

1 **Exhibit D**

2 **Detailed Description of Decoupling Examples<sup>1</sup>**

3 Cal Water has requested a revenue decoupling mechanism that is modeled after the  
4 revenue adjustment mechanisms the Commission has adopted for energy utilities.  
5 Consistent with the energy revenue adjustment mechanisms Cal Water’s proposed water  
6 revenue adjustment mechanism (WRAM) uses the concept of “base revenues.” Cal  
7 Water’s requested revenue adjustment mechanism is fully described in the “Prepared  
8 Testimony of David Morse”. While Cal Water recommends that the Commission adopt  
9 the energy company “base revenues” method, the information provided in this appendix  
10 discusses various decoupling mechanisms.

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12 **California American Water Company’s (Cal Am) WRAM**

13 Although identified as a water revenue adjustment mechanism, Cal Am’s WRAM is a  
14 balancing account that tracks the change in revenues associated with implementing a  
15 conservation rate design, not sales. Recorded revenues are compared to a calculation of  
16 revenues based on the non-conservation rate design using the recorded sales and  
17 customers. Monthly variations (positive and negative) in the recorded versus calculated  
18 revenues are tracked in Cal Am’s WRAM. In this example the authorized rate is an  
19 average rate.<sup>2</sup> The product is the monthly “over or under” collection in dollars. Interest  
20 on the monthly “over or under” collection is calculated using the 90 day commercial  
21 paper rate, which is the same rate used for all Commission balancing accounts. The

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<sup>1</sup> The examples of decoupling mechanisms included in this appendix were first developed by David Morse in Golden State Water’s policy filing Application 06-09-006, which includes a request for WRAM and full balancing account treatment.

<sup>2</sup> In the Cal Am decision the authorized rate was the same as the “service charge.” The Cal Am WRAM tracks changes in revenues caused by the rate design, differences caused by variations in consumption are not accrued to the account. Hence, the Cal Am WRAM is not a full decoupling mechanism. Decision (D.) 96-12-005, 69 CPUC 2d, pages 419 through 467. However, some of the tables in the Commission’s decision regarding the Cal Am WRAM provide useful example calculations that can be used to illustrate a full decoupling, sales adjustment mechanism. In a full decoupling mechanism the “authorized rate” represents the service charge and volumetric charges. In addition, it may be useful to have an “authorized rate” and accounting of actual versus adopted sales for each customer class.

1 utility files an advice letter for amortization of the account when the account is in excess  
 2 of 5% of total revenues. The example in Table D.1 below is based on illustrative data  
 3 included in two tables in the Commission’s Cal Am, WRAM decision.<sup>3</sup>

4 **Table D.1**  
 5 **Basic Sales Adjustment WRAM – Monthly**

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Month	Sales Forecast (CCF)	Actual Sales (CCF)	Variance (CCF)	Auth. Rate (\$/CCF)	Under/over collection (\$)	90 day comm. paper rate (%)	Interest (\$)	Total o/u collec (\$)	Accrual (\$)
Jan	252,250	211,890	-40,360	0.8347	-33,688	0.47	-158	-33,846	-33,846
Feb	252,250	181,620	-70,630	0.8347	-58,955	0.48	-283	-59,238	-93,084
Mar	252,250	151,350	-100,900	0.8347	-84,221	0.47	-396	-84,617	-177,701
April	252,250	181,620	-70,630	0.8347	-58,955	0.46	-271	-59,226	-236,927
May	252,250	211,890	-40,360	0.8347	-33,688	0.45	-152	-33,840	-270,767
June	252,250	272,430	20,180	0.8347	16,844	0.45	76	16,920	-253,847
July	252,250	302,700	50,450	0.8347	42,111	0.46	194	42,304	-211,543
August	252,250	363,240	110,990	0.8347	92,643	0.46	426	93,070	-118,474
Sept.	252,250	363,240	110,990	0.8347	92,643	0.47	435	93,079	-25,395
October	252,250	302,700	50,450	0.8347	42,111	0.48	202	42,313	16,918
Nov.	252,250	272,430	20,180	0.8347	16,844	0.48	81	16,925	33,843
Dec	252,250	211,890	-40,360	0.8347	-33,688	0.48	-162	-33,850	-7
Total	3,027,000	3,027,000			0			-7	

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 9 In the above example the WRAM deficit reached a high of \$270,767 in May. However,  
 10 by the end of the year the balancing account shows a total deficit of only \$7. Customer  
 11 rates are adjusted once a year based on over and under collection subject to a minimum  
 12 activation level (5% of gross revenues) within the WRAM balancing account. This  
 13 numerical example used by the Commission illustrates the *monthly* variation between  
 14 forecast and actual sales. In practice, however, it is more important to focus on the  
 15 *annual* variation between forecast and actual sales.<sup>4</sup>

<sup>3</sup> D. 96-12-005 table N and table S, the illustration assumes only one rate.

