
April 25, 2005

ADVICE 1887-E
(U 338-E)

PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA
ENERGY DIVISION

SUBJECT: Updates to the *Methodology and Forecast of Long-Term Avoided Cost(s) for the Evaluation of California Energy Efficiency Programs*

Southern California Edison Company (SCE) hereby submits for filing the following updates to the *Methodology and Forecast of Long-Term Avoided Cost(s) for the Evaluation of California Energy Efficiency Programs*, E3 Research Report Submitted to the California Public Utilities Commission ("Commission") Energy Division, October 25, 2004.

PURPOSE

This advice filing updates the *Methodology and Forecast of Long-Term Avoided Cost(s) for the Evaluation of California Energy Efficiency Programs*, E3 Research Report Submitted to the Commission's Energy Division, October 25, 2004 ("E3 Methodology") to:

- 1) include updated electric forward prices through 2007;
- 2) reflect the combined cycle gas turbine (CCGT) cost inputs used in calculating the Market Price Referent (MPR), where applicable;
- 3) use a 60-day average of NYMEX gas futures data through the close of 4/7/2005;
- 4) incorporate the fundamentals forecast used in the MPR gas forecast model;
- 5) use an electric generation natural gas distribution rate as of 4/7/2005;
- 6) include a gas distribution rate escalation rate;
- 7) use a gas basis differential as of 4/7/2005; and
- 8) extend the forecast of avoided costs from 20 years to 25 years (from 2006 through 2030).

In addition, to facilitate Energy Division's calculation of the discount rate to be used in the E3 Methodology, SCE sets forth its current Commission-adopted weighted cost of capital.

BACKGROUND

In Decision 05-04-024, Interim Opinion on E3 Avoided Cost Methodology, issued April 7, 2005 in Rulemaking (R.) 04-04-025 (the "Decision"), the Commission adopted the E3 Methodology for purposes of evaluating energy efficiency programs in R.01-08-028 and related energy efficiency proceedings.¹ The Commission ordered SCE to prepare and file a compliance Advice Letter by April 21, 2005, updating the E3 Methodology as directed in the Decision.² Subsequently, on April 20, 2005, the Executive Director of the Commission approved an extension of the due date for filing the Advice Letter to April 25, 2005.³

The Decision directed SCE to update the E3 Methodology to include updated electric forward price data through 2007 for purposes of estimating the market-based generation avoided cost for the relevant years of 2006 – 2007.⁴ The Decision also directed SCE to update the E3 Methodology to reflect, where applicable, CCGT cost inputs used in calculating the MPR, established by the Commission in R.04-04-026.⁵ Specifically, the Decision required the use of the CCGT MPR inputs set forth in Appendix C of the *Revised 2004 Market Price Referent (MPR) Staff Report*, issued on February 11, 2005 in R.04-04-026 ("MPR Staff Report"), briefly described as all "Capital Inputs" (although the E3 Methodology only uses an average heat rate, not the new and clean value or a heat rate degradation factor); all "Finance Inputs" to the extent they are currently used by the E3 Methodology; all "Power Delivery Inputs" to the extent they are currently used by the E3 Methodology; and all "Tax Rate Inputs."⁶

The Decision further directed SCE to update the gas forecast using a 60-day average of NYMEX gas futures data extending back to April 7, 2005 (the effective date of the Decision), and to replace the E3 Methodology's fundamentals forecast with the fundamentals forecast used in the MPR gas forecast model.⁷

Subsequent to the Decision, the Commission held a public workshop ("Workshop") on April 18, 2005 to discuss issues regarding the implementation of the E3 Methodology. Issues relevant to updating the E3 Methodology were discussed at the Workshop. The Workshop participants agreed that the base year for the avoided cost forecasts is 2006, and that electric forward prices quoted by Platts on April 7, 2005 (the effective date of

¹ See the Decision at Ordering Paragraph 1.

² See the Decision at Ordering Paragraph 3.

