BEFORE THE COLORADO PUBLIC UTILITIES COMMISSION

STATE OF COLORADO

REPORTER'S TRANSCRIPT

DOCKET NO. 08I-420EG
DECEMBER 2, 2008 WORKSHOP

Pursuant to notice to all parties of interest, the above-entitled matter came on for hearing before Chairman Ron Binz, Commissioner James Tarpey and Commissioner Matt Baker, commencing at 1:10 p.m. on December 2, 2008, at 1560 Broadway, Ninth Floor Conference Room, said proceedings having been reported in shorthand by Harriet S. Weisenthal.

Whereupon, the following proceedings were had:

WORKSHOP PARTICIPANTS:
JENNIFER GREMMERT - Energy Outreach Colorado
JAMES ELLIOTT - SourceGas
ELIZABETH HICKEY - Interwest Energy Alliance
BECKY ENGLISH - Sierra Club
MICHELLE KING and MARK DAVIDSON - Rocky Mountain Steel Mills and Climax Molybdenum Company
STEPHEN SOUTHWICK, FRANK SHAFER and DENNIS SENGER - Representing Colorado Office of Consumer Counsel
JIM LAZAR - Senior Advisor with the Regulatory Assistance Project
BETH HART - CoSEIA
JOELYN NEWCOMB - INNOVATIVE POWER SYSTEMS and CoSEIA
RICK COEN - Bella Energy
STEPHANIE FRY - International Energy Treatment Systems Technology
HOLLY RACHEL-SMITH and STEVE CHRISS - Wal-Mart Stores
CHARLIE GRAY and BRIAN IVERSON - Black Hills Energy
PAULA CONNELLY, DAN JAMES, SCOTT BROCKETT and ROY PALMER - Xcel Energy
THOR NELSON - Colorado Energy Consumers
CHRIS HANSEN - Pro Se Xcel Customer
BARBARA MASONER - Pro Se Xcel Customer
NANCY LAPLACA - Pro Se Xcel Customer
HOWARD GELLER - Southwest Energy Efficiency Project
ERIC BOWMAN - Akeena Solar and CoSEIA
ERICKS BROLIS - Namaste Solar and CoSEIA
BRIAN SULLIVAN - SolarCity
PAUL MELAMED - Vision Sun Design and CoSEIA
DIANE ORF - Colorado Mining Association
JOHN COVERT - Colorado Working Landscapes
MOREY WOLFSON, JEFF LYNG and MATT FULCH - Governor's Energy Office
BILLY KWAN, SCOTT ENGLAND, PAUL CALDERA, JEFF ACKERMANN, TONY MUNOZ, SHARON PODEIN, BOB BERGMAN, MIKE HYDOCK and GERI SANTOS-RACH - Staff of the PUC
BECKY BYE and DAVID BECKETT - Colorado Attorney General Office

INDEX

CHAIRMAN BINZ: Good afternoon, ladies and gentlemen. Welcome to a workshop in Docket 08I-420EG. I am Commission Chairman Ron Binz.

COMMISSIONER TARPEY: Commissioner Jim Tarpey.

COMMISSIONER BAKER: Commissioner Matt Baker.

CHAIRMAN BINZ: Couple of opening sort of ground rules or remarks. This is not Webcast, as is our custom downstairs. And so, there are people I know who wanted to hear this, and can't do so, can't be here today.

As it turns out, Harriet had nothing to do this afternoon. So, she volunteered to -- Harriet has offered to record this, and we'll see if we can get it at a reasonable price, available for others to read, so be discrete in what you say.

And before we go much farther, I thought we would just go around the room and have everyone introduce themselves, starting with Billy Kwan.

MR. KWAN: I'm Billy Kwan, staff of the Commission.

MR. ENGLAND: Scott England, staff of the Commission.

MS. GREMMERT: Jennifer Gremmert, Energy

Outreach Colorado.

MR. ELLIOTT: James Elliott with SourceGas.

MS. HICKEY: Lisa Hickey, with Interwest Energy Alliance.

MS. ENGLISH: Becky English with Sierra Club.

MS. KING: Michelle King with the law firm Dufford & Brown, on behalf of the Rocky Mountain Steel Mills and Climax Molybdenum Company.

MR. SHAFER: Frank Shafer, Colorado Office of Consumer Counsel.

MR. SENGER: Dennis Senger with the Office of Consumer Counsel.

MR. SOUTHWICK: Stephen Southwick, attorney for the OCC.

MR. MUNOZ: Tony Munoz, staff of the Commission.

MR. LAZAR: Jim Lazar, Senior Advisor with the Regulatory Assistance Project.

MS. HART: Beth Hart for CoSEIA.

MS. NEWCOMB: JoElyn Newcomb with Innovative Power Systems and CoSEIA.

MR. COEN: Rick Coen with Bella Energy.

MS. FRY: Stephanie Fry, International

Energy Treatment System Technology.

MS. ORF: Diane Orf, Colorado Mining Association.

MR. CALDARA: Paul Caldara, staff.

MR. CHRISS: Steve Chriss, Wal-Mart.

MS. SMITH: Holly Rachel Smith, attorney for Wal-Mart.

MR. GRAY: Charlie Gray, Black Hills Energy.

MR. IVERSON: Brian Iverson, Black Hills Corporation.

MR. JAMES: Dan James, Xcel Energy.

MR. BROCKETT: Scott Brockett, Xcel Energy.

MS. CONNELLY: Paula Connelly, Xcel Energy.

MR. ACKERMANN: Jeff Ackermann, advisory staff.

MS. BYE: Becky Bye, counsel for the Commission.

MR. NELSON: Thor Nelson with Holland & Hart for Colorado Energy Consumers.

MR. HANSEN: Chris Hansen. I only represent myself.

MR. WOLFSON: Morey Wolfson, Governor's

Energy Office.

MR. HYDOCK: Mike Hydock, advisory staff.

MR. SULLIVAN: Brian Sullivan, SolarCity.

MR. BROLIS: Ericks Brolis, Namaste and the Solar Energy Association.

MR. DAVIDSON: Mark Davidson, representing CF&I and Climax.

MR. MELAMED: Paul Melamed with Vision Sun Design and CoSEIA.

CHAIRMAN BINZ: Thank you all for being here. Just to catch up everybody, we opened this docket this fall for purposes of investigating what will be known as, "Customer Incentives"; that means rate structures that -- sort of the pricing structure and other incentives that customers face. This is in contrast to another docket, which we spent a fair amount of time on, called the, "Utility Incentives Docket."

We circulated questions at the time that we opened this docket, and a number of parties have responded in writing to those original questions. The way we view this docket, you're welcome to fire at will in terms of filing comments, so if you missed what was the first suggested deadline for filing comments, you are still able to do that and including replies to what

other people have filed. All the comments are on the PUC's Website.

We then issued another order, setting out sort of the structure for discussion that we are going to try and use today. And in a few minutes, Jeff Ackermann will walk us through that.

The objective, it's fair to say today, is for you to tell the Commission what we should be thinking about as we approach the issues that are the five issues that we have selected and identified as policy areas. I think you all have, or at least could have an opportunity to see a sheet here that lists those five questions. Again, I will let Jeff give the details on that. But the object today is less about the pros and cons of this or that, although that will inevitably find its way into every conversation, it's less about that than to tell this Commission what we should be thinking about, what we should balance, when we decide whether to plunge into an adoption of time-of-use rates or whether we plunge into inverted block rates, or an attempt to address the question raised by the farmers and ranchers in the San Luis Valley with respect to their solar installations, all of that. So, again, use this opportunity to give us good counsel on what we ought to do when we eventually

make a decision in a docket where we can make a decision. That's something else you should understand.

The way this docket is structured, it's a so-called "investigatory docket." And under the law, we have not notified the public that we may be making these changes in this docket, because we're not going to. The changes to rate structures will be made in the appropriate dockets, whether it's a filing by the utility, or a motion of the Commission itself, and in a formalized docket. Whatever the forum is, for the eventual decision, that's where it will be made. So, that's why it's going to you, to basically make sure we're oriented correctly with respect to these issues.

Anything from my colleagues about sort of how this docket fits into the world?

COMMISSIONER TARPEY: No, that's fine.

CHAIRMAN BINZ: Okay.

COMMISSIONER TARPEY: There are some additional people here.

CHAIRMAN BINZ: We went around and did introductions. Would you -- we're not going to do it again for your sake. We would like to know who you are.

MR. GELLER: Howard Geller from the Southwest Energy Efficiency Project.

CHAIRMAN BINZ: Who else just walked in?

MR. BOWMAN: Eric Bowman with the Akeena Solar.

MS. PODEIN: Sharon Podein, staff of the Commission.

MR. BERGMAN: Bob Bergman, staff.

MS. SANTOS-RACH: Geri Santos-Rach, staff of the Commission.

CHAIRMAN BINZ: Now, the other thing I want to point out today is that in preparing for today's workshop, we became aware of the availability of Jim Lazar, who works with the nonprofit Regulatory Assistance Project. In the main, people at RAP are former Commissioners, David Moskovitz, Richard Cowart, Wayne Shirley, from all over the country. And Jim can tell you more about this off-line, but essentially it's a nonprofit group, based in Boston and in Augusta.

MR. LAZAR: Vermont is home.

CHAIRMAN BINZ: Different places, depending on who is in charge at the time, where they live.

MR. LAZAR: Yeah. Good.

CHAIRMAN BINZ: They provide a lot of assistance to NARUC in terms of advice on energy efficiency. That's their main focus. Jim is someone I

have known for 30 years. He and I have filed testimony as experts in a bunch of different cases, but we had never met each other. We show up on different days to testify, or whatever. And Jim is going to talk about the first issue today, the tiered inverted block rate design.

I don't want his presence -- we don't want his presence to indicate anything particular, except that we had a cheap date, okay? We had somebody who was going to come in and who knows a lot about the stuff that he's going to talk about it. So, Jim is not indicating this Commission's view necessarily. But he is going to tell us what he knows, from his experience, about tiered rates. And we're very pleased to have him here today.

I happen to remember when Thor Nelson asked us, in another docket, namely the utility incentives docket, whether it was appropriate to come in and make a presentation to the group. And we kind of dissuaded you from doing that, if I remember correctly, Thor; is that fair?

MR. NELSON: Yes.

CHAIRMAN BINZ: Yes. Okay.

COMMISSIONER TARPEY: And we still do.

CHAIRMAN BINZ: I think it's possible,

although I am not committing to this, we may relax that rule. We actually did do something a little bit different in this docket as compared to the other one. We're finding ourselves with a new process here, these investigatory dockets, and workshops like this are a little different twist for us.

We also have, as all of you probably know, the opportunity for you to make ex parte presentations to the Commissioners in their offices, or wherever, which you must disclose, but you can actually come and do your presentation there as well. And at the time that was -- I think the answer we gave Thor, you can do it ex parte; and, in fact, you have availed yourself of that, Thor.

MR. NELSON: (Witness nodding in the affirmative.)

CHAIRMAN BINZ: I wanted to also note, we're breaking our own, quote, unquote, rule, by getting Jim Lazar here. I think we have had other offers from other people in the room to do presentations here. We may take you up here, as we see how this project unfolds. Any questions about process or what we are going to do today? Jeff, you want to take it over for a while.

MR. ACKERMANN: If I can, I will just

stand, pick up on the Chairman's comments about the general process. I think my task is sort of trying to explain to you how we're moving this 8I docket, this investigatory docket along, so that you understand why we're here today, and how this workshop fits into that larger process.

As the Chairman spoke to you, this is an investigatory docket. It has a different focus, a different set of outcomes versus that there be a final deliberation at the end, and a policy decision made. So, in that context, as an I docket, we envision, as the Chairman spoke to you about at the end of the day, this sets up a record, sets up background information, so that we can move into some other proceeding, where the Commission, then, can act as is appropriate to move forward implementing one of these policies we're talking about.

So, what the staff has done, that's working on this docket, is looked at the responses from the public to those 16 questions that went out with the first order. And out of those -- the responses to those 16 questions, what the staff did is decided, okay, we're basically doing a refinement process here. We're going from a very broad statement that the Commissioners put out in that first order, a statement

that said something to the effect that, how do we influence consumer -- embrace and impact consumer action via the rates and regulatory structures. That was the umbrella we're looking at. This all dates back to the history and funnel concept. We start with a broad concept/statement of desires, and at the end of the day, it should be something that makes it worth reading.

What we are trying to do here, to go from that broad statement, that we saw what came in from those comments and what came into the record so far identified five discrete policy areas. That's what you saw in that second order. We identified what those five areas are. They are the headings in the handout that you have here in front of you. Then accepted from there, as a refined process, what was put in front of you. And what was in that document there is saying, if the Commission was to pursue some particular policy, and any or all of those five, what questions should guide that Commission process, what should the Commissioners ask themselves, or ask the proceeding, and what criteria should they take into consideration when they are pursuing that policy.

so, what you have in front you is purely a first draft of an attempt to layout that framework

that says, if the Commission was going to pursue, whether it's tiered rates or low-income assistance through rate designs, or any of the others there, this is what emerges so far, as the sense of what the criteria should be that they should consider, the questions that they should be asking themselves or asking in that proceeding. It's not meant to be exhaustive. It's meant to be a start.

It was not meant for folks to necessarily feel they have to answer those questions, whether in comments or today, but to answer the question, are these the right questions or are there other questions to add or questions to subtract. Are there other criteria that should be considered.

So, that's really what we're trying to do today, is to put those criteria or questions in front of you, as participants, and get your feedback on that. That continues to help us refine this down. And, then, coming in behind that as well, there's a record developing here, as different parties have submitted research papers, resource papers, and the like, that is now building the record behind the particular areas we asked you to look at, what other filings are there, and then add, subtract, comment on that, because that is helping to fill out the record as well, as it relates

to each of these policy areas.

So, that is how the refinement process is going. Our hope today is, then, to walk through each of those five areas today, and get everyone's responses to those questions and criteria, starting with inverted or tiered block rate design. That was the one at the front of the page, for a couple of reasons, primarily because it's the area the most comments came back about. That works out well. That's also one of Jim's many areas of expertise.

So, what we are really looking for, and then what Jim will help us here with, in just a moment, is how to look at and get a little bit of frame around that concept of tiered or inverted block rate design, looking at it from what has the practice been in the region, if not in the country, looking at what others learned from that experience, from regulators around the country.

Then, from there, the kind of pros and cons, and at the end of Jim's presentation, spill into a discussion of both what he presented and what's on the page in front of you, having to do with our first cut of questions or criteria. So, with that, I think, we'll turn it over to you.

MR. LAZAR: All right. I'm Jim Lazar. I

am an economist. I live in Olympia, Washington. The Regulatory Assistance Project is determined, as the Chairman indicated, is a nonprofit organization. Our main headquarters is in Montpelier, Vermont, but we have principals in Vermont, Maine, New Mexico and California. And, then, there are a group of us senior advisors, myself and Peter Bradford. Peter is a former Commissioner, and I'm an economist with, I guess, 34 years of involvement in utility rate design.

What I am going to talk about is sort of the history, theory and practice of inverted residential rates. I am not going to talk about commercial rate design, except to use one as an example. And I am not going to -- there are copies of the slides, and also, a sheet of the examples as far as rate designs.

I'm also not going to talk about time-of-use, although that's the next item on your agenda. That's something I have done a great deal of work on.

RAP started the New England Demand Response Initiative, a project that went on for several years, sponsored by the six New England states and the New England ISO. And we also -- I was a staff person, on the pricing and metering committee, also the

intermediary, and we did a pretty substantial report on rate designs that would assist with the system's demand-response efforts, and much of what you will see is work that we researched in the process of doing that demand-response project.

I am going to talk about the history of inverted rates in the west. So, some of the cost basis for electric inverted rates, the cost basis for gas-inverted rates, some of the expected benefits, some key design elements, if you were to design inverted residential rates. And, then, some of the workings and purposes that come along with any change in rate design, in this case dealing with utility revenue stability issues and customer bill stability issues, which are certainly not to be ignored in the regulatory process.

The first inverted rates that I knew of, in the west, were Puget Sound Energy, or then Puget Sound Power and Light, and Washington Water Power created inverted block rates, and in about 1975. And those were based on a recognition, those companies that had a lot of electric heating load, on a recognition that the high-use customers, the electric heat customers, had a much inferior load factor compared with those customers that heated with oil or gas and

had smaller electric usage. That's just because their usage spiked up in the winter. Those are winter-peaking utilities. Also, that space heating usage was the principal cause of the peak. And most of the year, that space heating load wasn't there.

The Washington utility, at this point in time, Transportation Commission, held a two-year long hearing process, that culminated with a decision, in 1980, to require all of the investor-owned utilities in Washington to adopt what they call, "base-line rates," which were an embedded cost approach, to invert the rates, that recognized that each of the utilities had a limited amount of low-cost hydroelectric power on their system.

Seattle, the City of Seattle, which followed, then, in 1982, as part of their hearings on rate design, required by the Public Utilities Regulatory Policy Act, Oregon and Idaho followed shortly after that. The State of Arizona adopted inverted rates, but only in the summer. They are strongly a summer-peaking utility, and I will show that rate design in a moment.

California implemented its inverted rate design, I think, in the 1980s, at least by the time I was following rate design, they were already in place.

But during the 2000-2001 crisis, they had moved to a very steeply inverted five block rate design, that, in the case of Pacific Gas and Electric, the last block reaches about 40 cents a kilowatt-hour.

The Bonneville Power Administration first considered wholesale inverted rates, not residential, but first considered them in 1974. Earlier this year, the administrator adopted a tiered rate method, to be effective in 2012, so that's a 38-year regulatory process. I have some confidence this Commission will be more decisive than that, one way or the other.

And finally, I won't talk a lot about gas-inverted rates, but to my knowledge, the California gas utilities have inverted gas rates, and to my knowledge, all of the gas utilities in California do have inverted rates, including the municipal gas utilities like Palo Alto and Long Beach, but along with the investor-owned utilities. They just started with a simple form of a couple of kinds of inverted rates, and we have passed around an example sheet, with rates from all over the west. But Pacific Power -- the Washington rates is not seasonalized. It's a $6 customer charge, the first 600 kilowatt-hours for a nickel, and everything above that for about 8 cents. Pacific has a dual peak winter peak caused by electric heat, with a

summer peak caused by irrigation customers. And they apply this rate design year-around.

