ATTACHMENT A

ELECTRICITY OVERSIGHT

BOARD MEETING

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REPORTER'S TRANSCRIPT OF PROCEEDINGS

HELD AT THE STATE CAPITOL, ROOM 447

THURSDAY, JUNE 29, 2000

10:07 A.M.

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Mr. Winter, thank you very much for deferring. And, Mr. Robinson, welcome.

Mr. Winter, the floor is yours.

MR. WINTER: Needless to say, the discussion that proceeded this was most fascinating. I guess I'm the reliability person. I am the ISO. We're the ones that try to keep the lights on here.

What I would like to do and look to your guidance, I can walk you through what happened on June 14th and give you a very quick synopsis of what transpired and what really was occurring. Then, I do feel compelled to make some comments about the meeting last night.

I would prefer to do those after the presentation on some factual things of what transpired and why we dropped load. And if that would be your pleasure, if you could let me know how much time you would like me to contain my remarks to, I'll try to either speed up or go more slowly.

CHAIRMAN KAHN: I think we would like you to take as much time as you need. And I think you ought to take advantage of the opportunity here, you do have Senator Bowman and President Lynch. And as you know the Governor has asked us to do an investigation.

And so anything you can tell us about the events and your views as to things to fix it would be very

helpful. So take your time.

MR. WINTER: First, I would like to layout for you that there really were three very distinct things going on at the time that we got into the load situation in the Bay Area.

And the first one of those was an operational constraint, which I will take you through first. The second is the communications and what happened along the communications lines. And the third were the market issues that arrived on that day.

It is very easy to try to connect all three of those together, but in reality they're very disconnected and, yet, interrelated. So what I would like to start out with is tell you the operation and what transpired during that time frame.

If you will look at the first page in my handout, in transmission planning what you try to do is you identify your load area and then you try to build a system around that load area that gives you either duplicate or triplet fees into all of the things so the loss of any component, be it generation or transmission, does not force you into the position of having to take an outage.

The second thing that you're very concerned about is not only the immediate area, but the entire impact on the rest of the system. Those of you that were here, and

I think you all were on August 10th, 1996, when a tree got into a 500 kV line and that tripping took out the whole Western United States, less known to people was that that very same situation happened on July 3rd and July 2nd that year with a tree in another location.

So the reason I bring those up is the system is very dependent and interconnected through the Western United States. So as the ISO operator I am not only very, very concerned about any particular small area, but I'm also concerned about what impact that might have on the whole system should we get into trouble.

And so as you look at this smaller area of just the Bay Area, let me say that we had sufficient resources in the state to cover the loads for those days. Now, when I talk about the markets, you'll see how we got those, but nevertheless there were sufficient resources.

What we did have was outages in the -- inside this east Bay Area that limited our ability to import. In other words, if you have generators on, we have what we call voltage stability. And you need the rotating machines to, in fact, keep the voltage up or you get into what you call voltage collapse. So even though we had voltage outside the area, there was no way to get it in with the load.

We began looking at this problem Sunday night and

the incident occurred I believe on Wednesday. And if every machine is on in the Bay Area and all transmission lines are available, we can input about 9100, 9150 megawatts into that area. We were projecting a temperature in San Francisco of about 95 to 96.

At those temperatures we were anticipating around 9,050, or 9,100 in load. That meant that if all the machines were on and everything was working and all the transformers were available, that we could serve 9100 megawatts.

At that time, as we approached Wednesday, we found that we were actually 879 megawatts short of generation in the area. Now, that is not correlated directly. You can't just take the 9100 capability, take 879 from it and get to the answer that you can only serve 8200 megawatts, because you have the support of transformers around it, the other outside lines, and redundancy.

So as we ran our studies on Monday and Tuesday it became very clear to us that we would only be able to serve about 8600 megawatts, projected load of 9100-plus. So that left us between 5- and 600 megawatts short. We had interruptibles, which are the people who have willingly agreed to drop off the line, magnitudes of between 2 and 500 megawatts. Again, in the 500-megawatt

range, those were outside the immediate Bay Area, but had some impact.

