

Public Service Company of Colorado  
 Summary Lead Lag Factors  
 12 Months Ended June 30, 2019

Attachment DAB-8  
 Schedule 1  
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Gas Department

Line No.	Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	CWC Factor
1	Gas for Resale	31.53	39.57	(8.04)	(0.022027)
2					
3	Labor O & M - Regular	31.53	11.87	19.66	0.053863
4	Labor O & M - Incentive	31.53	249.19	(217.66)	(0.596329)
5	Other O & M	31.53	12.89	18.64	0.051068
6	Xcel Energy Services	31.53	37.04	(5.51)	(0.015096)
7	Paid Time Off Expense	31.53	374.33	(342.80)	(0.939178)
8					
9	Property Taxes	31.53	302.75	(271.22)	(0.743068)
10	Payroll Related Taxes	31.53	18.94	12.59	0.034493
11	Sales and Use Taxes	31.53	35.39	(3.86)	(0.010575)
12					
13	Federal Income Taxes	31.53	35.50	(3.97)	(0.010877)
14	Colorado Income Taxes	31.53	35.50	(3.97)	(0.010877)
15					
16	Sales Taxes Paid	31.53	35.39	(3.86)	(0.010575)
17	Franchise Fees Paid	31.53	44.44	(12.91)	(0.035370)
18					
19					
20	<u>Xcel Energy Services</u>				
21	Labor	37.04	11.87	25.17	0.068959
22	Other Operations & Management	37.04	12.89	24.15	0.066164

## Lead Lag Study General Description

A lead lag study is a widely used and acceptable method for developing the Cash Working Capital (CWC) component of rate base in connection with the determination of revenue requirements in public utility rate case proceedings. The underlying objective is to measure the average length of time between the utility's provision of service and subsequent payment by customers (revenue lag), and between the incurrence of costs necessary for the provision of service and subsequent payment by the utility (expense lead). The measurement is in days. The lead lag study does not produce the computed cash working capital allowance. It provides the factors resulting from the revenue lag and various expense leads used in the Cost of Service Study model. Total cash working capital is the sum of the net working capital required or provided for each includible element of cost of service.

The expense factors are calculated with this formula.

$(\text{Composite Revenue Lag} - \text{Applicable Expense lead}) / 365 \text{ days} = \text{CWC factor}$

The CWC factor is applied to the appropriate test year expense amount. A positive result indicates a CWC requirement. A negative result indicates, on average, cash is received from customers before Public Service must pay the applicable expense. A negative result represents a non-investor source of capital. The CWC results of each appropriate expense are added together. This total CWC requirement is included in rate base. A positive CWC requirement is added to rate base. A negative CWC requirement is deducted from rate base.

To complete a lead lag study, a twelve-month period of time is used. Revenue receipts and payment disbursements are analyzed. The revenue receipts are gas sales. The payment disbursements are placed in categories such as natural gas for resale, labor, payroll taxes, O&M expenses, property tax, federal and state income taxes, sales tax paid and franchise fees paid.

## Revenue Lag - Gas

Public Service's customer base consists of rate groups ranging in size from one account to millions of accounts. Consequently, the rate groups were split into census and sample groups, depending on the rate class population. A census was conducted for all rate groups except the Commercial Small Gas (CSG) and Residential Gas (RG) groups. The average lag day for the sampled rate groups was estimated using a random sample for each rate class. The mean and standard deviation from the 2017 Public Service gas lag study (re-calculated for weighted payments) were used as a proxy to determine the sample size needed to achieve a 95% confidence that the mean lag day would be within  $\pm 5\%$  of the estimated mean at the sample rate class level and a 99% confidence that the mean lag day across all rate classes would be within  $\pm 5\%$  of the estimated mean (Table 1). Fifty percent of the calculated sample size was added to account for missing data and unknown differences between the 2017 and 2019 data. It is important to remember that these proxy variables were used to determine sample sizes only. Once actual values for the mean and variance were calculated from the new sample, they were used in all analysis.

In addition, for residential customers only, a 30 day limit on revenue lag days was used in order to exclude the effects of late payments. The Company is following its residential tariffs on the calculation and application of a late payment fee. Residential (RG) customers do not have late payment fees calculated until the printing of the next statement. Residential late payment fees are excluded from the cost of service. Commercial late payment fees remain in the cost of service. As a result, the cost of service is reduced by the commercial late payment fees credit to the cost of service. Residential late payment fees are removed by an adjustment in the cost of service. By excluding residential late payment fees from the cost of service, the cost of service is higher than it otherwise would be. Since the residential late payment fees are removed from the cost of service, the revenue lag needs to have a limit placed on it to coincide with the date the late payment fees begin. This will prevent the doubling up of the longer revenue lag associated with keeping the related late payment fees. For the current revenue lag, we plan to use a 30 day limit as a proxy for the next invoice due date for residential customers. A revenue lag will be calculated up to 30 days after the invoice date. This will place a limit on the residential invoices revenue lag days. No adjustment is necessary for non-residential customers because their late payments are included as a credit to the cost of service.