Arizona Public Service has a different rate design of $7 1/2 customer charge, first 400 kilowatt-hours for 8 1/2 cents, in the summer. Next 400, in the summer, for 12 cents. Everything above 800 for 14 1/2 cents. But in the winter, it's a flat rate of 8.3 cents. It's a strongly summer-peaking utility, not capacity constrained in the wintertime. So, those are a couple of examples, when we use the term, "inverted rates," these are the kinds of rate designs that I'm referring to.

So, I want to turn to the cost basis of electric inverted rates, and there are a couple of different approaches that are used to calculate cost-based inverted rates. The first are what I call, "load factor based." Different end-uses for electricity have different load factors, that is different peak intensity of the loads, lights and appliances, refrigerator, cooking lights, your alarm clock, your television, your TIVO, your cell phone charger, all of those kinds of end-uses have a pretty high load factor. Most of us leave our frig on all night long. Some of us get very frustrated when it hasn't been on for a while. It's a little different

than other things, but most of the load research that I have reviewed shows that lights and appliances have something in the neighborhood of 70% annual load factor. When I am using, "load factor," I would be talking about an annual load factor; that is the ratio of average use throughout the year, of an end-use, for the peak demand, for the peak time of year, for that end-use.

Electric water heat has a kind of medium load factor. It gets used all year-round, but it tends to be concentrated in the morning hours, in the early evening hours. That is when we're getting up and getting started and when we are going home and cooking dinner and doing laundry, that sort of thing.

For electric utilities, which measure load factor in a 25 minutes or one hour or the even instantaneous basis, for electric utilities, peak is a very short period. For example, space heat has an imputed 40% load factor. And under space condition, whether it's space heating, or some utilities that have electric heat loads or space cooling, where people have air-conditioning, it is very concentrated into the peak period. It is the cause of the peaks, the principal cause of the peak, the principal cause of load.

And I'm generalizing, but most studies

show that electric space heat and electric air conditioning have about 20% annual load factor. A lower load factor means a higher price, if you calculate rates as I'll show in just a minute.

The other approach that is used is resource cost based. Different resources have different costs. And this is where the Washington Commission began, was saying we have a limited amount of hydro and unlimited amount of expensive new stuff, so, we're going to price the cheap hydro cheap and the expensive new stuff expensive.

And an example here, what I put here is older base-load plants may have an all-in cost of 4 cents a kilowatt-hour. Newer base-load plants may have an all-in cost, that is, and operating, of 8 cents a kilowatt-hour. And a peaker may have an all-in cost of 12 cents a kilowatt-hour. And, of course, one can create rate blocks in the price of those resources on the basis of cost.

Also, I want to stay technical for just a minute on how demand-related costs per kilowatt-hour increase the low load factor end-uses. I am going to make a historic assumption for the transmission and distribution demand-related costs, and of an electric utility, on an annual basis, of $87.60 a year. That's

the right order of magnitude for most utilities, between 30 and 100. It happens to be an annual that exactly divides by the number of hours in a year to make the math work. And 100% low factor load has demand costs of a penny a kilowatt-hour. A 40% low factor load, like a water heater, has demand costs of 2 1/2 cents a kilowatt-hour. A 20% low factor load, an air conditioner, has demand costs of 5 cents a kilowatt-hour. And the extreme year, of one in 10 or one in 5 years, the extreme year, additional air-conditioning load, when none of us can stand to be without our air conditioner, may be a 10% load factor on that extreme peak and 10 cents a kilowatt-hour. And that's just kind of an example for a caricature of the process.

I actually took Xcel Energy's commercial SG rate, which has a summer rate, in round numbers, of $10 a kilowatt and 4 cents a kilowatt-hour, and turned it into three block rates, assuming that 0 to 400 kilowatt-hours would meet people's lights and appliance needs, which has a 70% load factor; that residential customers intermediate loads would be in the 400 to 800 block at a 40% load factor; and their air-conditioning load -- this is the summer rate -- the air conditioning load would fall in the over 800 block, 20% load factor.

And when I went through the math that I just showed, with the actual Xcel Energy rate, I did ignore all of the riders and surcharges and adjustments. I just took the two simplest rate elements. But I came up with three block rates of 5.75 cents, 7.18 cents and 10 1/2 cents.

Now, the end-uses and usage blocks don't match up perfectly. And, so, there is a fair amount of judgement that goes into designing a cost-based rate, and, hopefully, based on a fair amount of analysis of customer loads.

Now, I would turn to cost-based basis for gas-inverted rates. Gas is a little simpler. The whole industry is a little simpler. But, gas water heat is a very high load factor load. Now, why is it different than the electric water heat? Because gas utilities measure peak by the day, and electric utilities measure peak by the hour or by the 15-minute interval.

And, so, the gas water heat use still peaks in the morning and the evenings, but the gas company just increases the pressure in the pipe at night, catches up. Also, electric utilities don't have an easy way to store their product.

So, from a gas utility perspective, water

heat is a very high low factor load and space heat is about the same as for electric, concentrated into the winter peaks on the coldest day of the year, very low load factor load. And, so, a load factor based gas rate design would have, you know, 20 or 30 therms a month in the lower block to cover the gas water heat, cooking, clothes drying, sort of the year-round uses. And then it would step up to a higher rate to cover the lower load factor of the gas space heat.

But you can also approach gas inverted block rates on the basis of the resource cost. Flowing pipeline gas that the gas utilities receives, year-round, is the cheapest, and serves base-load needs. The storage gas that they put into storage in the summer and take out in the winter is more expensive and serves sort of normal year space heating needs. And, then, the liquefied natural gas or interruptible service, some of these peaking resources that gas utilities rely on for only a few days a year, sometimes not only even every year, are the most expensive. And they serve sort of the extreme-year space heating load. So, it's a resource cost approach to building a two or three block gas inverted rate.

There are a number of system-counted benefits of tiered rates. Economists, and I am one,

often start with, it does a better job aligning marginal rates with long-run marginal costs. And in most utilities, the cost of building new power plants, new transmission and new distribution exceeds what's in the rates for what's already built. And tiered rates allow you to at least align the marginal rate that people pay for their marginal usage with those long-run costs. It also allows the reflection of marginal carbon dioxide costs in the marginal rates, even though those costs may not be part of the revenue requirement. And that's becoming a matter of increasing importance in parts of the world, monetized CO_2, and they may become more important in Colorado.

It does tend to -- a system expected benefit is promoting an efficient fuel choice, encouraging customers to use the right fuel for the right end-use, because the incremental cost of both gets priced closer to the long-run marginal cost of different fuels.

Then, finally, there's the load reduction that comes out of this. First of all, there's an elasticity effect by pricing the marginal -- the incremental usages at a higher price, so customers will use less. Some of that is curtailment, that is the people just choose to not use so much energy and leave

the thermostat at a different setting, take shorter showers; and some of it is conservation, that is people choosing to buy more efficient air conditioners or install a low-flow high performance shower head.

An important element of that is that at a higher rate block, that is the endblock price for incremental usage, tends to make energy efficiency investments look more cost-effective to consumers, and encourages consumers to be more enthusiastic about participating in utility conservation demand-side management programs.

We did study inverted rates as a demand-response measure for New England. And space conditioning, either heating or cooling, is a very peak expensive use. Inverted rates do price incremental space conditioning at a higher rate than other uses. And in so doing, it allows people to constrain their use -- the very end-use that in those systems is the most obvious contributor to the increase in demand at the time of peak.

The advantage of having inverted rates over more complex rate designs is that no new metering is required. The largest time-of-use public service pilot in the country, on Puget Sound Energy, the evaluation shows that the incremental metering and

billing costs were not cost-effective for the average residential customer. For the larger customers, absolutely. But for the smaller customers, the final evaluation of that project showed that the incremental system meters and billing costs were about a $1 a month and average savings was less than half of that, to the consumers, from the shifting that they did in response to time-of-use. Inverted rates don't require any new meters, so there is almost no cost to implementing them.

And the New England demand-response initiative did recognize inverted rates as a residential demand response measure. Those utilities that implement them can claim a demand-response trend for that, in the pricing system that they use in New England for demand response.

I read all of comments that were received, at least through last Wednesday, in this docket, on tiered rates, and I think actually, almost everybody had a pretty good understanding of some of the elements, key elements. First thing, it's important to keep the first block fairly small, so that most customers make their decisions based upon the second block or the second and third blocks, so very few customers and very, very small part of usage

actually sees the lower first rate as their marginal rate. That way very few people have an incentive to consume more and typically their consumption is less than 5 or 10% of the total consumption. 90% of the consumption is by people who use more than, say, 400 kilowatt-hours. And, so, 90% of the consumption sees an incentive to consume less and 10% or less see an incentive to consume more. In three block rate designs, I think it's important to target the third block to space conditioning, in case of a summer only inverted rate for air-conditioning. And that's, you know, you have to do your own analysis here but typically that is somewhere in the 800 to 1200 kilowatt-hours a month range.

You can undo the effect of a tiered rate by having a very high customer charge. You can -- combined with the system's effect of the rate being not really inverted, the average price doesn't go down as usage increases. Most advocates recommend limiting the customer charge to the metering and billing costs. And if you look at the example rates that I put together from all over the west, almost every one of the western states has done that with a customer charge. California is, you know, zero to a buck. But almost everybody else is sort of in the $5 plus or minus

range, which is pretty typical of metering and billing cost.

And the final thing that was raised here, is I think it's important to combine all of the rate riders and surcharges into an understandable rate design on the bill that the customer sees. That's not to say that the calculation of the right rate shouldn't be built out of building blocks that those surcharges and riders comprise, but the customer eventually needs to see, if I use less electricity, how much will my bill go down. If I use more electricity, how much will my bill go up. That's the sum of all of the rate components. Customers need to know what they are going to save if they reduce usage.

Now, I get to the sort of workings and purposes. First of all, from the utility's perspective, dealing with revenue stability, inverted rates unambiguously increase the annual revenue volatility for the utility, principally due to weather but also due to other factors. A utility's investment in generating plants, in transmission and distribution, have a demand component based upon the expected peak demand. We want them to invest enough to be able to reliably meet that peak when it occurs. But in a cool summer, an inverted rate causes pretty significant

attrition in revenue. On the other hand, an extreme summer causes a pretty significant addition of revenue. That volatility has to be managed.

The traditional way of managing that for utilities is to let their retained earnings go up and down. In big sales years, they make a lot of money and the retained earnings go up, and in weak sales years, they don't make as much money. They still pay their dividends, and retained earnings go down. But, to to the extent that inverted rates accentuate that, you can create a situation where the utility's equity ratio drops below sort of the ranges that the rating agencies like to see. That can cause their cost borrowing to increase, which causes rates to go up in the long-run.

There's three different ways that are typically used to normalize that. One is a weather normalization reserve account. The City of Seattle uses, in wet years, they put money in the bank, and dry years they draw it back out, in order to keep their financial health.

For most -- for a large, large number of investor-owned utilities, particularly gas utilities, commissions have adopted weather normalization mechanisms that, in low sales years, due to weather, allow small surcharges. And in high sales years,

impose small rebates, that track the weather in real-time. That is, with every month, the utility can be either surcharging or rebating a little bit based upon the weather that's experienced that month.

And finally, something that RAP has worked a great deal on, all over the country, are decoupling mechanisms that take all variations, and in sales, due to weather, due to conservation, due to recycle variation, into account and also make the utility whole for any -- some defined category of the costs that don't vary with sales volumes.

And we can talk for days about decoupling, but it's an option for dealing with revenue stability for the utility. You can't ignore the revenue stability issue for the utility if you move to inverted rates.

Finally, there's the flip side of that. Just as inverted rates increase the revenue volatility for the utility, they also increase the bill volatility for the consumer. They cause larger variations, particularly due to weather. Most low-income households will benefit from inverted rates, because most low-income households use less than an average amount of electricity or gas. But there are a few that are high use low-income households. Some have very

large families. Some are extended families. Most are inefficient households. Well, the inefficient households can be dealt with programmatically through energy efficiency programs, but one does need to study how inverted rates will affect specific customers.

The easiest way to deal with the bill volatility for the customer is budget billing. Almost every utility has a budget billing plan. As I understand, Xcel has a single settlement month, and it looks to me, from reading the tariff, as though the balance could be quite hefty. It may be necessary to modify that single settlement month to spread budget incomes over more than a one-month period of time, to help the customer with bill volatility. Or if there's just a, for any customer, even, not only budget billing, one approach is to use a multi-month payoff period in the high use season, so the entire bill isn't due all at once. There are a number of ways of dealing with that bill volatility as. Just as you have to recognize and deal with the revenue stability issue for the utility, you can't ignore the bill volatility issue for the consumer.

I'll just summarize by saying that inverted rates are applied to most residential electric consumers in the west. Most of the states have

inverted rates and California has half the people in the west, so, all of their regulated utilities, most of their consumer-owned utilities have inverted rates.

They are cost-based for both electric and gas utilities. The degree of inversion would depend upon the resource mix and marginal costs and load factors on your own utility. The energy savings can be predicted through elasticity models. But you need to recognize that those savings are split between the curtailment, people just using less and foregoing the utility that that energy consumption brought them; and conservation, people figuring out ways to achieve the same end-uses with less energy. You have got to deal with the revenue volatility and the bill volatility issues.

And the last I think is probably the most important. And if you take a look at the actual tariff, for the Southern California Edison rates, you will see a -- I didn't put the whole tariff there -- but make sure consumers can understand their rates, when you're all done. The Southern Cal Edison rate is entirely incomprehensible. It changes daily, but you don't find out what it was until after the fact.

I would leave it at that, and turn your discussion back over to the Chairman, or the chair.

CHAIRMAN BINZ: Thank you, Jim. Thanks. I would like to, as in our other workshops, do sort of a round robin. Anybody can speak up, at any point. I will recognize you, as Chair. You can respond to anything you heard from Jim, or comment on it, support or oppose it.

We also, again, I want to remind you, as Jeff said, we want to make sure you tell us what kinds of things -- and maybe the weight of those kind of things we should put into our decision on this issue. So, we're going to stick with inverted rates for the next 20 minutes or so, see what kind of discussion there is in the room.

I noticed one thing -- I am going to sort of maybe trigger Scott to be involved in this -- but we asked questions about whether inverted block rates could be cost-based. And we got one answer that said no, and another answer said, absolutely, yes. So, I think there's probably some room for discussion on that question. Who wants to break the ice?

MS. CONNELLY: Can I ask some questions of Jim?

CHAIRMAN BINZ: Sure.

MS. CONNELLY: I have two questions based on your --

MR. LAZAR: Yes.

MS. CONNELLY: Why does it make a difference, whether the -- you say "curtailment" versus "conservation," because it's a reduction either way, right?

MR. LAZAR: It probably is --

MS. CONNELLY: Why are you distinguishing between those two concepts?

MR. LAZAR: I distinguish between them because people have two different responses to higher costs. One is to do without, and the other, if it were a long-run response, to figure out a better way of accomplishing the same thing.

There is a welfare loss associated with doing without. People, they are used to keeping their thermostat at 72, and because your air conditioning bill is too high, you crank it up to 78, you are giving something up. That's curtailment. If you insulate your building with new windows, or buy a more efficient air conditioner, and can keep it at 72 with the same energy consumption -- with the same energy bill, and lower the energy consumption, you're -- that's conservation.

I just like to distinguish between them because they are not exactly the same response, from

the utility resource planning perspective. The conservation response actually, figuring out a different way to accomplish the task, is a more certain and more permanent reduction. When people get laid off from their job, or their 401K starts looking like a 104K, they may turn down the thermostat to save money, in the short run, but when the margin goes back up or they get a new job, that demand can come back very quickly, whereas if we can get them to invest in a more efficient building, or more efficient heating system, that load isn't going to spring back on the utility.

From a resource-planning perspective, conservation is a long-term response. Curtailment may be a short-term response that doesn't provide certainty to the utility.

MS. CONNELLY: And may I follow-up?

CHAIRMAN BINZ: Sure.

MS. CONNELLY: Okay. So, if you have a welfare loss with your curtailment, does that suggest that you haven't set the rates at the economically efficient point, because you've induced that curtailment and also can suffer the welfare loss?

MR. LAZAR: No. The customer has curtailed because the, you know, if the price has gone from 10 cents a kilowatt-hour to 15 cents, then they

curtail in response to that. What they are saying, it's not worth 15 cents a kilowatt-hour for me to keep the thermostat on that temperature. I would rarely spend that money on a new plasmatron. I would get more satisfaction out of a new TV.

It also, you know, the customer has chosen something that's worth --

MS. CONNELLY: More to them?

MR. LAZAR: More than 10 cents, but less than 15 cents to them. They took their next best option of how to spend their money.

MS. CONNELLY: Just -- my final question, you had two ways that you were setting blocks. One was on a resource cost base, one was on the load factor base.

MR. LAZAR: Yes.

MS. CONNELLY: Do any utilities use that load factor base method that you are aware of?

MR. LAZAR: Yes.

MS. CONNELLY: Who would be an example of that?

MR. LAZAR: Well, the -- in the last -- Puget uses both. Manitoba Hydro uses both. California, near as I can tell, uses magic, or philosophy, or religion, or it doesn't appear to be

mathematics.

The Oregon rates are -- and Idaho rates are derived from load factor research, but there is such judgement that goes into setting rates. I mean, typically, rate design is the very last thing in the rate case, and everybody has been through, you know, rate base and cost of capital and operating expenses. And often Commissions are up against a regulatory deadline to put something out. And the mechanics that are pretty rigid in setting revenue requirement are not always as rigid in setting rate design. They are sort a sort of understanding only of principles and application of judgement.

MS. CONNELLY: Thank you.

CHAIRMAN BINZ: Thanks, Paula. Thinks.

MR. FULCH: Matt Fulch, Governor's Energy Office. Two-part question. One, in your experience throughout the territories you have studied, how much of the public utilities are embracing rate design -- for this particular rate design?

MR. LAZAR: Sorry.

MR. FULCH: How much of public utility nonregulated utilities are embracing this rate design?

