



## **ATCO Gas and Pipelines Ltd.**

**2014 True-Up and 2016-2017 Forecast PBR Capital Trackers  
Compliance Filing**

**August 25, 2016**

**Alberta Utilities Commission**

Decision 21606-D01-2016

ATCO Gas and Pipelines Ltd.

2014 True-Up and 2016-2017 Forecast PBR Capital Trackers Compliance Filing  
Proceeding 21606

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## **1 Decision**

1. This decision provides the Alberta Utilities Commission's determination of ATCO Gas and Pipelines Ltd.'s (ATCO Gas or AG) compliance with the Commission's directions issued in Decision 20604-D01-2016.<sup>1</sup> Decision 20604-D01-2016 approved the 2014 K factor adjustment as final. For the reasons outlined in this decision, the Commission finds that ATCO Gas complied with the Commission's directions and approves ATCO Gas's 2016 and 2017 K factor adjustments as applied for in the application.

2. ATCO Gas recommended that the amounts in the application be adjusted through the use of a rate rider, Rider S. The approved Rider S adjusts for the 2014 capital tracker true-up refund of final rates approved in Decision 20604-D01-2016, the forecast 2016 capital tracker additional collection, a Z factor amount awarded from Decision 2738-D01-2016,<sup>2</sup> which was a decision related to the recovery of certain ATCO Gas costs related to the 2013 Southern Alberta floods, and related adjustments to carrying charges.

3. In addition to approval of the application, the Commission directed ATCO Gas to reflect the recalculated 2014 K factor true-up adjustment and 2016 and 2017 K factor forecast adjustments in its 2017 annual performance-based regulation (PBR) rate adjustment application.

## **2 Introduction**

4. On April 14, 2016, the Commission issued Decision 20604-D01-2016, which dealt with ATCO Gas's 2014 capital tracker true-up and 2016-2017 capital tracker forecast application under performance based regulation (PBR). In that decision, the Commission approved ATCO Gas's 2014 K factor adjustment of \$977,000 for the north and \$645,000 for the south for ATCO Gas, as final, and approved ATCO Gas's 2016 and 2017 K factors on a forecast basis, and subject to the Commission's directions.

5. On May 12, 2016, ATCO Gas submitted its compliance filing as directed by the Commission in Decision 20604-D01-2016. On May 13, 2016, the Commission issued a notice of

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<sup>1</sup> Decision 20604-D01-2016: ATCO Gas and Pipelines Ltd., 2014 PBR Capital Tracker Refiling and True-Up and 2016-2017 PBR Capital Tracker Forecast, Proceeding 20604, April 14, 2016.

<sup>2</sup> Decision 2738-D01-2016: ATCO Gas and Pipelines Ltd., Z Factor Application for Recovery of 2013 Southern Alberta Flood Costs, Proceeding 2738, Application 1609783-1, March 16, 2016.

application that required interested parties to submit a statement of intent to participate (SIP) by May 27, 2016. In their SIPs, parties were to provide a description of their interest in the proceeding, an explanation of their position including information in support of the position, and submissions as to whether further process is required. No SIPs were received by the specified deadline.

6. In a letter dated June 1, 2016, the Commission determined that the compliance filing would be considered by way of a *minimal written process* as set out in Bulletin 2015-09.<sup>3</sup> The Commission filed information requests to ATCO Gas on June 9, 2016, and ATCO Gas provided its responses to information requests on June 16, 2016.

7. On June 20, 2016, the Consumers' Coalition of Alberta (CCA) filed a SIP, stating that it intended to file information requests, argument and reply argument. On June 27, 2016, the CCA advised that it would not be filing argument or reply.

8. The Commission asked additional two rounds of information requests to ATCO Gas, and ATCO Gas filed its responses to the third round of information requests on July 18, 2016. The Commission issued a letter indicating that it considered the close of record for this proceeding to be July 19, 2016.

9. In reaching the determinations set out within this decision, the Commission has considered all relevant materials comprising the record of this proceeding, including the evidence and argument provided by each party. Accordingly, references in this decision to specific parts of the record are intended to assist the reader in understanding the Commission's reasoning relating to a particular matter and should not be taken as an indication that the Commission did not consider all relevant portions of the record with respect to that matter.

### **3 Compliance with the Commission's directions in Decision 20604-D01-2016**

10. In Decision 20604-D01-2016, the Commission issued 22 directions. This section of the decision addresses the compliance filing application and specifically Commission directions 6, 9 to 12, 14 to 20, but it does not address directions that apply to future capital tracker applications.<sup>4</sup>

11. In the compliance filing, ATCO Gas requested that the Commission approve the revised 2016 and 2017 K factors on a forecast basis. ATCO Gas explained that in Decision 20604-D01-2016, the Commission approved ATCO Gas's proposed groupings, and the majority of the proposed capital tracker programs satisfied the project assessment test of Criterion 1<sup>5</sup> and Criterion 2.<sup>6</sup> The Commission also confirmed the prudence of actual capital additions associated with ATCO Gas's projects or programs included in the 2014 capital tracker true-up and approved the resulting 2014 K factor adjustment on a final basis.

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<sup>3</sup> Bulletin 2015-09, Performance standards for processing rate-related applications, March 26, 2015.

<sup>4</sup> Exhibit 21606-X0004, application, page 4.

<sup>5</sup> Criterion 1 – The project must be outside of the normal course of the company's ongoing operations.

<sup>6</sup> Criterion 2 – Ordinarily the project must be for replacement of existing capital assets or undertaking the project must be required by an external party.

12. Given the Commission's findings in Decision 20604-D01-2016, ATCO Gas revised its 2016-2017 forecast K factor amounts, which are reproduced in Table 1 below:

**Table 1. Capital tracker K factor amounts<sup>7</sup>**

	2016 forecast		2017 forecast	
	North	South	North	South
	(\$000)			
Steel Mains Replacement	9,745	2,053	10,820	2,670
Plastic Mains Replacement	6,219	8,366	8,342	10,873
Transmission Driven	5,379	3,752	7,528	6,831
Meter Relocation and Replacement	1,424	315	976	
Line Heater Reliability	921	277	1,298	692
Cathodic Protection	305	202	392	305
Regulating Metering Station Improvements	299		347	
New Urban Service Lines		721		703
Service Line Replacements and Improvements	1,335	2,158	788	294
New Regulating Meter Stations	603	221	788	294
Urban Main Extensions	374		625	
Urban Main Improvements	436	190	576	289
Urban Main Relocations	1,674	150	2,146	200
Rural Main Extensions and Service Lines	322		435	
<b>Total revised K factors</b>	<b>29,036</b>	<b>18,404</b>	<b>35,882</b>	<b>25,502</b>

13. ATCO Gas provided the impacts of Commission directions 10,12,14, 15 and 16 on the requested K factors for 2016-2017.<sup>8</sup> ATCO Gas also provided schedules and appendices that include the results of the updated accounting test calculations and information required to demonstrate compliance with the Commission's directions.<sup>9</sup>

14. The Commission's findings respecting each of the directions set out in Decision 20604-D01-2016 are set out below.

### **3.1 Direction 6 – Cathodic protection records within the Steel Mains Replacement program**

15. At paragraph 173 of Decision 20604-D01-2016, the Commission issued the following direction to ATCO Gas:

ATCO Gas confirmed in the hearing that it routinely records cathodic protection levels on the system and determines the adequacy of the cathodic protection levels by reviewing that history. In its argument, the CCA expressed the view that reviewing the cathodic protection records may be helpful in determining the SMR [Steel Mains Replacement] projects required in a test period. In order to assess the relevance and probative value of these records, ATCO Gas is directed to provide a description and an outline of the information in ATCO Gas's cathodic protection records and to comment on the

<sup>7</sup> Exhibit 21606-X0004, application, Table 1.

<sup>8</sup> Exhibit 21606-X0004, application, Table 2.

<sup>9</sup> Exhibit 21606-X0004, application, Appendix 1 and Appendix 2.

feasibility of providing more detailed information in future capital tracker applications with SMR projects, in the compliance filing to this decision.<sup>10</sup>

16. ATCO Gas submitted that pipe to soil potential readings are a key indicator of the performance of cathodic protection systems. ATCO Gas collects these readings up to three times a year for each section of main or system at a representative location within an electrically isolated cathodic protection boundary.<sup>11</sup>

17. In future engineering assessments, ATCO Gas stated that it can provide cathodic protection history for identified areas, indicating the total number of pipe to soil reads, along with the percentage of reads that indicate inadequate cathodic protection levels.<sup>12</sup>

### **Commission findings**

18. The Commission is satisfied that ATCO Gas has complied with the direction set out by the Commission at paragraph 173 of Decision 20604-D01-2016.

19. The Commission finds that the cathodic protection history for identified areas, with the total number of pipe to soil reads and the percentage of reads for inadequate cathodic protection levels may be helpful in the assessment of future SMR projects. As such, ATCO Gas is directed to provide cathodic protection history for identified areas in future applications where SMR is at issue, and as a part of the SMR business case for each project.