³ See Letter from Steve Larson, dated April 20, 2005, approving a request by SCE, Pacific Gas & Electric Company, San Diego Gas & Electric Company and Southern California Gas Company for an extension of the due date for filing the Advice Letters updating the E3 Methodology.

⁴ See the Decision, *mimeo*, at 30-32.

⁵ See *id.* at 32.

⁶ See *id.* at 34.

⁷ See the Decision, *mimeo*, at 35.

the Decision) should be used to update the electric forward prices through 2007. The participants also agreed that the gas basis differential and the electric generation natural gas distribution rate in the E3 Methodology should be updated as of April 7, 2005 (the effective date of the Decision). The participants further agreed to use an average of the three non-proprietary fundamental gas forecasts from the MPR Staff Report to replace the E3 Methodology's fundamentals forecast.⁸

In addition, the participants concurred that the update of the E3 Methodology should include extending the avoided cost forecast from 20 years to 25 years to accommodate any energy efficiency measures installed in 2007 or 2008 that have a 20-year or longer useful life.⁹

A. Description of SCE's Update to the E3 Methodology

The steps taken by SCE to update the E3 Methodology comply with the Decision's directives, and are consistent with the agreements reached by the participants at the Workshop. SCE used the electric forward prices quoted by Platts on April 7, 2005 (the effective date of the Decision) to update the electric forward prices in the E3 Methodology through 2007. SCE updated the E3 Methodology to reflect the CCGT cost inputs used in calculating the MPR, where appropriate. SCE used a 60-day average of NYMEX gas futures data extending back to April 7, 2005, and replaced the E3 Methodology's fundamentals forecast with an average of the three non-proprietary fundamental gas forecasts from the MPR Staff Report. SCE also updated the gas basis differential and the electric generation natural gas distribution rate in the E3 Methodology as of April 7, 2005, and included a gas distribution rate escalation rate.

In extending the avoided costs forecast to 25 years from the base year of 2006, SCE used a linear trend based on the last five years of data contained in the E3 Methodology.

Tables 1 – 4 attached to this Advice Letter provide a summary of the input data sources used to update the E3 Methodology to compute the electric avoided costs. The two main sources of data are the E3 Methodology and the MPR Staff Report, issued February 11, 2005 in R.04-04-026. The table compiles the sources used from each report, and provides a complete set of references for updated inputs to the E3 Methodology's avoided cost calculations.

B. Discount Rate for the E3 Methodology

The update of the E3 Methodology requires the input of a discount rate. However, the Decision declined to adopt a specific discount rate for use in the E3 Methodology. It found that the discount rate should be determined in the Commission's energy efficiency rulemaking (R.01-08-028).¹⁰ The April 21, 2005 Escutia Draft of Decision 05-04-051 (final decision not available as of the date herewith), issued on

⁸ See Brief Summary of Avoided Cost Workshop on Implementation of E3 Methodology, distributed by the Energy Division on April 19, 2005.

⁹ See *id.*

¹⁰ See the Decision, *mimeo*, at 37-38.

April 21, 2005 in R.01-08-028, requires the use of a reasonable “average” of the Commission-adopted weighted costs of capital for the investor-owned utilities to discount the costs and benefits of energy efficiency programs.¹¹ This decision also directs the Energy Division to post this average value discount rate on the Commission website.¹² When available, SCE will use the discount rate posted by the Energy Division in the E3 Methodology. To assist the Energy Division in calculating the discount rate for use in discounting the costs and benefits of energy efficiency programs, SCE submits that its current Commission-adopted weighted cost of capital is 9.07%.¹³

No cost information is required for this advice filing.

This advice filing will not increase any rate or charge, cause the withdrawal of service, or conflict with any other schedule or rule.

EFFECTIVE DATE

This advice filing will become effective on the 30th calendar day after the date filed, which is May 25, 2005.

