

Questar Gas Rate Case Technical Conference

August 9, 2016

Pipeline Integrity Adjustment

| | A | B | C |
|---|---------------------------|-------------------------|----------------------------|
| | Historical | Inflation Adjustment | Pipeline Integrity 2014 |
| 1 Pipeline Integrity | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 Projected Expenses for year Test Year | \$ 5,032,656 | | \$ 5,032,656 |
| 7 | | | |
| 8 Forecasted Deferred Balance \$8,200,000/3 years | \$ 2,700,000 | | \$ 2,700,000 |
| 9 Forecasted Integrity Accrual | \$ 7,732,656 | | \$ 7,732,656 |
| 10 | | | |
| 11 Current Allowed Expense | \$ (3,500,000) | \$ (38,605) | \$ (3,538,605) |
| 12 Current Allowed Amortization | \$ (1,600,000) | \$ (17,648) | \$ (1,617,648) |
| 13 Total Current | \$ (5,100,000) | \$ (56,253) | \$ (5,156,253) |
| 14 | | | |
| 15 Pipeline Integrity | \$ 2,632,656 | \$ (56,253) | \$ 2,576,403 |

\$870,481

DIRECT TESTIMONY OF
KELLY B. MENDENHALL

QGC EXHIBIT 3.0
DOCKET NO. 13-057-05
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439 16, the Commission approved continued recovery of transmission integrity management
440 costs. A summary of the Commission allowed expenses are shown in the table below:

| | Current Expense | Prior Period Expense | Total Expense |
|-------------------|------------------------|---------------------------------|----------------------|
| 05-057-T01 | \$2,000,000 | \$0 | \$2,000,000 |
| 07-057-13 | \$3,500,000 | \$1,600,000 | \$5,100,000 |
| 09-057-16 | \$3,500,000 | \$870,481 | \$4,370,481 |

