and Energy Efficiency Charge

The parties agree to move Avista's energy efficiency programs to the ETO. Avista will establish a separate natural gas energy efficiency tariff to collect costs (through current rates) for administering and delivering energy efficiency programs. In 2016, Avista will still offer conservation programs and the ETO will also administer a conservation acquisition program. In 2017, the monies collected through the tariff will be transferred to the ETO. Subject to our approval, the tariff will be revised to match the ETO's cost to offer conservation programs to Avista's customers in 2017.

The parties agree that Avista will establish a new rate schedule, Schedule 469, with the same rates as provided in Schedule 478 (which currently provides for recovery of costs associated with Commission-approved demand side management programs). The revenue collected under new Schedule 469 will be used to fund present demand side management programs for Avista and the ETO.

Avista's prudently incurred costs relating to the transition of programs to the ETO will be recoverable through the company's annual Schedule 478 filing for 2017.

Avista will continue to collect monies to fund low income household programs delivered by the Avista Oregon Low Income Energy Efficiency Program (AOLIEE) and the Low Income Rate Assistance Program (LIRAP). In 2017, Avista will establish a separate tariff to administer AOLIEE. The company will continue the Schedule 493 tariff for collecting expenses related to LIRAP.

5. Load Forecast Refinements

The parties agree to load forecast adjustments for purposes of this rate case. They also agree to load forecasting refinements to be applied by Avista in its next load forecast, which is planned to be completed in June 2016.

B. Commission Resolution

We found the First Partial Stipulation to be reasonable and adopted it in Order No. 16-076. We also granted Avista's application for deferred accounting filed in docket UM 1753.

While we find the revenue requirement adjustments reasonable, some of the adjustments could have benefitted from more explanations.² We remind the parties to thoroughly explain and justify all adjustments in future rate cases.

² For example, the parties did not explain the upward adjustment of \$867,000 for load forecasting. Although they indicated the adjustment is the result of an updated forecast, they did not explain the nature and scope of the forecast or whether all parties agreed to the revised forecast. We expect the parties to sufficiently explain all adjustments in future cases, especially when the adjustment results in an increase to the overall revenue requirement.

We also agree with the remaining provisions of the stipulation. We find the establishment of a decoupling mechanism, the transfer of energy efficiency programs to the ETO, the increase in basic charges, and the changes to current and future load forecasts to be sound and reasonable provisions.

V. SECOND PARTIAL STIPULATION

A. Terms of the Stipulation

In their Second Partial Stipulation, the parties agree to reduce the revenue requirement by \$675,000 to reflect the benefit of bonus tax depreciation in 2015 and its impact on federal income tax payments.

B. Commission Resolution

We found the Second Partial Stipulation to be reasonable and adopted it in our Order No. 16-076.

VI. CONTESTED ISSUES

A. Cost of Capital

The parties dispute two issues related to cost of capital. First, the parties disagree on the proper amount of equity in Avista's capital structure. Avista proposes 50 percent equity, Staff recommends 49.86 percent equity, and CUB and NWIGU propose 48.5 percent equity.

Second, the parties disagree on the level of Avista's required ROE. Using three different methodologies, Avista derived a range of reasonable returns of 9.5 percent to 10.8 percent, and recommends we adopt an ROE of 9.9 percent. Staff derived an ROE range of 8.97 percent to 9.39 percent using a multi-stage discounted cash flow (DCF) model, and recommends an ROE of 9.18 percent.³ CUB's and NWIGU's jointly sponsored witness proposes an ROE of 9.35 percent, based on five different methodologies.

We address each issue, as well as the parties' respective arguments, separately.

1. Capital Structure

- *a. Positions of the Parties*
 - (1) Avista

Avista proposes a capital structure of 50 percent equity, 50 percent debt. The company states this is consistent with the range of capitalizations maintained by its proxy group of utilities used to analyze ROE, and falls well short of the 55.9 percent equity ratio based on investment research service Value Line's expectations for these utilities.

³ Modified from 9.11 percent, as explained by Staff in its motion to submit corrected Staff exhibits 202 and 203, filed January 6, 2016.

Avista maintains that its requested capitalization is consistent with its need to maintain its credit standing and financial flexibility as the company seeks to raise additional capital.

According to Avista, as of December 31, 2014, its common equity percentage for Oregon was 50.4 percent. As of September 30, 2015, the equity component was 50.75 percent. Avista's currently authorized common equity ratio is 51 percent, adopted in its most recent rate case, docket UG 284.

Avista generally supports Staff's proposal, which Avista describes as largely consistent with its own. Avista opposes CUB's and NWIGU's recommendation. Avista believes their witness made several mistakes in his calculations, citing his reliance on the capital structure adopted by the Washington Utilities and Transportation Commission (WUTC),⁴ his removal of investments funded by common equity that are not otherwise related to utility plant,⁵ and his double exclusion of items that Avista had already excluded in making its proposal.

(2) Staff

Staff recommends a capital structure of 49.86 percent equity. Staff's recommendation is based on its best estimate of Avista's capital structure at the end of the 2016 test year, a period that includes the results of two successive stock buyback programs. According to Staff, its estimate is within the range that optimizes the company's financial performance balanced against the risk of leverage. Staff notes that its capital structure excludes elements not historically considered long-term debt by the Commission.

(3) CUB and NWIGU

CUB and NWIGU claim that Avista's capital structure is too heavily weighted toward common equity, which increases the rate of return and income tax component of the revenue requirement and causes customers to pay more for equity. They recommend a capital structure of 48.5 percent equity, which they believe strikes an appropriate balance between customers and shareholders while preserving Avista's financial integrity and access to capital.

