**QUESTION 5.1:**

The following questions are addressed to the Direct Testimony of Sharim Chaudhury:

Regarding the statement at page 2-3: This cost allocation is conducted by first allocating the authorized revenue requirement to the functions performed by SoCalGas in order to transport natural gas. These functions are:

(i) Customer-related (provisions for service lines, regulators, meters, call centers, service representatives);

(ii) Medium Pressure Distribution System;

(iii) High Pressure Distribution System;

(iv) Local Transmission System;

(v) Backbone Transmission System; and

(vi) Storage (injection, inventory, and withdrawal).

Once the functional allocation is complete, the cost of each function is then allocated to each customer class. The customer classes are:

(i) Core (residential, commercial/industrial, natural gas vehicle, gas air conditioning, gas engine);

(ii) Noncore (commercial/industrial, electric generation, wholesale, enhanced oil recovery); and

(iii) Other (backbone transportation service, unbundled storage program).

After the costs of each function are allocated to the customer classes, the allocated cost is scaled to the base margin, so that the exact authorized amount is being used to determine customer rates. Transmission costs, which are part of the base margin, are integrated between SoCalGas and SDG&E.

5.1.1. Mr. Chaudhury’s description states that each of the six functional areas are separately allocated to customer classes. Please explain how functional areas would be separately allocated through a marginal cost allocation process.

5.1.2. Doesn’t a marginal cost allocation effectively combine the allocation of customer, medium pressure distribution, and high pressure distribution in one single allocation to the various customer classes?

5.1.3. If the answer to previous question is “no,” please explain why.

5.1.4. Isn’t the marginal cost allocation process described as building up the marginal cost revenue shares of each customer class from the combination of each of the component marginal costs x marginal demand factors?

5.1.5. If the answer to the previous question is “no,” please explain why.

5.1.6. Isn’t the statement “Once the functional allocation is complete, the cost of each function is then allocated to each customer class” one that best described the embedded cost allocation process rather than the marginal cost allocation process?

5.1.7. If the answer to the previous question is “no,” please explain why.

5.1.8. Regarding the statement “After the costs of each function are allocated to the customer classes, the allocated cost is scaled to the base margin,2so that the exact authorized amount is being used to determine customer rates,” is Mr. Chaudhury suggesting that the embedded cost components of the cost allocation process, i.e., transmission and storage, are scaled to the base margin?

**RESPONSE 5.1:**

5.1.1. The long-run marginal cost (LRMC) methodology is used in the following three of the six functional areas identified above: Customer-related, Medium Pressure Distribution and High Pressure Distribution. For each of these three functional areas, separate allocation of the marginal cost revenue per customer class is achieved by multiplying relevant marginal unit cost and marginal demand measure (MDM). The relevant MDM measures are: the number of customers for Customer-related function, peak day demand for Medium Pressure Distribution function and peak month demand for High Pressure Distribution function. Mr. Chaudhury’s Revised Direct Testimony shows the derivation of marginal cost revenue per customer class in Table 11 for Customer-related function and in Table 12 for High Pressure and Medium Pressure Distribution functions.

5.1.2. A marginal cost allocation requires the separate allocation of Customer-related, Medium Pressure Distribution and High Pressure Distribution functions across customer classes as the cost drivers are different for these functions. Once the function-specific allocation is complete, sure, they can be added together to combine the allocated of Customer-related, Medium Pressure Distribution, and High Pressure Distribution into one single allocation to the various customer classes.

5.1.3. See response to 5.1.2.

5.1.4. Yes.

5.1.5. Not applicable.

5.1.6. No.

5.1.7. Consider the Medium Pressure Distribution Function: its MDM is peak day demand and its marginal cost is the same for all customer classes. The marginal cost revenue for this function is its marginal cost times the system peak day demand. The marginal cost revenue for the residential customer class would be the marginal cost revenue for the distribution function multiplied by the residential customer class’ share of the system peak day demand. In this example, the cost of Medium Pressure Distribution function is allocated to the residential customer class but the process is still marginal cost allocation process.

