**APPLICATION OF SOUTHERN CALIFORNIA GAS COMPANY &
SAN DIEGO GAS & ELECTRIC COMPANY FOR AUTHORITY TO REVISE THEIR
NATURAL GAS RATES AND IMPLEMENT STORAGE PROPOSALS EFFECTIVE
JANUARY 1, 2020 IN THE TRIENNIAL COST ALLOCATION PROCEEDING**

(A.18-07-024)

(DATA REQUEST CAL ADVOCATES-DR-017)

DATA RECEIVED: 11-20-18

DATE RESPONDED: 12-06-18

The following data request questions pertain to Chapter 3 of the Applicants testimony, the Prepared and Direct Testimony of Rose-Marie Payan.

QUESTION 1:

Are SDG&E and SoCalGas using Employment Elasticities that are 14 or more years old? If so, please clarify the exact age of the employment elasticities used by SDG&E and SoCalGas.

RESPONSE 1:

Yes. The most comprehensive set of elasticities by market segment were prepared in 2003 in support of SoCalGas' and SDG&E' 2005 BCAP application, A.03-09-008. Accordingly, the elasticity values used in the core models are approximately 15 years old.

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QUESTION 2:

Please explain in detail when the last time was that SDG&E and SoCalGas updated their Employment Elasticity used in their model.

a) If SoCalGas and SDG&E have not updated their Employment Elasticity model, please explain why SDG&E and SoCalGas's forecasting group has not generated more up to date Employment Elasticities for Core and C&I.

RESPONSE 2:

Please see Response 1. Examination of current literature on employment elasticities shows that employment elasticities are very heterogeneous (please refer to Response 5 and the cited work by Monte et al.). An update of values that Applicants believe are fairly stable over considerable periods of time would require a detailed set of updated data. The work is fairly resource intensive.

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QUESTION 3:

Are SDG&E and SoCalGas using Price Elasticities that are 14 or more years old? If so, please clarify the exact age of the price elasticities used by SDG&E and SoCalGas.

RESPONSE 3:

Yes. The price elasticities currently used in the core end use models for forecasting purposes were based on empirical studies done in 2003 in support of SoCalGas' and SDG&E's 2005 BCAP application, A.03-09-008. Accordingly, the price elasticities currently being used for forecasting purposes are approximately15 years old.

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QUESTION 4:

Please explain in detail when SDG&E and SoCalGas last updated their Price Elasticity used in their models.

a) If SoCalGas/SDG&E have not updated their price elasticity models, please explain why SDG&E and SoCalGas's forecasting group has not generated more up to date Price Elasticities for Core and C&I.

RESPONSE 4:

SoCalGas/SDGE prepared a price elasticity study in 2007. The price elasticity values and their significance status, by market segment, are included below.

Core Commercial					Core Industrial		
Segment	**Price Elasticity**	Significant			**Segment**	**Price Elasticity**	Significant
Office	-0.072	yes			**Transport**	-0.048	no
Restaurant	-0.001	no			**Misc**	-0.012	no
Retail	-0.032	no			**Primary Metal**	-0.034	no
Laundry	-0.026	yes			**Fab Metal**	-0.016	no
Warehouse	0.142	yes			**Stone**	0.010	no
School	-0.103	yes			**Petroleum**	-0.042	no
College	-0.090	yes			**Chemical**	-0.027	no
Health	-0.052	yes			**Wood**	-0.114	yes
Lodging	-0.013	no			**Textile**	0.025	no
Misc	-0.030	no			**Mining**	-0.154	no
Government	-0.061	yes			**Food**	-0.021	no
TCU	-0.162	yes					
Construction	-0.179	yes					
Agriculture	-0.059	no					

This work product attached below contains the summary statistics and estimation results from the 2007 price elasticity study.

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_Core Commercial UPdated Elasticities_K

_Core Industrial updated Elasticities KI

There is a lot of variation in the elasticities among the sectors and not all of the sectors are showing price elasticity results that are statistically significant. For this reason, SoCalGas and SDG&E have chosen not to use these newer price elasticities. Instead, SoCalGas and SDG&E are using the price elasticities from the 2005 BCAP study within the core end use forecasting models.