CUB and NWIGU dispute Avista's criticisms of their witness's testimony. They claim he did not include short-term debt in his capital structure, and explain that he developed his capital structure starting with Avista's total capital structure in its FERC Form 1 and removing investments not related to utility plant. They argue that Avista has inappropriately included common equity supporting non-regulated investments, such as goodwill and other non-regulated assets and investments in subsidiaries.

b. Commission Resolution

We adopt Avista's proposed capital structure of 50 percent equity and 50 percent debt.

⁴ According to Avista, the WUTC includes short-term debt in the capital structure while we do not. (Avista Post-Hearing Brief at 37).

⁵ According to Avista, the equity that was excluded is considered by rating agencies in their evaluation of the company's credit standing. (Avista Final Brief at 46).

order no. 16 109

We find Avista and Staff both derived reasonable estimates for Avista's capital structure. We opt to use Avista's slightly higher equity/debt ratio consistent with our decision to lower the ROE.

Based on the record and the critique by Avista, we cannot recreate or support the adjustments to the FERC Form 1 accounts made by the CUB's and NWIGU's witness to justify his proposed capital structure. Further, we do not agree with the CUB's and NWIGU's witness that that capital structure adopted in WUTC Docket Nos. UE-150204 and UG-150205 for Avista serves as a reasonableness check on the proposed capital structure in this docket. As pointed out by Avista and Staff, the WUTC includes short-term debt in its capital structure calculations.

2. Return on Equity

- a. Positions of the Parties
 - (1) Avista

Avista requests a 9.9 percent ROE based on the results on three primary methods for deriving the ROE: (1) its DCF model; (2) an Empirical Capital Asset Pricing Model (CAPM); and (3) an equity risk premium approach based on allowed ROEs for gas utilities. Using these methods, the company derived a range of reasonable returns of 9.5 percent to 10.8 percent (or 9.6 percent to 10.9 percent after accounting for common equity flotation costs). Avista's requested 9.9 percent falls below the 10.25 percent midpoint of the range and is conservative in the company's view.

Avista believes that its proposed ROE properly balances safety and economy for its customers, while providing the company an opportunity to earn a fair and reasonable return. Avista claims that its proposed ROE is in the middle range of ROEs approved by state regulators for investor-owned utilities for the period from July 1, 2014 through March 31, 2015. Avista further argues that its investment risk is greater than the risk for other Oregon-jurisdictional utilities, suggesting that its ROE should certainly not be less than the ROEs approved for those other companies.

Avista raises numerous arguments attacking the ROE recommendations made by Staff, CUB, and NWIGU. Avista contends that Staff's recommendation fails to meet the applicable regulatory standard of an ROE sufficient to: (1) fairly compensate the utility's investors, (2) enable the utility to attract new capital on reasonable terms, and (3) maintain the utility's financial integrity. Avista argues that Staff's proposed ROE falls far short of the average returns authorized for other gas utilities shown in Avista's testimony, and notes that the authorized ROEs for the utilities included in Staff's proxy groups are significantly higher than Staff's ROE.

Avista challenges Staff's selection of its proxy group, referring to its exclusion of certain companies and its inclusion of water utilities, rather than the combination electric and gas utilities included in Avista's analysis. Avista argues there is no evidence suggesting the investment community would view water utilities as a superior benchmark when evaluating an investment in Avista.

Avista further argues that Staff's application of a multi-stage DCF model is flawed by its use of a long-term growth estimate. According to Avista, long-term growth rates are not commonly referenced in the industry as a guide to future expectations for specific firms. Avista offers its own version of a multi-stage DCF model that it believes supports its proposed ROE.

Avista cites testimony by Staff's witness that the company's frequent rate case filings suggest Avista is less risky than other utilities in its peer group. Avista counters that its frequent filings are more likely to be viewed by investors "as a challenge than an advantage."⁶ Avista compares its credit rating to other companies in Staff's peer group and argues that its overall investment risk is generally greater.

Similarly, Avista argues that CUB and NWIGU understate the company's ROE. Avista claims CUB's and NWIGU's witness applied inconsistent and incorrect approaches to reach his conclusion. With respect to the DCF model used by the CUB/NWIGU witness, Avista contends that his constant growth DCF results are biased downwards because he includes outliers in his calculations, and that his multi-stage DCF analysis mistakenly assumes that investor growth expectations are capped by forecasts for growth in the U.S. economy. In addition, Avista states that the CUB/NWIGU witness did not include earnings-per-share growth estimates from Value Line, which is a service followed by investment professionals and should not be ignored.

With respect to the risk premium approach, Avista contends the CUB/NWIGU witness erroneously rejects the inverse relationship between equity risk premiums and interest rate levels, and arbitrarily ignores all data prior to 1986, introducing a subjective bias. In addition, Avista states he failed to recognize the inverse relationship between interest rates and equity risk premiums. Avista states that it corrected the studies and derived an ROE estimate of 10.05 percent, based on public utility bonds.

With respect to the CAPM analysis, Avista claims the CUB/NWIGU witness's use of historical data is inconsistent with the underlying presumption of the model. The analysis should reflect expectations of actual investors in today's capital market. Avista also criticizes the witness for failing to make a flotation cost adjustment. The earnings base of equity is permanently reduced by the cost of issuance.

(2) Staff

As noted, Staff's proposes an ROE of 9.18 percent. Staff believes its recommendation is consistent with a downward trend in gas utility ROEs in 2015, claiming a reduction of 29 basis points through September 2015.

Staff defends its use of a multi-stage DCF model, noting we have approved its use in other proceedings. Staff notes that it did use Value Line for modeling five years into the future and federal government 20-year projections for modeling growth 20 years into the future.

