Marginal Cost and Revenue Allocation for PG&E – REDACTED version

Prepared testimony of
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on behalf of
The Utility Reform Network

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I. Introduction

This testimony is presented on behalf of The Utility Reform Network (TURN) by William B. Marcus, Principal Economist of JBS Energy, Inc.. Mr. Marcus has 35 years of energy experience, has appeared before this Commission on many occasions, and has filed testimony or formal comments before about 40 federal, state, provincial, and local courts and regulatory bodies in the U.S. and Canada. His qualifications are attached.

Other testimony is being presented in this case by Jeffrey Nahigian, Senior Economist at JBS, on Revenue Cycle Services (RCS) marginal costs, which are incorporated into marginal customer costs and revenue allocation figures used in this document, and on the ET rate discount for master-metered mobilehome parks.

This testimony relates to marginal generation, distribution and customer costs (excepting RCS) and revenue allocation issues.

PG&E recommends an 0.6% residential increase. TURN recommends a 2.0% bundled service residential decrease, a 3.0% decrease to small light and power, and a cap and floor on increases and decreases for bundled service customers of 3.0%. This cap is implemented as part of a "dual cap" system where DA customers are capped at anon-generation rate increase with a cap and floor of 8.0% to -8.0%. With respect to marginal cost, TURN agrees with PG&E and ORA on the principle that until capacity is needed, the marginal cost is less than the cost of a combustion turbine. We propose a lower cost of generation capacity to reflect a lower cost of a combustion turbine with a longer lifespan, utility ownership (lower cost of equity and debt), and cheaper insurance. TURN proposes a small increase to generation energy costs to include ancillary services and a somewhat larger increase to include the impacts of the requirement that PG&E purchase 25% of its generation from renewable energy. Renewable energy has been above estimates of the short-run market price.

With respect to distribution marginal costs, TURN has found and fixed a calculation error that caused PG&E to understate demand-related O&M expenses. We also propose to reduce service line maintenance costs and adopt the ORA proposal to delete outliers from marginal customer costs. Through Mr. Nahigian's testimony, TURN also proposes a reduction of about $12 / customer / year to Revenue Cycle Services marginal costs, a part of the customer O&M expenses.

With respect to allocation principles, TURN has identified $320 million in solar, energy efficiency, and demand response, and other public purpose costs that have been included in distribution rates, where an EPMC allocation based on distribution wires and hookups is not equitable. TURN follows DRA in reallocating many of these programs, but proposes slightly different allocation methods than DRA for a number of them.

II. Loading Factors and Distribution O&M Calculations

While loading factors are not always a scintillating topic of discussion, TURN has identified two issues that are generic across various types of plant and O&M expenses – the discount rate and the calculation of distribution O&M expenses -- that relate to both demand and customer costs. Since we apply our findings in these areas to a number of PG&E's costs, we discuss them on a generic basis before proceeding with the remainder of the marginal cost discussion.

A. Discount Rate

PG&E has used an after-tax discount rate of 7.00% instead of a pre-tax discount rate of 8.06% when calculating the real economic carrying charge for distribution demand-related plant and the present value of revenue requirements for customer hookup costs, and the levelization of generation capacity costs.[1] The use of this lower discount rate – less than the utility cost of capital – has the effect of (1) increasing marginal customer

[1] For the combustion turbine, PG&E used a merchant power cost of capital.

costs by increasing the factors for the present value of revenue requirements (PVRR) and lifetime O&M for customer costs; and (2) decreasing marginal demand distribution costs by reducing the Real Economic Carrying Charge (RECC) for demand-related distribution (and possibly generation) costs. PG&E's proposed discount rate is lower because it reflects the tax-deductibility of bond interest, an approach that is inappropriate for marginal cost evaluation in this proceeding from the perspective of ratepayers. The utility's cost of capital *without* tax effects should be used instead.