5.1.8. No. Mr. Chaudhury is not suggesting that the embedded cost components of the cost allocation process, i.e., transmission and storage, are scaled to the base margin. As discussed in Mr. Chaudhury’s Revised Direct Testimony (pages 26-27), only the marginal cost components are scaled to attain the base margin.

**QUESTION 5.2:**

Regarding the statement: “In this TCAP, SoCalGas and SDG&E updates the LRMC and embedded cost studies to reflect 2013 actual costs12 and allocations based on 2013 underlying activities. The processes for updating the studies are consistent with existing practices. These costs are then escalated to 2017 dollars to reflect SoCalGas and SDG&E’s estimated Test Year costs for this TCAP.13”

5.2.1. Please show in the cost allocation workpapers (SoCalGas Cost Allocation Model.xlsx) or rate design workpapers (2017 TCAP SCG RD Model.xlsx) where the 2013 backbone transmission costs for SoCalGas set forth in Table 18 (page 12) of the Testimony of Sim-Cheng Fung are escalated. Please provide a reference to a specific cell or series of cells and associated workbook tab.

5.2.2. Please show in the cost allocation workpapers (SDGE Cost Allocation Model.xlsx)or rate design workpapers (2017 TCAP SDGE RD Model.xlsx) where the 2013 backbone transmission costs for SDG&E set forth in Table 18 (page 12) of the Testimony of Sim-Cheng Fung are escalated. Please provide a reference to a specific cell or series of cells and associated workbook tab.

**RESPONSE 5.2:**

5.2.1. The embedded cost studies, including the backbone transmission cost study, were developed using 2013 recorded costs and were not escalated to 2017 dollars. This can be seen in the cost allocation workpapers (SoCalGas Cost Allocation Model.xlsx, tab: Cost Allocation, cell E65). It shows the 2013 backbone transmission costs for SoCalGas of $214.9 million ($214,896 thousand) as set forth in Table 18 (page 12) of the Testimony of Sim-Cheng Fung. SoCalGas’ marginal costs, are based on 2013 underlying activities and then escalated to 2017 dollars to reflect SoCalGas and SDG&E’s estimated Test Year costs for this TCAP.

5.2.2. See response to 5.2.1 and the cost allocation workpapers (SDGE Cost Allocation Model.xlsx, tab: Cost Allocation, cell E42). It shows the 2013 backbone transmission costs for SDGE of $38.2 million ($38,229 thousand) as set forth in Table 18 (page 12) of the Testimony of Sim-Cheng Fung.

**QUESTION 5.3:**

With respect to the statement on page 8: “The O&M loading factors are applied to the direct O&M costs to develop the “fully-loaded” O&M costs for each customer class.”

5.3.1. Does the reference to each customer class reflect a focus on marginal customer costs rather than marginal distribution costs even though the discussion is jointly about developing marginal customer and marginal distribution costs?

5.3.2. If the answer to the previous question is “no,” please explain why and how separate O&M costs would be developed for each customer class within a marginal distribution cost calculation.

**RESPONSE 5.3:**

5.3.1. Yes.

5.3.2. Not applicable.

**QUESTION 5.4:**

Regarding the statement: “For other customer classes, the costs of all customers, not just new customers, belonging to a specific customer class are used to estimate marginal MSA and service line costs because of low customer growth rates and the large variations in meter costs for these customers.” Referring to the workpaper, “SCG 2017TCAP LRMC Customer Costs.xlsx”:

5.4.1. Does the “sample size” column E, rows 32-185, refer to a “sample” of each of the core classes?

5.4.2. If the answer to the previous question is “yes,” was each sample selected randomly from each customer class? Please explain the sample selection process.

5.4.3. If the answer to Q.5.4.1 is “yes,” please identify the factors that are used to bring the cost measured for the sample to the cost for the full class or portion of the full class.

5.4.4. Does the “sample size” column E, rows 186-222, refer to a “sample” of each of the noncore classes or does this represent the entire number of customers in each of these customer classes?

5.4.5. If a sample of customers was selected, please identify the total number of customers for each noncore customer class and describe the sample selection process that SoCalGas used.