<sup>4</sup> The variation in actual versus forecast monthly sales noted in the Commission example includes some seasonal variation. Since the Commission only adopts annual sales values the monthly forecast amount does not include seasonal variation. In theory, the Commission could adopt monthly sales values. Adoption of monthly sale forecast values, however, would likely require an unnecessary complication in forecasting since the key importance of a revenue adjustment mechanism is the annual variation.

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**Basic Sales Adjustment WRAM**

Table D.2 below provides another illustration based on hypothetical annual information.

**Table D.2**

**Basic Sales Adjustment WRAM - Annual**

		<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>
		<b>Forecast Sales (CCF)</b>	<b>Authorized Rate \$/CCF</b>	<b>Actual Sales (CCF)</b>	<b>Variance Sales (CCF)</b>	<b>Balancing Account \$</b>	<b>RAM Adjustment \$/CCF</b>
GRC	Year 1	100	0.83	95	5	4.17	0.000
	Year 2	100	0.83	103	-3	-2.50	0.042
	Year 3	100	0.83	102	-2	-1.67	-0.025
GRC 2	Year 4	105	0.85	105	0	0	-0.016
	Year 5	105	0.85	NA	NA	NA	0.000

In the example above, there is a three year rate case cycle; columns A and B are established in the general rate case (GRC). In year one, the adopted sales forecast is 100 CCF and the authorized rate is \$.83/CCF. In the first year, however, sales are actually 95 CCF rather than 100 CCF, which results in a positive variance and translates to a balancing account amount of \$4.17. Positive values in the balancing account indicate money that is owed to the utility; negative values indicate money that the utility owes ratepayers. In this example, the utility would be authorized to recover in rates \$4.17, which would be amortized in rates over 12 months in the following year. The authorized recovery of \$4.17 is shown as the RAM adjustment of \$.042 in the second year (\$4.17/100 CCF). In year two, actual sales are above the forecast amount. Customers would receive a reduction of \$2.50 amortized over 12 months in year three. In year four, there is a new general rate case, note that the authorized rate and forecast values have increased.

1 The rate customers are charged would include the authorized rate and any amortized  
 2 amount from the WRAM balancing account and other balancing accounts. In order to  
 3 make this example easier to follow the interest rate calculation, which is noted in Table  
 4 A.1, and other revenue adjustments such as attrition or supply offsets are not included.

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6 **Basic Revenue Adjustment WRAM**

7 A WRAM may also be based on adjusting revenues rather than sales. The Commission’s  
 8 RAMs for electricity utilities are based on adjustments to revenues. Table D.3 provides a  
 9 hypothetical example of a WRAM that adjusts revenues.<sup>5</sup>

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**Table D.3**

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**Basic Revenue Adjustment WRAM – Annual**

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		A	B	C	D	E	F	G	I
		Authorized Rate \$/CCF	Expected Sales CCF	Authorized Revenue \$	Actual Sales CCF	Measured Revenue \$	Reported Revenue \$	Balance Account \$	WRAM Adjustment \$/CCF
GRC	Year 1	0.83	100	83	95	78.85	83	4.15	0.000
	Year 2	0.83	100	83	103	85.49	83	-2.49	0.042
	Year 3	0.83	100	83	102	84.66	83	-1.66	-0.025
GRC 2	Year 4	0.85	105	89.25	105	89.25	89.25	0	-0.016
	Year 5	0.85	105	89.25	NA	NA	89.25	NA	0.000

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15 The above is a simplified decoupling WRAM with a three-year rate case cycle and no  
 16 other revenue adjustments. Additionally, there are no adjustments for interest. The first  
 17 three columns are established in the (GRC). Columns F and G are amounts that the  
 18 utility would report in its financial statements. In year 1 the Commission authorizes a  
 19 rate of \$.83/CCF and adopts sales of 100 CCF, the authorized revenue is \$83. In year  
 20 one, actual sales are 95 CCF, which is less than the adopted level of consumption. This  
 21 results in measured revenue of \$78.85. However, the utility reports the authorized  
 22 revenue of \$83 and has \$4.15 in the WRAM balancing account. Note that in the second

<sup>5</sup> This example is based on an example for electricity utilities in “Theory and Practice of Decoupling,” J. Eto, S. Stoft, and T. Belden, Lawrence Berkeley Laboratory, January 1994.

1 year this amount is included as an adjustment to rates of \$.042/CCF (Column I in the  
2 second year). In the second year actual sales are above the adopted level, therefore  
3 measured revenues are above the reported level. Hence there is a negative balance of  
4 \$2.49 in the Balancing Account. The utility will reimburse customers through a negative  
5 RAM adjustment of \$.025 in year three. In year four, a general rate case increased the  
6 adopted sales to 105 CCF and the authorized revenues to \$89.25. Note that the RAM  
7 adjustment goes to zero in year five since the actual sales in year four were the same as  
8 the adopted of 105 CCF.