PSC Rate Group	Number of Premises/ Services	Sample or Census	Revenue	% of Total Revenue	2017 PSC Mean Lag Days	2017 PSC Variance of Lag Days	Cochran's Minimum	Calculated Sample Size	Sample Size with FPC *	Final Sample Size with 50% Alternates
CLG	942	Census	\$33,080,447.82	2.87%						
CSG	115,968	Sample	\$247,355,116.11	21.46%	37.843	536.442	2,224	576	573	3,336
IG	15	Census	\$2,298,119.55	0.20%						
RG	1,599,583	Sample	\$757,227,214.56	65.71%	29.887	1104.435	3210	1900	1,898	4,815
TF	10,240	Census	\$94,248,462.62	8.18%						
TI	255	Census	\$18,239,591.78	1.58%						
<b>TOTAL</b>	<b>1,727,003</b>	<b>Census</b>	<b>\$1,152,448,952.44</b>	<b>100.00%</b>						
* FPC = Finite population correction factor									Total Debtor Sample & Census Counts = 19,603	

**Table 1. Sample Size**

For the sample classes (CSG and RG), only accounts with 11 – 13 invoices were used in the analysis. One invoice per month was randomly selected if accounts had multiple invoices per month. For the census classes, all invoices were used in the analysis.

After the census and sample data was extracted, lag days were calculated for each invoice. Each payment or transaction date that was applied to an invoice was used in the calculation of lag days. The calculation for the revenue lag is:

$$\begin{aligned} \text{Service Period} &= \text{Invoice To Date} - \text{Invoice From Date} + 1 \\ \text{Midpoint Date} &= \text{Invoice From Date} + \text{Service Period} / 2 \\ \text{Lag Days} &= \text{Payment Date} - \text{Midpoint Date} + .5 \end{aligned}$$

An average lag day value for each rate group was calculated and weighted with the percent of total revenue (Table 2). The sum of these weighted means equals the mean shown in Table 3. Standard deviation and confidence intervals were also calculated and are also shown in Table 3.

PSC Rate Group	Number of Premises /Services	Sample or Census	Revenue	% of Total Revenue	Average Lag Days	Weighted Average Lag Days	Number of Invoices	Std. Deviation	Variance	Weighted Variance
CSG	115,968	Sample *	\$247,355,116.11	21.46%	36.8730	7.9142	18,248	22.0834	487.6779	0.0012312
CLG	942	Census	\$33,080,447.82	2.87%	38.2472	1.0979	9,501	19.9013	396.0624	0
IG	15	Census	\$2,298,119.55	0.20%	32.9431	0.0657	172	23.3775	546.5089	0
RG	1,599,583	Sample *	\$757,227,214.56	65.71%	29.5254	19.3999	39,652	34.9173	1219.2175	0.0132747
TF	10,240	Census	\$94,248,462.62	8.18%	30.9660	2.5324	117,049	21.6719	469.6719	0
TI	255	Census	\$18,239,591.78	1.58%	32.8828	0.5204	2,525	13.2920	176.6765	0
Total	1,727,003		\$1,152,448,952.44	100.00%		31.5306	187,147			0.0145059

\* Sampled classes only include accounts with 11-13 invoices

**Table 2. Statistics by Rate Class**

Number of Invoices	Weighted Average Lag Days	Weighted Variance of Lag Days	95% Confidence Interval	95% Precision	99% Confidence Interval	99% Precision
187,147	31.531	0.01450588	0.23606308	0.748680%	0.31013389	0.983598%

**Table 3. Statistics for Retail Gas**

## Expense Leads

The expense lead is the average time period from the receipt of goods or services by the utility to the date the utility pays for the goods and services. Expense lead is measured in days. Costs may be incurred over a period of time (i.e. month, year). The expense lead is measured from the midpoint of the service period to the date of payment. A separate expense lead is computed for each major category of operating expenses or account class (labor, payroll taxes, taxes, natural gas for resale, Other O&M, etc.). This expense lead is compared to the overall composite revenue lag to determine whether working capital is required from the company's investors (net revenue lag), or provided by the company's customers (net expense lead). Expenses leads are broken into a service period, midpoint date and lead days. The calculations for these are:

$$\begin{aligned}\text{Service Period} &= \text{To Service Date} - \text{From Service Date} + 1 \\ \text{Midpoint Date} &= \text{From Service Date} + \text{Service Period} / 2 \\ \text{Lead Days} &= \text{Payment Date} - \text{Midpoint Date} + .5\end{aligned}$$

The "From Service Date" is the first day goods or services were received. The "To Service Date" is the last day goods or services were received. If goods or services were received on just one day, the "From Service Date" and the "To Service Date" are the same. For those expense account classes with invoices, the invoices were reviewed for service date information. If no information about the service dates was available, the invoice date was used. After service dates were determined, the lead day values are calculated. The expense lead day value is measured from the midpoint of the dates the service was received to the date the cash was disbursed.

