Application: 17-11-XXX
Exhibit No.: SDGE-X
Witness: John W. Wilson

Application of San Diego Gas & Electric Company (U 902 E) and Citizens Energy Corporation for Authorization Pursuant to Public Utilities Code Section 851 to Lease Transfer Capability Rights to Citizens Sycamore-Penasquitos Transmission LLC

DIRECT TESTIMONY OF

DR. JOHN W. WILSON

ON BEHALF OF CITIZENS ENERGY

November 13, 2017

J.W. Wilson & Associates, Inc.

Economic Counsel

1621 North Kent Street · Rosslyn Plaza E · Suite 602 Arlington, VA 22209

Q. PLEASE STATE YOUR NAME, OCCUPATION, AND ADDRESS.

A. My name is John W. Wilson. I am an economist and President of J.W. Wilson & Associates, Inc. Our offices are at 1621 North Kent Street, Suite 602, Arlington, Virginia, 22209. I am testifying in this proceeding on behalf of Citizens Energy Corporation in support of the Application of San Diego Gas & Electric Company (U 902 E) for approval pursuant to Public Utilities Code Section 851 to lease transfer capability rights to Citizens Sycamore-Penasquitos Transmission, LLC.

Q. PLEASE OUTLINE YOUR EDUCATIONAL BACKGROUND.

A. I hold a B.S. degree with senior honors and a Masters Degree in Economics from the University of Wisconsin. I have also received a Ph.D. in Economics from Cornell University. My major fields of study were industrial organization and public regulation of business, and my doctoral dissertation was a study of utility pricing and regulation.

Q. HOW HAVE YOU BEEN EMPLOYED SINCE THAT TIME?

A. After completing my graduate education I was an officer in the U.S. Army and an assistant professor of economics at the United States Military Academy, West Point, New York. In that capacity, I taught courses in both economics and government. While at West Point, I also served as an economic consultant to the Antitrust Division of the United States Department of Justice.

After leaving West Point, I was employed by the Federal Power Commission, first as a staff economist and then as Chief of FPC's Division of Economic Studies. In that capacity, I was involved in regulatory matters involving most phases of FPC regulation of electric utilities and the natural gas industry. Since 1973 I have been employed as an economic consultant by various clients, including federal, state, provincial and local governments, private enterprise and nonprofit organizations. This work has pertained to a wide range of issues concerning public utility regulation, insurance rate regulation, antitrust matters and economic and financial analysis. In 1975 I formed J.W. Wilson & Associates, Inc., a Washington, D.C. corporation.

Q. WOULD YOU PLEASE DESCRIBE SOME OF YOUR ADDITIONAL PROFESSIONAL ACTIVITIES?

A. I have authored a variety of articles and monographs, including a number of studies dealing with utility regulation and economic policy. I have consulted on regulatory, financial and competitive market matters with the Federal Communications Commission, the National Academy of Sciences, the Ford Foundation, the National Regulatory Research Institute (NRRI), the National Association of Regulatory Utility Commissioners (NARUC), the Electric

Power Research Institute (EPRI), The Edison Electric Institute (EEI), the American Public Power Association (APPA), the National Rural Electric Cooperative Association (NRECA), the U.S. Department of Justice Antitrust Division, the Federal Trade Commission Bureau of Competition, the Commerce Department, the Department of the Interior, the Department of Energy, the Small Business Administration, the Department of Defense, the Tennessee Valley Authority, the Federal Energy Administration, and numerous state and provincial agencies and legislative bodies in the United States and Canada.

Previously, I was a member of the Economics Committee of the U.S. Water Resources Council, the Federal Power Commission (FPC) Coordinating Representative for the Task Force on Future Financial Requirements for the National Power Survey, the Advisory Committee to the National Association of Insurance Commissioners (NAIC) Task Force on Profitability and Investment Income, and the NAIC's Advisory Committee on Nuclear Risks.