Staff also defends its selection of its proxy group. Staff explains it excluded companies involved in a merger-related transaction within the past four years "because such

⁶ Avista Post-Hearing Brief at 46 (citing Avista/1200, McKenzie/28, lines 5-7).

companies are in a state of transition."⁷ Staff included water utilities in its sensitivity analysis because they closely track average gas utility performance. Staff's examination of water utilities did not reduce Staff's recommended ROE.

After completing its modeling and without affecting its results, Staff checked the reasonableness of its modeling results by considering the impact of downward consensus projections of long-run GDP and the reduction in the company's riskiness due to its recent history of annual rate case filings. Staff observes that the concern with regulatory lag cited by Avista appears to support Staff's analysis—the more frequent the rate cases, the shorter the lag.

Staff argues that Avista's modeling approach is flawed. According to Staff, Avista's single-stage DCF model is useful only as a rule of thumb, because it relies on the implausible assumption that the information about future returns can be contained in just a few values. Staff notes that the Commission historically has assigned little or no weight to the single-stage model. Staff similarly argues that Avista's multi-stage DCF analysis inflates its depiction of investor expectations by removing low-end outliers (while retaining high-end outliers). Staff believes investors would more likely screen carefully for a closer peer group than be informed by modeling results.

Staff found Avista's risk premium approach not reliable as it does not track well when interest rates are low and markets are dysfunctional. Staff's own analysis based on the risk premium approach derived an ROE of 8.5 percent.

Staff also argues that Avista's use of the CAPM should be given no weight because no investor or fund management firm uses it. Further, Staff's own analysis using the model produced a much lower ROE range. Staff believes the discrepancy results from several misjudgments by Avista.

(3) CUB and NWIGU

CUB and NWIGU propose an ROE of 9.35 percent, derived from an ROE range of 8.9 percent to 9.8 percent. CUB and NWIGU note that their joint witness used a multi-stage DCF model in formulating his recommendation.

Like Staff, CUB and NWIGU challenge Avista's recommended ROE. They too note that the Commission has explicitly rejected the single-stage DCF model used by Avista, and argue that the company has failed to offer compelling evidence that a 9.35 percent ROE would damage the company's credit rating or reduce investor confidence.

They further argue that Avista has failed to show its proposed 9.9 percent ROE is commensurate with the ROE of other utilities with similar risk profiles due to its flawed analysis. They argue that Avista improperly included a flotation cost adjustment and cherry-picked outlier results in its DCF model, used an unreasonable long-term growth outlook its CAPM analysis, inappropriately proposed to increase its CAPM return estimate, overstated the company's risk-premium analysis, relied on a flawed CAPM analysis, and improperly relied on a non-utility proxy group as a proxy for Avista.

⁷ Staff Reply Brief at 8.

b. Commission Resolution

Based on the evidence presented, we adopt an ROE of 9.4 percent.⁸

In Avista's last rate case, we approved a stipulated return of 9.5 percent. That value is at the lower end of the range of values proposed by Avista and at the upper end of the ranges proposed by Staff, CUB, and NWIGU in this docket. Taking into account the many factors to be considered in deriving ROE and the arguments made by the parties, we start with 9.5 percent as a serviceable base value for our decision on authorized ROE.

We then reduce this 9.5 percent base ROE value by 10 basis points for two reasons. First, our approval of a decoupling mechanism and higher customer base charges materially lower the risk to Avista and its shareholders. That risk reduction should be reflected in authorized ROE. Second, capital structure and ROE are intertwined. Our adoption of a more equity-rich capital structure proposed by Avista further supports a slight reduction to the base ROE value.

Based on the adopted capital structure, the stipulated cost of debt, and a 9.4 percent ROE, our adopted rate of return is 7.46 percent.

B. Plant Additions

Avista proposes to increase its net plant by \$47.6 million, reflecting \$45.6 million of capital for 2015, plus an additional \$2 million for customer hookups in the first quarter of 2016. The main projects driving the increase are Project Compass, the Aldyl-A Pipe Replacement, the East Medford Reinforcement, and the Ladd Canyon Gate Station Upgrade, which together account for \$21.2 million.

Staff, CUB, and NWIGU challenge the timing and prudence of the plant investments, and primarily focus on two projects: (1) the East Medford and (2) Ladd Canyon.⁹ East Medford is a multi-year project to install a 12" high-pressure steel pipeline loop around the City of Medford. The new high-pressure line improves delivery capacity and provides reinforcement in the Medford area, which is forecasting higher growth. The completed cost of this project is \$5 million. Ladd Canyon is a rebuild of the existing gate station that interconnects with Williams Northwest Pipeline. The rebuild increases the capacity of the station and upgraded outdated facilities and equipment, and is a first step toward completing the Pierce Road High Pressure Reinforcement (to be completed in 2017). The completed cost of this project is \$1.65 million.

⁸ Because the ROE adopted in this decision was contested by the parties, in the event Avista files another general rate case within six months from the date of this order, any party proposing a different ROE will have the burden of producing evidence of a material change in the markets, a change in circumstances, or some other good cause to justify an adjustment to this adopted ROE. See In the Matter of PacifiCorp, dba Pacific Power, Request for a General Rate Revision, Docket No. UE 217 Prehearing Conference Report at 2 (Mar 18, 2010).

⁹ Staff also initially challenged the inclusion of Project Compass costs but later withdrew its objection. Staff's proposed treatment of Project Compass costs was based on testimony before the WUTC. When the WUTC decided not to adopt the proposed adjustment, Staff withdrew its recommendation in this case.