441

Current Integrity Expense

Current Integrity Expense

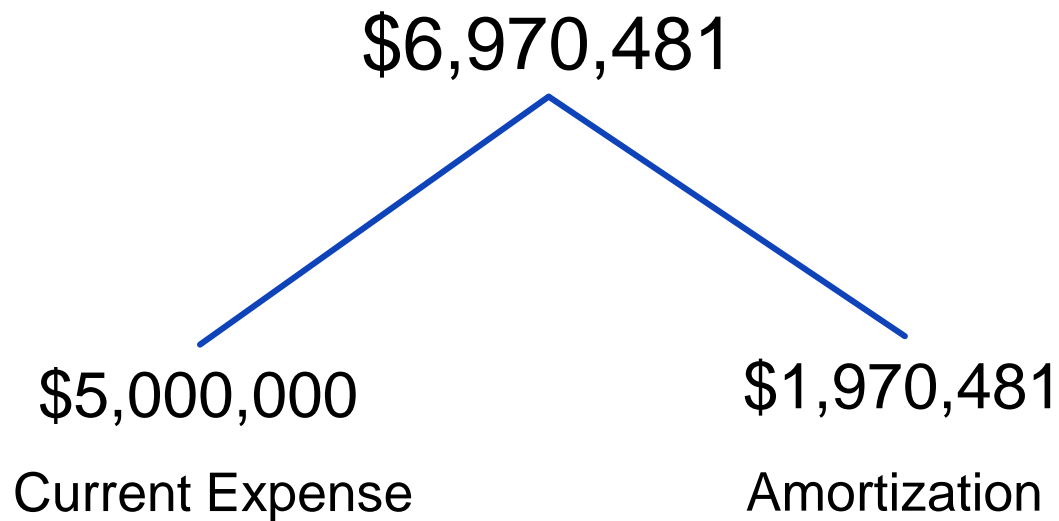
\$4,370,481 Total expense in 2009 case

\$23,597 0.5% inflation

\$2,576,403 Commission Approved Increase

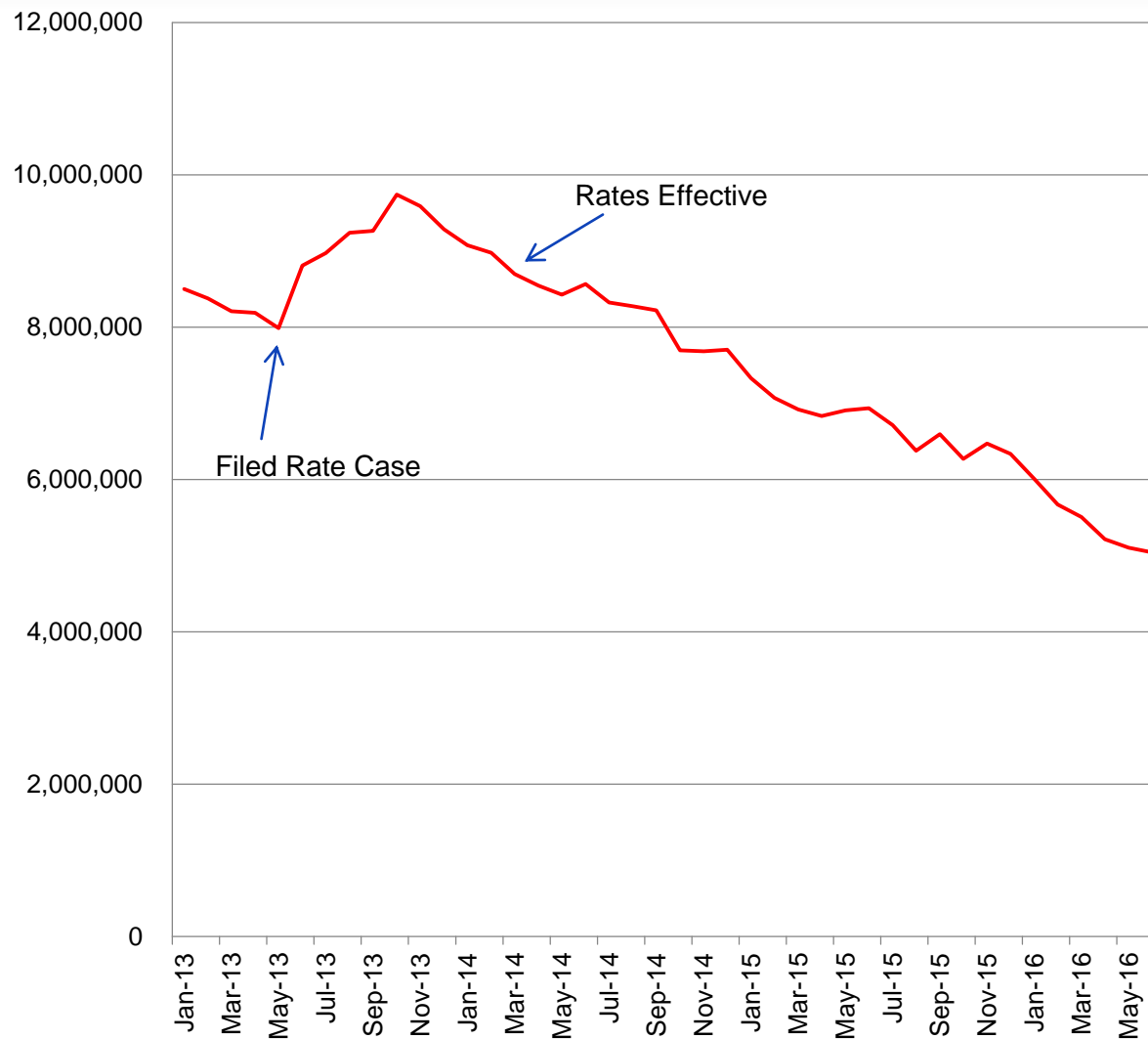
\$6,970,481 Total expense in 2013 case

Integrity Expense



TIMP and DIMP

TIMP and DIMP Balance



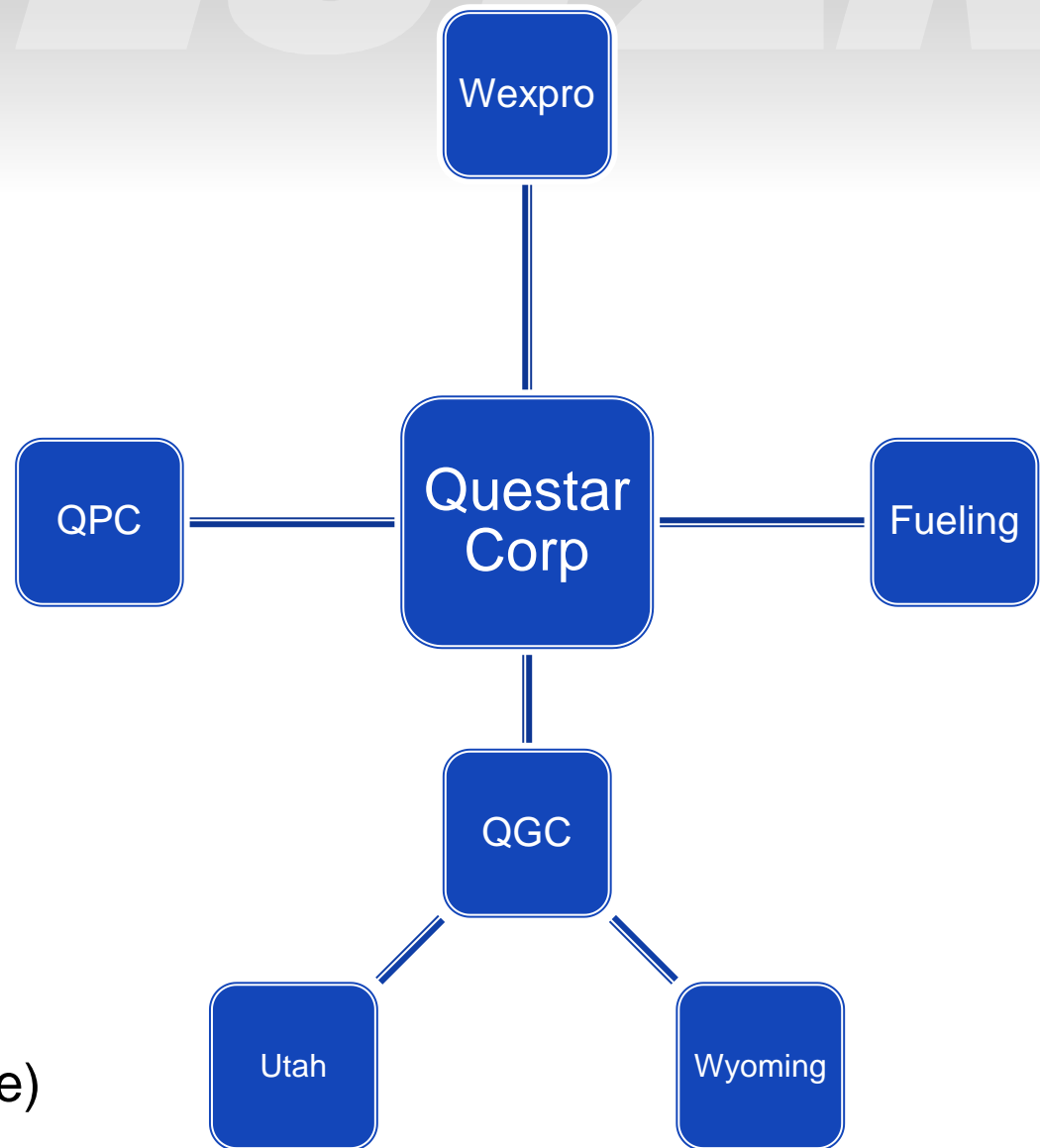
Administrative and General Expense Allocation

Corporate Allocations

- Directly Assigned (51%)
- Employee Count (7%)
- # of Computer Accounts (6%)
- # Transactions (3%)
- # of Vehicles (1%)
- Square Footage (1%)
- Dstrigas (31%)

Jurisdictional Allocation

- Gross Plant
- Customer Count
- Surveys (Regulatory & Finance)



Energy Efficiency Adjustment



Cost of Service Allocations

- Filing based on principal of cost causation
 - Full cost rates for all classes
 - Exception of FT-1
- Same allocation factors as in prior cases
 - Current data in all factors
 - Updated the Distribution Plant Factor with new sample and 2015 costs
 - New sample includes 3,000 GS customers
 - Includes every customer in FS, IS, and TS classes