NOTICE

Anyone wishing to protest this advice filing may do so by letter via U.S. mail, facsimile, or electronically, any of which must be received by the Energy Division and SCE no later than 20 days after the date of this advice filing. Protests should be mailed to:

CPUC, Energy Division
Attention: Tariff Unit
505 Van Ness Avenue
San Francisco, California 94102
E-mail: jjr@cpuc.ca.gov and jnj@cpuc.ca.gov

Copies should also be mailed to the attention of the Director, Energy Division, Room 4004 (same address above).

In addition, protests and all other correspondence regarding this advice letter should also be sent by letter and transmitted via facsimile or electronically to the attention of:

¹¹ See April 21, 2005 Escutia Draft of Decision 05-04-051 at Section 3.2.

¹² See *id.*

¹³ SCE’s weighted cost of capital was adopted by the Commission in Decision 04-12-047.

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There are no restrictions on who may file a protest, but the protest shall set forth specifically the grounds upon which it is based and shall be submitted expeditiously.

In accordance with Section III, Paragraph G, of General Order No. 96-A, SCE is mailing copies of this advice filing to the interested parties shown on the attached GO 96-A and R.04-04-025 service lists. Address change requests to the GO 96-A service list should be directed by electronic mail to AdviceTariffManager@sce.com or at (626) 302-2930. For changes to all other service lists, please contact the Commission's Process Office at (415) 703-2021 or by electronic mail at Process_Office@cpuc.ca.gov.

Further, in accordance with Public Utilities Code Section 491, notice to the public is hereby given by filing and keeping the advice filing open for public inspection at SCE's corporate headquarters. To view other SCE advice letters filed with the Commission, log on to SCE's web site at <http://www.sce.com/AboutSCE/Regulatory/adviceletters>.

For questions, please contact Tory Weber at (626) 302-8186 or by electronic mail at Tory.Weber@sce.com.

Southern California Edison Company

Akbar Jazayeri

AJ:JC/sq
Enclosures

Attachment to Advice 1887-E (U 338-E)

Table 1: Inputs Updated in Electric Avoided Cost Model Non-Gas Inputs

Input Data and Brief Description	Decision Reference / Workshop Input	New Value (or reference to new value)	Original Reference in E3 Report (Page #)	Cell or Range in Electric Avoided Cost Model (cpucAvoided26.xls)
Platts 2006, 2007 NP15 and SP15 Forward Prices As of 4/7/2005	Consensus Opinion	See Table 1A, below	Page 47	MarketForecast!A24:C25
CCGT Capital Cost (In-Service Cost?)	Decision Page 34 (MPR Report)	\$720/kW (2004 cost)	Page 63	LRMC!G9 has 2004 cost inflated to 2006
CCGT Fixed O&M	Decision Page 34 (MPR Report)	\$6.00/kW-yr (2005 cost)	Page 63	LRMC!G10 has 2005 cost inflated to 2006
CCGT Variable O&M	Decision Page 34 (MPR Report)	\$2.50 mills/kWh (2005 cost)	Page 63	LRMC!G13 has 2005 cost inflated to 2006
CCGT Average Heat Rate	Decision Page 34 (MPR Report)	7,193 Btu/kWh HHV	Page 63	LRMC!G5
20-year Return on Equity (CCGT Financing)	Decision Page 34 (MPR Report)	12%/yr	Page 63	LRMC!G17
Interest Rate on Debt (CCGT Financing)	Decision Page 34 (MPR Report)	6.50%/yr	Page 63	LRMC!G16
Debt as % of Total Cost (CCGT Financing)	Decision Page 34 (MPR Report)	70%	Page 63	LRMC!G15
Debt Term (CCGT Financing)	Decision Page 34	20 Years	Page 63	LRMC!G7
CCGT Capacity Factor	Decision Page 34 (MPR Report)	92.00%	Page 63	LRMC!G6
Federal Tax Rate (of CCGT Owner)	Decision Page 35 (MPR Report)	35%	Page 63	LRMC!G18 has combined income tax
State Tax Rate (of CCGT Owner)	Decision Page 35 (MPR Report)	8.84%	Page 63	LRMC!G18 has combined income tax
Property Taxes as % of Plant Cost	Decision Page 35 (MPR Report)	1.20%	Page 63	LRMC!G11