### **3.2 Direction 9 – Disclosure of additional leak information within the SMR program**

20. At paragraph 176 of Decision 20604-D01-2016, the Commission issued the following direction to ATCO Gas:

In its reply argument, the CCA requested a greater level of disclosure of leak information in future business cases, including any ranking system of size or severity, type of mechanical leak, detailed location on service or main, estimated volume of leak, and time from discovery of leak to complete repair including any leaks that were not deemed either repairable or necessary to repair. The Commission considers that some or all of this information will be helpful in improving the assessment of individual projects and the SMR program overall. ATCO Gas is directed, in the compliance filing to this decision, to comment on which of the additional leak data listed by the CCA, if any, are tracked by ATCO Gas, comment on whether reports are available on these items, and further comment on the feasibility of providing additional information on leak frequency in addition to what was provided in the business cases on the record of the current proceeding.<sup>13</sup>

21. Regarding a size or severity ranking system, ATCO Gas stated that it tracks and classifies leaks as either a:

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<sup>10</sup> Decision 20604-D01-2016, paragraph 173.

<sup>11</sup> Exhibit 21606-X0004, application, paragraph 10.

<sup>12</sup> Exhibit 21606-X0004, application, paragraph 11.

<sup>13</sup> Decision 20604-D01-2016, paragraph 176.



- Class 1 leak: a leak that is regarded as an existing or probable hazard to persons or property and requires immediate repair or continuous action until temporary mitigation is completed and the conditions are no longer hazardous.
- Class 2 leak: a leak that is non-hazardous at the time of detection, but will need a scheduled repair based on future hazard.

22. ATCO Gas submitted that it would be feasible to provide the classification of leaks with engineering assessments in the future.<sup>14</sup>

23. Regarding mechanical leaks, ATCO Gas stated that it does not separate mechanical leaks into types. It does track mechanical leaks by component, i.e., a leak can be on a compression fitting, flange, valve, etc., but it does not use this information when evaluating mechanical leaks. ATCO Gas explained that this is because a leak on any component of a mechanical fitting is an indication that the fitting has failed, and that further evaluation of the leaking component does not provide relevant information for replacement decisions. ATCO indicated that this information need not be included in future engineering assessments.<sup>15</sup> ATCO Gas stated that it does not track the estimated volume of leaks as it is not feasible to accurately estimate leak volumes. In ATCO Gas's view, the volume of leaks cannot be included in future engineering assessments.<sup>16</sup> With respect to the location of leaks, ATCO Gas noted that the location of each leak is already shown in all engineering assessments.<sup>17</sup>

24. ATCO Gas stated that it currently tracks the date a leak is identified along with the date the leak is repaired. ATCO Gas explained that while the time from discovery of a leak to the time of repair completion is available, leak repair timelines are not a risk factor when considering the potential for future leaks in a particular system. ATCO Gas stated that this information need not be included in future engineering assessments.<sup>18</sup>

25. ATCO Gas further commented that it would be feasible to provide the following additional information on leak frequency in future engineering assessments:

- 10-year overall leak frequency (X/100 kilometre (km))
- 10-year overall leak total
- 10-year corrosion leak frequency (X/100 km)
- 10-year corrosion leak total
- two-year overall leak frequency (X/100 km)
- two-year overall leak total
- two-year corrosion leak frequency (X/100 km)
- two-year corrosion leak total<sup>19</sup>

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<sup>14</sup> Exhibit 21606-X0004, paragraph 16.

<sup>15</sup> Exhibit 21606-X0004, paragraph 17.

<sup>16</sup> Exhibit 21606-X0004, paragraph 19.

<sup>17</sup> Exhibit 21606-X0004, paragraph 18.

<sup>18</sup> Exhibit 21606-X0004, paragraph 20.

<sup>19</sup> Exhibit 21606-X0004, paragraph 21.

## Commission findings

26. The Commission is satisfied that ATCO Gas has complied with the direction set out by the Commission at paragraph 176 of Decision 20604-D01-2016.

27. In Decision 20604-D01-2016, ATCO Gas was already directed to provide the total number of leaks for each of the two-year and 10-year time periods, as well as the number of leaks on a per 100 km basis, for each of the two-year and 10-year time periods.<sup>20</sup> In ATCO Gas's 2017 SMR forecast update application, ATCO Gas provided the total leak count and number of leaks on a per 100 km basis for both overall leaks and corrosion leaks for each of the two-year and 10-year time periods and for total Class 1 leaks for the 10-year time period.<sup>21</sup> ATCO Gas is directed to continue to provide this information, and the location of leaks, in future engineering assessments.

28. Regarding mechanical leaks, the Commission will not require ATCO Gas to identify mechanical leaks by component. The Commission considers the information showing leak cause categorized by mechanical and corrosion, as currently provided by ATCO Gas in its engineering assessments, is adequate for the purposes of assessing the SMR program.

29. As the volume of leaks is not tracked, the Commission will not require ATCO Gas to provide information about the volume of leaks. Further, as leak repair timelines are not a risk factor when considering the potential for future leaks in a particular pipeline system, the Commission will not require ATCO Gas to provide information on the time from discovery of a leak to the time of repair completion.

### 3.3 Direction 10 – 2017 SMR forecast

30. At paragraph 182 of Decision 20604-D01-2016, the Commission issued the following direction to ATCO Gas:

In light of the above considerations, the Commission finds that, for purposes of capital tracker treatment in 2017 on a forecast basis, the scope of the SMR program should be limited to emergency repairs. The Commission directs ATCO Gas, in its compliance filing to this decision, to recalculate the accounting test, the first tier of the materiality test and the K factor amount associated with this program based only on capital additions for the emergency repairs component of the SMR program for 2017.

31. In the compliance filing, ATCO Gas confirmed that it removed the non-emergency-related amounts of the SMR program from its capital tracker forecasts for 2017, resulting in a reduction in the K factor for the north of \$1,433,000 and a reduction in the K factor for the south of \$544,000 in 2017.<sup>22</sup> ATCO Gas provided evidence of its compliance with this direction by including its revised accounting test results in Appendix 1 of the application.

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<sup>20</sup> Decision 20604-D01-2016, paragraph 171.

<sup>21</sup> Proceeding 21843, ATCO Gas 2015 Capital Tracker True-Up Application and 2017 Steel Mains Replacement Forecast Update, Exhibit 21843-X0007, Appendix B.

<sup>22</sup> Exhibit 21606-X0004, application, paragraph 24.

## Commission findings

32. The Commission has reviewed ATCO Gas's accounting test calculations set out in Appendix 1 of its compliance filing and the information provided conforms with the direction set out by the Commission at paragraph 182 of Decision 20604-D01-2016. The Commission is satisfied that ATCO Gas has complied with this direction.

### 3.4 Direction 11 – Regression analysis for the Plastic Mains Replacement program

33. In the proceeding leading to Decision 20604-D01-2016, ATCO Gas utilized a regression-based approach to determine its 2016 and 2017 Plastic Mains Replacement (PMR) forecast for the north and the south. Specifically, ATCO Gas provided separate regressions for the north and the south for cost per km on service density (services per km), in order to determine the 2016 and 2017 cost per km forecasts.<sup>23</sup> ATCO Gas estimated two regression equations for the north and the south using data from a 2013 and 2014 project list that satisfied the proposed high density criteria, in both the north and south because, in ATCO Gas's view, these projects were representative of the work planned in 2015 to 2017. Specifically, ATCO Gas stated that it filtered the 2013 and 2014 project list where "projects with a service density less than eight services/km were removed from the regression analysis. Also, projects with fewer than ten services were removed from the analysis to eliminate 'artificially high service density' projects (i.e. outliers)."<sup>24</sup> ATCO Gas's two regression equations, as provided in paragraph 206 of Decision 20604-D01-2016, were then estimated using the remaining data points.<sup>25</sup>

34. ATCO Gas stated that the estimated regression equations were not used to derive individual project estimates but were used to derive annual costs based on the total mains and aggregate service density forecast for that particular year. The project costs per km were plotted against services per km, and the resulting best fit curve was used to forecast unit costs for 2015, 2016 and 2017. The unit costs were then multiplied by the forecast number of units, resulting in the total costs for the planned PMR work.<sup>26</sup>

35. In Decision 20604-D01-2016, at paragraphs 231-233, the Commission directed the following:

The Commission observes, however, that ATCO Gas's 2016 and 2017 forecasts were based on the estimated north and south regression equations reproduced in Table 10. As described in Point 3 of the Commission's aid to questioning concerning the PMR regressions, and confirmed by an ATCO witness to be correct, ATCO Gas used these estimated equations, along with service density forecasts for each region, to produce the forecast costs per km, and the total costs, for each region, as shown in Table 11. To confirm the north and south estimated regression equations provided in Table 10, the Commission re-estimated these equations using data limited to the 2013 and 2014 projects that satisfied ATCO Gas's criteria of only including data points with a service density of at least eight and involving at least 10 services, resulting in 13 data points for the north and 11 data points for the south. The data points used by the Commission is provided in Appendix 5, and yielded the following results:

<sup>23</sup> Decision 20604-D01-2016, paragraphs 206-207.

<sup>24</sup> Exhibit 20604-X0027, AG-AUC-2015AUG17-020(d).

<sup>25</sup> Decision 20604-D01-2016, paragraph 207.

<sup>26</sup> Decision 20604-D01-2016, paragraph 208.

**Table 14. Commission-estimated regression equations (cost per km) for the north and south**

	Cost per km
<b>North</b>	$(\$12,326.6) \times (\text{service density}) + \$76,451.3$
<b>South</b>	$(\$11,023.6) \times (\text{service density}) + \$68,403.6$

The Commission considers that the Commission's regression results produced in Table 14, particularly for the south, are sufficiently different from those provided by ATCO Gas, and reproduced in Table 10. This raises concerns in terms of the results of ATCO Gas's regression to support the service densities and forecast costs for the PMR program.