In addition, I have testified as an expert witness in regulatory and court proceedings dealing with competition and financial matters in the electric power industry and other public utility industries and on regulatory matters before more than 50 Federal and State regulatory bodies throughout the United States and Canada. I have also appeared on numerous occasions as an expert witness at the invitation of U.S. Senate and Congressional

Committees dealing with antitrust and regulatory legislation. In addition, I have been retained as an expert on regulatory matters by more than 25 State and Federal regulatory agencies. I have also participated as a speaker, panelist, or moderator in many professional conferences and programs dealing with business regulation, financial issues, economic policy and antitrust matters. I am a member of the American Economic Association and an associate member of the American Bar Association and the ABA's Antitrust, Insurance and Regulatory Law Sections.

Q. PLEASE SUMMARIZE YOUR TESTIMONY.

A. Citizens' participation in the Sycamore-Penasquitos Transmission project will produce three major economic impacts. First, Citizens' financing will replace SDG&E financing for Citizens' share of the project. Since Citizens' financing will be accomplished at costs that are fixed at today's very low rates for the full life of its project participation, Citizens' financing may be less costly to ratepayers over time as compared to SDG&E financing, which is subject to change as money costs change in the future.

Second, Citizens will implement levelized recovery of its capital costs. This may result in lower charges for consumers in early years and provide for more equitable treatment of all project beneficiaries over time.

Third, Citizens will contribute half of its after-tax project profits (estimated to be about $400,000 annually) to energy programs for low income ratepayers in San Diego County. This would not occur without Citizens' participation in the project, and it will assist the Commission in meeting its obligations under The Clean Energy and Pollution Reduction Act of 2015 ("SB 350"), which places specific emphasis on assisting those in disadvantaged communities.[1]

Q. PLEASE DESCRIBE THE ANALYSES THAT YOU HAVE PERFORMED.

A. I have evaluated the net benefit (if any) that Citizens participation adds to the Sycamore-Penasquitos Transmission project, as compared to a scenario in which the project would be solely owned by SDG&E. This benefit includes both the support that Citizens will contribute to low income ratepayers in the San Diego region (estimated to be about $400,000 annually) and the likelihood that Citizens' financing of its share of the project will reduce overall project costs for ratepayers.

Q. PLEASE DESCRIBE HOW CITIZENS' FINANCING OF ITS SHARE OF THE PROJECT IS LIKELY TO REDUCE OVERALL PROJECT COSTS.

[1] Under SB 350, the CPUC must, among other things, implement programs that "promote greater project penetration in disadvantaged communities. Cal. Pub. Res. Code § 25943(d)(7).

A. Most significant in this regard is the fact that Citizens' authorized capital cost revenue requirement and actual debt cost will be locked in for the full 30-year term of Citizens' participation in the project. While the U.S. economy is currently experiencing record low money costs because of the federal government's very aggressive monetary policy, that is beginning to change and will not continue unabated in the long run. Also, it is likely that continued federal deficit financing will exert upward long-run pressure on money costs. Thus, while most utility service providers, including SDG&E, can be expected to seek rate relief when money costs rise, Citizens will lock-in its capital cost revenue requirement for a 30 year term.

Q. TO WHAT LEVEL WILL MONEY COSTS RISE IN THE FUTURE?

A. While I am not in a position to forecast what might be approved in the way of ROE increases for SDG&E in the future, there is simply no denying that the risks of substantially higher future money costs are now a recognized economic probability. For the purpose of the illustrations here, I have assumed that SDG&E's equity and debt costs may increase by 2% and 1%, respectively, several years in the future. If these costs were to increase by larger amounts then Citizens' fixed capital cost revenue requirement may be even lower than SDG&E's costs in the future.

Q. DOES HISTORY PROVIDE ANY PERSPECTIVE AS TO WHAT

THE PARAMETERS OF THIS RISK MAY BE?