1. Positions of the Parties

a. Staff

Staff contends that Avista has failed to provide sufficient evidence to demonstrate the necessity and prudence of the \$47.6 million capital additions. Staff notes that Avista's rate base in Oregon has grown substantially since 2006, while customer growth has remained flat and gas sales have declined. Staff is concerned with the dramatic increase in spending in the context of flat customer growth and declining sales. Staff is particularly concerned with the growth rate of Avista's investment in plant in Oregon relative to plant in Washington and Idaho. Staff believes Oregon ratepayers have been paying more than their share of total rate base growth. Staff concludes the lack of detail in the business case summaries may indicate Avista is not rigorously evaluating the projects to ensure they will economically benefit customers.

Rather than examine the prudence of the individual plant additions, Staff proposes to reduce the amount of plant additions by about \$30 million, based on an analysis of growth rates and its view that Avista failed to meet its burden of proof that its investments are necessary and prudent. Staff recommends a growth rate for net utility plant of 7.75 percent for 2015, which it believes to be a generous allowance because it is higher than the company's system-wide average growth rate. According to Staff, its proposal takes into account such matters as Project Compass, growth projects, deteriorated system replacement, street and highway relocations, and the Aldyl-A Pipe Replacement (funded at the 2014 level).

Staff specifically challenges the timing of East Medford and recommends that we exclude associated costs from this year's rate case filing. Referring to the 2018 date in Avista's IRP, Staff notes the company detected the modeling error shortly before it filed its IRP in August 2014. Yet, during the IRP process Avista failed to notify the Commission or parties of the error or amend its showing. Staff contends that a showing of prudence should include an analysis of the cost and benefits to customers. Staff reasons, since design day temperatures are seldom reached and the company can employ the CWAP as necessary, a robust analysis of the cost and benefits to customers should be required to show the prudence of accelerating completion of this project ahead of the initial timeline.

b. CUB and NWIGU

CUB and NWIGU believe that Staff raised compelling concerns regarding Avista's capital forecast and support Staff's \$30 million adjustment to Avista's forecast. CUB and NWIGU argue that Avista's analysis of the East Medford and Ladd Canyon projects is flawed. They claim Avista did not provide a comprehensive cost-benefit analysis of whether or when the project should be built, did not evaluate the range of alternative build dates, and did not analyze the impact on reliability and customer rates.¹⁰

CUB and NWIGU also challenge the prudence of Avista's investment because they were built prior to the time identified in the IRP. They assert that Avista failed to sufficiently

¹⁰ We note that, in their reply brief, CUB/NWIGU support Staff's proposed disallowance of Project Compass costs. However, Staff withdrew its recommendation in its reply brief and we consider the issue resolved in Avista's favor.

justify the accelerated timeline. Citing our decision to deny a request to include in rates a project built ahead of the need identified in the IRP, they contend that Avista failed to provide the evidentiary support we identified would be required to find early construction of a project prudent.

Further in regard to Ladd Canyon, CUB and NWIGU question Avista's justifications for the project. In the company's initial filing in this case, Avista justified the project as necessary to meet gas load increases. Later, after CUB criticized the project as apparently driven by a single (since departed) interruptible customer, Avista shifted its justification to reliability, and now insists the capacity of the station limits its ability to reliably serve customers in the Ladd Canyon/Umon area on a design heating degree day.

c. Avista

Avista acknowledges the level of plant increase for 2015 was above average, but emphasizes that this does not mean the specific capital additions were unnecessary at the time. Avista insists its internal process for approving capital projects is robust—projects are prioritized, and many are delayed based on competing business cases.

Avista expresses frustration with the process and the criticisms from Staff, CUB, and NWIGU that it failed to meet its burden of proof that these capital investments were prudent. The company explains that it cannot anticipate which of the nearly 40 projects Staff or intervenors might question, and that it would be burdensome to put all of the supporting information for each project into the record.

Avista also objects to Staff's proposal to limit the company's plant additions based on a simple analysis of historic plant growth rate. Avista contends Staff's methodology is arbitrary, as it removes over \$30 million of net plant for 2015 that is providing service to customers without any showing that the plant is not needed. Avista claims that all the evidence demonstrates the higher level of additions are in-service, prudent, and necessary to serve customers.

Avista defends the East Medford and Ladd Canyon projects. Avista explains that East Medford was included in its 2014 Integrated Resource Plan (IRP) for completion in 2018, but the company accelerated completion after discovering it had made an error with respect to the guaranteed delivery pressure from the Williams Northwest Pipeline at Avista's Jones Creek Gate Station. When that error was corrected, the project was reprioritized based on the risk of service loss on a design heating degree day. Avista emphasizes that the IRP process takes into account that changed circumstances inay result in changes to timing and maintains that it presented evidence showing there was serious risk that firm service could not be provided to 9,500 customers under design day conditions.

With regard to Ladd Canyon, Avista explains that the project was necessary to address an existing capacity deficit that limited the company's ability to serve customers in the Ladd Canyon/Union area on a design heating degree day. According to Avista, the peak load requirements at the gate station on a design day are 40.9 mcfh (thousand cubic feet per hour), while the capacity of the station was only 37.2 mcfh, leaving the majority of the 750 customers in Umion at risk of service loss in a prolonged cold period. Avista characterizes the Ladd Canyon station as a system resource, similar to a substation for an

electric utility. It provides benefits to all customers served downstream by way of increased reliability.

Avista disputes claims that it could have delayed the project. The company contends that it could not meet the load by interrupting other customers, because load studies to model the gas distribution system on a design day presume that all interruptible customers have already been interrupted, and only firm loads are being served. Avista says this refutes the suggestion that service to an asphalt paving customer in the area drove the need for the station upgrade. Avista also disputes Staff's claim that the company's Cold Weather Action Plan (CWAP) was a sufficient alternative reliability measure to delay the project. Avista cautions that the CWAP is a back-up plan and should not be relied on as a means of serving customers.