The second part of the question, for the ones that are embracing it, how much do they consider

this a dependable part of their strategic planning for resource planning?

MR. LAZAR: Inverted rates are more common among regulated utilities than among self-regulated utilities. There are some very important exceptions. First of all, nearly all of the publicly-owned utilities in California have inverted rates. The City of Seattle, the largest public utility in the northwest, has inverted rates. Some of the hydrorich utilities, Chelan County PUD, very large hydroproducer does, but I would think it's a safe statement that a majority of small municipal and co-op utilities do not. But in terms of the majority of the customers, you know, majority of the population of the west, overwhelming --

MR. FULCH: Sure.

MR. LAZAR: The overwhelming majority served by utilities were inverted rates. Los Angeles Department of Water and Power just adopted its first inverted rate, effective October of this year, the largest public utility in the country. That's brand-new.

MR. GELLER: Jim, do we have much information on the effects of moving to tiered rates/inverted block rates? And also, what level of

spread do we need to really see an impact, in terms of stimulating either conservation or curtailment amongst the customers that are, you know, in the higher blocks in the margin?

MR. LAZAR: There were some studies that I saw that were done a while ago, 10 and 15 years ago, that compared utilities, in a general physical area, that did and didn't have inverted rates, and what had happened to their usage per customer over time. We did one in the Pacific northwest in about 1988, or so. There was one even done by the legislature in 1982 in Oregon. I haven't seen any newer ones than that.

You know, those studies showed that the utilities with inverted rates had lower use per customer and slower growth in use per customer or faster shrinkage in use per customer than the utilities that had flat or declining block rates. But the studies I have seen are old enough that I don't really -- if there is a newer one, I would love to see it. Please tell me. And if there is not, it's probably something that we in the economics profession need to think about working on.

MR. GELLER: How about the second part of my question? What level of spread is enough to have an impact? We have a big range here amongst the

utilities.

MR. LAZAR: You know, my own feeling, it needs to be steep enough, of course, that customers notice it. You know, when gasoline got to $4 and change a gallon, people noticed but when it drops to a $1.79 to a $1.81, people wait until the tank is about a quarter full, and then fill up. They don't plan their gasoline purchases as much as we did when gas was over $4.

I do think that, you know, some of the rate designs that have only a, you know, 5 or 10% differential is probably not worth, you know, the trade-off between economic efficiency and precision and confusion. And in my opinion, rate design that has only a small inversion isn't worth the confusion.

CHAIRMAN BINZ: Yes.

MR. GRAY: Charlie Gray with Black Hills Energy. So, are you saying that differential should be cost-based or big enough to get a response, and sometimes those two aren't the same?

MR. LAZAR: I agree. I think that the differential should be cost-based, all right? But if that cost basis shows that only a 3/10th of a cent differential is justified, I don't think that's worth the bother. But I think that using both resource cost

and load factor in computing that -- if you have got some old cheap power plants that are producing power for 4 cents and your marginal cost is 12 for a new power plant, you got to cost basis for inverted rate, that's pretty dramatic.

If, on the other hand, you're one of the California utilities, with old power plants that are fully depreciated, but they are natural gas-fired and inefficient, and your new power plant is natural gas-fired and efficient, there may not be much difference between your marginal costs and your old power plant costs. At this point, it gets to be a de minimis differential. Simplicity has a value.

I mean, one of Bonbright's principles of ratemaking is that simplicity is important. Customers have to understand the rate design.

MR. GELLER: How do you respond to the industrials that say, you know, we use power -- the same power 365 days a year, so we should get all of the base load and the residentials that use a little bit in this month and a lot in the heating or cooling months, don't get the benefit of those base load, but -- because the 24-hour Wal-Mart is using the same every day.

MR. LAZAR: Well, that gets into cost

allocation theory as opposed to the rate design theory. I approach that line with a great deal of trepidation. Most cost-of-service methodologies do provide high load factor classes with a recognition of that load factor in the cost allocation to that class. And as many ways of doing cost allocation studies as there are, unless it is Public Service Company doing them, so they approach it in many different ways. But the -- and there probably are some that do exactly that. But there should be a recognition of high load factor classes receiving a cost allocation, based upon their load factor. But most Commissions do share, you know, every class has some base load uses. So base, intermediate, peak methodology is one. Embedded cost methodology, that does pretty much exactly that. Every class gets an allocation of base-load plant, base-load, an allocation of intermediate plant, based on their incremental usage of the intermediate hours, and allocation of peak load plant, based on their peak usage.

CHAIRMAN BINZ: I'm sorry, Jim. Thor Nelson.

MR. NELSON: Thor Nelson with Colorado Energy Consumers. An observation on the inverted block rate concept is, I think it's important to distinguish

between the different customer classes when you are looking at the policies of inverted blocks.

I think that the presentation that Jim has made has talked a lot about residential theory. At the present time, as far as I understand, that was the -- I understand that was the purpose of the presentation. And I don't have a dog in that hunt, so I am not going to go there. But when you talk about the commercial classes, and the industrial classes, some of these policy considerations are significantly different than they are in the residential context.

And, so, I would encourage the Commission, when you are inviting further comments on these topics, to be cognizant of whether you really only, for example, are interested in doing this on a residential basis, or whether you really want to do it for other customer classes, because the scope of the issues you have to look at are very different, depending on the kinds of usage you are talking about.

In the industrial class, you don't have the notion of a group of people who use appliances, and, then, a group of people who use space heating, group of people that use water heat. The uses are far more varied.

And you have one additional issue that I

will just flag, just because it's the biggest one, in my opinion, is that in the industrial class, you have a problem of, it is entirely possible that you can improve efficiency by increasing consumption, because you can, and oftentimes will, have larger motors, larger machines, that are more efficient than some smaller ones. And if you have a system which penalizes customers from using larger machines that are more efficient, I think you will implicitly be actually working exactly opposite of what is, perhaps, one of the main goals of inverted blocks, which is to promote efficiency.

And, so, I would just say, in the context of the industry and industrial rates, there are important differences between that and the residential class that I would encourage you to think about. And my two cents worth here, I think if you want to look at the rate design in the industrial class, it is a far more profitable expenditure of time and resources to look at the time-of-use analysis than it is to look at the inverted blocks, because I think the inverted blocks just don't make a lot of sense with most industrial applications.

CHAIRMAN BINZ: Commissioner Baker.

COMMISSIONER BAKER: I was just going to

ask a question, if any of these utilities apply inverted blocks to the industrial class or small commercial?

MR. LAZAR: Only one. I think I agree with everything that was just said. My presentation has only been on the residential. The only utility currently that I am aware of, that has an inverted block industrial rate, is Manitoba Hydro. They are concerned that a large aluminum smelter or alkali plant would move in, soak up all of the surplus at their retail rate, which were way below market prices, cause them to lose all of their off-system revenue, and cause a rate increase in all of the existing industries in Manitoba, to the detriment of the historic rate-based resources that were there.

They adopted sort of the rolling baseline rate. Everybody can pay their historical usage at low rate, and incremental usage at a much higher rate. Nothing resembling the kind of simple rate design that we use for residential inverted blocks.

MR. CHRISS: Steve Criss from Wal-Mart. I wanted to piggyback on Thor's comments a little bit. And also, from a general policy standpoint, I question the wisdom of putting in rate design that causes more problems. So, if you go to a rate design where all of

a sudden the utility is worried about revenue stream, it seems like you might be causing more problems than you are solving.

That's why, generally, I don't encourage, as Thor said -- and I agree with Thor -- I don't encourage inverted block rates for commercial classes. I know it's one of the questions in the original order, and Schedule C with Xcel is one that has currently a customer charge and energy charge.

There are a couple of things that are important to us, when you are talking about that. The first is we really haven't talked that much about demand costs. And this is a problem with any sort of rate where you have demand costs on a kilowatt-hour basis. High load factor customers are going to be subsidizing low load factor customers, because you are taking this cost that should be billed on a per kilowatt-hour, spreading it over kilowatt-hours on a group that uses less because their load factor is subsidized by the group that uses more, even though the size of system that was required for both is the same.

And I can go up on the board and draw it out, if you need me to. That's really the first part. And then, so, the inverted block issue, because it -- I think it exacerbates the subsidy. Anytime you have

kilowatt-hour charges covering demand costs, you are going to have that problem.

The other problem with inverted block rates, especially for commercial customers, it doesn't reflect how we operate. We don't -- couple of examples that will be in the forthcoming comments. One is we have forklifts in four distribution centers that are used 24/7 and we have to charge them at some point. Well, if you have a time-based rate, on a daily basis, or RTP, anything like that, you can make a change to charge your forklifts at night when the rates are low. On inverted block rate, the low price signal is the first track of the billing cycle. You are not not going to charge your forklifts for three weeks so you can hit those few kilowatt-hours at the beginning of the billing cycle.

The other is that, you know, the stores, and in our retail stores, have the ability to cycle refrigeration and demand lighting and operating temperature. We will do that on an interday basis if need be. And Wal-Mart has engineered 16 or 17 demand-response programs, so it's something we're very used to doing. And on inverted block rate, we're not going to operate the store at 75 degrees during the high-priced periods and 77 degrees or, you know, we're

not going to operate the store at different temperatures, different parts of the month. It just makes no sense. There are a lot of efficiency gains, which customers can deliver to the system, you are going to lose if you would stick them in inverted block rates versus time-based rates.

CHAIRMAN BINZ: Scott, I was going to ask you a question. Do you want to just start talking?

MR. BROCKETT: You can ask me a question. That's fine.

CHAIRMAN BINZ: You described in comments -- which I assume you wrote this section. Am I wrong?

MR. BROCKETT: Well, was it on inverted rates?

CHAIRMAN BINZ: It was the second best, the quotation about being second best. It sounds like Scott. Would you elaborate on that a little bit? I think you saw inverted block rates as maybe more feasible than other, in your view, better rate designs. And it might be characterized as a second best to those; is that fair?

MR. BROCKETT: I think that that is fair. I think there can be some cost-based argument for inverted blocks rate. We heard some today. In our

opinion, there probably are better price signals. I think you do better with time-of-use rates, because our costs do vary with time-of-use.

For various reasons, we're kind of reluctant to draw a clear correlation between all of these end-uses and customers' cumulative consumption during the month, because your service territory varies widely. And you have half of the customers -- like when I was in an apartment with 800 square feet, I could crank up my air conditioner, maybe never get to the 600 kW threshold. There are a lot of anomalies that make the system's application of inverted rates very problematic from a cost-based standpoint.

Having said that, I think it's absolutely true that you can institute inverted block rates with very few administrative costs. That's a huge advantage. That's why I say second best, in terms of setting the right price signals. I would stick by that. But I also think there's an advantage in terms of being able to do something, even if it's not that great, without incurring a large degree of additional administrative costs.

MR. LAZAR: You're not doing what California has done, necessarily, but they have addressed one of the concerns that you just expressed;

that California, if you look on the summary sheet, the Pacific Gas and Electric, and Southern Cal Edison rates, the blocks are defined as 100 to 135% of baseline, below 100% of baseline. They have multiple climate zones and multiple housing types and sort of each kind of housing, multifamily, in the desert range, gets a different first block than single family in the coastal region. They have addressed that concern. Addressing that concern causes both complexity and confusion.

So, the concern that you raised about the differences around your service territory are not unique to your utility, and there is a way of dealing with them. It comes with the penalty.

CHAIRMAN BINZ: Yes.

MS. NEWCOMB: JoElyn Newcomb and I work with a solar company, and this has been a really insightful discussion.

One of the questions I want to ask -- I kind of am in a minority -- and this is just about residential rates. And that is, isn't it almost unconscionable that we're charging, for the first 400-kilowatt hours, for the lowest tier, if you will, the same amount that we charge for the upper tier? When I see that, like for Rocky Mountain Utah Power,

and in SWEEP's testimony, that 5% of the customers are using 81% of the power and over 2000 kilowatt-hours and they are getting the same rate that a poor person is getting for that first 400 kilowatt-hours to provide electricity. So my question is, in a way, isn't that rate hugely inequitable for lower income people?

MR. LAZAR: I am an economist. We're supposed to stick to efficiency. Equity is best left to philosophers and politicians, to look the other way.

CHAIRMAN BINZ: I am not a priest.

MS. NEWCOMB: Is that true? Let me ask the question a different way, then. Because we're charging the same kilowatt price per kilowatt-hour, for the first 400, as we are for the above 2,000, now, isn't the first 400 -- isn't it true that the person who's just trying to do the refrigeration, and get their kids to school, and the 15% of kids in poverty in Colorado, aren't they paying for that peak hour, for somebody who runs their air conditioner above 2000 kilowatt-hours a month?

MR. LAZAR: If the Commission adopts a cost methodology that puts the low cost resources into a pool and gives everybody a fair share of those, and then puts the more expensive resources into a pool, and let's everybody buy as much of those as they want, you

get a tiered rate, if you start with a system that has resources with different costs. If the resources all have exactly the same costs, you don't necessarily get to that result. In this case, in Xcel, do they all have the same cost?

MR. BROCKETT: When you say, "Do they all," what are you referring to?

MS. NEWCOMB: It's his question. The resources.

MR. LAZAR: Do each of your power plants have the same fully allocated cost?

MS. CONNELLY: No.

MR. BROCKETT: They don't have the same costs, but, I think, what you are saying, if you want to define equity in terms of the cost imposed on the system, I think, when you are looking at the poor person and usage, they are using -- it's not necessarily how much they are using, it's when that use occurs.

MS. CONNELLY: When it's --

MR. BROCKETT: That really determines how much cost they are imposing on the system.

CHAIRMAN BINZ: I think one way to see this is, this is a poor man's time-of-use rate. I think, efficient rates, it's just considered that

under -- if you are on the tailblock, you are 15 cents or 12 cents, for whatever use, in the middle of the night, you are paying much more than the system costs at this point. There's just no way to justify that at that hour.

Now, if you step back and do what Jim did, about sort of batches, that's a rough equity, is what it is. I don't think you would a claim lot more precision for it than that, unless I am wrong, Jim.

MR. LAZAR: No.

CHAIRMAN BINZ: It's a rough equity.

MR. LAZAR: Little --

CHAIRMAN BINZ: But, I mean -- Matt.

COMMISSIONER BAKER: I was just going to ask, I was somewhat surprised that you don't make the case based on efficiency; that if you were to implement a tiered rate program, and you could avert some new generation, then, isn't that the cost that your, you know, isn't it true -- I mean, doesn't that, then, become the justification for where the tiers, you know, whatever tiers it is, to avert that more expensive alternative, becomes the rationale for the blocks?

MR. LAZAR: Yes. I realized, as I was presenting that, I sort of left out a third approach to tiered rates. I used a load factor based and a

resource cost based. Both of those are sort of embedded cost approaches. And I presented those because it's my understanding that this is sort of an embedded cost jurisdiction.

If I understand your question, the marginal cost approach is that, in theory, the price at all hours should be equal to the marginal cost -- long-run marginal costs at that hour. A system that is in equilibrium would require new capacity to serve load at any hour, or use relatively inefficient resources to serve additional load at any hour. So, the marginal cost at any hour would be significantly higher than the average cost at any hour. And by setting all of the rates at marginal cost, you would generate more revenue than the revenue requirement.

Then, the question is, what do you discount below marginal cost? In economic theory, we use the term, "Ramsey Pricing" -- and he's a British economist, 19th century -- is that you should discount below marginal cost those elements of consumption that are least elastic. So, the basic connection to the grid, you know, whether it's the $2 a month or $20 a month, I want cold milk and ice cubes and ice cream, and I am going to plug in my frig, and I am going to hook up to the grid.

So, there's a very inelastic component of consumption. The first 200 -- I think the one rate design, the last 200 kilowatt-hours, first block -- I guess Portland, almost everybody is above that extremely inelastic part of consumption below 100 kilowatt-hours. Discounts, you know, larger discounts for the smaller units of consumption. So, that is more customers see the marginal costs as their marginal decision.

And that's sort of a marginal cost approach to tiered rates, as you should discount most below marginal costs that which is least elastic. The consumption is not going to respond to the marginal price signal.

CHAIRMAN BINZ: Paula.

MS. CONNELLY: Commissioner Baker, though, unless the people responding to that marginal cost signal reduce their usage during peak -- during the peak hours, you are not going to save on having to build more generation. That's the concern that we raised in our comments. It's that the amount of consumption that's used in any month is very much a second best situation, and may or may not be correlated at all to that -- the person's contribution to our peak usage, or that person's contribution to our need to add

additional generation.

We much prefer -- the much preferred method would be some form of time-of-use pricing, but as we said, we have the cost of meters problem. This is why Scott says it's the poor man's way of doing it and, by far, second best, is this one.

MR. LAZAR: As I indicated, targets -- if you have three block rates targeting that third block for the space conditioning usage, gets at the very usage that is most peak-oriented and is also likely to be more -- most elastic.

CHAIRMAN BINZ: But still an on average estimate.

MS. CONNELLY: On average.

MR. LAZAR: Yeah. You got customers with swimming pools, and swimming pool pumps, that over the course of a month, consume a lot of electricity. And you can get to those with programs. You can get to those with pool pump timers and things like that. But there is a very high correlation between high-use customers and peak-oriented customers.

It's not, by any means, perfect. As we have all indicated, there's a metering and meter reading and the customer understanding, I believe, for time-of-use rates.

CHAIRMAN BINZ: Dennis Senger. Who else wants in on this? We'll get you next.

MR. SENGER: I just wanted to clarify -- and, I think, most people understand this. But, when we talk about a poor man's way of doing it, we're not talking about low income.

CHAIRMAN BINZ: No, no.

MS. CONNELLY: We're talking about a way of putting in something --

MR. SENGER: I want to clarify that for the record. I know everybody that was reading it and, you know, I guess, we're -- we had some comments, which those of you who read it indicate some, I would characterize it as, modest support for inclining block rates. But using the somewhat same rationale, that it's something that can be implemented relatively easily, for smaller customers, without a lot of costs involved it in.

But we are really concerned about some of the things that have been talked about, the equity issues. And in the case of that, when you take that and apply it completely across the residential customer class, and, certainly, before, you talked about issues, Thor, you talked about the issues related to going to that for a commercial industry, they become even worse

at that level.

