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**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

In the Matter of the Application of California-American Water Company (U 210 W) for a Certificate of Public Convenience and Necessity to Construct and Operate its Coastal Water Project to Resolve the Long-Term Water Supply Deficit in its Monterey District and to Recover All Present and Future Costs in Connection Therewith in Rates.

Application 04-09-019
(Filed September 20, 2004;
Amended July 14, 2005)

**REVISED DIRECT TESTIMONY OF MARK P. BERKMAN AND DAVID L. SUNDING
(PHASE 2 REGIONAL PROJECT COST ISSUES)**

[This testimony has been revised to strike the language on page 7, line 15, beginning with "In addition" through line 26, ending with "advantage," pursuant to the ALJ's ruling issued July 21, 2009. MCWD reserves the right to offer testimony similar to that which is stricken upon a showing that the testimony is relevant to Issues A, E, F, and H identified for hearing in the scoping ruling of March 26, 2009.]

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Revised, August 20, 2009

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BEC-1: Dr. Berkman’s Curriculum Vitae
BEC-2: Dr. Sunding’s Curriculum Vitae

1 **BEFORE THE PUBLIC UTILITIES COMMISSION**
2 **OF THE STATE OF CALIFORNIA**
3

4 In the Matter of the Application of California-
5 American Water Company (U 210 W) for a
6 Certificate of Public Convenience and
7 Necessity to Construct and Operate its Coastal
8 Water Project to Resolve the Long-Term Water
9 Supply Deficit in its Monterey District and to
10 Recover All Present and Future Costs in
11 Connection Therewith in Rates.

Application 04-09-019
(Filed September 20, 2004;
Amended July 14, 2005)

12 **DIRECT TESTIMONY OF MARK P BERKMAN AND DAVID L SUNDING**
13

14 Q1. Please state your names and your business address.

15 A1. Mark P. Berkman and David L. Sunding. Our business address is Berkeley
16 Economic Consulting, 2531 Ninth St, Berkeley, CA 94710.

17 Q2. By whom are you employed and in what capacity?

18 A2. We are Directors of Berkeley Economic Consulting.

19 Q3. What are your responsibilities?

20 A3. We conduct economic studies for a variety of clients working with our professional
21 staff as well as academic consultants.

22 Q4. Briefly describe your education background

23 A4. Dr. Berkman earned a PhD. in public policy analysis from the University of
24 Pennsylvania's Wharton School. He earned a masters degree in planning and
25 public policy from Harvard University and a bachelor's degree in urban affairs and
26 economics from George Washington University. Dr. Sunding earned a PhD in
27
28

1 natural resource economics from the University of California, Berkeley. He earned
2 a bachelor's degree in economics from Claremont McKenna College. True copies
3 of Drs. Berkman's and Sunding's CV's are attached hereto as Exhibits BEC-1 and
4 BEC-2 respectively.
5

6
7 Q5. Please describe your professional experience

8 A5. Dr. Berkman has over 25 years of experience as an economic consultant. He has
9 worked for a wide range of clients including public utilities, local, state, and federal
10 agencies, Indian tribes, trade groups and corporations. Dr. Sunding has over 20
11 years as an economic consultant and held several prominent academic
12 appointments. He currently holds the Thomas J. Graff Chair in Natural Resource
13 Economics at UC Berkeley and is co-director of the Berkeley Water Center. Prior
14 to joining the Berkeley faculty, he taught at Boston College in the Department of
15 Economics and the School of Law. Dr. Sunding was also a senior economist at the
16 President's Council of Economic Advisors during the Clinton Administration.
17

18 Q6. Have you testified before any regulatory agencies?

19 A6. Yes. Dr. Berkman has testified before the California PUC, the Texas PUC, the
20 Vermont Public Service Board, The Montana Public Service Commission, the New
21 York City Trade Waste Commission, the New York State Department of
22 Environmental Conservation, the State of Washington Energy Facility Site
23 Evaluation Council, the Oregon Environmental Quality Commission and the
24 Indiana Utility Regulatory Commission. He also testified before the U.S.
25 Occupational Safety and Health Administration and the U.S. EPA. Dr. Sunding has
26 testified before the State Water Resources Control Board, various Regional Water
27 Quality Control Boards, the Hawaii Water Commission, and several House and
28 Senate committees.

1 Q7. What is the purpose of this direct testimony?

2 A7. We have been asked by counsel for the Marina Coast Water District (MCWD) to
3 review the relative economic merits of the three alternative water supply projects
4 identified in this proceeding – the Moss Landing project, the North Marina project,
5 and the Regional Alternative.
6

7
8 Q8. What have you determined from your review?

9 A8. Based on the Draft Environmental Impact Statement (DEIR), public comments on
10 the DEIR, California American Water (CAW) direct testimony and supporting
11 documents served on May 22, 2009, several Monterey regional water planning
12 documents, and extensive discussions with MCWD officials and consultants, the
13 Regional alternative appears to be preferable to the other alternatives in several
14 important respects.¹ Although we have not at this juncture conducted a detailed
15 benefit-cost analysis that would fully address the question of regional economic
16 efficiency and the public interest, the Regional alternative based on our review
17 appears to provide: 1) the least-cost supply source to meet existing and expected
18 regional water demand; 2) the most environmentally attractive new water supply;
19 and 3) the most reliable new water supply.
20

21 Q9. Please explain the basis for your conclusion that the Regional alternative is the
22 least cost water source for the region.