In particular, substituting the Commission-calculated region-specific service densities from Table 12 into the estimated regression equations in Table 14 would likely yield different forecast unit costs. Therefore, these different forecast unit costs, when multiplied by forecast km, and added to emergency replacement costs, will likely yield forecast total costs for the PMR program that differ from those provided in the application and reproduced in Table 13. Accordingly, the Commission directs ATCO Gas in the compliance filing to this decision to re-estimate the two regression equations, provided in Table 10, using only the data points that satisfy the specified criteria outlined by ATCO Gas. ATCO Gas is also directed to explain any discrepancies between the data points used by ATCO Gas in the compliance filing and the data points listed in Appendix 5. Lastly, the Commission directs ATCO Gas to use these newly estimated equations to re-calculate the 2016 and 2017 unit cost forecasts for the north and south, and to update tables 11 and 13 of this decision accordingly. [footnotes omitted]

36. In its compliance filing, ATCO Gas recalculated the estimated regression equations for the north and south, as shown below:

**Table 2. Regression equations for the north and south for the PMR program with project G65107 included in the regression model<sup>27</sup>**

	Cost per km
<b>North</b>	$(\$ 12,327) \times (\text{service density}) + \$ 76,451$
<b>South</b>	$(\$ 6,404) \times (\text{service density}) + \$ 117,521$

37. ATCO Gas indicated that using this criteria resulted in a project list similar to that in Appendix 5 of Decision 20604-D01-2016, with the addition of one project, "G65107- Repl Crescent Heights Stage 1" (project G65107). The project G65107 was initially excluded by ATCO Gas from the regression model proposed in Proceeding 20604 because it represented an anomaly compared to a typical 2013 project, i.e., a service density of 130.1 compared to an aggregate 2013 service density of 3.3. However, ATCO Gas submitted that project G65107 was included in the regression model in the compliance filing application as it met the criteria outlined by ATCO Gas in Proceeding 20604 and was more representative of the higher service density work anticipated in 2016 and 2017.<sup>28</sup>

<sup>27</sup> Exhibit 21606-X0004, application, Table 3, paragraph 29.

<sup>28</sup> Exhibit 21606-X0004, application, paragraph 30.

38. ATCO Gas provided an update to tables 11 and 13 identified in paragraphs 212 and 216 of Decision 20604-D01-2016, which are reproduced below:

**Table 3. PMR program forecast cost per km and km for planned replacements in 2016 and 2017 for the north and south, with project G65107 included in the regression model<sup>29</sup>**

	2016-2017 application		Commission calculated		Updated by ATCO Gas	
	2016	2017	2016	2017	2016	2017
<b>North</b>						
km	82	122	82	122	82	122
\$000/km	262.3	205.7	282.1	224.5	288.4	223.9
<b>Total North (\$000)</b>	<b>21,508</b>	<b>25,092</b>	<b>23,135</b>	<b>27,388</b>	<b>23,647</b>	<b>27,318</b>
<b>South</b>						
km	165	175	165	175	165	175
\$000/km	171.0	151.3	164.8	133.6	176.8	156.8
<b>Total South (\$000)</b>	<b>28,216</b>	<b>26,482</b>	<b>27,199</b>	<b>23,389</b>	<b>29,166</b>	<b>27,437</b>

**Table 4. 2016 and 2017 forecast capital expenditures for planned and emergency replacements in the PMR program for the north and south, with project G65107 included in the regression model<sup>30</sup>**

	2016-2017 application		Commission calculated		Updated by ATCO Gas	
	2016	2017	2016	2017	2016	2017
<b>North</b>						
Planned	21,508	25,092	23,135	27,388	23,647	27,318
Emergency	277	293	277	293	277	293
<b>Total North (\$000)</b>	<b>21,785</b>	<b>25,385</b>	<b>23,412</b>	<b>27,681</b>	<b>23,924</b>	<b>27,611</b>
<b>South</b>						
Planned	28,216	26,482	27,199	23,389	29,166	27,437
Emergency	137	144	137	144	137	144
<b>Total South (\$000)</b>	<b>28,353</b>	<b>26,626</b>	<b>27,336</b>	<b>23,533</b>	<b>29,303</b>	<b>27,581</b>
<b>Total PMR</b>	<b>50,138</b>	<b>52,011</b>	<b>50,748</b>	<b>51,214</b>	<b>53,227</b>	<b>55,192</b>
<b>Deviation from application</b>			1.22%	-1.53%	6.16%	6.12%

39. Consistent with Proceeding 20604, in this proceeding ATCO Gas only included high service density projects from 2013 and 2014 in the regression model because ATCO Gas viewed these as the most accurate representation of work planned in 2015 to 2017.<sup>31</sup> To accomplish this, ATCO Gas used the same two criteria for removing projects from the regression analysis as in Proceeding 20604: those with a service density of less than eight services per km and those with fewer than 10 services in total.<sup>32</sup>

40. ATCO Gas added that projects in high service density areas but with a small overall scope (i.e., a project containing 100 metres of pipe and two services and a service density of 20) were not viewed as yielding an accurate forecast of costs associated with high service density projects. In ATCO Gas's view, project G65107 was not an artificially high service density

<sup>29</sup> Exhibit 21606-X0004, application, Table 4, paragraph 31.

<sup>30</sup> Exhibit 21606-X0004, application, Table 5, paragraph 34.

<sup>31</sup> Decision 20604-D01-2016, paragraph 207.

<sup>32</sup> Exhibit 21606-X0016, AG-AUC-2016JUN27-001(a).

project, but rather represented a high service density project due to the significant scope in terms of the amount of pipe installed (469 metres) and the number of services (61 services). Due to the high number of services, project G65107 was included in the regression calculation because it met the criteria for inclusion in the regression model and was of sufficient scope to be representative of the higher service density work.<sup>33</sup>

41. ATCO Gas provided the following figures to illustrate the line of best fit and the relationship between service density and cost for both the north and south. For the south figure, ATCO Gas confirmed that none of the projects had artificially high service densities. ATCO Gas also confirmed that the data point for project G65107 (with a service density of 130.1) was distant from the other 11 data points, as shown in Figure 2 below:<sup>34</sup>

Figure 1. Service density and cost per km for the PMR program for the north<sup>35</sup>

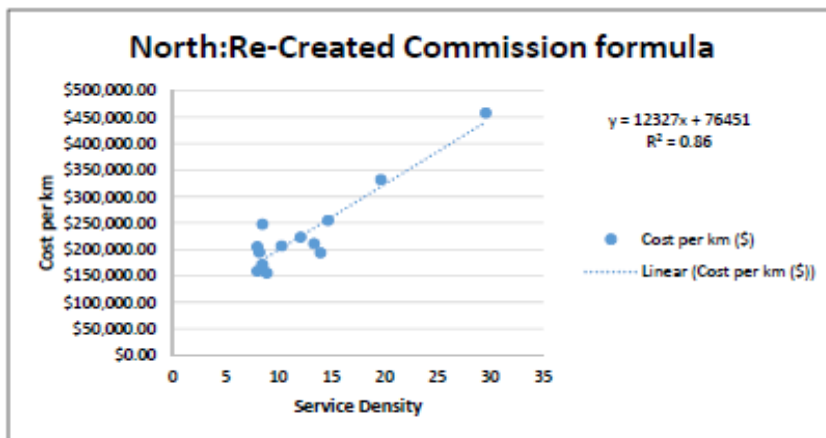
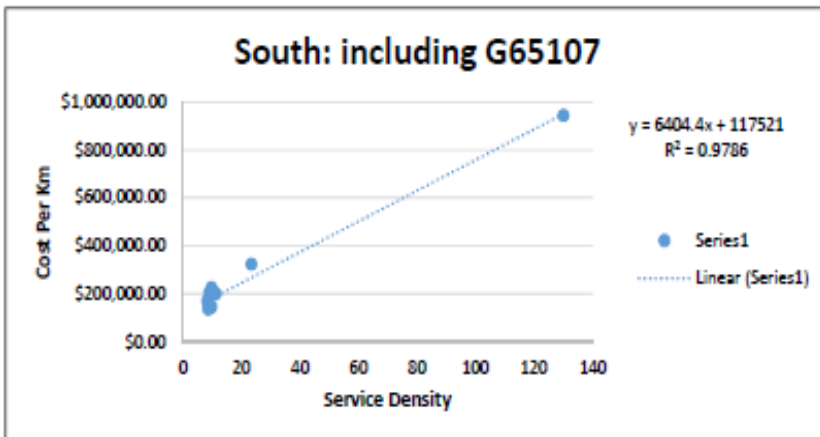


Figure 2. Service density and cost per km for the PMR program for the south with project G65107 included in the regression model<sup>36</sup>



<sup>33</sup> Exhibit 21606-X0010, AG-AUC-2016JUN08-003(c-d).

<sup>34</sup> Exhibit 21606-X0016, AG-AUC-2016JUN27-001(b-c).

<sup>35</sup> Exhibit 21606-X0016, AG-AUC-2016JUN08-003, Attachment 1.

<sup>36</sup> Exhibit 21606-X0016, AG-AUC-2016JUN08-003, Attachment 1.