Cost of Service Allocations

Peak Day Allocation Factor

- IRP peak day vs Rate Case peak day
- Rate Case IRP does not include Lakeside

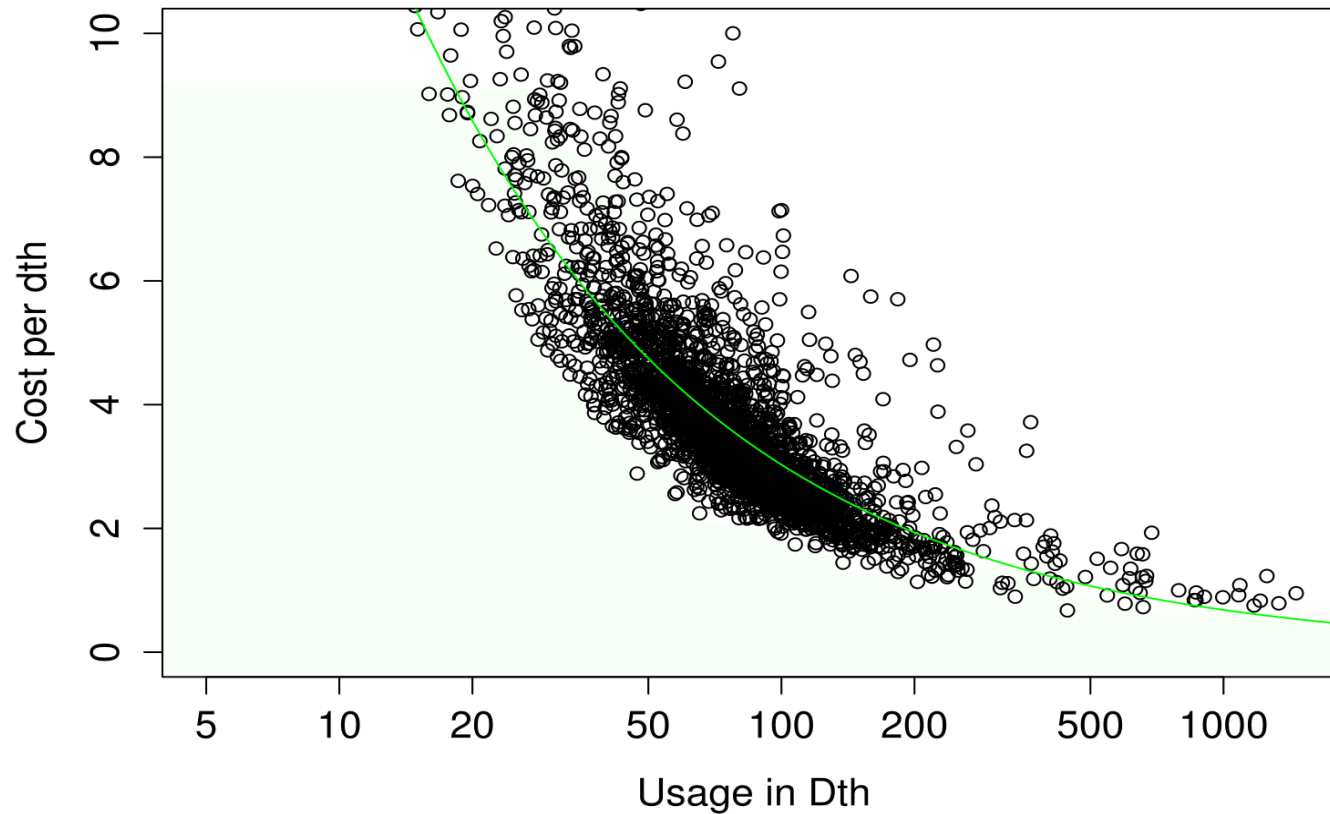
| Rate Class | Rate Case | IRP |
|------------------|-----------|-----------|
| GS | 1,245,774 | 1,245,774 |
| FS | 31,435 | 31,435 |
| TS | 155,201 | 155,201 |
| FT-1 | 58,000 | 58,000 |
