

SYMPOSIUM  
BEFORE THE  
CALIFORNIA ENERGY RESOURCES CONSERVATION AND  
DEVELOPMENT COMMISSION  
CALIFORNIA PUBLIC UTILITIES COMMISSION  
CALIFORNIA DEPARTMENT OF WATER RESOURCES  
CALIFORNIA INDEPENDENT SYSTEM OPERATOR

In the Matter of: )  
 )  
Improving the Efficiency of )  
California Water and Energy )  
Systems )  
\_\_\_\_\_ )

CALIFORNIA ENERGY COMMISSION  
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SACRAMENTO, CALIFORNIA

TUESDAY, MARCH 28, 2006

10:02 A.M.

Reported by:  
Peter Petty  
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APPEARANCES

John Bohn, Commissioner, California Public  
Utilities Commission

Dian Grueneich, Commissioner, California Public  
Utilities Commission

Joseph Desmond, Chairperson, Commissioner,  
California Energy Commission

Jackalyne Pfannenstiel, Vice Chairperson,  
Commissioner, California Energy Commission

John L. Geesman, Commissioner, California Energy  
Commission

Jerry Johns, Deputy Director, California  
Department of Water Resources

Bill Bennett, Chief of Water Use Efficiency and  
Transfer, California Department of Water  
Resources

Tim Gage, Vice Chairperson, Board of Governors,  
California Independent System Operator

Gary Wolff, Principal Economist, Pacific Institute

Lorraine White, Advisor to Vice Chairperson  
Pfannenstiel, California Energy Commission

Mary Ann Dickinson, Executive Director, California  
Urban Water Conservation Council

Bill McDonnell, Senior Resource Specialist,  
Metropolitan Water District

Ronnie Cohen, Natural Resources Defense Council

Richard Fox, Intergy

Bob Kinert, Manager, Integrated Demand Side  
Management Program Services, Pacific Gas and  
Electric Company

David Bruder, Nonresidential Portfolio Manager,  
Southern California Edison Company

APPEARANCES

Matt Puffer, Administrative Analyst-Water  
Conservation, Golden State Water

Ted Pope, Energy Solutions

Jane Turnbull, League of Women Voters

Lory Larson, Southern California Edison Company

Michael Gibbs, ICF Consulting

Nancy Jenkins, Manager, Energy Efficiency Research  
Office, California Energy Commission

Lon House, Consultant, Water and Energy Consulting

David Morse, Independent Consultant

David Stephenson, Rates and Revenue Director,  
American Water

Kevin Coughlan, Director, California Public  
Utilities Commission Water Division

Debbie Cook, City Council, City of Huntington  
Beach

Jack Hawks, California Water Association

Chris Frahm, Attorney, Hatch and Parent

Curtis Aaron, Public Services Director, City of  
Fontana

George Barber, Manager, Paradise Irrigation  
District

Yoram Cohen, Professor, Department of Chemical  
Engineering, University of California Los Angeles

Krista Clark, Director of Regulatory Affairs,  
Association of California Water Agencies

Ranjiv Goonetilleke, Senior Account Executive,  
Southern California Edison Company

Karsten Mueller, Consultant, Ecology Action

APPEARANCES

John E. Thorson, Administrative Law Judge,  
California Public Utilities Commission

Peter Spillett, Director, Environmental Projects,  
American Water

Robin L. Newmark, Program Leader, Water and  
Environment, Lawrence Livermore National  
Laboratory

Kurt Kammerer, K.J. Kammerer & Associates

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## I N D E X

	Page
Proceedings	1
Opening Remarks	1
Commissioner John Bohn, CPUC	2
Chairperson Joseph Desmond, CEC	6
Commissioner Dian Grueneich, CPUC	9
Vice-Chairperson Jackalyne Pfannenstiel, CEC	12
Vice-Chairperson Tim Gage, CAISO	13
Bill Bennett, Chief, CDWR	14
Panel 1 - Statewide Perspective of the Relationship Between Water and Energy Use	16
Gary Wolff, Principal Economist, Pacific Institute	16
Lorraine White, Advisor to Vice-Chairperson Pfannenstiel, CEC	33
Panel 2A - How Water Utilities Can Reduce Energy Consumption - Best Management Practices	51
Mary Ann Dickinson, Executive Director, CUWCC	52
Bill McDonnell, Senior Resource Specialist, MWD76	
Questions and Answers	94
Afternoon Session	106
Panel 2B - How Water Utilities Can Reduce Energy Consumption - Lessons Learned by Leading Private Utilities	106
Bob Kinert, Manager, Integrated Demand Side Management Program Services, PG&E	106
David Bruder, Nonresidential Portfolio Manager, SCE	121

## I N D E X

	Page
Panel 2B - Continued	
Matt Puffer, Administrative Analyst - Water Conservation, Golden State Water	134
Questions and Answers	145
Panel 3 - Forward-Looking Research and Water Regulatory Policies	151
Nancy Jenkins, Manager, Energy Efficiency Research Office, CEC	151
Lon House, Consultant, Water and Energy Consulting	169
David Morse, Independent Consultant	178
David Stephenson, Rates and Revenue Director, American Water	190
Kevin Coughlan, Director, Water Division, CPUC	200
Questions and Answers	206
Public Comment	208
Closing Remarks	234
Adjournment	242
Certificate of Reporter	243

## 1 P R O C E E D I N G S

2 10:02 a.m.

3 MS. WHITE: Welcome to the symposium,  
4 Improving the Efficiency of California's Water and  
5 Energy Systems. My name is Lorraine White. I am  
6 Advisor to Vice Chair Pfannenstiel.

7 This symposium is being put on by the  
8 CPUC, the California Public Utilities Commission,  
9 the California Energy Commission, Department of  
10 Water Resources, the California ISO, and we'd like  
11 to welcome you all today.

12 I just had a few housekeeping items that  
13 I would like to go through. There is a webcast  
14 that is being conducted for those who have not  
15 been able to attend in person. And the  
16 information is at URL <http://www.energy.ca.gov>.  
17 At that site you will find an icon for the  
18 webcast. You can click on that and it'll take you  
19 to the webcast index.html.

20 We are also accommodating phone-in, and  
21 participants can call the 888 number on the  
22 screen. The passcode for telephone participation  
23 is water/energy. I'm the call leader. So, you  
24 can access this symposium that way. For those who  
25 are participating by phone we ask that you show

1       some courtesy and mute your phone so that the  
2       background noise does not disturb the proceedings  
3       as we go forward.

4               Some logistical things. We also have  
5       restrooms here on the first floor. They're as you  
6       go out the double doors of the hearing room here;  
7       they're to your left. Also if you go up the  
8       stairs, on the landing, second floor, you will  
9       find a snack shop.

10              We have asked that everyone please sign  
11       in. We need to have all our guests sign in on the  
12       hearing room binder that's in the front. This  
13       will also help us keep in touch with those people  
14       who are interested in information related to this  
15       symposium and any follow-up work.

16              If there's no questions, Commissioner.

17              COMMISSIONER BOHN: Thank you and good  
18       morning. On behalf of the Public Utilities  
19       Commission, the Energy Commission, the Department  
20       of Water Resources and the California Independent  
21       System Operator, I'd like to welcome you all today  
22       to this symposium entitled, Improving the  
23       Efficiency of California's Water and Energy  
24       Systems.

25              I'm joined today by my colleague at the

1 PUC, Commissioner Grueneich; Chairman of the  
2 Energy Commission, Joe Desmond; and two of his  
3 colleagues, Commissioner Pfannenstiel and  
4 Commissioner Geesman; Tim Gage, Vice Chair of the  
5 Board of Governors of the California Independent  
6 System Operator; and Mr. Bill Bennett, who is  
7 the -- I love this title -- Chief of Water Use  
8 Efficiency and Transfer, of the Department of  
9 Water Resources, who will be sitting in for Mr.  
10 Johns this morning for the first couple of hours.

11 I'd like to thank my fellow policymakers  
12 here on the dais for their interest in this  
13 important topic. We have an impressive group of  
14 attendees in the audience today representing a  
15 wide range of expertise and interest in the  
16 matters affecting both water and energy.

17 I'd like to recognize Henry Duque, a  
18 former PUC Commissioner, for his forward looking  
19 contributions to water and energy policies at the  
20 PUC. Good morning, Henry; are you here? There he  
21 is. Thank you.

22 I'd also like to welcome those from  
23 southern California, if they, in fact, made it  
24 through the storm, who made a special trip here to  
25 participate in this symposium, including Debbie

1 Cook, Council Member of Huntington Beach, who  
2 seeks to improve the cooperation and coordination  
3 among governmental agencies in California.

4 Debbie, are you here? Oh, you made it. Good.

5 We also have a diverse group of speakers  
6 from the public and private sectors, each of whom  
7 will address critical aspects of the water and  
8 energy relationship. All our panel members today  
9 have impressive qualifications, and we've provided  
10 brief summaries of their biographical information  
11 at the registration table.

12 I'd like to clarify the objective of  
13 this symposium so that we all have the same focus  
14 today. When we speak of regulation we do so with  
15 the intention of finding ways to improve  
16 regulation, which will often mean reducing or  
17 perhaps even eliminating certain ineffective  
18 regulatory policies. This is a broad view of  
19 regulation and includes the creation of incentives  
20 and other regulatory policy tools.

21 One of the objectives of this symposium  
22 is to expose some of the current inefficiencies in  
23 regulation. My hope is that we can identify and  
24 promote efficient and flexible regulatory policies  
25 which would replace some of our less effective

1 existing ones.

2 Today's symposium is at the nexus of two  
3 aspects of the purview of the Public Utilities  
4 Commission. We regulate both water utilities and  
5 energy utilities. One primary objective of  
6 today's exercise is to acknowledge this nexus and  
7 pierce the regulatory divisions that have  
8 traditionally existed, and to think of  
9 interactions between water and energy policy here  
10 in the State of California.

11 As most of you know, roughly 20 percent  
12 of the residents of California are served by water  
13 utilities which are privately owned and subject to  
14 PUC regulation. And the other 80 percent of the  
15 residents, served by publicly owned water  
16 utilities, which are not under PUC regulatory  
17 purview.

18 Consequently, when we discuss regulatory  
19 policies for water utilities today these policies  
20 are focused on the privately owned water  
21 utilities. Yet we all know that best practices  
22 that we discuss today may be equally applicable to  
23 water utilities and public agencies outside our  
24 purview.

25 The discussion today will, of course,

1 extend beyond regulatory policies affecting  
2 privately owned utilities. Our group of experts,  
3 policymakers and attendees will certainly broaden  
4 the discussion to related and timely topics on the  
5 water and energy relationship.

6 In my mind there are two basic issues:  
7 One, how can we reduce the amount of electricity  
8 required for the production, movement and  
9 consumption of water, basically reducing the  
10 kilowatt hours of electricity per gallon water  
11 used. This is increased energy efficiency.

12 Number two. How can we reduce the  
13 amount of water being consumed, reducing further  
14 the demand for electricity. This is greater water  
15 conservation.

16 Together, our focus on both elements  
17 will maximize the gains we can achieve for  
18 California and will result in less costly  
19 electricity, and help California meet its future  
20 energy needs in a cost effective and  
21 environmentally beneficial fashion.

22 Chairman Desmond, do you want to make  
23 any opening comments?

24 CHAIRMAN DESMOND: Thank you,  
25 Commissioner Bohn. And I appreciate the

1 opportunity to make a few remarks here this  
2 morning. I will apologize in advance, I cannot  
3 stay. I have to catch a flight.

4 But, nonetheless, the issue of the nexus  
5 between water and energy was something, I think,  
6 struck all of us when we finally issued the final  
7 IEPR this past fall.

8 And in doing so, reflected upon the real  
9 strong interest that we had heard from the  
10 community about opportunities to save not just  
11 water, but its related savings associated with  
12 electricity.

13 As we think about these opportunities, I  
14 sort of put them into five categories where I  
15 think ultimately we'll be looking to develop a  
16 specific set of actions and recommendations.

17 On one level there are programmatic  
18 opportunities, whether those are rebate and  
19 incentive programs, or engineering assistance type  
20 programs, very similar to what we're doing on  
21 electricity and natural gas.

22 Secondly is research and development,  
23 similar to the PIER program, as we would look at  
24 everything from new technologies that promote the  
25 more efficient use of water, irrigation practices.

1 Those are opportunities that we can begin to look  
2 at based on their related energy savings impact.

3 The third is operational issues that  
4 deal with how schedules and resources are  
5 utilized. Whether that is when the pumps operate  
6 in response to price signals from the utilities  
7 grid, algorithms about utilization. These all  
8 fall into that broad category.

9 The fourth is in the area of power  
10 development. That could be things like in-conduit  
11 hydro, pump storage, wave power; not sure how  
12 desalinization fits in with that, but nonetheless,  
13 power development to make utilization of the  
14 existing infrastructure.

15 And then lastly standards, which falls  
16 under that sort of regulatory rubric dealing with  
17 metering, utilization, technology choices.

18 I think the combination of those five  
19 broad areas really will lead us to identify what  
20 the specific action plans we have.

21 And I want to again commend the PUC and  
22 the Energy Commission and the IEPR Committee for  
23 having pulled this issue together; and look  
24 forward very much to hearing as we go forward.

25 COMMISSIONER BOHN: Thank you very much.

1 Commissioner Grueneich, do you have any comments?

2 COMMISSIONER GRUENEICH: Yes. I'm going  
3 to focus on the word efficiency in the title of  
4 today's symposium. Improving the efficiency of  
5 California's water and energy systems. That I  
6 have had a very long-standing interest in  
7 California on not just energy efficiency, but  
8 water conservation, as well. So I am delighted  
9 that we are trying to bring these two areas  
10 together.

11 When the Energy Commission and the  
12 Public Utilities Commission adopted our Energy  
13 Action Plan II in the fall of last year, one of  
14 the new areas that is now included under energy  
15 efficiency is looking specifically at what steps  
16 can be taken by organizations in this state that  
17 will, through water conservation or other  
18 activities, save energy. So I think that this is  
19 a very important step in terms of implementation  
20 of the Energy Action Plan for California.

21 I will be taking over as the assigned  
22 Commissioner at the Public Utilities Commission on  
23 our energy efficiency programs next month. And  
24 one of the areas that we are putting specifically  
25 in the order instituting rulemaking, which is the

1 procedural document that essentially sets up our  
2 next phase of looking at energy efficiency for the  
3 investor-owned utilities is the aspect of water  
4 conservation and being able to then generate  
5 energy efficiency savings.

6 So, I look at, for me, that today is a  
7 very important step of starting to get ideas from  
8 both our energy and water utilities, as well as  
9 from other experts in the fields, your ideas about  
10 what steps we can take. And my commitment to all  
11 of you today is that to the extent that this then  
12 has impacts or involvement of our investor-owned  
13 utilities and specifically in the area of  
14 generating energy efficiency savings to follow up  
15 in the new rulemaking that we will be undertaking.

16 I also have, with Commissioner Bohn,  
17 taken a strong interest in the Public Utilities  
18 Commission's regulation and overview of our water  
19 utilities. I think both of us discovered and  
20 concluded, along with our staff, that this was a  
21 very important time for the PUC to take a look at  
22 how it was regulating the utilities.

23 And under the leadership of Laura Doll,  
24 our Deputy Executive Director, who I want to make  
25 sure we acknowledge, we adopted a water action

1 plan at the PUC recently. And one of the areas  
2 that we are going to be looking at, as  
3 Commissioner Bohn said, is trying to bridge the  
4 nexus and look at what water programs we can  
5 institute for conservation with our water  
6 utilities.

7 Let me just end by saying that I was the  
8 PUC's representative on the Governor's Climate  
9 Action Team, which is the group of state officials  
10 that has been put together to develop a plan to  
11 implement the Governor's greenhouse gas emission  
12 reduction goals. And that is a report that is now  
13 in draft form. We expect it will be issued in  
14 final form in the near future.

15 But one of the areas that has  
16 specifically been called out is the role that  
17 water conservation, tied in with the resulting  
18 energy efficiency savings, can play in reducing  
19 greenhouse gas emissions in the state. So I want  
20 to make sure that I emphasize an important third  
21 nexus that I see, that not just the water and the  
22 energy benefits that can be obtained, but also  
23 with regard to climate change.

24 Thank you.

25 COMMISSIONER BOHN: Commissioner

1 Pfannenstiel, any comments?

2 VICE-CHAIRPERSON PFANNENSTIEL: Thank  
3 you, Commissioner Bohn. I really just want to  
4 express my appreciation to those who brought this  
5 symposium together and that's from the Public  
6 Utilities Commission, the Energy Commission, the  
7 Department of Water Resources and the ISO.

8 It's a wonderful opportunity for us, as  
9 policymakers, to understand better the issues, the  
10 nexus as several people have said, between these  
11 two.

12 I also want to thank all of you who are  
13 here today with us, to help us on this search for  
14 more information about the complex relationship  
15 between water and energy.

16 Most of us in the energy field, I think,  
17 have looked at water in the past as a way of  
18 producing electricity. We all know that about a  
19 quarter of the instate generation is from  
20 hydroelectric power.

21 But I think now where we're moving and I  
22 think we are both, the PUC and the Energy  
23 Commission are moving, is towards an examination  
24 of water as a way of helping us reduce energy use.  
25 We're embarked on a very important quest for ways

1 of reducing the inefficient use of energy in the  
2 state.

3 And now we're starting to look at the  
4 energy used in the delivery and the treatment of  
5 water as a potential source of improved energy  
6 conservation.

7 So, with that, I want to welcome you all  
8 here and look forward to an interesting and  
9 exiting day. Thank you.

10 COMMISSIONER BOHN: Thank you.  
11 Commissioner Geesman. Mr. Gage.

12 VICE-CHAIRPERSON GAGE: Thank you,  
13 Commissioner Bohn. I just want to echo  
14 Commissioner Pfannenstiel's comments. I  
15 congratulate the PUC and the Energy Commission for  
16 their foresight in putting together, their  
17 foresight and initiative in putting together this  
18 symposium. And I look forward to learning a great  
19 deal more about how we can improve our use of  
20 energy with respect to water in the state.

21 Since about 5 percent of the summer peak  
22 demand is represented by water-related energy  
23 usage, it seems that the opportunity is fairly  
24 substantial. And so, as I say, thanks for putting  
25 this together. And I look forward to learning a

1 great deal.

2 COMMISSIONER BOHN: Thank you. Mr.  
3 Bennett.

4 CHIEF BENNETT: Thank you, Commissioner  
5 Bohn. Just sitting in for Jerry Johns. I expect  
6 him to arrive shortly. But we did want to thank  
7 the Commission and PUC for putting this get-  
8 together together. And certainly glad to be here  
9 and look forward to the increased cooperation and  
10 coordination between our various agencies and  
11 departments. I think that's very important.

12 So, looking forward to the  
13 presentations; looks like a great agenda. Thank  
14 you.

15 COMMISSIONER BOHN: Thank you. In the  
16 interest of saving time on what is really a very  
17 precious commodity here on this ambitious agenda,  
18 I would call your attention to the biographies of  
19 the various presenters and people involved in  
20 today's discussion. They're on the registration  
21 table if you don't have them. So I'm not going to  
22 take the time to introduce the folks who are going  
23 to present.

24 I'd like to make one comment and that is  
25 I'd like each speaker to do everything they

1 possibly can to comply with the tight time  
2 schedules and stay within the allotted times. We  
3 have a very impressive group of speakers and I  
4 want to make sure that everybody has enough time  
5 to complete their presentation.

6 I would also ask the audience to hold  
7 your questions until one of our three Q&A  
8 segments. What's going to happen is that there  
9 are three-by-five cards available at the  
10 registration table. I would ask you to put your  
11 questions on that and hand them to people who will  
12 be wandering about here from the PUC or from the  
13 Energy Commission. That way we'll be able to  
14 concentrate on the issues that I think are of most  
15 concern to most people.

16 With that we're ready for our first  
17 panel. A statewide perspective of the  
18 relationship between water/energy use. Our first  
19 speaker is Gary Wolff, Principal Economist and  
20 Engineer with the Pacific Institute.

21 He will start off the symposium with an  
22 introduction to current thinking on water and  
23 energy relationship and pose some critical  
24 questions for us to address during the course of  
25 the day. Gary.

1                   MR. WOLFF: Thank you. I'm supposed to  
2                   turn the lights down here; see if that works. And  
3                   this is where I'm supposed to lighten things up,  
4                   tell a joke, sort of a break between speakers and  
5                   so forth. But I don't really have a good joke to  
6                   tell today, so I wonder if everyone would just do  
7                   me a favor and smile, pretend you just heard a  
8                   good joke and relax. Because this presentation is  
9                   quite dry. I have a lot of information to present  
10                  in 15 minutes, and you need to relax a little bit  
11                  beforehand, because I can't entertain you today, I  
12                  can just fill you in with some basic background  
13                  information on the topic to prime the pump for the  
14                  rest of the day.

15                  First, this is a conceptual  
16                  representation of methodology for the energy used  
17                  in managing water in California. And this is a  
18                  basic representation, perhaps the simplest one  
19                  that we've used in a whole series of studies, and  
20                  other people have used in a series of studies.

21                  And the basic logic here is that the  
22                  facilities that use energy are fixed facilities.  
23                  They exist someplace and they're of a type; and we  
24                  can group them together, say all the source  
25                  advance facilities, add up their energy use and

1 put a number on this box.

2 Same for water treatment. Add up the  
3 energy use at every water treatment plant in the  
4 state; put a number on the box and so forth.

5 So each box represents all the energy  
6 use of some category of facility. And each arrow  
7 represents a flow of water. And these flows of  
8 water will change through the system because water  
9 is lost as you go through the system; it's used  
10 up, or, you know, trickles out, et cetera.

11 So you need, when you talk about the  
12 energy intensity of something in the system, you  
13 need to be very clear if you're talking about, you  
14 know, kilowatt hours per acrefoot here, or  
15 kilowatt hours per acrefoot here, or someplace  
16 else.

17 But that's the gist of the methodology.  
18 energy is grouped and represented by boxes. Water  
19 is differentiated as you go through the system and  
20 represented by arrows. And when you talk about  
21 energy intensity be darn sure to explain where in  
22 the cycle the quantity of water is that you're  
23 using in your energy intensity number.

24 Now there's nothing magical about there  
25 being five boxes. Indeed, you'll see a bunch of

1 pictures with different numbers of boxes today.  
2 Here's one that shows the statewide system. This  
3 is the simplest representation of the statewide  
4 system that we've been able to come up with yet.

5           You probably can't read these things.  
6 That's okay, I don't intend you to. I just wanted  
7 to show you that you can differentiate to your  
8 heart's content, but it's the same basic logic.  
9 Every box is energy use over time, and every arrow  
10 is a flow of water.

11           And the ones that I marked in red, which  
12 I won't actually walk you through, shows a molecule  
13 of water passing through the system three times.  
14 Here, and when it goes out here, it comes back in  
15 again here; passes through a series out here.  
16 Comes back in again here. And this could be like  
17 a molecule of water in the Santa Clara Valley, or  
18 it starts in the Delta, goes through the State  
19 Water Project to the Santa Clara Valley Water  
20 District. They percolate it in deep groundwater.  
21 It comes up again for a retail water agency. It's  
22 run through the human-use cycle; goes to a  
23 wastewater treatment plant. But then it gets  
24 picked up for water recycling.

25           And you can track water through the

1 system in that way or any pathway that you like if  
2 you have a sufficiently differentiated box and  
3 arrow structure.

4 There are studies being done now, and  
5 they have been done, using this methodology. The  
6 first one was done by Bob Wilkinson in the year  
7 2000. Bob is here; stick your hand up. If you  
8 don't know Bob, you should. He is the dean of  
9 energy and water in California. He wrote the most  
10 seminal paper on this, and has been talking about  
11 this for a long time.

12 Another subsequent study is called  
13 Energy Down the Train that Ronnie Cohen and Barry  
14 Nelson at NRDC got the idea to do. I don't know  
15 if Ronnie's here today. Okay, great. Well,  
16 Ronnie and Barry had this brilliant idea to study  
17 this issue California statewide. And they came to  
18 the Pacific Institute and asked us to participate.  
19 So we co-wrote this paper. And most of you have  
20 seen it. But it talks about energy use statewide  
21 in California to manage water. And Bob Wilkinson  
22 was an advisor on that.

23 Then there are some models that I  
24 developed called the water-to-air models that the  
25 PIER program here supported. These models are

1 available for free on the web. A number of water  
2 districts have used them already. They allow you  
3 to input in the simple box-and-arrow format, to  
4 input your facilities, their energy use and the  
5 water that flows through them. You can put two  
6 scenarios. And the model will automatically  
7 calculate the difference in energy use between the  
8 two scenarios. So you can do what-if kind of  
9 planning for water and energy use.

10 In addition, the model allows you to  
11 specify the type of energy use you have. You can  
12 specify mixes of various types, you know, natural  
13 gas, coal, solar, wind, hydro, whatever you want.  
14 You can specify update mixes. And the model will  
15 calculate for these two scenarios not just the  
16 difference in energy use, but the difference in  
17 air pollutant emissions in eight categories. So  
18 if you want to look at the air pollution issues  
19 associated, you can do that with the models, also.

20 There's a statewide assessment of energy  
21 use to manage water that is underway now. And  
22 there are utility case studies, including  
23 application of the water-to-air models. I've  
24 heard from some utilities that they've been using  
25 the model, and I hope you're going to hear -- I

1 think you're going to hear about some of that  
2 later today.

3           There are other studies underway in this  
4 area. the Department of Energy has a national  
5 labs roadmap on the water/energy nexus that the  
6 CEC Staff is participating in, I know. Also, the  
7 PIER program here has collaborated with other  
8 research organizations on funding various types of  
9 research on energy and water, such as research  
10 with the American Water Works Research Foundation.

11           And there's a peak use reduction study I  
12 know that the CEC has funded, that Lon House is  
13 going to be talking about later today, using data  
14 from the energy investor-owned utilities and ACWA.  
15 This is quite interesting work and focuses on peak  
16 use, while most of the things I'll be talking  
17 about are focusing on average annual use.

18           The questions I'm going to touch on  
19 today but not fully answer are these, and these  
20 are just six of the seven questions that are  
21 listed in your handout in the agenda for the day.

22           The CPUC Staff put these together;  
23 they're excellent questions. Some of them I did  
24 not know the answer to when I received the agenda,  
25 so I felt obligated to create answers. But

1 they're not full answers, they're preliminary  
2 answers.

3 There's a seventh question on that list.  
4 It's about the IEPR, the CEC IEPR, and Lorraine  
5 White will be talking about that.

6 The first question was how much energy  
7 is used to convey, treat and distribute water. I  
8 have information for the year 2000 on that. And  
9 it's at least 21,000 actual gigawatt hours.  
10 That's about 8 percent of electricity use  
11 statewide in that year.

12 Plus we used in that year about 100  
13 million gallons of diesel fuel. That is mostly  
14 for pumping on farm, where water is being lifted  
15 from the ground, from groundwater, by a farmer to  
16 irrigate their field. And this 100 million  
17 gallons of diesel fuel is the equivalent of 1500  
18 gigawatt hours. By equivalent I mean if you ran  
19 the diesel fuel through a power plant you'd get  
20 about 1500 gigawatt hours out.

21 And most of this energy, about 80  
22 percent, is in sources and conveyance. In the big  
23 State Water Project, the Central Valley Project,  
24 et cetera. About 3 percent of it is in water  
25 treatment, and about 17 percent of it is used in

1 distribution.

2 Now, I want to put this in context.

3 This is another representation. This is  
4 essentially a box-and-arrow diagram like I showed  
5 you earlier, but I now have six boxes and a few  
6 more arrows. And each box has been set up as a  
7 bar, which scales upward to show you the amount of  
8 energy used in that box.

9 So here's the sources and conveyance  
10 box. And you can see it's a lot of energy. I  
11 told you it was 80 percent, just a moment ago, of  
12 conveyance plus treatment plus distribution.  
13 That's true, it is 80 percent of these three, but  
14 it's only about 20 percent of statewide energy  
15 use.

16 And the reason for that is that customer  
17 use dominates energy use, the total statewide.  
18 So, this is one of the big findings in the last  
19 years is that energy use on the customer side of  
20 the meter dwarfs energy use that is within the  
21 control of the big water projects and the well  
22 water utilities, including wastewater. And that  
23 has some policy implications, but it also raises  
24 some informational questions that I'll get to in a  
25 minute.

1           So the main point I wanted to make here  
2           is that as important a source as conveyance is, it  
3           dominates what's going on for utilities, customer  
4           use is even bigger.

5           Going back to the conveyance, plus  
6           treatment, plus distribution energy issue, and the  
7           costs of that energy use, which is the second  
8           question on the list. That's a very difficult  
9           question. I can say 21,000 gigawatt hours, but  
10          telling you what that costs is not so easy.

11          And the reason for that is that some of  
12          that, a lot of that, is that all sorts of  
13          historical energy rates that are special  
14          arrangements that were made, and that don't  
15          reflect the current market rate. And so, as an  
16          economist, the word cost is kind of ambiguous, you  
17          know. How do you want to treat cost? Is that  
18          what people are paying, or is that what they ought  
19          to be paying if they were buying it in the market?

20          So, for example, the Colorado River  
21          Aqueduct, the electricity cost is only a penny a  
22          kilowatt hour, because that's federal hydropower  
23          that was sold under long-term contracts a long  
24          time ago. Also, time-of-use and demand charges  
25          apply, so that complicates things.

1                   So I really only have a crude estimate.  
2           Maybe \$2.3 billion a year, or in the year 2000.  
3           That's assuming 10 cents a kilowatt hour and \$2  
4           per gallon of diesel fuel. But it gives you a  
5           sense of the magnitude we're talking about.  
6           Energy from managing water statewide only in  
7           conveyance, treatment and distribution, not the  
8           customer-use stuff, or wastewater, just these  
9           three is over \$2 billion a year.

10                   And perhaps there's about a half a  
11           billion more for carbon dioxide emissions. And I  
12           told you that the water-to-air model allows us to  
13           estimate emissions in different categories. One  
14           of those is carbon dioxide, and that's the one  
15           that we have the best cost information on. And if  
16           you assume \$50 a ton as the damage that society is  
17           experiencing from carbon dioxide -- and you could  
18           use a different number, this is an example -- then  
19           it's maybe half a billion dollars associated with  
20           the climate change impact or cost, if you will, of  
21           energy used in conveyance, treatment and  
22           distribution of water in California. And it's  
23           significant. It's around a quarter of the direct  
24           payments that are being made.