And so as we moved into the day we started doing a couple of things. And if you will look at the next graph, which is this big wiggly line, that is the voltage that we have on the system. And when we move into an area which is limited by voltage stability rather than import capability, there's a few things we can do and do do.

So if you'll look at 6:00 in the morning you'll see that we were at 235 kilovolts. Our critical point is 226, at the bottom. As we moved into the morning hours we recognized that we were going to have to add sufficient voltage support to hold the voltage up.

So we contacted PG&E, they made certain that all of their static capacitors were in place and we kicked the voltage up to around 235. As the load began to grow at around 9:00 on that graph, you'll see that it begins to drop dramatically. And this is as the load continued it dropped and it dropped.

Then you'll notice that around 10:00, 10:30 time frame that it starts to level out. And what we did there was we called on all the generators and told them to start putting out maximum VARS, which is a term to -- it's the electrical term that gives us voltage support. It's also the time when the municipalities started running their

units to give us maximum support.

That held us. As each of those units came on, you can see the voltage recover. Then we started about noon time. And if you'll look at the next graph this is merely an expansion of the time between 12:00 and 3:00. It's the same curve. We were headed down. We were at 2:30. Then right about 12:00 o'clock the load just started continuing.

This is when we were getting reports of temperatures were going to be in the 103, 102 range with an overall area of 107 for the Bay Area.

We started down that rather quickly. And at 230, less 229.5 we activated the interruptible load. When we activated that, normally what we get when we drop to the 500 megawatts is we get an immediate rise back in that voltage. And then this gives us time to analyze, you know, where the load is going and what is the volunteer load that's dropping off.

You can see that dropping 500 only bought us about 10 to 15 minutes. And then we were right back on the tremendous slide going down. We watched that over the next 15 minutes and then when we reached the 227.6 headed for 227 we said, "This is continuing. It's early in the day. And we're going to either, one, if we don't drop load, we're going to risk the whole Bay Area. And even

worse, we could cause an instability in the whole Western United States."

So we, the ISO, made the decision then to drop 100 megawatts. Now the interesting thing here is that when we dropped that 100 megawatts, the load was still rising dramatically. But the very fact that we dropped that and the news media went out immediately with the fact that we had done that, we got a tremendous amount of volunteer people running around turning off their lights, turning off their air-conditioner.

So even though we took 100 megawatts, that action was supported by a lot of different people individually and the load tapered off. And we recovered back to 228. Now, remember we're still walking with one volt here.

SENATOR BOWEN: How much load was actually dropped?

MR. WINTER: I believe it was about 130 megawatts. And, you know, that is fascinating for a couple of reasons. And as I talk about communications, I'll go into that.

If you'll now drop back to your first graph, where you see right at the 12:00 o'clock period, you can see we dropped the 100 megawatts. We came back up to 228 and we held that for one hour, because our rolling blackout program is that you take people off for an hour, then you go to another block and you take them off.

Now, the reason that it jumped back up is I couldn't take off 100 megawatts and then take another 100 off. I had to take off both at the same time and then start bringing them back. So, in fact, for a few minutes there we had 200 off. That's when the voltage went up to 229.5. Then as we brought back the 100 it dropped down. Then the next hour, we rotate again. And we had to bring that up. We did that for three hours.

At the end of the three hours we were moving past the 4 to 5:00 o'clock time frame and we were willing then to say, "Okay, let's bring back the firm load." We brought back the firm load and put it back on line. We did not bring back our interruptibles.

But we around 6:00 -- I'm sorry, that would be 15, at around 5:30 we went ahead and started bringing back the interruptibles. And we, again, were heading down and even actually got to 227 watts -- or volts. But the key point there was we were in the time of the day when the load was starting to drop off.