| NGV | 2,033 | 2,033 |
| Lakeside/Wyoming | | 247,557 |
| Total | 1,492,443 | 1,740,000 |

Rate Design

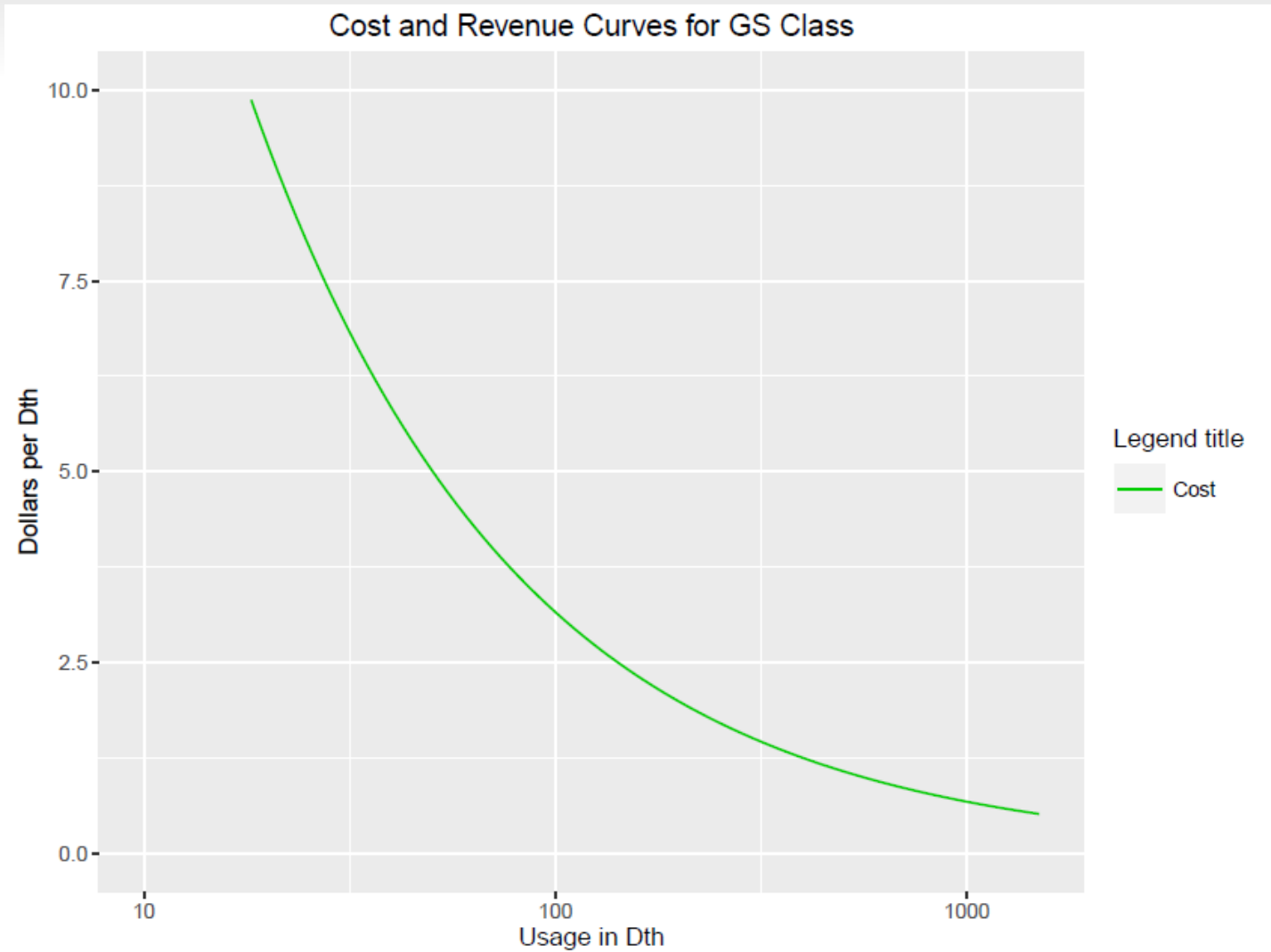
- Same approach, improved accuracy
 - Cost curves calculated at customer level instead of class average
 - Cost of Service calculated for every customer (3,000 GS + every customer in other classes)
 - Reduces intra-class subsidies