23 A9. First, the Regional alternative enables the region to take advantage of scale
24 economies in the construction of a desalination plant. Scale economies refer to the
25 condition where unit costs fall as size increases. This can be seen in the cost data
26 from the analysis presented by Lyndel Melton. (See testimony of Lyndel Melton
27

28 ¹ The Regional alternative's intended service, consistent with the DEIR description, includes the CAW and MCWD service areas, the City of Salinas, and Northern Monterey County rural and urban areas.

1 being served simultaneously with this testimony) A desalination plant built to
2 produce 10,500 acre feet per year (afy) will cost approximately \$2800 per acre foot
3 (af), while a plant built to produce only 1700 afy will cost over \$5000/af. Thus, a
4 single facility sized to meet regional water demand rather than multiple smaller
5 facilities will be far less costly on a per unit of water supplied basis. Second, a
6 single regional facility provides the means to optimally meet water demand by
7 using all available water supply more efficiently. For example, CAW plans to
8 construct the Moss Landing project with a design capacity of 10 million gallons per
9 day (mgd) with an installed capacity of 12 mgd for reliability, but plans to produce
10 only 8800 acre ft annually (afy) at a cost of \$3440/af. If, however, the plant
11 operated at higher capacity factor and produced 10,500 afy, the cost would fall to
12 \$2970/af. Similarly, CAW plans to construct the Marina North project with a
13 design capacity of 11 mgd with an installed capacity of 13.2 mgd for reliability, but
14 plans to produce only 8800 afy. If the plant instead produced 10,500 afy, costs
15 would fall to \$3350/af. CAW's production plans reflect the need to maintain
16 capacity for use during peak months. In contrast, MCWD plans to construct the
17 Regional alternative with a design capacity of 10 mgd with an installed capacity of
18 12mgd for reliability and to produce 10,500 afy at a cost of \$2790/af. MCWD
19 plans to produce more water because it can meet peak demand from other supply
20 sources. Thus, MCWD would operate a large plant at lower cost relying on other
21 water supplies to meet peak demand. Third, the Regional alternative, according to
22 RMC's calculations (see testimony of Lyndel Melton) produces water at a lower
23 annualized cost because it can be constructed at lower cost (excluding
24 consideration of the more favorable financing available to public agencies).

1 Q10. How does MCWD benefit from the Regional alternative?

2 A10. MCWD avoids having to build its own smaller, higher unit-cost facility to meet the
3 demands of customers in its service territory. As noted above, a desalination plant
4 designed to provide 1700 afy would cost \$5000/af compared to the Regional
5 alternative plant that would cost \$2790/af. MCWD would also presumably enjoy
6 lower costs from improved optimization of regional water supplies.
7

8
9 Q11. How does CAW benefit from the Regional alternative?

10 A11. CAW benefits in several ways. First, if CAW built either the Moss Landing or the
11 North Marina plant, it must build sufficient capacity to meet peak demand during
12 the summer. This means that substantial capacity is idle for much of the year,
13 which as demonstrated above raises unit costs. The Regional alternative avoids
14 this capacity underutilization because MCWD customers and other regional water
15 customers make use of the additional capacity and can make other water supply
16 resources available on a regional basis during peak demand periods. A regional
17 facility provides the means to optimize the supply of water to CAW and other
18 regional customers. Third, according to MCWD's consultants, the Regional
19 alternative can be completed more quickly than either the Moss Landing or North
20 Marina project because of fewer regulatory hurdles and in the case of the North
21 Marina project, the absence of contested access and right-of-way issues. As a result
22 CAW would be able to avoid much earlier the costly penalties it must pay for the
23 surface water and groundwater it currently takes above the levels specified by State
24 Water Resources Board Order No. 95-10 and the Seaside Basin Adjudication.
25 Fourth, CAW would be able to negotiate lower water costs because of the reduced
26 annualized costs provided by the Regional alternative. According to RMC Water
27 and Environment estimates, the Regional alternative's annualized costs are \$1.3
28 million lower than the North Marina project and \$1.9 million lower than the Moss

1 Landing project, excluding financing cost differences and assuming the same
2 production levels (10,500 afy).
3

4 Q12. Are the three water supply projects mutually exclusive?

5 A12. Yes. Since unmet regional demand is about 15 mgd, only one project of 10 mgd or
6 more can be built. The other two would no longer be economic since there would
7 be insufficient demand to support the investment. As described above, unmet
8 demand would have to be met by constructing smaller higher cost facilities not
9 currently under consideration.
10

11
12 Q13. Mr. Melton's testimony indicates that the Regional alternative would provide a
13 lower cost water supply in part because MCWD can borrow funds at a lower
14 interest rate than CAW – 5.15% rather than 8.55%. Why haven't you identified this
15 as a cost advantage?