42. In response to a Commission information request, ATCO Gas updated the estimated regression equations, excluding project G65107 from the regression model for the south. ATCO Gas also provided a table for updated service densities. The updated regression equations excluding project G65107 is shown below in Table 5 and the updated service densities are shown in Table 6:

**Table 5. Updated regression equations for the north and south for the PMR program with project G65107 excluded from the regression model<sup>37</sup>**

	Cost per km
North	$(\$12,327) \times (\text{service density}) + \$76,451$
South	$(\$11,024) \times (\text{service density}) + \$68,404$

**Table 6. Updated service densities for 2016 and 2017 for the PMR program with project G65107 excluded from the regression model<sup>38</sup>**

	Commission calculated		Used by ATCO Gas throughout	
	2016	2017	2016	2017
North	15.54	10.66	16.0	10.6
South	8	5.02	7.9	4.3

43. ATCO Gas confirmed that the inflation adjustments for 2015 and 2016 used in the 2016 calculations, and for 2015, 2016 and 2017 used in the 2017 calculations, were applied to the cost per km forecast values obtained from the regression equations for the north and the south, after substituting 2016 and 2017 values for service density. These inflation rates were previously approved by the Commission for occupation labour, supervisory labour, material, equipment and contractors. The annual inflation rate of 2.6 per cent used in the analysis was derived using a weighted average based on the costs for the occupation labour, supervisory labour, material, equipment and contractors.<sup>39</sup>

44. In subsequent responses to information requests, ATCO Gas stated that including project G65107 in its regression model led to a regression result that was representative of the relationship between service density and cost per km for PMR projects. ATCO Gas stated that:

... A data point might be considered an outlier in a regression analysis if the data point is distant from the other data points; however, an outlier, by that definition, is not automatically removed from a regression analysis. An outlier is only removed from a regression analysis if the data point falls outside the predicted pattern. In the case of "G65107-Repl Crescent Heights Stage 1", the data point falls within the predicted pattern. Including Crescent Heights Stage 1 in the regression model increases the

<sup>37</sup> Exhibit 21606-X0010, AG-AUC-2016JUN08-001(e).

<sup>38</sup> Exhibit 21606-X0010, AG-AUC-2016JUN08-001(f).

<sup>39</sup> Exhibit 21606-X0010, AG-AUC-2016JUN08-002(a-d).

goodness of fit of the linear equation; for this reason, it is appropriate to include “G65107-Repl Crescent Heights Stage 1” in the regression analysis.<sup>40</sup>

45. Furthermore, in the context of forecasting the cost of future projects, ATCO Gas noted that its decision to include or exclude an outlier depends on whether or not the data point is representative of future projects. In ATCO Gas’s view, the decision to include project G65107 in the regression model begins with the understanding that this data point represents an actual PMR project of significant scope completed by ATCO Gas. ATCO Gas stated that this project represents actual project data. ATCO Gas would only remove a project from the regression model if there was reason to suspect that the project would not be representative of the relationship between service density and cost per km for future PMR projects. The relationship is such that an increase in service density is correlated with an increase in cost per km. Therefore, ATCO Gas submitted that the fact that a data point falls within this predicted pattern supports the notion that the data point is representative of the relationship between service density and cost per km for PMR projects. Similarly, the fact that a data point increases the R-squared goodness-of-fit measure for an estimated regression supports the notion that the data point is representative of this relationship.<sup>41</sup>

46. At the Commission’s request, ATCO Gas also provided the following updated tables excluding project G65107 from the regression model:

**Table 7. Updated PMR program forecast cost and cost per km for planned replacements in 2016 and 2017, with project G65107 excluded from the regression model<sup>42</sup>**

	2016-2017 application		Commission calculated		Updated by ATCO Gas	
	2016	2017	2016	2017	2016	2017
<b>North</b>						
km	82	122	82	122	82	122
\$000/km	262.3	205.7	282.1	224.5	288.4	223.9
<b>Total North</b>	<b>21,508</b>	<b>25,092</b>	<b>23,135</b>	<b>27,388</b>	<b>23,647</b>	<b>27,318</b>
<b>South (excluding project G65107)</b>						
km	165	175	165	175	165	175
\$000/km	171.0	151.3	164.8	133.6	163.3	125.3
<b>Total South</b>	<b>28,216</b>	<b>26,482</b>	<b>27,199</b>	<b>23,389</b>	<b>26,949</b>	<b>21,922</b>

<sup>40</sup> Exhibit 21606-X0016, AG-AUC-2016JUN27-001(d).

<sup>41</sup> Exhibit 21606-X0019, AG-AUC-2016JUL12-001(a-b).

<sup>42</sup> Exhibit 21606-X0010, AG-AUC-2016JUN08-001(g).



**Table 8. Updated 2016 and 2017 forecast capital expenditures for planned and emergency replacements in the PMR program, with project G65107 excluded from the regression model<sup>43</sup>**

	2016-2017 application		Commission calculated		Updated by ATCO Gas	
	2016	2017	2016	2017	2016	2017
	(\$000)					
<b>North</b>						
Planned	21,508	25,092	23,135	27,388	23,647	27,318
Emergency	277	293	277	293	277	293
<b>Total North</b>	<b>21,785</b>	<b>25,385</b>	<b>23,412</b>	<b>27,681</b>	<b>23,924</b>	<b>27,611</b>
<b>South</b>						
Planned	28,216	26,482	27,199	23,389	26,949	21,922
Emergency	137	144	137	144	137	144
<b>Total South</b>	<b>28,353</b>	<b>26,626</b>	<b>27,336</b>	<b>23,533</b>	<b>27,086</b>	<b>22,066</b>
<b>Total PMR</b>	<b>50,138</b>	<b>52,011</b>	<b>50,748</b>	<b>51,214</b>	<b>51,010</b>	<b>49,677</b>
<b>Deviation from application</b>			<b>1.22%</b>	<b>-1.53%</b>	<b>1.74%</b>	<b>-4.49%</b>

### Commission findings

47. ATCO Gas re-estimated the two regression equations for the north and south in its compliance filing, using only the data points that satisfied the specified criteria outlined by ATCO Gas. The Commission finds that ATCO Gas has complied with the direction to re-estimate the two regression equations, using only the data points that satisfy the specified two criteria outlined by ATCO Gas.

48. The Commission further directed ATCO to explain any discrepancies between the data points used by ATCO Gas in the compliance filing and the data points listed in Appendix 5 of Decision 20604-D01-2016. ATCO Gas provided sufficient explanations of any discrepancies that arose between the data points used by ATCO Gas in the compliance filing and the data points listed in Appendix 5.

49. Finally, the Commission directed ATCO Gas to recalculate the 2016 and 2017 unit cost forecasts for the north and south, and to update tables 11 and 13 of Decision 20604-D01-2016 accordingly, consistent with the updated regression equations. In the compliance filing, ATCO Gas used the newly estimated regression equations, with and without project G65107 being included in the regression model, and recalculated the 2016 and 2017 unit cost forecasts for the north and south, and provided updated tables showing the 2016-2017 forecast cost and volumes, measured in kms, for planned replacements and the 2016-2017 capital expenditures forecast for planned and emergency replacements for the PMR program. Accordingly, the Commission finds that ATCO Gas has complied with the Commission's directions.

50. In the compliance filing, ATCO Gas incorporated project G65107 into its regression model, impacting the estimated south regression equation. With project G65107 included in the regression model, the forecast capital additions for the PMR program for 2016 are \$50.1 million (\$21.7 million for the north and \$28.4 million in the south) and for 2017 are \$51.9 million

<sup>43</sup> Exhibit 21606-X0010, AG-AUC-2016JUN08-001(g).

(\$25.1 million for the north and \$26.8 million for the south), respectively.<sup>44</sup> With project G65107 excluded from the regression model, the forecast capital additions for the PMR program for 2016 are \$48.9 million (\$21.7 million for the north and \$27.2 million in the south) and for 2017 are \$47.5 million (\$25.1 million for the north and \$22.4 million for the south), respectively.<sup>45</sup> The Commission notes that these differences in the forecast amounts, depending on whether project G65107 is included or excluded in the estimation of the regression model that is used in the determination of ATCO Gas's forecasts for the PMR program, are not negligible.

51. Although the result of including or excluding project G65107 from the regression model should not in and of itself be determinative, the Commission has some concerns with the regression model pertaining to the inclusion and exclusion of projects as outliers. Specifically, there are at least two important, but separate, considerations underlying the decision to use regression analysis to determine the estimated relationship between cost per km and service density. The first concerns estimation issues – whether there are sufficient data, whether the data are reliable, whether the data include outliers, etc. The second concerns the applicability of the estimated regression equation to a particular set of circumstances, such as forecasting the cost per km of future projects with particular service densities.

52. In deciding that the data point for project G65107 should be included in the regression analysis for the south, even though it is an outlier, because it “is representative of future projects,”<sup>46</sup> ATCO Gas appears to be confusing these two separate considerations. If the data points (projects) that are included in the regression analysis are considerably different from future projects, the estimated regression equation might not be a good predictor of the cost per km for those future projects. However, this is not a sufficient reason to include in the regression analysis an additional data point that might be similar to those future projects, but which is an outlier in terms of the other data points used in the regression analysis.