So, our concern would be that inclining block rates, structured with some modest support to it, is really, because it is a poor man's way of doing something, that's making it a little bit better. But we strongly support looking at better ways of doing something for most of the customers in the -- or customers, as it makes sense to do in the residential.

CHAIRMAN BINZ: Dan.

MR. JAMES: Dan James with Xcel. I had a question for Jim. You mentioned there was high correlation between high-use customers and their on-peak usage. Do you have any kind of ballpark number of what that -- what does, "high," mean?

MR. LAZAR: Well, a number of utilities have done stratified load studies. And all -- every one that I looked at, from Vermont to California, to Washington, shows a declining load factor as usage increases, declining coincident peak load factors as usage increases. Puget and Pacific are the only ones I know about, because they are ones that have dealt with this for the longest period of time.

And the residential -- average residential load factor, more or less 50%; small use customers, in the 60 plus percent, overall; large use

customers, that is those over 1,000 or 1200 kilowatt-hours a month, drop down into the 40s and 30s. That's their total load factor.

If you then use calculus to disaggregate that, and you say for that large-use customer, their first 400 kilowatt-hours of consumption, that's the same as the 400-kilowatt-a-month users for lights and appliances, and you find that their usage over 1200 is down in the 10% load factor, so, they have five times the peak coincidence of a refrigerator.

MS. CONNELLY: Thanks.

CHAIRMAN BINZ: I want to take a census here, because we're going to take a break, hopefully, around 2:30. Howard was up, James and then Nancy.

MR. GELLER: I just wanted to note -- Howard Geller from SWEEP. In our comments, we suggested either three blocks, or possibly four blocks, to have maybe a fourth block for the really high usage customers, say over 2000 kilowatt-hours per month.

We also supported the notion of potentially linking participation in some of the DSM programs, such as the Saver's Switch program, to reduce peak air conditioning demand; to invert block rates, potentially, not pricing the tailblock, the highest block, if you participate in a program. And, I think,

that would be a way of providing more -- potentially more peak demand reduction, more marginal cost avoidance, promoting conservation across the board.

CHAIRMAN BINZ: Thank you. Interesting idea.

MR. ELLIOTT: James Elliott with SourceGas. For gas utilities, at least from our perspective, I think what makes the inclining block rate design mechanism alternative ineffective is the difference in the ratio of demand costs to, say, commodity costs, where, in our case, our commodity costs our 80% of our total revenue. When you talk about a small sliver, and it's that 3/10 of a cent difference between the first block and last block, for the effectiveness of an inclining block rate, I think that's why, you know, you may see those kinds of mechanisms in California but nowhere else.

And certainly we wouldn't advocate that for the revenue erosion consequences that we, as a utility, would face, as opposed to the limited benefit that our customers would receive, with the change in the resources that that might induce, so. . . Thanks.

CHAIRMAN BINZ: Thanks. Nancy.

MS. LAPLACA: Nancy Laplaca. Mr. Lazar, as people make the connection more and more between

electricity production and global warming, do you find that there's more demand on the part of customers for these kinds of -- you know, that would change the equation certainly.

MR. LAZAR: I am doing a lot of work on -- for the California electric municipal utility, as they are adapting to the California Global Warming Greenhouse Gas Production Act. One element is that if carbon is to be monetized, and inverted rate gives you a way to reflect that carbon cost in the tailblock, without having to reflect it in the revenue requirement, and reflect the environmental costs of some incremental generation, as you are trying to achieve a 10 or 15 or 20% reduction in the emissions, not 100% reduction, you only need to reflect it in the tailblock to achieve that.

I don't think that there is any reason to say that customers are making necessarily the connection between electric rate design and climate changes. Certainly the profession is, but in terms of, you know, what we're seeing out of the general public, I think it's a simpler response. Energy costs have been going up, I am going to find ways to use less. I want my utility to help me use less. I think it's a sort of simpler response than that.

But from the professional rate design perspective, being able to reflect marginal environmental costs in the marginal rate for the incremental usage is desirable.

CHAIRMAN BINZ: Jim too -- at least this isn't actually to Jim, but I will start it there. At least for Public Service Company, it seems that air conditioning summer load is pretty much the explanation for the summer peak and the growth in that.

Would that recommend, or not, if you are going to do inclining block rates, to make them seasonal? I see that, for example, Utah Power and Light, or whatever it's called, Rocky Mountain Power, has that kind of arrangement. Is that something you think is good or bad?

MR. LAZAR: I used Arizona Public Service as one of my two principal examples for a utility with a single peaking season, summer or winter. I think that a, for example, a summer-only inverted rate is probably more logical than trying to do it year-round, particularly if the utility has a resource surplus in the off-season if it has a market for that surplus that's attractive. The answer is different for -- the northwest utilities are winter-peaking utilities. But they sell their surplus into a market dominated by

California, which is a summer-peaking market. So, they have established annual -- year-round inverted rates, because their marginal costs to make more electricity, to serve load during the peak season, is high, and their marginal revenue for -- from selling electricity in their own off-peak season is high.

So, you need to look at both the utility's cost situation and the markets that it's able to trade-in.

CHAIRMAN BINZ: Commissioner Baker and then we're going to break.

COMMISSIONER BAKER: On the other hand, playing off the Chairman's question here, most of the utilities are, at some point, calling for more base-load power to be added to the system. And we have mostly focussed on how this design affects the peak. Would you say it's more effective as a tool to delay or defer base load, or is it, you know, cover all of the bases? Help me out with that.

MR. LAZAR: In the residential SG class, you will see savings in any season where you apply it, an inverted rate. If base-load resources are in the resource plan, that's telling you that reducing load at any time helps you avoid base-load costs.

But one thing I have seen, in a number of

resource plans, is that the cost differential, particularly building combined cycle gas versus simple cycle, is that the capital cost differential is so small, that the crossover point is in the hundreds of hours a year of usage, that you would go ahead and build a combined cycle unit. And that then becomes a base-load plant, can serve at any hour. But the proposed -- the relatively small couple-of-hundred-dollar-a-kilowatt incremental construction costs get justified just on the -- on a few hundred hours of usage. So, I think, one has to look a little deeper into the resource plan.

But base load, you know, base-load coal or nuclear being added -- forget thermal -- a high capital cost, 3,000- to $5000-a-kilowatt base-load plants are being added, that tells you that there are benefits for reducing load at any time of the year.

MR. GRAY: Charlie Gray, Black Hills Energy. Have you done any analysis on the tiered rates -- the time-of-use rates? We're trying to send price signals to our customers that our costs are different at different times of the day, different times of the year. How do we do that, send price signals?

On the flip side, you allow the budget

billing to pay -- they pay $80 a month, and they know their bill is 80. And we're telling them, yes, these kilowatt-hours were 15 cents, but you still owe us 80. So, I struggle with, if we want to give them, then, the price signal, do we then not allow them to be on budget billing, so they get the true price signals, or send them the price signals, but kind of ignore them and pay us the flat amount anyway.

MR. LAZAR: Well, you know, your Visa card bill comes every month, and some months you spend $400 and some months you spend 4,000. You always have the option of making the minium payment. You can put yourself on budget billing for your Visa card, which, of course, you pay interest. You can put yourself on the billing budget for your Visa card, but the bill comes with the total amount that you consumed for the month on it and you see that. And then you make a decision, how much of it you are going to pay.

The utility bill should certainly come with, you know, not the 80 bucks, that all-you-can-eat arrangement. You used $112 worth of electricity for the month, your budget billing amount is 80, and if your usage stays at this level, it's going to go up.

But I concur that budget billing tends to -- budget billing and autopay can mask all price

signals. I sometimes don't look at my electric bills for three months at a time, if I am really busy. It's on autopay. I see what it was when my bank statement arrives. I eventually key in the data, because I am an --

MS. NEWCOMB: Economist.

MR. LAZAR: That's who I am. I have a, you know, 30-year history of my electricity usage by month.

MS. CONNELLY: Have you been conserving?

MR. LAZAR: Uh-huh. And, but, certainly, the price signal can be masked by both budget billing and autopay, but, for that reason, the one reason I want -- that you need to simplify the rate presentation on the bills, so the customer understands what a change in their usage does to their bill. You know, if there is 14 rate elements that make up the rate, and when you add them all up, the 10 cents a kilowatt-hour -- make sure the customer knows that using more is going to add 10 cents a kilowatt-hour and using less is going to save 10 cents a kilowatt. People aren't going to add 31.378 plus 2.15654 plus a whole bunch of five decimal line items to figure out how much can I save by saving -- you need to have a bottom line. What is more usage cost.

And bill presentation is important. Many commissions -- I don't know if you have -- have required utilities to work on their bill presentation with focus groups, until they get things the customers do understand.

CHAIRMAN BINZ: I think this is a good time to take a break, and until quarter till. And we would either continue on this topic or switch to the next one, which is what I think we should do.

(Recess.)

CHAIRMAN BINZ: I would like for us to move to the time-of-use discussion. Are there any burning comments that must be made about inverted block rates that you didn't get a chance to make? Okay.

Time-of-use. We asked you to think about the considerations that Jeff and -- by the way, I should thank Jeff Ackermann and Geri Santos-Rach, Tony Munoz, and who else worked for this party? Scott England, for their help on this project.

Anyway, we put some questions down there, basically asking questions about whether we should consider moving forward on time-of-use rates before we know more about the Smart Grid experiments. We asked people to think about the relative advantage of the time-of-use versus other things, like the inverted

block discussion we just had.

I don't know if this question is on here, but I know it was on the original set. And that is, what will be the receptivity of customers generally, and maybe certain customer groups more specifically, to time-of-use. And when I say, "time-of-use," we're talking about mandatory time-of-use. I think everybody understands that offering these as options tends to get into this training situation, where only customers who benefit opt in, and you get sort of an adverse selection, as they say in the insurance business.

So, I think you should think about any of these regimes as pretty much mandatory. Maybe there will be options between them, but that will be the way it goes. We have no presenter this time, but we are certainly open for anybody who wants to start the ball rolling on time-of-use rates, who likes them, who doesn't like them.

MR. CHRISS: I apologize, again, for not having filed comments yet. I have been on the road a lot the last six weeks. Time for writing has been short. But, in general, time-of-use rates, they are sort of a step towards real-time pricing, but they are still a big step forward from the flat rate, because you are getting the interday volatility, interweek

volatility. A number of states, they will do the rate based on the day as well.

The downside, in our opinion, is that the time-of-use rates, you know, they are generally set during rate cases, so you don't see lots of movement with actuals in the market. So, you get the approximations of what's going on. You are not actually responding to what's going on. So, you're going to -- what's the word? There is going to be a less needed impact of low price periods and high price periods -- less flexibility.

COMMISSIONER BAKER: Is it fair to say, at least from our perspective, when we are thinking time-of-use, we're thinking of kind of a cluster of static and dynamic mechanisms or --

CHAIRMAN BINZ: While he was answering the question, I was thinking we should define the term right now. So, I guess, if you are going to use it in a different sense, you need to identify that as such.

Let's start with time-of-use rates for -- in our rates, such that the rate changes -- the constant rate changes a few times during the day, just a few blocks, maybe a peak, a shoulder and off peak. Let's just say something like that, where the time blocks don't change often and the rates don't change

often.

MS. NEWCOMB: Okay.

COMMISSIONER BAKER: Which is what he's answering.

CHAIRMAN BINZ: That's what you are answering. You are correct, of course, that is dynamic. Pricing of that is another step on the way to real-time pricing, I would say. Thor.

MR. NELSON: I didn't want for cut off Steve.

One of the things that I think, from our perspective, as I indicated in the discussion on the inverted block, my clients, which, for the group's benefit, tend to be larger industrial customers, are supportive of rate design that evolves towards tracking the actual cost at the time of usage. And as we have just illustrated, there's a continuum of, you know, going from rough approximations of peak and off-peak or peak shoulder, and off-peak to real-time pricing and a wide range in between.

As a general concept, I think that these are good things and that they can be, I think, usefully collected where you, in particular, have meters that are capable of achieving the results you want. I think you talked about the implementation being tabled until

you have Smart Grid done. That, again, is a situation that you need to look at this question on, like the last ones, class by class precisely, on the sort of meter capability sort of basis. The more functionalities you have in your meters, the more robust your rate design can be to try to deal with these issues, and to try to track costs more precisely. The less refined your meter, the more blunt your instrument is going to be.

One of the observations I would make, though, is to the extent time-of-use is designed to -- and this is in your sort of second bullet point, where you say, are you supposed to reduce peak, encourage conservation or improve intercustomer equity. I would say that, as a conceptual matter, time-of-use rates along this continuum can achieve all of those results, depending on how they are designed.

I would say that, in the past, one thing we have observed, though, is where you do have rough approximations of blocks of time, where it's peak and off-peak, one thing that can happen is, if your goal is to reduce peak demand, you have to have a sufficiently small window that you call, "peak," in order to actually allow customers to shift load onto off-peak. In the past, where you have a peak period which, for

example, is 14 or 16 hours of the day, it becomes incrementally harder to shift to off-peak and take advantage of lower rates than if your peak period were 6 or 8 hours of the day.

And, so, that's one of the things that I would encourage the Commission to consider, is, to the extent peak demand is one of the objectives you are trying to target, you need to focus on whether or not you have a small enough peak period, such that customers are actually able to switch out of that, to accomplish that, otherwise, you basically won't get the peak demand shift. You may still get other beneficial results but that part of it is largely going to be a function of how big that peak block period.

MS. NEWCOMB: I just wanted to say, I applaud the Commission for both having this kind of forum, and looking at the inverted base and time-of-use pricing. What I want to say, selling solar is really interesting. You get to go talk to customers face to face. I realize how much they don't know about their electricity bill.

One of the things I want to say, I was presenting to a physician in downtown Denver, and there is no difference that a 100-kilowatt system would do for her electric bill. So, without time-of-use, or

without tiered pricing, the only reason she would be putting a solar system on her home -- or on her business, excuse me, is for the Federal tax credit. And that's very discouraging, to be selling to a customer and to say, yes, you can invest in solar, yes it will produce 140 kilowatt-hours a year, and you have no change in your bill, none. And, so, I think this idea of really changing how we price electricity is important for residential and small commercial.

The last thing I would say is -- and, I think we make some mistakes, often, in public policy -- is that simplicity is really important; that sometimes we reject inverted base pricing or inverted tier pricing because time-of-use is better. Time-of-use is no doubt better, but it's also more costly. And so, sometimes, you got to go the intermediate step to get movement in the market. And that would also help us with some of our solar, both on residential and small commercial.

So, I really appreciate you guys thinking about it.

CHAIRMAN BINZ: Thank you. Thanks for those comments. I think this is a candidate to be leapfrogged over, isn't it? I mean, if you are going to get meters which are smart enough to do

time-of-use -- I mean to do dynamic pricing or at least much more differentiated pricing than the gross pricing structures you get here, is it worth pausing at this one or not? It's a question I have got. Should Public Service Company install meters which can do, you know, gross measurements of energy use, so that we can make this a systemwide implementation.

MS. NEWCOMB: I kind of have a funny story.

CHAIRMAN BINZ: It's like buying a PC. Should you buy it now and it's going to be outdated in a year. You know that, but you need one.

MS. NEWCOMB: I kind of have a funny story about that. I just got a new thermostat, you know, and you are trying to charge -- put the time that you want the heat to be 69 degrees or 72 degrees or whatever. Well, it really drives me crazy that it turns on earlier. It's trying to get the temperature exactly at what I want at 7 in the morning. So it's turning on at 4 in the morning and waking me up.

So, I mean, when you are talking about time-of-use, what's interesting is you got to have all of this electronics equipment just to make your appliances do the right thing, and in this particular house, right? So, it's smarter than I am, and it's

trying to get me at the right temperature but it's waking me up at night.

So, I just think that one of the interesting things about moving in all of these directions, we do need better electronics for homes so that people can actually respond to this Smart Grid or time-of-use or real-time pricing, but that's just a funny story.

CHAIRMAN BINZ: Dennis.

MR. SENGER: Dennis Senger with the Office of Consumer Counsel. One of the concerns that we have about waiting for the Smart Grid, is what if we find that it's not cost-effective, and then we have lost whatever time it takes to do that. So, now, it may, in fact -- and one of the things we need to find out is, are the meters that we would have to put in place to start doing time-of-use for certain times -- again, I am talking about residential customers, small commercial, generally, not you guys, because you have your meters probably already, but, you know, we don't want to implement technology that's going to get lost if we go there. That would be one of the concerns, and we need to have that question answered. But we don't want to necessarily also wait for Smart Grid to start making improvements.

And, you know, one of the thoughts behind that is there is a lot of decisions being made about resources right now. And the longer we wait to implement programs, that when consumers can actually play a part in that resource planning, the more these decisions are going to be made without any input from the consumers, other than, well, you know, give me my bill, I pay it, and you tell me what kind of resource you are going to put in place.

I would like to have -- we are advocates of implementing whatever makes sense. You know, it has to make sense. If we find out what's going to be $20 million, Smart Grid goes in, it goes away, that's probably going to be a different decision, but we would like to think there is ways of starting to implement some things immediately that wouldn't necessarily become outdated.

CHAIRMAN BINZ: Mr. Tarpey.

COMMISSIONER TARPEY: Dennis, are you suggesting that the -- before Public Service Company starts with Smart Grid, that we decide what it is we want these meters to do, and what the costs will be? Or it sounds to me like --

MR. SENGER: I am expecting we're going to have a Phase 2 rate case next year sometime. And

that I think that should be an open discussion, as to whether or not a program, even at this point in time, would be implemented.

COMMISSIONER TARPEY: Regardless of when that may be done, are you suggesting that the Smart Grid should not start before that?

MR. SENGER: I wasn't saying Smart Grid should not start. I was saying we shouldn't wait for Smart Grid to do the -- I was actually saying it the other way around. I apologize if I had confused you.

COMMISSIONER TARPEY: I am trying to track how this plays out. You are sure Smart Grid is going to do what.

MR. SENGER: None of us know.

COMMISSIONER TARPEY: You are not sure what it's going to do. What would you like it to do? Where is it we go now to either ensure -- are you suggesting we go down some other road?