25                   What are water utility costs for energy?

1 Again, I don't really know. But one method would  
2 be just to say of the previous number a share of  
3 urban water utilities that I can back out of the  
4 numbers is about 12 percent. So about 12 percent  
5 of that 2.3 billion would be around 275 million a  
6 year. So that might be what urban water utilities  
7 are spending on electricity per year.

8 Another method, I used some recent U.S.-  
9 wide numbers, and then I prorated them on a per  
10 capita basis at 34 million people in California  
11 and so forth. And I got about 420 million per  
12 year.

13 So, you know, ballpark we're in the  
14 range of 300 to 400 million per year being spent  
15 by water utilities on managing water in  
16 California.

17 Some of the important data gaps.  
18 Statistically significant energy intensity numbers  
19 for four utilities in California. All the numbers  
20 I'm showing you are based on a limited number of  
21 case studies, a limited number of datapoints. If  
22 those datapoints are representative of the state,  
23 then our numbers are accurate. But we don't know  
24 whether those datapoints we have so far are  
25 statistically significant or not. We don't know

1 if they're representative of the population of  
2 utilities out there.

3 And a particular local surface water  
4 lift versus gravity, about 30 percent of water  
5 supply in California is local surface water,  
6 either from local reservoirs or run of the river  
7 systems. And I don't know how much is local  
8 surface water that's being lifted versus how much  
9 is gravity fed. We need to develop that  
10 information.

11 Similar with wastewater collection  
12 systems. Energy used in lifting wastewater to get  
13 it to the wastewater treatment plant is an open  
14 number in our analysis so far.

15 Finally, a very important issue is the  
16 difference between water-related and water-use-  
17 dependent energy use on the customer side of the  
18 meter. And I do explain this with a slide.

19 Remember I showed you the very high  
20 estimated energy intensity in customer use. What  
21 does that imply for policy, what does that imply  
22 for what we can do in terms of saving energy?  
23 Well, it's unclear.

24 Showers, the shortest block on this  
25 chart, which use maybe 6700 kilowatt hours per

1 acrefoot, which is, you know, twice what your  
2 average water system might use, so it's pretty  
3 intense. Showers, I know if I cut down the amount  
4 of water that flows through a shower I'll save  
5 energy. It's hot water; I'll save water at the  
6 water heater.

7           So this little bar, I know most of the  
8 water heater -- this is water-related, the height  
9 of the bar is water-related energy use -- and most  
10 of that water-related energy use is water-use-  
11 dependent, which means I can get at it through a  
12 policy of saving water.

13           But this bar over here which is hugely  
14 larger of fabricated metals, this is simply the  
15 energy used in fabricated metals that is  
16 associated with water use, divided by that water  
17 use. So it's water-related, water-use-related,  
18 but I don't know if it's water-use dependent. I  
19 don't know if I used less water in fabricated  
20 metals whether I'd actually save energy or not.  
21 Because we haven't drilled down to that level of  
22 understanding yet. This information comes out of  
23 the national DOE database on manufacturing energy  
24 and water use.

25           So, in terms of policy implications, how

1 much of this is dependent on water use, and if we  
2 save water we could save in energy, I don't know.  
3 That's a big data gap.

4 How about impact of state policies on  
5 energy use at water utilities? Well, others are  
6 going to address this in more detail throughout  
7 the day. I thought the introductory remarks by  
8 several of the speakers were excellent on this.

9 But I want people to think about  
10 incomplete information as you go through the day.  
11 For example, hot water savings. Most people don't  
12 know that if they put on a low-flow showerhead or  
13 buy a front-loading washing machine you use less  
14 water, they're not just going to save water,  
15 they're also going to save energy.

16 I mean in California people probably  
17 understand that better than in many parts of the  
18 world, because we have some advertising and so  
19 forth on that, Flex-Your-Power and whatnot. But  
20 most people don't understand that. That's what we  
21 call incomplete information, and when people have  
22 incomplete information they make decisions that  
23 aren't as good as they would make if they knew  
24 more.

25 And also think about split or reverse

1 incentives. For example, there's a reduced profit  
2 for investor-owned utilities and external costs  
3 for all utilities associated with saving water.  
4 And these IOUs I'm talking about are the water  
5 IOUs right now, because we haven't uncoupled their  
6 revenues from their water sales yet. We have done  
7 that on the energy side. Someone will be talking  
8 about this in more detail later, but that's an  
9 example of a reverse incentive that did exist in  
10 energy and has been eliminated; still exists in  
11 water and we need to do something about.

12 But just categorically there are a lot  
13 of these types of incentive problems, and you'll  
14 hear some more details on that from other people  
15 today.

16 Possible future policies. Again, others  
17 will speak about that. But we need to create  
18 positive financial drivers for water utilities  
19 from conservation that's not just a matter of  
20 creating a way for investor-owned water companies  
21 to make a profit, we need to do that, but we also  
22 need to find some positive financial drivers for  
23 public water utilities.

24 I mean publicly owned agencies don't  
25 have a financial driver to save water. Indeed,

1       they lose revenue when people conserve water.  
2       Now, they can manage that, but it's a difficult  
3       problem.  And it's sort of a negative they need to  
4       manage, as opposed to a positive.  And if we could  
5       come up with some positive drivers, that would be  
6       great.

7                    We also need to let energy utilities  
8       conserve or produce energy whenever socially  
9       desirable, whether that is on or off customer  
10      premises, et cetera.  I understand that some of  
11      the rules for how the energy utilities can go  
12      about implementing energy conservation programs  
13      will block them away from some of the  
14      opportunities that have already been identified.  
15      So we need to improve those rules.

16                   And finally, we need to encourage new  
17      best management practices or programs based on our  
18      understanding of energy and water that's emerging.  
19      For example, a dual-flush toilet requirement in  
20      high rise buildings might make sense.  Dual-flush  
21      toilets use less water; it's cold water, though,  
22      not hot water.  And so the economics of it are not  
23      overwhelming in low rise buildings, and single  
24      family, or you know, low rise buildings.

25                   But in high rise buildings all the water

1 going up above a certain height has to be  
2 supplementally pressurized to get it up there. So  
3 toilets, faucets, any water-using appliance above  
4 that elevation has a new economic benefit, which  
5 is the avoided supplemental pressurization. And  
6 we need to be thinking about programs that take  
7 advantage of that. No one in the state is talking  
8 about a dual-flush toilet program for high rise  
9 buildings, because they haven't thought about it  
10 yet, you know. But I put it out there as the kind  
11 of new ideas that we'll come up with as we work  
12 through this energy/water nexus.

13 Conclusions. Energy in water is  
14 significant and worth understanding. That's  
15 obvious. Everyone is here for that reason. I  
16 wanted to complete with one other big-picture  
17 thought, though. No one is saying that less  
18 energy use is always better. No one is saying we  
19 want to go back to this basic type of hand-pump  
20 system, right. That's a low-energy use system.  
21 That's not the point.

22 The point is that whatever system we  
23 have we want to use as little energy as possible  
24 consistent with the quality of water supply, water  
25 treatment, water management that we choose as a

1 society. We want to be as efficient as possible,  
2 but that's not necessarily as low energy use as  
3 possible.

4 Thank you.

5 (Applause.)

6 COMMISSIONER BOHN: Gary, thanks very  
7 much. That packed a lot of information in even a  
8 less period of time than you were allotted. So,  
9 congratulations.

10 Let me now introduce Lorraine White, who  
11 is Advisor to the Energy Commission Vice Chair  
12 Commissioner Pfannenstiel. She will talk about  
13 the current baseline assumptions on the state's  
14 Integrated Energy Policy Report and water energy  
15 research. There you are, go ahead.

16 MS. WHITE: Thank you, Commissioner.  
17 The Integrated Energy Policy Report is one of the  
18 Energy Commission's major functions. It is an  
19 assessment that is designed to do an analysis such  
20 that we can identify issues and trends to insure  
21 adequate and reliable supplies of energy for  
22 California.

23 Integrated within this assessment is the  
24 idea of improving efficiency and reducing demand  
25 consistent with the loading order. And also to

1 identify issues that are necessary to improve  
2 infrastructure, improve deliverability, and  
3 improve the reliability of our system.

4 In the 2005 Integrated Energy Policy  
5 Report staff was directed to look at the  
6 relationship between water and energy in the  
7 state. And beyond the most obvious related to  
8 hydroelectric generation. But essentially what  
9 the links are between the two systems, and develop  
10 an understanding of those links. And the types of  
11 things that drive the demand and supply strategies  
12 to fulfill the state's requirements for these two  
13 sectors, and provide the services necessary to  
14 customers.

15 The other item that we were asked to  
16 look at is what changes in the future related to  
17 the hydrologic cycle may occur, and how that is  
18 going to affect demand on energy. Overall, the  
19 idea was to understand the links between the two  
20 systems and identify what the implications to the  
21 energy system are.

22 At the bottom of the slide here I've  
23 provided the link to the California Energy/Water  
24 Relationships paper that was the result of our  
25 efforts that fed into the Integrated Energy Policy

1 Report.

2 In order to do this analysis staff  
3 decided to look at the two systems and try and get  
4 a handle on the conditions of the two.

5 In the energy system we found that  
6 population is one of our main drivers. And in  
7 California we have a very large population with a  
8 fairly aggressive growth rate. And in order to  
9 supply the demand for this growing population,  
10 this growing economy, we have developed a fairly  
11 complicated system operated by multiple service  
12 territories throughout the state, both private and  
13 investor-owned, and the public utilities.

14 The other datapoints that I've included  
15 on this slide are just to indicate that the state  
16 does use a sizeable amount of energy, and one of  
17 the items that we are definitely concerned with is  
18 that large amount of peak demand.

19 In the state we have had to develop a  
20 significant resource base to accommodate peak  
21 demand which may occur only 50 to 100 hours during  
22 the course of a year.

23 As we look forward we have been able to  
24 identify that that demand is going to grow quite a  
25 bit. And that peak demand is going to grow at a

1 faster rate than regular consumption.

2 For the water sector we found some  
3 similarities. There's some commonalities between  
4 the two systems. Water demand is also driven by  
5 population growth. The system has been designed  
6 to accommodate a large amount of demand in the  
7 south, when a large amount of the precipitation  
8 occurs in the north. In order to accommodate this  
9 demand we've had to develop a complicated delivery  
10 system operated by multiple utilities and agencies  
11 to provide those services to customers.

12 As we move the water, we've also been  
13 able to extract some of the inherent energy in it  
14 and supply that to the grid to help offset its  
15 demand. But that supply is also really intricate  
16 and a critical component to the state's grid.

17 As we look forward to the population  
18 growth in 2030, we're looking at a significant  
19 growth from today's population of around 34  
20 million to 2030 of 48 million. And the Department  
21 of Water Resources, which is one of our sources of  
22 information, has projected that in order to meet  
23 that demand, we could meet that demand by  
24 conservation or we may have to develop as much as  
25 7 million acrefeet more.

1           So, some of the common issues that we've  
2           been able to identify between the two systems is  
3           that we will be having growing demand; we are  
4           interested in providing adequate resources to meet  
5           the demands of customers; that resource has to be  
6           of sufficient quality for the various end uses;  
7           and that has to be provided with a reliable  
8           infrastructure. Those systems have challenges  
9           with their infrastructure because components of it  
10          are aging.

11           There's also an issue about providing  
12          these resources at an affordable and reasonable  
13          cost, all the while providing these resources and  
14          protecting the environment. As we look to the  
15          future, how we're going to be able to meet all of  
16          these requirements poses some severe long-term  
17          uncertainty.

18           As we looked at then taking these two  
19          systems and trying to break them down into a way  
20          that we could understand them better, we looked at  
21          what we knew about the demand from the information  
22          provided to the Energy Commission by the  
23          utilities.

24           And we were able to identify that if you  
25          looked at not only what it took to supply and

1 treat water to the end use customer, but then also  
2 the inherent energy associated with water-related  
3 uses by the end user, you started getting much  
4 different numbers than we had expected in the  
5 past.

6 We had previously assumed that the  
7 water-related energy was about 10 percent of the  
8 overall state's demand. And we found that it was,  
9 based on the numbers we had available to us,  
10 double that. And that the natural gas  
11 nongeneration-related consumption is about a third  
12 of the state's demand.

13 We realized we didn't have a very good  
14 dataset for the nonelectricity/non-natural gas  
15 numbers. What we were able to show is that we  
16 knew diesel use, primarily in the ag sector, is at  
17 least 88 million gallons.

18 So, now what? We decided that we needed  
19 to start looking at the components of this use,  
20 both on the supply side and on the end-use side.  
21 We found it was much more difficult to break apart  
22 some of these components more detailed than what  
23 we already had in the previous slide for the end  
24 users. But we were able to tease apart some of  
25 the supply and treatment numbers and get a better

1 handle on where we might be able to focus our  
2 efforts to understand the energy-related demand.  
3 And then figure out strategies that could be  
4 mutually beneficial to the two different sectors  
5 to lower that demand and make the systems more  
6 efficient.

7           The Energy Commission, as part of its  
8 efforts, pulled together a water/energy working  
9 group. And a lot of the members of that working  
10 group are in this audience today. And they were  
11 exceptionally instrumental in helping us tease  
12 apart some of this information.

13           What we were trying to do was  
14 essentially bound the scope or range of energy  
15 intensities associated with these different  
16 components within the energy use cycle. And we  
17 defined it this way so that we could at least  
18 compartmentalize it and focus on what's currently  
19 being done to address energy use within those  
20 components, and maybe what additional strategies  
21 we could develop.

22           When you look at the bounds we have, for  
23 even the best systems, as you go through the  
24 entire cycle from source to source, a energy  
25 intensity of about 1900 kilowatt hours per million

1 gallons. And on the highest end, which is perhaps  
2 not even realistic, but on the highest end as we  
3 were trying to be conservative, about 36,000  
4 kilowatt hours per million gallon.

5 As we started to develop these numbers  
6 we noticed that there was a significant difference  
7 between the north and the south. And this is  
8 primarily due to the conveyance energy-related  
9 uses. The number that I show here for conveyance  
10 in southern California actually subtracts the  
11 amount of generation that is contributed to the  
12 system as you try and get the energy from north to  
13 south. Because we do actually pull some of the  
14 energy back out.

15 But what we noticed here is that this  
16 regional difference may be very critical when it  
17 comes to identifying where we should be focusing  
18 our strategies.

19 In both the staff's paper and in the  
20 Integrated Energy Policy Report we decided to  
21 figure out what, if you were to focus on all of  
22 the water-related potential, you could actually  
23 capture in terms of energy efficiency, and how  
24 much would that cost the state.

25 So, using information that we had taken

1 from the Pacific Institute about the cost  
2 effective minimum energy water-related savings  
3 that you could have, they identified that about 2  
4 million acrefeet of cost effective conservation  
5 was possible.

6 Using Department of Water Resources'  
7 numbers for the relative costs associated with, or  
8 the range of costs associated with saving that  
9 acrefoot of water, we identified what the cost  
10 would be. And from that we were able to calculate  
11 what the relative costs associated with saving 2  
12 million acrefeet of water a year would be. And  
13 then what the potential energy-related savings  
14 would be based on some of the preliminary numbers  
15 I showed in the previous charts.

16 And we identified that if we were able  
17 to, in fact, achieve that cost effective minimum  
18 water-related conservation, and this is a gross  
19 number, that we would be able to capture about 95  
20 percent of the energy efficiency goals for the  
21 2006/2008 portfolio at about 58 percent of the  
22 cost.

23 Now, these are gross numbers. They're  
24 preliminary numbers. We know that we need to  
25 refine them better because, as I'm sure most of

1       you know, if water's conserved in one location  
2       it's more than likely going to be used in another  
3       location. So we need to identify what the net  
4       actual savings are going to be.

5                What I wanted to do here is to touch  
6       briefly on the other side of the discussion that  
7       we engaged. Not only is there a lot of potential  
8       for energy efficiency, but there's also a lot of  
9       potential for improving the way the energy sector  
10      uses water. And also to look to the water sector  
11      to help us achieve some of our renewable portfolio  
12      standard goals.

13               We identified that there was a  
14      significant contribution by the water sector to  
15      the energy grid that provides a critical function,  
16      not only for reserves, but for meeting peak  
17      demands and things like that.

18               There are some small hydro development  
19      opportunities that can be pursued, such as  
20      inconduit hydro. And there's also some biogas  
21      development related to wastewater treatment  
22      facilities that's possible. And at some of these  
23      sites, in particular in our discussions with some  
24      of the utilities, they've used their available  
25      space at their facility sites for the development

1 of solar resources; PV panels have been installed  
2 at their sites to help lower their overall demand.

3 We also looked at ways of improving the  
4 way that water is used by power plants, and  
5 addressing the environmental impacts, and water  
6 use impacts associated with those.

7 In terms of the development of resources  
8 by the water utilities, for purposes of either  
9 offsetting their own demand or contributing that  
10 generation to the grid, we found that there were  
11 several constraints. The way that the market  
12 complexity has evolved over the years makes it a  
13 rather daunting task for some of the utilities for  
14 which this is not their core function. Their core  
15 function tends to be supplying water, not  
16 generating electricity.

17 So, understanding both markets, both  
18 systems, both regulatory structures is a bit  
19 overwhelming. So a way of trying to simplify that  
20 for them to help facilitate their entry into that  
21 market is quite important.

22 There's also difficulties associated  
23 with interconnection, and the costs of  
24 interconnection. For those that do want to  
25 develop resources of their own and actually take

1       some of their load off the grid, the standby  
2       charges can be prohibitive and actually make some  
3       projects uneconomic.

4               And then, of course, there's the net  
5       metering limitations that provide some  
6       disincentives for both entities; the uncertainty  
7       associated with whether or not they'd be able to  
8       sell their generation to the grid, and whether or  
9       not the utilities would actually want it.

10              So, the idea of promoting self  
11       generation becomes a really critical one, and how  
12       we're going to be able to address those  
13       constraints and overcome them so that the water  
14       utilities can be more self-reliant and be able to  
15       offset their own grid demands becomes quite  
16       important.

17              We identified a few of the constraints  
18       and made some recommendations as to how we want to  
19       address those. We would like to support more  
20       effective interconnections. And then also provide  
21       some incentives for the utilities such that it  
22       makes it more economic, more enticing for them to  
23       develop their renewable resources and provide them  
24       to the grid.

25              And what I'm going to do in the next

1 couple of slides is just kind of summarize some of  
2 the synergies that we found as we went through our  
3 process. Some of which I have touched on already;  
4 some of which may be new.

5 But when we went through this analysis  
6 we found that there's not just a few links, but  
7 there's a lot of links. And there's a lot of  
8 commonality, a lot of places where we could  
9 mutually address issues and come out better. The  
10 idea being together we're better off than the sum  
11 of our individual parts.

12 So, when we look at how we can actually  
13 improve the energy efficiency of the system, we  
14 know that if we saved water, particularly at the  
15 end users, and particularly within certain  
16 regions, we could actually, both upstream and  
17 downstream, have significant water savings.

18 The idea that if you save a unit of  
19 water at the end users' part of the meter, you're  
20 actually saving increments of water upstream and  
21 you're also saving the energy associated with that  
22 upstream, as well as downstream. You don't have  
23 to treat it; you don't have to convey it; you  
24 don't have to pump it; you don't have to dispose  
25 of it.

1           We also know that if we then save energy  
2 we need that much less water within the energy  
3 system for generating resources.

4           As we go forward and we need to develop  
5 and improve our systems there's opportunities for  
6 us to work together where we could look to the  
7 water utilities to help the energy system provide  
8 additional resources. There's also ways that we  
9 can provide support to the water utilities to help  
10 them develop and incorporate more efficient  
11 methodologies and technologies within their  
12 systems to lower their overall costs and energy  
13 demand.

14           As we look to retrofitting systems, it's  
15 a perfect opportunity for us to bring forward what  
16 we know, what we can share and what we can work  
17 together to improve those systems and bring them  
18 up to a mutually beneficial and operating system.

19           When you look at what are the methods of  
20 helping customers reduce their demand, whether  
21 it's for electricity or water, it's very clear  
22 that improving price signals to customers is very  
23 effective; providing them with information on how  
24 much they use, when they use it, and what they're  
25 using it for, makes it much easier for the end

1 user to know where they might be able to have some  
2 of those water-related savings, and thus benefit  
3 from the energy-related savings.

4 So, looking at not only providing  
5 advanced meters, but then appropriate rates and  
6 rate structures associated with that time of use  
7 is critical, provides excellent signals to the  
8 customers.

9 When we're looking at the infrastructure  
10 we also identify that water storage becomes a  
11 really critical component, you know. We weren't  
12 necessarily thinking of this in the beginning, but  
13 we were certainly educated as we were working with  
14 the working group and several of the agencies.  
15 That their ability to fluctuate, using storage,  
16 their operation allows them to actually shift some  
17 of their demand off-grid. So they might be able  
18 to then lower their peak demand at certain times  
19 of the day.

20 In addition, we know that there are  
21 several reservoirs that are already in existence  
22 but they're not necessarily connected. So we have  
23 lost, or haven't yet taken advantage of some  
24 additional pump storage opportunities. There are  
25 a couple of reservoirs that have been identified

1 through a PIER project that could be developed for  
2 purposes of pump storage, where you basically can  
3 then look to those resources when you do need peak  
4 generation. And work with the utilities to  
5 coordinate that generation with when they need to  
6 actually be supplying their resources. And then,  
7 of course, the renewable and self-generation  
8 issues.

9 The IEPR made several recommendations  
10 based on all of this information and I kind of  
11 rushed through it really quick. And there's a lot  
12 more to it. I recommend going to see the  
13 whitepaper; it's got a lot of the calculations and  
14 all the background information in it.

15 But in the 2005 IEPR we realized that we  
16 could benefit a great deal by taking some of the  
17 money that we're investing in our energy  
18 efficiency programs and investing in mutually  
19 beneficial programs that not only save energy, but  
20 save water.

21 We would like to look at the different  
22 components within the water cycle, and make sure  
23 that we can lower the energy intensities within  
24 the different components of those cycles; target  
25 it at where we find the highest intensities.

1           We would like to facilitate the improved  
2 flexibility of the water system in such ways that  
3 it also helps the energy system, provides  
4 additional resources when we need them, and lowers  
5 peak demand at the water system such that they  
6 don't end up having to have the peak demand when  
7 the rest of the state also wants the peak demand.

8           As part of the renewable portfolio  
9 standard it's really important for us to take  
10 advantage of cost effective, environmentally  
11 preferred renewable development. And this, for  
12 the water sector, can promote a lot of self  
13 generation.

14           And then reducing cooling-related  
15 environmental impacts for both once-through  
16 cooling and for closed-loop systems, there are  
17 several recommendations highlighting the need to  
18 invest in additional research and development for  
19 improving designs, improving the development of  
20 efficient technologies for both water and energy  
21 utilities.

22           And bottomline on all of these  
23 recommendations is working together to insure that  
24 we are able to actually not only identify what  
25 those mutually synergistic strategies are going to

1 be, but then insure that they're implemented.

2 Specifically now I think we're called to  
3 action. We've made the recommendations. We've  
4 done a lot of the preliminary studies. We know  
5 what additional information we need to refine and  
6 improve. We know that we need to coordinate our  
7 activities. This symposium, in particular, is a  
8 excellent first step on trying to facilitate the  
9 dialogue between water and the energy utilities,  
10 and bring these issues to the forefront and figure  
11 out the best ways of resolving them.

12 There are several regulatory challenges  
13 that we identified related to the constraints, not  
14 only of having some of those dollars from the  
15 electric utility programs worked into supporting  
16 the water utility efficiency programs, but then  
17 there's also the constraints related to self-  
18 generation impediments.

19 And then, of course, one more time, we  
20 do want to work with the utilities to improve the  
21 data that we have, improve the information, and  
22 refine the analysis so that we're not just dealing  
23 with a few case studies here and there and what  
24 little information we do have to formulate very  
25 strong and aggressive strategies.

1           I would like to provide just a last  
2           slide related to some of the information sources  
3           that you can tap in on. Of course, at the Energy  
4           Commission's website you'll find access to the  
5           Integrated Energy Policy Report. Chapter 8 is on  
6           the water/energy synergies -- strategies. And  
7           then, of course, the California water/energy  
8           relationship, staff's final paper.

9           COMMISSIONER BOHN: Thank you very much.  
10          That's a lot of --

11          (Applause.)

12          COMMISSIONER BOHN: -- that's a lot of  
13          information. Well done. Thank you, Lorraine,  
14          very much.

15          I'm hoping that those of you who are  
16          interested in asking questions are scribbling  
17          those down on the green cards. You all have  
18          cards. Who's collecting the cards? Can somebody  
19          raise their hand, collect the cards there in the  
20          back, so you know who you're supposed to give them  
21          to.

22          Okay, moving right along, I'd like to  
23          introduce now panel 2A, How Water Utilities Can  
24          Reduce Energy Consumption. And here the focus is  
25          on best management practices. I'd like to

1       introduce Mary Ann Dickinson, the Executive  
2       Director of the California Urban Water  
3       Conservation Council. They're very well known for  
4       their best management practices. The PUC is  
5       encouraging all class A and class B private water  
6       utilities to participate in the Council.

7               Mary Ann.

8               MS. DICKINSON: Thank you very much. I  
9       am so delighted to be here. I am so delighted to  
10      see all of you and to have the opportunity to  
11      participate in what I consider a very historic  
12      moment.

13              A number of us who have been interested  
14      in this subject for a long time have been praying  
15      for just such a meeting of the minds and  
16      opportunity to talk to the key decisionmakers  
17      about this issue and energy. So, again, thank you  
18      for inviting me.

19              What I will talk about, along with Bill  
20      McDonnell, who will follow me in this panel, is  
21      what we've been doing in California with respect  
22      to water efficiency, how we structured it. And  
23      it's very different than how it's done in the  
24      energy world.

25              Our water efficiency programs have

1 started out largely as a voluntary strategy that  
2 has morphed into something different. And so what  
3 I'd like to do is give you a little bit of a  
4 flavor for that.

5 There are copies of my presentation that  
6 are outside, and I'm going to whip through some of  
7 the numbers because I'm hoping you'll just pick up  
8 a copy of the presentation, or email me and I'll  
9 be happy to email it to you, as well.

10 The need for water efficiency has been  
11 fairly well documented, and I'm not going to spend  
12 some time going through that, except to  
13 differentiate that we look at water efficiency not  
14 just in terms of immediate drought relief, but  
15 also in terms of a growth strategy.

16 A water agency can supply the new growth  
17 in its community from the water that it already  
18 has by making its existing customers more  
19 efficient. So those have been two principal  
20 drivers in the water efficiency programs that have  
21 been developed.

22 The shortages that we've been  
23 experiencing, that we've reacted to, have been  
24 both short-term, you know, specific drought  
25 periods, the '89 to '93 drought was a very key

1 period in propelling water conservation forward.  
2 But it's also the long-term shortage issue which  
3 has been also well addressed in the state water  
4 plan.

5 So, for all of these reasons water  
6 efficiency has emerged as a solution in that  
7 solution set for addressing both short- and long-  
8 term strategies.

9 In bulletin 160, the state's water plan,  
10 they're projecting a possible 1.2 to 2.3 million  
11 acrefeet of water conservation that would be  
12 beneficial to shortening the gap between supply  
13 and demand in California over the next 20 years.  
14 And that's a fair amount of water.

15 When water agencies were first presented  
16 with a number like that back in 1990 at some State  
17 Board hearings, the universal assumption on the  
18 part of the water utility industry was we can't  
19 get there, we can't do that, that's way too much.  
20 When, in fact, we have already saved that. So  
21 what we're looking at is saving yet an additional  
22 increment of that same size.

23 And the Pacific Institute, who has done  
24 a lot of work in this area of water and energy, as  
25 well as just water conservation in general, has

1 released a report that is a companion piece to the  
2 state water plan process, and estimates that about  
3 a third of the state's urban water use can  
4 actually be reduced and saved with existing  
5 technologies.

6 And that's an important point because  
7 we're not saying that we have to develop new ways  
8 of managing water or having the consumer go for  
9 products that aren't yet on the market. These are  
10 technologies that are here, that are in the  
11 marketplace and that are perfectly available for  
12 not only point of purchase, but also in utility  
13 incentive programs.

14 This is just a simple pie chart showing  
15 some very obvious things. Most of our water use  
16 is single family, about 55 to 60 percent of the  
17 state is single family. But in that single family  
18 block there's a big trunk that's 50 percent of it  
19 or more in southern California that goes for  
20 outdoor irrigation. And traditionally that's not  
21 been a subject that was ever on the energy  
22 efficiency screens, because it was deemed to be  
23 cold water, it was deemed to be not basically  
24 related to any of the energy delivery systems.

25 But as this work that you're hearing

1 about today is showing, that the overall delivery  
2 of water is so energy intensive that reducing even  
3 the irrigation sector yields some real energy  
4 benefits.

5 And we also have the same kinds of  
6 problems. We have the same peak issues that  
7 energy does. And so when we have a peak summer  
8 demand that we have to meet, and we have to pump  
9 to meet that, that's occurring at the exact same  
10 time as the energy peak demand. So that offers  
11 some opportunities for partnerships.

12 The best management practices that we  
13 developed, which are our water conservation  
14 program template, are state-of-the-art programs  
15 that were state of the art back in 1999 when we  
16 first developed the list. And this was an  
17 outgrowth of a State Board hearing where  
18 negotiations were being made between the  
19 environmental community and the water agency  
20 community over how reductions could be achieved.

21 And they spent three years talking  
22 together in a consensus process and trying to  
23 avoid litigation. And they came up with a  
24 memorandum of understanding which was signed in  
25 1991. And then with about 100 signatories, water

1 agencies, environmental groups from around the  
2 state, all pledging a good faith effort to do  
3 those programs that were cost effective, where the  
4 next increment of water, if that was more  
5 expensive than the conservation program, you would  
6 do the conservation program.

7           So again it was a voluntary exercise,  
8 but once you were signed on you were committed to  
9 it. And since 1991 these best management  
10 practices have become embedded in the Water Code,  
11 embedded in other decisionmaking forums. And this  
12 memorandum is the heart of what we do at the  
13 California Urban Water Conservation Council. We  
14 help implement that. We work with our signatory  
15 water agencies to help them achieve those savings.  
16 We have this governance process where the  
17 amendments are continuous and we work with  
18 entities like CPUC and CEC.

19           So the Council today is about 350  
20 strong. We have almost 200 group one agencies,  
21 which are our water supplier category. We have 31  
22 environmental groups. And nothing moves forward  
23 without consensus between those two entities.