Additionally, research done by RAND statisticians on more current price-demand relationships have found that “the price demand relationships have not changed over the past couple of decades—our estimates are about the same as those from studies done in the 1980’s” (See Chapter 7, page 51 of the attached report, “Regional Differences in the price elasticity of demand for energy, by Mark A Bernstein and James Griffin, RAND, 2005.”)

Rand paper on Elasticities 2005.pdf

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QUESTION 5:

Please provide any currently available empirical study/studies that validate the Core Employment and Price Elasticities.

RESPONSE 5:

The table below showcases the empirical estimates of price elasticities published by various authors.[1] Where possible, the studies have also been included as separate attachments within this response.

[1] Applicants do not claim that the list is an exhaustive or exclusive set of currently available study/studies.

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Natural Gas Price Elasticities Survey of Empirical Estimates

	Short Run Elasticity	Long Run Elasticity
AGA Paper Joutz & Trost (2007)		
1 West South Central	-0.13	-0.16
2 South Atlantic	-0.12	-0.29
3 Middle Atlantic	-0.10	-0.20
4 National Average	-0.09	-0.18
5 West North Central	-0.09	-0.15
6 East North Central	-0.08	-0.22
7 New England	-0.08	-0.25
8 Mountain	-0.07	-0.10
9 Pacific	-0.07	-0.12
10 East South Central	-0.01	-0.01
Dave Costello Paper (2006)		
1 National Average	-0.1370	N/A
2 Residential	-0.0420	N/A
3 Commercial	-0.0550	N/A
4 Industrial	-0.2690	N/A
5 Electric Power	-0.1380	N/A
George Lady Paper (2007)		
1 Residential	-0.1200	-0.2100
2 Commercial	-0.1540	-0.3200
CEC (2012)[1]		
1 Residential (national average)	-0.1475	-0.5298
2 Commercial (national average)	-0.1218	-0.5329
3 Industrial (national average)	-0.2201	-1.2363
4 Electric Generation (national average)	-0.1186	-0.7963
CEC (2013)		
1 Residential		-0.5297
2 Commercial		-0.5331
3 Industrial		-1.24
Douglas Bohi (1981)[2]		
1 Residential (national average)	-0.10	-0.50
2 Commercial (national average)	Uncertain	Near -1.0
3 Industrial (national average)	Uncertain	Uncertain
4 Electric Generation (national average)	-0.06	Uncertain
SoCalGas and SDG&E (2008)		
2 Residential	-0.029	-0.0275
3 Core Commercial and Industrial	-0.079	-0.487
PG&E		
1 Residential	-0.09	N/A

[1] The CEC's reported elasticities come from a 2009 paper written by Kenneth Medlock. The analysis utilized the Rice World Gas Trade Model. Results are indicative of the entire U.S. customer segments.

[2] Short run refers to a response period of 1 year. The long run response period is indefinite but is generally interpreted to be less than 10 years.

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Some of the studies quoted above can be found attached here for your convenience.

AGA paper on Elasticities_ Joutz Fred

Dave Costello Paper on Elasticities 2006.pc

Bohi Douglas 1981 Publication.pdf

___Elasticities Updated SCG and CE

Summary of Natural Gas Price Elasticities by AGA (Residential Markets Only)

	Short Run	Long Run
1. West South Central	-0.13	-0.16
2. South Atlantic	-0.12	-0.29
3. Middle Atlantic	-0.10	-0.20
4. National	-0.09	-0.18
5. West North Central	-0.09	-0.15
6. East North Central	-0.08	-0.22
7. New England	-0.08	-0.25
8. Mountain	-0.07	-0.10
9. SoCalGas	**-0.07**	**-0.10**
10. Pacific	-0.07	-0.12
11. SDG&E	**-0.07**	**-0.10**
12. East South Central	-0.01	-0.01

The price elasticities used in the core end use models are reasonably within comparable levels of magnitude.

Empirical work on employment elasticities are not as readily available, however. One study, called “Commuting Migration and Local Employment Elasticities,” was prepared by Ferdinando Monte, Stephen Redding and Esteban Rossi-Hamsberg (see attached). Their study estimated local employment elasticities across US counties and found that there is no single appropriate employment elasticity for the US. Additionally, they find substantial employment elasticity heterogeneity across their sample’s territories.” As a result, the published employment elasticities in current economic literature may provide estimates that are inappropriate or not reliable for use in the Southern California service territory.

employment elasticities monte red