MR. SENGER: I don't think there's anything we can do to ensure anything on this. What I am suggesting is that implementing some time-of-use for -- even for larger residential customers, at this point in time, as long as you haven't implemented technology that is expensive and going to be throw-away technology, why would you wait for Smart Grid to start

to make improvements? I mean, there is going to be a lot of customer education that's going to happen anyway. That's part of the process.

CHAIRMAN BINZ: Paula or Dan, can you talk about what Smart Grid is going to do?

MR. JAMES: I wanted to react a little. I couldn't agree more with what Dennis is saying in that, whatever we do needs to make sense. And by that, what we implement, and the costs -- that the benefits have to outweigh the costs. And if it's an interim step, if it's a final step, Smart Grid is the Holy Grail, Smart Grid, real-time pricing, that's about the tightest link between retail markets and, you know, the wholesale market, or the wholesale cost of power.

Are we ready to implement that on a full-scale basis right now? No. Because we -- that's one of the things Smart Grid is about. What I mean, there have been a lot of programs done around the country and I see stuff, and real-time pricing and time-of-use and critical peak, all of that, we have a lot of information about how those things work.

What Smart Grid is trying to do is probably going further than that, to try to bring a lot of these new technologies together in one place, at one time, and see what works well together. So, I don't

think we necessarily have to wait for Smart Grid to give us all of those answers, because it's trying -- I think that program is trying to answer a lot larger questions than what we were dealing with today, which is, what kind of rate designs and rate structure should we put in place going-forward, maybe starting today, or at the next rate case, to make our way to maybe whatever Smart Grid answers for us.

But, also, what is the cost and what are the benefits of doing something? I agree, we can't wait for the full answers for Smart Grid. I think we would have some answers on metering costs, communication costs, customer response, not just behavioral response, but what customers like, what don't they like.

So, if, again, we're a little bit between a rock and hard place. We don't want to do nothing today, but we don't want to jump in, like how I view what California has done, which has said, yes, put all of these meters in for all of these customers, and we think that we're going to have a, you know, good basecase at the end.

So, you know, I don't know what the answer is, but I think that we won't have to wait for a long time for Smart Grid. But we should have a year's

worth of data on customers, in response to different possible pricing options, by the end of 2010, I think, is what we're looking at right now.

I don't know if, from a policy perspective, that's too long to wait to do anything, but we should have more data at that time.

CHAIRMAN BINZ: Howard.

MR. GELLER: I would like to pose a -- Howard Geller -- sort of follow-up question. Putting aside Smart Grid, my understanding is that PSCo has been implementing a residential time-of-use and critical peak pricing pilot program for something like three years now, if I have the system's time frame correct. And can you say what you have learned, particularly regarding costs and benefits? Do you think there's a case to be made to going ahead with some form of time-of-use or critical peak pricing.

MR. JAMES: Sure. That residential pilot was conducted -- well, over one year. It was part of two summers. It was not a technology test, though. Really what we were trying to test was customer reaction to different pricing structures, time-of-use, time-of-use with critical peak pricing, critical peak pricing, those were the three options. And, yes, we did get information on that of price elasticity and

customer reaction, and what they liked about rates and what they didn't like about rates.

What we did not test was technology. We had to shut some meters in and we, you know, did tests the rates with enabling technologies, you know, the programmable thermostats, the Saver's Switch kind of technology, and we found out that kind of the behavioral change, you know, what kind of reduction in demand and energy can we expect from the different -- with and without technologies, from the different rates.

But we didn't say, what's the cost/benefit analysis of this. We did, you know, going into it, we had a model that we said, if we implemented this, you know, based on what we know today, that cost/benefit, you know, looks like it would work, metering costs. By the time we got done with the program, we decided metering costs were not -- were too high to take those programs forward, but metering costs are coming down every day. I mean, it's just amazing.

I think -- I was trying to remember. Around the time we ended that program, there was a meter made by Itron meters, the Centron, that we could put in the field today, for -- to do basic time-of-use, on-peak/off-peak compatible, with the van-read that

we're using. And the installed cost of that thing was about 100 bucks, which is fairly expensive but not, you know, what it used to be. It's not a --

CHAIRMAN BINZ: Dan, how did that compare to the installed cost of a dumb meter? What's the delta?

MR. JAMES: My recollection is the dumb meter installed cost is around 30 to $40, something like that. So it's, you know, it's a significant jump.

CHAIRMAN BINZ: But the 100 was -- not new construction. This was a retrofit.

MR. JAMES: It's popping out the old meter, popping in a new meter while program -- well, programming it. It's not that smart, because it allows you to get two pieces of data every month when you drive by instead of one piece of data. You know, you can get on-peak consumption and off-peak consumption. So, it's not that much smarter.

MR. GELLER: States half a kilowatt. It records it.

CHAIRMAN BINZ: And this is a good discussion, because I had this discussion with the -- at least Roy Palmer and someone else from Public Service Company. My question is, assuming there is ever new houses built in this country again.

COMMISSIONER TARPEY: We have some lead time.

CHAIRMAN BINZ: Yes. Why isn't Public Service considering -- why isn't Public Service Company installing, quote, unquote, smart meters, whatever that is, with new construction instead of dumb meters? We take a hit of 40 to 60 bucks, something like that. You avoid the future retrofit costs, and you got customers you could then begin putting on an alternative rate structure.

MR. JAMES: That's not the smart meter. That $60 incremental cost, that's a third-grade meter.

MS. CONNELLY: The whole issue of, are you going to buy your PC now, are you going to buy it two years from now. You want to buy it when you are going to have the rates in place, that people can actually use the functionality.

MR. JAMES: It's almost a chicken and egg problem. Do you put in the technology to enable the kind of rate structures and rate designs that you want, or do you decide these are the types of rate structures we need, what kind of technology do we have to put in place to enable that. That's a pretty basic decision.

CHAIRMAN BINZ: I had somebody else before you. He's been waiting.

MR. CHRISS: In looking at the questions that were posed, you are looking for other examples around the country. And one that stuck with me for a while -- and I went and looked to make sure it was still going on -- was from CNT Energy, in Illinois. They have a residential RTP program. Even a couple of years ago, they were reporting savings with this program, and they are not using Smart Grid, anything like that. They are basically putting -- interval metered pricing information is provided over the Web. They had real-time pricing on the Web. If prices are going to hit -- if the next day price is going to hit 13 or 14 cents, they will call you or e-mail or text you, say, hey, tomorrow is going to be a high power price day, so customers know to be aware that the next day is going to be high, like Ameren started in May 2007. And they also said that the customers who participated thus far have saved 16%, on average, over the flat rate.

And, so, I think there are lower tech ways of doing -- you still need interval meters. I don't know how much that costs. I don't get that much, as far as residential rates, in terms of looking at what TOUs are you asking for, versus what can probably be done with existing Internet and phone, and it's sort

of -- certainly something worth looking at.

MR. JAMES: Interval meters are not capable of being van-read, but, you know, you can install a phone line and read them that way. There's a, you know, it's not new technology. There's additional TOUs. Plus they are around that $100, maybe a little more, range.

COMMISSIONER BAKER: You do have the technology to do even real-time pricing with the industrial classes.

MR. JAMES: With interval meters, correct.

COMMISSIONER BAKER: And then also would there be any desire to do that -- just make that --

MS. CONNELLY: We have done that. We have a time-of-use tariff in place right now.

MR. JAMES: Real-time pricing or time-of-use.

MS. CONNELLY: Time-of-use.

CHAIRMAN BINZ: It's optional.

MR. JAMES: We had a real-time pricing program but very little customer interest.

MS. CONNELLY: We only had one or two customers on real-time.

MR. JAMES: At the most, we had four on

at that time, or four off.

MS. NEWCOMB: My question -- it's JoElyn Newcomb. My understanding, from our customers in Boulder, with the Smart Grid, is that the meters that you are installing don't track the solar system and the Smart Grid in real-time pricing. And so, are we going to get a meter that works with solar and real-time pricing and Smart Grid? That's my understanding. That's what Xcel has told us in meetings.

MR. JAMES: That's my understanding too. And actually it came up in meetings the other day. If I were a customer in Boulder, we had a solar system on my house, I would want what we put in the Chancellor's House as a demonstration program. There you can look at the real-time output of the solar system. You can look at the real-time consumption of the home separately. But those small systems in Boulder, under 10 kW, are net metered, so it's a net metering issue.

I would think consumers would want to, if they cared that much, want to see what was going on with their systems and with their consumption, they should be probably separately metered. They should probably have some kind of portal, some view into that, which we're working on, by the way. But what does that, then, do to the whole net meter issue.

MS. CONNELLY: We were required to set those all up as net meter, by Commission rule.

CHAIRMAN BINZ: Okay. Jim, on time-of-use or something close?

MR. LAZAR: Yeah. I put up here a grid that the New England Demand-Response Initiative Pricing and Meter Committee put together of rate design options by customer class, and it may have some elements to it that are useful to people in thinking through time-of-use and complex metering.

Across the top are types of rate designs, typical current rate designs for each class, inverted rates, fixed time period TOU rates, a TOU rate plus critical peak pricing, where the utility could declare critical periods, and the price would be much higher then. And then a couple of kinds of real-time pricing that are just -- I think of those as real-time pricing.

The residential customers we approached, that the default rate was an inverted rate, the kilowatt-hour-only metering was in place, or a TOU rate, if the TOU meters were already in place, with an option for residential customers to choose TOU plus critical peak.

The larger the customers got, small commercial, medium, large and very large, the more

complex the default options became. Simplest rate options went away, and customers could choose, typically, a more complex rate design than they were required to take. So, medium general service customers would have their default rate as 250 kilowatts. Their default rate could be a fixed time TOU rate. And their option would be a TOU plus critical peak pricing.

But the customers of that size wouldn't get into real-time prices, whereas customers over 2000 kilowatts, just a large industrial customer, would be required to choose between the real-time pricing options.

Just the concept of a matrix system, the bigger the customer, the more complicated the default rate design, and more complicated the optional rate design, it just may be useful for people in thinking through what's appropriate here. And, obviously, in the three years since this was done, as was mentioned, meter costs have come down and it might be the whole thing starts to slide to the right as a result of that.

CHAIRMAN BINZ: Thanks, Jim. That's very good. Very interesting. Anything else on time-of-use rates or systems?

COMMISSIONER TARPEY: I got a question.

MS. CONNELLY: I would just like to

mention, in our last Phase 2, Public Service proposed a mandatory time-of-use rates for customers over 300 kW. This ultimately ended in businesses changing that mandatory to an optional time-of-use rates, primarily because the customers who are going to be subjected to it, didn't want it.

And, so, they want to make it optional. Then what you have is you have self-selection. Those folks who are going to save money opt for it. Those folks who aren't, don't. And what you have created, of course, revenue erosion and the cost shifts as a result. I just want you to understand that the customer acceptance of all of this is still an unknown.

COMMISSIONER BAKER: I have two questions. One is just, what is -- Jim made a point about how inverted structure can lead to revenue erosion. If you have got a real-time pricing regime, do you have the same problem there or is it, you know, is --

MS. CONNELLY: If you get to actual real-time pricing, and it's designed right, you don't, but these time-of-use are -- still have averages built in.

MR. LAZAR: The efficient thing is to set the rates based on long-run marginal costs. And if the

real-time pricing is based on the short-run marginal costs, you still have a mismatch between cost and revenue.

CHAIRMAN BINZ: Yeah. I was going to point that out. Real-time pricing does not mean long-term marginal costs.

MS. CONNELLY: Right. It's more -- it's been designed short-term.

MR. LAZAR: Short-term.

CHAIRMAN BINZ: Your nighttime rate may be extremely low.

MR. LAZAR: Real-time pricing, based on short-term costs, avoids revenue -- net revenue instability for the utility, but it doesn't produce a very efficient long-run price for the consumer to make long-run investment decisions.

COMMISSIONER BAKER: I just want to tee off something that Jim had raised before this meeting. What happens if you have time-of-use or real-time pricing, and you end up -- and we're in a regime where there's fairly high carbon costs. So, then, from a pricing perspective, it seems like your peak may be 24/7, because the, you know, a lot of coal generation -- the higher carbon generation is off-peak, the more expensive. So, you know, if we're solving

this one problem now, couldn't we end up in a situation where actually it's kind of irrelevant, from a cost perspective, down the road? Does that make sense?

MS. CONNELLY: Yes. That makes sense. In fact, during the break, I asked Jim, kind of going back a step, on the inverted block, how all of the studies, and the inverted blocks, took into account, if they did, a situation where a utility was actively trying to acquire renewable resources for carbon reduction. And your answer -- and you might just want to say, your answer was --

MR. LAZAR: We haven't thought that through yet.

MS. CONNELLY: How that all interplays.

MR. LAZAR: It's an important question that deserves a thoughtful amount of study. And I don't think we have put that question together with relevant studies.

COMMISSIONER BAKER: On a time-of-use basis, if we were moving resources that are predominantly gas that -- into resources that are predominantly coal, don't we end up with a, you know, can that be self-defeating at some point?

MS. CONNELLY: It could end up with more carbon.

MR. LAZAR: There is a Colorado company that we're working with, Ice Energy, which sells a machine called "Ice Bear." Many of you are familiar with the ice storage system for typical small commercial or residential size air conditioners. And the California utilities are looking at that in conjunction with their access of the substantial amount of wind power, because the peaking problems that they now have, they know are going to be exacerbated when they start having intermittent energy. And Ice Energy has redesigned their controller to allow it to be grid-controlled, rather than on a fixed rate.

Now, they have built them so they run on a fixed time. They work great on fixed time TOU rates, but the California utilities want those air conditioners dispatchable by the --

CHAIRMAN BINZ: Shift.

MR. LAZAR: -- grid dispatcher as spinning reserve. And they have redesigned their control module to accommodate. So people are beginning to think about the things you all raised, but it's not a simple one.

CHAIRMAN BINZ: Commissioner Tarpey has been very patient.

COMMISSIONER TARPEY: I have a question,

I think, based upon something Paula said earlier. I got the impression that, to get serious about moving forward on time-of-use may require the initiative -- may require the Commission to begin instituting a proceeding or beginning with a proceeding?

MS. CONNELLY: As opposed to the utility?

COMMISSIONER TARPEY: Waiting until sometime in the future when the utility comes forward.

MS. CONNELLY: Well, we will be --

COMMISSIONER TARPEY: Part of that is whether that would be Phase 2 of the next case, whether there should be some other proceeding for getting there. But it sounds like there's a certain amount of call for this. The Commission needs to be actively involved in this, so the right signals are given out, and you know what to do with that, regarding technology, and then going-forward.

MS. CONNELLY: I think we have made it clear we're going to be filing an electric Phase 2 case in the spring of next year. So, that would be a potential springboard for looking at these issues, if that's what you would like for us to do.

COMMISSIONER TARPEY: Would that be a springboard to the Phase 2 resolution, immediately following that, as well as what should be done with

regard to implementing time-of-use over the next five years beyond that? Because I think there may be a transition period here about going more and more for time-of-use. If that is correct, what's the right forum for taking that up as opposed to what do we do for the next rate -- immediately right out of the rate case.

MS. CONNELLY: Yes. I think, procedurally, you could use either route. You could have a docket that's just devoted to what's the appropriate ways to implement time-of-use, but it might be more productive to actually have some numbers, when you are looking at that. So, I would suggest the appropriate springboard would be to use our Phase 2 filing, as at least a starting point. Otherwise, you're trying to design things without having any sense of what the dollars are involved.

CHAIRMAN BINZ: So, following easily on what he just asked, are you -- will you be asking us what we want to see you present in your Phase 2, because that's --

MS. CONNELLY: Let me check with my client.

MR. PALMER: I would ask you right now, what would you like to see us present in our Phase 2?

I mean, right? This is the forum to have that. It's not all one way.

CHAIRMAN BINZ: We can't make a decision right now right in front of you, am I right, Jim? We're going to be responding to their proposal. We are going to be taking up, in a creative fashion, an investigation of rate structure.

COMMISSIONER TARPEY: I am more than glad to take on Roy's question. I think that's actually what we're doing this year, indicating to parties what we want to hear in the case, and parties have been indicating the more they know upfront -- so, I think that's pretty much -- and I think the time will come when we can elaborate upon that in more detail. I think, actually, if we think that's the way to do it, we should, at some stage, so indicate.

CHAIRMAN BINZ: I agree.

COMMISSIONER TARPEY: With enough time for that to be taken into account.

CHAIRMAN BINZ: Just right not at 3:25 p.m.

COMMISSIONER TARPEY: Probably have to give notice.

MS. CONNELLY: If you want us to take it into account, something we're filing approximately

April of next year, we need to know soon, or else we won't be able to do all of the studies and everything else.

CHAIRMAN BINZ: We should take that as a request?

MS. CONNELLY: A comment.

COMMISSIONER TARPEY: Sounded that way to me.

MS. CONNELLY: A comment, not a request.

CHAIRMAN BINZ: Thor.

MR. NELSON: Sort of on this question, couple of observations. One observation is, to the extent the Commission has an interest in looking at that, alternative rate designs for a number of different policy objectives that have been talked about, one thing that I guess I would ask is that you consider the possibility of setting up that sort of policy, at least at some foundational level, in a rule rather than doing it on a utility -- like we have talked about a lot, about Public Service Company, they are not the only regulated utility in the state.

CHAIRMAN BINZ: You can tell me too.

MR. NELSON: I got that, but there is another one. And, I think, from a practical perspective, if you want to do this, it should be done

across-the-board in the state, as you are eligible to do so. So, it's just -- Matt's comments, but you can't just do it just by asking Public Service, in its filing. . .

COMMISSIONER BAKER: Can I also --

MR. NELSON: Go ahead.

COMMISSIONER BAKER: Just to play devil's advocate for a second, it seems to me -- Black Hills can let me know if I am correct on this -- Black Hills has already invested a fair amount of money in new meters, and has a different infrastructure than Public Service, that it might actually be the best way to do it, by taking it one utility at a time. What would be the downside to that?

