DATE RECEIVED: OCTOBER 23, 2017 DATE RESPONDED: NOVEMBER 06, 2017

Subject: New Construction Pipeline

ORA Question 1

Please provide an explanation and supporting documentation for the recorded 2015 amount of \$5.982 million and recorded 2016 amount of \$3.862 million for non-labor in the New Gas Transmission Pipeline Category that is found on page 4 of 77 in SDG&E/Gas Transmission Exh. No. SDG&E-07-CWP/Witness: E. Musich.

SDG&E Response: 01

Although our request is for projects in 2017, 2018 and 2019, please see the following table below from SDG&E's accounting records for recorded 2015 and 2016 capital. Note, the capital values provided herein may differ slightly from those provided in SDG&E-07-CWP due to the representation of nominal dollars and inclusion of various Company loaders.

Budget Code	Workpaper Group	Work Order	Project	Cost element	2015	2016
411	GT PIPELINE NEW ADDEXTERNALLY DRIVEN	2100/1545165	APEX PIO PICO ENERGY CENTER	Non-Labor	\$ 6,027,855.38	\$ 3,861,537.11
411	GT PIPELINE NEW ADDEXTERNALLY DRIVEN	2100/1545323	TELECOTE 3012-3014 SAFETY UPGRD	Non-Labor	-\$ 578.00	
		TOTAL			6,027,277.38	\$ 3,861,537.11

DATE RECEIVED: OCTOBER 23, 2017 DATE RESPONDED: NOVEMBER 06, 2017

Subject: New Construction Pipeline

ORA Question 2

Please provide supporting documentation such as: invoices, designs, environmental studies or permits for the forecast associated with the multiple smaller new construction pipeline capital projects that are mentioned on lines 11-13 on page JGT-9.

SDG&E Response: 02

This budget code uses a blanket work order; a blanket work order is often used when there is a collection of many like-kind items of similar nature and cost. Not all specific individual New Construction Pipeline projects can be forecasted in advance because many of them are driven by external parties, or are discovered through inspection activities or system capacity and reliability reviews. The forecast methodology for the New Construction Pipeline capital projects utilized the base-year 2016 as an indicator for forecasted capital expenditures. The base-year capital expenditures were driven largely by an energy center project in Pio Pico that began construction in 2015 and was completed in 2016. SDG&E is aware of one upcoming project for Carlsbad Energy Center which has similar scope and forecasted cost as the project that was completed in 2016 in Pio Pico.

Please see attached permit application for Carlsbad Energy Center.

ORA DATA REQUEST ORA-SDG&E-DR-001-MW5 SDG&E 2019 GRC – A.17-10-007 SDG&E RESPONSE TE RECEIVED: OCTORER 23, 2017

DATE RECEIVED: OCTOBER 23, 2017 DATE RESPONDED: NOVEMBER 06, 2017

Subject: New Construction Pipeline

ORA Question 3

According to lines 7-9 on page JGT-10, a five year average could not be used because the recorded history varied considerably. Please provide an explanation as to why the non-labor costs varied significantly from 2012-2016, with a low of \$0.059 million recorded in 2014 to a recorded high of \$5.982 million recorded in 2015 as shown on page 4 of 77 in SDG&E/Gas Transmission, Exh. No. SDG&E-07-CWP/Witness: E. Musich.

SDG&E Response: 03

SDG&E applied a base year forecast to this budget category because an identified forecasted project is similar in scope to the Pio Pico energy project completed in base-year 2016. The scope and cost of the Pio Pico project drove a large increase in capital expenditure, well above any five-year average. As provided in SDG&E's response to ORA Question 2, because SDG&E has knowledge of an upcoming project of similar nature, SDG&E used a base-year forecast. Furthermore, using base-year as a forecast is a conservative estimate because the recorded spending in the previous year (2015) was \$2 million more than what was forecasted in the prior GRC. With this in mind, SDG&E considered it appropriate to base the forecast on the most recent actuals.