Table 1A: 2006 and 2007 Platts Forward Price Quotes for NP15, SP15

Forward On-Peak Prices as of April 7 - Platts (\$/MWh)		
Delivery Location	2006	2007
NP15	\$ 77.50	\$ 72.75
SP15	\$ 79.00	\$ 75.25

Table 2: Inputs Updated for Forecast of Delivered Electric Generation Natural Gas Prices

Input Data and Brief Description	Decision Reference / Workshop Input	New Value (or reference to new value)	Original Reference in E3 Report (Page #)	Cell or Range in Gas Avoided Cost Model (GasInputs4-7-2005.xls)
EIA, SoCal Gas, & CEC long-run forecast of Henry Hub natural gas prices	Decision Page 35	See Table 2A, below.	CEC Forecast, Page 171	MPRForecast!B6:E25
SoCal Gas distribution rate for EG as of 4/7/2005	Consensus opinion	See Table 2B, below.	Page 184	Delivery Tariff!C15:C17
Gas distribution rate escalation rate	Decision Page 34-35	2%	Not Used	Inputs!W23
60-day average of NYMEX futures contracts at Henry Hub through 4/7/2005	Decision Page 35	See Table 2C, below.	Page 181	NYMEX Futures sheet
NYMEX Basis differentials between Henry Hub and SoCal gas as of 4/7/2005	Consensus opinion at workshop	See Table 2D, below.	Page 186	Inputs!Q18:Q41

Table 2A: CEC, EIA, and SoCal Gas Long-run Fundamentals Forecast

Average of Henry Hub Fundamentals Natural Gas Prices

Row	Year	SoCal Gas			
		CEC 4/8/2003	EIA 1/2005	4/2/04	Average
1	2006	\$ 4.06	\$ 5.34	\$ 5.06	\$ 4.82
2	2007	\$ 4.31	\$ 4.93	\$ 5.16	\$ 4.80
3	2008	\$ 4.46	\$ 4.57	\$ 5.12	\$ 4.72
4	2009	\$ 4.67	\$ 4.55	\$ 5.04	\$ 4.75
5	2010	\$ 4.85	\$ 4.51	\$ 5.02	\$ 4.80
6	2011	\$ 5.04	\$ 4.62	\$ 5.00	\$ 4.89
7	2012	\$ 5.24	\$ 4.87	\$ 4.98	\$ 5.03
8	2013	\$ 5.46	\$ 5.13	\$ 4.96	\$ 5.18
9	2014	\$ 5.69	\$ 5.49	\$ 5.10	\$ 5.43
10	2015	\$ 5.93	\$ 5.81	\$ 5.25	\$ 5.66
11	2016	\$ 6.18	\$ 5.85	\$ 5.39	\$ 5.81
12	2017	\$ 6.39	\$ 5.98	\$ 5.55	\$ 5.97
13	2018	\$ 6.71	\$ 6.32	\$ 5.72	\$ 6.25
14	2019	\$ 6.99	\$ 6.76	\$ 5.89	\$ 6.55
15	2020	\$ 7.27	\$ 7.21	\$ 5.96	\$ 6.81
16	2021	\$ 7.57	\$ 7.58	\$ 6.15	\$ 7.10
17	2022	\$ 7.90	\$ 7.84	\$ 6.34	\$ 7.36
18	2023	\$ 8.17	\$ 8.10	\$ 6.54	\$ 7.60
19	2024	\$ 8.47	\$ 8.45	\$ 6.75	\$ 7.89
20	2025	\$ 8.77	\$ 8.85	\$ 6.96	\$ 8.19
21	2026	\$ 9.06	\$ 9.10	\$ 7.16	\$ 8.44
22	2027	\$ 9.36	\$ 9.42	\$ 7.36	\$ 8.71
23	2028	\$ 9.65	\$ 9.73	\$ 7.56	\$ 8.98
24	2029	\$ 9.95	\$ 10.04	\$ 7.77	\$ 9.25
25	2030	\$ 10.24	\$ 10.36	\$ 7.97	\$ 9.52