A. History does give us some perspective in this regard. Thirty years ago, after a period of federal deficit spending in the late 1970s and early 1980s, money costs increased substantially. During that period, utilities throughout the country, including SDG&E, sought ROE allowances of 17% to 18% or more, and the CPUC, like regulatory commissions everywhere, approved ROE allowances of 15% to 16% or more for a number of years for all of the major electric and gas utilities in the State. During that period, interest rates rose by even wider margins.

While any current forecast of a repetition of that historical experience would be extremely unpopular and controversial, and I am not suggesting that capital cost increases of that magnitude are currently expected to occur, I believe it cannot be reasonably denied that the risk of substantially higher future money costs is a financial risk. In that regard, California ratepayers may benefit from Citizens' locked-in capital cost revenue requirement and debt cost for the next 30 years.

Q. IS IT CERTAIN THAT SDG&E'S MONEY COSTS WILL INCREASE IN THE FUTURE?

A. While there are always differences in economists' views of the future, it is clear, from what we are now reading and hearing daily, that there are very few who would argue today that the probability of higher money costs in the future is small, or that the likelihood of money cost increases is the same as the likelihood of money cost reductions. Certainly, there is now far more probability and expectation of money cost increases than of money cost reductions.

Q. OTHER THAN CITIZENS' FIXED CAPITAL COST REVENUE REQUIREMENTS AND CONTRIBUTIONS IN SUPPORT OF LOW INCOME RATEPAYERS IN THE SAN DIEGO AREA, ARE THERE ADDITIONAL CONSUMER COST BENEFITS ATTRIBUTABLE TO CITIZENS PARTICIPATION IN SYCAMORE-PENASQUITOS AND CITIZENS' PROPOSED RATEMAKING APPROACH FOR ITS INVESTMENT IN THE PROJECT?

A. Yes. Another important cost factor is the ratepayer advantage attributable to Citizens' levelized capital cost rate approach over the thirty year period of its project participation. In contrast to conventional utility ratemaking, which is "front end loaded" for newer plant additions (i.e., revenue requirements are greater in the early years of a project's life as rate base gradually depreciates), Citizens' annual capital cost revenue requirements will be levelized (i.e., equal) over the 30-year period. Beyond 30 years, Citizens' interest in Sycamore-Penasquitos will be turned over to SDG&E at no cost to ratepayers, with a remaining rate base of zero.

This is important for several reasons. First, in any long term projection it is the early year results that are most reliably predictable. As an economist who has worked with and observed these kinds of projections for many years, I have very little, if any, confidence in projected values for 30, 40 or 50 years in the future. It has been my experience that such distant forecasts are scarcely worth the air on which they ride. In contrast, especially in this case, there is little doubt that because of levelized ratemaking, SDG&E ratepayers may benefit in the early years of Citizens participation in the project, and there will be a far better and more equitable distribution of ratepayer benefits and costs over the project's life.

Q. PLEASE DESCRIBE THE FINANCIAL SUPPORT, IN ADDITION TO PROJECT FINANCING, THAT CITIZENS WILL CONTRIBUTE TO LOW INCOME RATEPAYERS IN THE SYCAMORE-PENASQUITOS REGION AS A RESULT OF ITS PARTICIPATION IN THE PROJECT.

A. One of Citizens' unique features is that, unlike most private corporations that are in business to earn profits so they can pay dividends and build equity-funded asset value through retained earnings for the benefit of their stockholders, Citizens' business purpose is to earn profits to support its charitable activities. In this case, for example, half of Citizens' after-tax profits are pledged to support low-income ratepayers and disadvantaged communities in San Diego County, where Citizens' transmission investment will be developed. Citizens has pledged to invest these after-tax profits in transportation electrification investments targeted to SDG&E ratepayers in low income families and disadvantaged communities.