Expense leads are calculated using either census, or statistical samples for some expense categories, while other expense categories have statutory payment dates that are strictly adhered to for payment. The expense categories where either a census of, or a statistical sampling is done are those with invoices generated from vendors, including natural gas for resale and operations & maintenance expenses.

Appropriate general ledger accounts for each expense category are reviewed to obtain the accounts payable records population. Only records that were actually paid can be used for the expense lead. A transaction is included if it is expensed to an account included in the expense category during the test period and paid.

Once the population is determined, the population is reviewed to determine if the entire population ("census group") or a statistical sample will determine the expense lead. Once records are selected for the census group or sample, invoices are viewed to determine dates the goods and/or services were received.

Payment dates are generally included in the record. Once all service dates are determined and midpoint dates and lead days are calculated, the sample is ready for the overall expense lead mean to be determined.

## **Gas for Resale and Operations & Maintenance**

### **Natural Gas for Resale**

Natural gas for resale purchases are invoiced monthly. Invoices are for the prior month. Natural gas for resale is purchased from many vendors. A census of the twelve-months ending June 2019 test year period's invoices was used for the lead day analysis.

### **Other Non-Labor Operations & Maintenance Expense**

Other non-fuel operations and maintenance (O&M) expense encompasses the non-labor O&M expense for production, transmission, distribution, customer operations and administrative and general expenses. This category has a large volume of transactions. As a result, a statistical sample was selected to calculate the lead day analysis.

### **Expense Sample Results**

In order to estimate the average expense lead days for Public Service, Non-Labor O&M expenses, a random sample was used to estimate the average lead time for the expenses from this class.

The expenses in this class were grouped together by accounting document number, which combined those expenses that were paid together into payment groups. The population was split into two strata, with the largest expense payments in the population included in the first stratum and the remaining expense payments in the second stratum. All elements in the first stratum were included in the sample, to reduce the uncertainty of the overall estimate. Since the second group contained records that varied widely in size (dollars), the company used random sampling with the probability proportional to size, known as "pps sampling". Random pps sampling, with replacement, gives an unbiased estimate of the mean.

The sample described above, including the stratification scheme and the associated sample sizes, was designed to achieve a 90% confidence interval that was approximately 10% of the mean lead day value. For the O&M class, the mean and the variance from the previous 2018 Lead Study (re-calculated for weighted payments) were used as a proxy to determine the sample size. A minimum of 30 sample points was required and at least twenty percent of the calculated sample size of the second stratum was added to account for missing data and unknown differences between the previous studies' data and the

current 2019 study data (Table 4). It is important to remember that the estimates were used for planning purposes only. Once actual values for the mean and variance were calculated from the new sample, they were used in all analysis.

Expense Category	Previous Study's Mean Lead Days (1)	Previous Study's Variance Lead Days (1)	2019 Study Census Stratum 1 Size	Stratum 1 Percent of Expense Category	2019 Study Sample Stratum 2 Size	2019 Study Sample Stratum 2 with 20% Alternates	2019 Study Total Census and Sample
Gas for Resale	Not Applicable	Not Applicable	260	100.00%	Not Applicable	Not Applicable	260
O&M	38.205	3639.199	30	63.44%	91	1000 *	1030

\* This sample was increased from 91 to 1000 to achieve the required precision level.  
 (1) Based on the 2018 test year period of 12 months ended September 30, 2018.

**Table 4. Sample Size**

Once the payment date, payment due date, and service dates were determined for all available expense items, lead day values were calculated for each payment and a weighted lead day value was calculated for each accounting document number. A mean and variance were calculated by stratum and then a weighted mean and the associated stratified variance were calculated for the entire account class. The variance of this estimator was also calculated, which was then used to calculate a 90% confidence interval and a 95% confidence interval for the account class mean (Table 5).

Expense Category	Record Count	Weighted Average Lead	Weighted Variance	90% Confidence Interval	90% Precision	95% Confidence Interval	95% Precision
Gas for Resale	260	39.57	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
O&M	1028	12.89	0.462	1.119	8.680%	1.333	10.342%

**Table 5. Statistics by Account Class**



## Labor

Payroll expenses are separated into two groups, Regular Payroll and Incentive Compensation. Employer taxes are discussed in the Taxes section of this study.

### Regular Payroll

There are two types of payrolls at Public Service: Semi-monthly and Bi-weekly. Semi-monthly payrolls are paid twice a month. The first pay period covers the first through the fifteenth of the month with the pay date on the fifteenth or the prior business day. The second pay period of the month covers the sixteenth through the end of the month with the pay date on the last business day of the month. Bi-weekly payrolls run from Monday through Sunday with a pay date the following Friday or prior business day. Employees are paid either by a direct deposit to their bank or by a check mailed to their home. Checks are mailed so that receipt is on or before the pay date.

