State of Florida

Public Service Commission

-M-E-M-O-R-A-N-D-U-M-

DATE: February 15, 2001
TO: Kay Flynn
FROM: David G. Jopling
RE: Presentation, Reconsidering Electricity Deregulation by Dr. Mark Cooper

On January 23, 2001, Dr. Mark Cooper, Executive Director, Consumer Federation of America, made a presentation to the staff of the Public Service Commission on his group's views of the relative merits and problems with deregulation as it has been implemented in California and other states and as it is being proposed in Florida.

The PAI Division hosted this presentation and recorded Dr. Cooper's presentation and a question and answer session which followed. This presentation was not related to any formal docket or hearing.

I am turning over the tapes of this presentation to the Division of Records and Reporting for their record keeping.

I am attaching a copy of Dr. Cooper's presentation and the Q&A session which PAI staff have transcribed.

I will forward an electronic copy to you also.

Attachment:

Presentation to Staff of the
Florida Public Service Commission
by
Dr. Mark Cooper
Consumer Federation of America

Reconsidering Electricity Deregulation

January 23, 2001

I am here to tell you today in Florida - why you should have competition in telecommunications and you should not have it in electricity. People have trouble with that, in a certain sense, and certainly in the 1990s, the argument was either you are for competition or you are against it. They did not want to hear a debate about it. The answer is that we did not have a debate about whether there should be competition in electricity in the 1990s, and we should have.

The reason it makes perfect sense to arrive at two different answers, is because the economic conditions in the two industries are different. The fundamental, basic physics and economics of the two industries are different and it is entirely rational and reasonable to come up with different answers for the different industries. The interesting thing is, I did a paper for Dick O'Neill who is now at the Federal Energy Regulatory Commission, if you are an electricity person you have probably heard that name, actually, if you are a natural gas person, he used to do gas at the Energy Information Administration. I reached that conclusion in 1986 in a paper he commissioned to me where he said, "I want you to look at all these industries, all these network industries" -- and electricity is a network industry, gas pipelines are a network industry, telecom is a network industry, railroads, airlines turned out to be a network industry, although people did not realize it at the time. I did an analysis of all these different industries and I looked at their supply and demand characteristics. I plotted them out on a graph - about which could be deregulated, which should be deregulated and electricity was down

there at the bottom or the top, depending on how you looked at it, as the least likely candidate for deregulation.

I call these vulnerable markets and that fundamental analysis was, I think, correct and as I like to say, people have seen one or the other in reports, actually four reports in the series we did.

About six months before California started, we said, "Here is why it will not work." Even CFA members from California, in the middle of the summer, called to say, "Mark, we just downloaded your paper, you knew this was going to happen. Why didn't you tell us?" and of course had I told them. Each year we had done another report and we looked at the 1998 price spikes. We looked at the 1999 reliability problems and we looked at the 2000 catastrophe in California. So I have been saying the same thing in public at least for four years, I have not changed my message one bit -- people listen a lot more carefully. I am not going to change my story - although I am actually going to embellish it today a little bit - to respond to the staff analysis of the industry in Florida and it is really interesting and I am going to make some observations. Plus, I am going to try and help people get out of the mess in California by conceptualizing things a little bit differently as opposed to my economic analysis. That seems to be working, so I am going to give that to you as well.

I assure you that both of these things you will read in the next few months. The simple way I do it and maybe the reason people understand it is because it is simple is, in order to make a market, you have to have three things - a supply side, a demand side, and a highway of commerce in between. You have to have people willing to sell, willing to buy, and some way or another a way to execute their transactions. It turns out with most commodities, you need two highways. You need a physical highway for the goods to flow and a financial highway for the transactions to sell.

Sometimes the highway matters and sometimes the separation matters and sometimes it does not.

In electricity, we have none of the above in most places in this country. We do not have an effective supply side, we do not have an effective demand side, and we do not have an effective highway of commerce in between. That being the case, there is no reason to believe that we can have a market. We never asked those questions in the 1990s.

The really interesting question becomes not so much whether or not we have a supply side, demand side, or a highway of commerce in between, but whether we could have. That is, are the characteristics of electricity such, as a commodity, that you really can believe that you were going to have these three elements to "rely on pure competition" or leave it to a spot market, which is what California did. California wanted everything to be decided in the spot market. The important point is that they made some mistakes in California, absolutely. On the other hand, the underlying and enduring characteristics of the electricity market lead one to conclude that it is virtually impossible to design a pure spot market/competitive market for electricity because of the nature of the commodity. The physics and economics of electricity do not conduce to a nice, neat electricity market.