CEC Forecast Conversion Notes:

Price Forecasts from California Energy Commission Natural Gas Assessment, August 2003, Publication 100-03-006, Appendix E

Adjusted to Nominal Dollars using Price Deflator from California Energy Commission Natural Gas Assessment, August 2003, Publication 100-03-006, Appendix F

Forecasted Years 2023 through 2030 Using Linear Trend

Subtracted EG Delivery Prices (as of 4/7/2005) for PG&E, SoCal Gas EG Prices, see Tables 2B, and 2C.

Computed average PG&E and SoCal Gas Border Prices

CA Border Prices are assumed to equal Henry Hub price in the long term based on E3 Report, page 243.

EIA Forecast Calculation Notes:

Used January 2005 Wellhead Gas Forecast

(http://www.eia.doe.gov/oiaf/aeo/pdf/aeotab_14.pdf)

Converted from 2003 Dollars to Nominal Using EIA Deflators

(http://www.eia.doe.gov/oiaf/aeo/pdf/aeotab_19.pdf)

Converted from Wellhead to Henry Hub using EIA Factor (10.8%)

(http://www.eia.doe.gov/oiaf/aeo/pdf/aeotab_19.pdf)

Converted from Mcf to MMBtu using EIA Factor for Gas Production

([http://www.eia.doe.gov/oiaf/aeo/pdf/0383\(2005\).pdf](http://www.eia.doe.gov/oiaf/aeo/pdf/0383(2005).pdf))

SoCal Gas Calculation Notes:

No Conversion Necessary for SoCal Gas Forecasted Henry Hub Prices (source Southern California Gas Company, 2004 California Gas Report Workpapers Table 1-6)

Table 2B: SoCal Gas Distribution Rate for Electric Generation as of 4/7/2005

Row	Calculation of SoCal Gas Delivery Rate to Electric Generation	
1	Customer Charge (\$/month)	\$0.00 http://www.socalgas.com/regulatory/tariffs/tm2/pdf/GT F.pdf
2	Transmission Charge (\$/MMBtu)	\$0.3349 http://www.socalgas.com/regulatory/tariffs/tm2/pdf/GT F.pdf
3	Interstate Transition Cost Surcharge (\$/MMBtu)	\$0.0306 http://www.socalgas.com/regulatory/tariffs/tm2/pdf/GT F.pdf
4	Total SoCal Distribution Rate (\$/MMBtu)	\$0.3655 Row 1 + Row 2 + Row 3
5	SoCal Muni Surcharge, Schedule G-MSUR (%)	1.5534% http://www.socalgas.com/regulatory/tariffs/tm2/pdf/G-G-MSUR.pdf

Table 2C: 60-Day Average of NYMEX Henry Hub Gas Futures Contracts through 4/7/2005

(Nominal \$/MMBtu)

60-Day Average NYMEX Closing Prices (1/11/2005-4/7/2005)					
Month	Year				
	2006	2007	2008	2009	2010
January	7.81	7.31	6.87	6.49	6.19
February	7.79	7.28	6.85	6.47	6.17
March	7.61	7.09	6.65	6.28	5.99
April	6.56	6.15	5.76	5.43	5.15
May	6.42	6.01	5.64	5.31	5.04
June	6.44	6.03	5.66	5.34	5.07
July	6.47	6.05	5.69	5.36	5.09
August	6.50	6.07	5.71	5.39	5.12
September	6.48	6.05	5.69	5.37	5.12
October	6.50	6.07	5.71	5.40	5.15
November	6.81	6.36	5.98	5.68	5.39
December	7.09	6.64	6.25	5.96	5.64