MR. NELSON: Just let me be more clear. I think that these sort of rates have to be implemented based on the individual utility's costs and circumstances. What I would suggest we consider, though, is some process whereby what I would not like to see happen is one utility in the world, where we have two of them, one utility goes down one track, and another utility, for whatever reason, let's say, for example, doesn't have a Phase 2 filing for five, six, 10 years, and that utility does something very differently over some period of time.

And, I think, if you take my suggestion, this suggestion is driven largely by the notion of creating a competitive -- level playing field amongst businesses, who happen to have competitors who operate at different utility jurisdictions. And what if the Commission has, as a policy matter, wants utilities to implement new structures, you should consider requiring all utilities to do that in a utility specific filing.

But what we would not like to see is to have PSCo do it in April and Black Hills, just to pick on them, you can just --

COMMISSIONER TARPEY: They are the only other one.

MR. NELSON: Black Hills do it in 2020, and where you have this 10-year gap, where it was because of utilities electing to make filings or not make filings, the rate structures around the state are vastly different.

COMMISSIONER TARPEY: Okay. You are not suggesting that if we wanted to go forward with Public Service, that we can't take any action until we get to Black Hills.

MR. NELSON: No.

COMMISSIONER TARPEY: It may be a matter of, they are spread about 36 months, two years,

something -- you are just saying that time period gets too far apart.

CHAIRMAN BINZ: Paula.

MS. CONNELLY: There's a plural mechanism that was used in the State of New York that went something like this. The Commission would hold a case with one of the utilities, and that case was ConEdison and the Commission could decide the Phase 2 for ConEdison, but they gave notice to all of the other investor-owned utilities that, in the context of that case, certain generic principles might be established that they would -- the Commission would then want to see replicated in the other utilities.

MR. NELSON: What, a group program?

MS. CONNELLY: It added a lot of time, obviously, to the case. You don't want to do it every time, but if there was something really important where you wanted a new policy initiative, you could use that device.

CHAIRMAN BINZ: Gets to Thor's points.

MS. CONNELLY: And, I think, to Commissioner Tarpey's.

COMMISSIONER TARPEY: We could actually go through that process with both utilities and come out with one answer for Public Service regarding

time-of-use and give a chance to Black Hills, because of its characteristics. . .

MS. CONNELLY: Basically, what would happen, in that example, you would say, okay, we decide, in the context -- let's say we go first with our Phase 2, that you would like to see inverted block rates for most residential customers, and that they should be designed with the following things in mind, okay, where the break points are, and some of the concepts that Jim was talking about.

And then you actually determine, in our case, where those breakpoints are. And then you give a certain period of time to Black Hills to design something using similar principles, but it would be with their numbers.

MR. NELSON: The second point I wanted to make, now, not to just defend Black Hills, but defend every utility, is one of the challenges that we face in a Phase 2 kind of proceeding, is to not adopt Public Service -- if we have the idea of putting together a time-of-use, and they have a particular methodology that they want to use to do that, adopt -- or real-time pricing that they want to do, what tends to happen in these contexts, they then develop the economic information, be they some marginal cost estimate or

whatever it is, to then derive the rates that they want to have, that, then, creates a problem, because there is only one study, one methodology that's been done.

And what you end up with is intervenors, or the Commission itself, or its staff, might have different ideas about information that would be helpful that they haven't developed.

CHAIRMAN BINZ: Thor, your point is very well-taken. It's a little off the mark in terms of the merits of the rate design, which is really what I want to talk about today, but I understand what you are saying.

MR. NELSON: I am just saying procedurally --

CHAIRMAN BINZ: Right.

MR. NELSON: -- if the Commission wants to adopt new rate designs, and if you take up Roy's suggestion that you provide feedback on the kinds of rate design that you would like to see, I would request that, as part of that process, you allow other participants not only to identify the kinds of rate designs that they would like, but the kinds of data that they would like to see developed, so that, in the context of the case that you are now contemplating, if I understood your discussion, informing Public Service

Company how to file, included in that discussion is the idea of the kinds of data that should be created, and in allowing intervenors to do what they want to do, then, that's a process that --

CHAIRMAN BINZ: We're all about due process up here.

MS. CONNELLY: Let me suggest there are practical limitations.

CHAIRMAN BINZ: Okay. I could not imagine an issue like that -- sorry -- issue without that. Thor, I heard you, because we're back to the merits of the rate design issues, and, yes.

MR. CHRISS: Just a couple of things. One thing that, I think, that's important for the Commission to consider, when we get into the rate design, is whether or not you care about revenue erosion or earnings erosion, because they're caused by different things. And this gets to the whole, you know, I'm -- I mean, for years, you probably heard me bang my drums about demand cost on kilowatt-hours. To the extent costs that utilities earn money on are being put at risk, that's going to make the problem worse.

And, so, if you are looking at earnings erosion, you are going to want to look at ways to get demand costs out of the kilowatt picture. Real-time

pricing, I think, if done right, does that, because you have your customer charge, your demand costs over here and, then, the stuff that's RTPed, that's just fuel. So, that's the first point. I can't remember what the second point was.

The second point is that when you are looking at sending pricing signals -- we're having this discussion about price signals, and the importance of things like that. Well, the other thing that needs to be ensured, going into the process, that each class is paying their cost-of-service. We haven't been in a Phase 2 rate case for Black Hills or Xcel, yet, so, I don't know where the cross subsidies are between classes, and I am sure OCC is steaming at me right now.

CHAIRMAN BINZ: I can tell you where they are. They are in the mind of the beholder.

MR. CHRISS: But seriously. We set rates, after adopting a cost-of-service study, in line with recommendations of that study. You can argue with the study and therefore conclude that there is cross subsidy, but I don't believe this Commission has done an other than equal rate of return per class.

MS. CONNELLY: We have equal rate of return per class.

MR. CHRISS: Then that issue is taken

care of.

CHAIRMAN BINZ: Okay. I really want to move to low income rates.

MR. JAMES: I want to backtrack just for a second.

CHAIRMAN BINZ: Sure.

MR. JAMES: And respond to something that Commissioner Baker had asked about with the carbon -- coming carbon costs and how that is going to be allocated, or how it shows up in rates. And does that impact what we're thinking about doing with a time-of-use.

I would say, no, but time-of-use rates -- what time-of-use rates try to do is better reflect cost of producing power by time frame. It tracks costs better. If, however, those carbon costs are either mathematically or scientifically or politically allocated to different generation types, and different times of day, that will be the cost. And, so, it may be it mitigates some of that differential between the on-peak and off-peak to some degree, but we shouldn't be trying to arbitrarily set those levels, anyhow. It should reflect what the costs are.

CHAIRMAN BINZ: Nancy.

MS. LAPLACA: I just want to --

CHAIRMAN BINZ: Very short comment.

MS. LAPLACA: Very short, of course. Not all of the costs are included, so water usage, global warming, drought, CO_2, the incremental damage, you know, those are not included in costs, but, of course, those costs exist. And I realize there's no way to allocate them today, but that it's coming.

CHAIRMAN BINZ: Thank you. Also I know Jennifer Gremmert has been waiting for this moment so let's turn our topics to low-income electric bill assistance. We have posited some questions here.

Just to catch you up, some of you, on legislation, this Commission was granted authority to, by the legislature, back -- yes, back in 2007, 2006, to take into account, essentially, the income status of customers in setting rates within boundaries. It's not wide open. It's pretty actually narrowly tailored.

The Commission has yet to exercise that authority. We have come close in one case, I guess, or we're coming close in one case. Does the gas case rely on that?

MS. CONNELLY: Uh-hum.

MR. PALMER: Yes, it does.

CHAIRMAN BINZ: Yes. So, we're interested in exploring how rate design and bill

assistance fit together. You have seen some illustrations on here. We've already talked about, today, about the hypothetical low-income customer with very large usage, large family, inefficient housing, whatever, who might be disadvantaged by, say, an inverted block rate. We also heard comments about the 400 kilowatt-hours, perhaps older widow or widower, who needs no more than that, how that fits into it. So, let's begin to weave that concept into our discussion, about what is it that customers see.

We can start with some pretty bald questions. Should this Commission exercise its authority, under Senate Bill 22, to set different rates for certain low-income customers than others. That's about as balanced as it gets. Jennifer.

MS. GREMMERT: We would like a really big program recovered fully by industrial customers.

CHAIRMAN BINZ: Okay. You just killed --

MS. GREMMERT: Just kidding.

CHAIRMAN BINZ: Thor is engaged.

MS. GREMMERT: I just wanted to give you a heart attack.

COMMISSIONER BAKER: Or billable hours.

CHAIRMAN BINZ: If you don't know Jennifer Gremmert, she's one of the brains behind

Energy Outreach Colorado, and most of the energy over there, as far as I know. She's incredible. Personal friend of mine, advocate for the low-income customers.

Jennifer, what is EOC's vision of this -- what this Commission should be doing with respect to low-income?

MS. GREMMERT: Well, I think we would like to really look at this in a rate design way. I mean, I know we worked with all of the utilities in the room and at one point or another. We want to accommodate Public Service's processes and systems that they have in order to accomplish this.

I think, what we are really concerned about is the affordability, and how, in any future changes and in pricing volatility, carbon tax, renewable energy, all of those things are accessible and available to the consumers that we care about, and that we're doing it in a reasonable way, that's, you know, fairly easy, because we know how complicated this can be.

I think, from our perspective, we see efficiency as an absolute, you know, coupling to what we're doing, and we have integrated this into all of our programs. I think we have to still look at energy assistance, because of the needs of the consumers that

we have, and how those change -- the dynamics of the customers that we serve change. We have some people that need help every single year because their income is never going to change. And we have people who lost their job, and need help on a short-term basis. So, we have got to look at this in multiple ways.

I think, in answering some of the questions, define a low-income consumer, in order to serve them, has been complicated over time. That's one thing that we have done through legislation, in helping the utilities, because if these -- if it's in a rate design, we need to make it easy for the utility to define those consumers. And we need to be able to determine their income on a regular basis, because like I said, it does change.

We need to achieve energy affordability while also encouraging customers to use energy more efficiently, I mean. And I think the biggest thing, we just need to provide access to the programs that are created, and we need to do it in a reasonable way. That's been our position.

CHAIRMAN BINZ: Jennifer --

MS. GREMMERT: We would like the Commission to help us do it.

CHAIRMAN BINZ: Did EOC have any

preference as between the different rate designs we're talking about? Forget the low-income issue for the purpose of this question. That's who your clients are, but looking at your clients, do you have a preference of rate structures?

MS. GREMMERT: No, we don't have a preference.

CHAIRMAN BINZ: Okay. What's -- let's -- was that a hand, Thor? Thanks for saving me.

MR. NELSON: You looked like you were looking for someone to say something. I am always here for you.

CHAIRMAN BINZ: Yes. We all know that, Thor.

MR. NELSON: For good or for ill.

From a practical perspective, I think that there are two issues here, and we don't have a position on whether or not sort of residential rate design should be accomplished with low-income objectives in mind. I mean, that's inherent within the residential class, and we will leave that to the discretion of the OCC and EOC and Commission, who are far more obviously directly impacted by that than any of my clients.

Where we do have an opinion, of course,

is where the issue with how this cost spills out from rate design and into, in essence, cost allocation, by creating a revenue shortfall recovery mechanism that, then, is assessed on a lot of different customer classes, including the ones that my clients buy from. And from a starting point, I guess, it's important to say that the answer is probably not sort of, hell, no, we won't go. I think that my group has been willing to consider such things as the differential application of DSM charges to low-income customers. That's one of the issues that we have talked about and endorsed doing.

And, so, I think that we recognize that some degree of low-income protections can be managed. The obvious and important question is, sort of how often can you do that before you get to be excessive. And I don't know that I have a good answer to that. I would say that we would draw the line at low income being defined as residential and no low-income banks being assigned a larger energy charge because they can't afford their electric bills.

MS. CONNELLY: We're already bailed them out.

MR. NELSON: They get their bail out on one level. They have to pay their full rate on the electric side. One of the things, though, that I would

suggest is that in the cosmic scheme of things, I think we would have a preference towards taking money that is being generated from nonresidential low-income customers, and targeting that towards improving efficiency as opposed to paying the monthly bill; that, in the balance of things, our preference would be to assist more with helping the efficiency issue than just adding to a discount on the bill. We think that that's a wiser way of spending the resources that creates less, sort of long-term disruption in the market.

So, as that relates to the fourth of your bullet points, I just want to make that point.

CHAIRMAN BINZ: I want to observe and declare, so we get this out in the open, that the Commission is now -- actually tomorrow -- will take up exceptions in a decision in which I was Hearing Commissioner on, this Public Service Phase 2 rate case, gas. And some of these issues we've talked about, right now, are perilously close to those issues, so we would rather that you not touch on them now. Okay.

Who had their hand up? I'm sorry. Right here.

MS. HART: I have a question for Xcel. How do you define low-income utility customer?

MR. PALMER: I don't think it's up to

Xcel Energy to define that. We don't want to administer -- we don't want to be the ones choosing who is low-income, who is not. We're willing to run a low-income program, if this Commission orders it, but we don't want to be in the business of trying to sort out who qualifies. We believe that someone else should do that low-income eligibility determination, and, then, let us know. And we would run the program in accordance with how it's designed, but we don't think that that's our -- necessarily our best sweet spot, is to define low-income eligibility.

MS. CONNELLY: Or our call.

MS. GREMMERT: We would agree.

MR. GRAY: Seconded by Black Hills Energy also.

CHAIRMAN BINZ: Okay. Dennis Senger was next, I think.

MR. SENGER: Couple of things that kind of describes our position. From my perspective, the worse of all possible worlds, in terms of doing a low-income program, is doing it the way that I'll call it the," California model," which is you have an inverted rate structure that's defined as some way of giving away a -- or giving away, very cheaply, a certain amount of electricity, in some way, to the --

that's going to help low-income customers. Well, it does help low-income customers, it helps all customers. But they will -- somebody has to pay for that. And some of the people who are paying for that are also low-income customers. We do not think that's a good model and would not recommend it.

Our position, as we have outlined it, something we would like at this point in time, we would like to see the results of the program that Public Service Company has proposed. We think that's at least a reasonably good model to start with. And to counteract what Thor said, just as he indicated that he doesn't really want industry customers to pay for low-income programs. Well, nobody wants to pay for low-income programs.

MR. NELSON: I didn't say that.

MR. SENGER: You said --

CHAIRMAN BINZ: I see you two taking that outside.

MR. SENGER: The only point is there is --

MR. NELSON: We're on record now.

MR. SENGER: It doesn't necessarily have to be a class by class thing. There is a good reason why that should be dealt with as a -- by all customers.

CHAIRMAN BINZ: So, for the record, Thor Nelson does not endorse the interpretation of his prior remarks. All right. Sharon.

MS. PODEIN: I just have a question for Jennifer.

CHAIRMAN BINZ: Stand up so we can hear you a little bit.

MS. PODEIN: I had a question for Jennifer. And I'm wondering how important it is for you, if the Commission develops this kind of rate structure, to support low-income families, that it be transparent? And are you interested at all in tracking the amount of money coming in from different sources that go to low-income subsidies and the number of families and presenting a comprehensive look at what we're doing in all different areas?

MS. GREMMERT: Yeah. I would say we would, you know, appreciate full transparency and we do that now. We track by utility. We have a pretty sophisticated data base to know who our low-income customers are, who their gas provider, their electric provider, what dollars come in, what dollars go out, when they need help, why they need help. It's very challenging to do. It's trying to sense behavior based on the benefits.

And, so, I think that's something that we have been looking at. We're seeing how other states are doing it. But I think we're really open to that. We want to know what is going to be the best thing, that's going to provide the best consumer behavior. I think one of the changes to that we have is that we really need our consumers to pay their bills, and we need them to pay a bill that they can afford. And, so, we want to create that opportunity. We don't want to create a complete subsidy for people so they don't have to pay their bill for the commodity that they use. We recognize that. But it doesn't serve anybody if they are constantly on and off service.

And so bills are high -- I mean, we're -- I was saying to somebody it's hard for us to raise money when it's 65, 70 degrees, thinking about what's going to happen, but we're still seeing really high bills, and people suffering as a result of that. So we got to look at the balance of it. We're looking at 400,000 eligible households. The eligibility right now is defined at 185% of Federal poverty for a family of four -- that's a maximum income of about $40,000 -- to receive any kind of assistance, as defined by the state, you know, program, just so people get a perspective. So it's about $18,000 for a single person

to qualify. And our average income of the people we serve is about $15,000 a year.

CHAIRMAN BINZ: Thank you.

MR. MELAMED: My name is Paul Melamed. I'm with VisionSun Design, and I am a solar energy consultant that works with housing authorities. And one of the things I would like to sort of -- it's not really related to rates, but for programs, for low-income housing, is to make the Commission aware of what California also just recently enacted on their multifamily affordable housing program, as part of the solar program systems, CSI, the California Solar Initiative, where they have allocated 10% of the funding for that program, for solar, to low-income housing. And half of that is going, now, to multiple family low-income housing, where there is a whole program set in place that if energy efficient measures have taken place on those buildings, then they are eligible for a whole separate set of rebates, solar rebates, that's a different amount from the residential CSI rebates. And, so, the objective is to try to get the advantages of solar energy to low-income housing, which, in essence, is going to be reducing the amount of dollars that they are paying for their utility bills.

So, I can give this document to you so you can look at that. But basically the structure is that there is a two-tier rebate program. So, for common areas, the rebate is $3.15 per watt. For tenant areas, it's $4 per watt. And there is -- the other very interesting aspect of this is that they want -- they have incorporated a virtual meter, so instead of having to allocate energy uses by the meter itself, you can create one large system for multiple housing, and allocate what percentage of that energy exceeded by the solar goes to the various portions of that. So, it's sort of an interesting concept, which, in essence, saves dollars, because you don't have to then put inverters on each individual meter. So, it brings the cost down.

CHAIRMAN BINZ: Thank you. And we would like to have that document.

MS. GREMMERT: Last comment because we've been monitoring that work that's being done in California, and, I think, one of the challenges that we're dealing with is the financial piece of it, because, for multifamily affordable housing, the under 10-kW systems can't be owned by a third-party, but yet we can't finance without having third-party ownership. The over 10 kW systems, the rebates are paid over time,

and investors want to have the benefit right away. So those are just some of the pitfalls that we run into with placing those kind of systems on low-income homes, either single families or multifamily.