24           We constantly revise the BMP list. It's  
25 a list of 14 right now. And every year we have a

1 revision to the memorandum. And we have regular  
2 meetings of our membership where we talk about new  
3 emerging technologies and programs of benefit.

4 And the Council, itself, is sort of a  
5 service arm of the water efficiency community.  
6 And we do all of the following things that are on  
7 the chart here. We provide technical assistance;  
8 we analyze what the BMPs cost, what they save; how  
9 you calculate cost effectiveness.

10 But probably most importantly, we've  
11 built a website, a database-backed website where  
12 we actually record the conservation activities  
13 that various water agencies are undertaking. And  
14 it's that database that is the background for not  
15 only bulletin 160 calculations of water efficiency  
16 savings, but also the CEC used it to great benefit  
17 to determine how the water efficiency factors into  
18 energy costs and savings.

19 So it is a master database. It's live.  
20 You can go online as a member of the public and  
21 take a look at what the savings are that each of  
22 the agencies reports. There's a savings model  
23 that's linked to the actual activities. And so  
24 that's a viable resource for the state.

25 We also run programs for our agencies,

1 and I'll talk about those. We participate in  
2 standards settings like here at the Energy  
3 Commission. We're involved in some green building  
4 research. We sit on the lead water efficiency  
5 technical advisory group. And we provide  
6 assistance on grants.

7 Here's just a screen shot of that BMP  
8 reporting database. It's an interactive database  
9 telling the user that you haven't finished filling  
10 out the form; prompting them for answers that are  
11 correct for the field. And then when it's  
12 complete you file it then and it rolls up into a  
13 large database.

14 Those reports can be printed. They can  
15 be printed to show that you're in compliance with  
16 the targets of the MOU. You can print the water  
17 savings numbers. And those reports again form the  
18 basis of a lot of other research.

19 So, what are our best management  
20 practices. I'm going to quickly go through them.  
21 There are 14 of them. We're not going to spend a  
22 lot of time talking about them, but underneath  
23 each one is sort of the activity level to date.

24 So residential water surveys, which are  
25 an analog to what's done in the energy world,

1 we've done about half a million of them in the  
2 single family sector, and about 400,000 in the  
3 multifamily sector. Those are the numbers to  
4 date.

5 Residential plumbing retrofits, this is  
6 going into the household and actually retrofitting  
7 showerheads, retrofitting aerators, you know,  
8 doing the kinds of indoor retrofits that you would  
9 expect in plumbing, exclusive of replacing the  
10 toilet outright.

11 And, again, the numbers are similar.  
12 We've done about half a million surveys in the  
13 single-family sector, and about 300,000 in  
14 multifamily.

15 The third best management practice deals  
16 with system water loss in the water utility  
17 sector. And this is one we're spending a lot of  
18 time now to revise, to bring it up to date with  
19 new international criteria. And so that's one  
20 you're going to see big changes to over the next  
21 year and a half.

22 The fourth best management practice is  
23 metering, mandatory metering with billing by  
24 commodity rates. And during this period under the  
25 MOU we've had about 7800 retrofits to metering

1 based on the MOU, and not based on state law. So  
2 now that's going to ramp up because now it's state  
3 law that all customers must be metered.

4 The fifth best management practice is  
5 large landscape conservation. And this is one  
6 that's a very significant one for us right now  
7 because we're trying to get at a lot of excess  
8 water use. And so this best management practice  
9 specifies that you have a dedicated irrigation  
10 meter on a large landscape area, and then there's  
11 a water budget that's set up with that dedicated  
12 landscape meter. Then you have to stay within the  
13 budget or experience, you know, a penalty rate.

14 And also the BMP provides for doing  
15 surveys of large landscape properties and  
16 irrigation audits. So where are some numbers from  
17 there. And then basically what it's showing is  
18 this is a relatively new BMP since 1997, but it  
19 shows the activity levels there. At about 70,000  
20 dedicated irrigation accounts; we're hoping to  
21 triple that in the next several years.

22 Number six is high efficiency clothes  
23 washers. And we've been participating with energy  
24 IOUs in this program for a number of years now.  
25 Water agencies issue their own rebates as well as

1 participating in existing energy rebates. And at  
2 this point it's about \$17 million worth of rebates  
3 that have been paired with the energy side, and  
4 about 18 million where the water agencies have  
5 just done it on their own without a companion  
6 energy IOU rebate along with it.

7 BMP seven is public information. We  
8 spent about \$64 million in the past 11 years.  
9 That's a lot of money.

10 Number eight is school education.  
11 Again, fairly large expenditure, about \$29  
12 million, almost \$30 million spent by water  
13 agencies to educate school children in water  
14 efficiency.

15 Best management practice nine is  
16 commercial and industrial conservation where again  
17 the practice specifies surveying of commercial and  
18 industrial facilities to help reduce their  
19 baseline water use. And incentives are offered to  
20 help them make process changes that will reduce  
21 their water use. And so we've done about 45,000  
22 of those for about \$8 million worth of incentives.  
23 Doesn't sound like a lot, but this is one  
24 particular best management practice that would  
25 benefit greatly from energy funding.

1                   Number ten says the wholesale water  
2 agencies have to participate with their retailers,  
3 provide them staff support and provide them  
4 financial assistance. And in 2004 those  
5 wholesalers spent about \$38 million giving  
6 incentives to their retail water agencies. So  
7 this is a major effort.

8                   Number 11, conservation pricing. This  
9 is one that we're spending a lot of time working  
10 on to revise it to make it more specific. This  
11 was a key finding in the energy policy report that  
12 rate signals and pricing are an important way to  
13 get the consumer to reduce demand, not only  
14 obviously on the energy side, but on the water  
15 side. So we're spending a fair amount of time  
16 wanting to revise that and get a lot of people  
17 working with us on it.

18                   But to date the statistics are fairly  
19 positive. About 83 percent of our retail revenue  
20 does come from volumetric rates. So that's the  
21 good news. Only 77 percent of it in the  
22 residential side. So we have some improvements to  
23 make.

24                   And then number 12 is just saying the  
25 water agency has to have a conservation

1 coordinator, somebody who is identifiable to the  
2 public and who coordinates their programs. We had  
3 about 358 FTEs that were identified in our  
4 database on the retail side; and about 88 people  
5 on the wholesale side. So we're developing a core  
6 group of people that are now getting fairly  
7 proficient in water efficiency.

8 Water waste prohibition, this means  
9 working with municipalities to adopt water waste  
10 ordinances, and here's an example, 81 percent of  
11 our water agency reporting members had gutter-  
12 flooding ordinances; 35 percent of the prohibited  
13 single-pass carwashes; those are two examples.

14 And then our last best management  
15 practice is residential toilet replacement, which  
16 is, in addition to the residential retrofit, and  
17 that was separate out because of the cost  
18 effectiveness threshold of the toilets. And once  
19 the standard was adopted in 1994, went into  
20 effect, for the 1.6 gallon-per-flush toilet, you  
21 had to go through a cost effectiveness calculation  
22 to figure out if replacing the toilet was still  
23 going to be cost effective.

24 And to date it has been. We've replaced  
25 about 1.3 million single-family toilets, and

1 another million multifamily. That's what our  
2 database reports. I suspect the numbers are even  
3 higher from agencies that don't report to us.

4 So if you go to our data base you'll see  
5 that we have these water savings reports that are  
6 itemized both for individual best management  
7 practices where you can see what we've saved over  
8 the tenure. But then also for all of them  
9 together.

10 And what basically it's showing is that  
11 we've saved about 1.3 million acrefeet since 1991.  
12 And that's the target goal that the State Board  
13 had wanted in 1990 that nobody felt we could  
14 achieve. And we've done it through voluntary  
15 efforts.

16 So the savings calculations are very  
17 conservative. I would say it's probably way  
18 under-estimating what the value is. Again, we  
19 don't have everybody reporting; and secondly,  
20 we've tried to be very conservative, so that we  
21 don't over-estimate what the savings values are.  
22 We actually adjust the number for savings decay;  
23 we adjust them for natural replacement; and we  
24 adjust them for free ridership. So that we get  
25 really the true savings picture, not just simply

1        what an incentive would yield.

2                    So we continually work on that model, as  
3 well. But I think that was the basis of a lot of  
4 the calculations that were used for the Integrated  
5 Energy Policy Report.

6                    You've already heard from Lorraine in  
7 great detail what the energy numbers are here; and  
8 Gary also talked a great deal about this. For me  
9 it was gratifying to see that once we went through  
10 and calculated to the consumer end use, 19 percent  
11 of the electric energy load was water related. I  
12 mean that's a huge number. Makes me want to say,  
13 okay, of your 500 million in energy incentives the  
14 water community wants 19 percent of that. Because  
15 this is our contribution in terms of the load.  
16 And it's even larger in the gas side, 39 percent.

17                    But if you look at it from the  
18 municipality's perspective, Bob Wilkinson's work  
19 shows that the city budgets are increasingly going  
20 to not only the energy, but going to the water  
21 associated with that energy. Thirty-three percent  
22 of a city's budget can be for water pumping. And  
23 that's a significant amount; that's taxpayer-paid.

24                    Thirty-four percent of a water  
25 facility's O&M budget goes for energy. And you'll

1 hear a lot more about that later.

2 So, what we're looking for to work with  
3 all of you and the two Commissions, is to explore  
4 some energy partnerships. We have watched with  
5 envy -- our water efficiency side has watched with  
6 envy our energy efficient partners who have had  
7 good funding over the years through the public  
8 benefits goods charge. And we have also applied  
9 for some of that money for our pre-rinse spray  
10 valve program.

11 But traditionally the water sector's not  
12 funded in the same way because of the differences  
13 in structure and the differences in regulation. I  
14 calculated that we probably spent over the past 11  
15 years no more than about 100 million for water  
16 efficiency incentives, which pales by comparison  
17 to the energy side.

18 And if the Energy Commission's  
19 statistics are correct, that you could get 58  
20 percent of your next three years of energy goals  
21 by funding water efficiency, I'm here to tell you  
22 we'll take the money. We'll do it.

23 (Laughter.)

24 MS. DICKINSON: So, there are lots of  
25 energy opportunities for clothes washers,

1 obviously. But a number of other new devices that  
2 we're looking at. And I wanted to give the spray  
3 valve as an example of one of those programs that  
4 we all did together.

5 We worked with the Food Service  
6 Technology Center on the basis of a \$10,000 study  
7 that showed that this new device, this new lower  
8 flow spray valve could yield terrific benefits and  
9 reduce greatly both water and energy. We decided  
10 we would go for an installation program on this  
11 device. And we applied for public benefits goods  
12 charge money from CPUC under the third-party  
13 funding program. And we were funded for phases  
14 one and two, about 33,000 statewide, and 23,000 of  
15 them in southern California, in this area of high  
16 energy intensity.

17 And we calculated that the valves that  
18 we installed saved about 4600 acrefeet per year of  
19 water savings; about 9.3 million therms per year.  
20 So this was a very cost effective program. And in  
21 southern California we ended up with most of those  
22 savings, 3200 acrefeet per year and 6.4 million  
23 therms.

24 So this was a program, a water  
25 efficiency program, that yielded terrific energy

1 benefits. But it was a hot water program, so it  
2 was kind of obvious. What isn't as obvious is  
3 what happens when we go to cold water. And that's  
4 the work we need to do together.

5 The pre-rinse spray valve issue, and  
6 went ahead and set a standard in 2004 for the same  
7 flow rate that we were using in our pilot  
8 installation program, 1.6 gallons per minute. And  
9 that standard did take effect January of this  
10 year.

11 And then it ended up, when EPAC was  
12 revised in 2005, that that same standard went  
13 national. So from our little project back  
14 starting in 2003 with public benefits goods charge  
15 money, we ended up with a national standard. And  
16 I offer that as an example of the kind of  
17 partnerships we could do together if we have more  
18 energy efficiency funding.

19 Same with clothes washers. We worked  
20 together with the Energy Commission on water  
21 factor standards for clothes washers. I won't  
22 spend time doing that right now because I think  
23 you all know that story. I consider that a real  
24 success story.

25 But we have now other options that we

1       could pursue together. And one of them being a  
2       product-labeling program, a WaterStar program.  
3       EPA is trying to set up some sort of national  
4       program. It's three years later; they're still  
5       trying to set up some sort of national program.

6                 And we decided in California that we  
7       could go ahead and do a little bit of a pilot so  
8       the East Bay Municipal Utility District and the  
9       Council together filed an application for Prop 50  
10      funding. We did get a modest award of 217,000.  
11      We have a pending request for another 1.3 million.

12                If we do get both of those funded,  
13      especially the 1.3 million, we will have a larger  
14      pilot program in California than EPA's funding on  
15      the national level.

16                So we could really do some meaningful  
17      work here. We could really test how product  
18      marketing and labeling for water would have an  
19      impact on consumer choices. And so I'm really  
20      excited about that project.

21                But then there's growth. We're adding  
22      over 200,000 new homes a year; these are homes  
23      that are being added to look just like the homes  
24      we're currently retrofitting. We need to do a  
25      better job of designing these new houses.

1                   And so this is a partnership area that I  
2 think we could spend of great benefit, and get a  
3 lot of value for time spent on designing better  
4 construction standards. The lead process doesn't  
5 recognize water efficiency very well in the  
6 commercial sector. It only gives six points, and  
7 the new residential lead is not going to be much  
8 better.

9                   So what we're looking at is the next  
10 revision out, the water efficiency technical  
11 advisory group giving recommendations for  
12 standards, hot water, landscaping, a whole series  
13 of standards involving higher efficient plumbing  
14 and higher efficient washing machines, and other  
15 products in the home.

16                   And there are pilot programs that are  
17 starting in California like that. California  
18 Friendly is something Bill will talk about in his  
19 presentation from Metropolitan. And we're also  
20 doing a pilot program with Prop 50 money, Smart  
21 From the Start, which is trying to provide some  
22 advice to the Energy Commission, as some possible  
23 Title 24 changes.

24                   So this is an area tat I think we can  
25 productively work on together so that these

1 200,000 houses we're adding every year are not  
2 going to be retrofit opportunities in another five  
3 to seven years for water agencies.

4 And we can't forget landscape. We've  
5 got new technology that's on the ground now,  
6 satellite controllers, weather-based controllers  
7 that automatically adjust. The technology  
8 advances are terrific in landscape. We need to  
9 move with them and reduce the amount of that water  
10 that, again, is pumped during peak periods.

11 And here's something from Tom Chesnutt,  
12 a study that he's done in Orange County that shows  
13 that the reduction in landscape savings is a peak  
14 reduction that corresponds appropriately to that  
15 same seasonality peak of energy. And so we've got  
16 some, I think, good work we can do in that area.

17 Hot water design, I think many people  
18 know much more about this than I do. CEC is  
19 currently engaged in research work on this.  
20 Lawrence Berkeley Labs has again, Prop 50 projects  
21 to look at it. And we're very very interested in  
22 reducing the impact of hot water delivery systems  
23 that are inefficient because they have plumbing  
24 runs of 100 feet or more. And a lot of wastage  
25 opportunities while the consumer waits for hot

1 water to come to the tap.

2 So, in terms of the final  
3 recommendations, what I just wanted to leave you  
4 with was that water use efficiency is desperate.  
5 We have Prop 50 funding now, which is basically 30  
6 million a year for three years. When that ends we  
7 don't know what's on the horizon.

8 And there's a lot of cost effective  
9 conservation that is a statewide benefit that  
10 should be considered separate from what the water  
11 utilities and water agencies are funding on their  
12 own.

13 We're interested in applying for cold  
14 water funding. The IOUs that we talked to for  
15 some of the programs have expressed willingness,  
16 but they said if we don't get credit from the CPUC  
17 for a cold water program, it's not to our benefit  
18 to do that. So we would like to work with CPUC to  
19 develop what the methodologies would be needed to  
20 incentivize and properly allow cold water funding  
21 programs with public benefits goods charge money.

22 The Council is very interested in  
23 perhaps partnering with you to come up with a  
24 model that could take the work that Bob and Gary  
25 had done to date, and take that energy value of

1 water, assign geographic values and take the water  
2 efficiency savings and then translate them into  
3 energy savings on a geographic case-by-case basis.

4 We'd love to be able to work with you to  
5 do that model. I've already solicited a little  
6 bit of funding for it. And I think that's  
7 something that could perhaps work to the CPUC's  
8 advantage in giving them a measurement of what a  
9 specific water conservation program would yield.

10 And I think we need to decide who are  
11 the contacts that we all work with. Those of us  
12 in water who still sometimes don't know all the  
13 players in energy, it's hard for us to know who  
14 would be the contact point for any program that  
15 would be developed.

16 And we're happy to partner and assist in  
17 whatever way we can. We're very interested in  
18 this issue, particularly in terms of making water  
19 efficiency a joint goal of both the energy and  
20 water community. Because of the many benefits  
21 that it has, I think we could more productively  
22 achieve more if we worked together on the programs  
23 and particularly the policies for going forward.  
24 So we're all for it.

25 Thank you again for letting me come to

1 speak. This is our website, this is the URL for  
2 it. And we have a lot of information on product  
3 news, latest technological developments on that  
4 website. And I invite you all to visit it and see  
5 it. Thank you.

6 COMMISSIONER BOHN: Thank you.

7 (Applause.)

8 COMMISSIONER BOHN: Mary Ann, thanks  
9 very much. Kevin, where are you? Kevin Coughlan,  
10 are you here. Okay, would you make sure that Mary  
11 Ann and Kevin get together. Because as far as the  
12 PUC is concerned he's the guy, as of this moment.  
13 We'll deal with the rest of it later, but make  
14 sure when Kevin comes back that you two guys get  
15 together, would you.

16 COMMISSIONER GRUENEICH: Since I am  
17 going to be the assigned Commissioner on energy  
18 efficiency, I'll also make my staff available,  
19 since I am hearing a lot about taking the  
20 investor-owned utility money to help fund some of  
21 these efforts.

22 COMMISSIONER BOHN: There's Kevin right  
23 there. Mary Ann, that's Kevin, the tall fellow  
24 with the white hair. Mary Ann, Kevin. Kevin,  
25 Mary Ann.

1 (Laughter.)

2 COMMISSIONER BOHN: Anyhow, let me  
3 just -- the uncharacteristic silence from the dais  
4 makes me think that maybe you all up here were  
5 operating under the same guidelines that  
6 everybody's got to put things on green cards.

7 With some fear and trepidation I want to  
8 say absolutely not. You can interrupt anytime you  
9 want, obviously within some reason. But we're on  
10 schedule and I don't want to necessarily draw a  
11 correlation between that and --

12 (Laughter.)

13 COMMISSIONER BOHN: But the purpose of  
14 this exercise is to create a series of dialogues,  
15 if you like, or multi-logues. And whereas we want  
16 to hear and digest what's going on, I also want to  
17 make sure that those of us up here have an  
18 opportunity to ask questions, as well as those of  
19 you in the audience.

20 Anyhow, I'd like now to introduce Bill  
21 McDonnell, Senior Resource Specialist for the  
22 Metropolitan Water District. The Metropolitan  
23 Water District has been proactive in implementing  
24 these best management practices. And, Bill,  
25 you're going to tell us about that.

1                   MR. McDONNELL: Yes, thank you. I  
2 appreciate the opportunity to come speak to you,  
3 and appreciate following Mary Ann. I could have  
4 sworn there was an email that said ten slides,  
5 though, but --

6                   (Laughter.)

7                   MR. McDONNELL: -- you must have missed  
8 that email. I only have 11, I missed it by a  
9 little bit.

10                   But thank you very much for the  
11 opportunity. It must be a really good lunch, the  
12 room is packed. So I'm expecting a great lunch  
13 today.

14                   But I'm going to talk to you a little  
15 bit about Metropolitan's programs, and I heard two  
16 or three of the speakers today, if not all of  
17 them, talk about energy use on the customer side.  
18 And that's exactly what I'm going to talk to you  
19 about, the customer side. That's what I'm going  
20 to talk about, the conservation programs that we  
21 do.

22                   It says here about basically an overview  
23 of Metropolitan's programs with the BMPs. Before  
24 I start into my programs I do want to mention that  
25 Metropolitan is heavily involved in the California

1 Urban Water Conservation Council, which is a great  
2 organization on the water side. We're on the  
3 Steering Committee.

4 As you saw, one of the BMPs was a  
5 wholesaler BMP. Metropolitan spends, just in  
6 rebates, not in education or marketing or staff  
7 time, but just in rebates approximately \$15  
8 million a year on conservation. So we're  
9 supporting our member agencies.

10 Also we very much support all of our  
11 member agencies and their retail agencies to  
12 become signatories to the Council. And, in fact,  
13 we pay half of their dues. So we get a big giant  
14 bill from Mary Ann every year for our dues, and  
15 then hundreds and hundreds of cities and water  
16 agencies' other dues. And our Board has said  
17 that's great, we encourage that.

18 And then the other water agencies in our  
19 area sometimes pick up the other half of the dues.  
20 So everybody in southern California in our service  
21 area is very supportive of the Council and is very  
22 active in it.

23 Another thing I did want to mention is  
24 in my previous life, because I know all of you  
25 will run out and read the bios when you're really

1       bored, but in my previous life I actually used to  
2       work for Southern California Gas, Southern  
3       California Edison, Anaheim Public Power and  
4       Pasadena Public Power. It's not that they all  
5       just got rid of me, but I actually did leave on my  
6       own.

7                 But I think I bring an energy background  
8       to the water side. And I'm going to touch a  
9       little bit on that today, so I've seen IOU,  
10      municipal and now the water industry. I've been  
11      at Metropolitan for ten years. So I do understand  
12      the relationship between the two, especially on  
13      the customer side. And we've done a lot of focus  
14      groups with our customers.

15                The first thing, pretty basic, is at  
16      Metropolitan we look at conservation in three  
17      areas. Mary Ann mentioned landscape, commercial  
18      and residential. Residential is kind of where  
19      conservation on the water side started,  
20      showerheads and toilets.

21                We've done a couple million toilets in  
22      southern California. I'm going to talk more today  
23      about the landscape and the commercial side.

24                Like I said, in residential high-  
25      efficiency clothes washers, high-efficiency

1 toilets, landscaping, we've done irrigation  
2 training, smart irrigation controllers, which is  
3 the new buzz word for weather-based controllers  
4 because the general public has no idea what a  
5 weather-based controller is. So you'll start  
6 hearing Metropolitan and other agencies in  
7 southern California having ads on radio and tv  
8 talking about smart irrigation controllers.

9           And measured water savings which is  
10 basically large landscape. And then the  
11 commercial program, which is really unique. And I  
12 want to talk about that in more detail. And our  
13 industrial program which, again, can have -- both  
14 of those two bottom ones can have a lot of energy  
15 savings to them.

16           This is a slide that we presented to our  
17 Board in December. We went to our Board and we  
18 asked for basically a whole new formula for  
19 conservation. And they obviously approved. They  
20 were very supportive of it.

21           What we have is a core conservation  
22 program. And what we do is we pay \$195 per  
23 acrefoot of water. And acrefoot for you on the  
24 energy side is about 325,000 gallons. We pay \$195  
25 an acrefoot which is our avoided cost.

1           Then -- and that's how you get your  
2           incentives for toilets and washing machines and  
3           everything else that you apply to the general  
4           public.

5           But, as we've been doing this for ten  
6           years, we need other tools in our belt to offer to  
7           the general public and to our member agencies. So  
8           we came up with this puzzle piece. Legislation  
9           and standards is on the bottom. That's something  
10          that we support. As Mary Ann talked about, that's  
11          considered passive savings.

12          We're heavily involved in legislative  
13          standards, as is the Council, myself; I'm on the  
14          ANSI/ASME committees to set standards for plumbing  
15          fixtures dealing with dual-flush toilets and other  
16          types of devices. Research and technology and  
17          marketing studies, Metropolitan, now we have a set  
18          budget to do marketing and research. We didn't  
19          have that before.

20          And the two programs on top I wanted to  
21          talk about a little bit. The one on the left is  
22          called the enhanced conservation program. And we  
23          got Board authority for \$4 million for that  
24          particular program.

25          And what this is is as we get mature in

1 our water conservation efforts, our retailers are  
2 saying to us, we don't want to just incentivize  
3 toilets or pre-rinse spray valves. We need to  
4 maybe go out there and directly install them. We  
5 need to maybe go out there and do other things,  
6 maybe do audits.

7 We didn't have mechanisms for doing  
8 that, so this is going to be a competitive grant-  
9 based program where agencies will come to us and  
10 say, I want \$250 an acrefoot to directly install  
11 these dual-flush toilets in buildings, and it's  
12 going to take this much labor. Because in the  
13 past we really couldn't pay for labor.

14 The program on the right, I'll talk a  
15 little bit more about in another slide, is the  
16 innovative conservation program which is kind of  
17 one of my little babies. It's not a big program,  
18 \$125,000 a year. So we do it every other year at  
19 \$250,000.

20 And what we do is all of these other  
21 pieces of the pie are money that's either going to  
22 a water agency or going to a member agency or  
23 somebody in our territory.

24 However, if you have some new  
25 technology, you've designed it in your garage, or

1 designed it in your machine shop, whatever, and it  
2 can save water, that's where the ICP program comes  
3 in. And it's been hugely successful for us.

4 What we do is we offer grants to  
5 entrepreneurs, businesses, whoever. Anybody can  
6 apply for this particular grant. And we study new  
7 technologies. Because as a public agency, what  
8 was happening is I was getting phone calls in my  
9 cubicle saying, Bill, I've just invented  
10 something; it costs a nickel and it saves an  
11 acrefoot of water. Will you buy it.

12 I can't do it. I can't do that. But  
13 you don't want to dismiss that effort. So this  
14 way they apply in a competitive grant basis. We  
15 fund the projects. And it's kind of like the  
16 Dodgers, or since we're up here in Sacramento, the  
17 Giants, it's our farm system. We studied it; if  
18 you do well, you come up to the major leagues. We  
19 rebate on it. And then your rebate is available  
20 to our 18 million customers.

21 And actually for a small chunk of money  
22 it's worked out very well. If we had more money  
23 we could actually incentivize many more projects.

24 The first time, the last year that I did  
25 it, we had requests for over \$5 million in

1 funding. And at \$250,000 we basically had to just  
2 take the cream-of-the-crop projects and leave the  
3 other ones aside. So, more funding would actually  
4 assist that program.

5 Another thing that we talked about to  
6 our Board is new devices. And a lot of new  
7 devices on the market that Mary Ann had talked  
8 about. And to keep up with that, some of these  
9 devices you've heard about, but what we needed to  
10 do was create an incentive for them. Some of them  
11 we've worked with the Food Service Technology  
12 Center, which has been great for us.

13 High-efficiency toilets. A high-  
14 efficiency toilet is a dual-flush toilet or a one-  
15 gallon toilet. Everybody knows about them;  
16 everybody's heard about them. What we needed to  
17 do is have a separate rebate for that compared to  
18 a regular toilet. We do, we have now \$165  
19 incentive.

20 Just to comment on one of the other  
21 speakers that was talking about dual-flush toilets  
22 in high-rise buildings, that is something that we  
23 actually have looked at. One of the problems we  
24 have is dual-flush technology right now is not a  
25 technology that you can use in a high-rise

1 building. It's not a flushometer toilet, it's a  
2 gravity toilet. Most high-rise buildings use  
3 flushometer technology, and they've just come out  
4 with a flushometer valve about 30 days ago, Sloan.  
5 So we're working with them to test and study this  
6 new dual-flush Sloan valve. So we are looking at  
7 dual-flush in high-rise buildings.

8 Zero-water urinal. Again, we had an  
9 incentive for that in the past, but we didn't have  
10 a separate incentive. We had a urinal incentive.  
11 A zero-water urinal, in fact just to tell you a  
12 little story. I went back to North Carolina a  
13 couple weeks ago to visit my brother who retired;  
14 that shows you how old you're getting.

15 And he was mocking waterless urinals, as  
16 I explained to him zero-water urinals are the new  
17 thing here in California. And lo and behold, we  
18 went on a hike in North Carolina; stopped and used  
19 a restroom which had a zero-water urinal. So,  
20 even in North Carolina they're using zero-water  
21 urinals. But we offer a \$400 incentive now for  
22 zero-water urinals.

23 High-efficiency urinal. Because what  
24 we're having is some businesses out there, because  
25 of economics or perception, whatever, they don't

1 want that type of urinal. That's fine. Our end  
2 goal is conservation. There are half-gallon  
3 urinals on the market. They're even inventing  
4 quarter-gallon urinals. So we have an incentive  
5 of \$200 for those particular technologies. We've  
6 worked a lot with Loyola Marymount. Loyola  
7 Marymount said we would rather use the high-  
8 efficiency urinal than the zero-water urinal.  
9 That's fine. We wanted to be able to  
10 differentiate that.

11 High-end cooling tower controllers.  
12 These are pH controllers that deal with acid. A  
13 lot of talk today about commercial businesses,  
14 HVAC. In my past life at the utilities I used to  
15 work a lot on the HVAC and heat pump side.

16 We're incentivizing people to make their  
17 HVAC systems more efficient, on our own, just with  
18 water money. If I had energy money it would be a  
19 lot easier. Also, what I don't have, which I'll  
20 go into, is the water utilities don't have account  
21 executives. And that's another thing that I'll  
22 talk about in a minute.

23 And the connectionless food steamer.  
24 This was one of the projects that we worked with  
25 the Food Service Technology Center. They applied

1 for a grant through the ICP because there was some  
2 data out there on the kW and therm savings for  
3 food steamers. But nobody had documented the  
4 water savings.

5 So through the ICP we documented the  
6 water savings. And now we offer approximately a  
7 \$500 per compartment rebate for the food steamers.  
8 So this is another one of the things that's come  
9 up through our ICP.

10 This particular program called save  
11 water/save a buck, is unique in southern  
12 California. When you think of investor-owned  
13 utilities you think of PG&E, SoCalGas,  
14 SoCalEdison. Those are the big players, or San  
15 Diego Gas and Electric. Big agencies serving lots  
16 and lots of customers.

17 On the water side what you have is  
18 Metropolitan is a wholesaler. We don't have  
19 customers. We now have member agencies who  
20 sometimes are wholesalers. And then they have  
21 cities. So, in southern California you can  
22 literally have hundreds of cities and water  
23 agencies servicing customers.

24 And what we were doing was each  
25 individual city was doing their own commercial

1 program. They were going out and trying to create  
2 marketing materials, or 800 numbers, or flyers or  
3 rebates. And we were supporting them financially.  
4 It just wasn't working, though.