2. Commission Resolution

We allow Avista full recovery of its capital costs related to plant additions.

We reject Staff's proposal to reduce overall net plant included in rate base for two reasons. First, after adjusting for the cost of four main capital projects – Project Compass, Aldyl-A, East Medford, and Ladd Canyon – the amount of capital additions is not extraordinary compared to historical and anticipated future expenditures. In addition, Avista provided evidence that capital additions have often varied significantly from year to year and there is no typical annual increase in expenditures. Second, Avista provided documentation through its business case analyses and back-up information to justify its capital projects that Staff did not contest on an individualized basis. Generally, adjustments should be based solely on thorough assessments of individual projects and not be based on cuts across groupings of projects. We find that Staff did not provide compelling evidence for the individual project cuts it proposed.

We reject parties' proposals to disallow recovery of costs for the East Medford and Ladd Canyon distribution system upgrades. Based on the record, we find that Avista was justified in making the system upgrades to ensure it could meet firm demand in the two areas during extreme weather conditions. In both instances, current demand/supply models show insufficient capacity to meet peak demands today during an extreme weather incident. Nothing in the record rebuts this finding.

Although we approve full recovery of these capital additions, we share some of Staff's and the intervenor's concerns about Avista's management and analyses of these projects. First, as Avista has implicitly acknowledged, both the East Medford and Ladd Canyon distribution systems have been capacity deficient for some period of time. We urge Avista to maintain up-to-date analyses to ensure adequacy of supply to customers and timing of these projects.

Second, we expect the company's proposed system upgrades to be thoroughly vetted in the IRP process and that changes in circumstance should immediately be conveyed to parties and to the Commission and taken up in IRP updates. Avista's 2014 IRP showed that East Medford and Ladd Canyon should be upgraded later in the decade. Soon after they released that IRP, Avista revised its analyses and its need dates without alerting parties and the Commission, depriving the parties the opportunity to scrutinize its new analyses in an IRP update. Finally, as part of the IRP-vetting process and subsequent rate proceedings, we expect that Avista conduct and present comprehensive analyses of its system upgrades. Such analyses should provide: (1) a comprehensive cost-benefit analysis of whether and when the investment should be built; (2) evaluation of a range of alternative build dates and the impact on reliability and customer rates; (3) credible evidence on the likelihood of disruptions based on historical experience; (4) evidence on the range of possible reliability incidents; (5) evidence about projected loads and customers in the area; and (6) adequate consideration of alternatives, including the use of interruptibility or increased demand-side measures to improve reliability and system resiliency.¹¹

C. Project Compass Bonuses

1. Positions of the Parties

Although Staff withdrew its recommendation to disallow Project Compass costs, it proposes that we disallow 50 percent of the bonuses related to the project. The Oregon-allocated amount of the bonuses is \$68,000.

Avista argues it is not appropriate for Staff to invoke a 50 percent rule without considering the reason the bonuses were paid. The company cites from the decision by the WUTC allowing 100 percent recovery of the bonuses:

Finally, we do not agree with Staff's assertion that the bonuses paid to the Avista staff actively involved in managing Project Compass were imprudent, and should therefore be disallowed. Instead, we agreed with the Company that such bonuses were properly determined and reviewed internally, were based on objective and measureable benchmarks, and were appropriately given to ensure continuity for key employees to ensure efficient final completion for an IT Project of this magnitude.¹²

The company notes that Staff offered no independent testimony on this issue.

2. Commission Resolution

Generally we make a distinction between performance-based bonuses and merit-based bonuses. Performance-based bonuses reflect benefits to shareholders from improved financial performance, while merit-based bonuses reflect benefits to customers and shareholders through lower costs of service. The 50 percent sharing of merit-based benefits is based on that mutual benefit.

However, we apply that standard in the case of bonuses relating to measures that reduce costs going forward. The Project Compass bonuses were paid in conjunction with a finished project that benefits ratepayers. We allow Avista to recover 100 percent of the Project Compass bonuses.

¹¹ See In Matter of Northwest Natural Gas Company, dba NW Natural, Request for a General Rate Revision, Docket No. UG 221, Order No. 12-437 at 16-17 (Nov 16, 2012).

¹² Avista Final Brief at 20, citing WUTC Order 05, Dockets UE-150204 and UG-150205 at 62.

D. Wages and Salaries; Bonus Incentives

1. Positions of the Parties

According to Staff, it is Commission policy to disallow 100 percent of officer bonuses as they are typically based in part on earnings, and to disallow 75 percent of performance-based bonuses and 50 percent of merit-based bonuses. Staff applies its understanding of our policy to remove incentive bonuses of \$288,000 in expenses and \$278,000 in capital.

Staff states that the key question underlying this dispute is whether we consider metrics like O&M costs per customer to be solely related to ratepayers and not to shareholders. Staff explains that is our policy to not allow full recovery of a bonus if it is based on a metric (like O&M cost-per-customer) that is related to a company's earnings, a company's financial results, or merit/performance.

Staff argues that O&M cost-per-customer is a metric related to shareholders as well as to customers. Financial metrics focus on employees achieving goals in a cost effective manner, which encompasses O&M cost per customer.

Avista states that its incentive plan costs are based entirely on metrics related to ratepayers (O&M cost-per-customer, satisfaction, reliability, and response time), none of which depend on the utility's financial results or other shareholder metrics. The O&M cost-per-customer metric relates directly to customers (not shareholders); it emphasizes cost containment or reduction of O&M costs which serves to reduce the upward pressure on rates. An employee should be properly incentivized to control these costs.