For net pay, the expense lead period is measured from the midpoint of the payroll period to the paycheck/pay advice issue date for net pay. For payroll deductions, the expense lead period is measured from the midpoint of the payroll period to the date funds are remitted to the vendor.

To determine the average expense leads for each of the payrolls, payroll reports showing the breakdown of gross payroll by withholding tax (FICA Withheld, Federal Income Tax Withheld, State Income Tax Withheld) or employee deduction (Union Dues, 401k deductions and Other Deductions) were obtained. This payroll information was summarized by type of payroll by pay period. The summary dollar information was used to dollar-weight the components of gross pay (net pay, taxes withheld, other employee deductions) in the calculations of average expense lead of each component.

Next, an average expense lead for each gross pay component was computed. The lead for net pay and each of the various withholdings was computed for each of the two payroll types. For net pay, the actual payroll check date was used to calculate the expense lead. For tax withholdings, the actual payment dates that correspond with the dates required by the IRS or state statute were used to calculate the expense lead. Other Employee Deductions were summarized by type of payroll by pay period. Deductions having the same payment date were grouped together. Then the scheduled payment date was used to calculate the expense lead of that group. Once expense leads for all the groups were determined, the average Other Employee Deductions expense lead was determined by dollar-weighting the various group expense leads. Other Employee Deductions are a component for Regular Payroll.

### **Incentive Compensation**

Incentive compensation is processed similarly to Regular Payroll. Separate payrolls, Semi-monthly and Bi-weekly, are run for incentive compensation. The Other Employee Deductions and tax withholdings are summarized. They are treated similar to the Regular Payroll. The Incentive Compensation was dollar weighted by its components.

### **Xcel Energy Services Company**

Expenses billed to the Company by Xcel Energy Services Company are for the prior month and paid the 23<sup>rd</sup> or previous business day.

### **Vacation Pay/Paid Time Off**

Employee vacation pay lead calculates the lag in time between when vacation pay is earned and when it is actually paid to employees.

### **Tax Expense Leads**

The average expense leads computed for the various tax categories are based on actual amounts paid during the test year and the payment dates presently required by statute.

#### **Property Taxes**

Statutory payment dates are used to determine the property tax lead days.

#### **Employer Payroll Taxes**

FICA matching, city occupational taxes and employer unemployment taxes are included in this section. The Employer FICA Tax expense lead is the same as the FICA tax withheld expense lead in the payroll expense lead. The statutory payment dates for the taxes are used to calculate the city occupational and unemployment tax expense lead days.

#### **Sales and Use Taxes**

The Company pays both sales and use taxes. Sales tax occurs in two instances. The first instance occurs when the Company bills customers for sales tax in connection with sales of taxable goods and services. This type of sales tax is not an expense to the Company. The Company is the collection agent and remits the sales tax to Colorado. The second instance of sales tax occurs when the Company makes purchases of taxable goods and services from vendors that are required to charge the tax and remit it to Colorado's Department of Revenue. The tax paid in this instance is considered an expense to the Company.

The use tax is a complement of the sales tax and designed to level the playing field for companies that are required to collect the sales tax. It typically occurs in a situation where a taxable purchase is made by the Company from a vendor that is not required to collect a sales tax, usually because the vendor lacks a physical presence (nexus) in the taxing jurisdiction. Here, the Company must self-assess and pay the use tax directly to Colorado's Department of Revenue. Use tax is an expense to the Company.

Sales tax and use tax are remitted together. Colorado taxes are due the 20<sup>th</sup> of the following month with funds withdrawn on the 21st or following business day. The statutory payment dates were used in the calculation of the sales tax expense lead.

The Boulder Cap Tax is included with sales and use tax. It is due on the last day of the following month or next business day.

#### **Franchise Fees Paid**

City franchise fees are charges by cities for the right to use city streets. Franchise fees are remitted on or before the statutory payment dates. The fees paid are not an expense to the Company. The fees are passed through to customers.

#### **Federal and State Income Taxes**

The expense leads computed for Federal and State Income Taxes reflect statutory payment dates and required minimum estimate payment levels. Required minimum estimated payments during the tax year are for Federal and the states of Colorado and California.