The other half of Citizens' after-tax profits will be used to support Citizens' other charitable causes throughout California and the rest of the nation. This distribution of profits is typical of Citizens' capital investment endeavors throughout the past three decades, and it explains why, unlike stockholder-owned corporations, Citizens has not accumulated a much larger retained earnings asset balance over time.

In this regard, the Clean Energy and Pollution Reduction Act of 2015 ("SB 350") places specific emphasis on assisting those in disadvantaged communities. Under SB 350, the CPUC must, among other things, implement programs that "promote greater project penetration in disadvantaged communities."[2] Additionally, the Legislature has recognized the need for "widespread transportation electrification" in order to meet SB 350's clean energy and efficiency goals.[3]

Citizens' agreement with SDG&E in the Sunrise project is now producing approximately $1.5 million in annual support to install rooftop solar on low-

[2] Cal. Pub. Res. Code § 25943(d).
[3] Cal. Pub. Util. Code §740.12(a)(1)(B).

income homes in Imperial County, at no cost to the homeowner. Here, Citizens is again committed to investing 50 percent of its after tax profits from this Project to assisting ratepayers in low income families and disadvantaged communities in San Diego County in the area of transportation electrification, as noted above and discussed in more detail in the testimony of John Jenkins and Peter Smith. As SB 350 recognizes, "widespread transportation electrification requires increased access for disadvantaged communities, low- and moderate income communities."[4] Citizens estimates that its participation in the Sycamore-Penasquitos Transmission project will generate approximately $400,000 a year for the lifetime of its 30 year lease to invest on behalf of the low income ratepayers of San Diego County. This is a ratepayer benefit that would not occur without Citizens' participation in the project. As a result, Citizens' participation in this project furthers the goals and requirements of SB 350.

Q. WILL INCREMENTAL COSTS ASSOCIATED WITH CITIZENS' PROJECT PARTICIPATION RESULT IN ADDED RATEPAYER COSTS OVER THE LIFE OF THE PROJECT?

A. I do not believe so.

Q. PLEASE EXPLAIN.

[4] Cal. Pub. Util. Code §740.12(a)(1)(C).

A. SDG&E has provided, through the testimony of Amanda White, an SDG&E "snap shot" initial base case cost comparison, assuming the continuation of current low money costs throughout future periods. As summarized in Table 1 below and in Attachment JWW-1, this base case cost comparison shows that the present value of Citizens' capital cost revenue requirement could exceed the present value of SDG&E's stand alone "snap shot" capital cost revenue requirement by $200,204, and a variance in total revenue requirement of $348,318, if money costs remain unchanged and SDG&E seeks no rate increases over time. In my opinion, this could be considered a possible outcome. However, I believe it is not a probable outcome, as it assumes that SDG&E's capital cost rates will be frozen at their current "snap shot" levels for the next 58 years. While the capital cost recovery in the rates that Citizens will charge will be fixed for the term of 30 years, the rates that SDG&E will charge may change as money costs change.

TABLE JWW-1

SDG&E and CITIZEN's - Base Case
Revenue Requirement Summary

Cost Category	SDG&E NPV 58 Yrs Annual Levelized 30 Yrs	CITIZEN'S NPV 58 Yrs Annual Levelized 30 Yrs	Variance Higher / (Lower)	%
Capital Related Costs:				
Cost Of Transfer Capability	$2,777,855	$2,978,059	$200,204	
Subtotal Capital Related Revenue Requirement	$2,777,855	$2,978,059	$200,204	7.2%
Expense Related Costs:				
O&M, A&G, & General & Common Plant	$63,626	$63,626	$0	
Incremental A&G Costs - Citizens	$0	$150,000	$150,000	
Debt Service Costs - SDG&E	$1,887	$0	($1,887)	
Subtotal Expense Related Costs	$65,512	$213,626	$148,113	
Total Revenue Requirement on All Costs	$2,843,367	$3,191,685	$348,318	12.3%
Discount Rates	7.43%	7.43%		