**RESPONSE 5.4:**

5.4.1. No. Sample Size (in the “Meter cost detail” tab) refers to the number of customers with each particular configuration of meter type by customer class. For residential and small core commercial and industrial customers, this reflects the number of new customer hookups in SoCalGas’ service territory for the years 2009 through 2013. For other customer classes, this reflects all customers, not just new customers, belonging to a specific customer class.

5.4.2 Not applicable.

5.4.3 Not applicable.

5.4.4 See the response to Q.5.4.1.

5.4.5 Not applicable.

**QUESTION 5.5:**

Regarding the cost figures at cells “F4:H28 of tab, “Meter cost detail”, in the workpaper, “SCG 2017TCAP LRMC Customer Costs.xlsx”:

5.5.1. Please provide the source of these figures.

5.5.2. Are these figures representative of historic or current costs for each meter type?

5.5.3. If the answer to the previous question is “current,” please explain how the current cost was established.

5.5.4. If the answer to Q.5.5.2 was “historic,” please explain in detail how the historic cost was developed, including an explanation of whether the figures reflect an averaging of recorded historic figures from various vintages, whether costs reflect depreciation, whether costs have been escalated in an attempt to reflect cost increases since each meter was actually installed, and whether SoCalGas has adjusted figures to reflect changes in technology that may have occurred during the meter’s life.

5.5.5. Does SoCalGas keep a separate electronic record of each of the new meters that is installed each year and track in that record information about customer size and customer class?

5.5.6. Does SoCalGas have this per customer information for historic periods that cover the entire existing stock of installed meters?

5.5.7. If the answer to the previous question is “no,” does SoCalGas have this per customer information for historic periods for a portion of the existing stock of installed meters?

5.5.8. Are the electronic records discussed in the previous three answers stored in a data base?

5.5.9. How many years of data are stored electronically?

**RESPONSE 5.5:**

5.5.1. Please see the attached response to question 1(a) of ORA-TCAP2-SCG-07.

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5.5.2. These figures are representative of 2013 costs for each meter type.

5.5.3. Not applicable.

5.5.4. See response to question 1(a) of ORA-TCAP2-SCG-07, reproduced in Response 5.5.1 here.

5.5.5. Customer meter information is stored in a data table in the CIS system. The date of installation is stored in a separate data table in the CIS system for all customers and can be merged with other customer specific information stored in the CIS system.

5.5.6. Yes.

5.5.7. Not applicable.

5.5.8. Yes, customer specific information is stored in various CIS data tables.

5.5.9. Information is maintained for all currently installed meters. For individual customer, it varies by the vintage of the currently installed meter.

**QUESTION 5.6:**

Regarding the table at cells A28:I212 of tab, “service cost detail”, in the workpaper, “SCG 2017TCAP LRMC Customer Costs.xlsx”:

5.6.1. Does the P and S in column E of the table refer to plastic and steel?

5.6.2. With respect to the new business cost/foot figures shown in column H, please state how these figures were derived and state the source from which these figures were derived.

5.6.3. With respect to the replacement cost/foot figures shown in column H, please state how these figures were derived and state the source from which these figures were derived.

5.6.4. Are these figures representative of historic or current costs for each service type?

5.6.5. If the answer to the previous question is “current,” please explain how the current cost was established.

5.6.6. If the answer to Q.5.5.2 was “historic,” please explain in detail how the historic cost was developed, including an explanation of whether the figures reflect an averaging of recorded historic figures from various vintages, whether costs reflect depreciation, and whether costs have been escalated in an attempt to reflect cost increases since each service was actually installed.

5.6.7. Why doesn’t the number of service details for G30Dist (cell F171) match the number of meters for G30Dist (E205 on “Meter cost detail” tab)

5.6.8. Why doesn’t the number of service details for G30Trans (cell F181) match the number of meters for G30Trans (E194 on “Meter cost detail” tab)

5.6.9. Why doesn’t the number of service details for G40 (cell F212) match the number of meters for G40 (E222 on “Meter cost detail” tab)

5.6.10. Why doesn’t the number of service details for G50 (cells F194, F203) match the number of meters for G50 (E215 on “Meter cost detail” tab)

**RESPONSE 5.6:**

5.6.1. Yes.

5.6.2. The new business cost/foot figures shown in column H were escalated from the previous 2013 TCAP filing. This was due to fluctuating unit costs in recent years; as such escalating the unit costs from the previous filing seemed to be a more reasonable approach.