On the supply side, you cannot store it so your short-term supply responses are always going to be constrained. The only way you can store it is a very classic example. We pump water uphill. That is the effective way to store electricity - batteries do not work, (someday they might) - and there is a really interesting phenomenon going on in the western intertie today (the west coast) in which the way the west coast has traditionally worked, is in the summer the water runs through the dams up in the Pacific Northwest and the electricity goes down to California. Then during the winter, they store

electricity in the Pacific Northwest. The close the sloughs, they shut the turbines down and the water piles up behind the dams and electricity flows northward from California to the Pacific Northwest - or California meets its own demand so that water can be stored in the Pacific Northwest. That will explain to you why there was so much heat around the decision by the Secretary of Energy to cause the people in the Pacific Northwest to stop storing water to meet California's winter demand. Why, because what is going to happen during the summertime? There is not going to be water up there - there is not going to be electricity around and so people are very concerned. Electricity is very difficult to store.

It takes a long lead time. They tell me that within two or three years, they can build a power plant almost anyplace as long as it burns natural gas, which may or may not be a good idea anymore. Basically two to three years is a pretty long lead time for most commodities. At least given most industries, you can find supply a lot faster than that. There is a television commercial which you may have seen about a CEO who walks in and says, "We need more plastic" and everyone starts figuring about how to conserve, how to shift supplies around, and a guy at the end of the table goes online and finds plastic. Electricity is not like that. It takes a long lead time.

Electricity is prone to accidents. Let's be clear, we blame it on this, we blame it on that - the other thing is the technology is prone to breaking down. That may be due to the physics of it. If your car starts belching air or your muffler goes, you can run it around for a few more days or weeks until you have the cash to fix it. When things go bad with electrons, we tend to shut it down because it kills people and it would be nice if they didn't break, but they do break. Every technology has it, you look at the '99 report - they made a big thing about it - they said it is nuclear, it is coal, it turns out when

they break they have to shut it down to fix it. They cannot squeeze it to keep it going and that is a problem on the supply side.

The demand side - again, we have this difficulty where we have long lead times to change basic demand patterns. Once you build a house, once you put the A/C in - you have established sort of a fundamental consumption pattern. Now in the short term you can tell people to turn their air conditioners off. That is not why they bought them. Individuals who want to save a few pennies can shift their laundry loads to after midnight, but most people do not want to be up at midnight doing their laundry. Most people bought their air conditioners to run them when it is hot and if your solution is to tell them not to they are going to un-elect you. Ask the Governor of California, who had nothing to do with this problem, who was a rising political star - scrambling to keep his life because he was standing there when people started saying turn your lights off. This is not the point of the system, conservation is not an easy option in that sense. Now there may be some sectors where it is easy. Why are people shutting down their aluminum power plants in the Northwest? Because they make more money selling two cent power for thirty cents into California. But they do lay off workers when they are doing that. There are some unintended consequences, but for the average residential customer, the solution is not to turn their air conditioners off. They would rather have a new governor.

It is also weather sensitive. There is nothing we can do about the weather except complain about it and turn on the air conditioner when it is hot or the heater on when it gets cold. So you are at the mercy of the accidents of nature. You can complain about it but the answer is that you had better design a system that can accommodate that without discomforting people.

Third, there are no substitutes. There are no substitutes. I like to give the example in telecom, when U.S. West, which has terrible service problems, was falling months and months behind in land lines - what did they do - they said, "We'll give people cellphones." And so, if they could not get you a land line, they could get you a cellphone. Well, what are you going to give people if you cannot give them electricity? Kerosene lanterns? There are no effective substitutes. This is a special and unique commodity.

And those are enduring characteristics. That is not the stupidity of California, folks. That is the nature of electricity. Policy makers have an obligation, and this is a democracy, you get the vote for the kind of economic system we want to live under. And you better design your economic system to recognize the fundamental characteristics of electricity.

Let me do the highway of commerce in between. There is a lot of that in the November 2000 paper because the Consumer Federation of America is pro competitive. We support real competition. We supported the 1992 Energy Policy Act at the federal level and we are sorely disappointed that, while the 1992 Energy Policy Act created a lot of people who were interested in building power plants, we never did create a highway of commerce that gave them the assurance that there would be adequate capacity that they could sell their goods over. That they could run their trucks, move their electrons, and bring them to market. That is the great failure at the federal level.

No state can be a market. Texas is an island and they only begrudging joined the union and they never let their electricity system join the union. So they are out there separate and even though the wires in Florida look almost like the wires in Texas, that is, that they are barely and only faintly

connected to the rest of the country - I am told that the feds regulate those wires here in Florida, but not in Texas, maybe when they too join the union at some future time.