5 The first time Metropolitan's ever done  
6 this, we actually worked with the member agencies,  
7 pulled them all together and created one regional  
8 program. We did focus groups with the customers.  
9 And the customers said we want 1-800-call this  
10 number, get a rebate, cut a check. That's what we  
11 have; and we've had it for about three, four years  
12 now in southern California.

13 Before this program started Metropolitan  
14 used to incentivize about \$200,000 worth of  
15 commercial product. Now we can incentivize from  
16 \$3- to \$5-million worth of commercial product.  
17 And we don't have more money and we don't have  
18 different incentives. What we have is a better  
19 system. We have a system that listens to the  
20 commercial customers and works for them. Because  
21 that's really the bottomline. We talk about end-  
22 use efficiency. You have to make it easy for the  
23 customer.

24 But right now that customer, and we've  
25 done focus groups with this particular program,

1       that customer is talking to SoCalGas, and then is  
2       talking to us, and then is talking to Edison and  
3       filling out three different rebates sometimes to  
4       do one particular job. So they want 1-800 cut me  
5       my check, fill out my application. I'm not sure  
6       if we can do that, but that's what they told us  
7       they wanted.

8                 For commercial customers, as you can  
9       see, we have a lot of different options available  
10      to them. We deal with laundries; we deal with  
11      HVAC; we deal with restrooms. Also, we're doing a  
12      lot with outdoors; the orange device there is a  
13      waterbroom. There's a lot of hot water savings in  
14      the waterbroom. It sounds crazy, but restaurants  
15      sometimes are hosing down their areas with hot  
16      water, okay. The waterbroom saves approximately  
17      50,000 gallons a year.

18                Our savings are based on just the --  
19      everything that we do is based on water savings.  
20      A lot of these technologies have hot water  
21      savings, which is great. But as Mary Ann said, we  
22      want to get past the hot water and get into just  
23      the cold water pumping savings. But some of these  
24      actually do have hot water savings.

25                The pre-rinse spray valve program, as

1 Mary Ann talked about, once the CUWCC received a  
2 grant, now there was a mechanism in place in  
3 southern California. Mary Ann did not have to  
4 work with 200 water agencies, which would have  
5 been a nightmare for her. She worked with one  
6 program. And as you saw, a lot of those numbers  
7 said in southern California. That was basically  
8 in Metropolitan's service area.

9 So she was able to work within our  
10 service area, with our vendor, and do probably  
11 two-thirds of the pre-rinse spray valves.

12 When I had a \$50 rebate for pre-rinse  
13 spray valves, which we had at Metropolitan for  
14 about five years, that was the water savings, we  
15 probably did about 1000 spray valves a year. You  
16 saw the numbers; the numbers were at 23,000, I  
17 think, in the first year. So we went from 100  
18 valves to 23,000.

19 The way we did that, we got energy  
20 utility money to pay for the energy utility  
21 savings that they were getting. The energy  
22 utility money then paid for a body to go out and  
23 knock on the restaurant door and screw it in for  
24 free. Because the restaurant was busy flipping  
25 burgers and making french fries, and didn't have

1 time to go to the store and buy this water  
2 efficient equipment.

3 And that's what happens. People are  
4 busy making a bottomline and making a living. And  
5 even though this is our income, for businesses  
6 this is not their income. And especially on the  
7 commercial side. Gas and electric are huge  
8 utility costs, water is not.

9 When I worked at Edison and The Gas  
10 Company I had a tough sale trying to get them to  
11 buy heat pumps, or buy T8 lamps or buy other  
12 things. Now trying to get them to buy a waterless  
13 urinal or a toilet is even tougher. If we could  
14 somehow combine those two, it would be great.

15 The smart irrigation controller, we're  
16 working a lot with that. In the hospital the x-  
17 ray circulation system, this is another device  
18 that came up through the farm system. That's the  
19 grey-looking box up there.

20 What happened is I used to get calls  
21 from a gentleman who said, I invented a product  
22 that can save almost a million gallons of water  
23 per device in hospitals. He applied through the  
24 innovative conservation program.

25 We installed them in hospitals in

1 southern California. And he was right, we were  
2 saving anywhere from 750,000 gallons to a million  
3 gallons per device. X-ray processing machines  
4 were once-through cooling. This basically is  
5 recycling the water and reusing it. After that  
6 particular test we went to our Board and we now  
7 have a \$2000 rebate for that device to put in  
8 hospitals.

9           On our industrial program, this is where  
10 we go to large industrial customers and actually  
11 give them a pay-for-performance contract. A lot  
12 of industrial customers out there can do process  
13 improvements. This particular example is a dye  
14 house. We are looking at, we actually paid them a  
15 little over \$300,000. But these are companies  
16 that are saving lots and lots of gas and lots of  
17 electricity. If we could work with the local  
18 utilities, it would be great.

19           Our new construction model home program  
20 Mary Ann talked about. The water agencies are  
21 just getting involved in new construction.  
22 Weather-based controllers, we're starting to  
23 really push weather-based controllers, or the  
24 smart controllers. This is the innovative  
25 conservation program like I talked about.

1           At our webpage, bewaterwise.com, you can  
2     get all the information you want from there. Just  
3     as a last parting note, there are some people in  
4     here from SoCalGas and Edison and stuff. And I  
5     have been able to work very well with them.

6           Everything that we do on the water side  
7     with the investor-owned utilities is a friendship  
8     basis. I know them, they know me. They have a  
9     meeting, they invite me. I have a meeting, I  
10    invite them.

11          But the bottomline is the account reps  
12    down in southern California and everybody else is  
13    looking at therms and kWh, not water. And if we  
14    can get them to think about water, they're  
15    actually going to a large business that can have  
16    huge water savings, but they don't talk about it,  
17    because they're paid by the therm. They're paid  
18    by the kWh.

19          If we can get them to think about water  
20    it would be a huge boost to the water industry.  
21    Thank you.

22           (Applause.)

23          COMMISSIONER BOHN: Thank you, Bill,  
24    very much. We have a little time for questions.  
25    I have two, and rather than try to read the

1 question and decipher it, and then interpret it,  
2 Ronnie Cohen, would you just step up to the podium  
3 here, and the players are right there.

4 MS. COHEN: Ronnie Cohen with NRDC. My  
5 question is for Lorraine White. In your  
6 presentation you had an increased storage as one  
7 of the things that you wanted to look at as a way  
8 to load shift. And I wondered whether the Energy  
9 Commission was looking at the increased energy use  
10 that would likely accompany the inevitable  
11 increase in water use that would come from any  
12 increased storage in the state?

13 MS. WHITE: We're actually thinking more  
14 in terms of smaller type of storage. We're not  
15 talking large-scale dams or reservoirs, if that's  
16 what you were thinking.

17 We are thinking that in some of these  
18 systems you could actually even have tanks  
19 distributed throughout the system that allow you  
20 to, rather than just have to pump things on  
21 demand, actually have reserves of supply at  
22 certain locations where you know you have certain  
23 demands pump system.

24 And/or where you do have existing tanks,  
25 maybe augment those at times, maybe even lower the

1 level at which you will actually drain those tanks  
2 a little bit more than normal through the peak  
3 period and then just replenish them after the  
4 peak.

5 So it's looking at water storage from  
6 the standpoint of system flexibility, particularly  
7 at the distribution level.

8 MS. COHEN: Okay, thanks for the  
9 clarification. I just -- I would urge you, then,  
10 in your materials, to clarify that. In the report  
11 that Gary and I worked on, Energy Down the Drain,  
12 we did look at some of the proposed storage  
13 projects in the state, and they would all -- all  
14 the major storage projects that are under  
15 consideration would be net energy consumers,  
16 especially if that water was used in southern  
17 California, which is most likely.

18 So I think when you talk about increased  
19 storage, knowing that it's a loaded issue, you  
20 probably should clarify exactly what you mean by  
21 that.

22 MS. WHITE: I appreciate that, Ronnie,  
23 thank you.

24 MS. COHEN: Thanks.

25 COMMISSIONER BOHN: John, you had a

1 comment?

2 COMMISSIONER GEESMAN: Maybe you can  
3 come back --

4 COMMISSIONER BOHN: Ronnie, would you  
5 come back for a second. The Commissioner has a  
6 question.

7 COMMISSIONER GEESMAN: I don't want to  
8 intrude into the water policy or one of the ways  
9 we were able --

10 MS. COHEN: It's really fun, are you  
11 sure you don't want to?

12 (Laughter.)

13 COMMISSIONER GEESMAN: One of the ways  
14 in which we were able to actually produce, I  
15 think, a pretty constructive dialogue last year in  
16 our Integrated Energy Policy Report process, was  
17 to try to impose a rule that we weren't going to  
18 try and relitigate water policy issues in an  
19 electricity forum.

20 But I did want to pose the question to  
21 you for ongoing work that NRDC does in this area.  
22 As Lorraine mentioned, we've tried to take an  
23 expanded view toward storage.

24 My point to you is the extent to which,  
25 if, in our electricity system, we are consciously

1 and wilfully bringing on a great deal more  
2 intermittency in our generation, large through a  
3 lot of wind and possibly, as Commissioner  
4 Grueneich and I heard yesterday, to a lot of  
5 solar.

6 It would seem that that carries with it  
7 both an obligation and an opportunity to try and  
8 bring on more storage into the system to maximize  
9 the use of those renewable sources of generation.

10 And without getting into what's  
11 obviously one of the more contentious areas of  
12 water policy, I wonder if the NRDC can provide  
13 some assistance going forward in helping us re-  
14 think how the water system can be used to store  
15 intermittent and renewable sources of electricity  
16 generation.

17 MS. COHEN: Of course we'd be happy to  
18 work with you on that. As I was saying on the  
19 water side, in our report we looked at the most,  
20 the project that would look best from an energy  
21 perspective, which was the smaller raise in  
22 Shasta. And even that would be a net energy  
23 consumer.

24 So we would urge you to look at  
25 groundwater storage, perhaps, in southern

1 California or options such as that might be more  
2 promising and not pose the same strains on the  
3 energy grid.

4 COMMISSIONER GEESMAN: Thank you very  
5 much.

6 COMMISSIONER BOHN: Richard Fox.

7 MR. FOX: Hello. I basically wanted to  
8 tie into something that Bill brought up, which is  
9 really the accounting for the water savings  
10 associated -- or the energy savings associated  
11 with water.

12 And I know that's going to be something  
13 talked about in the next half of the day. But I  
14 thought maybe as a precursor into that, I was sort  
15 of thinking of the data's not complete right now  
16 to make those ties in a way that could allow you  
17 to account to the level that we need to account  
18 for right now.

19 But I think the data's pretty good to  
20 set up a structure that for, say, any measure, any  
21 activity going on that's using energy and water,  
22 to have some associated kW, some associated H2O,  
23 some associated CO2, and maybe even other some  
24 resource impacts.

25 And using the data we have today, modify

1       it with some various net-to-gross ratios just like  
2       you do in the energy sector, so that say if I'm  
3       doing an HVAC project, and I know I'm saving kW  
4       because I've installed a unit that has a lower kW  
5       draw. I also might have some associated cooling  
6       tower reduced water consumption. Give me a factor  
7       so that I can quantify that, and then we can  
8       account for it.

9                   Or if it's the other side where it's an  
10       irrigation project, where the primary savings  
11       might be water savings, have some factor that  
12       allows a top-down number that's kind of at a high  
13       level be applied in reality by making it  
14       conservative through a factoring process until the  
15       data is maybe solid enough to make it a more solid  
16       tie.

17                   And hopefully, I hope this is sort of  
18       the tie-in to bring in where we want to go with  
19       this, because this is certainly an area where my  
20       activities are bringing me.

21                   COMMISSIONER BOHN: Any comments over  
22       there?

23                   MR. McDONNELL: Yeah, I agree. Because  
24       one of the issues that we have now is in the  
25       commercial, industrial or even just landscaping

1 end of it, there's water savings, and then there's  
2 pumping, as we've heard, big giant numbers,  
3 pumping numbers. Pumping numbers 12,000 kWh,  
4 36,000 kWh per million gallons.

5 Metropolitan's actively out there saving  
6 over 10,000 acrefeet a year. So there's lots of  
7 pumping savings. But when I work with Edison and  
8 SoCalGas, they're cooperative, but it's out of the  
9 goodness of their heart because realistically  
10 they're reimbursed the other way. And they've  
11 told me, if there was some way we could get credit  
12 for the water that we're helping you save, we  
13 would do it.

14 Right now, we work cooperatively  
15 together, but there's nothing that ties you there.  
16 It's all relationship and hit-or-miss, which it  
17 probably shouldn't be in something this  
18 integrated.

19 MR. FOX: Correct. And then just to  
20 summarize, where I would really see the issue is  
21 instead of holding off making the connection in a  
22 very accurate way, I'd say be conservative and  
23 make a connection so that we can start to put  
24 these synergies into action more soon.

25 COMMISSIONER BOHN: Thank you.

1 Cooperation, I would urge, is a good thing.  
2 Commissioner Grueneich, you had a comment or a  
3 question?

4 COMMISSIONER GRUENEICH: One comment and  
5 two questions. I'm hearing a fair amount about  
6 the desire to work more closely with the investor-  
7 owned utilities and potentially access some of the  
8 energy efficiency money that the PUC has  
9 established, as well as with the Legislature.

10 One of the areas that we're certainly  
11 looking at is the municipal electric utilities, in  
12 that we certainly are urging them to step forward  
13 and increase their energy efficiency efforts.

14 So I would just -- the comment I have is  
15 to remember to also be talking to our municipal  
16 utility friends, as well. That it is very  
17 important in my mind that they do step up to the  
18 plate. And just as the investor-owned energy  
19 utilities have stepped up to the plate and are  
20 including the funds in the rates, because this is  
21 coming down to money pretty quickly, that that is  
22 also an area, I think, to look for the municipal  
23 utilities.

24 Two questions. One is, I noted at the  
25 beginning is that I'm on the Governor's Climate

1 Action Team. And I'm wondering how much in terms  
2 of the savings that are being achieved through  
3 your water conservation efforts, either at MWD or  
4 through the Urban Consortium Council, you are also  
5 now starting to quantify carbon emission  
6 reductions, if you're working with our Climate  
7 Registry. So that's my first question.

8 My second question has to deal with  
9 programs or activities targeted towards low income  
10 customers. That at the Public Utilities  
11 Commission we have a very strong and extensive  
12 program of reaching out towards energy efficiency  
13 for low income customers.

14 By state law our low income oversight  
15 board will now also be looking at activities in  
16 the water area, as well. So I'm personally very  
17 interested in hearing about are there programs or  
18 measures that have been specifically targeted at  
19 achieving water conservation with regard to the  
20 low income customers.

21 MS. DICKINSON: You've raised a couple  
22 of questions that I'd like to address, if that's  
23 all right. One is the relationship with the  
24 municipal utilities. And we have worked a lot  
25 with them. There are a number of municipal

1 utilities that have been very progressive in  
2 combining their water and energy programs.  
3 Especially those in southern California. And  
4 SMUD's another utility that we've worked with.

5 So there are a number of the municipal  
6 entities that we're working with.

7 In terms of quantifying carbon emissions  
8 from water conservation activity, we haven't gone  
9 that far yet. But that's what I'm thinking about  
10 in terms of creating this model.

11 If we can take water efficiency savings  
12 that are achieved on a gallon-for-gallon basis and  
13 figure out geographically where they occur, what  
14 the energy benefits are, and what the  
15 corresponding benefits of that energy savings  
16 would be, that, I think, would be useful  
17 information for the regulatory agencies.

18 And I think enough work has been done  
19 that we can put that together relatively quickly.  
20 We just need to put together the money to do that.  
21 But we're very interested in integrating it.

22 One of the Council's basic missions is  
23 making sure that water efficiency is integrated  
24 into overall resource planning in California. And  
25 I think we're now there.

1                   And then your last question about low  
2                   income. Many utilities, many water agencies  
3                   already have low income programs. And our spray  
4                   valve program that was funded through CPUC was  
5                   targeted at medium- to small-sized establishments.

6                   So we've already been operating under  
7                   those kinds of goals. And, again, many of the  
8                   water agencies have specific programs to do that,  
9                   as well.

10                  COMMISSIONER BOHN: Great. Thank you  
11                  very much for your surprisingly pretty close to  
12                  schedule.

13                  MR. WOLFF: Could I add to that?

14                  COMMISSIONER BOHN: I'm sorry, sure.

15                  MR. WOLFF: If I could just add to the  
16                  answer. I just wanted to comment that low income  
17                  residences often have some of the best  
18                  opportunities for water conservation because the  
19                  plumbing fixtures tend to be older, the housing  
20                  stock is older, people are living in less  
21                  expensive older housing. And the appliances tend  
22                  to be older; and lower income people are  
23                  disproportionate users of used appliances.

24                  And so there are larger than average  
25                  water conservation, energy conservation

1 opportunities in low income households.

2 And so the traditional assistance  
3 programs help people to pay the bills. In some  
4 cases there's help actually changing over the  
5 fixtures and the appliances. But that second area  
6 we don't have as much programmatic activity there  
7 as I think we could benefit from having.

8 COMMISSIONER BOHN: Thank you. There's  
9 a list of sort of walking-distance restaurants and  
10 cafes for those of you who came thinking that we  
11 were going to have lunch --

12 (Laughter.)

13 COMMISSIONER BOHN: I plead innocence on  
14 that representation. I don't know who did.  
15 Anyway, there are lists out there.

16 Please try to be back at 1:00. We're,  
17 as you know, on a tight schedule. We'll start no  
18 later than 1:03.

19 (Whereupon, at 12:02 p.m., the symposium  
20 was adjourned, to reconvene at 1:05  
21 p.m., this same day.)

22 --o0o--

23

24

25

## 1 AFTERNOON SESSION

2 1:05 p.m.

3 COMMISSIONER BOHN: Moving right along.

4 We hope you've had a chance to think about this  
5 morning's program. We're now going to move into  
6 the second segment of panel 2, how water utilities  
7 can reduce energy consumptions, lessons learned by  
8 leading private utilities.

9 I'd like to introduce Bob Kinert,  
10 Manager, Integrated Demand Side Management Program  
11 Services, PG&E. Bob will discuss how water  
12 utilities can use an integrated energy management  
13 plan. Bob, are you here? There you are.

14 MR. KINERT: I'm here.

15 COMMISSIONER BOHN: Thank you.

16 MR. KINERT: Thank you, Commissioner.

17 Well, before we dive into my presentation I'd ask  
18 for you all to just think about your frame of  
19 mind. This morning we've heard quite a little bit  
20 about policy; we've heard about some research and  
21 generally things from the industry side.

22 What I'd like to have you do this  
23 afternoon is put your customer hat on. Because at  
24 this point now we're going to shift gears and  
25 start talking about water and energy from a

1 customer's point of view. And some of the things  
2 that we've been doing with them at PG&E.

3 Water is pretty unique, as you all know.  
4 I think in terms of connected load our  
5 understanding is that we're roughly at about 6000  
6 megawatts statewide and growing. The amount of  
7 coincident demand is considerably less than that,  
8 but there's a lot of load connected out there.

9 Water is a critical commodity supplier.  
10 And it must provide fail-safe service. Anybody  
11 involved in that chain with water knows you don't  
12 ever, the last thing in the world you want to do  
13 is ever dewater your system.

14 So when you're talking about energy it's  
15 always from the perspective for water agencies of  
16 operational issues.

17 But there is tremendous potential for  
18 improving energy management practices and meeting  
19 these service requirements. Both are absolutely  
20 do-able.

21 So, what should agencies do. Well,  
22 there are lots of opportunities, and mainly it's  
23 about positioning actively for success. Starts  
24 with understanding the issues, and there's a lot  
25 of folks in the room here that are helping with

1 that, and a lot of agencies are certainly very  
2 poised to be doing that, as well.

3 But be willing to try new things and  
4 adapt is also important. Again, there's a lot of  
5 conservatism in water, just as there is in our  
6 business, in the electric and gas utility  
7 business. But trying new things and adapting to  
8 where we're headed in California is certainly very  
9 apropos.

10 And the next piece, of course, is  
11 sharing experiences and opinions to help shape the  
12 future. As we get more experience on how to use  
13 energy and water together more wisely, getting  
14 those experiences out and shared amongst the rest  
15 of the community is extremely important.

16 Probably from an individual agency  
17 perspective, the very best thing that an agency  
18 can do is to build a robust energy strategy based  
19 on what we call an integrated energy management  
20 plan. You might say, well, what is that.

21 This model will give you a sense of what  
22 I'm talking about. Just for those of you in the  
23 room here physically, by a show of hands, how many  
24 folks in here have dealt with an independent  
25 financial planner. So I'm seeing roughly about a

1 third, maybe 25 percent, 35 percent of the folks  
2 here.

3 This model, if you will keep what a  
4 planner does, in mind for this model, it really is  
5 a good analogy. The first thing that planner will  
6 do when they come in to see you is find out what  
7 you're all about; what are your financial  
8 objectives; you know, how much money do you have  
9 to invest; where are you in your career; what do  
10 you want to do for retirement; when do you want to  
11 retire. All of those myriad of questions that  
12 they'll ask you.

13 And then they'll go back to their shop,  
14 and based on everything that you've said, they're  
15 going to come back to you with a portfolio of  
16 investment options. And this is really, from an  
17 energy perspective, what this model is all about.

18  
19 At PG&E we've been doing integrated  
20 energy audits which would be the analysis piece of  
21 that analogy that I mentioned to you, where we've  
22 been talking to customers, not just about energy  
23 efficiency, but about what they're doing in the  
24 areas of demand response; what are their needs in  
25 terms of self generation; time-of-use management.

1 All of these things we have begun to investigate  
2 not incrementally, but as part of a single process  
3 with them.

4 And so once we've gotten the analysis  
5 done with customers, we then start to look and  
6 say, all right, so the first thing we want to do  
7 is there's a conservation opportunity if there's  
8 energy that's not doing any useful work, let's  
9 eliminate that wasted energy. And now we only  
10 have the energy that we need to use, let's do what  
11 we can to make that as efficient as possible.

12 And then time-of-use management, now  
13 that I'm only using the energy I need, and it's as  
14 efficient as it can be, what about the timing of  
15 that to lower my average cost per kilowatt hour.  
16 How much of that can I draw out of the peak on a  
17 routine day-in-and-day-out basis.

18 And then there are obviously  
19 opportunities for self generation which fit in  
20 both with reliability, as well as peak load  
21 management, and potentially price.

22 And then at the top is demand response.  
23 And we like to characterize demand response as  
24 being a little bit different than time-of-use  
25 management, in that it's not something that's

1 sustainable on a day-in-and-day-out basis. But  
2 it's when we have a critical day, what can that  
3 customer do for those perhaps 80 hours a year, to  
4 do something a little different with their  
5 business operation in exchange for some incentive  
6 on our part to help get load off the system on a  
7 critical day in response to high prices or supply  
8 issues.

9 All of this has to be taken from the  
10 customer's perspective. Customers will have  
11 certain interest in reliability, certain  
12 sensitivities towards price. And no matter what  
13 we come up with it's obviously got to fit with  
14 their operations. If it doesn't fit with  
15 operations they're not going to consider it,  
16 they're not going to do it.

17 So that as a backdrop is the model.  
18 Now, I've just presented it to you as what might  
19 be termed the sales approach with customers for  
20 products and services in the DSM arena. But you  
21 can turn this model around and look at it from the  
22 customer's point of view. It also makes a superb  
23 strategic energy management planning tool from the  
24 customer's point of view. They can optimize their  
25 mix of strategies by looking at this the same way.

1                   And then finally I'll draw your  
2                   attention to the notion that what is really  
3                   elegant about this model is it does bring up the  
4                   opportunity, when you've integrated all these  
5                   together at the same time, you find opportunities  
6                   for single investments that deliver multiple  
7                   benefit streams.

8                   For example, if I put in a new energy  
9                   management system, and I've looked at both the  
10                  demand response opportunities and the energy  
11                  efficiency opportunities, and the TOU management  
12                  opportunities at the same time, I can gather up  
13                  all those benefit streams and apply them back to  
14                  that single investment.

15                  So this is how at PG&E we're working  
16                  with our customers now, and working with our  
17                  account management team to get customers to  
18                  understand that there is more that we can do than  
19                  perhaps the way we've looked at it before.

20                  I'd like to quickly now turn to three  
21                  success stories to share with you. The first is  
22                  Eldorado Irrigation District, which is up in  
23                  Placerville. And this is a success achieved in  
24                  existing facilities.

25                  The second is San Jose Wastewater

1 Treatment Plant, and we'll talk a little bit about  
2 some things they've done in new construction.

3 And then finally Humboldt Bay Municipal  
4 Water District, and this is one that's in the  
5 making, and has some very interesting challenges  
6 for us.

7 The first and last examples will be on  
8 demand response; and the example in the middle  
9 will be for energy efficiency in terms of the  
10 prime accomplishments.

11 For EID, Eldorado Irrigation District,  
12 they achieved a reduction in peak demand in excess  
13 of 1 megawatt, which is almost 50 percent of their  
14 peak usage. And they did this initially for  
15 demand response, but what's happened over time is  
16 that they've figured out there were a lo of  
17 operational issues that came to play here. And so  
18 things were a little tentative, you know. Can we  
19 do this; you know, how often are we willing to do  
20 it.

21 But what came to pass is after a little  
22 experience that demand response programs actually  
23 precipitated, this customer figured out there was  
24 some of this they could do all the time. And  
25 certainly a megawatt achieved on a daily basis has

1 very high value. We need demand response, but we  
2 also need load off the system on a routine basis.

3 The graph shows it all. If you'll look  
4 at the top graph, and I'll first draw your  
5 attention to the fact that the through-put here is  
6 almost identical at right around 11 million  
7 gallons for the day.

8 If you look at the pre-demand response  
9 profile on June 14th in 2004, you can see during  
10 the peak that there was a fair amount of load on  
11 the system. And after the demand response  
12 measures were implemented a year later, you can  
13 see a very precipitous drop during the demand  
14 response period.

15 So what were the elements of success for  
16 this story? First, it was participation of all  
17 stakeholders from operations to senior management.  
18 Everybody's got to get into the picture and play.

19 There's operations issues; there's  
20 financial issues; there's folks that are in charge  
21 of energy at the agency. But without everybody in  
22 play, it just wouldn't have happened.

23 And then there was a willingness to  
24 accelerate expansion of a water storage project.  
25 The main way that this accomplishment was achieved

1 is by increasing the amount of water storage in  
2 the system to allow the Irrigation District not to  
3 pump during the peak, so they could draw down.

4 There also was a lot of willingness to  
5 accept changes to operating criteria and  
6 procedures. Different standards for how much  
7 reserve they were willing to accept as the bottom  
8 limit on reserves. How far down were they willing  
9 to take the tank was the question.

10 And so they experimented a little bit,  
11 and ended up being able to take it down a little  
12 bit farther than what they had been previously.

13 They really addressed it from a risk  
14 management point of view as opposed to a risk  
15 aversion perspective. It's a very different way  
16 to look at things for water.

17 In terms of optimization of energy  
18 opportunities, it required looking beyond end use  
19 hardware alone, and again I sort of touched on  
20 this a minute ago, the operating policies and  
21 procedures changed. There were system controls  
22 that changed; software changes that had to be  
23 made. And really, the success of this project, it  
24 really rested in the hands of the operators.

25 The finance folks, they were onboard

1       because of the dollars involved and the financial  
2       benefit to the agency. Senior management was  
3       onboard both from a policy point of view in terms  
4       of what it did for the image of the District, as  
5       well as financial. And the fact that they were  
6       convinced that the agency wouldn't dewater their  
7       system.

8                     And then finally the operators were the  
9       ones that had the go or no-go call on this. And  
10      so with the help of Dr. House -- Lon House, who is  
11      here with us today somewhere; I see Lon's back in  
12      the room there in the corner -- and PG&E, we all  
13      worked together and got this thing pulled around  
14      to where everybody was willing to give it a try.

15                    And, of course, the great news is it worked.

16                    The second story I want to tell you is  
17      about San Jose Wastewater Treatment. And this is  
18      an expansion project where they were doing a very  
19      considerable expansion of the wastewater plant.

20                    They looked at a number of technologies  
21      here, fine bubble diffusers for aeration, premium  
22      efficiency motors, variable speed drives, and a  
23      secondary system oxygen recovery aspect to it.  
24      And you can see the projected energy savings are  
25      substantial here, 11 million kilowatt hours and a

1 million therms.

2           Incremental cost, a million dollars.  
3 The payback of less than three months. I mean  
4 this is, you know, is huge in terms of the  
5 payback. And they max'd out on our incentive  
6 program at \$300,000.

7           The vehicle that we used for this was  
8 our savings by design program, which is the new  
9 construction energy efficiency program. The key  
10 here is we got in the front door early in the life  
11 of the project, so that we were at the table and a  
12 part of the project from day one, and had a chance  
13 to influence the direction.

14           And with that, both the customer and  
15 everyone else involved was able to achieve a  
16 really good project.

17           I want to shift now a little bit to the  
18 future and it's what we're all here talking about  
19 today. So my question would be, what would  
20 Leonardo da Vinci have accomplished if his only  
21 choice was to paint by the numbers. I think the  
22 reason everybody is in this room today is that  
23 we're trying to look at water and energy, and the  
24 nexus of water and energy very differently.

25           We have to pull out of, you know, the

1 paradigms that we've held and be brave and bold  
2 and look forward to see what is it that we can do  
3 that hasn't been done before.

4 Humboldt Bay Municipal Water District is  
5 a fairly good example of something new and  
6 different. It's eight separate districts and one  
7 wholesale supplier. And opportunity for demand  
8 response exists, but it's only through unique  
9 collaboration of agencies, the wholesaler,  
10 utilities and regulators, because there are  
11 impediments to this project at every single level  
12 that I've just mentioned.

13 But the prize for success here is a 2  
14 megawatt reduction for this collaborative group of  
15 water folks.

16 The challenge is that it doesn't fit the  
17 mold. The reductions might exist with one agency.  
18 We have the pumping capacity, the pumps,  
19 themselves, while the operational solutions reside  
20 with another.

21 One agency has excess storage. They  
22 aren't connected necessarily, or they don't  
23 necessarily cooperate with the agency that has the  
24 pump that needs to pump.

25 So, if we can get those folks operating

1 as a system, as a single system, what ends up  
2 happening is we use the storage from one to  
3 benefit a load reduction from the other. Well,  
4 who gets the prize in terms of the incentives.  
5 Who gets, you know, the rate reduction. I mean  
6 there's all of these questions because they're  
7 each an individual entity. Yet, if they don't  
8 operate together, if we don't all work  
9 cooperatively as a single group on a project, the  
10 results will never be achieved.