5.6.3. The replacement cost/foot figures shown in column I (question states column H but replacement costs are shown in column I) were escalated from the previous TCAP filing. This was due to fluctuating unit costs in recent years; as such escalating the unit costs from the previous filing seemed to be a more reasonable approach.

5.6.4. These figures are representative of 2013 costs for each meter type.

5.6.5. Not applicable.

5.6.6. See response to 5.6.2

5.6.7. While the meter information is stored in the CIS system, the service line detail information is captured in either the legacy Construction Management System (CMS) system or the new Systems, Applications and Products (SAP) system, depending on in which system the job was initiated. Querying meter information and service line information systems using the premise id yielded differing counts. At times, service line legacy information did not track service line detail at the premise id level resulting in lower counts relative to the counts for meter information.

5.6.8. See response to 5.6.7.

5.6.9. See response to 5.6.7.

5.6.10. See response to 5.6.7.

**QUESTION 5.7:**

Regarding the table at cells A4:I24 of tab, “service cost detail”, in the workpaper, “SCG 2017TCAP LRMC Customer Costs.xlsx”:

5.7.1. Does SoCalGas keep a separate electronic record of each of the new services that is installed each year and track in that record the length of the service that was installed?

5.7.2. Does SoCalGas keep a separate electronic record of each of the new services that is installed each year and track in that record pipe size/type, customer size and customer class?

5.7.3. Are these electronic records stored in a data base?

5.7.4. How many years of data are stored electronically?

5.7.5. What is meant by the heading “Pipe frac”?

**RESPONSE 5.7:**

5.7.1. Yes, as mentioned in response to 5.6.7 above, currently SoCalGas enters its records of newly installed services in the new SAP system or the legacy CMS system, depending on in which system the job was initiated. These records do contain the length of the service that was installed.

5.7.2. Yes, the pipe size and type information are in the service line data base.

5.7.3. Yes.

5.7.4. Records of newly installed services are stored for the life of the asset.

5.7.5 “Pipe fraction” is a code for the pipe size.  The values of code are as follows: 12, 34, and 25 represent .5, .75, and .25 inch pipes, respectively.

**QUESTION 5.8:**

Referring to various O&M cost figures in the tab, “cust 8 o&m”, of the workpaper, “SCG 2017TCAP LRMC Customer Costs.xlsx”:

5.8.1. Please state how the customer service O&M figures at cells H14:M14, O14:T14 and W14:AB14 were derived and state the source from which these figures were derived.

5.8.2. Please state how the customer accounts O&M figures at cells H21:M21, O21:T21 and W21:AB21 were derived and state the source from which these figures were derived.

5.8.3. Please state how the Meters, Reg & MSAs O&M Costs figures at cells H30 and N30:AB30 were derived and state the source from which these figures were derived.

5.8.4. Please state how the Service line O&M footage figures at cells D40:AB40 were derived and state the source from which these figures were derived.

**RESPONSE 5.8:**

5.8.1 The total Customer Services O&M costs, in line 14 were derived from the 2013 FERC Accounts 870-880. See SoCalGas’ response to ORA-TCAP2-SCG-08, Question 1. The Customer Service O&M figures at referenced cells were derived in two steps. First, the O&M cost in each of these FERC Accounts was allocated to customer classes using the appropriate cost driver. Next, the customer class-specific allocated costs by FERC Account were added up for all of these FERC Accounts. The cost allocation drivers and their sources are described in Mr. Chaudhury’s Revised Direct Testimony at pages 11-12.

5.8.2 The total Customer Accounts O&M costs, in line 21, were derived from the 2013 FERC Accounts 901- 905. See SoCalGas’ response to ORA-TCAP2-SCG-08, Question 1. The Customer Accounts O&M figures at referenced cells were derived in two steps. First, the O&M cost in each of these FERC Accounts was allocated to customer classes using the appropriate cost driver. Next, the customer class-specific allocated costs by FERC Account were added up for all of these FERC Accounts. The cost allocation drivers and their sources are described in Mr. Chaudhury’s Revised Direct Testimony at pages 12-13.