Public Service Company of Colorado  
 Gas for Resale Census Results  
 12 Months Ended June 30, 2019

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Line No.	Stratum	Count of PayRef	Stratum Population	Average Lead	Variance Lead	Weight	Weighted Average Lead	Weighted Variance of Lead	Finite Population Correction Factor	Variance of Estimate	90% Confidence Interval	90% Precision	95% Confidence Interval	95% Precision
Gas for Resale	1	260	260	39.570	16.747	100.000%	39.570	0.064	0.000	0.000				
Gas for Resale	2	0	0	0.000	0.000	0.000%	0.000	0.000	0.000	0.000				
<b>Total</b>		<b>260</b>	<b>260</b>			<b>100%</b>	<b>39.570</b>			<b>0.000</b>	<b>0.000</b>	<b>0.000%</b>	<b>0.000</b>	<b>0.000%</b>

Rounded weighted average lead days      39.57

Public Service Company of Colorado  
 Lead Lag Study - Payroll Lead  
 12 Months Ended June 30, 2019

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Line Number	Description	Dollar Amount \$	Lead Days	Dollar Days \$
1	<b>Regular Payroll</b>			
2	Net Payroll	168,859,488.43	10.61	1,792,179,422.71
3	FICA & Medicare Withheld	18,678,567.33	13.34	249,243,124.65
4	Federal Income Tax Withheld	31,734,946.96	13.44	426,626,955.42
5	State Income Tax Withheld - Colorado	9,496,367.00	15.71	149,178,736.00
6	State Income Tax Withheld - Minnesota	3,863.38	33.61	129,831.53
7	State Income Tax Withheld - New Mexico	732.53	56.33	41,260.06
8	City Occupational Tax	45,407.75	59.55	2,704,216.33
9	Employee Deductions	44,857,189.61	14.00	627,963,807.83
10				
11	Total Gross Pay	273,676,562.99		3,248,067,354.53
12	<b>Average Lead</b>		<b>11.87</b>	
13				
14				
15	<b>Incentive Payroll</b>			
16	Net Payroll	2,875,341.24	248.32	714,017,613.10
17	FICA & Medicare Withheld	330,154.09	251.34	82,980,158.68
18	Federal Income Tax Withheld	1,039,930.00	250.08	260,065,979.84
19	State Income Tax Withheld	211,919.09	252.96	53,607,370.25
20	City Occupational Tax	0.00	0.00	0.00
21	Employee Deductions	280,442.21	249.44	69,954,394.71
22				
23	Total Gross Pay	4,737,786.63		1,180,625,516.58
24	<b>Average Lead</b>		<b>249.19</b>	

Public Service Company of Colorado  
 Operations and Maintenance Sample Results  
 12 Months Ended June 30, 2019

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Line No.	Stratum	Count of PayRef	Stratum Population	Average Lead	Variance Lead	Weight	Weighted Average Lead	Weighted Variance of Lead	Finite Population Correction Factor	Variance of Estimate	90% Confidence Interval	90% Precision	95% Confidence Interval	95% Precision
O&M	1	30	30	13.87031748	5544.078	63.435%	8.799	74.365	0.000	0.000				
O&M	2	998	5932	11.18005431	4149.234	36.565%	4.088	0.556	0.832	0.462				
<b>Total</b>		<b>1028</b>	<b>5962</b>			<b>100%</b>	<b>12.887</b>			<b>0.462</b>	<b>1.119</b>	<b>8.680%</b>	<b>1.333</b>	<b>10.342%</b>
<b>Rounded weighted average lead days</b>							<b>12.89</b>							

Public Service Company of Colorado  
 Expense Lead - Public Service Company of Colorado payment to Xcel Energy Services Company  
 12 Months Ended June 30, 2019

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Line No.	Period Beginning	Period Ending	Days of Service	Midpoint Days	Midpoint Date	Payment Date	Lead Days
1	7/1/2018	7/31/2018	31.0	15.5	7/16/18 12:00	8/23/2018	38.0
2	8/1/2018	8/31/2018	31.0	15.5	8/16/18 12:00	9/21/2018	36.0
3	9/1/2018	9/30/2018	30.0	15.0	9/16/18 0:00	10/23/2018	37.5
4	10/1/2018	10/31/2018	31.0	15.5	10/16/18 12:00	11/23/2018	38.0
5	11/1/2018	11/30/2018	30.0	15.0	11/16/18 0:00	12/21/2018	35.5
6	12/1/2018	12/31/2018	31.0	15.5	12/16/18 12:00	1/23/2019	38.0
7	1/1/2019	1/31/2019	31.0	15.5	1/16/19 12:00	2/22/2019	37.0
8	2/1/2019	2/28/2019	28.0	14.0	2/15/19 0:00	3/22/2019	35.5
9	3/1/2019	3/31/2019	31.0	15.5	3/16/19 12:00	4/23/2019	38.0
10	4/1/2019	4/30/2019	30.0	15.0	4/16/19 0:00	5/23/2019	37.5
11	5/1/2019	5/31/2019	31.0	15.5	5/16/19 12:00	6/21/2019	36.0
12	6/1/2019	6/30/2019	30.0	15.0	6/16/19 0:00	7/23/2019	37.5
13							
14	<b>Average Lead Days</b>						<b>37.04</b>

Public Service Company of Colorado  
Lead Lag - Paid Time Off Pay  
12 Months Ended June 30, 2019

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Line  
No.