We have been pursuing through our local grant program and work with the Governor's Energy Office to do that. We have been working -- and Xcel helped us pioneer this program, nonprofit energy program, that we're doing, funded out of a lot of DSM programs, which is retrofitting affordable houses. It's a problem where it's a mass metered.

So, the organization has been paying the bill. That's another thing, just to think of. There are individuals that they pay the bill, and they get the individual benefit, but for large organizations that house folks, they haven't been able to get any assistance. And so we're seeing large nursing homes all of a sudden running into bill payment problems and things like that. And some of those efficiency programs are making real headway in helping those problems.

CHAIRMAN BINZ: Thanks, Jen.

MR. MELAMED: Another example here, with the recent reduction in the solar REC payment by Xcel Energy, from 2.50 down to 1.55, and a large part of the

reasoning was because the investment tax credit for residential was -- the $2000 cap was the limit. Well, for nonprofits that doesn't do any good. So, we have lost.

MS. CONNELLY: Please, check out the filing that we made yesterday.

MR. MELAMED: Okay. That's good. That's good news.

MS. CONNELLY: We are going to offer a higher REC payment for tax exempt entities, to equalize it with the tax credits.

MR. MELAMED: The point is, it's sort of different conditions for low-income housing, so a separate program should be looked at.

CHAIRMAN BINZ: I want to ask one question, which could be the closing question. Howard.

MR. GELLER: Thank you. I thought I would mention what, I think, is a fairly unique program, the pay-as-you-go-meter program the Salt River Project has implemented on a large scale for low-income households. It's an optional program. No one is forced to take these meters. The idea is that you have a radically different approach to paying for electricity, if you take the meter. You purchase cards. There's kiosks all over town in the Phoenix

area, where people can buy their $10 or $20 card and charge up their meter, as they go along.

And the meter also provides feedback on how much electricity is being consumed, how much is left on the charge, and, so, on. And it's something that I think close to 100,000 customers have opted in for, and apparently find very helpful for managing their electricity use, their electricity bills. After a while -- we buy a lot of things on a pay as you go basis, food, gasoline and so. The electricity and natural gas are quite different from the way most people buy a lot of their major purchases. It has, apparently, has a conservation impact as well. It looks like the studies that have been done kind of pre- and post-changing to this system, and showing about 10% savings, close to 10% savings per household. Might be something to take a look at, as yet another innovative metering combined payment approach.

CHAIRMAN BINZ: Howard, is that susceptible to sort of a food stamp treatment? I mean, in other words, can these cards be printed by agencies and distributed to their clients, do you know?

MR. GELLER: I don't know the answer to that. I would guess they can be bought and handed out, if one wanted to. If it was --

CHAIRMAN BINZ: I didn't mean literally the printing.

MS. GREMMERT: LaPlata Electric had a prepaid program for quite a while, and Europe used it quite a bit too. You run into people who just don't get to use the commodity, because they don't have access to it. It has positives. It also has negatives.

MS. CONNELLY: Does the power go off when the card runs out?

COMMISSIONER BAKER: Nobody has to shut it off.

MS. GREMMERT: It saves the utility money in the long run. It's like the cost of the meter, and then the idea is, you know, that people -- but you are looking at the usage. So when you know you aren't going to be able to to do your laundry, do you run your refrigerator? You have an idea. It provides a basic service, I think, from our perspective.

When we have looked into it -- because this is something we have looked into it. It's just, when you look at the studies that have been in England for a long time, you know, it's used for the low-income folks. And then they don't have access to basic service.

MR. GELLER: My understanding is that in the Salt River Project in Utah, I believe, for the people in the program, if someone wants to go back to a normal meter, and normal system, the utility will do it.

CHAIRMAN BINZ: Howard, if you can provide us some information on that, that would be great.

MR. GELLER: Okay.

CHAIRMAN BINZ: We have two different topics left, and I would like to try and finish in the neighborhood of 4:30 to 4:40, if we can. So, let's spend as much time as needed up to 15 minutes, on the next topic.

I think you probably all know the background on this topic. I'll sketch it quickly. During the PUC sunset bill, last session, Senator Schwartz noted that she had constituents in the San Luis Valley who had installed solar systems, and therefore qualified for net metering, only to figure out, after the fact, that they were on the SG, which is a demand energy rate. So their meter spins backwards at about 3 cents a kilowatt-hour. They were above the 25-kilowatt threshold, which mandates that you be in a demand energy rate class.

She was interested in the Commission exploring whether it was possible to ameliorate that problem, but more generally, she asked us to look at how rate structures relate to the installation of the solar system, or renewable energy systems in an agricultural setting. I don't think we're restricted to -- but that's something we must do, actually, under the amendment to our sunset bill. That's the precede to the discussion on that.

Several, but not everybody, filed comments on this. I know Public Service Company did and then and the -- San -- OCC made --

COMMISSIONER BAKER: It was a citizen group.

CHAIRMAN BINZ: I lost -- they are not represented here today, but, anyway, that's the topic. Help me satisfy our statutory obligations by talking about this, okay? Dan, do you want to start?

MR. JAMES: No.

CHAIRMAN BINZ: I thought you said.

MR. LYNG: I am with the Governor's Energy Office.

CHAIRMAN BINZ: It's Monte Vista Cooperative, is who it was. Thank you, Jim.

MR. LYNG: Thank you, Chairman Binz. We

feel that this is a problem that we have been confronted with on multiple fronts. This San Luis Valley solar agriculture pivot problem is exactly as you described it, where those participants were misled, misinformed, that perhaps their savings would be something on the order of what residential customers would see, because they are paying something on the order of maybe 8 cents a kilowatt-hour. But as you note, their energy charges is less than half of that. And therefore their savings has been on the order of about half of what they had expected.

So, while we certainly agree that this is a problem that is facing agricultural applications, and particularly water pumping, irrigation, these sorts of things, our position is that the secondary general rate, in a broader context, should be investigated for larger distributed generation customers above a 25-kW load.

And I would just further add that we would like to have, perhaps, some discussions -- and I believe what you are trying to do is make sure the questions are right here, that you are getting the questions right. We would like to see some discussion soon, perhaps, about recovering a portion of those fixed charges for generation, transmission and

distribution, not just in the demand charge but shifting a portion of them over to the energy charge to more equitably compensate those customers that have invested in distributed generation.

We feel those customers are providing some benefit to the grid, and that probably needs, yet, to be quantified, but that they should be compensated at a higher rate than the secondary general rate currently compensates them at.

CHAIRMAN BINZ: Jeff, is your proposal to create a rate only for customers with distributed generation such as solar, or is it to apply to everybody in the SG rate class? Have you thought about that?

MR. LYNG: We have. And I think what we would propose is something like a secondary general distributed generation, an SG/DG rate, wherein SG customers above a certain threshold can opt into a DG modified SG rate.

CHAIRMAN BINZ: Okay.

MR. LYNG: Thanks.

CHAIRMAN BINZ: Thank you.

MR. CHRISS: Are the customers to which this applies on SG rate? Are they low load factor?

MS. CONNELLY: Yes.

MR. CHRISS: They are already receiving --

CHAIRMAN BINZ: Hold on. One at a time.

MR. CHRISS: If they are low load factor, then they are only receiving, to the extent that there are demand costs on the kilowatt-hours basis, and in SG, they are already --

CHAIRMAN BINZ: There are no --

MR. CHRISS: -- on SG rates.

CHAIRMAN BINZ: If they're low load factor, they are paying demand charge and energy charge that's available by their demand, today. If they are low load factor, chances are their per kilowatt-hour charge is quite high. Are we on the same page?

MR. CHRISS: I am just trying to remember what the SG rates look like.

MS. CONNELLY: The demand energy rate.

CHAIRMAN BINZ: $9 plus 3 cents.

MR. CHRISS: Yes. But in broad theory, theoretical sense, if you are low load factor, you are actually receiving a subsidy for your demand costs anyway.

CHAIRMAN BINZ: No. I don't think that assumption is correct. If you are a low load factor customer, and you're on kilowatt-hour rates, that might

be an argument, but I don't think it is here.

MS. CONNELLY: There is a rate in our books that low load factor customers can opt for. Basically --

MR. JAMES: Normally SG customers can opt for the SGL rate.

MS. CONNELLY: That would -- it caps their ultimate cents per kilowatt-hour rate. But the issue we have raised by Jeff, of course, that we were very reluctant to go to a full kilowatt-hour only charge in combination with net metering, because then we are not recovering the appropriate costs from that customer for our distribution system investment.

COMMISSIONER BAKER: I am probably going to mangle this, because I can't actually find the brief from the Solar Alliance; that they make the case -- I think it was one that came yesterday. Go to somebody else, so I don't mangle it.

CHAIRMAN BINZ: Who else wants to talk about this issue? John.

MR. COVERT: Are you going to talk to us today? I am here mostly to learn --

CHAIRMAN BINZ: That's fine. I don't know if you intended to address this one.

MR. COVERT: No.

CHAIRMAN BINZ: Jim, let's see what Jim has got to say.

MR. LAZAR: I am going to just, as a guy that worked on the rate design for 34 years, first of all, the SG rate is a very typical rate. There is nothing unusual about it. There is rates like it everywhere in the country and the situation has been described, a solar net meter customer is only going to get the energy benefit if you roll a generation component of demand charge into the on-peak energy charge, and put that customer on a time-of-use rate. First of all, their solar system is going to be reverse metering typically, during the on-peak period, and that will give them more benefit. And they will be consuming relatively little during the on-peak period, because the solar system will serve their own load first during that period.

That might be a way -- the time-of-use rates might be a way to accomplish that. And a lot of utilities, with time-of-use rates, and wholesale market generally, rolls the generation demand charge into the on-peak energy rate. That's how wholesale markets work that typically, you know, energy only. As so it's a very typical rate design. It's the way the spot market works. That might be a way to approach this problem.

CHAIRMAN BINZ: Paula.

MS. CONNELLY: The wholesale market isn't dealing with substantial distribution investment.

MR. LAZAR: That's why I said the generation components -- did I say charge?

MS. CONNELLY: On the generation component.

MR. LAZAR: I said -- specifically said generation component, because the distribution component is very much there, and unlike urban customers, rural customers don't share distribution facilities. They tend to be customer specific.

CHAIRMAN BINZ: Roy.

MR. LYNG: I would just like to respond to that, briefly. We would like that the distribution and transmission, especially for larger system components, be considered.

MS. CONNELLY: I can't hear you, Jeff.

MR. LYNG: To be considered in terms of recovering a portion of those fixed costs in the energy charge. And you mentioned the generation piece. I think, we don't yet know, but there have been studies in other parts of the country on the benefit of avoided substation infrastructure, and line infrastructure upgrades associated with large scale distributed

generation. And Public Service has done their own study a few years ago, so we would site to GT&D to be part of that discussion, not just generation.

CHAIRMAN BINZ: Roy.

MR. PALMER: I was going to say, for the people in the room that aren't rate design gurus -- I'll put myself in that group -- it's important to understand that, you know, as you carve up this pie, and create public policy benefits, either for irrigators or distributed generation or solar customers, you push those costs around the backside, you know, the utility always wants to come out whole. So, what we are really talking about here is the wisdom of rate design that would favor a public policy objective.

And I don't know a better way to say it, but in the simplest terms, that's what we're talking about. The rates are all designed now, at least as best we all thought they could -- the people that designed them before me -- to be equitable, exactly cost-based for everybody, based on what they incur on the system.

CHAIRMAN BINZ: One thing I would like to hear, how are we going to crack this nut -- and maybe the answer is we walk away from it -- what process

ought we use for this? Another Phase 2 Public Service Company issue? Is it something outside of that? I am asking out of, you know, ignorance, or I am wide open on this. Anybody want to pitch an idea on that?

MR. JAMES: I think -- Dan James. It may go beyond a Phase 2 Public Service issue or Phase 2 utility issue, because we'll be looking at the interaction of net metering requirements and certain types of rate designs and end-uses that might be on those rate designs. So, I think it has to be probably a little bit broader, if we're really going to, as you say, crack the nut, because there may be some legislative issues and rule changes and maybe stepping back and looking at this from a little different perspective.

CHAIRMAN BINZ: I want to add to that by answering the gentleman's question. These may not be low load factor customers. Those center pivots go around the clock. They could be relatively high. Now, their load looks a lot different when you add solar in 8 hours a day. And if they have a cloud transient come through, and you hit your peak, well, under my assumption, you've hit your peak anyway, so I'm cutting against my own assumption, but the point is that I think there's a interrelationship of the type of load

that is served by an SG, on a SG rate, where there is distributed generation. I think that complicates it considerably.

MR. CHRISS: Does Xcel have an agricultural rate?

MS. CONNELLY: No.

MR. PALMER: We used to, I'm told.

CHAIRMAN BINZ: Yes. You did. Paula then Jeff then Thor.

MS. CONNELLY: When you say, "crack this nut," do you mean, how do you respond to the statutory directive to do something about this?

CHAIRMAN BINZ: Yes.

MS. CONNELLY: You have to really consider a couple of issues. The first is the RES rules that we have now. Now, of course, you have a RES rulemaking pending, but there are certain rules that lock in what we are doing now. There is a rule that says that we can't change the rate that a customer is on, simply because they have put solar panels on, all right? So, there -- you have got a SG customer putting solar panels up, they're still charged the SG rate. There's a rule that says all customers are entitled to net metering. So, we got net metering, you know, lots of these things are dictated by the current rules.

So I think one issue -- you might want to address this issue in the rulemaking by determining whether or not some of those rules should be relaxed.

CHAIRMAN BINZ: That's very good counsel.

MS. CONNELLY: Then second, to the extent that you want to talk in terms of an overall change to the SG rate, you've heard some views -- that I don't think our views are the same as the views expressed by Jeff Lyng, but, certainly you could discuss Public Service's SG rate design in our Phase 2 case.

CHAIRMAN BINZ: Thank you.

MS. CONNELLY: You might have to give us more flexibility first in the RES rulemaking.

CHAIRMAN BINZ: Uh-hum. Jeff.

MR. LYNG: Thank you. Well, it seems to me there are really kind of two issues here; that this kinds of shakes out into two beasts, for me, anyway. You got the farmers and in the San Luis Valley, who through whatever means, were misinformed.

CHAIRMAN BINZ: We're not going there. This isn't about that.

MR. LYNG: Okay. So, in my opinion, there's a need for education so that people know when they are investing in solar, truly what rate they are getting. And in the other, whether or not there is an

appropriate system benefit to more adequately compensating SG/DG customers, to use that phrase. And I would -- I wonder if, in order to have an articulate conversation about how much of those fixed charges ought to be recovered in the energy charge, if we don't need kind of a systems benefits study that looks at various costs of distributed generation, and the relative benefit to the overall ratepayer, in order to determine a percentage.

And I fully agree with what Paula has already said, and I don't think that's what we are discussing or advocating for, from the GEO, is a transfer of all of the fixed costs over to the large commercial. What we're talking about is sort of leveling that playing field a little bit more.

CHAIRMAN BINZ: Commissioner Baker.

COMMISSIONER BAKER: How sophisticated are the SG meters? Are they just regular dumb meters?

CHAIRMAN BINZ: Maximum demand.

MS. CONNELLY: Demand energy.

MR. JAMES: Unless they are above 300 kW.

COMMISSIONER BAKER: You can't do real-time pricing on the SG meter?

MS. CONNELLY: No.

COMMISSIONER BAKER: You would have to

put money into it.

CHAIRMAN BINZ: They are not meters which were designed to serve that load. You can't do it.

COMMISSIONER BAKER: Okay.

CHAIRMAN BINZ: Who knows. There may be some meters -- ones that are on SG, but, of course, the meter cost in this case is probably not going to be the determining factor.

COMMISSIONER BAKER: Then this might be a question that, Jeffrey -- might be just a comment -- but it might be easier to tackle this, well, to look at the issue of system distributed generation within agriculture differently, for the reasons that, you know, there may be more benefit to having distributed generation, because it tends to be far away from generation, they tend to have lots of spaces, tends to be a better resource there. That it might be appropriate to look and -- I have no opinion on this, but through the RES rules, or something else that gets at the issue of looking at it from an agricultural perspective as opposed to looking at it through an SG perspective.

CHAIRMAN BINZ: Thor.

MR. NELSON: I guess I just would, I think, be a little bit supporting of what Paula just

said. I would encourage the Commission to consider the possibility of looking at this particular system issue as it applies to the SG rate, through a relaxation of the current rules, and considering the possibility of finding a way to determine what a reasonable compensation level is for distributed generation on SG customers that is independent from the rate that they pay, in essence, coming up with a system that's different than net metering for those kinds of customers so as not to create the dynamic of multiple classes of customers within that SG class.

It seems like, given a lot of the dynamics here, and a lot of the factors at play, and at what level, in order to ensure some comparability between the way the SG folks might end up being treated, and the way the residential person would be treated, who installed the solar panels on his or her house, I would think you might want to consider delinking it from a rate and having some other bill credit mechanism that applies independently from the former SG rate, as a concept.

And I would endorse Paula's suggestion to relook at the rules, as sort of a first step, to allow that kind of flexibility.

MS. NEWCOMB: I would just encourage the

Commission to make it broader than agricultural, because it does apply to all of these systems. I mean, it's on the Denver Performing Art Center. It's on the Convention Center. It's on Boulder Community Hospital. These midsized systems have the same problem. And is there any benefit to having distributed generation. And so, I would just -- it happens a lot in any kind of midsized category, so I would broaden how you guys think about it. That would be greatly appreciated.

CHAIRMAN BINZ: Paula.

MS. CONNELLY: I am struck about the juxtaposition of those two issues, the low-income issue and then the agricultural issue, because everybody has to keep in mind that the ratepayers, as a whole, are already providing a very large subsidy to the solar installation that is then primarily owned by the customer who has the solar. And, so, you already have that subsidy going, paid for all by all of the customers, including the low-income customers. And then to provide an additional subsidy by changing the rate design, whether or not that's with public policy or not, that has to be factored into the equation.