11 So, it's just looking at a point. Why I  
12 put Humboldt in here is just to get us to start to  
13 think. What boundaries do we need to cross.  
14 Where do we need to kind of pull down, you know,  
15 the thinking that we've had in the past about, you  
16 know, this belongs in this slot, this one in this  
17 slot, and you know, we're not going to mix these.

18 We've got to start thinking more broadly to  
19 do this.

20 This opportunity also transcends utility  
21 program design. We've got the TATI incentive  
22 program which provides technical incentives. It  
23 is not really designed for this type of an  
24 opportunity. So we've got to figure out a way to  
25 nimbly be able to move forward with this type of a

1 program and adjust and react in both the  
2 regulatory arena, as well as the program design  
3 arena within the utility to grab these  
4 opportunities when they start to surface.

5 And then on the agency side, we need an  
6 agreement or a process by which all of these  
7 separate entities can comfortably work together to  
8 make this project happen where all of their needs  
9 are met in terms of obligations they might create  
10 with and for one another.

11 So, it's willingness to color outside  
12 the lines from both a programmatic and regulatory  
13 perspective; willingness to collaborate and  
14 achieve great things. But first and foremost,  
15 we've got to keep our eye on the prize. We've got  
16 to keep our eye on the megawatts, the kilowatt  
17 hours, the gigawatt hours. Those are where it  
18 really comes to fruition.

19 And I might also add here, it's not on  
20 the slide obviously, but the gallons, you know,  
21 the million acrefeet of water that are involved  
22 here, too, because that's the other side of the  
23 coin.

24 So really, the bottomline here is we  
25 don't want to get stuck, you know, painting inside

1 the lines, you know, painting by the numbers as  
2 long as we can find creative ways to work together  
3 and deliver.

4 There's a tremendous opportunity between  
5 water and energy, and we're really, at PG&E, very  
6 excited about opportunities to look at this issue  
7 and to come up with creative ways to make it work  
8 for our customers, and to make it work for the  
9 state.

10 Thank you.

11 (Applause.)

12 COMMISSIONER BOHN: Bob, thanks very  
13 much. We're a little behind. I'd like to  
14 introduce David Bruder, Nonresidential Portfolio  
15 Manager, Southern California Edison. He's going  
16 to talk about how Southern California Edison is  
17 handling this issue.

18 MR. BRUDER: Thank you. Good afternoon,  
19 everyone. I'm going to talk basically about  
20 energy efficiency.

21 First a little bit about our existing  
22 portfolio of energy efficiency programs. And then  
23 specifically where, within that portfolio, we have  
24 some examples of integration of water and energy  
25 efficiency approaches.

1           And then where we think there would be  
2           some additional opportunities for integration of  
3           water and energy efficiency.

4           And just briefly touch on the policy  
5           issues that we'll need to address to go further in  
6           that direction.

7           We've been in the energy efficiency  
8           business in California obviously for a long time,  
9           20, 30 years. This portfolio we have for Southern  
10          California Edison now is a \$700 million, three-  
11          year strategy. Basically a fine-tuning and  
12          evolution of programs and approaches that we've  
13          done over the years. A mix of proven performers  
14          and some new approaches, as well.

15          We start with this notion of outreach,  
16          building awareness. You've got to provide  
17          information; you've got to provide the means for  
18          customers to understand why they should be doing  
19          energy efficiency. So the awareness part includes  
20          the Flex-Your-Power campaign and other things  
21          we're doing locally.

22          We have the energy centers. We do a lot  
23          of technical training there, a lot of hands-on  
24          demonstrations of technologies. Our internet  
25          websites. And then we have a lot of people,

1 employees that are out talking to customers and  
2 advocating energy efficiency.

3 In parallel with the awareness and the  
4 outreach, we're working on standards. Both with  
5 the California Energy Commission here on Title 24;  
6 nationally in other forums, DOE, EPA, EnergyStar,  
7 Consortium for Energy Efficiency and others.

8 We have programs that demonstrate energy  
9 efficiency technologies and approaches in real  
10 customer settings. Basically showing how these  
11 technologies benefit in a real application and  
12 being able to point other customers to the  
13 successes in those demonstrations.

14 Providing technical and design  
15 assistance. There is a bit of a gap in the market  
16 that our programs fill. Good example is new  
17 construction that Bob mentioned in the wastewater  
18 treatment plant. There's been a lot of work done  
19 in the energy efficiency programs to bring the  
20 builders, designers and owners of facilities up to  
21 speed on the latest state of the art, the  
22 approaches that end up saving energy ultimately.

23 Financial incentives, of course, lots of  
24 different means for financial incentives.

25 Customized approaches where service providers

1 actually have open access to incentive money to  
2 make deals with their customers to reduce the  
3 incremental costs of doing energy efficiency.

4 Upstream at the retailer level. Working  
5 with Lowe's and Home Depot, for example, to put  
6 together a seamless process where a customer buys  
7 an energy efficiency piece of equipment at a cost  
8 that's reduced due to our incentive directly to  
9 the manufacturer and distributor.

10 This next one's a very important thing  
11 in this forum, development and support of third-  
12 party program implementers. We have currently,  
13 out of the \$700 million, three-year portfolio for  
14 Southern California Edison, about \$250 million  
15 worth of contracts with third-party implementers  
16 to develop, implement, administer energy  
17 efficiency programs. They are targeting special  
18 niches of customers or new measures.

19 Basically we're building into the  
20 portfolio some innovations and different  
21 approaches, really, you know, bring the best minds  
22 -- and I see a lot of energy efficiency program  
23 people here. This is really a what's kind of  
24 evolving portfolio into a set of different  
25 approaches.

1                   Community and institutional  
2       partnerships. These are approaches where we're  
3       basically working with local governments to  
4       deliver energy efficiency to their constituents.  
5       It's residential, small business, the municipal  
6       facilities, themselves. We think that this is a  
7       very promising approach, and especially holds a  
8       lot of promise for integration in the water area.

9                   And then continuous program evaluation  
10      and improvement. We've got to constantly be  
11      looking at results of our program approaches and  
12      making improvements to increase their  
13      effectiveness.

14                  So within that portfolio there are some  
15      examples right now today where we are combining  
16      water and energy efficiency really. I've got them  
17      divided into two areas, basically for the water  
18      agencies and utilities, and then for our mutual  
19      water/electric end-use customers.

20                  Our pumping efficiency program has  
21      helped water agencies and utilities reduce their  
22      pumping costs. Basically providing a test that  
23      points out the efficiency of a pumping system and  
24      identifies opportunities for improvements that  
25      would result in lower costs.

1           New program starting this year,  
2           industrial process energy efficiency program.  
3           We'll be targeting water, wastewater agencies for  
4           efficiency improvements. Essentially it's  
5           providing a package of technical expertise. This  
6           is expertise that we're procuring out in the  
7           market. These are not utility staff. This is the  
8           experts in the industry, going to work with the  
9           agencies at a reduced cost, essentially, to point  
10          out opportunities for efficiency; bringing in a  
11          package of financial incentives where it's  
12          necessary; and implementation assistance if that's  
13          a barrier for an agency.

14                 Audits, technical assistance, and  
15          financial incentives. Through these two  
16          mechanisms, standard performance contract savings  
17          by design, these are available to everyone in the  
18          market. This is our standard offer program  
19          basically.

20                 Millions, hundreds of millions of  
21          dollars, hundreds of millions of kilowatt hours,  
22          hundreds of megawatts have been saved by the  
23          market providing the services to this group of  
24          water agencies and customers using these financial  
25          incentives and services.

1           For the end-use customers, we're working  
2           with the Flex-Your-Power program. We've got --  
3           not Flex-Your-Power, website -- we've got combined  
4           energy efficiency and water programs directories  
5           linking customers basically to relevant offers and  
6           services for their situation.

7           Savings by design I talked about.  
8           Sustainable communities is a new program.  
9           Essentially there we're incenting customers who  
10          are building new facilities. It's targeting right  
11          now mixed use residential and commercial. We're  
12          incenting these customers to seek lead  
13          certification which includes water conservation.  
14          A big part of becoming lead certified is reducing  
15          water usage, as well as energy.

16          Pumping efficiency program is always a  
17          natural combination of water and efficiency  
18          approach, as I discussed.

19          We have a golf course efficiency  
20          program. This actually came out of the third-  
21          party programs. This is a great example of where  
22          water conservation results directly in electric  
23          energy savings. Typically on a golf course the  
24          water is pumped from the site, so the pump is  
25          actually owned and operated by the customer, their

1 side of the meter. That's an example where we can  
2 see directly the cause and effect. You reduce the  
3 water, you increase the efficiency of the  
4 irrigation system. And you reduce the electric  
5 costs of pumping.

6 Take that a step further, I think, is  
7 what we're talking about when we talk about taking  
8 credit for energy savings due to water reduction  
9 that are occurring upstream. And I'll get to that  
10 in a minute here.

11 We have now combined residential energy  
12 efficiency and water surveys. We're working with  
13 a couple of agencies, Golden State Water and  
14 LADWP, to combine our audit messages for  
15 residential customers. This is mail-in audits or  
16 online or website. And our in-home surveys are  
17 actually combining now energy and water  
18 opportunities.

19 Living Wise is another third-party  
20 program. Basically distributes a kit that  
21 includes both water and energy efficiency devices  
22 to school-age students. They take it home.  
23 There's a curriculum in the class where they learn  
24 about the benefits of energy efficiency and the  
25 environmental benefits. They take it home to

1 their parents and these devices get installed in  
2 the home. And things like low-flow showerheads,  
3 aerators, CFLs, temperature sensor to check the  
4 setting on a hot water heater, things like that.

5 Coin-op laundry program is an innovative  
6 program operated by a third party. Basically  
7 combines natural gas, electric and water savings  
8 in a program that targets owners of coin-op  
9 laundries. Replacing water heating equipment;  
10 replacing the washing machines, themselves.

11 Now, this is a case where integration is  
12 done, I guess best look at it is through brute  
13 force. Basically there's a middleman that  
14 coordinates all of the available incentives and  
15 offers and makes a seamless sale to an end-use  
16 customer. But I think it's an example of how it  
17 could work; it can work better than that if we had  
18 policies and incentives for coordination at a  
19 further up-stream level.

20 The South Bay Coalition of  
21 Governments/IOU Partnership Program. You know,  
22 through a partnership with the South Bay Coalition  
23 of Governments, this is in the South Bay of Los  
24 Angeles area, we've created an energy center there  
25 in Torrance, is it -- yeah, Torrance.

1           And the energy center there has just  
2 started a relationship with one of the local water  
3 agencies and is distributing low-flow toilets. So  
4 it's capitalizing on a facility that exists,  
5 funding that existed through the energy efficiency  
6 approach. Now, they've partnered with another  
7 entity for a different source of funding, doing  
8 water efficiency.

9           I think I went over some of these  
10 things, but additional opportunities. We can do  
11 more of what I just described. We could do it in  
12 a more effective, and, I think, a lower cost  
13 manner if we had some things in place that would  
14 facilitate that.

15           We do a lot of audits. We pay for the  
16 market basically to go out and make  
17 recommendations to our commercial and industrial  
18 customers. I think the water industry is doing  
19 the same thing. And offering financial  
20 incentives, as well as technical assistance for  
21 implementation of projects.

22           If we could combine those somehow, we  
23 would, I feel, gain the efficiencies of, you know,  
24 just one stop, one visit to the customer, one  
25 entity there making those recommendations.

1           Obvious coordination possibilities exist  
2           in new construction programs. Residential new  
3           construction. There are water efficiency programs  
4           for new construction. There are energy efficiency  
5           programs, another good place for coordination.

6           Retailer incentive programs. A lot of  
7           potential there for making a combined approach, a  
8           combined pitch, both financially and  
9           operationally. The processes that these Lowe's  
10          and Home Depots, for example, would go through to  
11          be able to offer incentives on certain equipment  
12          that saves water and energy.

13          Contractor training incentive programs.  
14          I think for the electric utilities we're embarking  
15          on a big program to increase the effectiveness of  
16          the air conditioning -- this is primarily  
17          residential, small commercial -- air conditioning  
18          contractor market. Very widely distributed group  
19          of contractors. We're basically training them to  
20          identify energy efficiency opportunities;  
21          implement energy efficiency measures; sell the  
22          customer on energy efficiency. So creating a  
23          different business model for these contractors.

24          Maybe there's an opportunity for, I  
25          think of plumbers being the ones that deal with

1 the water systems, maybe there's an opportunity  
2 there to combine approaches.

3 Community partnership programs I  
4 described. We're embarking on a big program with  
5 the City of Palm Desert. They have pledged to  
6 reduce their energy consumption in the city by 30  
7 percent over the next five years. Why not add  
8 water consumption to a program like that.

9 Our innovative bid programs, lots of  
10 ideas come out of these third-party bids, and  
11 there are lots of capable qualified implementers  
12 in that process.

13 Our marketing messages. Our  
14 administration, our processing, even combining the  
15 administrative side of some of these programs  
16 would result in great cost savings to both  
17 parties, I think.

18 Not to mention, as Bob pointed out, the  
19 customer's experience that dealing with one entity  
20 as opposed to two or three.

21 So, what do we need to do to start  
22 making this happen. It sounds like it's been  
23 discussed today. EM and V protocols need to be  
24 worked out. This is a technical issue; I don't  
25 think that it's necessarily a policy issue, but

1 it's addressed maybe in that setting.

2 But basically just coming up with a  
3 system for measuring, verifying, allocating these  
4 upstream energy savings that occur from water  
5 efficiency.

6 Program goal setting and tracking  
7 modifications. We don't want to do this just to  
8 have a different thing to pay incentives on and be  
9 able to claim savings for a different kind of  
10 energy savings. We want it to drive more energy  
11 efficiency.

12 So, there's a certain amount of water  
13 efficiency that happens right now. It isn't about  
14 taking credit for the water savings that are  
15 occurring, it's about driving more water  
16 efficiency and energy efficiency. So we have to  
17 be careful about how we go through a goal-setting  
18 process and a measuring and tracking and reporting  
19 system.

20 Alignment of water and energy utility  
21 goals and incentives. We, obviously to make this  
22 happen there needs to be a lot of coordination.  
23 To bring everyone to the table, to do that hard  
24 coordination there's got to be something in it for  
25 everyone. I think the something that's in it is

1 some of it's obvious, but again it would be a lot  
2 of work and there needs to be the right kinds of  
3 incentives to get that work done.

4 And then the coordination processes and  
5 procedures, themselves, we do have to continually  
6 do that coordination. We coordinate energy  
7 efficiency on a statewide basis among the four  
8 investor-owned utilities, and it's a tremendous  
9 amount of work. And it takes a commitment at the  
10 corporate level.

11 But, in summary, there are a lot of  
12 opportunities. Southern California Edison is  
13 excited about the prospect. We really want to  
14 work with the stakeholders to get these policies  
15 in place and make additional energy and water  
16 efficiency happen.

17 Thank you.

18 (Applause.)

19 COMMISSIONER BOHN: Thank you, David.  
20 Moving right along, I'd like to introduce Matt  
21 Puffer, Administrative Analyst-Water Conservation,  
22 Golden State Water.

23 We have now slid behind, and  
24 considerably so. Mr. Puffer, if you would be  
25 crisp.

1           MR. PUFFER: Well, thank you for having  
2 me. I'm going to try and get us back on track. I  
3 want to address like both supply side and demand  
4 management. And I think that most of this is  
5 focusing on the supply side of what Golden State  
6 Water Company is doing.

7           You may have known us formerly as  
8 Southern California Water Company, somewhere  
9 around our 75th anniversary. We changed our name  
10 to be responsive to numerous customers that we  
11 have all throughout the State of California, as  
12 well as expanding throughout other parts of the  
13 United States.

14           I think that -- we are a regulated  
15 utility, and we are a class A utility, and we are  
16 members of the California Urban Water Conservation  
17 Council, one of the early signatories of the  
18 memorandum of understanding. And we have done a  
19 fairly fine job of implementing the conservation  
20 measures as directed through the best management  
21 practices.

22           Within California we are broken up into  
23 three regions, encompassing parts of northern  
24 California and southern California. We have over  
25 250,000 connections in California, itself. We

1 serve about one in 30 Californians. Another large  
2 utility that we have, Chaparral Water, near  
3 Scottsdale, Arizona.

4 Through our American States Utility  
5 Services we also serve the water and wastewater  
6 utilities for five Department of Defense bases  
7 around the country. And we also have a small  
8 electric company called Bear Valley Electric up at  
9 Big Bear.

10 I'm going to focus primarily on region  
11 three; we are broken up into three regions. And  
12 the areas that I serve as Water Conservation  
13 Coordinator are Orange County communities,  
14 primarily known as the Cities of Placentia and  
15 Stanton and other pockets within that. Our  
16 foothill communities, Rosemead, San Dimas, San  
17 Gabriel and Claremont. And then the mountain  
18 desert communities which is Barstow and Wrightwood  
19 and, you know, even all the way out to Calipatria  
20 and Nyland, out past in the desert.

21 And I try to implement programs for  
22 100,000-plus services. And you see there jus kind  
23 of the quantities, the size that we have.  
24 Relative to a lot of municipal utilities and  
25 things, actually as a single region we are

1 considerably larger, except we're also just much  
2 smaller, because we operate in nine separate  
3 little pockets as a utility.

4 Looking at our energy use as a customer,  
5 electric is our primary energy source. We do have  
6 parts of our system, there are two gas boosters,  
7 but in the last year they were minimally used. We  
8 purchase 52 percent of our water, and 48 percent  
9 of our water production is from wells. And 99  
10 percent of that energy production was electric.

11 I did a quick look comparing our own  
12 well water production and our booster use between  
13 2004 and 2005 to kind of get a perspective. Is  
14 there a reasonable relationship between water  
15 reduction or demand reduction and energy  
16 reduction.

17 And I think you can see that a 4 percent  
18 reduction of water production, and this is just  
19 our own wells and what we move around like with  
20 our boosters, resulted in a 9 percent reduction in  
21 energy. Now there's other things that are  
22 associated in that number, but I think you can  
23 definitely see the causality that may or may not  
24 be two to one.

25 And this is an opportunity as part of

1 the future of this effort to look at. What is,  
2 you know, the direct relationship between a gallon  
3 and a kilowatt hour.

4 Now, within our system we've got several  
5 primary strategies that we implement. And I guess  
6 you can basically consider them as best management  
7 practices and being responsible to our ratepayers,  
8 you know, as well as our investors.

9 Most of our systems are responsive to  
10 time-of-use rates where they make sense. And  
11 there are certain circumstances where time-of-use  
12 won't make sense, and that's in a relationship of  
13 where you have a system that doesn't have a lot of  
14 storage so that you can shift your load offpeak.  
15 And we've seen several presentations that show the  
16 direct relationship between peak water demand and  
17 electric demand. But those are things that need  
18 to be looked at, you know, like we consider rates.

19 We try to operate our wells responsibly  
20 to peak demands and the motor efficiencies and the  
21 storage availability.

22 Motor and pump maintenance. We take  
23 advantage of the pump efficiency programs such as  
24 Southern California Edison offers, so that we can  
25 make sure that they're operating at peak levels.

1 But there are some issues; some parts of our  
2 system, the motors and pumps can be 40 years old  
3 and are just constantly maintained. So the age of  
4 the system, when you're talking about a utility,  
5 and a water utility of this level, needs to be  
6 taken into account.

7 Boosters that operate at system pressure  
8 needs. In some situations where we don't have a  
9 lot of storage, we may have as many as three pumps  
10 operating on a single line, but they're operating  
11 at different times and at different levels in  
12 order to maintain the different pressure needs  
13 during the day.

14 And then, of course, we try to balance  
15 purchased water with well pumping. And recently,  
16 as a conservation measure of cooperation with  
17 Metropolitan and its wholesale members, we will  
18 take Metropolitan wholesale water in lieu, which  
19 typically is more expensive than what we can  
20 produce ourselves, and we take that at the same  
21 price it would take for us to produce it from the  
22 ground. It's called an in-lieu program.

23 And we basically keep the water in the  
24 ground as a long-term conservation measure, so  
25 that in the future when there's a shortage,

1 Metropolitan gets a cut back on the State Water  
2 Project or the Colorado River, then they would ask  
3 us to draw from the groundwater supply while  
4 they're able to deal with their surface water  
5 needs.

6 Other opportunities, leak detection and  
7 repair. Any waste is, obviously, as you can see a  
8 cost in energy. You've got a part of that is --  
9 and Mary Ann was briefly mentioning that with the  
10 conservation programs, the leak detection repairs.  
11 By maintain good system pressure you can reduce  
12 leaks, you know, and you can do that through  
13 variable frequency drives. But, again, you don't  
14 always have that opportunity because in variable  
15 frequency drives can cost three times as much as  
16 the three pumps that we have put there to deal  
17 with, you know, any kind of pressure issues.

18 Flexible storage is probably one of the  
19 key measures for dealing with offpeak operation  
20 and allows us to enter the time-of-use rate. Some  
21 examples of being able to do that would be double  
22 the inlet pipes to increase filling, so it takes a  
23 shorter time to fill the storage.

24 And then you've got to look at greater  
25 storage capacity. But then you have a problem

1       there is that if you oversize storage too much,  
2       you're not turning the water out of the system,  
3       and so you come up with a health issue.  Because  
4       you have to move that water in certain times.

5                 And then there's the demand side  
6       management that we can do at our facilities.  And  
7       the issues, of course, are cost effectiveness, you  
8       know, which sometimes some incentive programs can  
9       help us with.

10                But then there's cost recovery and what  
11       is allowed, you know, is like through our rates  
12       and through our rate cases.  We have had VFD's,  
13       variable frequency drives, you know, rejected in  
14       rate cases that we've put in there, because they  
15       are more costly.

16                We always have to consider the ratepayer  
17       impacts; try to take advantage of incentive  
18       programs.  But we also have to look at the whole  
19       system and how it operates.  Is it a closed  
20       system; is it an open system that has storage  
21       capacity.  And those types of flexibilities.  And  
22       like I said, water quality and reliability is  
23       always critical.

24                Within our own facilities, you know,  
25       it's the typical demand side management

1 opportunities, but as you can see from earlier  
2 presenters it's probably a very small percentage  
3 of the energy use there, but it's a good business  
4 decision to step into it.

5 But you also see that within the water  
6 industry there's great opportunity for renewable  
7 generation. We have done the same thing with a,  
8 doing a solar pumping project for one of our  
9 desert systems. We've spent about \$300,000, and  
10 it's been successful enough that we gained green  
11 energy credits to transfer to our Bear Valley  
12 electric production. So, which enables it to, you  
13 know, reduce in greenhouse gases. And as we  
14 understand it, it was one of the first in the  
15 country on a water utility to do that.

16 Water/energy partnerships. You know,  
17 it's like you already heard, the partnership that  
18 we're doing with Southern California Edison and  
19 The Gas Company. This is going to be a great  
20 program creating a broad outreach. Using a web-  
21 based survey, a mail-in survey, in-home and phone  
22 survey. We're probably going to participate in  
23 the first three.

24 But it enables us to share costs and  
25 marketing. It provides us a wider application

1 opportunity than what we, ourselves, can do. But  
2 then on top of that, even though the survey,  
3 itself, may not sound like it's going to do much,  
4 it does start creating a database so that I can  
5 identify who needs a toilet, who needs a washing  
6 machine, you know, so that we can do some cross-  
7 promotion and hopefully builds on these  
8 relationships.

9           These are things that, you know, we've  
10 gone so far as Tom Gatstader (phonetic) from the  
11 LADWP and myself, you know, as I helped train the  
12 energy auditors for Southern California Edison on  
13 Catalina Island, so they could go to homes and  
14 give them a full service. Because on Catalina  
15 Island Southern California Edison is also the  
16 water purveyor, you know. And it's very expensive  
17 energy through their -- with their desalination  
18 and other things.

19           We participate in all the MWD regional  
20 programs; everything that Bill McDonnell told you  
21 we participate in. You know, it's -- very high  
22 level. And we do do residential and CII  
23 targeting. Within this next year there's some new  
24 programs that will be running out, particular  
25 looking at multifamily.

1                   We do do both hot and cold water  
2           measures. And I think that that's a critical  
3           concept for this group when they're looking at  
4           demand side management combinations.

5                   And I think that, you know, the whole  
6           concept of partnerships and being able to share  
7           customers and costs, because they are the same  
8           customer. Bill said it quite correctly, people  
9           are tired of going to three or four different  
10          places on one appliance to get a multiple  
11          difference, the incentives on there.

12                   And then I think that, you know, we're  
13          really looking ahead as a model for public  
14          benefits charges in order to secure funding and  
15          implement, you know, like the best management  
16          practices as a significant measure.

17                   So, thank you.

18                   (Applause.)

19                   COMMISSIONER BOHN: Thank you very much.  
20          We're running behind. We're going to take  
21          questions now up until 2:00. For those of you who  
22          have questions, please again step up to the  
23          microphone there.

24                   Our first question is from Ted Pope,  
25          Director of Energy Solutions. Ted, are you --

1       there you are.

2                   MR. POPE:  Ted Pope, Energy Solutions.  
3       And I'm up here to (inaudible) with my PG&E  
4       consulting hat on.  I actually have a comment more  
5       than a question.  I want to emphasize something on  
6       Mary Ann Dickinson's slide early this morning.

7                   I keep hearing folks mention clothes  
8       washer programs, so I wanted to make sure that  
9       everybody in the room was well aware that in 2003  
10      the Energy Commission passed a clothes washer  
11      water efficiency standard, which is really one of  
12      the first efforts that's right down the middle of  
13      what we're talking about here.

14                  And that state standard is preempted by  
15      federal regulations.  So the state submitted a  
16      petition for a waiver from preemption.  And that's  
17      now out for public comment for another week and a  
18      half.

19                  And I think most of you are probably  
20      getting emails from Mary Ann's group and ACWA and  
21      San Diego County Water Authority and MET and other  
22      folks, but just in case you haven't seen it on  
23      your email, it's a really important opportunity to  
24      comment in support of the state having the --  
25      being able to implement its water efficiency

1 standard for residential washers.

2 It's worth, I think, on the order of  
3 200,000 acrefeet per year, and about 500 gigawatt  
4 hours a year savings.

5 Thanks for that opportunity.

6 COMMISSIONER BOHN: Thank you. A  
7 question from Jane Turnbull, League of Women  
8 Voters. Jane, are you with us?

9 MS. TURNBULL: My question really was to  
10 the water districts, and I was interested to find  
11 out if they're in support of a public goods charge  
12 on water sales. And if so, do they have a vision  
13 in terms of how it might be implemented.

14 COMMISSIONER BOHN: Any of the utility  
15 representatives want to answer that?

16 MR. PUFFER: Personally, I think it's a  
17 great idea. That's something that, you know,  
18 secures a consistent level of funding on something  
19 that I think we all see here as very important, as  
20 it relates both to energy, but you know, as  
21 critical as the water supply is, that right now  
22 the way the regulated funding happens is you never  
23 really know what's going to be approved from year  
24 to year.

25 And I think this would give us a better

1 chance to plan in the long term and implement  
2 longer programs.

3 COMMISSIONER BOHN: Southern Cal Edison,  
4 you want to comment on that?

5 (Laughter.)

6 COMMISSIONER BOHN: There's a bold  
7 opportunity out there for somebody.

8 (Laughter.)

9 COMMISSIONER BOHN: Anyway, thank you.  
10 Lory Larson.

11 MR. LARSON: Lory Larson from Southern  
12 California Edison. Got somewhat of an  
13 observation, a statement. You know, what we're  
14 looking at here, a lot of it is conservation,  
15 which is something that can be done now. And it  
16 can be addressed now and emphasized. And can  
17 definitely save water and kilowatt hours.

18 But, let's don't overlook the need to do  
19 R&D in areas such as desalination to reduce the  
20 energy. Because no matter what we do, the future  
21 is going to be desalination for our 2020,  
22 whatever, future that you're looking at. Because  
23 there's not enough water available.

24 And then water reclamation where we take  
25 reclaimed water and re-use it back into systems to

1       displace potable water.

2                    So those are things that I just want to  
3       emphasize that we need to keep pushing that area,  
4       as well as the conservation.

5                    And responding to a comment this morning  
6       regarding -- from MWD regarding Edison's field  
7       people not necessarily interacting helping as much  
8       as they could with the water side, we are  
9       restricted by the CPUC on the work that we do with  
10      regards to saving energy. And we're restricted to  
11      the customer meter.

12                   So, we find a project that can save a  
13      customer a lot of water that ends up being a huge  
14      energy savings to the region, let's say, but to  
15      that customer the energy savings are small. That  
16      project gets bounced by other projects that have  
17      higher energy savings.

18                   And that's something that we need to get  
19      changed so we can focus on getting the big picture  
20      where we're saving energy for California, not just  
21      a specific customer's meter.

22                   So, that was my main comment. Thank  
23      you.

24                   COMMISSIONER BOHN: Thank you. Kevin,  
25      will you follow up with him on that? Thank you.

1 Michael Gibbs.

2 MR. GIBBS: This is Michael Gibbs.

3 Thank you very much, and thanks for the great  
4 program today.

5 Bob Kinert, you gave a compelling case  
6 study on the San Jose Wastewater Treatment Plant.  
7 And my question, I think this is things that we  
8 see in many case studies, including other  
9 wastewater treatment plants, what prevents the  
10 plant from adopting those measures in the absence  
11 of a program? And how does the program help them  
12 adopt it in this case?

13 MR. KINERT: Well, I think first of all  
14 it's an issue of integration and being able to  
15 look at energy along with the operational side of  
16 the picture. The focus initially is for most of  
17 these projects is on what they're trying to  
18 achieve from a production standpoint, if you will.

19 And by coming in we can help them  
20 identify opportunities they may not be even  
21 thinking about or see up front, and get them  
22 interested in and help them work through that.

23 MR. GIBBS: Okay, thanks.

24 COMMISSIONER BOHN: Commissioner  
25 Grueneich has a comment on the presentation

1 before.

2 COMMISSIONER GRUENEICH: Yes, I just  
3 wanted to make sure that I emphasized that at the  
4 PUC we will be getting the next phase of our  
5 energy efficiency activities, and one of the  
6 commitments that we have made, in a former  
7 decision from our agency, that we will be  
8 implementing in this coming proceeding is  
9 precisely what is being discussed today. And to  
10 better integrate the two areas, and specifically  
11 the area of the last comment from the gentleman  
12 from Southern California Edison, which is looking  
13 at how to develop methodologies that could take  
14 into account water conservation savings. And  
15 basically capture that upstream energy savings  
16 portion of it.