DATE RECEIVED: OCTOBER 23, 2017 DATE RESPONDED: NOVEMBER 06, 2017

Subject: Pipeline Replacements

ORA Question 4

Please provide an explanation and supporting documentation for the recorded 2015 amount of \$3.436 million and recorded 2016 amount of \$1.643 million for non-labor in the Gas Transmission Replacements Category that is found on page 22 of 77 in SDG&E/ Gas Transmission, Exh. No. SDG&E-07-CWP/Witness: E. Musich.

SDG&E Response 04

Although our request is for projects in 2017, 2018 and 2019, the drivers for the non-labor in 2015, and 2016 were due primarily to the Bear Valley Parkway Relocation project and several smaller erosion control projects. The Bear Valley Parkway Relocation Project, in particular, was completed at the request of the County of San Diego to accommodate a street improvement project. Sometimes it is difficult to determine these projects in advance because they can be driven by external parties such as municipal public works, class location changes and through pipeline corrosion inspections. Additionally, these projects span over multiple years in the project life cycle to completion. Please see table below from SDG&E's accounting records for budget code 412 for recorded values. Note, the values provided herein may differ slightly from those provided in SDG&E-07-CWP due to the representation of nominal dollars and inclusion of various Company loaders.

Budget Code	Workpaper Group	Work Order	Project	Cost element	2015	2016
412	MP PL REPLACE/EXTERNAL DRIVEN	2100/1544849	TM2010 INSTLL EROSN MISS TRLPRK	Non-Labor	\$ 39,026.46	\$ 40,690.40
		2100/1544886	TM2010 INSTLL EROSION	Non-Labor		\$ 3,532.90
		2100/1545064	RELO OF BLOWDOWN STACK@MLV 3010	Non-Labor		
		2100/1545095	TM3010 INSTL EROSION CTRL 3008B	Non-Labor		
		2100/1545149	TM 1600 BEAR VLY PKWY RELOCATN	Non-Labor	\$ 3,266,390.72	\$ 1,326,982.12
		2100/1545157	TM1600 PIPE RLC SD OPS CTR RNV	Non-Labor		
		2100/1545243	L3600 TEST STN RELOC OTAY LAKES	Non-Labor		
		2100/1545263	TM1600 SPAN1632 RMV 79 COAT TAR	Non-Labor		
		2100/1545300	TM3010 INST EROSION CNTL 3008A	Non-Labor	\$ 156,402.72	\$ 272,217.62
		TOTAL			\$ 3,461,819.90	\$ 1,643,423.04

DATE RECEIVED: OCTOBER 23, 2017 DATE RESPONDED: NOVEMBER 06, 2017

Subject: Pipeline Replacements

ORA Question 5

Please provide supporting documentation such as: invoices, designs, environmental studies or permits for the several small projects for pipeline replacements that are mentioned in lines 3-5 on page JGT-11.

SDG&E Response:05

This budget code uses a blanket work order which is typically used when there are unplanned, but anticipated pipeline replacement projects of similar scope. Not all specific individual pipeline replacement projects can be forecasted in advance because many of them are discovered through inspection activities or system capacity and reliability reviews. The five-year average forecasting methodology is used to estimate future need, not necessarily by identifying each individual project years in advance. As discussed in more detail in testimony (reference SDG&E-07, page 10, lines 19-24), occasionally natural gas transmission pipelines need to be replaced due to the condition of the pipeline or hazardous conditions affecting the existing pipeline location. This may also include projects that are externally driven by municipal public works projects, street improvement projects and right-of-ways as well as private property development. Pipeline replacements are also required due to a class location changes. Currently, the projects in progress in this budget code category include multiple erosion and exposure mitigation projects. SDG&E has also provided various permit applications associated with the Mission Trails Erosion Mitigation project and the Line 3010 Span Erosion Control project.