1	Paid time off pay accrued for 12 months ended June 30, 2019		\$14,533,424
2			
3	Days in test year		365
4			
5	Paid time off pay per day		\$39,818
6			
7	Balances in Accrued Vacation Liability Account		
8	June 30, 2018	\$14,857,737	
9	June 30, 2019	\$14,952,453	\$14,905,095
10			
11			
12	<b>Average lead paid time off days in accrued balance</b>		<b>374.33</b>



**Public Service Company of Colorado  
Lead Lag - Colorado Property Tax  
12 Months Ended June 30, 2019**

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<b>Line No.</b>	<b>Period Covered</b>		<b>Days of Service</b>	<b>Midpoint Days</b>	<b>Midpoint Date</b>	<b>Payment Date</b>	<b>Lead Days</b>	<b>Portion of Annual Tax</b>	<b>Weighted Lead Days</b>
	<b>From</b>	<b>To</b>							
1	1/1/2018	12/31/2018	365.0	182.5	7/2/18 12:00	4/30/2019	302.0	25.00%	75.50
2	1/1/2019	12/31/2019	365.0	182.5	7/2/19 12:00	4/30/2020	303.0	75.00%	227.25
3									
4									
5									
6									
7	<b>Total Lead Days</b>								<b>302.75</b>

Public Service Company of Colorado  
Payroll Related Taxes  
12 Months Ended June 30, 2019

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Line No.		Amount	Lead Days	Dollar Days
1	FICA - Company Match	18,981,623.22	17.46	331,387,176.74
2				
3	Occupational - Company Expense	31,798.00	57.74	1,835,912.00
4				
5	FUTA	111,312.59	110.53	12,302,924.83
6				
7	SUTA - Colorado	211,480.41	97.84	20,691,228.82
8				
9	Totals	19,336,214.22		366,217,242.39
10				
11	<b>Average Lead Days</b>		<b>18.94</b>	

Public Service Company of Colorado  
Sales-Use-Boulder CAP Taxes Paid  
12 Months Ended June 30, 2019

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Line No.	Period Beginning	Period Ending	Days of Service	Midpoint Days (1)	Midpoint Date	Payment Date	Lead Days	Amount \$	Dollar Days \$	
1	<b>Sales and Use Tax</b>									
2	7/1/2018	7/31/2018	31.0	15.5	7/16/18 12:00	8/20/2018	35.0	14,384,152.65	503,445,342.75	
3	8/1/2018	8/31/2018	31.0	15.5	8/16/18 12:00	9/20/2018	35.0	14,010,491.29	490,367,195.15	
4	9/1/2018	9/30/2018	30.0	15.0	9/16/18 0:00	10/22/2018	36.5	12,695,767.07	463,395,498.06	
5	10/1/2018	10/31/2018	31.0	15.5	10/16/18 12:00	11/20/2018	35.0	13,197,453.71	461,910,879.85	
6	11/1/2018	11/30/2018	30.0	15.0	11/16/18 0:00	12/20/2018	34.5	12,843,889.74	443,114,196.03	
7	12/1/2018	12/31/2018	31.0	15.5	12/16/18 12:00	1/21/2019	36.0	15,243,620.07	548,770,322.52	
8	1/1/2019	1/31/2019	31.0	15.5	1/16/19 12:00	2/20/2019	35.0	17,368,984.58	607,914,460.30	
9	2/1/2019	2/28/2019	28.0	14.0	2/15/19 0:00	3/20/2019	33.5	15,460,574.95	517,929,260.83	
10	3/1/2019	3/31/2019	31.0	15.5	3/16/19 12:00	4/22/2019	37.0	17,397,687.66	643,714,443.42	
11	4/1/2019	4/30/2019	30.0	15.0	4/16/19 0:00	5/20/2019	34.5	14,426,551.64	497,716,031.58	
12	5/1/2019	5/31/2019	31.0	15.5	5/16/19 12:00	6/20/2019	35.0	12,390,432.17	433,665,125.95	
13	6/1/2019	6/30/2019	30.0	15.0	6/16/19 0:00	7/22/2019	36.5	12,593,863.97	459,676,034.91	
14										
15	Total							35.3	172,013,469.50	6,071,618,791.35
16										
17	<b>Boulder Cap Tax</b>									
18	7/1/2018	7/31/2018	31.0	15.5	7/16/18 12:00	8/30/2018	45.0	159,637.17	7,183,672.65	
19	8/1/2018	8/31/2018	31.0	15.5	8/16/18 12:00	9/28/2018	43.0	166,906.89	7,176,996.27	
20	9/1/2018	9/30/2018	30.0	15.0	9/16/18 0:00	10/31/2018	45.5	146,483.52	6,665,000.16	
21	10/1/2018	10/31/2018	31.0	15.5	10/16/18 12:00	11/30/2018	45.0	150,742.84	6,783,427.80	
22	11/1/2018	11/30/2018	30.0	15.0	11/16/18 0:00	12/31/2018	45.5	121,610.33	5,533,270.02	
23	12/1/2018	12/31/2018	31.0	15.5	12/16/18 12:00	1/31/2019	46.0	148,985.42	6,853,329.32	
24	1/1/2019	1/31/2019	31.0	15.5	1/16/19 12:00	2/28/2019	43.0	170,091.48	7,313,933.64	
25	2/1/2019	2/28/2019	28.0	14.0	2/15/19 0:00	3/29/2019	42.5	152,643.71	6,487,357.68	
26	3/1/2019	3/31/2019	31.0	15.5	3/16/19 12:00	4/30/2019	45.0	160,688.09	7,230,964.05	
27	4/1/2019	4/30/2019	30.0	15.0	4/16/19 0:00	5/31/2019	45.5	130,360.25	5,931,391.38	
28	5/1/2019	5/31/2019	31.0	15.5	5/16/19 12:00	6/28/2019	43.0	126,922.82	5,457,681.26	
29	6/1/2019	6/30/2019	30.0	15.0	6/16/19 0:00	7/31/2019	45.5	126,493.07	5,755,434.69	
30										
31	Total							44.49	1,761,565.59	78,372,458.92
32										
33	<b>Average Lead</b>							<b>35.39</b>	<b>173,775,035.09</b>	<b>6,149,991,250.27</b>