Cost Curves Use More Data Points

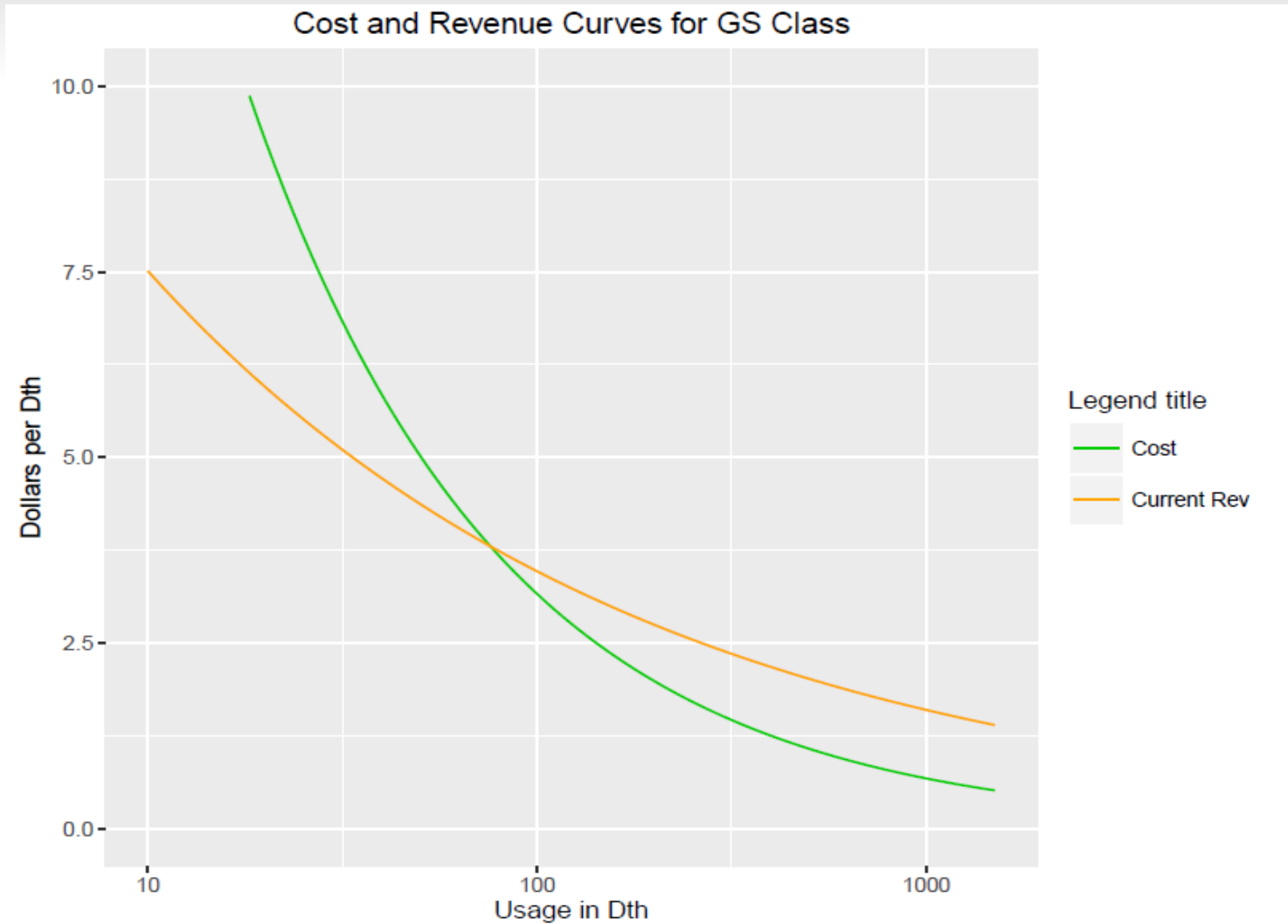
GS Class Cost per dth and Annual Usage



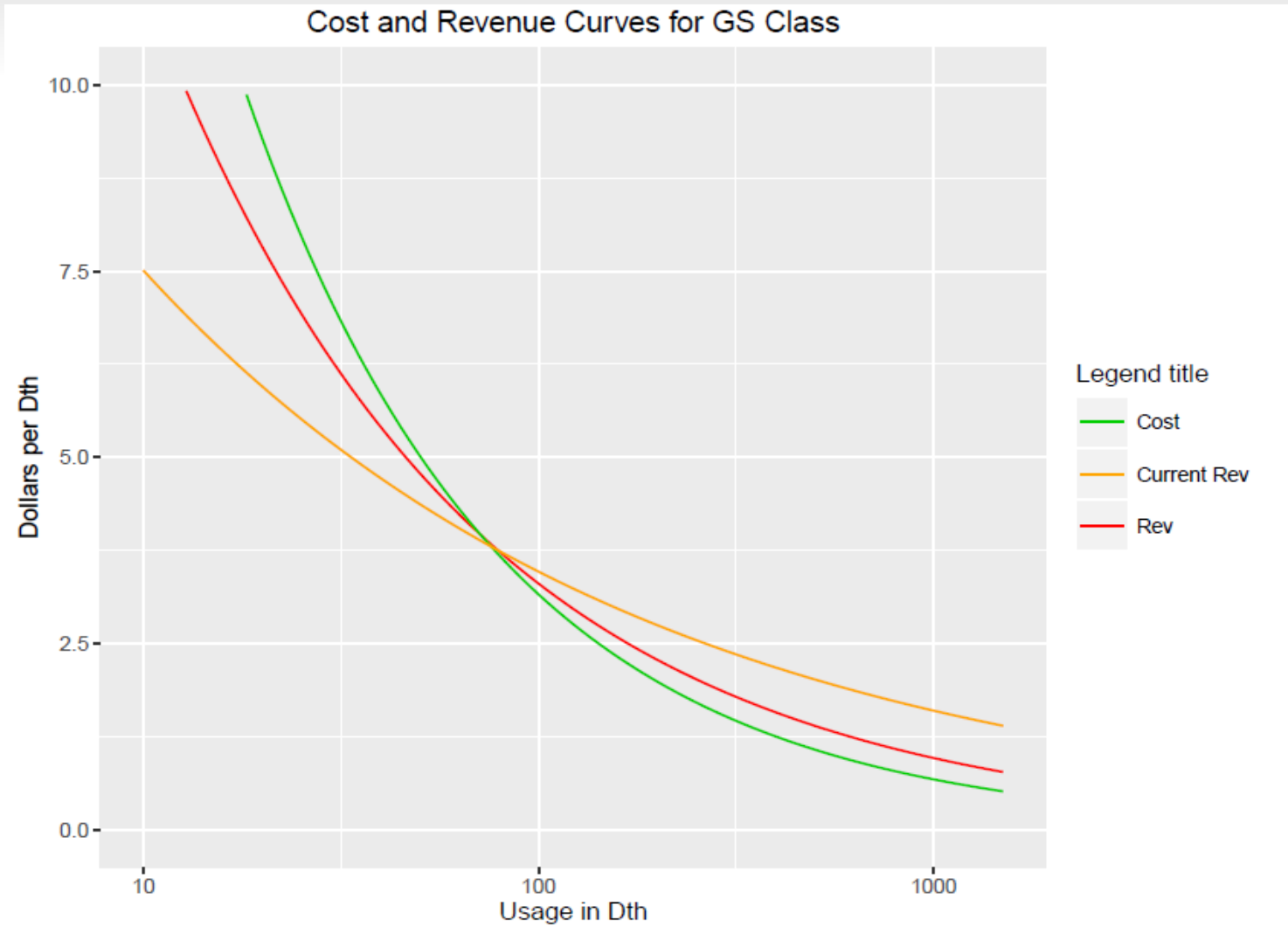
GS Cost Curve



GS Cost Curve



GS Cost Curve

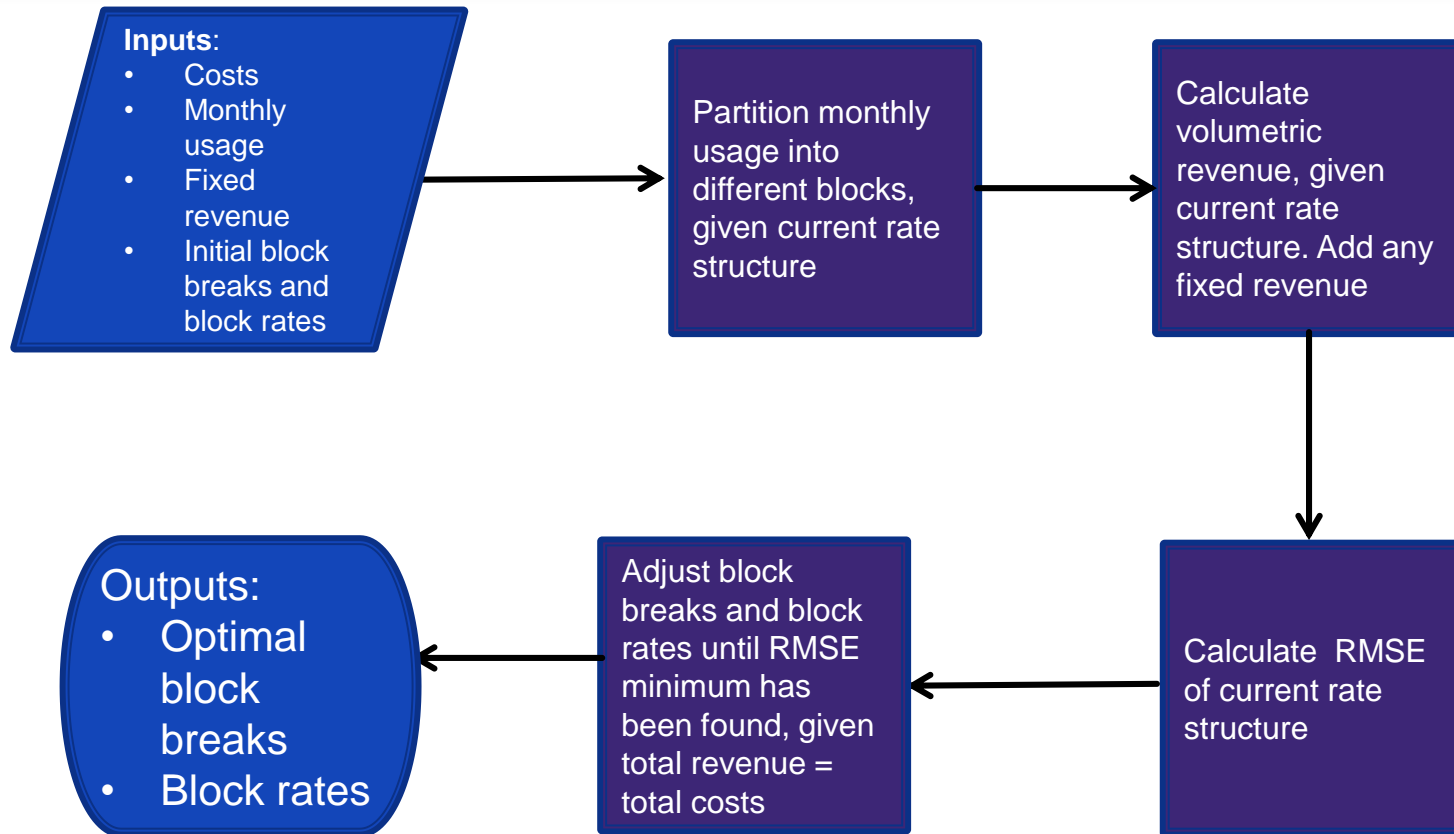


Rate Design

- Same approach, improved accuracy
 - Cost curves calculated at customer level instead of class average
 - Cost of Service calculated for every sampled customer
 - Reduces intra-class subsidies
 - Functionalization – 3 categories before with distribution plant spread through all three
 - Distribution plant now its own functional category – allows plant costs to be assigned directly to individual customers in rate design
 - Caused some changes in functional costs

- Rate Optimization Program
 - Goal is to collect revenue that is close to the costs that are caused by a customer
 - Last case used historical blocks combined with visual optimization to design rates
 - Optimization program uses mathematical optimization on block breaks and rate differentials between blocks to match revenue collection with cost causation