53. ATCO Gas also notes that the regression analysis, with or without project G65107 included in the regression model, shows that an increase in service density is associated with an increase in cost per km, so that the data point associated with project G65107 falls within this predicted pattern, and it should therefore be included in the regression analysis. However, this overlooks the effect that including project G65107 will have on the estimated regression equation. While it will still show a positive relationship between cost per km and service density, the extent of this positive relationship determined by the regression analysis will be exaggerated, and the estimated parameters and the predicted costs for any future project will be affected.

54. With respect to the R-squared goodness-of-fit measure, inclusion of an outlier can either increase or decrease this measure, often substantially. ATCO Gas concludes that a data point that increases R-squared, as project G65107 does, “supports the notion that the data point is representative of this relationship,”<sup>47</sup> suggesting therefore that it should be included in the data set used for the regression analysis. However, ATCO Gas also notes that it “would not exclude an outlier from the regression analysis solely because it decreases the R-squared.”<sup>48</sup>

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<sup>44</sup> Exhibit 21606-X0003, Schedule A2.

<sup>45</sup> Exhibit 21606-X0020, Schedule A2.

<sup>46</sup> Exhibit 21606-X0019, AG-AUC-2016JUL12-001(a-b).

<sup>47</sup> Exhibit 21606-X0019, AG-AUC-2016JUL12-001(a-b).

<sup>48</sup> Exhibit 21606-X0019, AG-AUC-2016JUL12-001(c).

These somewhat conflicting statements are consistent with the conclusion that a comparison of R-squared values with and without a particular data point (outlier) included, provides no useful information and cannot be used to support or refute the inclusion of an outlier in the regression analysis.

55. Although there is no general rule for determining whether an outlier should be included in or excluded from a regression analysis, in making such a decision, the Commission finds that it is helpful to consider what regression analysis does. In its simplest single-explanatory-variable version, as in the model considered here, regression is determining whether deviations in the cost per km from its mean are explained by deviations in service density from its mean. If some of the data points are far from those means, and/or the distribution of the data points around those means is severely skewed, as is likely to occur when outliers are included, then standard regression analysis is not likely to provide a representative or reliable estimated relationship. As identified in a response to an information request,<sup>49</sup> and shown in Figure 2, for the south, with project G65107 excluded from the data set, service density ranges between 8.4 and 23.4, with a mean of 10.8, and with all values except one being less than 11.4. With project G65107 included in the data set, service density for the south ranges from 8.4 to 130.1 with a mean of 20.7. Cost per km for the south, with project G65107 excluded from the data set, ranges between \$135,246 and \$323,576, with a mean of \$187,158, and all values except one are less than \$226,275. With project G65107 included in the data set, cost per km for the south ranges from \$135,246 to \$943,666 with a mean of \$250,200. These data values demonstrate that the inclusion of project G65107 in the data set causes the means to increase to such an extent that all but one of the other data points lie below the new means, while project G65107 remains far above the new means, suggesting that an estimated regression equation with project G65107 included in the data set is unlikely to reliably depict the relationship between the two variables. Accordingly, the Commission finds that the regression analysis used to determine the relationship between cost per km and service density for the south should exclude project G65107 from the data set used in the estimation.

56. The Commission has reviewed the information on the record in relation to the scope, level, timing and of the updated forecast costs for 2016 and 2017, both including and excluding project G65107 from the regression model. As outlined in paragraph 235 of Decision 20604-D01-2016, the Commission continues to find that the information provided by ATCO Gas generally supports a finding that the PMR program is required to maintain utility service quality at adequate levels. In this proceeding, the Commission is prepared to approve the scope, level, timing and forecast costs for the PMR program. However, the Commission is not prepared to approve the inclusion of project G65107 in the regression model for the reasons set out above.

57. Paragraph 235 of Decision 20604-D01-2016 stated the following regarding Criterion 1:

The Commission has reviewed the information on the record in relation to the scope, level, timing and forecast costs for 2016 and 2017. The Commission finds that the information provided by ATCO Gas supports a finding that the PMR program was required to maintain utility service quality at adequate levels. However, the Commission is not prepared to approve the scope, level, timing and forecast costs. Accordingly, the

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<sup>49</sup> Exhibit 21606-X0011, AG-AUC-2016JUN08-003 Attachment 1, tab labelled "Project List."

Commission cannot make a finding at this time that the PMR program, as modified by the Commission's directions, satisfies the project assessment requirement of Criterion 1.

58. With the additional information provided in the compliance filing application, the Commission finds that the PMR program satisfies the project assessment requirement of Criterion 1 with respect to the scope, level, timing and forecast costs for 2016 and 2017. For the above reasons, the Commission approves the forecast capital additions for the PMR program for 2016 as \$48.9 million (\$21.7 million for the north and \$27.2 million in the south) and for 2017 as \$47.5 million (\$25.1 million for the north and \$22.4 million for the south), respectively.

### **3.5 Direction 12 – Transmission-driven projects**

59. At paragraph 274 of Decision 20604-D01-2016, the Commission issued the following direction to ATCO Gas:

At this time, no Commission approvals have been requested from ATCO Pipelines for facilities related to the Southwest Calgary Connector project. Accordingly, the Commission directs ATCO Gas to remove the 2017 forecast costs of \$8.3 million for the Palliser and Bridlewood Gate project from the capital tracker forecasts for 2017.

60. In the compliance filing, ATCO Gas submitted that it removed the expenditures related to the Palliser and Bridlewood Gate projects in the south from the capital tracker forecasts for 2017, resulting in a reduction to the south K factor of \$389,000 for 2017.<sup>50</sup>

### **Commission findings**

61. The Commission has reviewed ATCO Gas's accounting test calculations set out in Appendix 1 of its compliance filing and the Palliser and Bridlewood Gate projects have been removed from the calculation of the south K factor. The Commission is satisfied that ATCO Gas has complied with the direction in paragraph 274 of Decision 20604-D01-2016.

### **3.6 Direction 14 – Canada Mortgage and Housing Corporation (CMHC) report**

62. At paragraph 363 of Decision 20604-D01-2016, the Commission issued the following direction to ATCO Gas for three capital tracker programs:

The Commission has reviewed the information supporting ATCO Gas's 2016 and 2017 forecasts and the argument raised by the CCA with respect to the Q4 [quarter 4] CMHC report. Due to the fact that growth is the main driver for the three programs, the best information available at the time of the close of record of the proceeding should be used to assess ATCO Gas's forecast capital tracker programs for 2016 and 2017. The Commission directs ATCO Gas in its compliance filing to update the forecast for the Rural Main Extensions and Service Lines program, the New Urban Service Lines program, the Urban Mains Extension program based on the Q4 CMHC report. In that application, the Commission will assess the scope, level, timing and forecast costs for the project requirements of Criterion 1.

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<sup>50</sup> Exhibit 21606-X0004, application, paragraph 37.

63. In its compliance filing, ATCO Gas updated its forecast for the three programs: Rural Main Extensions and Service Lines, the New Urban Service Lines, and the Urban Main Extensions based on the Q4 CMHC report. ATCO Gas provided Table 6 in the compliance filing with revised 2016 and 2017 forecasts for the north and south for each of these programs. ATCO Gas also provided Table 7 in the compliance filing showing the revised cumulative K factor impact based on this direction, which resulted in a slight reduction in the K factor for the north and south in 2016 and 2017.<sup>51</sup>

### **Commission findings**

64. The Commission has reviewed ATCO Gas's accounting test calculations set out in Appendix 1 of its compliance filing and is satisfied that ATCO Gas has complied with the direction set out by the Commission at paragraph 363 of Decision 20604-D01-2016. The Commission finds that ATCO Gas has updated the 2016 and 2017 forecast for the Rural Main Extensions and Service Lines program, the New Urban Service Lines program and the Urban Main Extensions program based on the Q4 CMHC report consistent with the Commission's direction. The Commission approves the scope, level, timing and forecast costs for these programs because the additional information provided in this compliance filing application demonstrates that the projects satisfy the project assessment requirement of Criterion 1. Accordingly, the Commission finds that each of these three programs satisfies the project assessment requirement of Criterion 1 for 2016 and 2017.

### **3.7 Direction 15 – Emergency Supply program**

65. At paragraph 384 of Decision 20604-D01-2016, the Commission issued the following direction to ATCO Gas:

The Commission is not prepared to approve the forecast capital expenditures for 2016 and 2017 for capital tracker treatment at this time given that the 2015 actual amounts have not yet been tested. ATCO Gas is directed to remove any amounts associated with the Emergency Supply program from the K factor in the compliance filing to this decision.

66. In the compliance filing, ATCO Gas indicated that it removed the amounts associated with the Emergency Supply program from the K factor, resulting in a reduction in the K factor amounts of \$167,000 and \$165,000 for 2016 and 2017 for the south, respectively.<sup>52</sup>

### **Commission findings**

67. The Commission has reviewed ATCO Gas's accounting test calculations set out in Appendix 1 of its compliance filing and notes that the Emergency Supply program has been removed from the calculation of the north and south K factors. The Commission is satisfied that ATCO Gas has complied with the direction set out by the Commission at paragraph 384 of Decision 20604-D01-2016.

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<sup>51</sup> Exhibit 21606-X0004, application, tables 6 and 7, page 17.

<sup>52</sup> Exhibit 21606-X0004, application, paragraph 45.