So at that point in time we said, okay, we can risk getting close. The load is not growing. And as the load then came off that evening, you can see we restored our voltage.

Now the next day, June 15th, during all of this time that -- as a matter of fact, that evening, we lost

another generating unit in the Bay Area, 680 megawatts. They had a fire in their auxiliary area. And we called them and said, "Don't take your unit off," because they were able to operate it at a reduced rate. So we held them on at 200 megawatts.

One of the interesting things, we have been practicing this very scenario for a couple of days as part of our summer preparation. We run the operators through different emergency situations. This one we had run through.

And I didn't realize it until we were doing it, after the fact, but when we did that scenario, PG&E had before 1,000 blocks. In other words, if we shed load, they would shed them at a thousand. Because of the voltage and the studies we had done, they decided to cut those blocks to 100-megawatt blocks. And as it turned out that was very fortunate and a good thing that came out, because instead of dropping a thousand, we only dropped 100.

The next day, we were faced with the same situation. They were indicating to us that the temperature was going to drop from 103 to 99, the fog and the winds were stalled out over the ocean and not coming in. With the loss of Potrero VII, or the reduced capability of that unit, we were then looking at a peak of

8400 is all that we could serve.

We rode that roller coaster in the morning. It came up, the load. It was going to be hot. We were racing right into a similar situation. And then Mother Nature was a tremendous help to us. The fog came in and the temperature actually dropped almost 30 degrees in San Francisco.

When that happened, very clearly, the problem immediately evaporated in the Bay Area. And we breathed a little bit of a sigh of relief. The loads did not drop off as nearly as we thought, but they didn't grow. So we were able to handle them.

At about 12:00 o'clock that day we recognized, or were aware of another problem. And that was in Sacramento the temperature had not dropped. As a matter of fact, we were heading up extremely warm again.

And on that first graph you'll notice that there is some transformers there into the Bay Area called Tesla and Tracy. And those transformers serve not only the Bay Area, but they also serve the Sacramento area.

So we suddenly found ourself in a position where we were exceeding the capacity of the transformers at Tesla and Tracy. And the next graph shows that we went over their rating capability. And at that time we activated SMUD's air-conditioning load. So you know all

these things as we're moving from one spot to another, we were running into them.

Before you go to the next graphs, I would like to talk about the communications a little bit. We initiated in the May time frame what we called "Power Watch 2000." And the whole purpose of that was to begin to condition people to the fact that we were going to have some real scarcity in the state. And so we were very concerned that people be aware and actually do the voluntary curtailment.

And I think that has been extremely successful. In the discussions with the news media, which is really our communications to getting people on to voluntary shedding, the investor owned utilities, the municipalities, everybody worked very, very hard during that time frame to have their communications out.

I have, unfortunately, been involved in a few of these in my life. And I have to say the way in the which the operators executed this was probably the best that I have ever seen. They did it efficiently. They did it quickly. Everybody in the operating arena knew what was going on.

The news media I thought responded quite accurately. They were very quick to identify the temperature and the constraints. And I think that communication went well.

I think that some of the places the communications didn't go real well was probably -- and I take full blame for this -- myself with Michael and Loretta, I didn't communicate with them as quickly as I should have. I make no excuses for that other than as we were going through our drills, I should have included myself and the two of you in the drill so that we would have that communication link opened.

I think we rely on E-mails a lot. We also have two people that spend their full time trying to notify everyone. But I would take you to the time frame, yes, we knew we were getting into trouble, but quite honestly every day we approach the morning getting ready to get into trouble.

And the question is: How far is it going to go? And that curve got bad. And then within 30 minutes we moved from what was, oh, just drop a little bit of the interruptibles to, we're going to have to drop firm load. And that was a tremendous decision and people were having to make that in about 30 minutes. So I think the operation went well. I think the communication at the lower level went well. I think I failed in keeping you all informed.

Now, let's talk about markets a little bit, because while they're a totally separate issue for this