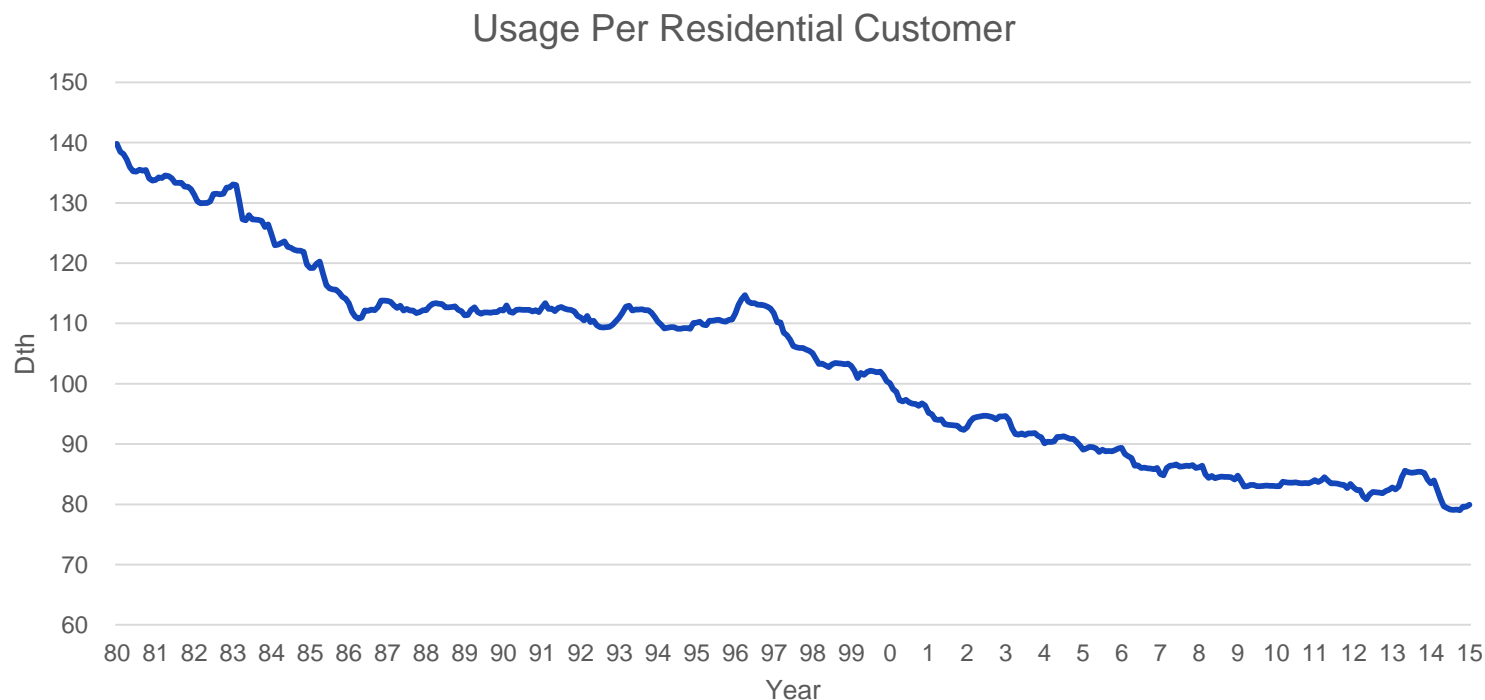
Optimization Process (Simplified)



Optimization Program

```
132
133
134 VarPi <- function(x) {
135   #function for calculating RMSE of customers given a rate stucture
136   # Args:
137   #   x - a vector that corresponds to rates and block breaks
138   #   where x_1 is the rate for block one, x_2 is the rate block two,
139   #   and x_3 is the block break.
140   #
141   # Returns:
142   #   the RMSE given the rate structure i.e. the square root
143   #   of the average squared distance between customer's costs and
144   #   revenue.
145
146   #create blocks
147   block1 <- x[3]
148
149
150   monthly$block1 <-
151     ifelse(monthly$WNA_DTH < block1, monthly$WNA_DTH,block1)
152   monthly$block2 <-
153     ifelse(monthly$WNA_DTH >= block1, monthly$WNA_DTH - block1,0)
154
155   prems <- group_by(monthly, SA_ID)
156
157   #sum monthly to annual
158   GS <-
159     as.data.frame(summarize(
160       prems, block1 = sum(block1), block2 = sum(block2), dth = sum(WNA_DTH)
161     ))
162   GS <- merge(GS,summaryGS, by = "SA_ID")
163
164
165   #make sure customers have some usage
166   GS <- subset(GS, dth > 7)
167
168   #insert total costs, because this does not change, there is no need to recalculate it
169   GS$total_cost <- totalCost
170
171
172   #create variables that correspond to block rates
173   x1 <- x[1]
174   x2 <- x[2]
175   #x3 <- x[3]
176
177   #calculate the revenue from each individual by their tiered usage
178   GS$rev1 <- x1 * GS$block1
179   GS$rev2 <- x2 * GS$block2
180   #GS$rev3 <- x3*GS$block3
181   GS$total.rev <- GS$rev1 + GS$rev2 + GS$bsfy
182   #add the volumetric total from above to the any other revenues from that individual
183   GS$all.total <- GS$total.rev # no other revenue in GS class
184
185 }
```

- Rate Optimization Program
 - Results in new block breaks for all classes



Questions?