17 So I just wanted to make sure that  
18 people understood that we are going to be looking  
19 at that particular area.

20 COMMISSIONER BOHN: Thank you. Let's  
21 take a seven-and-a-half-minute break.

22 (Laughter.)

23 COMMISSIONER BOHN: Try to be back here  
24 at ten after so we can conclude and have time for  
25 questions and informal discussion.

1 (Brief recess.)

2 COMMISSIONER BOHN: We're moving now  
3 into panel number 3, Forward-Looking Research and  
4 Water Regulatory Policies. This is where we look  
5 for some advice and counsel.

6 Our first speaker will be Nancy Jenkins,  
7 Manager, Energy Efficiency Research Office, here  
8 of the Energy Commission. Nancy, the floor is  
9 yours.

10 MS. JENKINS: Thank you. Good  
11 afternoon. As Commissioner Bohn said, I manage  
12 the Energy Efficiency Research Office at the  
13 Energy Commission. It's one of three research  
14 offices at the Commission under the PIER program.  
15 And I'm going to try to describe that to you  
16 briefly.

17 My purpose here today is to familiarize  
18 you with what we are currently doing in the area  
19 of water/energy research; give you a little bit of  
20 insight into what our future plans are in this  
21 area. And try to connect you with the right  
22 people in the various areas that we are doing  
23 research in.

24 This past energy policy report process  
25 has been a real interesting one for us, and also a

1       challenging one. It's been really good in that it  
2       has heightened awareness of the whole water/energy  
3       issue, and what the opportunities are there for  
4       savings.

5                On the other hand it's also opened up a  
6       daunting challenge for us. It's uncovered a  
7       wealth of knowledge gaps, as well as technology  
8       gaps, that need to be filled for us to be really  
9       successful in this area.

10               We consider it a challenge for us in  
11       PIER that we're ready and willing to undertake.  
12       But it is a daunting one. So, I'd like to give  
13       you some insights into what we're currently doing,  
14       and what we plan on doing, and solicit your  
15       engagement as we move forward in this area.

16               Just as an introduction the PIER program  
17       was initiated in 1998 as a part of California  
18       electricity deregulation. It's funded at \$62  
19       million a year. It's essentially the research  
20       component to the public goods energy efficiency  
21       program that you've heard a lot about already in  
22       the morning session. It's administered by the  
23       utilities and the renewables programs it's  
24       administered by the CEC. So, we're the research  
25       component that supports public goods programs in

1 this area.

2 In 2005 our program expanded to include  
3 natural gas research starting at \$12 million a  
4 year, and increasing to a cap of \$24 million in  
5 five years. And this is important in the water/  
6 energy sector, particular in the buildings area,  
7 as it's opened up for us the opportunity to do a  
8 lot of research in natural gas water heating. So  
9 it has expanded what we do in water/energy.

10 I'm going to just briefly explain to you  
11 our organization. I've been told that PIER is  
12 somewhat confusing to folks on the outside in  
13 terms of how we're organized. And I accept that  
14 comment. I'm hoping to maybe dispel some of the  
15 mystery just with this explanation.

16 Martha Krebs is our Division Deputy  
17 Director. Martha, you want to raise your hand  
18 just for a moment so people know who you are.  
19 Thank you. And then there's three offices, as I  
20 mentioned.

21 I want to explain this briefly just  
22 because our water/energy research really is not  
23 centered in a single program area. It does cut  
24 across all three of our research offices.

25 There's work we do in the environmental

1 area, led by Kelly Birkinshaw. There's also work  
2 we do in renewables, as well as the buildings  
3 program, led by Ann Peterson. And last, but not  
4 least, Promod Kulkarni leads out industrial ag  
5 water research, which covers probably the broadest  
6 spectrum of the work that we've talked about this  
7 morning in terms of conveyance, distribution, end  
8 uses, as well as water and wastewater treatment  
9 work.

10 So very briefly, the industrial ag  
11 program develops technologies to increase energy  
12 efficiency and reduce emissions and manufacturing  
13 costs for all areas of industry's ag and water and  
14 wastewater systems.

15 The environmental program focuses more  
16 on the environmental impacts of energy production,  
17 delivery and use. Whereas the buildings program  
18 focuses primarily on technologies, design  
19 strategies and tools to improve the energy  
20 efficiency in residential and commercial  
21 buildings.

22 So, again, water cuts across all three  
23 of these areas. I don't mention the renewables  
24 program here, but, in fact, on the generation side  
25 there is also water/energy implications in that

1 area, as well.

2 So I'm going to give you kind of a  
3 bird's eye view of what we do in all of these  
4 program areas. I'm going to run through these  
5 slides very very quickly. My intent is not to  
6 give you a comprehensive primer on all the  
7 research we're doing, but sort of just a flavor of  
8 what the different ongoing research is in each of  
9 these areas.

10 And I'd like to just take a minute and  
11 introduce you to the folks at the end that are  
12 actually managing a lot of this work.

13 So, the environmental program, first  
14 off, is focused on ways to reduce fresh water  
15 consumption by the electricity-generating sector;  
16 and also on reducing impacts on aquatic species  
17 and habitats from the electricity-generating  
18 sector. So, again, much more on the generation  
19 side of the equation. Ways to enhance hydropower  
20 generation with existing infrastructure, as well  
21 as developing the types of tools needed to improve  
22 the understanding of environmental impacts.

23 I'm going to give you probably about  
24 five example projects. This is not the full  
25 spectrum of what the environmental program does,

1 but it'll give you just again a flavor of some of  
2 what we are looking at now.

3 So, one of the projects we're doing now  
4 is trying to understand better how to reduce water  
5 consumption by power plants. So there's a huge  
6 amount of water that's consumed. There's a huge  
7 amount of water that's evaporated. Dry cooling  
8 has been identified as one of the strategies to  
9 reduce this water consumption, but it has issues  
10 of its own, including higher first cost, as well  
11 as higher operating costs, and inefficiencies in  
12 very hot climates. So this research is being  
13 conducted to try to make this dry cooling strategy  
14 much more efficient than it is now.

15 A second project that we have ongoing in  
16 environmental program is determining how to  
17 maximize hydropower generation at large  
18 multipurpose reservoirs. Again, there are a  
19 number of these dams in existence. The one I  
20 don't have shown here is Folsom Dam. But being  
21 able to develop much more accurate forecasts of  
22 runoff is one of the strategies that we see as an  
23 opportunity to optimize hydropower generation  
24 efficiencies.

25 So when to spill, how much to spill, how

1 much to reserve, and being able to maximize how  
2 much we can save for generation. So, having these  
3 runoff forecasts is one of the tools that we see  
4 as being able to help us with that decisionmaking.

5 A third project that we're doing is  
6 determining how to reduce ecological effects of  
7 ramping flows at hydropower facilities. So we  
8 have a need to increase these flows during peak  
9 time periods, but there are environmental  
10 implications of increasing those flows. What  
11 exactly are they, and what can we do to mitigate  
12 those impacts.

13 Another project we're doing is  
14 determining how to reduce ecological effects of  
15 once-through cooling. So this is a very common  
16 strategy used now, but, again, it does have  
17 environmental implications that we're trying to  
18 quantify, understand and help system operators  
19 with giving them the right tools and protocols to  
20 use to manage that.

21 And then another environmental project  
22 that we are doing now is trying to develop tools  
23 to help operators that manage their decisions on  
24 when to use surface and groundwater supplies; how  
25 to optimize that decisionmaking.

1           And then this one is, there's a lot of  
2 work we're doing on global climate change in the  
3 environmental program. There's clearly  
4 implications with global climate change on water  
5 and energy use. So, for instance, in polluted  
6 areas how does that affect some of our runoff  
7 forecasts, et cetera. So we're trying to make  
8 sure that we connect the global climate change  
9 research we do to the water/energy research.

10           And then lastly what are the energy and  
11 environmental tradeoffs between alternative water  
12 supply options of giving local water districts the  
13 types of tools they need to do this lifecycle  
14 assessment.

15           Again, that's just a bird's eye view of  
16 what we're doing in the environmental program.  
17 There are other projects that we're doing related  
18 to water/energy, but that gives you some sense of  
19 where we're going with that.

20           In the buildings programs our water/  
21 energy research is primarily focused on hot water  
22 energy use. As you've heard from other speakers,  
23 in the buildings program we really don't look at  
24 water conservation issues at this point, and we're  
25 trying to do what we can to support both Title 24

1 standards, as well as efficiency programs that are  
2 implemented at the utilities.

3 One of the biggest issues identified is  
4 losses through the distribution system and how can  
5 we quantify what those losses are; characterize  
6 those opportunities; and help the industry  
7 identify ways to both save energy through  
8 different design processes, as well as perhaps  
9 through different standards.

10 Our research that we're planning to do  
11 in the future in this area really again has opened  
12 up because of our ability to do natural gas  
13 research. But it's now including ways to develop  
14 more efficient hot water storage systems, as well  
15 as determining how to better characterize energy  
16 use patterns, both in the residential and  
17 commercial sectors.

18 And then in the PIER industrial ag water  
19 area, there's a number of ongoing projects in this  
20 area. I'm going to describe again those briefly,  
21 but I'd also, at the end of this, like to spend a  
22 few minutes sharing with you some of the planning  
23 that we've done for research that we're going to  
24 be doing in the next year to five years in this  
25 area.

1           One of the projects we're currently  
2 engaged in is trying to figure out how to make  
3 desalination processes more palatable. One of the  
4 issues is the disposal of brine waste and how to  
5 minimize the brine waste that's generated through  
6 this process. So we're now developing some novel  
7 technical approaches to combining reverse osmosis  
8 with other processes to remove the least soluble  
9 salts, and basically reduce the brine waste that  
10 we need to deal with.

11           Another project that we're doing in this  
12 area is to develop performance benchmarks of all  
13 utility processes during the water and wastewater  
14 treatment processes, so that the facility  
15 operators have a useful tool to compare themselves  
16 with how they are doing in various elements of  
17 their processes, with other utilities in order to  
18 identify where they have the greatest opportunity  
19 to improve those processes.

20           Third project we're involved in in this  
21 area is determining how to improve the wastewater  
22 treatment process by making the aeration portion  
23 of that a less energy-intensive activity. And  
24 right now the aeration portion is actually a very  
25 cumbersome process in terms of monitoring it, in

1 terms of optimizing it.

2 So developing a light-weight system for  
3 accurate control and monitoring of the aeration  
4 levels has been a focus of this project. And one  
5 of the key elements of this is being able to do  
6 this inhouse. So, again, the utilities don't need  
7 to go outside to have this done on an irregular  
8 basis, but have a tool inhouse that they can  
9 readily use.

10 Another project we have in this area is  
11 helping farmers with creating options for using  
12 irrigation district surface water as a option that  
13 is a viable option for them. At this point, the  
14 schedules, the fixed schedules that that water is  
15 delivered on really doesn't respond to what the  
16 farmers need to have in terms of flexibility.

17 So developing automatic controls, et  
18 cetera, where they don't need to be there at the  
19 time the water is released has been one of the  
20 issues they've raised to us as something that they  
21 need to have better options for.

22 Another project we're doing in this area  
23 is trying to characterize the efficiency of  
24 variable speed motors in combination with  
25 irrigation pumps. This is a retrofit situation

1 where variable speed motors have been found to  
2 significantly improve the efficiency of the  
3 overall system. But in order for, again,  
4 utilities to understand the exact performance  
5 levels to establish the right rebates, et cetera,  
6 they need more accurate ways of actually  
7 characterizing that performance.

8 And with the help of CalPoly's  
9 irrigation training and research center, we're  
10 trying to develop some techniques to evaluate  
11 these efficiencies more accurately.

12 That is a very very quick bird's eye  
13 view of the current research that we're doing. It  
14 really isn't all of the research. And I know a  
15 couple of folks have already come up to me and  
16 said, well, don't forget to mention this project.  
17 And I just, you know, want to say we feel a lot of  
18 pride, I guess, in the work that we're doing. And  
19 we're hoping that a lot of it has a lot of impact.

20 And we're hoping that the work that we  
21 plan in the future, though, is actually work that  
22 you can engage yourselves with. And I wanted to  
23 give you a flavor of some of the near-term R&D  
24 portfolio planning process that we're engaged in  
25 now.

1           Again, after the energy policy report  
2 process we recognized that there were a lot of  
3 opportunities that we needed to take advantage of,  
4 that we hadn't yet taken advantage of. And so one  
5 of the first things we've done after the  
6 completion of that report is to cull through it  
7 with the specific goals and objectives are that  
8 are identified in there. Determine what is, in  
9 fact, consistent with our Public Interest Energy  
10 Research goals. And cull from that what the near-  
11 term opportunities are that we need to take  
12 advantage of before those opportunities are lost.

13           From there we've looked at those  
14 opportunities and scored and ranked them based on  
15 what we consider to be public interest risk and  
16 benefits. And identified some near-term R&D  
17 opportunities that we're going to be taking  
18 advantage of in the next zero to 12 month  
19 timeframe.

20           And some of the benefits and risks that  
21 we looked at in evaluating this, I share this with  
22 you because I'm hopeful that, as water utilities,  
23 as energy utilities, as end-use customers that  
24 many of you will be involved and engaged with us  
25 as we proceed in our research portfolio.

1           And it's important for us that you  
2 understand, from a public interest perspective,  
3 the things that we need to look at in order to  
4 evaluate a project's viability.

5           But some of the things we do look at  
6 are, first and foremost, energy and demand savings  
7 potential. Secondly, opportunity to leverage work  
8 that's being done elsewhere in the state or in the  
9 country. Preserving opportunities that, again, as  
10 a public interest goal, these opportunities would  
11 be lost if we weren't able to fill this gap.  
12 Filling science knowledge, technology gaps that  
13 wouldn't otherwise be met. And also informing  
14 future research.

15           As far as technology and market risk,  
16 it's a very much an applied research program, so  
17 we're looking at is there a clear market pull for  
18 this research. And is there an existing market  
19 channel such as a program, a regulation, other  
20 industry outlet through which we can channel the  
21 research results.

22           Are there market partners that are going  
23 to be doing this work with us and sharing in some  
24 of the risks. So, this is, again, just a snapshot  
25 of some of the public interest criteria that we

1 look at in determining where we head with our  
2 public interest research.

3 Through this planning process we have  
4 identified a number of near-term opportunities  
5 that we intend to be focusing on. One is  
6 developing models and methods to accurately  
7 characterize energy use intensities through the  
8 energy policy report process. We went and dug  
9 down very deeply through several layers to  
10 understand what these numbers are.

11 And I think we did a great job, but we  
12 also uncovered a lot of unknowns that we need to  
13 dig into further.

14 Developing design strategies and  
15 protocols to optimize large conveyance systems.  
16 As Lorraine showed you earlier, about two-thirds  
17 of our water/energy use is in southern California.  
18 And a large share of that is because of the  
19 conveyance costs. And we want to do some work to  
20 figure out how to better optimize conveyance  
21 systems and minimize those costs.

22 Developing technologies, both hardware  
23 and software, to optimize water and energy  
24 savings. We're working both with water districts  
25 and the California Urban Water Council to identify

1        what the best opportunities are there. And intend  
2        to collaborate with a number of entities in  
3        working in this area.

4                Developing methods for load shifting  
5        through storage and conveyance. I know this is an  
6        interesting one. NRDC mentioned earlier the net  
7        benefits of storage versus nonstorage. And we are  
8        sensitive to that issue. And it's one where we're  
9        going to have to balance the benefits of demand  
10       shifting versus baseline energy use as we consider  
11       storage options.

12               Other demand response opportunities for  
13       water and wastewater, utilities, methods for  
14       recycling industrial process water and methods for  
15       improving irrigation practices. These are some of  
16       the near-term things we intend to focus on this  
17       coming year.

18               And then as a longer term process for  
19       the next five years we're going to be engaging  
20       again a number of stakeholders in a much more  
21       comprehensive roadmapping process. And I'm hoping  
22       that many of you will engage with us as we move  
23       forward in this area.

24               And then lastly but not least, there are  
25       a number of efficiency programs that we do at the

1 Commission as part of our implementation work.

2 Not our research work, but implementation.

3 The energy partnership program offers  
4 technical assistance basically doing audits at  
5 water utilities to help identify the most cost  
6 effective efficiency opportunities. As a follow-  
7 up to that, low-interest loans are available to  
8 support some of those activities.

9 And in collaboration with DOE we're also  
10 doing some best practice workshops. And the next  
11 one is coming up actually in a couple of months  
12 for water and wastewater treatment operators.

13 And if I could just take one more minute  
14 I'd like to introduce you to some of the folks  
15 that are actually managing this work so you can  
16 put a name to a face and know who to connect with  
17 in these various areas.

18 I know a lot of the staff are actually  
19 listening on this presentation today, but aren't  
20 actually in this room because of the space  
21 constraints. But for those who are, I'd like to  
22 just have you meet them very briefly.

23 As I mentioned, Promod Kulkarni leads  
24 the industrial ag program; Rich Sapudar is the  
25 water lead in this area. Promod and Rich, can you

1 raise your hands if you're in the room. There  
2 they are.

3 Ann and Martha, I know, are not here.  
4 Kelly Birkinshaw manages the environmental  
5 program; and Joe O'Hagan is his water lead. Kelly  
6 and Joe. There's Kelly. There he is.

7 And then again on the public programs  
8 side, John Sugar manages that office. Shahid  
9 Chaudry has been the efficiency water lead. Daryl  
10 Mills, the supervisor. And I apologize, Ricardo  
11 Amon also is part of their efficiency water  
12 program in the ag sector. Are all of you in here,  
13 or any of you? Here's Ricardo and Daryl. And  
14 Shahid is hiding back here. I think you've all  
15 seen him.

16 But that's at least part of our team.  
17 There's others that are working in this area, and  
18 I encourage all of you to connect with us as we  
19 all work together as we move forward in this area.

20 Thank you very much.

21 (Applause.)

22 COMMISSIONER BOHN: Thank you. Moving  
23 right along, Lon House, who is a consultant, water  
24 and energy consulting. Lon's done some  
25 interesting research that he's going to share with

1 us.

2 And we are now about eight and a half  
3 minutes behind schedule, so, Lon, I don't want to  
4 put any pressure on you, but --

5 DR. HOUSE: Well, we can start off by  
6 saying you have my presentation. Are there any  
7 questions?

8 (Laughter.)

9 DR. HOUSE: I'm just going to answer  
10 basically four questions. How much water-related  
11 electricity demand is there out there now. Who's  
12 causing this. How much will it increase the next  
13 decade. What are the water policy options. And  
14 then talk a little bit about the policy  
15 recommendations.

16 This is a table, and within by May we  
17 will have finished -- by May we will have another  
18 column here which is the amount of onpeak and  
19 offpeak capacity that's being used by the various  
20 -- within the various utilities. It's been a very  
21 interesting exercise to determine that number.  
22 But we will have that; we're in the final throes  
23 of negotiating with various parties to see what  
24 that number actually is.

25 As you know, agriculture is the largest

1 user of water in the state. But it actually  
2 doesn't use very much energy. Because if you  
3 think about agriculture, it was originally  
4 developed in the old days. And it used gravity  
5 flow. So, the big energy uses are south of the  
6 Tehachapis, and the urban areas.

7 As you can see, I just broke this down  
8 for the urban uses of water. One of the things to  
9 point out here is look how much residential  
10 interior and residential exterior uses in water in  
11 the state. This basically says if you don't deal  
12 with the residential, it'll be very very difficult  
13 to solve this particular problem.

14 And this is just some testimony that  
15 I've previously given to you guys, which is  
16 looking -- and it's sort of a worst case, but  
17 looking at what is the potential for increased  
18 electrical demand within the water sector in the  
19 next decade.

20 The first one is existing conjunctive  
21 use. These are groundwater storage facilities  
22 that are managed for drought, which we haven't had  
23 in about the last ten years. And so you've got  
24 about 350 megawatts of demand that's already  
25 sitting out there in pumps. You guys just have

1 never seen it before.

2 Then it goes through, there's a whole  
3 bunch of new conjunctive use facilities that are  
4 being proposed. There's desalinization; there's  
5 the electrification of the ag diesel pumps;  
6 increased water treatment requirements; increased  
7 water marketing.

8 Because what usually happens with water  
9 marketing is you're taking water that was  
10 traditionally going to ag, under gravity flow, and  
11 sending it someplace else. Which means you've got  
12 to treat it usually, and you've got to ship it  
13 someplace.

14 And then increased recycling use. And  
15 we don't know, or we have an estimate of what the  
16 increased population impact or the drought impact  
17 will have.

18 I just put this up to say, and one of  
19 the things you guys were asking about was, you  
20 know, what can we do. And one of the things  
21 that's sort of the summary of this slide is if you  
22 leave us alone, we can take care of most of  
23 ourselves.

24 And what's happened is that we already  
25 have about 500 megawatts of standby generators.

1 All water agencies are essential services, so  
2 we've got these generators that are sitting there.  
3 And with the exception of the San Diego area, we  
4 cannot use them prior to a blackout.

5 We have 1600 megawatts of hydro. This  
6 is currently -- it has been dedicated to utility  
7 use, but those facilities are now going to be  
8 going out on the open market the next ten years.

9 We got an estimate of about 255  
10 megawatts of new small hydro that's a potential.  
11 Whenever you're driving around town and you see  
12 one of those big beige-colored tanks sitting up on  
13 the top of the hill, that's a small hydro site.  
14 They're pumping water up to that thing. And what  
15 they've got, because it's so high, they've got a  
16 pressure releasing valve that they're releasing  
17 the pressure, it's coming back down the hill.

18 Why aren't any of those things put in?  
19 Well, the main reason is we can't do it  
20 economically. Because these facilities only work  
21 when what, water's draining down the hill, which  
22 happens to be during the peak period. But they  
23 don't operate all the time. So you don't get  
24 enough of a volume.

25 And the other problem is where they

1 produce the electricity is not where we use the  
2 electricity. And we can't sell it out in the open  
3 market because these things are so small that the  
4 ISO scheduler fees will kill us. So, you've got -  
5 - there's hundreds of megawatts of small conduit  
6 hydro.

7 There's biogas. We already have about  
8 38, and we've identified about 36 megawatts of new  
9 biogas, which is either using fuel cells, which  
10 happens to be the latest rage, which is actually  
11 very interesting, natural gas engines or solar.

12 One of the things about solar, one of  
13 the nice things about the water utilities is we  
14 have a lot of space, because you don't usually see  
15 a lot of houses sitting right next to a water  
16 treatment plant.

17 So what we do is we buy a bunch of land  
18 around there, because people don't like to live  
19 next to it. We can put storage solar facilities  
20 in there because we've got that space that we have  
21 to maintain it as a buffer, and this is a perfect  
22 location for solar.

23 This is -- Bob Kinert talked about this,  
24 but this is an example of what happened when we  
25 went into Eldorado Irrigation District. This is

1 one part of their system. This is the Eldorado  
2 Hills fresh water treatment system.

3 And we did an analysis and we said, you  
4 need to do two things. One is -- these are big  
5 40-foot tanks. And what they were doing is they  
6 were turning, they were filling that tank up when  
7 it reached 28 feet. So we said, drop that tank  
8 another three feet. You've still got enough water  
9 to meet your fire requirements and meet your  
10 pressure requirements and everything else.

11 Plus they were building, because that  
12 area's growing, if you've gone up there. They're  
13 going to build another tank. We said, accelerate  
14 the development of a new tank, another 5-million  
15 gallon tank. So they did that. And that's what -  
16 - and you can see what happened down below.

17 The point of this is virtually any urban  
18 water agency that has any elevation at all could  
19 do something similar to this. But they don't do  
20 it because the water tanks, the storage tanks are  
21 being built for water supply, not for energy.

22 Okay, these are my recommendations. One  
23 of the things that we -- one of the problems that  
24 we have is that if we were an electric utility  
25 we're only dealing on the generation side. We

1 don't have any demand side management on the water  
2 side. Because water time-of-use meters don't  
3 exist. And there are no time-of-use meters in  
4 water in place in the state.

5 So one of the things we wanted to look  
6 at, and actually this Commission has a proposal,  
7 is to do a PIER study, which is develop the  
8 protocols for time-of-use water meters; develop  
9 time-of-use water tariffs; and determine what  
10 impact that would make.

11 Because right now, any of the responses  
12 we have to do have to be on essentially the supply  
13 side, which is the pumping side. If we could get  
14 the water customers to start shifting their  
15 demand, just like we do electricity customers,  
16 then we could reduce some of our onpeak  
17 requirements.

18 Under generation, one of the things that  
19 if we were to allow the aggregation of water  
20 agency meters, like we do for demand side  
21 response, you would see a bunch of those small  
22 hydro facilities that are going in. One of the  
23 things that you don't see in that Eldorado project  
24 is that there is -- right now we're looking at  
25 putting a small hydro facility in there. But it

1 would be several years out, because it is about a  
2 mile and a half from the water treatment plant  
3 where the load is. So we have to wait until we  
4 re-do the main conduit to there.

5 We're going to run electrical conduit  
6 from this location to the water treatment plant so  
7 that we can net out against water treatment, the  
8 water treatment plant's electricity use. If we  
9 didn't have to do that, we could put these  
10 facilities in right now. Because where you're  
11 generating electricity is obviously is not where  
12 your pumps are in which you use it.

13 And solar, I don't think I'll talk about  
14 that, all right. This is just a summary, because  
15 I'm running out of time, of demand response  
16 program.

17 There are hundreds and hundreds of  
18 megawatts of new storage facilities available.  
19 But, they're very expensive to build; they're -- a  
20 5-million gallon storage facility will cost you  
21 about \$8 million. And so they're not being built  
22 for energy, because we cannot recover even a  
23 portion of the capital cost during one season, one  
24 summer.

25 So one of the things, as part of the

1 settlement that we had at the Public Utilities  
2 Commission, is we're looking, we've agreed with  
3 the utilities we're going to develop water agency-  
4 specific programs. And one of these is we're  
5 going to see if we can develop a program where we  
6 can amortize, essentially amortize portions of a  
7 storage project over a number of years, say five  
8 years. That would be enough of an incentive to  
9 build the storage facility for energy, energy  
10 onpeak reductions.

11 But because we have to, right now you  
12 basically have to amortize everything over all of  
13 your incremental costs over one year, we don't do  
14 that.

15 Let's see, what do I want to say here.  
16 One of the things that we don't know, and I'll  
17 finish up here, is what the energy impacts of new  
18 regulations are. And one of the things that came  
19 out of the IEPR is there's a lot of, you know,  
20 when we go and testify about arsenic or uranium or  
21 something like that, it's all associated with the  
22 cost that's associated with cleaning up that last  
23 increment of whatever that pollutant is in the  
24 water.

25 But nobody deals with the energy

1 impacts. And all of these things, in addition to  
2 being very expensive, require a huge amount of  
3 energy. And so what you're doing is in addition  
4 to not only dealing with conservation, whether  
5 it's water or it's electricity, with environmental  
6 regulations it's just the cost associated with  
7 complying with that new environmental regulation.

8 And there is no analysis that's done on  
9 the energy impact. And all of the new  
10 requirements that are coming down require  
11 significant amounts more of energy.

12 Okay, that's it.

13 (Applause.)

14 COMMISSIONER BOHN: Thank you very much.  
15 I'd now like to introduce David Morse, who is also  
16 an independent consultant. And he's going to give  
17 a brief review of what is wrong with water utility  
18 ratemaking today. Good luck on making this one  
19 brief.

20 (Laughter.)

21 MR. MORSE: How's everybody doing there?  
22 Would you like to stand up for just 30 seconds of  
23 my time, and just stretch for a minute. I don't  
24 want you falling asleep. Stretch, back, like  
25 this, this. Commissioners. Okay.

1                   Water conservation ratemaking  
2           disincentives. I come from an energy background.  
3           Most of my career was in energy, and I just spent  
4           a brief amount of time -- I just most recently was  
5           in the water side. So I'm kind of looking at what  
6           we're doing in the water industry in terms of  
7           ratemaking from that perspective.

8                   And so one of the first things I noticed  
9           is that our state water conservation policy, the  
10          Department of Water Resources views water  
11          conservation as a key management strategy. The  
12          California Public Utilities Commission, through  
13          its ratemaking practices, actually if a utility  
14          has a successful water conservation program, it  
15          loses money.

16                   So what's wrong with the process? The  
17          current PUC ratemaking practices provide water  
18          utilities an incentive to increase sales. If  
19          sales are above the projected levels, revenues  
20          increase. If water sales decrease, revenues and  
21          profits will decrease.

22                   One California water utility estimated  
23          that a 10 percent increase in sales will result in  
24          a 36 percent reduction in earnings.

25                   Another thing that's wrong with the

1       ratemaking policy, and this is kind of a theme of  
2       this whole symposium, is that when the water  
3       utilities and the Commission Staff look at cost  
4       effectiveness of water conservation programs, they  
5       don't look at energy savings.

6                One other thing I didn't put on there,  
7       but I'm going to talk about a little more later,  
8       is that another problem with water ratemaking  
9       policy is the way rates are done. They are flat  
10      rates. The rate is the same whether you use one  
11      unit of water or if you use lots of units. Now,  
12      this is completely contrary to what is done on the  
13      energy side.

14               California water utilities spend far  
15      less on their water conservation programs than do  
16      the energy utilities. The energy utilities spend  
17      about 3.2 percent of their revenues, equivalent of  
18      their revenues, on energy efficiency programs.

19               Yet the two largest water utilities,  
20      privately owned water utilities in the state,  
21      spend somewhere around .5 to .75 percent of their  
22      revenue equivalent on water efficiency programs.

23               The PUC resolved this conservation  
24      dilemma by decoupling revenues from sales in the  
25      1980s. They did this with an electricity revenue

1 adjustment mechanism for electric utilities and a  
2 sales adjustment mechanism. Those mechanisms have  
3 evolved over the years, but basically are current,  
4 are still in effect. That's one of the major  
5 reasons you see fairly large energy efficiency  
6 programs with our large energy utilities.

7 So, the energy utilities were the first  
8 example of decoupling mechanisms in the country.  
9 Thereafter, several other energy utilities in  
10 other states adopted decoupling mechanisms.

11 The Los Angeles Department of Water and  
12 Power has a decoupling mechanism, although it is  
13 not symmetrical; it just deals with truing up  
14 revenues if they fall short of the projected  
15 level.

16 What we're proposing for water utilities  
17 and what was done for energy utilities is  
18 reciprocal or symmetrical, so that over and  
19 under -- revenues over or under the target level  
20 are adjusted.