2. Commission Resolution

We concur with Staff that O&M cost containment or reduction of O&M costs benefits both shareholders and ratepayers and adopt Staff's adjustment.

E. Medical Benefits

1. Positions of the Parties

Staff proposes an adjustment of \$133,000 to health insurance expense. As grounds for the adjustment Staff cites a Kaiser Family Foundation survey that reports that the average employer/employee premium sharing ratio in the industry is 82/18 for single employees, and 71/29 for families. Staff proposes the 82/18 ratio, while Avista uses a 90/10 ratio.

In addition, Staff disagrees with the company's escalation factor (15.4 percent) to escalate the 2014 cost to 2016. Staff's proposed adjustment is based on an analysis of cost trends from 2011 through 2014.

Avista opposes Staff's recommendation. The company states that its independent compensation consultant assisted the company in designing a total benefit package (including medical expenses) that reflects market conditions. Medical benefits are only one portion of a carefully balanced overall compensation package. It is not appropriate to adjust one component of the overall benefits package, without revisiting the competitiveness of the whole package.

According to Avista, the Kaiser survey is not specific to any geographic location and lacks pertinent information for the utility industry. The report itself acknowledges considerable variations among firms with respect to the share of premiums contributed by workers. If the company were to change the premium sharing component as proposed by Staff, other elements of compensation would need to be adjusted to maintain a competitive compensation package.

Regarding the second portion of Staff's proposed adjustment, based on historical trends, Avista argues that Staff's method did not capture the effects of known changes in the healthcare industry, including healthcare reform.

2. Commission Resolution

We adopt Avista's proposed medical benefits cost. We recognize the difficulty of isolating the reasonableness of individual elements of a compensation package. There does not appear to have been any material change in Avista's premium sharing arrangement that would trigger a closer examination of this single component, relative to the other elements of the package.

Regarding the escalation factor, we recognize that health care reform may have a material effect on healthcare costs that are not captured in a historical trend approach to estimate healthcare costs.

3. Pension Expense

The level of pension expense charged to ratepayers is calculated and determined by third party actuaries. The equation used by the third-party actuary includes components such as "Expected Return on Assets" (EROA) and the expected discount rate. The parties disagree on the proper EROA. Avista proposes an EROA for ratemaking purposes of 5.3 percent. Staff, CUB, and NWIGU claim that figure is too low.

a. Positions of the Parties

Avista explains that its proposed EROA of 5.3 percent is based on a thorough process and analysis undertaken by the Finance Committee of its Board of Directors and reflects the optimal portfolio with the greatest minimization of funded status volatility. Avista states that it is the prerogative of the company's management to devise a prudent plan to protect its pension obligations. Judgment is required, and the company made an informed judgment, based on expert advice.

Avista emphasizes that the investment risk is real, and notes that its pension expense tripled from 2000 to 2001 as a result of the equity market decline in that single year. The company also notes that its pension expense doubled in 2009 as a result of the 2008 mortgage crisis. Such experiences prompted the Finance Committee to seek strategies to mitigate such wild swings.

Avista argues that one should not look to past returns as a benchmark for future returns. The company's expected return looks forward over a 10 year horizon and its expected

5.3 percent return for 2015 is supported by market analysis and specific circumstances directly related to Avista's plan.

Staff proposes to reduce Avista's pension expense by \$149,000, based on an imputed EROA of 7 percent. Staff believes that Avista's proposed pension expense is inflated due to the company's overly conservative pension plant investments that result in a lower EROA as explained by Staff, a pension fund grows either through cash contributions from the company or through investment returns. Because a plan's funding can be highly dependent on market swings and interest rates, required cash contributions can be volatile. The volatility of cash contributions is a shareholder risk. The amount charged to customers is influenced by the company's investment choices. Avista would expect to earn lower returns on its conservative investments in exchange for the lower risk.

Staff states that, in this case, Avista reduced its exposure to market volatility by changing the allocation of asset investments in its pension fund. Avista shifted its ratio of fixed income and equity investments from 31/69 percent to 58/42 percent—the most conservative option recommended by its consultant. By shifting its investments to a more conservative mix the company increased pension costs for its customers. Because of its change in asset mix, Staff explains that Avista's forecasted EROA decreased from 6.6 percent in 2014 to 5.3 percent for 2016, and is well below the average EROA (7.31 percent) for the other regulated utilities in Oregon for 2014.

Staff understands that Avista believes that, because its pension plan was well-funded, it was appropriate to derisk it by becoming more heavily invested in fixed income assets. Staff investigated whether a higher-funded status for a fund correlates with lower EROAs and found only a "mild" correlation.

CUB and NWIGU propose to reduce Avista's pension expense by \$340,000, based on an imputed EROA of 6.6 percent. They agree with Staff that shifting to a more conservative investment mix reduces shareholder risk at the expense of customers. They state that we previously questioned the appropriateness of such actions by Avista, in relation to its gas supply hedging practices, resulting in the company paying its customers \$500,000 and reducing it hedging.

CUB and NWIGU are not persuaded that derisking is an industry norm, noting that the sources cited by Avista are not utility-industry specific. The company cites only two utilities with a similar approach. CUB and NWIGU note that one of those companies has an EROA 50 basis points higher than Avista's proposed 5.3 percent.

b. Commission Resolution

We adopt CUB's and NWIGU's proposal to reduce Avista's pension expense by \$340,000, based on an imputed EROA of 6.6 percent. Avista's ratio of fixed income to equity investments is unduly conservative, is significantly lower than the average EROA for other regulated utilities, and shifts undue costs on to Oregon customers.