5.8.3 The total Meters, Regulators & MSAs O&M costs, in line 30, were derived from the 2013 FERC Accounts 892 and 893. See SoCalGas’ response to ORA-TCAP2-SCG-08, Question 1. The Meters, Regulators & MSAs O&M Cost figures at referenced cells were derived in two steps. First, the O&M cost in each of these FERC Accounts was allocated to customer classes using the appropriate cost driver. Next, the customer class-specific allocated costs by FERC Account were added up for these two FERC Accounts. The cost allocation drivers and their sources are described in Mr. Chaudhury’s Revised Direct Testimony at page 13.

5.8.4 Total O&M service line footage was developed using a series of service line footage history files collected since the early 1990's that were merged with CIS customer class information.

**QUESTION 5.9:**

Please provide the formulas for the calculations of LACC, RECC, PVCC, and sum of RevReq shown in columns U, W, X and Y in the tab, “2013 RECC”, of the workpapers, “SCG 2017TCAP LRMC Customer Costs.xlsx” and “SCG 2017TCAP LRMC OM loader.xlsx”. The formulas should be provided in a working Excel spreadsheet with all formulas and links intact.

**RESPONSE 5.9:**

SoCalGas and SDG&E object to this question on the grounds that it seeks confidential and proprietary utility information (the financial model). Without waiving these objections, and subject thereto, SoCalGas and SDG&E respond as follows:

The workpapers use as inputs the RECC, the sum of the Rev Req (Revenue Requirements) and PVCC (also known as PVRR). Below are the definitions of these terms. Although included, LACC is not used in the workpapers.

The RECC calculation employs a standard formula used by electric and gas utilities. Each RECC factor is calculated in the following manner:

$$RECC=\frac{PVRR\*\left(ROR-inflation\right)}{1-\left[\frac{1+inflation}{1+ROR}\right]^{book life}}$$

Where,

* *PVRR* is the present value of the revenue requirements associated with a particular capital asset. The revenue requirements are the calculated annual stream of capital carrying costs spanning the life of the asset. Capital carrying costs include:
	+ Book depreciation (return of capital)
	+ Salvage
	+ Authorized rate of return on equity and debt (return on capital)
	+ Income taxes
	+ Property taxes
* *ROR* is the discount rate, or authorized rate of return.
* *Inflation* is the expected rate of inflation over the life of the asset.
* *Book life* is the asset’s book life in years.

**QUESTION 5.10:**

Referring to various cost figures in the tab, “cust 6 exclusive use”, of the workpaper, “SCG 2017TCAP LRMC Customer Costs.xlsx”:

5.10.1. Is the cost data associated with the customers listed on this tab included in the meter data listed on the tab, “Meter cost detail”?

5.10.2. What determines whether a customer is an “exclusive use” customer?

5.10.3. Please provide the source of the figures in cells D28:F33.

5.10.4. Are these figures representative of historic or current costs for each meter type?

5.10.5. If the answer to the previous question is “current,” please explain how the current cost was established.

5.10.6. If the answer to Q.5.5.2 was “historic,” please explain in detail how the historic cost was developed, including an explanation of whether the figures reflect an averaging of recorded historic figures from various vintages, whether costs reflect depreciation, whether costs have been escalated in an attempt to reflect cost increases since each meter was actually installed, and whether SoCalGas has adjusted figures to reflect changes in technology that may have occurred during the meter’s life.

5.10.7. What is a “GEMS Device” (cells A33:F33)?

**RESPONSE 5.10:**

5.10.1. The cost data listed in this tab is used for the derivation of Exclusive Use customers’ meter costs only. Exclusive use customers’ meter costs are not included in the meter costs for non-exclusive use customers.

5.10.2. An exclusive use customer has special meter facilities installed above and beyond the normal meters to facilitate the gas load for those customers.