21 We do have one water utility, we'll hear  
22 from that later, that does have a decoupling  
23 mechanism. However, it's a partial decoupling  
24 mechanism and it's just devoted to looking at  
25 changes due to an inverted block rate structure

1 that was instituted for an area that was looking  
2 at water rationing.

3 Now, although the current PUC policy is  
4 not encouraging to water conservation, the PUC in  
5 its water action plan, has recognized this dilemma  
6 stating that because water utilities recover their  
7 cost through sales there is a disincentive  
8 associated with DSM. And that the Commission is  
9 considering decoupling.

10 And I'm here to say to the Commissioners  
11 we have here today that we hope to see you  
12 actually adopt decoupling mechanisms.

13 The benefits of decoupling. The first  
14 benefit, it sets a regulatory climate for water  
15 utilities to promote a water conservation program.  
16 That is, instead of having it at .5 or .75 percent  
17 of revenues, we'd like to see that moving up.

18 If we have this conference three or four  
19 years from now, it would be nice to see several  
20 privately owned water utilities having their  
21 conservation expert in here talking about all the  
22 programs they're doing, rather than having the two  
23 large energy utilities taking most of the time  
24 talking about their programs rather than water  
25 programs.

1           It removes the incentive to promote  
2 sales. It aligns the state's water efficiency  
3 policy with state water ratemaking. That is, we  
4 have the DWR and the PUC basically having the same  
5 policy.

6           It aligns utility interests with the  
7 state interests in water conservation. This is  
8 very important. If we have state water  
9 conservation standards or state water conservation  
10 policies, it's important that water utilities are  
11 at least indifferent to enforcing those standards.

12           Right now, a water utility loses money  
13 if it puts in a low-flush toilet. So if we wanted  
14 to have a standard for a dual-flush toilet, we  
15 would like to have the water utilities at least  
16 indifferent to having such a device installed.

17           Another benefit of decoupling is it  
18 minimizes the sales forecasting in PUC ratecases.  
19 Currently in a ratecase the utility has an  
20 incentive to under-estimate sales and revenues.  
21 And the Division of Ratepayer Advocates has an  
22 incentive to over-estimate it.

23           You go through the proceeding with both  
24 parties arguing. They have staff experts; they  
25 have attorneys arguing; it takes Commission time

1 to resolve what forecast is the right forecast.

2 Decoupling, that's no longer an issue.

3           Some would argue probably that one of  
4 the greatest benefits of having a decoupling is  
5 that it sets the stage for better price signals.  
6 Currently, as I mentioned, we have flat rates in  
7 the water industry for private utilities. If they  
8 were to change to an increasing block rate  
9 structure, there is great uncertainty about  
10 collecting revenues. Are you going to over-  
11 collect or under-collect with that change, with a  
12 higher -- block.

13           With decoupling, ratepayers and the  
14 utilities are indifferent to whether you're over-  
15 or under-collecting because any over- or under-  
16 collection will be later trued up.

17           And the last benefit is that  
18 occasionally when there is a drought situation and  
19 the Commission is looking at some sort of  
20 rationing in a particular water utility district,  
21 they will implement very high rates as a temporary  
22 measure. And one of the policy problems is what  
23 to do with collecting extra revenue. If you have  
24 a decoupling mechanism in place, then there's a  
25 way to deal with it automatically.

1           The arguments that we've heard against  
2 decoupling. First, it's that it reduces risk, and  
3 so you need to adjust the utility rate of return.  
4 Curiously, this was not an issue for the  
5 Commission when it did this for energy utilities  
6 some 25 years ago.

7           In other states where this was  
8 considered, and implemented, one Commission noted  
9 that, well, if there is an effect on risk, we'll  
10 capture that over the ratecase cycle, and  
11 subsequent reviews of cost of capital.

12           Another argument is that it will not  
13 reduce costs. Again, the decoupling mechanism  
14 deals with revenues; it does not deal with costs.  
15 So utilities are still at risk for cost recovery  
16 for changes in interest rates and other costs.

17           An alternative sometimes talked about is  
18 rather than have a decoupling mechanism, is to  
19 estimate the amount of conservation savings that  
20 are going to be, and then make an adjustment to  
21 revenues for that conservation savings.

22           Now, first, that doesn't remove the  
23 incentive to increase sales, so you again would  
24 not have the utilities aligned with state  
25 interests for a conservation policy. The other

1 thing it does, it makes the conservation estimate  
2 a high stakes issue in the ratecases. The  
3 utilities will want to under-estimate the  
4 conservation savings, and the Division of  
5 Ratepayer Advocates would want to have a high  
6 number. And then, of course, the ratecase  
7 revenue forecasting would still be controversial.

8 Another suggestion we've heard is that  
9 utilities should first implement inverted rates.  
10 And I would argue that there are benefits to  
11 having decoupling alone, particularly with the  
12 alignment of removing the incentive to promote  
13 sales. That going to inverted rates is a benefit  
14 and something the utilities would consider once  
15 they have a decoupling mechanism.

16 You're not going to do that first.  
17 You're not going to say, do inverted rates and  
18 then we'll look at a decoupling mechanism later.

19 I don't have a lot of time so I can't go  
20 into details about how this works. But just to  
21 say the basic idea, and this is a quote actually  
22 from a Commission decision on how this works, is  
23 that the variations between recorded revenues and  
24 the utilities' authorized revenue requirement are  
25 tracked for subsequent recovery from or refunded

1 to ratepayers.

2 I have a mathematical example here that  
3 would take about 25 minutes to go through. And  
4 I'll just say, if you're interested in that, give  
5 me a call, or look at the references on the back.

6 In implementing the decoupling mechanism  
7 there are some other cleanup issues that have to  
8 be dealt with, particularly in the water industry.  
9 In the energy industry we had a thing called base  
10 rates, so it was a little simpler to do. We don't  
11 have base rates in water yet, so there's some fine  
12 tuning to do with other adjustments to revenues  
13 like balancing accounts.

14 And you can do this, a decoupling  
15 mechanism on revenues or sales, and there are  
16 things like carrying interest adjustments.

17 I'm happy to say that there is a recent  
18 settlement between Cal Water and DRA on Cal  
19 Water's request for a revenue adjustment  
20 mechanism. It's a partial decoupling revenue  
21 mechanism. I say partial because it doesn't  
22 completely resolve an issue of neutrality on  
23 expenses, and it doesn't include the service  
24 charge. So there's still an incentive to  
25 encourage some customer growth.

1           As part of the agreement, Cal Water has  
2           agreed to file for an increasing quantity rate  
3           structure. And the parties could not agree on the  
4           effect, if any, on the cost of capital. This  
5           agreement will be submitted to the Commission.  
6           And if approved, will be implemented.

7           There are several other water utilities  
8           that are interested in pursuing decoupling  
9           mechanisms. Cal Am has one in Monterey; they have  
10          an application before the Commission to do this in  
11          their Los Angeles districts. Golden State Water  
12          and Great Oaks Water are interested. And Golden  
13          State Water actually is working on an application  
14          to the PUC for a revenue adjustment mechanism with  
15          a proposal for increasing quantity rates.

16          And I think some of the other large  
17          class A water utilities are on the sideline  
18          watching, and may be interested in pursuing once  
19          they see what happens with the Cal Water case and  
20          Golden State.

21          I'm not going to go through all this,  
22          but as I said in the beginning, my experience is  
23          with the energy side. And I spent a lot of time  
24          working on long-term resource planning in energy,  
25          and energy efficiency programs.

1           And in some ways where we are today in  
2           water ratemaking regulation is where we were with  
3           energy about 25 years ago. And can look at what  
4           we did then and what we do now, and this is sort  
5           of what I have in phase one of things to do in  
6           terms of ratemaking practices, including adopting  
7           rate adjustment mechanisms, of increasing the  
8           budgets.

9           And one of the most important is the  
10          last one under phase one, is moving to the least-  
11          cost water planning concept where you have demand  
12          management and supply resources considered  
13          simultaneously.

14          I think phase two, which is something  
15          that's -- the bullet I listed there, financial  
16          incentives, is mentioned in the Commission's water  
17          action plan. I think that's something that will  
18          come, too. I think basically the things to do in  
19          phase one, there's a lot on the list to do. And  
20          I'm very hopeful that we can make it happen.

21          And thank you for your attention. And  
22          here's a list of references if you want to pursue  
23          this a little further. Thank you.

24                    (Appause.)

25          COMMISSIONER BOHN: Thank you. I'd now

1       like to introduce David Stephenson, Rates and  
2       Revenue Director for American Water. I guess this  
3       classifies as piling on, so he will identify some  
4       current ratemaking disincentives. David, you're  
5       on.

6                   MR. STEPHENSON: Thank you,  
7       Commissioners. I'm actually going to pick up  
8       where David Morse left off on this, a lot of what  
9       he was referring to in a couple of these areas  
10      were programs implemented by California American  
11      Water Company in its Monterey District, or  
12      programs that we're requesting to implement in the  
13      Los Angeles District.

14                   I'll also talk about the current rate  
15      design and how that really affects what the  
16      customers are doing and what we are looking at as  
17      a company, itself.

18                   The current California Public Utilities  
19      rate design for class A water companies, which is  
20      used for almost all of the companies that are out  
21      there, it's basically an enacted design that was  
22      put into place I believe back in the 1980s. It's  
23      a rate design that's calculated to produce the  
24      revenue requirement. In other words, it's  
25      coupled. Whatever the revenue requirement is, the

1 rate design is set to produce that exact revenue  
2 requirement.

3 Up to 50 percent of the fixed costs are  
4 recovered in a metered proportioned monthly fixed  
5 service fee. The remaining 50 percent of the  
6 fixed charges, and all variable costs, are usually  
7 recovered in a single block quantity rate as Dave  
8 Morse was referring to.

9 In other words, as we are looking at  
10 this, when we have 50 percent of the fixed costs  
11 recovered in the variable rate, it does  
12 disincentivize the water companies from  
13 conservation. Because if they get conservation,  
14 they don't get recovery of fixed costs.

15 And there can be up to three quantity  
16 blocks under the current design, under  
17 extraordinary circumstances. I don't believe  
18 there are any out there right now except for ours  
19 in the Monterey District where we have a variable  
20 design which I'll explain in a moment.

21 Problems with the current standard  
22 design. A large portion of the revenue  
23 requirement is recovered in the fixed monthly  
24 meter service fee. Or it can be. The rate design  
25 is not really conservation oriented. They pay the

1 same rate for one unit, or if they use 50 units,  
2 they pay the same rate.

3 Water utilities do not have an incentive  
4 to promote conservation the same as energy  
5 utilities. This is, again, caused by the fact  
6 that 50 percent of the fixed charges are recovered  
7 in the quantity rate.

8 And the current rate design policy tends  
9 to place a greater burden on low-income and low-  
10 use customers.

11 In the Monterey area we have a different  
12 rate design. And I want to explain a little bit  
13 about it, but the one thing I want to note first  
14 is this design really wasn't placed into effect to  
15 promote conservation as much as it was to react to  
16 State Water Resources Control Board order, which  
17 placed a production limitation on the Monterey  
18 area and how much water we could draw from the  
19 Carmel River.

20 But it acts the same. Basically we have  
21 a tiered design in place that charges customers  
22 that use more water a much higher rate. And I'll  
23 go through that right now, just to let you know  
24 where it's at. And I'm bringing it up to say that  
25 conservation, through rate design, does work in

1 certain areas.

2 For residential customers we're only  
3 charging 25 percent of the fixed charges in the  
4 monthly meter service fee, and not the regular 50  
5 percent. Other classes of customers we are still  
6 at the 50 percent. Low-income customers are not  
7 required to pay the monthly service fee. In other  
8 words, we do have a low-income program instituted  
9 in Monterey. And the reason for that is the rates  
10 are high. We have instituted it there, and it has  
11 been in place since 1996.

12 The remaining portion of the revenue  
13 requirement is recovered in a variable quantity  
14 rate design that has different block structures  
15 for different revenue classifications. We are  
16 allowed a WRAM account to track the difference in  
17 the revenue received under the adopted  
18 conservation design and the revenues that would  
19 have been received under the standard design.

20 In other words, we are tracking the  
21 difference if consumption goes up or down. If the  
22 consumption goes up, we're going to get a lot more  
23 use in the higher blocks. It's basically reduced  
24 to the lower block to keep us levelized and to  
25 make sure that any over-collections or under-

1 collections basically are returned to the  
2 customers or returned to the company.

3 The residential rate design has five  
4 block quantity rate design, with the first block  
5 being set at one-half of the charge that would  
6 have otherwise been calculated under the standard  
7 design. So we say, here's what the flat block  
8 rate would have been; we divide it in half and  
9 start with that.

10 The fifth block is set at eight times  
11 the low block. And in Monterey that's over \$14  
12 per 100 cubic feet of metered usage, which is a  
13 very high rate. All residential customers have a  
14 block rate breakpoints set based on their  
15 individual needs. In other words, the number of  
16 residents, lot size, number of large animals and  
17 other needs. In other words, the design is  
18 tailored to each and every customer in Monterey.  
19 And we have to get this information as customers  
20 sign up, or go out and survey all the customers to  
21 get this information.

22 And only one unit of water is allowed in  
23 the winter months per service connection,  
24 regardless of lot size. In other words, during  
25 the winter we don't expect them to have outside

1 watering. If they do, they're basically going to  
2 pay for it in the high blocks.

3 For other than residential customers we  
4 have, at most, two blocks; and the breakpoints are  
5 set at the normal assumed consumption for similar  
6 businesses. So all the hotels, the hospitals,  
7 everybody else has basically a way to develop a  
8 consumption unit equivalent for each one of these  
9 classes of customers. We look at that and set how  
10 much they should get in each block.

11 I just put this up here. I'm not going  
12 to go through it. It's basically the example of  
13 the Monterey rate design, itself, showing the  
14 various blocks for residential, what the special  
15 use customers pay for, and what all other  
16 customers will pay for.

17 The rationale, again, as I talked about  
18 it, wasn't necessarily conservation, but State  
19 Water Resources Control Board order 9510 required  
20 that the production from the Carmel River be  
21 reduced by 20 percent from historical levels. The  
22 production over the allowed amount could result in  
23 fines of \$3.5 million in the area.

24 We have another source available which  
25 is the Seaside Basin, which is a restricted -- or

1 was restricted to about 4000 feet annually.  
2 There's now been an implementation of other  
3 restrictions in that Basin.

4 The water on the Monterey Peninsula is  
5 very limited; there really is no other source of  
6 supply there. And the Peninsula is drought prone.  
7 About once every seven years there is a drought in  
8 the area.

9 The company's only exceeded the  
10 production limits once since the order was  
11 implemented, and since we implemented a rate  
12 design, a tiered rate design in this area. In  
13 other words, the customers have basically reduced  
14 their consumption approximately 20 percent. And  
15 we have had growth at the same time. Not a lot of  
16 growth, but some growth in the area.

17 We did modify the design slightly after  
18 the one time that we exceeded it. We implemented,  
19 I believe, the fifth block at that time, and with  
20 a little bit higher rates on those blocks.

21 The other item that is important in the  
22 Monterey area between us and the Monterey  
23 Peninsula Water Management District, we do spend  
24 over \$500,000 annually on conservation, between  
25 notices, toilet retrofits, washer rebates, and

1 water audits. We're continuously putting  
2 information out to the public saying this is the  
3 things that you have to do to conserve. So these  
4 items have also worked very well in the area.

5 As Dave talked about, we have a proposal  
6 for our Los Angeles District. This proposal was  
7 filed back in November of 2005, and does look at  
8 the various aspects of the water action plan. We  
9 asked for a slight decoupling of the revenue  
10 requirement from the rate design.

11 The monthly meter fees would be set to  
12 recover about 40 percent of the fixed charges, not  
13 the normal 50. The remaining recovery of the  
14 fixed costs would be in the quantity rate. And  
15 the quantity rate to recover the fixed charges  
16 would be guaranteed revenue stream through use of  
17 a WRAM account. In other words, basically we  
18 would be asking to guarantee the recovery of our  
19 fixed costs in the L.A. area.

20 And we're asking for a full  
21 consolidation of rates for all the service areas  
22 in L.A. Right now we have a partial consolidation  
23 of all the rates, but not a full consolidation.

24 We're also asking for the implementation  
25 of a full cost balancing account basically for

1 purchased water and purchased power.

2 Implementation of a low-income tariff to  
3 protect all classes of customers. Also the  
4 implementation of a distribution infrastructure  
5 surcharge, or in our proposal referred to as an  
6 ISRS, to allow us more latitude in replacing old  
7 infrastructure, and to have customers only pay for  
8 those replacements after the replacements have  
9 been put in service.

10 And the implementation of a conservation  
11 memorandum account which would follow along with  
12 the BMPs. Basically starting to implement more  
13 and more of the BMPs and asking for recovery of  
14 the dollars that we have to spend to implement  
15 those in a memorandum account to be recovered  
16 later.

17 The rationale for the L.A. case to  
18 promote conservation through rate design, to apply  
19 higher cost of water on customers using greater  
20 quantities, allow us more latitude in  
21 infrastructure replacement, and to insure that the  
22 company and the customers that the revenue  
23 requirement will be met, even with conservation.  
24 But also insure that the revenue requirement is  
25 not exceeded due to the decoupling. In other

1 words, keep the rates fair to everybody; keep the  
2 recovery fair to the company.

3 Future considerations that we're looking  
4 at. Accelerated implementation of replacement of  
5 flat rate unmetered services with meters in our  
6 Sacramento area. We are accelerating the program  
7 to hopefully be done in about seven to eight  
8 years, rather than the longer period.

9 Greater decoupling of the revenue  
10 requirement. In the Sacramento area and other  
11 areas where we are replacing the meters, we're  
12 doing it with radio-read meters, so that we have  
13 better accuracy on the data. To understand what  
14 customers are doing on a more real-time basis.

15 Completing the installation of SCADA,  
16 again to allow for better control of our systems.  
17 More widespread use of tiered rates. And greater  
18 implementation of BMPs.

19 And finally, other factors that need to  
20 be considered. We need to get away from current  
21 practices of always looking at the lowest cost,  
22 short-term alternatives. Sometimes some of the  
23 programs may cost more in the short term.

24 System storage improvements to reduce  
25 energy costs. Again, some storage may be less

1 expensive, or less energy -- or more energy  
2 efficient I should say, over time. Replacement of  
3 current production equipment, variable speed  
4 drives will reduce the energy costs.

5           Faster replacement of the older  
6 infrastructure to reduce water loss in a lot of  
7 the areas. Infrastructure is getting old. And  
8 replacement of the local water production  
9 facilities at times with purchased water, which  
10 also may be more energy efficient.

11           And that's it.

12           (Applause.)

13           COMMISSIONER BOHN: To their credit, the  
14 steelhead, or at least some of the steelhead are  
15 back in the Carmel River.

16           I'd now like to introduce Kevin  
17 Coughlan, Director of the Public Utilities  
18 Commission Water Division. Kevin you've met  
19 before and has been introduced to several of you  
20 in the past.

21           Kevin is responsible for pulling all  
22 this stuff together and sorting out our internal  
23 policy apparatus from among the suggestions and  
24 comments made today, and a lot of others that  
25 we've been giving. And so, Kevin, you're on.

1                   MR. COUGHLAN: Thank you. Good  
2                   afternoon, Commissioners, Board Members. I want  
3                   to thank you for the opportunity to be able to  
4                   speak to you here this afternoon.

5                   And following up on your comment,  
6                   Commissioner Bohn, there were many people that did  
7                   the heavy lifting on this water action plan at the  
8                   Commission. I can go into them later.

9                   What I'd like to do is tie the water  
10                  action plan together with what we've heard this  
11                  morning and this afternoon. But as a prelude, the  
12                  water action plan was adopted by the Commission  
13                  five-to-zero last December.

14                  And the plan identifies the policy  
15                  objectives that will guide the PUC's regulation of  
16                  California's investor-owned water utilities. And  
17                  these objectives rest on four key principles.

18                  In the interest of time I'll try to do  
19                  this rather rapidly. The principles were  
20                  basically water quality, reliable water supplies,  
21                  efficiency and reasonable rates and viable  
22                  utilities.

23                  And on that line I'd like to tie in the  
24                  remarks of Lorraine White and Gary Wolff this  
25                  morning as they teed up these principles very

1 well, especially reliability and efficiency.

2 Now, the water action plan adopted six  
3 objectives. And what we're discussing here today  
4 primarily is the second one, the water  
5 conservation programs. But they are interrelated.  
6 And addressing your concern, Commissioner  
7 Grueneich, especially item four, the low income,  
8 that you have to tie all these -- you can't do  
9 them individually. You have to really integrate  
10 all six objectives at the same time.

11 What I'd like to do is just identify the  
12 key words here on why we're doing the  
13 conservation. It's got to be cost effective; it's  
14 got to involve the environment; we have to use the  
15 existing tools that we have to implement  
16 conservation. And most of all, I think we have to  
17 catch up in probably less than one year the 25  
18 years that we have lagged behind the energy  
19 industry on this.

20 And along that line I'd like to commend  
21 the remarks of Bob Kinert, Dave Bruder and Matt  
22 Puffer, who showed that there can be an integrated  
23 water/energy implementation.

24 The first and primary one, this was  
25 addressed by Dave Stephenson just a minute ago,

1       you got to meter the stuff. And also remarkably,  
2       well, the good news is that 85 percent of the  
3       class A water companies have metered service.  
4       That means that 15 percent don't. And we have to  
5       close that gap very rapidly.

6               Education is key. This was brought up  
7       by Mary Ann Dickinson and Bill McDonnell this  
8       morning. And it's amazing to hear that MWD is  
9       spending \$100 million on their education program,  
10      not only in schools, but in the public arena.

11             And, of course, well, we renamed it, but  
12      the final bullet there, the water conservation  
13      summit, this is it. And so we've met one  
14      objective already today.

15             And, again, we heard this morning about  
16      the Urban Water Conservation Council, Mary Ann  
17      Dickinson raised this. Right now it's voluntary,  
18      but the opportunity for the Commission is to  
19      strongly encourage, if not mandate, membership,  
20      especially for the class A and B water companies  
21      to become members of this.

22             The benefit of this is that we'll have  
23      measurable data that we can check these class A  
24      and B water companies and see how efficient they  
25      are on conservation.

1                   Now, much of this, I think, is going to  
2                   be low-hanging fruit in the next several months  
3                   for the Commission, with these energy efficiency  
4                   rate designs. You've heard from the two Daves,  
5                   Morse and Stephenson, about some of the rate  
6                   design proposals that will be appearing on you  
7                   desks in the next few months. And strongly  
8                   encourage you to review those very carefully.

9                   And another item that's not actually on  
10                  this, that learned today, wasn't in the water  
11                  action plan, but the topic that Lon House brought  
12                  up, why not time-of-use. Something that we should  
13                  consider longer term.

14                  And, again, tying in the integrated  
15                  nature of the objectives of the water action plan.  
16                  I note again the -- yeah, the fourth bullet, that  
17                  this rate design has to be done carefully in  
18                  consideration of any low-income program that we  
19                  have.

20                  Okay, and this is a follow-up to -- the  
21                  first thing, before we even consider incentives,  
22                  we've got to get rid of the disincentives. And  
23                  you've heard that very well from Dave Stephenson  
24                  and Morse already.

25                  Okay, as far as establishing incentives,

1 I think what's key here is the presentations that  
2 we heard from Nancy Jenkins and Lorraine White,  
3 working with the PIER program. We're really in  
4 our infancy here. Like I say, we're 25 years  
5 behind the energy industry on water conservation,  
6 and the integration of water and energy. That  
7 it's very important that we get good data and  
8 develop some studies that will implement programs  
9 that will encourage and provide incentives for  
10 reasonable and rational rate design.

11 And finally, I'd like to just say that  
12 it's real important that we all consider that this  
13 is just day one. And I think the integration of  
14 all of these people here today is to be commended.  
15 But it's going to be a very long road, and  
16 difficult for us to catch up with 25 years. But I  
17 think we have the water action plan to guide us,  
18 as well as the Energy Commission and the other  
19 industries here today to help guide us.

20 Thank you very much.

21 (Applause.)

22 COMMISSIONER BOHN: Thank you, Kevin,  
23 very much. I realize that was a lot of  
24 information to compress.

25 We're going to do questions and answers

1 now until 3:45. Public comments are welcome. I  
2 have some cards here which I will go to at random.  
3 Those of you who have not submitted your cards,  
4 those of you who want to stand up and be called  
5 upon, we'll do that at the end.

6 But we have a first question, since  
7 there always needs to be a first question, from  
8 Gary Wolff. Gary, will you step up to the  
9 microphone and ask your question.

10 MR. WOLFF: Yes, as I said this morning,  
11 I support the implementation of a water RAM  
12 subject to details, as discussed. But that only  
13 gets us half way. That gets us to sort of no  
14 disincentive for conservation. I was glad to see  
15 Kevin had a slide on going beyond that to positive  
16 financial incentives for conservation.

17 And so I was curious for the IOUs  
18 present how you would feel about a rate of return  
19 that depends on conservation achievements. So,  
20 for example, and this is just an example, if you  
21 had lower water use per capita over time you'd  
22 earn a higher rate of return.

23 And a similar question for Lon. Is  
24 there any way within the public sector you can  
25 imagine creating a financial incentive for that

1 type of thing, lower water use per capita.

2 MR. STEPHENSON: I guess I get to answer  
3 for the IOUs. I guess in our case we would  
4 definitely consider it. It's something that would  
5 have to be looked at over time to see how it would  
6 actually impact what we're doing.

7 Sometimes there is control over water  
8 consumption to a degree. Sometimes there is less  
9 control in a certain area. So you'd have to look  
10 at that at the same timeframe. But I think that  
11 we could definitely consider it in most of the  
12 areas.

13 COMMISSIONER BOHN: Anybody else want to  
14 comment on that one?

15 MR. MORSE: I want to comment, not for  
16 the water industry, because I'm just an  
17 independent consultant, but my years of experience  
18 on the energy side, I think that in answer to the  
19 question about financial incentives for water  
20 utilities, I think a good place to look is at the  
21 financial incentives that are done to energy  
22 utilities, which aren't normally with greater  
23 return, but looking at program achievements.

24 And if it's worked there, I think that  
25 would be a place to start looking at a way to do

1 it in the water industry.

2 COMMISSIONER BOHN: Question from Debbie  
3 Cook who came up from southern California.

4 MS. COOK: Actually I have a public  
5 comment, so I'd be happy to wait until then.

6 COMMISSIONER BOHN: You may go ahead and  
7 public comment. You may never get another chance,  
8 so take it when you can.

9 MS. COOK: Okay, well, thank you very  
10 much. I guess what I'd like to say, I would like  
11 to stress something that was not stressed today,  
12 and it's my biggest concern; it's the need for a  
13 bigger sense of urgency with regard to our coming  
14 energy crisis that I see.

15 And maybe some of you don't know this,  
16 but North American natural gas production peaked  
17 in 1999. And that's despite the fact that we've  
18 increased the number of wells in production  
19 dramatically. And, in fact, in Canada they've  
20 tripled the number of wells in production over the  
21 last ten years, and only remain flat in their  
22 production.

23 And so I have very serious concerns  
24 about that. Oil and Gas Journal believes that  
25 world production of natural gas will peak in the

1 year 2019, which is only 13 years from now. And  
2 so when you start considering liquified natural  
3 gas, who's going to want to put that kind of  
4 capital into infrastructure for a product that's  
5 going to be on the downhill slide after the year  
6 2019.

7 I think the United States dodged a huge  
8 bullet this year because we had a mild winter. I  
9 think Europe experienced what we could have  
10 experienced, and we're very fortunate. And we  
11 really should consider that a wake-up call.

12 Virtually all of the liquified natural  
13 gas supplies that the EIA assumes will be  
14 available in the U.S. market in future years must  
15 be obtained from projects that have not been  
16 built. And must be shipped on tankers that have  
17 not been constructed.

18 And I'd also like to point out that  
19 Alaskan gas, the EIA says we will not have a gas  
20 pipeline until the year 2016 at the very earliest.

21 So I see this as a very critical issue.  
22 And this is something that we need to stress more  
23 often, that everything we can do to conserve  
24 energy, including putting a stake through the  
25 heart of ocean desalination, which uses ten times

1 more energy than groundwater; and two to two and a  
2 half, to three times more energy than imported  
3 water, we must do now.

4 So, I just came to express my sense of  
5 extreme urgency that we start to recognize that  
6 everywhere in the State of California, and start  
7 to address the conservation programs that need to  
8 be implemented on a crash course basis.

9 So, thank you very much for your time.

10 COMMISSIONER BOHN: Thank you very much.  
11 Jack Hawks, California Water Association.

12 MR. HAWKS: As Kevin mentioned, this is  
13 the first major milestone of implementation of the  
14 water action plan. And my question was really  
15 pretty simple, Kevin. Concerns the implementation  
16 of the water action plan from here on.

17 On the last page of the water action  
18 plan you state that there's 32 action items that  
19 are going to be implemented, a combination of  
20 generic rulemakings and individual company  
21 proceedings, like Dave's, and Golden State's.

22 Is that still the plan? I just want to  
23 hear a little bit more about the timetable. Is it  
24 going to continue to be that mix? Is it going to  
25 be moreso on the individual company proceeding

1 side, et cetera?

2 MR. COUGHLAN: Okay. We've already  
3 mentioned several proceedings that are going on  
4 now that are addressing many of the rate design  
5 issues. We've done something that will eliminate  
6 the water balancing account from the way it was  
7 structured, I think next month.

8 The ratecase plan so that we can  
9 efficiently do ratecases, not only to look at the  
10 revenue requirements, but conservation, as well,  
11 has to be streamlined a little bit more so we'll  
12 probably be opening a rulemaking on that. I'd say  
13 sometime second -- or third or fourth quarter of  
14 this year.

15 On the low-income side I think we still  
16 need some data because many of the districts that  
17 we have right now, one of the unique features of  
18 the water industry, it has multiple districts,  
19 like Cal Water Service has 24 districts scattered  
20 around the State of California.

21 And one of the characteristics of these  
22 districts, they tend to be homogeneous with their  
23 demographics. A lot of wealthy people, a lot of  
24 poor people. So if you have a low-income program  
25 in a very poor district, don't make any money more

1 than the poverty level, otherwise your water  
2 bill's going to be pretty large.

3 So we have to work through some of that,  
4 and we have to find out what needs -- we need to  
5 collect data from the utilities on where this is  
6 and how to do it.

7 The other major milestone that we're  
8 looking for is having a similar symposium on water  
9 quality. Members of the water division and  
10 Commissioner Bohn's Staff, and strategic planning  
11 will be meeting I think it's next week to scope  
12 that out.