Thus, Citizens' fixed return has the potential to provide an advantage to customers if SDG&E's cost of equity and debt capital were to increase. At this juncture, while SDG&E is not prepared to forecast what might be approved in the way of allowed capital costs in the future, I believe SDG&E's cost of equity and debt will change over time based on future capital markets. If this were to occur, then the current snap shot case for SDG&E may increase above that of Citizens, providing increased benefits to customers from Citizens' project participation and fixed cost financing over the 30 year contract period. Further, it must also be recognized that the benefit that Citizens will provide in low income assistance (estimated to be about $400,000 per year) will more than offset the variances shown in Table JWW-1, with respect to both capital cost revenue requirement and the total revenue requirement.

Q. HAVE YOU DONE ADDITIONAL COMPARATIVE COST ANALYSIS USING DIFFERENT ASSUMPTIONS FROM THOSE UNDERLYING AMANDA WHITE'S COST ANALYSIS?

A. Yes. Ms. White's analysis focuses only on a present-day "snap shot" view of what comparative costs may be at the inception of the Lease. It does not address how SDG&E's comparative costs may change over the life of the Lease. My analysis which follows focuses on probable costs over the life of the Lease, including SDG&E's possible capital cost changes after Lease inception. Since Citizens' capital costs are fixed for the life of its Lease, but SDG&E's capital costs are not fixed, these possible cost changes over time are an important consideration in evaluating the consumer benefits attributable with Citizens' Project participation.

Q. IS IT LIKELY THAT SDG&E'S CAPITAL COSTS WILL REMAIN CONSTANT OVER TIME?

A. No. We are currently in one of the lowest money cost periods that has prevailed in our economy in more than half a century. It is well known and highly publicized that money costs have been aggressively held down by federal government monetary policies in an effort to stimulate economic recovery. Particularly in view of the very large ongoing federal deficits, amounting to trillions of dollars, that are now occurring and are expected to continue for at least several more years, it is extremely unlikely that current money costs will continue at their present levels far into the future.

Q. IF CONSIDERATION IS GIVEN TO THE RISK OF HIGHER FUTURE MONEY COSTS FOR SDG&E, WOULD THERE BE A SUBSTANTIAL DIFFERENCE IN THE FORECASTED REVENUE REQUIREMENT COMPARISONS FOR CITIZENS AND SDG&E?

A. Yes. For example (as summarized in Table 2 below and in Attachment JWW-2), if one were to assume that SDG&E's equity and debt costs will rise modestly by 2% and 1%, respectively, in year 4, the capital cost revenue requirement variance between Citizens and SDG&E would change from a plus $200,204 to a minus $114,701, and there would be a net annual ratepayer gain. The variance in total revenue requirement would be a relatively small plus $33,413.

TABLE JWW-2

SDG&E Adjusted for increases of 2% ROE and 1% Debt Cost at Year 4
Revenue Requirement Summary

Cost Category	SDG&E NPV 58 Yrs Annual Levelized 30 Yrs	CITIZEN'S NPV 58 Yrs Annual Levelized 30 Yrs	Variance Higher / (Lower)	%
Capital Related Costs:				
Cost Of Transfer Capability	$3,092,760	$2,978,059	($114,701)	
Subtotal Capital Related Revenue Requirement	$3,092,760	$2,978,059	($114,701)	-3.7%
Expense Related Costs:				
O&M, A&G, & General & Common Plant	$63,626	$63,626	$0	
Incremental A&G Costs - Citizens	$0	$150,000	$150,000	
Debt Service Costs - SDG&E	$1,887	$0	($1,887)	
Subtotal Expense Related Costs	$65,512	$213,626	$148,113	
Total Revenue Requirement on All Costs	$3,158,272	$3,191,685	$33,413	1.1%
Discount Rates	7.43%	7.43%		

Q. HOW DO YOU INTERPRET THESE RESULTS?

A. The indication of a net gain for ratepayers under a scenario with modestly higher money costs is an illustration of how the comparative analysis changes as assumptions are modified. In fact, these results reflect a smaller gain to ratepayers than would be calculated with money cost assumptions reflecting past historical experience.