Public Service Company of Colorado  
 Lead Lag - Federal Income Tax  
 12 Months Ended June 30, 2019

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Line No.	Period Covered From	Period Covered To	Days of Service	Midpoint Days	Midpoint Date	Payment Date	Lead Days	Portion of Annual Tax	Weighted Lead Days
1	1/1/2018	12/31/2018	365	182.5	7/2/18 12:00	9/17/2018	77.0	25.00%	19.25
2	1/1/2018	12/31/2018	365	182.5	7/2/18 12:00	12/7/2018	158.0	25.00%	39.50
3	1/1/2019	12/31/2019	365	182.5	7/2/19 12:00	4/15/2019	-78.0	25.00%	-19.50
4	1/1/2019	12/31/2019	365	182.5	7/2/19 12:00	6/17/2019	-15.0	25.00%	-3.75
5								100.00%	
6	<b>Total Lead Days</b>								<b>35.50</b>

Payments are made on the 15th day of the 4th, 6th, 9th, and 12th months of the tax year.  
 If any date falls on a Saturday, Sunday, or legal holiday, the installment is due on the next regular business day.

Public Service Company of Colorado  
 Lead Lag - Colorado Income Tax  
 12 Months Ended June 30, 2019

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Line No.	Period Covered From	To	Days of Service	Midpoint Days	Midpoint Date	Payment Date	Lead Days	Portion of Annual Tax	Weighted Lead Days
1	1/1/2018	12/31/2018	365	182.5	7/2/18 12:00	9/17/2018	77.0	25.00%	19.25
2	1/1/2018	12/31/2018	365	182.5	7/2/18 12:00	12/7/2018	158.0	25.00%	39.50
3	1/1/2019	12/31/2019	365	182.5	7/2/19 12:00	4/15/2019	-78.0	25.00%	-19.50
4	1/1/2019	12/31/2019	365	182.5	7/2/19 12:00	6/17/2019	-15.0	25.00%	-3.75
5								100.00%	
6	<b>Total Lead Days</b>								<b>35.50</b>

Effective in 2006, it is corporate policy to pay all state estimated income tax payments in four installments. The installments follow the Federal estimated income tax payments. Payments are made on the 15th day of the 4th, 6th, 9th, and 12th months of the tax year. If any date falls on a Saturday, Sunday, or legal holiday, the installment is due on the next regular business day.

Public Service Company of Colorado  
 Gas Franchise Fees Paid  
 12 Months Ended June 30, 2019