	Current Projects under Budget Code 412					
ВС	Work Order Project Description					
412	1544849	Line 2010 Mission Trails Erosion Mitigation				
412	1544886	Line 2010 Camp Elliot Erosion Mitigation				
412	1545546	13670- A LINE 1600 EXPOSURES W/O MOBLEY				
412	1545564	13670- A SPAN 1620 EROSION REPAIRS				
412	1545574	13670- A RICE CANYON L -1600 EXPOSURE				
412	1545575	13670- A L-1600 DALEY RANCH EROSION MITI				
412	1545581	13670- A SPAN 3003 WRAP REMVL AND REPAIN				
412	1545588	13670- A L-3010 TECOLOTE SPANS 3012,3013				

ORA DATA REQUEST ORA-SDG&E-DR-001-MW5 SDG&E 2019 GRC – A.17-10-007 SDG&E RESPONSE FE RECEIVED: OCTOBER 23, 2017

DATE RECEIVED: OCTOBER 23, 2017 DATE RESPONDED: NOVEMBER 06, 2017

Subject: Pipeline Replacements

ORA Question 6

According to lines 10-12 on page JGT-11, a five year average would be used because this methodology best reflects anticipated needs. Please provide an explanation as to why a five year average is best when the recorded amounts fluctuated from a low of \$0.081 million in 2012 to a high of \$3.436 million in 2015.

SDG&E Response: 06

As further supported in SDG&E's response to ORA Questions 4 and 5, the five-year average forecasting methodology was applied because SDG&E has found that average spend often indicates future need. While SDG&E conducts a variety of surveys on a regular basis to predict what pipelines need to be replaced or repaired, some of these projects cannot be determined in advance. As such, SDG&E applies a blanket work order which is a collection of many like-kind projects that are often similar in scope, and forecasts future activities on a five-year average to take into account variability in individual project scope, cost and schedule to complete.

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Subject: Compressor Stations

ORA Question 7

Please provide an explanation and supporting documentation for the recorded 2015 amount of \$2.008 million and recorded 2016 amount of \$2.486 million for non-labor in the Gas Transmission Compressor Stations category that is found on page 41 of 77 in SDG&E/ Gas Transmission, Exh. No. SDG&E-07-CWP/Witness: E. Musich. The workpaper group is M04150-MP COMP STA ADD/RPL/ EXTERNAL DRIVEN.

SDG&E Response:07

Although our request is for projects in 2017, 2018 and 2019, the drivers for the non-labor in 2015 and 2016 were due to multiple activities occurring primarily at the Moreno Compressor Station. In addition to extensive physical security enhancements, these activities include, but are not limited to, capital projects such as actuator replacement, catalyst repair, turbine repair, evaporative pond, water softener and cooling tower repairs, and relief valve upgrades. Please see the table below from SDG&E's accounting records for budget code 415 recorded values. Note, the values provided herein may differ slightly from those provided in SDG&E-07-CWP due to the representation of nominal dollars and inclusion of various Company loaders.