16 A13. Economists look at benefits to society as a whole, not to water ratepayers. A lower
17 interest rate will unquestionably reduce the costs of the project for water
18 ratepayers, as demonstrated in the testimony of other MCWD witnesses, but this
19 advantage reflects a cost distribution impact, not a cost savings impact. While
20 MCWD will have access to a lower cost of capital, this is the result of tax
21 advantages that it has as a municipal rather than private entity. There is, however, a
22 cost associated with the tax advantage, borne by taxpayers. Thus, from a societal
23 perspective, there is no cost advantage. The advantages of the Regional alternative
24 that we have identified have nothing to do with municipal versus private
25 ownership.
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1 Q14. What is the basis for your opinion that the Regional alternative is the most
2 environmentally attractive alternative?

3 A14. The DEIR concluded that the North Marina and the Regional alternative were
4 “environmentally superior” to Moss Landing (DEIR p. 7-60) for three reasons: 1)
5 these projects require five miles less of pipeline installation; 2) they do not include
6 open-water intakes and thus avoid entrainment and impingement impacts; and 3)
7 they avoid potential future impacts on water quality and marine biological
8 resources because they do not rely on once-through cooling. The DEIR finds it
9 more difficult to distinguish between the North Marina and Regional alternative.
10 The DEIR concludes that if the North Marina project relies on vertical rather than
11 the slant intake wells proposed by CAW, then it is “slightly environmentally
12 superior”(DEIR, p 7-61). We have been informed, however, that CAW could find
13 that reliance on vertical wells at North Marina could restrict the amount of water it
14 could produce because of export restrictions making it a less desirable alternative
15 for CAW and for the region. ~~In addition, it appears that the DEIR did not consider
16 that the Regional alternative is likely to rely on methane from an adjacent regional
17 solid waste landfill as its energy source. Reliance on this resource will avoid
18 substantial greenhouse gas emissions. Consequently, the Regional alternative
19 would be clearly superior. According to the DEIR, the Moss Landing project will
20 emit about 10,000 metric tons of CO2 annually from electricity consumption. The
21 North Marina project will emit about 11,365 metric tons annually, and the Regional
22 alternative will emit 11,270 metric tons annually if it relies on conventional
23 electricity purchased from either Moss Landing or the electricity grid (DEIR
24 Appendix F). Therefore, if by relying on power produced from landfill methane,
25 the Regional alternative avoids a sizeable fraction of the 11,270 metric tons per
26 year, then the alternative has a decided environmental advantage. In addition, if
27 the Regional alternative can be built more quickly than the other water sources,
28~~

1 then there will be environmental benefits from earlier reductions in CAW's draw of
2 surface and groundwater that have been determined to cause environmental
3 damage under State Water Resources Board Order No.95-10 and the Seaside Basin
4 Adjudication.

5
6 Q15. Please explain why you consider the Regional Alternative to be more reliable.

7 A15. First, the Regional alternative by promoting the optimal allocation of regional
8 water supply provides a more secure water supply. Second, the Regional
9 alternative includes a plan for expansion, which should facilitate meeting demand
10 growth or supply replacement in the future. Third, as pointed out in the DEIR, the
11 Moss Landing project will rely on once-through cooling, which may result in water
12 quality degradation and damage to marine biological resources. Consequently,
13 there is a risk that in the future the project could be subject to additional regulation
14 requiring substantial investment or even be required to close. The expansion option
15 is also valuable should additional restrictions become necessary from existing
16 surface or ground water supplies because of environmental concerns or prolonged
17 drought conditions.

18 Q16. Please summarize your findings.

19 A16. The need to meet a regional demand for water makes a regional facility attractive
20 because of the opportunity to optimize regional water supplies. The Regional
21 alternative also presents the potential for reduced environmental impacts, more
22 rapid completion, and reduced transaction costs. A regional supply addition will be
23 less expensive than a CAW facility designed to meet CAW's service area demand
24 plus a MCWD facility designed to meet MCWD's service area demand. The
25 Regional alternative also appears to avoid transaction costs such as additional
26 regulatory reviews, party negotiations and possible court litigation over access and
27 right-of-way issues. This could result in more rapid project completion. The
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Regional alternative also faces less risk of additional costly environmental regulations in the future. Finally, the Regional alternative avoids local water use restrictions.

Q17. What do your findings suggest as the next step?

A17. Ideally, assuming the MCWD decides to go ahead with the Regional alternative after completing its environmental review, some form of partnership or contractual agreement between CAW and MCWD would allow for a facility sized to meet regional demands and avoid the constraints and limitations described above. For example, CAW could enter into a take-or-pay contract with MCWD that would enable MCWD to finance the Regional alternative by providing the necessary securitization. This would provide CAW with a secure source of water at a price reflecting the scale economies of the regionally sized plant and more rapid curtailment of the penalties paid for excessive use of surface water under State Water Resources Board Order No. 95-10 and groundwater under the Seaside Basin Adjudication.

Q18. Does that conclude your Direct Testimony?

A18. Yes.