Q. YOU NOTED THE HIGH HISTORICAL MONEY COSTS AND ROE ALLOWANCES THAT PREVAILED IN THE 1980s; WERE THERE ALSO HIGHER DEBT COSTS IN THE ECONOMY AND HIGHER

ROE ALLOWANCES FOR SDG&E WITHIN MORE RECENT DECADES?

A. Yes. The interest rate on long term (30-year) U.S. Treasury bonds is now about 2.9%. In 2007 it was about 5.0%, and in the early1990s it was over 8.0%. SDG&E's most recent ROE allowance in a CPUC rate case was 10.30% in 2013. In 2008 it was 11.10%, and in 1995 it was 12.05 percent. As I noted above, in the 1980s most U.S. utilities, including those in California under CPUC jurisdiction, had ROE allowances above 15% and debt costs were in the 15-20% range.

Q. IN ADDITION TO THIS HISTORICAL RECORD, ARE THERE ALSO CURRENT CAPITAL COST FORECASTS THAT SUPPORT YOUR CONCLUSIONS?

A. Yes. In its July 7, 2017 edition, *Value Line* projects that the interest rate on AAA corporate bonds will increase from 3.7% in 2016 to 5.7% in 2020-2022 and that the yield on ten-year Treasuries will increase from 1.9% to 4.2% over the same period. Similarly, in its 2017 *Annual Energy Outlook* (published in January) the U.S. Energy Information Administration (EIA) forecasts that interest rates for AA utility bonds will rise from 3.65% in 2016 to 8.36% in 2025 under low economic growth or to 5.64% under high economic growth. EIA also forecasts that interest rates for 10-year

Treasuries will increase from 1.73% to 6.00% (low growth) or 3.68% (high growth) over the same period.

In summary, both from an historical perspective and based on current projections, it is reasonable to expect that SDG&E's market-based money costs will increase in the future in contrast to Citizens' fixed debt cost and capital cost revenue requirement.

Q. WHAT DO YOU CONCLUDE FROM THESE ANALYSES?

A. Under the ratepayer protection constraints of the SDG&E Representative Rate Model specified in the Lease, and in view of Citizens' locked-in capital cost revenue requirement, I believe the comparative rate outcome between SDG&E and Citizens will favor Citizens in the early years and potentially overall. The bottom line will be substantially dependent on one's assumptions about how money costs and SDG&E's rate of return requirements will change in the future. Under these circumstances, the merits of Citizens' participation in Sycamore-Penasquitos, and the Commission's decision to approve SDG&E's Application for approval pursuant to Public Utilities Code Section 851 to lease transfer capability rights to Citizens in the Sycamore-Penasquitos Transmission Project, cannot be reasonably determined solely on the basis of a present day "snap shot" comparison. The net benefit to ratepayers will depend upon changes in

SDG&E's capital cost over time. In addition, the Commission should give appropriate consideration to the $400,000 of support annually that Citizens' profits will provide to low-income families and disadvantaged communities in San Diego County in the area of transportation electrification, consistent with the goals of SB 350. This is an important ratepayer benefit that would more than offset the variances shown in the present day "snap shot" cost comparisons and would not be achieved without Citizens' project participation.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes; it does.