Budget Code	Workpaper Group	Work Order	Project	Cost element	2015	2016
415	MP COMP STA ADD/RPL / EXTERNAL DRIVEN	2100/1545255	MORENO COOP U8/9 EXHST BELLOW	Non-Labor	\$ 6,729.77	
		2100/1545293	MORENO SOLAR PLNT BAT/CHRG SYS	Non-Labor	\$ 31,450.08	
		2100/1545297	MORENO CRITICAL SPARE CATALYST	Non-Labor		-\$ 2,273.57
		2100/1545299	SOLAR VALVE ACTUATOR RPLC MOREN	Non-Labor	\$ 8,545.61	
		2100/1545305	MORENO COMPRESSOR STN EMRGY ESD	Non-Labor	\$ 6,143.36	\$ 9,072.25
		2100/1545322	MORENO COMP STN WINDOW/DOOR RPL	Non-Labor	\$ 448,314.16	
		2100/1545324	MORENO COMP STN AUX BLDG ROOF	Non-Labor	\$ 474.38	
		2100/1545325	MORENO COMP STN SECURITY ENHNC	Non-Labor	\$ 1,121,181.83	\$ 32,278.88
		2100/1545333	RELIEF VALVE UPGD MORENO COMPRS	Non-Labor	\$ 35,685.10	\$ 44,649.13
		2100/1545334	RELIEF VALVE UPGD RAINBOW COMPR	Non-Labor	\$ 21,839.34	\$ 18,309.87
		2100/1545339	INST AUTOMATIC BACKUP GENERATOR	Non-Labor		\$ 34,138.31
		2100/1545341	INST SECURITY GUARD SHELTER BLD	Non-Labor	\$ 159,918.26	\$ 1,433,387.98
		2100/1545442	MORENO STATION - COOPER UNIT 8	Non-Labor	\$ 19,259.56	
		2100/1545454	MORENO STATION-COOPER PLANT VAL	Non-Labor	\$ 163,585.44	\$ 43,155.98
		2100/1545462	REPLACEMENT WATER SOFTENER	Non-Labor		\$ 207,173.24
		2100/1545464	RPLC MORENO COOPER QUAD OH CRAN	Non-Labor		\$ 17,337.76
		2100/1545474	MORENO COOPER CATALYST 2016	Non-Labor		\$ 96,510.69
		2100/1545479	MORENO COMP STATION - DATA ACQU	Non-Labor		\$ 34,202.00
		2100/1545485	MORENO CAPITAL TOOL PURCH BORES	Non-Labor		\$ 50,382.08
		2100/1545486	MORENO CAPITAL TOOL PURCHASE AL	Non-Labor		\$ 27,569.77
		2100/1545488	MORENO COOPER UNIT 10 TURBO REB	Non-Labor		\$ 19,703.98
		2100/1545494	MORENO COMPRESSOR STA PUMP REPI	Non-Labor		\$ 31,962.23
		2100/1545495	MORENO COMP STA EMERGENCY GENEL	Non-Labor		\$ 31,212.00
		2100/1545508	MORENO COOPER POWER CYLINDER CR	Non-Labor		\$ 27,399.06
		2100/1545509	MORENO CLARK POWER CYLINDER CRI	Non-Labor		\$ 12,977.23
		2100/1545511	MORENO STATION SOLAR TURB UNIT4	Non-Labor		\$ 225,661.79
		2100/1545522	RAINBOW COMPRESSOR STATION DECO	Non-Labor		\$ 90,948.01
		TOTAL			\$ 2,023,126.89	\$ 2,485,758.67

DATE RECEIVED: OCTOBER 23, 2017 DATE RESPONDED: NOVEMBER 06, 2017

Subject: Compressor Stations

ORA Question 8

Please provide an explanation and supporting documentation for the recorded 2016 amount of \$7.216 million for non-labor in the Gas Transmission Compressor Stations category that is found on page 49 of 77 in SDG&E/Gas Transmission, Exh. No. SDG&E-07-CWP/Witness: E. Musich. The workpaper group is M04350-MP COMP STA ADD/RPL/ QUALITY-ECON DRIVEN.

SDG&E Response: 08

Compressor stations are a critical component of the natural gas transmission system, and to maintain safety and reliability of this system, as it ages, compressor station infrastructure must be maintained and modernized. The primary capital cost in 2016 for this budget category was associated with turbocharger replacement on the Cooper compressors at Moreno Compressor Station. Please see the table below from SDG&E's accounting records for compressor station budget code 435 for recorded values. Note, the values provided herein may differ slightly from those provided in SDG&E-07-CWP due to the representation of nominal dollars and inclusion of various Company loaders.

Budget Code	Workpaper Group	Work Order	Project	Cost element	2016
435	MP COMP STA ADD/RPL /QUALITY-ECON DRIVEN	2100/1545190	MORENO COOPER COOLING SYS UPGRD	Non-Labor	\$ 16,675.20
		2100/1545345	MORENO VLLY COMPR STN UPGRADES	Non-Labor	\$ 3,895,652.33
		2100/1545427	MORENO COOPER 10 TURBOCHRGR RPL	Non-Labor	\$ 3,300,940.93
		2100/1545428	MORENO LIQUID LEVEL INDICATOR	Non-Labor	\$ 3,155.66
		TOTAL			\$ 7,216,424.12

ORA DATA REQUEST ORA-SDG&E-DR-001-MW5 SDG&E 2019 GRC – A.17-10-007 SDG&E RESPONSE FE RECEIVED: OCTOBER 23, 2017

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Subject: Compressor Stations

ORA Question 9

According to lines 6-8 on page JGT-15, a most recent five year average was used. Please provide an explanation as to why a five year average is best when the recorded amounts fluctuated from a low of \$0.775 million in 2015 to a high of \$7.216 million in 2016.