Table 2D: NYMEX Henry Hub – SoCal Gas Basis Differentials as of 4/7/2005

Contract	SoCal Gas 7-Apr
Jan-06	-0.4975
Feb-06	-0.4975
Mar-06	-0.4975
Apr-06	-0.3025
May-06	-0.3025
Jun-06	-0.3025
Jul-06	-0.3025
Aug-06	-0.3025
Sep-06	-0.3025
Oct-06	-0.3025
Nov-06	-0.4325
Dec-06	-0.4325
Jan-07	-0.4325
Feb-07	-0.4325
Mar-07	-0.4325
Apr-07	-0.2600
May-07	-0.2600
Jun-07	-0.2600
Jul-07	-0.2600
Aug-07	-0.2600
Sep-07	-0.2600
Oct-07	-0.2600
Nov-07	-0.3800
Dec-07	-0.3800

Table 3: Adjustments Made for a 2006 Start Year

Input	Description of Adjustment
CCGT Capital Cost to 2006 Value	Adjusted CCGT cost from MPR Decision \$720/kW in 2004 to 2006 using 2% escalation rate from E3 Report, page 63. (MPR decision does not provide a CCGT capacity cost escalation factor).
Electric Transmission Avoided Costs	Begin analysis using 2006 avoided cost cited in E3 report (page 136 and 137).
Electric Distribution Avoided Costs	Begin analysis using 2006 avoided cost cited in the E3 report (pages 132-136).
CO2 Emissions Costs	Begin analysis using 2006 avoided cost cited in E3 report (page 79).

Table 4: Adjustments Made to Extend Forecast through 2030

Input	Description of Adjustment
Long-run Gas Forecast \$/MMBtu	Linear trend of the last five years (2021 through 2025) of the three public forecasts (EIA, CEC, and SoCal) for years 2026 through 2030.
Electric Transmission Avoided Cost \$/kW-year	Linear trend of the last five years in E3 Report (2019 through 2023) through 2030
Electric Distribution Avoided Cost \$/kW-year	Linear trend of the last five years in E3 Report (2019 through 2023) through 2030
Emissions Costs (CO2, PM10, NOx) \$/lb	Linear trend of the last five years in E3 Report (2019 through 2023) through 2030

CALIFORNIA PUBLIC UTILITIES COMMISSION

ADVICE LETTER FILING SUMMARY ENERGY UTILITY

MUST BE COMPLETED BY UTILITY (Attach additional pages as needed)

Company name/CPUC Utility No.: Southern California Edison Company (U 338-E)

Utility type:

ELC GAS
 PLC HEAT WATER

Contact Person: James Yee

Phone #: (626) 302-2509

E-mail: James.Yee@sce.com

EXPLANATION OF UTILITY TYPE

ELC = Electric GAS = Gas
PLC = Pipeline HEAT = Heat WATER = Water

(Date Filed/ Received Stamp by CPUC)

Advice Letter (AL) #: 1887-E

Subject of AL: Updates to the Methodology and Forecast of Long-Term Avoided Cost(s) for the Evaluation of California Energy Efficiency Programs

Keywords (choose from CPUC listing): Compliance, Avoided Cost, Energy Efficiency

AL filing type: Monthly Quarterly Annual One-Time Other _____

If AL filed in compliance with a Commission order, indicate relevant Decision/Resolution #:

D.05-04-024

Does AL replace a withdrawn or rejected AL? If so, identify the prior AL: _____

Summarize differences between the AL and the prior withdrawn or rejected AL:

Resolution Required? Yes No

Requested effective date: May 25, 2005 No. of tariff sheets: -0-

Estimated system annual revenue effect (%): _____

Estimated system average rate effect (%): _____

When rates are affected by AL, include attachment in AL showing average rate effects on customer classes (residential, small commercial, large C/I, agricultural, lighting).

Tariff schedules affected: None

Service affected and changes proposed¹: _____

Pending advice letters that revise the same tariff sheets: _____

¹ Discuss in AL if more space is needed.

Protests and all other correspondence regarding this AL are due no later than 20 days after the date of this filing, unless otherwise authorized by the Commission, and shall be sent to:

CPUC, Energy Division
Attention: Tariff Unit
505 Van Ness Ave.,
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