The Commission has, for nearly 30 years, used the utility's cost of capital without tax effects as the discount rate for many of its economic evaluations, including calculation of combustion turbine costs for avoided capacity cost (required almost 28 years ago in D. 82-12-120); new supply; transmission options such as the California-Oregon Transmission Project and Devers-Palo Verde 2;[2] and the calculation of marginal distribution costs for rate design by both PG&E in all cases prior to 2007 and by Southern California Edison Company (Edison) and San Diego Gas & Electric Company (SDG&E) in recent cases. Neither Edison nor SDG&E use the low after-tax discount rate for marginal cost or project evaluation.

The Commission's most recent seminal decision on this issue is D.05-04-051. In Attachment 3 (page 6) to that decision, the Commission explicitly adopted the utility's weighted average cost of capital without tax effects for conservation evaluation. The Commission stated:

> This Commission relies on the Total Resource Cost Test (TRC) as the primary indicator of energy efficiency program cost effectiveness, consistent with our view that ratepayer-funded energy efficiency should focus on programs that serve as resource alternatives to supply-side options. The TRC test measures the net resource benefits from the perspective of all ratepayers by combining the net benefits of the program to participants and non-participants. The benefits are the avoided costs of the supply-side resources avoided or deferred. The TRC costs encompass the cost of the measures/equipment installed and the costs incurred by the program administrator. The TRC should be calculated utilizing a discount rate that reflects the utilities' weighted average cost of capital, as adopted by the Commission. [footnotes omitted]

[2] Dec. No. 07-01-040, p. 47.

The Commission reaffirmed this decision in D.06-11-018, stating:

> Parties took differing positions on the discount rate that should be used in calculating benefit-cost ratios. Consistent with our determination in D.05-04-051, the applicant's weighted cost of capital, as adopted most recently by the Commission, should be used as the discount rate in evaluating the benefits of a transmission project. Consistent use of the utilities' weighted cost of capital as a discount rate will facilitate our comparison of proposed transmission projects and alternative investments.

The Commission should not change over 30 years of precedent just because PG&E has unilaterally decided that it likes lower discount rates not used by other California utilities (a switch that would, incidentally, have the effect of justifying more capital projects than would be the case if a higher discount rate were used, thereby increasing PG&E's rate base).

PG&E has previously argued that the discount rate excluding taxes on bond interest is important because only by excluding those taxes can one calculate a cost equal to the original investment from the perspective of shareholders. The table below (for a stylized five-year investment with no deferred tax considerations) illustrates PG&E's argument based on its current rate of return.[3]

PG&E Perspective (The "Required Return" to Keep Shareholders Whole)

Year		0	1	2	3	4	5	Total NPV
Project Cost		(1,000)						
Return of Capital (depreciation)			200.00	200.00	200.00	200.00	200.00	
Return on Debt	48%	5.52%	26.50	21.20	15.90	10.60	5.30	
Income Tax Benefit for Bond interest			(10.80)	(8.64)	(6.48)	(4.32)	(2.16)	
Return on Equity	52%	10.40%	54.08	43.26	32.45	21.63	10.82	
Total Return on capital required by utility			69.78	55.82	41.87	27.91	13.96	
Total return required by utility			269.78	255.82	241.87	227.91	213.96	
NPV of revenue - discount rate grossed-up return		11.78%	241.36	204.76	173.19	146.00	122.62	887.93
NPV of revenue - discount rate utility return		8.06%	249.66	219.09	191.70	167.17	145.23	972.85
NPV of revenue - discount rate after-tax (PG&E)		6.98%	252.18	223.54	197.56	174.02	152.70	1,000.00

The after tax discount rate is reasonable from the shareholders' perspective when evaluating an investment, as it is the discount rate that they face and will return their full investment (depreciation and return).

[3] The illustration treats PG&E's 1% of preferred stock in the utility's capital structure as debt for ease of exposition.

While TURN does not dispute that this might be the appropriate return for use when evaluating from a shareholder's perspective, the shareholder perspective is the wrong perspective when considering the impact of investments on ratepayers for ratesetting purposes. PG&E ratepayers are in a different position than shareholders. In order for shareholders to earn their required return and depreciation, the authorized revenue requirement is set at a "grossed-up" level that collects from ratepayers all returns for taxes. Ratepayers thus do not receive the benefit of the bond interest deduction (because it is simply offset by revenues that are taxable) and therefore pay additional grossed-up income taxes to assure that PG&E earns its return on equity. The ratepayer perspective based on authorized revenue requirements is given below.