### 3.8 Direction 16 – 2016 I-X value under Criterion 1

68. In paragraph 403 of Decision 20604-D01-2016, the Commission issued the following direction to ATCO Gas regarding the 2016 I-X value under the accounting test:

ATCO Gas proposed to true up the forecast values of the I and Q factors to approved numbers as part of the 2016 and 2017 capital tracker true-up applications. However, regarding the 2016 forecast, the Commission observes that, since the filing of the application, the 2016 I-X index of 0.90 per cent and billing determinants forecast were approved in Decision 20820-D01-2015. To minimize future true-ups, the Commission directs ATCO Gas, in its compliance filing to this decision, to use the approved 2016 I-X index value and the Q factor based on the forecast billing determinants approved in Decision 20820-D01-2015 for purposes of its 2016 capital tracker forecast accounting test. For the purpose of this decision, the Commission considers ATCO Gas's forecast I and Q factor values for 2017 to be reasonable. [footnote omitted]

69. In the compliance filing, ATCO Gas submitted that it updated the accounting test with the 2016 I-X value and the Q factor based on the forecast billing determinants approved in Decision 20820-D01-2015.<sup>53 54</sup>

#### Commission findings

70. The Commission has reviewed ATCO Gas's accounting test calculations set out in Appendix 1 of its compliance application. ATCO has adjusted its calculations to reflect the approved 2016 I-X index value and the Q factor based on the forecast billing determinants approved in Decision 20820-D01-2015 for its 2016 capital tracker forecast accounting test. The Commission is satisfied that ATCO Gas has complied with the direction set out by the Commission at paragraph 403 of Decision 20604-D01-2016.

### 3.9 Direction 17 – Updates to the accounting test

71. At paragraph 433 of Decision 20604-D01-2016, the Commission issued the following direction to ATCO Gas:

The Commission directs ATCO Gas, in its compliance filing to this decision, to revise its accounting test for 2016 and 2017, based on approved final forecast or actual capital additions, the 2016 model assumptions and other directions as set out in this decision. ATCO Gas is further directed to provide a summary table in the compliance filing to this decision, showing for each capital tracker project or program, a comparison of the 2016 and 2017 forecast capital additions applied for in this proceeding and the 2016 and 2017 forecast capital additions, revised in accordance with the directions set out in this decision.

72. In the compliance filing, ATCO Gas indicated that it updated its accounting test, based on approved actual capital additions and forecasts, model assumptions and other directions as set out in Decision 20604-D01-2016. In Table 9 of the compliance filing, ATCO Gas provided a variance table showing each capital tracker program with a comparison of the 2016 and 2017

<sup>53</sup> Exhibit 21606-X0004, application, paragraph 49.

<sup>54</sup> Decision 20820-D01-2015: ATCO Gas and Pipelines Ltd., 2016 Annual Performance-Based Regulation Rate Adjustment Filing, Proceeding 20820, December 21, 2015.

forecast capital tracker additions applied for in Proceeding 20604, and the 2016 and 2017 forecast capital additions revised in accordance with Decision 20604-D01-2016.<sup>55</sup>

### **Commission findings**

73. The Commission has reviewed ATCO Gas's accounting test calculations set out in Appendix 1 of its compliance filing and Table 9 showing the updated forecasts for 2016 and 2017, as well as the variances of each capital tracker program between 2016 and 2017. The Commission is satisfied that ATCO Gas has complied with the directions set out by the Commission at paragraph 433 of Decision 20604-D01-2016.

### **3.10 Direction 18 – 2016 I-X value under Criterion 3**

74. At paragraph 451 of Decision 20604-D01-2016, the Commission issued the following direction to ATCO Gas:

However, since the filing of the application, the 2016 I-X index of 0.90 per cent was approved by the Commission in Decision 20820-D01-2015. Consistent with the findings in Section 7.1, to minimize future true-ups, the Commission directs ATCO Gas, in its compliance filing to this decision, to use the approved 2016 I-X index value of 0.90 per cent to calculate the first and second tier materiality thresholds for 2016.

75. In the compliance filing, ATCO Gas indicated that it updated its 2016 accounting test to reflect the 2016 I-X index value of 0.90 per cent approved in Decision 20820-D01-2015. ATCO Gas provided Table 10 in the compliance filing showing the updated Tier 1 and Tier 2 materiality thresholds for 2016 using the approved 2015 I-X index. ATCO Gas also reported a slight decrease in the materiality thresholds as a result of this update.<sup>56</sup>

### **Commission findings**

76. The Commission has reviewed ATCO Gas's accounting test calculations set out in Appendix 1 of its compliance application, and the two-tiered materiality threshold under Criterion 3 has been updated to reflect the 0.90 per cent approved in Decision 20820-D01-2015. The Commission is satisfied that ATCO Gas has complied with the direction set out by the Commission at paragraph 451 of Decision 20604-D01-2016.

### **3.11 Direction 19 – Materiality test under Criterion 3**

77. At paragraph 453 of Decision 20604-D01-2016, the Commission issued the following direction to ATCO Gas:

Given these findings, the Commission directs ATCO Gas, in its compliance filing to this decision, to reassess whether its projects or programs proposed for capital tracker treatment in 2016 and 2017 on a forecast basis, satisfy the two-tiered materiality test requirement of Criterion 3. For this reassessment, the Commission directs ATCO Gas to use the approved 2014 threshold amount, as well as revised 2016 threshold amounts, as directed above.

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<sup>55</sup> Exhibit 21606-X0004, application, paragraph 53.

<sup>56</sup> Exhibit 21606-X0004, application, Table 10, paragraph 56.

78. In the compliance filing, ATCO Gas indicated that it reassessed each program proposed for capital tracker treatment in order to determine if it satisfied the two-tiered materiality test required under Criterion 3. ATCO Gas also referred to Table 1 in its compliance filing as evidence of the updated capital trackers and associated K factor forecasts for 2016 and 2017.<sup>57</sup>

### **Commission findings**

79. Given the evidence provided by ATCO Gas in Table 1 and the analysis performed by ATCO Gas with respect to the two-tiered materiality threshold, the Commission is satisfied that each of the company's 2016 and 2017 programs continue to meet the two-tier materiality threshold and, as such, remain eligible for capital tracker treatment. Accordingly, the Commission is satisfied that ATCO Gas has complied with the direction set out by the Commission at paragraph 453 of Decision 20604-D01-2016.

### **3.12 Direction 20 – Rate adjustments for 2014 final K factor and 2016-2017 forecast K factor calculations**

80. At paragraph 456 of Decision 20604-D01-2016, the Commission issued the following direction to ATCO Gas:

In Section 6 of this decision, the Commission confirmed the prudence of actual capital additions associated with ATCO Gas's projects or programs included in the 2014 capital tracker true-up. Accordingly, the Commission approves the 2014 K factor adjustment of \$977,000 for the north and \$645,000 for the south for ATCO Gas as final, and in the compliance filing to this decision, directs ATCO Gas to propose how the difference between the 2014 K factor amount included in ATCO Gas's 2014 interim rates application and the approved 2014 K factor true-up adjustment will be refunded to its customers in its rates.

81. In the compliance filing, ATCO Gas noted that there are currently outstanding adjustments related to two decisions recently issued by the Commission. These include Decision 2738-D01-2016,<sup>58</sup> relating to the Z factor application for recovery of 2013 Southern Alberta Flood costs, and Decision 20604-D01-2016. ATCO Gas proposed that the outstanding balances should be included, which would result in a collection from customers. ATCO Gas proposed that Rider S should be implemented for the period September 1, 2016 to December 31, 2016, related to the total Rider S amount of \$6.3 million to be collected (\$2.0 million in the north and \$4.3 million in the south). In the compliance filing, ATCO Gas provided Appendix 4, showing the Rider S calculation amounts, and Appendix 5, showing the proposed rate schedules for the north and south.

82. In AG-AUC2016JUL12-001(e),<sup>59</sup> the Commission asked ATCO Gas to provide the impact of its proposed Rider S, including the changes to Rider S with respect to the exclusion of project G65107 from the PMR regression model for the south, as discussed in Section 3.4 of this decision. ATCO Gas provided updated Excel schedules that indicated that the total Rider S

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<sup>57</sup> Exhibit 21606-X0004, paragraph 60.

<sup>58</sup> Decision 2738-D01-2016: ATCO Gas and Pipelines Ltd., Z Factor Application for Recovery of 2013 Southern Alberta Flood Costs, Proceeding 2738, March 16, 2016.

<sup>59</sup> Exhibit 21606-X0019, AG-AUC-2016JUL12-001(e).



amount to be collected is \$6.2 million (\$2.0 million in the north and \$4.2 million in the south),<sup>60</sup> as shown below:

**Table 9. Calculation of Rider S amount**

	Total	North	South
<b>Capital trackers</b>	<b>(\$000)</b>		
2014 capital tracker true-up (refund) <sup>61</sup>	(1,622)	(977)	(645)
2016 capital tracker additional collection <sup>62</sup>	4,775	3,056	1,719
<b>Z factor</b>			
Z factor awarded (required collection up to 2013) <sup>63</sup>	3,121		3,121
<b>Total collection amount for Rider S before interest</b>			
<b>Carrying charges on capital tracker impacts and Z factor</b>	(33)	(34)	1
<b>Total Rider S</b>	<b>6,241</b>	<b>2,045</b>	<b>4,196</b>

83. The associated 2016 Rider S impacts are as follows:

**Table 10. Proposed increase (change in charges) of Rider S<sup>64</sup>**

Rate	September 1, 2016 to December 31, 2016	
	North	South
Low	0.4%	0.8%
Mid	0.2%	0.3%
High	0.1%	0.2%
Irrigation		1.8%

### Commission findings

84. The Commission is satisfied that ATCO Gas has provided sufficient information on the rate adjustments for 2014 final K factor and 2016-2017 forecast K factor calculations. ATCO Gas has complied with the direction set out by the Commission at paragraph 456 of Decision 20604-D01-2016. With respect to Rider S, the Commission finds that the rate increases noted in Table 10 above are acceptable and that the proposed collection period will recover the amounts from customers in a timely manner and is therefore reasonable. The Commission confirms that ATCO Gas's Rider S is the correct mechanism to address the 2016-2017 K factor adjustments. ATCO Gas's request to collect these amounts from ratepayers in the north and south service territories utilizing Rider S in the September 1, 2016 to December 31, 2016 time period is approved.