9 The difference between a sales based adjustment versus a revenue based adjustment:

- 10 1. A mechanism based on revenues will track changes in sales and non-sales related  
11 revenues, including service charges and other non-sales related revenues, and will  
12 require a distinction of WRAM revenues versus total revenues, which may  
13 include attrition and rate adjustments for purchased water, purchased power,  
14 pump taxes, and water quality. In the energy sector, the Commission uses “base  
15 revenues” for the RAM.
- 16 2. Cal Water’s proposed WRAM, which is described in detailed in the “Prepared  
17 Testimony of David Morse”, is a “base revenues” type RAM based on the method  
18 used for energy utilities and only tracks changes in revenues related to sales.

19 A sales adjusted mechanism does not require base revenues. However, additional rate  
20 adjustments for attrition and other balancing accounts must be included to determine  
21 total revenues.

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### 23 **Recognition of Expense Related Issues with a WRAM**

24 The Commission’s RAM’s for energy utilities do not include special treatment for  
25 expenses because only base revenues are adjusted and volume based expenses are  
26 included in the offset mechanism. However, in the water industry, additional adjustments  
27 are necessary if adjustments are made to total revenues or total sales, and the

1 Commission continues its current practice to not fully compensate customers or utilities  
2 for changes in variable expenses over the adopted level.<sup>6</sup> An adjustment to expenses is  
3 needed to be consistent with the intent of a decoupling mechanism to remove the  
4 incentive to promote sales without creating a financial loss to the utility or customers.

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6 For example: Assume a utility has a base revenue WRAM as proposed by Cal Water.  
7 Also assume that the marginal water supply is purchased water, which has a higher cost  
8 than well water. Assume that actual water sales are less than projected in the general rate  
9 case. Under this scenario the water utility is compensated for the loss of revenues  
10 through the WRAM. Assume the Commission continues its current partial balancing  
11 account treatment. With reduced sales, the water utility would rely on less purchased  
12 water. However, the water utilities' expense offset filing would have to assume that  
13 purchase water is at the, higher, adopted level. Thus, customers would be paying for  
14 "phantom" water supply costs. If sales are above the adopted level, there would be the  
15 opposite effect: water utilities would have revenues reduced to the adopted level.  
16 However, the increased costs for additional purchase water would not be recognized by  
17 the Commission. Thus water utilities would have to pay for the additional cost of supply  
18 without compensation. The easy solution is for the Commission to move to full  
19 balancing account treatment as it has done for energy utilities. While the instant  
20 application does not request a full cost balancing account for purchased water, purchased  
21 power, and pump taxes, Cal Water has requested such an account in its 2006 general rate  
22 case applications.

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<sup>6</sup> In general, for water utilities the Commission has applied a "incremental" balancing account concept which only recognizes changes in the price of offset expenses such as purchase water and purchased power. However, changes in the mix of water supply sources are not recognized.

1 **Cal Water Revenue Adjustment Mechanism (WRAM)**

2 Cal Water proposes a revenue adjustment mechanism that only records changes in  
 3 revenues relating to sales variations (adopted sales compared to recorded sales). The  
 4 basic mechanics of this mechanism are similar to the revenue adjustment mechanism  
 5 noted above. The difference between adopted and actual monthly revenues and sales are  
 6 adjusted to remove volume based costs (Total water production costs) to yield a monthly  
 7 revenue accrual. A numerical example of the Cal Water proposal is shown in Table 1.2  
 8 of the testimony of David Morse. Table 1.2 from the testimony is reprinted below:

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**Table 1.2 WRAM Example Calculation**

District \_\_\_\_\_

*Step 1 GRC Findings to be used in WRAM*

Month	A Sales	B TRR	C Annual B/MAR	E BR	F BR monthly factor ratio*	G MBR-A	H Annual BRR
	CCF	\$	\$	\$ (B-C)		\$ (F*E)	\$/CCF (G/A)
Jan	252,250	\$ 630,625	NA	NA	0.08	\$ 341,724	NA
Feb	250,222	\$ 625,555	NA	NA	0.075	\$ 320,366	NA
March	255,230	\$ 638,075	NA	NA	0.09	\$ 384,439	NA
etc.							
Annual	3,106,578	\$ 7,766,446	\$ 3,494,900	\$ 4,271,545	1	\$ 4,271,545	\$ 1.375

\*based on 5 year average of historical monthly water sales as a percent of annual water sales.

*Step 2 Calculation of WRAM*

Month	I Actual sales CCF	J MBR-R	K WRAM	L WRAM Accrual \$
		\$ (H*I)	\$ (G-J)	
Jan	240,890	\$ 331,224	\$ 10,500	\$ 10,500
Feb	245,340	\$ 337,343	\$ (16,977)	\$ (6,477)
March	260,230	\$ 357,816	\$ 26,623	\$ 20,146
etc.				

Adjustments for interest accruals are not shown.

This example is for illustrative purposes only and does represent any specific Cal Water district.

- Base revenue requirement account (WRAM)
- Base revenue requirement authorized (BR)
- Base revenue requirement rate (BRR)
- Monthly base revenue requirement authorized (MBR-A)
- Monthly base revenue requirement recorded (MBR-R)
- Balancing/memorandum account revenues excluding WRAM (B/MAR)
- Total revenue requirement (TRR)

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