4. Post-Retirement Medical Expense

a. Positions of the Parties

According to Avista, the company's EROA (6.6 percent) was derived from input received from independent consultants related specifically to the post-retirement medical asset mix. The post-retirement medical fund is smaller in scale, relative to the pension investment fund, and no derisking strategy was applied.

Staff's proposes a post-retirement expense adjustment for reasons very similar to its proposed pension expense adjustment. In Staff's view, Avista proposes to use an EROA that is overly conservative. Staff proposes to adjust the EROA to 7 percent. The amount of Staff's proposed adjustment is \$14,000.

b. Commission Resolution

We adopt Avista's proposed post-retirement medical expense. The company presented evidence establishing that its calculation is based on expert opimion related specifically to these assets.

5. Results of Operations

The results of our decision are shown in the following table showing adjustments to revenue requirement and rate base:

Adjusted Revenue Requirement incorporating both stipulations	6,066.000
Rate of Return (9.4% ROE, 50% Equity/50% Debt)	(926,000)
Wages & Salaries/Bonus Incentives	(329,000)
Pension Expense (6.6% EROA)	(351,000)
Final Revenue Requirement	4,460.000

The overall effect is a rate increase of \$4,460,000 (4.9 percent).

6. Rate Spread

- a. Positions of the Parties
 - (1) Avista

Avista proposes to raise its residential and general service commodity rates and reduce rates for large general service, seasonal service, and transportation service as shown in this table:

Proposed Increase by Schedule			
Residential Schedule 410	17.0 percent		
General Service Schedule 420	21.4 percent		
Large General Service Schedule 424	-7.0 percent		
Interruptible Service Schedule 440	0.0 percent		
Seasonal Service Schedule 444	-7.0 percent		
Transportation Service Schedule 456	-7.0 percent		

Avista offers the following table to illustrate margin-to-cost ratios:

	Margin-to-Cost at Present Rates	Margin-to-Cost at Proposed Rates
Residential Schedule 410	0.98	0.99
General Service Schedule 420	0.92	0.96
Large General Service Schedule	1.78	1.43
Interruptible Service Schedule 440	1.47	1.26
Seasonal Service Schedule 444	1.77	1.41
Transportation Service Schedule 436	1.66	1.33
Overall	1.00	1.00

Avista states that it used its LRIC study as a guide to spread the proposed margin/revenue increase by schedule in a manner that results in the margin-to-cost ratios moving about 50 percent closer to unity. The company believes a 50 percent movement is reasonable and will help more closely align rates with costs.

Avista notes that in in its most recent general rate case we stated:

We appreciate that rates may be misaligned relative to cost-of-service and that rate cases provide opportunities to make adjustments that more closely align rates with costs. Absent compelling evidence that warrants more immediate action, however, we are not inclined to raise some rates while reducing others. In this case there is no evidence that suggests that Avista's rates for its larger customers are so high and need to be reduced at this time.¹³

In Avista's view, such compelling evidence was presented in this case. The company's LRIC studies over its past three general rate cases have all shown margin-to-cost ratios continuing to move away from parity. In addition, the LRIC studies presented by Staff and CUB and NWIGU also show that certain schedules rates will continue to be misaligned without rate reductions.

¹³ In the Matter of Avista Corporation, dba Avista Utilities, Request for a General Rate Revision, Docket No. UG 284, Order No. 15-054 at 5 (Feb 23, 2015).

ORDER NO. 16 109

Avista notes that NWIGU supports the company's proposal. While Staff's proposal is similar to the company's, Avista takes issue with Staff's proposal that rate reductions be limited to no more than a negative four percent.

Avista objects to CUB's rate spread proposal. The company argues that CUB's criticisms of the LRIC methodology are unfounded, noting that CUB did not perform its own LRIC study. Avista claims that adoption of CUB's proposed rate design would lead to "perverse results."

(2) Staff

Staff agrees with Avista that there is compelling evidence to support rate decreases for some customers and increases for others. In Staff's view, that result would "promote social equity by reducing inter-class cross-subsidization."

Staff offers a nuanced approach to rate spread. If the overall total bill rate increase is four percent or less, the Commission should provide rate decreases to the large industrial customers; if the overall total bill rate increase is greater than four percent, there would be no change in rates for the large industrial customers.¹⁴

(3) NWIGU

NWIGU argues that Avista's rate spread proposal is justified by the company's LRIC study. NWIGU's study shows the lack of parity between rate classes is even more extreme than shown by Avista. NWIGU also cites Staff's study and claims it supports reducing the target margin revenue for rate Schedules 424, 444, and 456 by as much as seven percent. NWIGU asks that we find the current distribution rates, on a relative margin-to-cost basis, resulting in some customer classes paying significantly more than their allocated cost-of-service and other customers paying less.

NWIGU objects to CUB's rate design proposal, which is based "primarily on policy arguments and unjustified theories and critiques of the parties' LRIC studies."¹⁵ NWIGU contends that CUB's proposal is untenable because it completely ignores the evidence in this proceeding.

(4) CUB

CUB argues that the LRIC studies are fundamentally flawed and unsupported by sound analysis and public policy. CUB proposes a rate spread that would have no customer class receiving more than three times the increase of any other customer class. For transportation customers, this would be done after imputing Avista's commodity costs. Interruptible customers would receive the average increase.

Regarding the LRIC studies, CUB argues that Avista mistakenly attributes capital spending to residential customers. Load growth for small customers is relatively flat, whereas industrial usage and the number of customers are trending up. CUB argues the

¹⁴ Staff includes the cost of gas in its calculation of the total bill increase.