## 4 Forecast 2016 and 2017 K factor amounts

85. As a result of complying with the Commission's directions from Decision 20604-D01-2016 and adjusting for the exclusion of project G65107 from the PMR regression model for the

<sup>60</sup> Exhibit 21606-X0022, Rider S Rate Calculations, Schedule 1.

<sup>61</sup> As per the Commission's Direction 20 in Decision 20604-D01-2016.

<sup>62</sup> 2016 K factor (per compliance application) less the 90 per cent K factor per Decision 20820-D01-2015.

<sup>63</sup> As per Decision 2738-D01-2016.

<sup>64</sup> Exhibit 21606-X0022, Rider S Rate Calculations, Schedule 4.

south, as discussed in Section 3.4 of this decision, ATCO Gas provided revised forecast K factors for 2016 and 2017, which are shown below:

**Table 11. Updated capital tracker K factor amounts<sup>65</sup>**

	2016 forecast		2017 forecast	
	North	South	North	South
	(\$000)			
Steel Mains Replacement	9,745	2,053	10,820	2,670
Plastic Mains Replacement	6,219	8,306	8,342	10,544
Transmission Driven	5,379	3,752	7,528	6,831
Meter Relocation and Replacement	1,424	315	976	
Line Heater Reliability	921	277	1,298	692
Cathodic Protection	305	202	392	305
Regulating Metering Station Improvements	299		347	
New Urban Service Lines		721		703
Service Line Replacements and Improvements	1,335	2,158	788	294
New Regulating Meter Stations	603	221	788	294
Urban Main Extensions	374		625	
Urban Main Improvements	436	190	576	289
Urban Main Relocations	1,674	150	2,146	200
Rural Main Extensions and Service Lines	322		435	
<b>Total revised K factors</b>	<b>29,036</b>	<b>18,344</b>	<b>35,882</b>	<b>25,174</b>

### Commission findings

86. In previous sections of this decision, the Commission determined that ATCO Gas has complied with the directions set out in Decision 20604-D01-2016. Based on the Commission's review of ATCO Gas's proposed capital tracker projects or programs in Decision 20604-D01-2016, and its acceptance of the compliance filing calculations, the Commission finds the revised forecast capital additions in 2016 and 2017 to be reasonable for each capital tracker project or program proposed by ATCO Gas. The Commission also finds the resulting K factor calculations for 2016 and 2017, as provided in the compliance filing, to be reasonable given the information provided in the compliance filing. Based on the foregoing, the 2016 K factors of \$29.0 million for the north and \$18.3 million for the south, and the 2017 K factors of \$35.9 million for the north and \$25.2 million for the south, respectively, are approved on a forecast basis.

## 5 Carrying charges and Rule 023

87. As a result of correcting for the exclusion of project G65107 from the PMR regression model for the south, as discussed in Section 3.4 of this decision, ATCO Gas provided a re-calculation of the carrying costs on the collection from customers.<sup>66</sup> ATCO Gas submitted that

<sup>65</sup> Exhibit 21606-X0019, AG-AUC-2016JUL12-00(e), Attachment 1.

<sup>66</sup> Exhibit 21606-X0022, AG-AUC-2016JUL12-001(e) Attachment 3, Schedule 2.

it calculated its carrying costs associated with the true-up in accordance with Rule 023: *Rules Respecting Payment of Interest*, and consistent with Decision 2012-237.<sup>67</sup>

### **Commission findings**

88. The Commission finds that Rule 023 is a reasonable methodology to use for the calculation of the carrying charges payable to ATCO Gas on the amount to be collected through the K factor. The Commission accepts the amounts included for carrying charges that are included in the compliance filing application.

## **6 Remaining Commission directions from Decision 20604-D01-2016**

89. As discussed in Section 3 of this decision, ATCO Gas explained that it has responded in the compliance filing to Commission directions 6, 9 to 12 and 14 to 20 in Decision 20604-D01-2016. These directions are discussed above. Except for directions 21 and 22, the remaining Commission directions were not addressed in this decision on the basis that they were relevant to future capital tracker applications.

90. Direction 21 related to updating the 2016 and 2017 forecast amounts for each of the north and south as a result of the findings of Decision 20604-D01-2016. The contents of ATCO Gas's application demonstrate that it has complied with this direction. Direction 22 related to filing the compliance filing application on or before May 12, 2016, and ATCO Gas complied with this direction. The remaining Commission directions were not addressed in this compliance filing. ATCO Gas is directed to address the remaining Commission directions from Decision 20604-D01-2016 in subsequent capital tracker applications.

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<sup>67</sup> Decision 2012-237: Rate Regulation Initiative, Distribution Performance-Based Regulation, Proceeding 566, Application 1606029-1, September 12, 2012.

**7 Order**

91. It is hereby ordered that:

- (1) ATCO Gas and Pipelines Ltd. is authorized to collect the total of \$4.775 million from its ratepayers through Rider S in the north and south territories over the September 1, 2016 to December 31, 2016 period, as set out in the corresponding rate schedules in Appendix 4 and Appendix 5, to this decision.

Dated on August 25, 2016.

**Alberta Utilities Commission**

*(original signed by)*

Mark Kolesar  
Vice-Chair

**Appendix 1 – Proceeding participants**

<b>Name of organization (abbreviation) Name of counsel or representative</b>
ATCO Gas and Pipelines Ltd. (ATCO Gas) Bennett Jones LLP
Consumers' Coalition of Alberta (CCA)

Alberta Utilities Commission
Commission panel M. Kolesar, Vice-Chair
Commission staff A. Sabo (Commission counsel) J. Graham (Commission counsel) D. Ryan (Visiting Scholar in Economics) B. Whyte P. Genderka N. Mahbub C. Runge

## Appendix 2 – Summary of Commission directions

This section is provided for the convenience of readers. In the event of any difference between the directions in this section and those in the main body of the decision, the wording in the main body of the decision shall prevail.

1. The Commission finds that the cathodic protection history for identified areas, with the total number of pipe to soil reads and the percentage of reads for inadequate cathodic protection levels may be helpful in the assessment of future SMR projects. As such, ATCO Gas is directed to provide cathodic protection history for identified areas in future applications where SMR is at issue, and as a part of the SMR business case for each project. .... Paragraph 19
2. In Decision 20604-D01-2016, ATCO Gas was already directed to provide the total number of leaks for each of the two-year and 10-year time periods, as well as the number of leaks on a per 100 km basis, for each of the two-year and 10-year time periods. In ATCO Gas's 2017 SMR forecast update application, ATCO Gas provided the total leak count and number of leaks on a per 100 km basis for both overall leaks and corrosion leaks for each of the two-year and 10-year time periods and for total Class 1 leaks for the 10-year time period. ATCO Gas is directed to continue to provide this information, and the location of leaks, in future engineering assessments. .... Paragraph 27
3. Direction 21 related to updating the 2016 and 2017 forecast amounts for each of the north and south as a result of the findings of Decision 20604-D01-2016. The contents of ATCO Gas's application demonstrate that it has complied with this direction. Direction 22 related to filing the compliance filing application on or before May 12, 2016, and ATCO Gas complied with this direction. The remaining Commission directions were not addressed in this compliance filing. ATCO Gas is directed to address the remaining Commission directions from Decision 20604-D01-2016 in subsequent capital tracker applications. .... Paragraph 90

**Appendix 3 – Compliance with previous directions**

<b>Decision reference</b>	<b>Commission direction</b>	<b>ATCO Gas’s compliance with this direction and corresponding application reference</b>
Decision 20604-D01-2016, paragraph 173	ATCO Gas confirmed in the hearing that it routinely records cathodic protection levels on the system and determines the adequacy of the cathodic protection levels by reviewing that history. In its argument, the CCA expressed the view that reviewing the cathodic protection records may be helpful in determining the SMR projects required in a test period. In order to assess the relevance and probative value of these records, ATCO Gas is directed to provide a description and an outline of the information in ATCO Gas’s cathodic protection records and to comment on the feasibility of providing more detailed information in future capital tracker applications with SMR projects, in the compliance filing to this decision.	ATCO Gas complied with this direction and is directed provide cathodic protection history for identified areas, in future applications where SMR is at issue, and as a part of the SMR business case for each project.  Section 3.1