Even California is not a market unto itself. New York is not a market unto itself. So that in order to have a state effectively restructure its industry and gain the benefits of a competitive market - you have to have an interstate highway system that will support your competitive good. Until you do, you cannot do a really good job (inaudible) what appears to be some people who are doing better than others. So the interstate highway system is absolutely crucial. The interstate highway system for electricity, that is. And I keep calling it an interstate highway system because it tends to remind people that highways are not markets. This is a highway. It is not a market. If there are no characteristics that even vaguely resemble a market, first of all it is built on government authority condemnation and right-of-way. Its key asset is created by government. There is no redundant capacity out there and not likely to be any-any time soon. So we think the idea that, and what is the primary constraint in building transmission systems? Inadequate incentives, environmental groups and siting groups, social projects. You can control all the economic incentives you want, that will not change the social resistance to expanding capacity. Now, you may or may not think that resistance is rational. I gave a speech in Chicago this summer where the moderator was a writer for the Wall Street Journal and I said look, people hate those ugly wires and they think they make them sick. And they are not going to let you build alot. He said, "Mark, do you agree with that assessment?" and I said, "it doesn't matter, people hate those ugly wires and they think it makes them sick and they are not gonna let you build them unless they really think (inaudible) and they are gonna make you take your time and hide them, etc." So this is not an economic marketplace, it is not an economic problem and people will come along and say - and I understand that in Florida that is a proposal, let us build a

for-profit and throw enough money in it and we will fix it - and the answer is - if there is not a market there you will get the abusive market power and you will not get much of a solution to the problem.

In all three of its characteristics, this is not an industry that conduces to competition. Now, if you take these underlying characteristics and you try to build on top of that a marketplace and you do it stupidly, you get California. Let's be clear. You took California and you tried to make this underlying characteristic behave entirely in a spot market - good Lord - nobody can supply on the spot, nobody can change demand on the spot, but everyone is supposed to buy on the spot. So you have this problem but even if you take away the illogical reliance on the spot market you still have not changed any of these underlying characteristics. Now, which three of these pieces are most conducive to a market? Well, clearly, we think the supply side could be a market. That is the long-term building of electricity. If we had a lot of excess capacity and you had a great big highway system then you would find people beginning to be willing to start to trade in a marketplace. But we do not have any of that on the supply side. So we need to move very carefully even on the supply side. The fundamental observation in the November 2000 paper is: No state should give up control of its strategic assets until the feds prove they can create an effective interstate highway system and interstate market for electricity. They are no where near that today. So you have the opportunity not to become dependent upon a level of government and an agency that is completely incapable of delivering on its primary function - running the interstate system. We do not have effective RTOs, we do not have adequate capacity, we do not have rules of the road - it will not support a market.

Because this is the Public Utility Commission and we can occasionally can get out and rise above the finger pointing from consumers and the utilities - you can actually render this stuff in formal

economic analysis. I have been working on taking a very classic conservative design of the market that is the Lerner Index, which measures market power, and taking the Landes and Posner version of that which tries to describe it in terms of the share of a dominant firm and elasticity of demand and the share of the fringe and whether or not behaviors were reinforcing. And you can identify each of the key characteristics in that formula and explain why there will be an abuse of market power - there will be abuse of market power because when the supply side and the demand side are that uncooperative, it is very easy to abuse market power. That leads me to the innovation that I have come in trying to describe this to people so that we can try and solve California's problem.

California has three problems as far as I can tell:

(1) scarcity

(2) imperfect markets

(3) abuse

The average consumer, my members out there, they do not care that there are three problems. Their bills are going up and they want that to stop.

But for the policy analyst and the policy maker, these are three different problems and they require different solutions. I actually submit that politically, if you want to solve the scarcity problem, you really have to deal with the abuse problem and the imperfect market problem first. Let me go back to my ugly wires that make me sick. Until you can look people in the eye and say, "Look, we have prevented people from abusing their market power, we have redesigned this market as best we can, we need to build more." Until you can convince them that you have solved the first two

problems, they do not want to take the hit on the third problem, which is the scarcity problem.

You can tell them Silicon Valley is going to shut down, right? I was in Silicon Valley this weekend, and the answer is they have actually protected that part of the grid. So when they roll the blackouts, they do not run down Silicon Valley, folks. But let's be clear - when it is time to shut down plants, and when all those interruptible auto manufacturers are enjoying those low rates, are about to get interrupted, what do they do? They go to the governor and say - we cannot shut down all the plants - we will be unemployed, etc. - so you know what? Even though they are interruptible what is the first thing they do? They say - consumers, turn your air conditioners off. They never offered me an interruptible rate, well maybe they did, but, the simple fact of the matter is they do not shut Silicon Valley down.