SDG&E Response: 09

As compressor assets age, the need for modernizing equipment and parts increases. The five-year average is made up of various highs and lows, and is used as a basis for estimated future capital expenditures. The lifecycle associated with many of these projects will span over multiple years, and while capital expenditures are incurred during this time the project costs are not recorded until the associated capital improvement becomes used and useful. As such, the five-year average best reflects the year-over-year capital expenditures of the projects in this category.

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Subject: Cathodic Protection

ORA Question 10

Please provide an explanation and supporting documentation for the recorded 2016 amount of \$0.456 million for non-labor in the Gas Transmission Cathodic Protection that is found on page 61 of 77 in SDG&E/Gas Transmission, Exh. No. SDG&E-07-CWP/Witness: E. Musich.

SDG&E Response: 10

The budget in question is a blanket budget which is a collection of many like-kind Cathodic Protection projects of similar scope. Some of the drivers for 2016 recorded non-labor are due to a collection of anode bed and cathodic protection ground bed projects. Please see the table below from SDG&E's accounting records for cathodic protection budget code 416 for recorded values. Note, the values provided herein may differ slightly from those provided in SDG&E-07-CWP due to the representation of nominal dollars and inclusion of various Company loaders.

Budget Code	Workpaper Group	Work Order	Projects	Cost element	2016
416	GT CATHODIC PROTECTION/EXTERNAL DRIVEN	2100/1545321	INSTL CP STN HIGHLAN	Non-Labor	\$ 66,987.45
		2100/1545344	CP30 GROUNDBED L16	Non-Labor	\$ 111,285.57
		2100/1545433	INSTALL NEW CP STATI	Non-Labor	\$ 37,607.04
		2100/1545497	TM 3010- RPLC CP ANO	Non-Labor	\$ 183,349.71
		2100/1545505	L3010_CP GROUND BE	Non-Labor	\$ 1,022.14
		2100/1545545	GAS TRANS CATHODIC	Non-Labor	\$ 55,263.35
		TOTAL			\$ 455,515.26

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Subject: Cathodic Protection

ORA Question 11

According to lines 6-8 on page JGT-16 specific projects have not been planned and SDG&E expects to perform Cathodic Protection replacement and installations of deep-well anode beds and rectifiers consistent with the five-year average. How does SDG&E expect to be consistent with a five year average with no specific projects planned? Please provide specifics such as invoices, surveys or work orders.

SDG&E Response: 11

The budget in question is a blanket budget which is a collection of many like-kind cathodic protection projects of similar nature and cost. SDG&E typically plans these projects in the upcoming year, but since the exact number of cathodic protection activities are not known well in advance, and are discovered through inspection activities or are designated through system capacity, SDG&E forecasts this blanket budget by evaluating historical patterns as an indicator of future needs. This budget code category consists of several projects in any given year thus making a five year average for planning future expenditures appropriate.

	Current Projects under Budget Code 416					
ВС	BC Work Order Project Description					
416	1545433	CP Station at Rainbow				
416	1545505	CP 71.1 Groundbed at North River Road and Kari Ln				
416	1545551	CP 71.2 Renewal at Ranger Rd s/o E Mission Rd				
416	1545552	CP Test Station in Carlsbad				
416	1545553	New CP Station N/O Harvest Gate Station				

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Subject: Meter and Regulator Stations

ORA Question 12

Please provide an explanation and supporting documentation for the recorded 2014 amount of \$0.655 million and recorded 2016 amount of \$0.608 million for non-labor in the Gas Transmission Measurement & Regulation Stations category that is found on page 71 of 77 in SDG&E/Gas Transmission, Exh. No. SDG&E-07-CWP/Witness: E. Musich.

SDG&E Response:12

Although our request is for projects in 2017, 2018 and 2019, there were increases in 2014 and for 2016 non-labor respectively, due to the unplanned need to replace a meter-set assembly at the Palomar Power Plant. Please see the table below from SDG&E's accounting records for budget code 418 line items for recorded values. Note, the values provided herein may differ slightly from those provided in SDG&E-07-CWP due to the representation of nominal dollars and inclusion of various Company loaders.