Attachment JWW-1 (a)

Sycamore Penasquitos Transmission Line
SDG&E RETAINS CITIZEN PORTION
REVENUE REQUIREMENT OVER 58 YEARS
YEAR ANALYSIS PERIOD - LEVELIZED OVER 30 YEARS

Model Inputs

The Moody's Aa Utility Bond Index	3.71%	6/19/17 - 6/23/17 MOODUAA
Cost of Transfer Capability	27,000,000	
AFUDC	$ 1,944,386	

Calculation of Debt Cost as Input to Model

The Moody's Aa Utility Bond Index	3.71%	Base Case
Adjustment to Bond Index	0.48%	
Total Debt Cost per Model	4.19%	

Calculation of WACC

	Capital Ratio	Cost	WACC
Debt	44.77%	4.19%	1.88%
Preferred Equity	0.00%	0.00%	0.00%
Common Equity	55.23%	10.05%	5.55%
			7.43%

Revenue Requirement	Total	1 Year-1	2 Year-2	3 Year-3	4 Year-4	5 Year-5	6 Year-6	7 Year-7	8 Year-8	9 Year-9	10 Year-10	11-30 Year-11-58
Depreciation Expense	27,000,000	465,517	465,517	465,517	465,517	465,517	465,517	465,517	465,517	465,517	465,517	22,344,828
Return on Common Equity	30,409,679	1,476,466	1,418,644	1,350,136	1,286,721	1,227,909	1,173,255	1,121,612	1,071,202	1,021,167	971,483	18,291,086
Return on Preferred Equity	-	-	-	-	-	-	-	-	-	-	-	-
Return on Debt	10,277,360	498,991	479,450	456,296	434,865	414,988	396,517	379,064	362,027	345,117	328,326	6,181,719
Federal Income Taxes	17,881,922	957,817	777,224	747,663	713,545	682,265	653,167	625,596	598,544	571,629	544,904	11,009,570
State Income Taxes	5,749,419	254,445	231,326	221,816	212,358	203,621	195,500	187,818	180,307	172,845	165,435	3,723,949
Property Taxes	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenue Requirement	91,318,381	3,653,236	3,372,161	3,241,428.1	3,113,005.4	2,994,300.4	2,883,955.7	2,779,608.2	2,677,596.3	2,576,274.5	2,475,664.6	61,551,150.8
Net Present Value (58 yrs)	33,043,665	3,524,699	3,028,595	2,709,928	2,422,646	2,169,172	1,944,804	1,744,855	1,564,622	1,401,345	1,253,526	11,279,474.7
Levelized Annual Amount (30 yrs)	$2,777,855											

SDG&E Representative Rate	$2,777,855

Attachment JWW-1 (b)

Sycamore Penasquitos Transmission Line
CITIZEN PORTION
REVENUE REQUIREMENT OVER 58 YEARS
YEAR ANALYSIS PERIOD - LEVELIZED OVER 30 YEARS

Model Inputs

The Moody's Aa Utility Bond Index	3.71%	6/19/17 - 6/23/17 MOODUAA
Cost of Transfer Capability	27,000,000	
Development & Other Costs	2,000,000	
Total	29,000,000	
AFUDC	$ 1,944,386	

Calculation of Debt Cost as Input to Model

The Moody's Aa Utility Bond Index	3.71%	Base Case
Adjustment to Bond Index	0.48%	
Total Debt Cost per Model	4.19%	

Calculation of WACC

	Capital Ratio	Cost	WACC
Debt	44.77%	4.19%	1.88%
Preferred Equity	0.00%	0.00%	0.00%
Common Equity	55.23%	10.05%	5.55%
			7.43%