¹⁵ NWIGU Post Hearing Brief at 3.

ORDER NO. 16 109

useful life of investments is overstated for industrial customers, and claims the LRIC study does not reflect an accurately sized system.

CUB argues that residential customers subsidize other customers, referring to the allocation of pipeline capacity release revenue. The company purchases pipeline capacity to meet residential demand and markets unused capacity. CUB explains that the revenue from the sale of the unused capacity is allocated to all customers on a per therm basis, resulting in a benefit for large customers.

CUB further argues that Avista's proposed rate spread is unsupported by precedent and sound ratemaking policy. CUB notes we have a long policy of not reducing some rates while increasing other rates. CUB found only one litigated case where we increased rates for some customers while reducing other rates, but contends that the circumstances in that case were significantly different from this case.

b. Commission Resolution

We do not adopt any of the rate spread proposals. Instead, we allocate the rate increase to the residential and general service customers and do not increase or reduce rates for the large customers.

While the result does move the rate schedules closer to their apparent marginal costs, we do not adopt adherence to marginal cost as the sole consideration in setting rates. As stated by NWIGU, "[w]hile the Commission has not used LRIC studies to mandate strict rate parity, the results of the studies have provided informed guidance on class rate spread."¹⁶

As noted by CUB, we have a longstanding policy of not reducing rates for some customers where rates are increased for other customers. We reaffirmed this in Avista's most recent rate case, stating that we would apply this policy "[a]bsent compelling evidence that warrants more immediate action."¹⁷ The parties' efforts to characterize their LRIC studies as compelling evidence are to no avail. Their evidence in this case is no more compelling than it was in the last case.¹⁸

Staff and NWIGU try to justify their rate spread proposals by minimizing the effect on residential customers.¹⁹ One could just as readily argue the converse—the adopted rate spread has a small impact on the larger customers.²⁰ There is no evidence to support the inference that the slight difference in the rates for large customers would materially affect Avista's loads. Compelling evidence would be evidence of impending bypass or plant

¹⁶ Id. at 4.

¹⁷ Order No. 15-054 at 5.

¹⁸ See Avista Post-Hearing Brief at 66 (docket UG 288). In docket UG 284, Avista calculated the marginto-cost ratio for residential customers at 0.99; in this case it was 0.98. In docket UG 284, Avista calculated the ratio for general service customers at 0.92; in this case it again is 0.92.

¹⁹ "[T]he impact of Staff's approach to the typical residential customer is only about \$1.97 per year, or \$0.16 per month." (Staff Reply Brief at 27); "the small impact on residential customers of only 0.3 %." (NWIGU Post Hearing Brief at 3).

²⁰ Using the same data used by Staff and cited by NWIGU (Staff/1304, Compton), depending on the amount of the actual rate increase, the difference between Avista's proposed rate spread and the adopted rate spread is about five tenths of a cent per therm.

closure. As stated by Avista, "the company expects relatively stable customer levels over the next five years for rate schedules 424, 440, 444, and 456."²¹

Increase by Schedule			
	Distribution Margin	Billed Revenue	
	Percentage Increase	Percentage Increase	
Residential Schedule 410	8.6%	5.2%	
General Service Schedule 420	11.1%	5.8%	
Large General Service Schedule 424	0.0%	0.0%	
Interruptible Service Schedule 440	0.0%	0.0%	
Seasonal Service Schedule 444	0.0%	0.0%	
Transportation Service Schedule 456	0.0%	0.0%	
Total	8.5%	4.9%	

The adopted rate spread is shown in the following table:

VII. RATE CASE SCHEDULES

Finally, in reaching these decisions, we recognize the role that the procedural schedule played in the development of the parties' arguments and evidentiary record. Generally, parties agree to five rounds of written testimony in general rate cases. This allows Staff and intervenors two opportunities to respond to the utility's testimony—first to identify disagreements with the utility's initial rate case application, and then to address the utility's reply testimony, which generally contain more substantial and detailed information on disputed issues.

Here, the parties agreed to just three rounds of testimony. With this abbreviated schedule, Staff and intervenors were only able to reply in writing to Avista's opening testimony—which essentially provided only a broad overview of all components of the utility's request. The parties were not able to respond in writing to Avista's more detailed testimony and evidence it later submitted in response to address identified concerns. This proved problematic, especially with regard to Avista's request for increase its net plant, and played an apparent role in Staff's proposal to reduce overall net plant and various claims that Avista had failed its burden of proof.

To avoid this problem in the future, we will expect five rounds of testimony in future general rate case proceedings. This schedule recognizes both the practical inability of a utility to anticipate which parts of a general rate request might be opposed, as well as the need for Staff and intervenors to respond to supporting information when it is subsequently produced by the utility. This will also give a burden of proof claim more weight where it is made in argument after testimony in response to the utility's reply showing, where the issues have been identified and the testimony is more sharply focused.

²¹ In his opening testimony, Avista's witness did not characterize the evidence as "compelling." The company did not make that claim until it filed its reply testimony (Avista/1800, Miller/13).

VIII. ORDER

IT IS ORDERED that:

1. Order No. 16-076, entered February 29, 2016, is affirmed.

2. This docket is closed.

A party may request rehearing or reconsideration of this order under ORS 756.561. A request for rehearing or reconsideration must be filed with the Commission within 60 days of the date of service of this order. The request must comply with the requirements in OAR 860-001-0720. A copy of the request must also be served on each party to the proceedings as provided in OAR 860-001-0180(2). A party may appeal this order by filing a petition for review with the Court of Appeals in compliance with ORS 183.480 through 183.484.