CHAIRMAN BINZ: On that upbeat note, let's move to the -- thank you, Paula. Anything else on this? Thanks for your thoughts. I suspect we may

hear more about this in another proceeding, at a different time.

The last issue, which is -- we can spend as much time as we want to, up until 10 minutes to 5, hopefully less than that, contents of bills, level of detail regarding adjustment factors, more generally, bill information format. We have heard from Jim Lazar on that, I thought, a good way of kicking this off.

So, we ground this ax in several dockets, I believe. I'm not positive what is ahead for us today, but we're open for comments. Everybody like their -- let's pick on Black Hills. Does everybody like Black Hills bill?

COMMISSIONER TARPEY: I have no problems with it.

MR. IVERSON: Mr. Tarpey is the only customer in the room.

CHAIRMAN BINZ: How do your customers like your bill, your bill format?

MR. GRAY: They like it smaller, less digits.

CHAIRMAN BINZ: Yeah.

MS. HART: I personally love his bills. My brother lives in Pueblo and they are fantastic. They are simple and easy.

MR. GRAY: What we have tried to do with our bill was for the customers that just want the nitty gritty, how much do I owe, when is it due, we have got our messages, we got the front section, when was the last payment. Here's this month's bill total amount. Here's when it's due. That's it. And I would imagine most customers are interested in this.

And when I get my phone bill, and it's five pages, I look at the front, how much do I owe, when is it due. On the back is where the bill information is, you know, meter reading, how much did you use, customer charge and demand charge, GRA, two ECAs, renewable energy standard, you know, all of those pieces.

From a rate design section, I am frustrated with the general rate adjustment line, because our tariffs say our customer charge is this, but we're going to take that amount times our 6.93% from our last rate case, to me, that's really what your customer charge is.

I was somewhat amazed. Public Service wants their GRA to go to 32%. So, it's kind of like, here's your customer charge, but, then, there's 32%. Well, that's a big chunk. And at what point do we say, you know, in the three years past, you've given us the

6.93% in revenue, why can't we just change our tariff to instead of saying, $10, it's $10.69, because that's truly the customer charge. That's, you know, so you take the energy, all of it.

And line items don't really tell you where that numbers comes from, because it's just, you owe 1.32 for the retail. Which lines does it apply to? It applies to these and not to that. if not 34 years, I got 22 years, so, to me, it's confusing. So I just wonder, from a customer's perspective, maybe they like the front summary, I owe $33, here's my check, and I throw it away.

CHAIRMAN BINZ: Thor Nelson.

MR. NELSON: Well, just to offer up an observation, from the standpoint of my client group, we prefer more information on the bill. And we like having the detailed line item by line item of what the different parts are, their totality, because that allows the people that manage those bills to be more precise about when, in the course of their budgeting year, different pieces change, because the timing cycles are all different.

And, so, while there is a measure of simplicity that I'm sure some smaller customers appreciate, for at least our perspective purposes,

having the very detailed breakdown of the bills is helpful and appreciated.

CHAIRMAN BINZ: Roy, do you want to give us a grasp of where you are headed on bills as far as you are concerned?

MR. PALMER: I think there's a general sense, at least from our company, we would like to make the bills simpler to read. I would like the version that Black Hills was talking about, where there was just a summary on the front, for the 94% of the people that aren't like Thor, and his customers, don't want to read all of the detail. It's quick and easy. So, we're very interested in billing redesign. We want to be cognizant of the systems.

But in terms of a lot of the line item detail, I mean, some thoughts, and possibly collapsing some of that detail into, you know, a public benefits charge, which would have a lot of the components that, if you wanted to dig into the detail, you could see it. That might be a way to simplify the bill.

CHAIRMAN BINZ: And you are thinking to have --

MR. PALMER: Put maybe fuel in another.

CHAIRMAN BINZ: Are you referring to mostly residential bills?

MR. PALMER: I am talking mostly residential bills.

COMMISSIONER BAKER: Have you guys done focus groups on bills, either of you?

MR. PALMER: The answer is yes. We're all looking at each other.

MS. CONNELLY: We don't know what the answer is.

MR. PALMER: I know we have done a lot of work on our bills.

CHAIRMAN BINZ: Nancy.

MS. LAPLACA: I submitted a report that was done by PSCo. It was a PSCo focus group that was done in 1997, with a fairly minimal amount of research. And one of the guys actually at RAP, on-line, directed me to a database and said, here, read these five studies. And, actually, I only read three of them. One of them included a study that was all of PSCo's customers, and I included that in my filing.

And, basically, the people want that information and when they have that information, they want piechart displays, they want something to relate it to. They are not energy experts. They want to be able to relate it to some kind of national average, and they want fuel mix, and they want emission information.

And I submitted three studies in my filing, and a reference to all of the others, but, coincidentally, one of the studies was on PSCo customers in Denver. And people want that information, and they -- I came up with it myself. So, anyway, it speaks for itself, but it's there.

MR. JAMES: I agree with that. The bills are overly complex. And another disappointing fact on bills, you can't take a bill with no other information and calculate it. You have to look to the tariff sheets and hunt up this, that and the other thing. You should be able to look at your bill, and be able to calculate the answer from what's on the page.

But one other caution, talking about what -- we're proposing to have a fairly substantial GRSA coming up here pretty soon. If you do as suggested, take that 16%, 32%, whatever the percentage number is, and just start applying that to the pieces of the bill, and saying, well, here's what our tariff should be for our customer charge, instead of $10, 10.69, whatever it is, at some point you are going to do a Phase 2, and, I assume, and those system costs are going to maybe not be anywhere near 32% times whatever your customer charge is. Probably your customer charge isn't going to change that much.

So, just from a customer's, you know, keeping their bills kind of the same month after month, not having pieces bounce around a lot, it might be better not to do -- just apply the GRSA right away.

CHAIRMAN BINZ: Roy, I get more frequent Phase 2 rate cases.

MR. JAMES: Not necessarily. That's the Phase 2, gets all of those pieces back right again.

MR. GRAY: With Public Service. For Black Hills, we had the GRSA, and then we did the Phase 2 in our cost-of-service study, that our customers charge should be this, but we have a different amount. So, we did do that. All right. Let's just say what it is and not it's this. But we bumped it, tweaked it, this percentage, because we have just come out of Phase 2, so we haven't had another revenue case. So, that's what it is.

MR. PALMER: Yeah.

MS. CONNELLY: Ours will look like that after the Phase 2.

CHAIRMAN BINZ: Let's also agree, I think, that it's up to the proposed utility how you want to implement this. I don't think we have a rule requirement for GRSA, do we Bob?

MR. BERGMAN: (Shaking head in the

negative.)

CHAIRMAN BINZ: If you want to file a tariff that says this is the customer charge, and you want to apply the rider to other parts, say, I think that's within your province to do.

MR. GRAY: There was one time we had GRSA 1 and 2. Then we kind of phased the one out to bring this up. And you try to -- the customer will say, what's this line item? Well, the revenue that we got back from TOU, and you are going, oh.

CHAIRMAN BINZ: Okay. We have a gentleman back here.

MR. BOWMAN: Eric Bowman with Akeena Solar. Looking at this from two perspectives, one being a homeowner in Xcel territory, I would always defer to more information being available. Whether I always wanted to access that information and utilize it is probably dependent on whether I see an issue with my cell phone bill, that was a reference. And I think more or less information is better whether I have to look at it every time or not.

However, I think the basis for that information needs to be easily accessible. How do I determine how they figure the GRSA, the commodity adjustments, demand, whatever line items there are on

there. I just hinted to the fact that I am now looking at it from the other perspective, in the solar energy. I am doing tariff analysis on SG bills, and other types of bills. And I find that -- I am not claiming to be the brightest light on the street. I am certainly not the dimmest either. And I sit with the tariff book out and my spreadsheets and bills from multiple SG customers, and I find it nearly impossible to determine exactly how the numbers are being configured. So sometimes they land to the penny. Sometimes I have to say -- I have to make a judgement call on how they are figuring out the number, and at least to have the information available.

So, that, I don't know if I'm saying a layperson should be able to find it or not, but at least somebody who's in the industry, or even just thinking hard about it, should at some point deal with the hands-on answer. And at this point it's extremely difficult to do that.

CHAIRMAN BINZ: Jennifer.

MS. GREMMERT: I think a lot of them are statutorily required, the line items. That's how they were passed. That is, in order to get a DSM, or an RPS that -- or whatever, you had to expressly say what the charge was. And I notice, from our perspective, as

we're doing more efficiency, we're trying to evaluate the savings on things. And that's what we have been doing, a lot more bill analysis. And we have somewhat of a unique perspective in that we access our customers bills regularly, from all of our utility partners, so we can know what their heating usage was. We know what kind of benefit is going to be able to keep them on, those kinds of things.

And, I think that's becoming, you know, with technology and just the evaluation piece of what we're trying to do, we need to be able to access that information. But whether the customer needs to know it, I don't know, I mean -- and this question was posed. I look at every single charge, every single month, but nobody else does that, I know, that I talk to. And so that's the balance, you know, is how much information do you need to be able to make smart decisions. And the bill is the only thing that we have to do that.

And, I think the point was made earlier that with more autopays and more on-line transaction, that's going to become even harder. We're always trying to access utility information to ask for donations, or to tell people where they can find assistance, and fewer and fewer customers are looking

at any of those pieces of information.

CHAIRMAN BINZ: Okay. I got Becky next.

MS. ENGLISH: I just wanted to point out that -- Becky English with Sierra Club -- that our 22,000 members throughout Colorado, the kind of feedback we're getting is we want to know, from a global warming perspective, exactly what kinds of emissions are happening, because of the generation and use of electricity in our state. So, that probably argues for a little bit more detail.

We also would like to see some kind of explanation. For example, the ECA, which I variously called, "electric commodity adjustment," and energy -- what is the other --

MR. ACKERMANN: Energy cost adjustment.

CHAIRMAN BINZ: Energy cost adjustment, electricity cost adjustment.

MS. ENGLISH: You know, there's not a very clear understanding that that's just a straight pass-through to end-users of the cost of coal. And, so, we need to, you know, there needs to be more than the tiny note that there is on these bills about that. Because when, you know, that one month out of 12 maybe that a customer does want to take a close look at their bill, they should be able to find out, you know, the

dollar cost of energy they are using. And they should be able to know the environmental cost that's occurring as a result of their energy use.

And this may be outside the purview of this meeting, but we think that that information should be available in aggregate for anybody to know. You know, we want to know, you know, are we -- how many tons of emissions are going into our common air every year as a result of the operation of any given generation plant. So, you know, we want some more transparency. And I have a letter here I would like to -- maybe I won't take the time to read this letter. It's from one of our Sierra Club members. But --

CHAIRMAN BINZ: Sandy Lynn.

MS. ENGLISH: This one is actually from Matthew Maul. Because, basically, I have a three-page very gassy letter about these things. But -- I won't take the time to read that. But I am just saying, in general, we want the -- more transparency. We want to know the fuel mix. We want to know what emissions are happening as a result of this activity.

CHAIRMAN BINZ: Thank you.

MS. CONNELLY: I would just note that twice a year, that information is provided to every electric consumer, the fuel mix.

MR. GRAY: October and March, I believe.
MS. CONNELLY: That information is provided.
MS. ENGLISH: In a separate flyer.
MS. CONNELLY: In the flyer in the bill in October and --
MR. GRAY: March, I believe.
MS. CONNELLY: March.
MR. PALMER: We should keep in mind --
MS. CONNELLY: By Commission rule.
MR. PALMER: -- technology is going to help this information gap too. And, in other words, we looked at Boulder Smart Grid, and Web portal access by link. It doesn't all have to be on the -- we don't need an eleven-page bill to give that data. I think there's ways that technology can help that.
CHAIRMAN BINZ: I want to respond. I had this discussion with Roy and separately with Fred Stoffel. I think you can obviously tell we have got competing goals here. One is to make the bill more readable, and the other is to put a whole lot more information on the bill. It's not clear how you are going to pull those off together, maybe. And everybody would like to have piecharts, I mean, and the history of your usage, this year versus last year, stuff like

that. I am going to guess that's not amenable to the protecter of the trees, that they need to print out two million bills a month.

So, one off-ramp here would be to have a bill that people can read, and have a Website portal, personalized to the usage of a customer. Then, you can have all kind of gadgets. You can look at your usage year over year. You can look at, what if I'm a WindSource customer at 100 kilowatt-hours a month. What does that do to my carbon footprint. Those kinds of things would seem to me to be available here. I don't know what the temperature in the room is available for that. I think that's at least one possibility.

I recognize that everybody has Web access, but, on the other hand, query, is it better to do something than nothing at all, and in service of the perfect.

COMMISSIONER BAKER: Can I just ask a question on that. What percentages of people pay their bill via the Internet? Any idea?

MS. CONNELLY: No.

CHAIRMAN BINZ: No idea. You mean by going to their Website?

COMMISSIONER BAKER: Going to the Website

or doing autopay.

CHAIRMAN BINZ: Banks also use the Internet.

MS. CONNELLY: Autopay, you can autopay, but we don't pay by the Website.

MR. ACKERMANN: Don't pay by the Website.

COMMISSIONER TARPEY: Just autopay.

CHAIRMAN BINZ: Jim.

MR. LAZAR: I have just taken this Black Hills's bill, and without any opinions about trying to reproduce it, and I'm within 3 cents, which isn't too bad. And there's an energy charge -- I'm just going to speak to the energy -- there's an energy charge of 7 cents a kilowatt-hour, a general rate adjustment on top of that, an ECA, that's additive to that, a franchise fee that is additive to the sum of the above, and a city sales tax which is additive to the sum of the above.

And when you put them all together, what a customer can save by using one less kilowatt-hour is 10.75 cents. And that's a piece of information that's actually useful to the customer. It's also appropriate to show how much of it is going to the city and how much of it is going to various things. I don't have a problem with that at all.

What the customer needs to know, if I use 10 kilowatt-hours, I am going to save a buck, and rolling it all together, that produces the bottom line for the customer. Also, the customer charge is, similarly, it's prorated across the partial month. So it gets prorated. Then it gets the general rate adjustment, and renewable energy adjustment, and franchise fee, and city sales tax on top of that. And I'm not sure what it comes out to on a monthly basis. That's not something the customer is going to avoid by using less or incur by using more. But it's rolled up, the energy charge, with all of the adders and franchise fees and taxes, is available for the customer. And that's a piece of information that's useful.

CHAIRMAN BINZ: Thank you, Jim.

MR. GRAY: The question might be, if the customer uses 100-kilowatt hours, he may see, with the customer charge he adds in, he may see he's paying the 30 cents a kilowatt-hour, and he looks at our tariff and says it's 6.78 cents, how am I paying 30 cents a kilowatt-hour.

MR. LAZAR: That's right. Rolling up, for energy charge, a single number. This is what you will incur if you use more, this is what you will save if you use less.

CHAIRMAN BINZ: What piece of information is useful. What a tangled web.

MR. NELSON: Just a quick comment. Roy mentioned earlier, we have rolled up the public benefits charge to accumulate all of the various riders. Just to make a note, we would strongly oppose that. We do that in other states like Montana, where I work as well. And the problem with that is perhaps, not surprisingly, what happened is when one program ends, the idea is, well, we have this public benefits charge and we're already assessing, let's just find some other way to spend that money, rather than actually seeing those charges go down. They become self-perpetuating. Just to make a note of that suggestion.

MS. GREMMERT: That's brilliant.

COMMISSIONER TARPEY: You and Jennifer have something in common.

MR. NELSON: We agree on the comment.

MS. LAPLACA: One of these focus group studies found, when people understand their emissions, they switch fuel choice. Basically, what we're looking at, as more and more people wake up to the connection of electricity production and global warming, when people can see and understand where that is coming

from, they change their behavior.

And that we can provide the public -- we can educate the public. We can all help ourselves by making some very basic information, that's already reported on the EIA, that's already reported to the EPA, in simple easy to read graphs.

COMMISSIONER BAKER: I was just going to ask Nancy, when the Chairman asked the question, does it have a spot on the bill, or could it be in a, you know, Web-based format. Do you have an opinion on that?

MS. LAPLACA: People want it on the bill. And they also want to be able to know how to relate that to something like, what's my average compared to nationwide or other people in Colorado. They need to relate it to something, because they don't really know what 600 kilowatt-hours means, and they also didn't know that there was a difference in emissions between like coal and natural gas. They really didn't know. So when they see that, a lot of people will make a choice based on emissions.

CHAIRMAN BINZ: Becky.

MS. ENGLISH: In reference to the point, Chairman Binz, about the Web portal, I love this idea. I think that would be great. And for those who don't

have Web access, or perhaps older people, maybe customer service could be enhanced to have some verbal ways and some U.S. mail ways to give people the information they are looking for.

And I agree with Nancy that, you know, people aren't going to be able to make the changes that probably need to be made, without the information that they need to make those changes. So, we really need to provide this information.

MS. ORF: Diane Orf. And I must admit, I don't look at my bills, so I can't tell you what you already have on there. I am ashamed of myself. If you go to a point where you are regularly displaying all of the various emissions criteria and everything, for the various fields, that I think it's incumbent upon the Commission to have a utility show the relative cost of energy for each of those sources, because there is a difference. And, I think, people do make choices. So I think all of that information is important to have and to be read in context.

CHAIRMAN BINZ: Is that the last word? Thank you all for a very productive afternoon. I don't know what the next step in this docket will be, but more to follow.

Whereupon these proceedings were

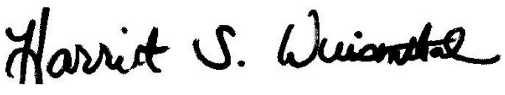
concluded at 4:45 p.m. on December 2, 2008.)

CERTIFICATION

STATE OF COLORADO)
CITY AND COUNTY OF DENVER)

I, Harriet Weisenthal, do hereby certify that I was present and reported in stenotype the proceedings in the foregoing matter; that I thereafter reduced my stenotype notes to typewritten form, with the aid of a computer, composing the foregoing transcript; further, that the foregoing official transcript is a full and accurate record of the proceedings in this matter held at Denver, Colorado on December 2, 2008.

FILED at Denver, Colorado_____.



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Harriet S. Weisenthal, RPR