13 So some of it's going to be individual  
14 proceedings, and some of it's going to be generic  
15 proceedings. So the water action plan is in  
16 effect and there's no real change to what was in  
17 it published last December.

18 COMMISSIONER BOHN: Thanks, Kevin.

19 Chris Frahm. Hatch and Pavent?

20 MS. FRAHM: Hatch and Parent.

21 COMMISSIONER BOHN: Parents, all right.

22 MS. FRAHM: Come on, you know that. I  
23 guess my first question, and I'll make it  
24 rhetorical, is whether you just got the shudders  
25 when you heard about the stake in the heart of

1 desalination.

2           You know, we're here talking about  
3 integration, and I was fascinated by that comment.  
4 Because certainly water agencies all across  
5 California are certainly looking to see water  
6 desalination as being a very critical part of the  
7 water supply. But that just was prompted by that  
8 comment.

9           First I just want to congratulate  
10 everyone on the water action plan. It's been such  
11 a great kickoff. Also this Commission, in terms  
12 of the work that it's done to try to level the  
13 playing field to allow the utility customers to  
14 benefit from state bond money.

15           Somebody talked earlier about coloring  
16 outside the lines. I think ultimately successful  
17 implementation of this water action plan is only  
18 going to occur if you can realistically deal with  
19 rate issues.

20           And I think that's where the test has  
21 got to come. Everything is going to be through  
22 rates. And in order to get there there's going to  
23 have to be real world solutions. Bond money  
24 brings new value to the table.

25           We're talking with a group of diverse

1 stakeholders now about looking at statewide  
2 lifeline rates. We've got to look, in my opinion,  
3 to expand the pie of where we find resources in  
4 order to meet the needs of utility customers.

5 So I hope, as we're moving forward, and  
6 I put these in the category of questions for  
7 Kevin, that we'll be very open and flexible about  
8 not only coloring outside the lines, but possibly  
9 finding a whole new coloring book when it comes to  
10 rates.

11 Final comment. Integrated regional  
12 water management planning, it's the future of  
13 California. We heard about it today with water,  
14 with energy. Currently under the Regional Water  
15 Management Planning Act utilities are not even  
16 eligible participants in regional water management  
17 plans. That would be a very small step. And if  
18 the Commission, perhaps working with DWR and  
19 others, if we could get that fixed.

20 There is a bias against utilities, you  
21 have to know that, in California. Association of  
22 California Water Agencies, utilities are not  
23 their, you know, most favored group of entities in  
24 the state. And that kind of support coming from  
25 the Commission and coming from DWR, who has been

1 wonderful, along with this Administration, will  
2 make a big difference when we get to all of the  
3 thorny implementation issues on the water action  
4 plan.

5 Sorry to be so long, and thank you.

6 COMMISSIONER BOHN: Thank you. Kevin,  
7 do you want to comment? Or does anybody want to  
8 comment on Chris' --

9 MR. JOHNS: John, if I could.

10 COMMISSIONER BOHN: Please.

11 DEPUTY DIRECTOR JOHNS: Jerry Johns,  
12 Department of Water Resources. I want to  
13 apologize for being late. I spent the morning  
14 getting drilled by the dentist, and most of the  
15 afternoon being drilled by our water people, and  
16 then by the fish people. So this is actually  
17 quite pleasant here today, thank you very much.

18 (Laughter.)

19 DEPUTY DIRECTOR JOHNS: Just one comment  
20 on Chris' is that on the integrated regional  
21 management aspects of this, IOUs can participate  
22 in that. They just can't lead it. But certainly  
23 we understand that the group, the regional program  
24 has got to include both the water districts and  
25 the IOUs in that process.

1           So it's not a problem of being part of  
2           it and benefitting from the resources from it;  
3           it's just we need three folks that are involved in  
4           it that can help lead it that are public agencies,  
5           and then the IOUs can fit within that regional  
6           plan.

7           COMMISSIONER BOHN: Good, thank you very  
8           much. Does that do it for you, Chris?

9           MS. FRAHM: No, it doesn't because the  
10          practical reality, Jerry, in other parts of the  
11          state is you do have areas that will specifically  
12          exclude the utilities from participation. And  
13          being treated like a second-class citizen does not  
14          work.

15          It would be so simple to add to the Act  
16          to make it all public water suppliers. Then the  
17          debate is over. This debate goes on all across  
18          the state. I'm sure every water utility here  
19          would tell you that just getting a seat at the  
20          table is an issue.

21          DEPUTY DIRECTOR JOHNS: We need to talk  
22          to the Legislature about that, because the way  
23          it's written currently we can't do that. We've  
24          interpreted the regulations to allow IOUs to  
25          benefit from the bond fund, as you know. That's

1 an issue we're going to have to work through the  
2 Legislature.

3 COMMISSIONER BOHN: Okay. More later on  
4 that one. Curtis Aaron, City of Fontana. Curtis.

5 MR. AARON: Thank you very much for  
6 hearing me today. Great symposium. I was  
7 especially enthralled by Mr. Morse's decoupling of  
8 rates. I think that's something that our city  
9 would encourage.

10 As you know, we live in a desert  
11 community and there is not a excess amount of  
12 water out there. And we're looking at water  
13 recycling in conservation as an element of our  
14 community.

15 Currently our independent operator does  
16 not provide that. And that's something that we  
17 think this water action plan will provide for our  
18 community.

19 And we would encourage the Commission  
20 and the Department of Water Resources to encourage  
21 these programs. And I really enjoyed today, thank  
22 you.

23 COMMISSIONER BOHN: Thank you. George  
24 Barber, Paradise Irrigation District.

25 MR. BARBER: Good afternoon and thanks

1 for your time. From a very small water district  
2 up in northern California, heard a lot of good  
3 things today.

4 A couple of comments directed at Lon  
5 House's discussion. I'm in total agreement that  
6 there's a lot of potential energy projects, maybe  
7 small, but grouped together they add up. And  
8 they're very green energy projects, but they can't  
9 be developed under the existing distributed  
10 generation rules.

11 So, looking at opening that up a little  
12 more would certainly help develop some of these  
13 projects.

14 And the other comment was I liked  
15 hearing his comment about time-of-use for water  
16 rates. And to further develop that concept if the  
17 PUC were to encourage the electrical utilities to  
18 work with water districts to partner together in  
19 meter-reading issues, then a small district  
20 could -- we can put the meters in, but when you  
21 start having to spend the money for the overall  
22 software development and collection of that data,  
23 it gets quite expensive.

24 If we had a way to leverage the existing  
25 data collection of the electric utilities, I think

1 it would benefit a lot of people.

2 Thanks.

3 COMMISSIONER BOHN: Thank you. Yoram  
4 Cohen, Water Technology Research Center, UCLA.

5 DR. COHEN: Thank you for the  
6 opportunity to be here today. I represent the  
7 Water Technology Center at UCLA, which is fairly  
8 new and deals with various issues of new water  
9 production.

10 I have to say that I was very very  
11 impressed with the level of recognition of the  
12 connection between water and energy; and I  
13 certainly have learned quite a bit today.

14 As someone who's involved with many of  
15 my colleagues in, some would say, esoteric  
16 research, and dealing with the abstract and new  
17 ideas that perhaps are not on the table  
18 immediately for utilization, I think that I'd like  
19 to sort of leave you with a message, or encourage  
20 the Commission to also consider in this wonderful,  
21 long-term planning, to also consider the potential  
22 impact of future technology.

23 That is not simply technology that is  
24 available to us today, off the shelf, because then  
25 we're planning for 20 years from now based on

1       technology that we have today. And the technology  
2       that we have today is actually technology that, in  
3       itself, is probably about 20 years old.

4               For example, we heard a lot about  
5       desalination and how expensive it is. The fact is  
6       that this is a 30-year-old technology. And the  
7       fact is that it's not as expensive as water  
8       conveyance when we look at water conveyance to  
9       southern California. So brackish water  
10      desalination is, in fact, cheaper. But one has to  
11      look at the technology overall.

12             The point is that years ago Sid Loeb at  
13      UCLA actually developed the first reverse osmosis  
14      membranes when they said it wasn't possible.  
15      However, I think the Commission here has really an  
16      opportunity to then target research and technology  
17      development if one includes sort of your  
18      futuristic outlook at what is needed, and how that  
19      may impact future ideas and, you know, future  
20      regulatory approaches and plans for water and  
21      energy interaction.

22             So, with that, I'm just going to leave  
23      you with again the same message that says, let's  
24      see if we can incorporate future technology  
25      development, because that will help us to actually

1 target what may be needed and what the Commission  
2 may feel is important in terms of future research  
3 and support for such areas.

4 Thank you.

5 COMMISSIONER BOHN: Thank you. Krista  
6 Clark.

7 MS. CLARK: Thank you. I'm Krista  
8 Clark; I'm with the Association of California  
9 Water Agencies.

10 I wanted to thank you for holding this  
11 day-long event here today. This is something  
12 we've wanted for a very long time at ACWA. We've  
13 been working with Lon House for years now. And  
14 we're glad this is finally getting the attention  
15 it needs.

16 It's nice to see the gentleman from  
17 Paradise Irrigation District here. We also fully  
18 support the programs that were outlined in Lon's  
19 presentation, time-of-use meters, some  
20 construction of some additional storage. We look  
21 forward to developing those programs.

22 And also building up the incentives  
23 idea. We understand some of the rate issues, the  
24 rate structure issues that some of the IOU water  
25 utilities are dealing with. We'd like to see some

1 incentives, as well, for public agencies built in  
2 for water conservation efforts.

3 One thing I'd like to bring to mind is,  
4 as you may know, there was this year a reduction  
5 in the incentives, the rebates for solar power.  
6 And it appears that those reductions have probably  
7 priced public water agencies out of the solar  
8 business at this point. It's unfortunate, and  
9 maybe there's something can be done about that in  
10 the future.

11 But, nonetheless, thank you, again. We  
12 look forward to working with you more.

13 COMMISSIONER BOHN: Thank you. Ranjiv,  
14 I'm sorry I can't read your last name.

15 MR. GOONETILLEKE: Don't worry about --

16 COMMISSIONER BOHN: Even if I could read  
17 it, I'm not sure I could pronounce it, Ranjiv, I  
18 apologize.

19 MR. GOONETILLEKE: That's fine. It's  
20 Ranjiv, I'm with SoCalGas. I have a question --  
21 again, I want to thank you, too, for the  
22 symposium. I think it's very timely, it's very  
23 important, and I learned a lot.

24 The question I had, as we've now got  
25 water and we've integrated with energy, and the

1 next step is air quality and emissions. Because  
2 when you save water, you save energy; when you  
3 save energy, you save -- there's a reduction in  
4 emissions.

5 Is there any work that has been done on  
6 that? Or is there any plans to bring that  
7 together? There is a quick payback that'll stem  
8 from this, and that's in demand reduction.  
9 Because every water agency has backup generation  
10 ready for when the grid goes down.

11 And right now when you talk to them they  
12 always say, well, when there's no electricity I'll  
13 run my emergency generator. But the ISO would  
14 like to see the emergency generator running before  
15 the ISO has a problem.

16 And how that would come about is if the  
17 emissions people would allow them to do that.  
18 Right now they're under a restriction of so many  
19 hours, 200 hours a year for emergency backup  
20 generation.

21 And if they could run it half an hour  
22 before the problem occurred, Debbie Clark wouldn't  
23 need to worry so much.

24 That's my question.

25 COMMISSIONER BOHN: Commissioner

1 Grueneich.

2 COMMISSIONER GRUENEICH: Yes. I believe  
3 you're talking about restrictions, in my memory is  
4 set by the local Air Quality Management Districts,  
5 and that's not something that we at the Public  
6 Utilities Commission or anybody participating  
7 today has the legal authority to change.

8 What we are looking at on a broader  
9 scale is the greenhouse gas emission reductions.  
10 And as part of our energy efficiency programs we  
11 do require our utilities to submit information to  
12 us on reduction in greenhouse gases.

13 And I would assume as we get more into  
14 the water conservation area that we'll also be  
15 asking for reporting from our water utilities.

16 DEPUTY DIRECTOR JOHNS: Actually, if I  
17 could add that the Governor's Office is pretty  
18 heavily involved in this idea of greenhouse gas  
19 emission reduction. And they're talking to us  
20 also about water conservation in terms of reducing  
21 greenhouse gases, too.

22 So we see kind of a double benefit here,  
23 water conservation, not only does it reduce energy  
24 use but also reduces greenhouse gas emissions.  
25 And that's something they're pushing pretty hard

1 on.

2 COMMISSIONER BOHN: Karsten Mueller.

3 MR. GOONETILLEKE: The point I was  
4 trying to make, though, was that that was already  
5 mentioned about carbon dioxide reductions. But  
6 it's the NOx and VOCs and carbon monoxide  
7 reduction that if you could get credit for that,  
8 and the water agencies would then, because they're  
9 conserving water, they're conserving fuel,  
10 conserving energy, have reduced emissions.

11 If they could get credit for that they  
12 could actually trade it to running their backup  
13 when it's needed by the grid. That's where I was  
14 trying to take that.

15 COMMISSIONER BOHN: Karsten Mueller.

16 DR. MUELLER: Yes, so I just want to  
17 reiterate what others said. Thanks for having  
18 this symposium. And I'm very encouraged to see  
19 that the water folks are receiving the same  
20 respect and treatment that energy folks have been  
21 receiving for years.

22 And I think the logical conclusion of  
23 this exercise is to integrate everything. And  
24 that would be having conversations with the  
25 California Integrated Waste Management Board,

1 Cal-EPA and Cal-OSHA, Air Quality Management  
2 Districts. And this is kind of -- green building  
3 is a good template for that, because that's what  
4 we're trying to achieve, is to integrate all of  
5 these conversations and have a seamless system so  
6 that you can go back and you can recommission  
7 existing buildings. You can do new construction;  
8 you can do residential.

9 And so I just want to encourage you to  
10 take a good long look at green building and really  
11 consider that as a template that could encompass  
12 all of these conversations.

13 COMMISSIONER BOHN: Thank you. You and  
14 the water business are beginning to sound like  
15 Rodney Dangerfield.

16 (Laughter.)

17 COMMISSIONER BOHN: John Thorson.

18 MR. THORSON: Good afternoon; I'm John  
19 Thorson, an Administrative Law Judge with the  
20 CPUC, although I've spent most of my professional  
21 career as a water attorney and water law judge.

22 I want to ask the question of what  
23 happens to the salvaged or conserved water. And I  
24 think I have to ask that as sort of a policy  
25 question.

1           I laud the techniques and the policy  
2           approaches we've talked about today, but it is the  
3           issue of what happens within a service area if  
4           water's conserved. Is the saved water made  
5           available for future growth? Is that growth as  
6           efficient in terms of energy and water use?

7           If the water goes back to the river or  
8           to the aquifer, the same question, what happens to  
9           the water.

10          It may go to a junior user who may be  
11          less efficient, both in terms of energy or water,  
12          or may go to the environment.

13          I think this might be a research need  
14          that would be worth pursuing. Thank you.

15          COMMISSIONER BOHN: Thank you. That  
16          exhausts the number of green cards. Is there  
17          anybody else who would like to make a comment?

18          MS. WHITE: We do have a few people on  
19          the phone, as well, Commissioner.

20          COMMISSIONER BOHN: Okay.

21          MS. WHITE: As soon as we exhausted  
22          those within the audience that would like to ask  
23          questions, we'll perhaps open it to people on the  
24          phone who may have questions.

25          COMMISSIONER BOHN: Okay. There was a

1 person there. Yes, sir. Would you identify  
2 yourself, please, when you come up.

3 DR. SPILLETT: My name is Pete Spillett.  
4 I'm working with American Water currently in  
5 California. But I actually work for the parent  
6 company, Thames Water, in the U.K.

7 And I found the debate today  
8 fascinating. But I was going to suggest in  
9 looking for best management practices on water  
10 efficiency you might stop reinventing the wheel by  
11 looking at what's been happening in Europe these  
12 last ten years.

13 Because a lot of what was discussed on  
14 water conservation is already standard practice.  
15 In the U.K., after the droughts in '95/6, the  
16 economic regulator, the equivalent of the CPUC,  
17 made it mandatory that all the private water  
18 companies have a water conservation strategy. And  
19 they've been carrying out this ever since.

20 In the London area, average consumption  
21 of water per capita is a quarter of the average  
22 consumption here in the States. So the average  
23 use per head is only 40 gallons. And the  
24 regulatory over there already thinks that's too  
25 high. So, I'm simply saying there's a long way to

1 go.

2 Also on questions of behavior and  
3 incentives, it's very difficult to get customers  
4 to change their behavior, especially when pricing  
5 of both electricity energy and water is relatively  
6 cheap here.

7 In the U.K. at the moment, in the  
8 southeast, they're facing a drought after 16  
9 months of below-average rainfall. And the  
10 government is wanting to bring two million new  
11 houses into the southeast. So the industry is  
12 trying to get the government to make it a  
13 statutory requirement of the planning side that  
14 all new houses built in the southeast are built  
15 with water and energy efficient devices, so that  
16 you're guaranteed a considerable reduction in  
17 water use.

18 And just to echo one other point that  
19 was made earlier, the water companies all publish  
20 energy reduction targets and greenhouse gas  
21 emission targets. But the new standards on  
22 treatment coming over with new directives on both  
23 the waste and the clean water side mean there's a  
24 rising baseline.

25 And I think over here, apart from

1 conservation, to echo an earlier speaker's,  
2 questioner's point, you're going to be heavily  
3 dependent on desalination and reclamation, both of  
4 which have higher energy demands.

5 Thank you.

6 COMMISSIONER BOHN: Thank you very much.  
7 One more question inside, and then we'll go to the  
8 phones, if there's anybody. Yes, ma'am, there you  
9 are.

10 DR. NEWMARK: I'm Robin Newmark from  
11 Lawrence Livermore National Laboratory. And it's  
12 more of a comment and applause.

13 As you know, and as mentioned earlier,  
14 the national scene is beginning to focus on the  
15 nexus of energy and water. And I wanted to  
16 mention and applaud the participation of both the  
17 CPUC and the CEC in national roadmapping efforts  
18 to help establish such a program.

19 And, again, to note that California is  
20 the only state that has begun to gather the type  
21 of data for the benchmarking foundations for that  
22 national program.

23 So, once again, leadership is very  
24 important, and this activity is extremely  
25 important on the national level, as well.

1                   COMMISSIONER BOHN: Thank you very much.  
2           Lorraine, are there any questioners from the other  
3           end of the phones?

4                   MS. WHITE: Would our phone service  
5           person open up the lines for any individual on the  
6           conference call wishing to ask a question, please.  
7           Is anyone on the line requesting information?

8                   Commissioner.

9                   COMMISSIONER BOHN: Okay, thank you. I  
10          saw one more question in the back that we'll take.

11                  MR. KAMMERER: Kurt Kammerer, Kammerer  
12          and Associates. I work with a lot of local  
13          governments on energy efficiency. And I'd like to  
14          reiterate the Councilwoman from Huntington Beach,  
15          the sense of crisis.

16                  I recently read a headline that our  
17          reservoirs are full with water; as I drove down  
18          the street, it's raining, sprinklers were going  
19          off, all is good.

20                  I think it's inherent for government and  
21          regulators to have a long-term vision. And when I  
22          say long-term, I mean 50 years. And if we look at  
23          the statistics of demographics and growth in this  
24          state, if we don't keep our mind on 50 years from  
25          today when our population will double, we won't

1 capture the sense of the crisis.

2 And I think that's the problem in the  
3 energy industry, many are debating whether the end  
4 of oil is 20 years from now, or 20 years ago. So,  
5 we're not moving on that problem.

6 So, I'd like to just encourage  
7 policymakers to truly take a long-term vision.  
8 And that's not ten years, I think it's 50 or 100  
9 years.

10 Second, I just have a quick question for  
11 the gentleman from Monterey. I understand  
12 Monterey has a time-of-sale mandate to upgrade  
13 homes at time of sale to water conservation. I'm  
14 curious as to what was the motivation to do that,  
15 because many are looking at time of sale  
16 inspections for energy conservation, and I think  
17 that would be a good -- and how did you overcome  
18 the challenges to that?

19 MR. STEPHENSON: It's actually a policy  
20 of the Monterey Peninsula Water Management  
21 District in the area. And that was really  
22 instituted, I believe, back in the late '70s when  
23 we did have a crisis in Monterey where we didn't  
24 have the production facilities to produce the  
25 water necessary to serve the customers of that

1 area.

2 So a lot of policies were instituted at  
3 that time. Retrofitting the homes at time of sale  
4 definitely was one of the policies, with all new  
5 fixtures within the bathrooms, kitchens and  
6 everything else.

7 So it was instituted; it's still a  
8 policy today. Even homes that have not been sold,  
9 most of them have been retrofitted, or a lot of  
10 them through other rebate programs.

11 MR. KAMMERER: Is that working? And is  
12 that something we should consider on the energy  
13 side?

14 MR. STEPHENSON: It definitely is  
15 working because when I did a study a number of  
16 years ago, we looked at it and actually -- what we  
17 calculated out was about -- well, our average  
18 usage back then was about 9 units per customer per  
19 month.

20 Now we have gone down; we're in the 7  
21 ccfs per customer per month range. Part of that  
22 is definitely due to retrofitting the homes,  
23 themselves. So there's definitely an effect of  
24 retrofitting, and definitely an effect with the  
25 toilets.

1 MR. KAMMERER: Thank you.

2 COMMISSIONER BOHN: I just bought a  
3 house in Carmel, and I can tell you it's working.  
4 And I can tell you it's vigorously enforced.

5 (Laughter.)

6 COMMISSIONER BOHN: I think we're moving  
7 down to the end of our discussion today. And let  
8 me make just a couple of comments before I ask the  
9 others on the dais to comment.

10 I once worked for a gentleman who had  
11 one of the bigger management jobs, I think we'll  
12 all agree. And he had a little sign on his desk  
13 that said, "It's amazing what you can accomplish  
14 when you don't care who gets the credit."

15 I think one of the themes that goes  
16 through the discussions today is the importance of  
17 cooperation and coordination and talking among  
18 ourselves as to how to get this done.

19 I come out of the private sector, and,  
20 you know, my sense of the order of play is we can  
21 accomplish a great deal by occasionally just  
22 sitting around the table over a cup of coffee or a  
23 glass of wine, and saying, you know, how are we  
24 going to fix this stuff.

25 I hope that this is the beginning of

1 that kind of conversation. And I would hope very  
2 much that you and any others who are involved in  
3 this discussion will undertake your comments and  
4 your contributions in that frame of mind and with  
5 that understanding.

6 There's a lot of stuff to do; it's got  
7 to get sorted out. There is a real sense of  
8 urgency, I think, among the PUC; and I'm sure  
9 among others, of we can accomplish a lot more if  
10 we do all of that in a spirit of cooperation and  
11 coordination.

12 And I want to thank all of you here. I  
13 want to thank the CEC and everyone for  
14 participating today. And ask if any of you here  
15 on the dais would like to comment. Commissioner  
16 Grueneich.

17 COMMISSIONER GRUENEICH: Yes, thank you.  
18 I've been just delighted with how much I  
19 personally learned today, that it really has  
20 opened my eyes a lot, thinking about the  
21 interaction between water and energy.

22 I was appointed to the Commission a  
23 little over a year ago, and I remember when I  
24 found out that the Public Utilities Commission on  
25 the water side had no decoupling mechanisms, and

1 still had declining block rates.

2 I've been in the energy world, very  
3 active, for 30 years. And I was horrified. I  
4 thought -- so one of the things that I did when I  
5 heard that we were going to be doing the water  
6 action plan was to be quite forceful that I felt  
7 very strongly at the Public Utilities Commission  
8 we needed to change that; and we needed to change  
9 it right away.

10 And so I want to emphasize that in the  
11 area of water utilities, under our jurisdiction, I  
12 certainly intend to be working with Commissioner  
13 Bohn, with Mr. Coughlan, with our staff to see  
14 what we can do this year to put in place  
15 decoupling mechanisms; to put in place water  
16 conservation programs; to change our rate  
17 structure, because we are behind the times in that  
18 area.

19 The other comment that I wanted to make  
20 was that I'm involved in a national leadership  
21 effort on energy efficiency. And it's very  
22 interesting because, I guess two things; one is  
23 that there still is a lot of work to be done on  
24 decoupling on the energy side throughout the  
25 country. But that's another matter.

1           But what it really is bringing home is  
2           that when we think about solutions in these areas,  
3           we have to think about that in so many places, and  
4           certainly in California we have at least two, if  
5           not more, ownership structures of our utilities  
6           and our entities supplying these utilities.

7           And specifically we, at the PUC, oversee  
8           the investor-owned utilities. But in the water  
9           world, as well as in the energy world, we also  
10          have a host of public agencies. And so I think  
11          one of the things that's going to be very  
12          important as we move ahead on the water side is  
13          that we can do everything we can at the Public  
14          Utilities Commission to move our water utilities  
15          basically ahead in these areas. But we're going  
16          to need to have ways that we talk to and work with  
17          the public water agencies. And we're going to  
18          need to have leadership shown in those areas, as  
19          well.

20          So, one of the requests that I'm making  
21          is that, just as Commissioner Bohn said, we need  
22          the spirit of cooperation, is that we think how to  
23          be moving the entire water area ahead in the areas  
24          of decoupling; in the areas of water conservation,  
25          so that we can all benefit from this.

1           And then the very last thing I'll say is  
2 getting back to, I think, more of what we covered  
3 this morning. As the assigned Commissioner at the  
4 PUC on energy efficiency, beginning next month I'm  
5 here today to tell you a commitment that we are  
6 going to be looking more specifically at how we  
7 can encourage and support our utilities that are  
8 under the jurisdiction of the PUC to be working in  
9 the area of water conservation and to be  
10 supporting them in that effort.

11           So, thank you very much.

12           COMMISSIONER BOHN: Thank you. Mr.  
13 Johns.

14           DEPUTY DIRECTOR JOHNS: Thanks, Dian,  
15 and thanks, John. This has been a really  
16 educational experience. I'm sorry I missed the  
17 early part of it, but Bill has been feeding me  
18 information most of the day, as you guys can rest.  
19 And so we'll definitely take all this information  
20 back.

21           But we have just -- one recognition, of  
22 course, is that energy is a little less fungible  
23 than water in California. You can't kind of go to  
24 the western water grid and get water to  
25 California. We have limited resources in that

1 area.

2           So we need to be looking at how we meet  
3 California's water challenges. And certainly the  
4 water plan that we just finalized this year that  
5 looks at kind of a five-year planning horizon for  
6 water in California, looks at three key elements  
7 in terms of how we're going to make water work in  
8 California. That would be water conservation is  
9 right up there in terms of the next-best water  
10 source in California is through water conservation  
11 activities and water recycling and other issues;  
12 protection of water quality; and, of course,  
13 environmental stewardship.

14           So those kind of make the foundation of  
15 our water plan. And in order for us to move  
16 forward, looking forward in terms of looking for  
17 the next water plan, which we've already started  
18 planning for, the idea of energy/water linkages is  
19 certainly one, and then the idea of global warming  
20 and what are we going to do about global warming,  
21 greenhouse gases and how we're going to accomplish  
22 what we need in terms of water as things change in  
23 the water world.

24           As we get less snow pack; as sea level  
25 rises, puts greater pressure on water needs in the

1 Delta. How are we going to get through those kind  
2 of challenges ahead.

3 So certainly those key issues I think we  
4 need to be evaluating as we move down. And I  
5 think this kind of dialogue between not only the  
6 investor-owned utilities, but also in terms of  
7 public, folks which we deal probably more often  
8 with, is something we need to be talking more, and  
9 linking up on how we can move forward as a society  
10 in addressing these kind of challenges that face  
11 us as we move down the road.

12 So the Department of Water Resources  
13 definitely wants to work with you and other folks  
14 to help us identify mechanisms to do that.

15 COMMISSIONER BOHN: Thank you.

16 DEPUTY DIRECTOR JOHNS: Thank you.

17 COMMISSIONER BOHN: Mr. Gage.

18 VICE-CHAIRPERSON GAGE: Thank you, Mr.  
19 Chairman. Just a couple of comments. I certainly  
20 haven't been disappointed in my desire to learn a  
21 lot today. My brain is full.

22 As I listened to the discussion I was  
23 struck by something by way of thinking about this,  
24 and it ties in a bit with something that the  
25 Chairman, in particular, has already said. And

1 that is the need for better cooperation and  
2 coordination to move ahead.

3 I'd like to expand that concept in one  
4 other dimension, and that is it strikes me that we  
5 were presented with a number of different policy  
6 tools in terms of how to approach the challenges  
7 that we face. And I would encourage all of us to  
8 think about ways in which we can break out of our  
9 silos in terms of the way in which we think of  
10 meeting these challenges.

11 Because whether it's dissemination of  
12 best practices, whether it's breaking down  
13 regulatory or institutional obstacles, whether  
14 it's thinking about appropriate pricing, or  
15 ratemaking mechanisms, whether it's thinking about  
16 what our agenda should be for research, all of  
17 those things need to be pursued.

18 Certainly there are payoffs that are  
19 greater in some areas than others, at least  
20 immediately. But it sounds like we have a very  
21 full agenda, and it's one that involves thinking  
22 across our typical boundaries of thinking. And so  
23 I would encourage us to break those silos down.

24 I would applaud the PUC's leadership on  
25 this issue in terms of convening this symposium.

1 I think this is fabulous. We certainly look  
2 forward to working with you and assisting in  
3 whatever way we can.

4 Thank you very much.

5 COMMISSIONER BOHN: Thank you. We're  
6 only two minutes behind schedule. I want to thank  
7 you all again for participating. The information  
8 that's been presented will be up on the PUC  
9 website and the Energy Commission website within a  
10 few days.

11 I hope you've all found it educational  
12 and worthwhile. As was mentioned, we're going to  
13 have another symposium on water quality and  
14 reliability. We'll let you know when that takes  
15 place, as Kevin mentioned.

16 Meanwhile, we all look forward to an  
17 ongoing discussion and continued working, not only  
18 among ourselves, but with each of you.

19 Thank you very much.

20 (Whereupon, at 4:01 p.m., the symposium  
21 was adjourned.)

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CERTIFICATE OF REPORTER

I, PETER PETTY, an Electronic Reporter, do hereby certify that I am a disinterested person herein; that I recorded the foregoing Joint Agency Symposium; that it was thereafter transcribed into typewriting.

I further certify that I am not of counsel or attorney for any of the parties to said symposium, nor in any way interested in outcome of said symposium.

IN WITNESS WHEREOF, I have hereunto set my hand this 18th day of April, 2006.

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