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Line No.		Period Beginning	Period Ending	Days of Service	Midpoint Days	Midpoint Date	Payment Date	Lead Days	Amount	Dollar Days \$
1	Annual									
2		7/1/2018	12/31/2018	184.0	92	10/1/18 0:00	2/28/2019	150.5	0.00	0.00
3		1/1/2019	6/30/2019	181.0	90.5	4/1/19 12:00	2/28/2020	333.0	0.00	0.00
4										
5	Quarterly									
6	July - September	7/1/2018	9/30/2018	92.0	46	8/16/18 0:00	10/31/2018	76.5	232.82	17,810.73
7	October - December	10/1/2018	12/31/2018	92.0	46	11/16/18 0:00	1/31/2019	76.5	536.26	41,023.89
8	January - March	1/1/2019	3/31/2019	90.0	45	2/15/19 0:00	4/30/2019	74.5	1,099.02	81,876.99
9	April - June	4/1/2019	6/30/2019	91.0	45.5	5/16/19 12:00	7/31/2019	76.0	430.61	32,726.36
10										
11										
12	Monthly									
13	July	7/1/2018	7/31/2018	31.0	15.5	7/16/18 12:00	8/31/2018	46.0	1,101,292.08	50,659,435.68
14	August	8/1/2018	8/31/2018	31.0	15.5	8/16/18 12:00	9/28/2018	43.0	1,140,738.06	49,051,736.58
15	September	9/1/2018	9/30/2018	30.0	15	9/16/18 0:00	10/31/2018	45.5	1,027,998.70	46,773,940.85
16	October	10/1/2018	10/31/2018	31.0	15.5	10/16/18 12:00	11/30/2018	45.0	1,551,841.05	69,832,847.25
17	November	11/1/2018	11/30/2018	30.0	15	11/16/18 0:00	12/31/2018	45.5	2,157,103.79	98,148,222.45
18	December	12/1/2018	12/31/2018	31.0	15.5	12/16/18 12:00	1/31/2019	46.0	2,947,693.53	135,593,902.38
19	January	1/1/2019	1/31/2019	31.0	15.5	1/16/19 12:00	2/28/2019	43.0	3,975,087.16	170,928,747.88
20	February	2/1/2019	2/28/2019	28.0	14	2/15/19 0:00	3/29/2019	42.5	3,748,333.39	159,304,169.08
21	March	3/1/2019	3/31/2019	31.0	15.5	3/16/19 12:00	4/30/2019	45.0	4,116,422.66	185,239,019.70
22	April	4/1/2019	4/30/2019	30.0	15	4/16/19 0:00	5/31/2019	45.5	2,632,413.79	119,774,827.45
23	May	5/1/2019	5/31/2019	31.0	15.5	5/16/19 12:00	6/28/2019	43.0	1,857,785.33	79,884,769.19
24	June	6/1/2019	6/30/2019	30.0	15	6/16/19 0:00	7/31/2019	45.5	1,434,772.86	65,282,165.13
25										
26										
27										
28	Totals								27,693,781.11	1,230,647,221.59
29										
30	Average Lead							44.44		

Xcel Energy Services  
 Summary of Lead Lag Factors  
 12 Months Ended June 30, 2019

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<u>Line No.</u>	<u>Description</u>	<u>Revenue Lag Days (a)</u>	<u>Expense Lead Days (b)</u>	<u>Net Lag Days</u>	<u>CWC Factor</u>
1	Labor	37.04	11.87	25.17	0.068959
2					
3	Other Operations & Maintenance	37.04	12.89	24.15	0.066164

- (a) Revenue lag days are the days it takes Public Service Company of Colorado to pay Xcel Energy Services.
- (b) Expense lead days are the same as those used by Public Service Company of Colorado.

Public Service Company of Colorado  
Revenue Lag Results  
12 Months Ended June 30, 2019

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Number of Invoices	Weighted Average Lag Days	Weighted Variance of Lag Days	95% Confidence Interval	95% Precision	99% Confidence Interval	99% Precision
187,147	31.531	0.014505877	0.236063079	0.748680%	0.310133892	0.983598%



Public Service Company of Colorado  
 Revenue Lag Results by Rate Group  
 12 Months Ended June 30, 2019

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PSC Rate Group	Number of Premises/Services	Sample or Census	Revenue	% of Total Revenue	Average Lag Days	Weighted Average Lag Days	Number of Invoices	Std. Deviation	Variance	Weighted Variance
CSG	115,234	Sample *	247,355,116.11	21.46%	36.8730	7.9142	18,248	22.0834	487.6779	0.0012312
CLG	837	Census	33,080,447.82	2.87%	38.2472	1.0979	9,501	19.9013	396.0624	0
IG	14	Census	2,298,119.55	0.20%	32.9431	0.0657	172	23.3775	546.5089	0
RG **	1,580,120	Sample *	757,227,214.56	65.71%	29.5254	19.3999	39,652	34.9173	1219.2175	0.0132747
TF	8,413	Census	94,248,462.62	8.18%	30.9660	2.5324	117,049	21.6719	469.6719	0
TI	304	Census	18,239,591.78	1.58%	32.8828	0.5204	2,525	13.2920	176.6765	0
<b>Total</b>	<b>1,704,922</b>		<b>1,152,448,952.44</b>	<b>100.00%</b>		<b>31.5306</b>	<b>187,147</b>			<b>0.0145059</b>

Rounded weighted average lead days                      31.53

\* Sampled classes only include accounts with 11-13 invoices  
 \*\* Includes a 30-Day "CAP" on Residential Invoices Dates