		1	2	3	4	5	6	7	8	9	10	11-30
Revenue Requirement	**Total**	**Year-1**	**Year-2**	**Year-3**	**Year-4**	**Year-5**	**Year-6**	**Year-7**	**Year-8**	**Year-9**	**Year-10**	**Year-11-58**
Depreciation Expense	29,000,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	24,000,000
Return on Common Equity	32,626,123	1,585,808	1,523,615	1,449,913	1,381,697	1,318,437	1,259,655	1,204,116	1,149,903	1,096,095	1,042,665	19,614,218
Return on Preferred Equity	-	-	-	-	-	-	-	-	-	-	-	-
Return on Debt	11,026,438	535,945	514,926	490,018	466,963	445,584	425,717	406,947	388,625	370,440	352,383	6,628,889
Federal Income Taxes	19,075,432	1,025,961	832,865	800,998	764,300	730,655	699,360	669,709	640,616	611,672	582,932	11,716,363
State Income Taxes	6,080,091	271,657	246,901	236,664	226,490	217,093	208,358	200,097	192,018	183,994	176,025	3,920,795
Property Taxes	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenue Requirement	97,808,083	3,919,370	3,618,307	3,477,592.4	3,339,450.8	3,211,769.0	3,093,090.2	2,980,869.3	2,871,163.5	2,762,200.9	2,654,004.8	65,880,265.5
Net Present Value (58 yrs)	35,425,173	3,781,469	3,249,662	2,907,369	2,598,873	2,326,713	2,085,834	1,871,193	1,677,731	1,502,478	1,343,826	12,080,024.1
Levelized Annual Amount (30 yrs)	$2,978,059											

Citizen's Representative Rate	$2,978,059

Attachment JWW-2

Sycamore Penasquitos Transmission Line
SDG&E RETAINS CITIZEN PORTION
REVENUE REQUIREMENT OVER 58 YEARS
YEAR ANALYSIS PERIOD - LEVELIZED OVER 30 YEARS

Model Inputs

The Moody's Aa Utility Bond Index	3.71%	6/19/17 - 6/23/17 MOODUAA
Cost of Transfer Capability	27,000,000	
AFUDC	$ 1,944,386	

Calculation of Debt Cost as Input to Model

The Moody's Aa Utility Bond Index	3.71%
Adjustment to Bond Index	0.48%
Total Debt Cost per Model	4.19%

ROE incrases 2% at year 4
Debt incrases 1% at year 4

Calculation of WACC

	Capital Ratio	Cost	WACC
Debt	44.77%	4.19%	1.88%
Preferred Equity	0.00%	0.00%	0.00%
Common Equity	55.23%	10.05%	5.55%
			7.43%

		1	2	3	4	5	6	7	8	9	10	11-30
Revenue Requirement	**Total**	**Year-1**	**Year-2**	**Year-3**	**Year-4**	**Year-5**	**Year-6**	**Year-7**	**Year-8**	**Year-9**	**Year-10**	**Year-11-58**
Depreciation Expense	27,000,000	465,517	465,517	465,517	465,517	465,517	465,517	465,517	465,517	465,517	465,517	22,344,828
Return on Common Equity	35,616,546	1,476,466	1,418,644	1,350,136	1,542,786	1,472,269	1,406,739	1,344,819	1,284,377	1,224,385	1,164,813	21,931,113
Return on Preferred Equity	-	-	-	-	-	-	-	-	-	-	-	-
Return on Debt	12,387,730	498,991	479,450	456,296	538,649	514,029	491,149	469,531	448,428	427,482	406,683	7,657,040
Federal Income Taxes	20,685,729	957,817	777,224	747,663	873,129	811,656	778,088	744,958	712,526	680,254	648,211	12,954,205
State Income Taxes	6,526,233	254,445	231,326	221,816	252,664	239,865	230,255	221,038	212,032	203,085	194,201	4,265,506
Property Taxes	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenue Requirement	102,216,238	3,653,236	3,372,161	3,241,428.1	3,672,745.1	3,503,336.2	3,371,748.4	3,245,863.3	3,122,879.2	3,000,723.1	2,879,425.4	69,152,692.0
Net Present Value (58 yrs)	36,789,587	3,524,699	3,028,595	2,709,928	2,858,254	2,537,934	2,273,748	2,037,539	1,824,818	1,632,220	1,457,966	12,903,885.7
Levelized Annual Amount (30 yrs)	$3,092,760											
SDG&E Representative Rate	$3,092,760											