5.10.3 See SoCalGas’ response to ORA-TCAP2-SCG-07, Question #3.

5.10.4. These figures are representative of 2013 historic costs for each meter type.

5.10.5. Not applicable.

5.10.6. The historic costs were developed by averaging the 2013 direct costs of the turbine, ultrasonic, and rotary meters. Such costs represent what the cost would have been had the meters been installed in 2013.

5.10.7 A GEMS (Gas Energy Measurement System) Device is a communication device used for transmitting meter reads.

**QUESTION 5.11:**

Referring to the “In\_Investment\_History” tab of the workpaper, SCG 2017TCAP LRMC Distribution Costs.xlsx:

5.11.1. Please state how the high pressure distributions mains footage investment at cells B6:Q15 was derived and identify the source of the data from which the information was taken or derived.

5.11.2. Why does the data at cells B6:Q15 combine new business and replacement footage investment?

5.11.3. Please state how the total plastic distributions mains footage investment at cells U6:AA15 was derived and identify the source of the data from which the information was taken. or derived

5.11.4. Why does the data at cells U6:AA15 combine new business and replacement footage investment?

5.11.5. Please state how the total steel distributions mains (including HP) footage investment at cells AE6:AT15 was derived and identify the source of the data from which the information was taken or derived.

5.11.6. Why does the data at cells AE6:AT15 combine new business and replacement footage investment?

5.11.7. Why does the data at cells AE6:AT15 combine high pressure and medium pressure mains footage investment?

5.11.8. Regarding the data in cells AZ5:BF47, please explain how SoCalGas conducted its sample survey of plastic new business versus replacement distribution mains footage and identify the source of the data that was surveyed.

5.11.9. How was the resulting data in cells AZ5:BF47 derived from the survey results?

5.11.10. How does the data source used for the plastic new business versus replacement distribution mains footage survey differ from the data used to provide the high pressure distributions mains footage investment?

5.11.11. How does the data source used for the plastic new business versus replacement distribution mains footage survey differ from the data used to provide the total plastic distributions mains footage investment?

5.11.12. How does the data source used for the plastic new business versus replacement distribution mains footage survey differ from the data used to provide the total steel distributions mains (including HP) footage investment?

5.11.13. How was the resulting data in cells BI5:CA34 derived from the survey results?

5.11.14. How does the data source used for the steel new business versus replacement distribution mains footage survey differ from the data used to provide the high pressure distributions mains footage investment?

5.11.15. How does the data source used for the steel new business versus replacement distribution mains footage survey differ from the data used to provide the total plastic distributions mains footage investment?

5.11.16. How does the data source used for the steel new business versus replacement distribution mains footage survey differ from the data used to provide the total steel distributions mains (including HP) footage investment?

5.11.17. Please state how the data in cells CD6:CK15 is derived and identify the source of the data from which the information was taken or derived.

5.11.18. Please state how the data in cells CM6:DC15 is derived and identify the source of the data from which the information was taken or derived.

5.11.19. Please state how the data in cells DE6:DG15 is derived and identify the source of the data from which the information was taken or derived.

5.11.20. Please state how the data in cells DI6:DL15 is derived and identify the source of the data from which the information was taken or derived.

**RESPONSE 5.11:**

5.11.1. The high pressure distributions mains footage investment at cells B6:Q15 were derived by summing the footage by pipe size that were installed annually. The sources of this data are SAP and the legacy CMS.

5.11.2. SoCalGas has used this data structure since the implementation of the LRMC decision.

5.11.3. The plastic distributions mains footage investment at cells U6:AA15 were derived by summing the new business and replacement footage by pipe size that were installed annually. The sources of this data are SAP and CMS.

5.11.4. See the response to 5.11.2.

5.11.5. The steel distributions mains footage investment at cells AE6:AT15 were derived by summing the new business and replacement footage by pipe size that were installed annually. The sources of this data are SAP and CMS.

5.11.6. See the response to 5.11.2.

5.11.7. See the response to 5.11.2.

5.11.8. The wording “sample survey” in the table heading is not an accurate characterization of the data and should not have been there. The footage data was for all completed jobs over the historical period with footage installation recorded in SAP and CMS.

5.11.9. The resulting data in cells AZ5:BF47 were derived by summing the footage installed annually and the resulting percentages of pipes that were new business related.