Budget Code	Workpaper Group	Work Order	Project	Cost element	2014	2016
418	GT M&R STA ADD/RPL / EXTERNAL DRIVEN	2100/1544955	TRANS SCADA COMM REPL/UPGR	Non-Labor	\$ 34,413.61	
		2100/1545119	KEARNY VILLA PRESSURE LMTD STA	Non-Labor	\$ 425.00	
		2100/1545159	TM 1600 DLVR PRESS INCR SLR TRB	Non-Labor	\$ 2,619.96	
		2100/1545261	PALOMAR POWER PLANT MSA FILTER	Non-Labor	\$ 526,637.05	\$ 28,624.30
		2100/1545292	CARLSBAD ENERGY CENTER	Non-Labor	\$ 18,492.00	\$ 15,928.58
		2100/1545328	RPLC EXPLOSION PROFF AC UNITS	Non-Labor	\$ 86,578.00	
		2100/1545429	POINT LOMA REPR DUAL CHANNEL GS	Non-Labor		\$ 2,273.60
		2100/1545430	SOLAR TURBINE CUSTOMER MTR RPLC	Non-Labor		\$ 192,762.48
		2100/1545463	RPLC SHED AT CARLTON HILLS GATE	Non-Labor		\$ 161,797.04
		2100/1545473	KEARNY 1 GT METER-SET REMOVAL	Non-Labor		\$ 101,533.71
	·	2100/1545482	INSTALL ELECTRIC MITIGATION AT	Non-Labor		\$ 86,707.27
		2100/1545484	KEARNY 2 GT METER SET REMOVAL	Non-Labor		\$ 18,430.19
		TOTAL			\$ 669,165.62	\$ 608,057.17

ORA DATA REQUEST ORA-SDG&E-DR-001-MW5 SDG&E 2019 GRC – A.17-10-007 SDG&E RESPONSE DATE RECEIVED: OCTOBER 23, 2017

DATE RECEIVED: OCTOBER 23, 2017
DATE RESPONDED: NOVEMBER 06, 2017

Subject: Meter and Regulator Stations

ORA Question 13

According to page 72 of 77 in SDG&E/Gas Transmission, Exh. No. SDG&E-07-CWP/Witness: E. Musich and page JGT-17 lines 16 and 17, SDG&E used an average of the most recent five years of recorded costs (2012-2016). When ORA calculates the five year average using the numbers presented on page 71 of 77 in SDG&E/Gas Transmission, Exh. No. SDG&E-07-CWP/Witness: E. Musich, ORA's total is \$0.423 million. SDG&E's total is \$0.615 million; please explain this discrepancy and the calculation SDG&E used to compute the 2017 forecast on page 71 of the workpapers.

SDG&E Response: 13

This was a typographical error that will be corrected and reflected in revised testimony, which at this time is targeted to be served in December 2017.

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Subject: Meter and Regulator Stations

ORA Question 14

According to lines 17-18 on page JGT-17 specific projects have not been planned and SDG&E expects to perform Meter and Regulator Station projects consistent with the five-year average. How does SDG&E expect to be consistent with a five year average with no specific projects planned? Please provide specific supporting documentation such as aging surveys, change in use of patterns, population encroachments, surveys, invoices or work orders.

SDG&E Response: 14

The budget in question is a blanket budget which is a collection of many Meter & Regulator projects of similar scope. Much of the work conducted in this category is based on inspections preceding the work by 12 months or less. SDG&E forecasts this blanket budget by evaluating historical patterns as an indicator of future needs. The following table provides a list of projects that SDG&E has currently planned.

	Current Projects under Budget Code 418					
ВС	Work Order Project Description					
418	1545455	13670- A LINE 3600 CURRENT MITIGATION BY				
418	1545563	13710- A AUTOMATIC VLT PUMP FOR MLV 3601				
418	1545430	Solar Turbines				
418	1545473	Kearny 1 GT Removal				
418	1545484	Kearny 2 GT Removal				
418	.8 1545569 Point Loma UPS Replacement					
418	1545569	Point Loma UPS Replacement - Removal				
418	1545561	Point Loma Air Compressor Replacement				