Ratepayer Perspective (Revenue Requirement Paid to Give Utility Its Required Return)

Year		0	1	2	3	4	5	Total NPV
Project Cost		(1,000)						
Revenue from ratepayers			317.76	294.21	270.66	247.11	223.55	
Depreciation			200.00	200.00	200.00	200.00	200.00	
Debt interest	48%	5.52%	26.50	21.20	15.90	10.60	5.30	
Taxable Income			91.27	73.01	54.76	36.51	18.25	
Tax at	0.40746		(37.19)	(29.75)	(22.31)	(14.88)	(7.44)	
Equity return	52%	10.40%	54.08	43.26	32.45	21.63	10.82	
Rate Base			1,000.00	800.00	600.00	400.00	200.00	
Total return (debt + equity)			80.58	64.46	48.35	32.23	16.12	
Return on rate base			8.06%	8.06%	8.06%	8.06%	8.06%	
Present value of revenue requirement paid by ratepayers								
NPV of revenue - discount rate grossed-up return		11.78%	284.29	235.48	193.81	158.30	128.12	1,000.00
NPV of income tax			(33.27)	(23.81)	(15.98)	(9.53)	(4.26)	(86.85)
NPV revenue without tax			251.02	211.67	177.83	148.77	123.86	913.15
NPV of revenue - discount rate utility return		8.06%	294.07	251.97	214.51	181.24	151.74	1,093.54
NPV of income tax			(34.42)	(25.48)	(17.68)	(10.91)	(5.05)	(93.54)
NPV revenue without tax			259.65	226.49	196.83	170.33	146.69	1,000.00
NPV of revenue - discount rate after-tax (PG&E)		6.98%	297.04	257.08	221.07	188.67	159.55	1,123.42
NPV of income tax			(34.76)	(26.00)	(18.23)	(11.36)	(5.31)	(95.65)
NPV revenue without tax			262.27	231.09	202.85	177.31	154.25	1,027.77

The table shows that the ratepayers would pay $1000 (an amount equal to the investment) at a discount rate equal to the cost of capital including income taxes or 11.78%. However, in this model, after payment of income taxes is taken into consideration, only $913.15 of the $1000 total investment is recovered at that discount rate.

Using an 8.06% discount rate (the authorized cost of capital), ratepayers would pay $1093.54 for the $1000 investment spread over five years. Subtracting the present value of income taxes paid ($93.54) yields a cost of $1000 – an amount equal to the utility's investment. In other words, when the utility's cost of capital (without a bond interest deduction) is used as the discount rate, the net present value recovers the return of and return on investment as paid by ratepayers and allows for the additional cost of ratepayer payments of grossed-up income taxes.

By contrast, at a 6.98% discount rate (PG&E's proposed 7.00% rate adjusted for the fact that our analysis does not include taxable preferred stock), the present value of revenues paid by ratepayers would be $1,123.42, but the present value of income taxes is only $95.65, leaving a figure of $1,027.77 – thus, recovery of an amount higher than the cost of the project.

In sum, the bond interest tax deduction should be excluded from the calculation because it has no relevance to ratepayers who are paying the bill for utility projects. Instead, the full utility cost of capital is the appropriate choice for economic evaluation from the perspective of ratepayers. A lower rate such as the one that PG&E proposes here is not reflective of the higher costs actually paid by ratepayers to enable PG&E to earn its rate of return. TURN therefore uses an 8.06% discount rate throughout this analysis. It raises the real economic carrying charge rates used for generation and distribution demand costs and reduces the present value of revenue requirements used for customer costs.

B. Distribution O&M Calculations

We reviewed PG&E's proposed distribution O&M allocation methods. PG&E addressed concerns that we expressed in the Test Year 2011 GRC Phase 2 proceeding regarding the treatment of Account 588 (Miscellaneous Distribution Operating Expenses). But two issues remain.

1. Service Line Costs

TURN still has concerns regarding the calculation of service line costs.

PG&E has used varying methods for allocating O&M costs to service lines in recent cases. In the current case, as shown in its workpapers, PG&E has two components of