5.11.10. The sources of all footage data are the same – SAP and CMS.

5.11.11. See response to 5.11.10.

5.11.12. See response to 5.11.10.

5.11.13. Similar to the response to question 5.11.9 (but for steel pipe footage), the resulting data in cells BI5:CA34 were derived by summing the footage installed annually and the resulting percentages of pipes that were new business related.

5.11.14. See response to 5.11.10.

5.11.15. See response to 5.11.10.

5.11.16. See response to 5.11.10.

5.11.17. The data in cells CD6:CK15 were derived by summing the total plastic pressure betterment footage installed annually and dividing by the total plastic footage installed annually. The sources of the data are SAP and CMS.

5.11.18. The data in cells CM6:DC15 were derived by summing the total steel pressure betterment footage installed annually and dividing by the total steel footage installed annually. The sources of the data are SAP and CMS.

5.11.19. The data in cells DE6:DG15 were derived by dividing the annual dollar amount of Contribution in Aid of Construction by the total distribution main (steel and plastic) investment amount. The source of the cost information is the SAP Business Warehouse system.

5.11.20. The data in cells DI6:DL15 were derived as follows: (1) Column DJ: Total book investment in FERC 378 Meters & Regulators source is FERC Form 2; (2) Column DK: derived by dividing the number of high pressure regulator stations by the total number of regulator stations in the system. The current source of the number of regulator stations is SAP; (3) Column DL: Handy-Wittman Indices are from Global Insight’s fourth quarter 2014 Power Planner Utility Cost Forecast.

**QUESTION 5.12:**

Referring to the “Out\_Investment\_History” tab of the workpaper, SCG 2017TCAP LRMC Distribution Costs.xlsx:

5.12.1. Please state how the data in cells D4:J5 is derived and identify the source of the data from which the information was taken or derived.

5.12.2. Please state how the data in cells R4:AG5 is derived and identify the source of the data from which the information was taken or derived.

5.12.3. Please state how the data in cells D4:J5 is derived and identify the source of the data from which the information was taken or derived.

**RESPONSE 5.12:**

5.12.1. The data in cells D4:J5 were derived by calculating an average cost per foot over the historical period (total cost by pipe size divided by total footage by pipe size for plastic pipe). The sources of the data are SAP and CMS.

5.12.2. The data in cells R4:AG5 were derived by calculating an average cost per foot over the historical period (total cost by pipe size divided by total footage by pipe size for steel pipe). The sources of the data are SAP and CMS.

5.12.3. See response 5.12.1.

**QUESTION 5.13:**

Referring to the “Out\_Investment\_Forecast” tab of the workpaper, SCG 2017TCAP LRMC Distribution Costs.xlsx:

5.13.1. Please state how the data in cells C7:F13 is derived and identify the source of the data from which the information was taken or derived.

**RESPONSE 5.13:**

5.13.1. The data in cells C7:F13 were derived by the following:

 Pressure Betterment investment costs were forecasted based on the average spending in years 2004-2013. Spending in this category has shown fluctuations in the past and as such the historical period was used to calculate a flat average spending over the forecast period.

 Contribution in Aid of Construction investment costs were forecasted based on the average spending in years 2004-2013. Spending in this category has also shown fluctuations and as such the historical period was used to calculate a flat average spending over the forecast period.

 FERC 378 Meters & Regulation Stations investment costs were forecasted based on trended spending in the historical years 2004-2013.

New Business investment costs were forecasted based on trended spending based on historical years 2011-2013 only. This was due to forecasted spending is not expected to be as high as the spending experienced during the years 2004-2010. As such, these years (2004-2010) were not used in developing the New Business investment forecast.

**QUESTION 5.14:**

Referring to the “Out\_Investment\_Forecast” tab of the workpaper, SCG 2017TCAP LRMC Distribution Costs.xlsx:

5.14.1. Please state how the data in cells D14:E14 is derived and identify the source of the data from which the information was taken or derived.

**RESPONSE 5.14:**

Cell D14: E14 in “Out\_Investment\_Forecast” tab of the workpaper SCG 2017TCAP LRMC Distribution Costs.xlsx does not contain any data.