<b>Decision reference</b>	<b>Commission direction</b>	<b>ATCO Gas's compliance with this direction and corresponding application reference</b>
Decision 20604-D01-2016, paragraph 176	In its reply argument, the CCA requested a greater level of disclosure of leak information in future business cases, including any ranking system of size or severity, type of mechanical leak, detailed location on service or main, estimated volume of leak, and time from discovery of leak to complete repair including any leaks that were not deemed either repairable or necessary to repair. The Commission considers that some or all of this information will be helpful in improving the assessment of individual projects and the SMR program overall. ATCO Gas is directed, in the compliance filing to this decision, to comment on which of the additional leak data listed by the CCA, if any, are tracked by ATCO Gas, comment on whether reports are available on these items, and further comment on the feasibility of providing additional information on leak frequency in addition to what was provided in the business cases on the record of the current proceeding.	ATCO Gas complied with this direction and directed to continue to provide this information, and the location of leaks, in future engineering assessments.  Section 3.2
Decision 20604-D01-2016, paragraph 182	In light of the above considerations, the Commission finds that, for purposes of capital tracker treatment in 2017 on a forecast basis, the scope of the SMR program should be limited to emergency repairs. The Commission directs ATCO Gas, in its compliance filing to this decision, to recalculate the accounting test, the first tier of the materiality test and the K factor amount associated with this program based only on capital additions for the emergency repairs component of the SMR program for 2017.	ATCO Gas has adjusted its accounting test in Appendix 1 and has complied with this direction.  Section 3.3



<b>Decision reference</b>	<b>Commission direction</b>	<b>ATCO Gas's compliance with this direction and corresponding application reference</b>
Decision 20604-D01-2016, paragraph 233	<p>In particular, substituting the Commission-calculated region-specific service densities from Table 12 into the estimated regression equations in Table 14 would likely yield different forecast unit costs. Therefore, these different forecast unit costs, when multiplied by forecast km, and added to emergency replacement costs, will likely yield forecast total costs for the PMR program that differ from those provided in the application and reproduced in Table 13. Accordingly, the Commission directs ATCO Gas in the compliance filing to this decision to re-estimate the two regression equations, provided in Table 10, using only the data points that satisfy the specified criteria outlined by ATCO Gas. ATCO Gas is also directed to explain any discrepancies between the data points used by ATCO Gas in the compliance filing and the data points listed in Appendix 5. Lastly, the Commission directs ATCO Gas to use these newly estimated equations to re-calculate the 2016 and 2017 unit cost forecasts for the north and south, and to update tables 11 and 13 of this decision accordingly.</p>	<p>ATCO Gas has complied with this direction to re-estimate the two regression equations, using only the data points that satisfy the specified criteria outlined by ATCO Gas</p> <p>Section 3.4</p>

<b>Decision reference</b>	<b>Commission direction</b>	<b>ATCO Gas's compliance with this direction and corresponding application reference</b>
Decision 20604-D01-2016, paragraph 274	At this time, no Commission approvals have been requested from ATCO Pipelines for facilities related to the Southwest Calgary Connector project. Accordingly, the Commission directs ATCO Gas to remove the 2017 forecast costs of \$8.3 million for the Palliser and Bridlewood Gate project from the capital tracker forecasts for 2017.	ATCO Gas has adjusted its accounting test in Appendix 1 and has complied with this direction.  Section 3.5
Decision 20604-D01-2016, paragraph 363	The Commission has reviewed the information supporting ATCO Gas's 2016 and 2017 forecasts and the argument raised by the CCA with respect to the Q4 CMHC report. Due to the fact that growth is the main driver for the three programs, the best information available at the time of the close of record of the proceeding should be used to assess ATCO Gas's forecast capital tracker programs for 2016 and 2017. The Commission directs ATCO Gas in its compliance filing to update the forecast for the Rural Main Extensions and Service Lines program, the New Urban Service Lines program, the Urban Mains Extension program based on the Q4 CMHC report. In that application, the Commission will assess the scope, level, timing and forecast costs for the project requirements of Criterion 1.	ATCO Gas has adjusted its accounting test in Appendix 1 and has complied with this direction.  Section 3.6
Decision 20604-D01-2016, paragraph 384	The Commission is not prepared to approve the forecast capital expenditures for 2016 and 2017 for capital tracker treatment at this time given that the 2015 actual amounts have not yet been tested. ATCO Gas is directed to remove any amounts associated with the Emergency Supply program from the K factor in the compliance filing to this decision.	ATCO Gas has adjusted its accounting test in Appendix 1 and has complied with this direction.  Section 3.7

<b>Decision reference</b>	<b>Commission direction</b>	<b>ATCO Gas's compliance with this direction and corresponding application reference</b>
Decision 20604-D01-2016, paragraph 403	ATCO Gas proposed to true up the forecast values of the I and Q factors to approved numbers as part of the 2016 and 2017 capital tracker true-up applications. However, regarding the 2016 forecast, the Commission observes that, since the filing of the application, the 2016 I-X index of 0.90 per cent and billing determinants forecast were approved in Decision 20820-D01-2015. To minimize future true-ups, the Commission directs ATCO Gas, in its compliance filing to this decision, to use the approved 2016 I-X index value and the Q factor based on the forecast billing determinants approved in Decision 20820-D01-2015 for purposes of its 2016 capital tracker forecast accounting test. For the purpose of this decision, the Commission considers ATCO Gas's forecast I and Q factor values for 2017 to be reasonable.	ATCO Gas has adjusted its accounting test in Appendix 1 and has complied with this direction.  Section 3.8
Decision 20604-D01-2016, paragraph 433	The Commission directs ATCO Gas, in its compliance filing to this decision, to revise its accounting test for 2016 and 2017, based on approved final forecast or actual capital additions, the 2016 model assumptions and other directions as set out in this decision. ATCO Gas is further directed to provide a summary table in the compliance filing to this decision, showing for each capital tracker project or program, a comparison of the 2016 and 2017 forecast capital additions applied for in this proceeding and the 2016 and 2017 forecast capital additions, revised in accordance with the directions set out in this decision.	ATCO Gas has adjusted its accounting test in Appendix 1 and has complied with this direction.  Section 3.9

<b>Decision reference</b>	<b>Commission direction</b>	<b>ATCO Gas's compliance with this direction and corresponding application reference</b>
Decision 20604-D01-2016, paragraph 451	However, since the filing of the application, the 2016 I-X index of 0.90 per cent was approved by the Commission in Decision 20820-D01-2015. Consistent with the findings in Section 7.1, to minimize future true-ups, the Commission directs ATCO Gas, in its compliance filing to this decision, to use the approved 2016 I-X index value of 0.90 per cent to calculate the first and second tier materiality thresholds for 2016.	ATCO Gas has adjusted its accounting test in Appendix 1 and has complied with this direction.  Section 3.10
Decision 20604-D01-2016, paragraph 453	Given these findings, the Commission directs ATCO Gas, in its compliance filing to this decision, to reassess whether its projects or programs proposed for capital tracker treatment in 2016 and 2017 on a forecast basis, satisfy the two-tiered materiality test requirement of Criterion 3. For this reassessment, the Commission directs ATCO Gas to use the approved 2014 threshold amount, as well as revised 2016 threshold amounts, as directed above.	ATCO Gas analysed each of its 2016 and 2017 programs with respect to the two-tiered materiality threshold, and has verified that each program remains eligible for capital tracker treatment. ATCO Gas has complied with this direction.  Section 3.11
Decision 20604-D01-2016, paragraph 456	In Section 6 of this decision, the Commission confirmed the prudence of actual capital additions associated with ATCO Gas's projects or programs included in the 2014 capital tracker true-up. Accordingly, the Commission approves the 2014 K factor adjustment of \$977,000 for the north and \$645,000 for the south for ATCO Gas as final, and in the compliance filing to this decision, directs ATCO Gas to propose how the difference between the 2014 K factor amount included in ATCO Gas's 2014 interim rates application and the approved 2014 K factor true-up adjustment will be refunded to its customers in its rates.	ATCO Gas provided sufficient information on its K factor adjustments and Rider S collection mechanism. ATCO Gas has complied with this direction.  Section 3.12

**Appendix 4 – ATCO Gas and Pipelines Ltd. – North – Rider S interim rider**

To be applied to the Fixed Charge, Variable Charge and Demand Charge to all customers unless otherwise specified by specific contracts or the AUC, effective September 1, 2016 to December 31, 2016.

Low Use Delivery Rate	
Fixed Charge	\$0.018 per Day
Variable Energy	\$0.015 per GJ
Mid Use Delivery Rate	
Fixed Charge	\$0.018 per Day
Variable Energy	\$0.016 per GJ
High Use Delivery Rate	
Fixed Charge	\$0.108 per Day
Variable Energy	\$0.003 per GJ per Day of 24 Hr. Billing Demand

**Appendix 5 – ATCO Gas and Pipelines Ltd. – South – Rider S interim rider**

To be applied to the Fixed Charge, Variable Charge and Demand Charge to all customers unless otherwise specified by specific contracts or the AUC, effective September 1, 2016 to December 31, 2016.

## Low Use Delivery Rate

Fixed Charge	\$0.039 per Day
Variable Energy	\$0.032 per GJ

## Mid Use Delivery Rate

Fixed Charge	\$0.039 per Day
Variable Energy	\$0.032 per GJ

## High Use Delivery Rate

Fixed Charge	\$0.235 per Day
Variable Energy	\$0.007 per GJ per Day of 24 Hr. Billing Demand

## Irrigation Delivery Rate

Fixed Charge	\$0.105 per Day
Variable Energy	\$0.122 per GJ