The simple fact of the matter is that abuse requires law enforcement. Imperfect markets require either perfecting the markets or residual regulation, and I am going to describe why California has thoroughly re-regulated thismarket, and I assume everyone in this room knows that - and scarcity requires building. You can tell people in California that they should pollute their air but the answer is until they are sure they are not being robbed, and until they are sure there are not stupid inefficiencies, they are really not going to bite the bullet on the scarcity problem. That is the deal I think the industry is going to have to make, is that we are going to solve these other two problems.

California has of course, has completely re-regulated its market and all of its key characteristics. We no longer have market-based prices; we now have just and reasonable prices - cost based prices. The cost basis is going to be debated, but we are no longer in a market based

regime. We have requirements to sell in to the states so we are now having comand and control for demand.

We had a lengthy discussion on the state owning power plants for a reserve margin, so we are not about to allow the reserve margin to be set in the marketplace. It is interesting, in reading the review here in Florida, the first thing that the merchants, I am told, complain about is that stupid 20% reserve margin. Well, the simple fact of the matter is that in a competitive market nobody builds excess capacity. So you will frequently hear people say 30,000 MW on the drawing board, all of it won't get built - but why won't all of it get built? Because the first guy who thinks he is building a plant that is going to lose in the market place is gone. So, the state of California which now runs routinely at about 3% - think about running the grid in Florida at 3% reserve margin - no one in this room wants to have to face that on a constant basis. Maybe 20% is too high - but don't give up your reserve margin. Meet it in a competitive system, but do not give up your reserve margin. Pick a number you can live with - consumers would much prefer to pay a little bit more to have that reserve margin than face the vulnerability of price hikes like they have had in California.

So we have supply side interventions on the demand side and of course we have command and control. We have rolling blackouts. We have lots of demand management programs and we shall see exactly how we end up.

We have long term contracts - no more spot market please. California is now about to let their utilities sign long term contracts, which in theory is a contract but they are not that spot market that everyone thought they were supposed to want to live in. Consumers do not want to live in that spot

market.

So we have a mishmash of policies and one thing we did not get, and we should have gotten, was a really effective demand management program. The rolling blackouts is the least efficient way to black people out. You want to have a program that identifies who is willing to give up power and does it very carefully and selectively, but through all the screaming and shouting they never seemed to have gotten that. So they are just turning off sets of people's lights and shutting down different pieces of the grid.

So on the one hand, we know why California is not necessarily instructive, but we also know why it is. You hear a lot about Pennsylvania and Texas. Now I am going to move into what I have learned from the Florida analysis. I went and looked at the Florida analysis and I tried to tell myself, here is a PUC staff looking at other peoples experiences and saying - we are not so sure this is going to work. I identified six or seven characteristics that seem to be a good set of characteristics to ask yourself - where might this thing work? Remember, we now have been released from the obligation to assume that markets work every place and we are now allowed to ask the question, which is a major step forward for this country at least in this industry, allowed to ask the question - where will it work?

Let's look at the characteristics that I think about and by looking at your report and by my obviously having been around the country. **Customer class structure** - that is what is your mix between industrial and large commercial and residential. The reason that is important, of course, is if you want demand side responsiveness, you are going to get it from your industrials. They will do the

economic calculation like the aluminum plants in the northwest. I think you really want a balance between industrial and residential, but you do not have that here in Florida. You did not have that in Nevada, as I said we looked at the folks in Nevada and said - well do some demand side management and they said - well the only big non-residential load we have here is the hotels. What do we do, shut the hotels down for the summer? So the answer was to balance the customer class structure was interesting.

Load pattern - obviously you don't want to have severe peaks. I suspect you have some pretty severe peaks here in Florida.

Location - you want to be in the middle, not on the ends. California is on the end. Florida is on the end. If you are in the middle, you have all these places you can draw from in case you need some capacity.

Reserve margins - well, you want to have high reserve margins not low reserve margins. Obviously Florida, by definition has kept its reserve margins high.

Neighboring systems - open or closed. I think if you are going to open your own market, you want your neighbors to be open too. Because if they are not open, they can close down whenever they want and you suddenly discover you cannot get it and you cannot sell in key moments when you really want to.

Local resource space - you want to be rich, not poor. Maybe you cannot affect it, it is an

accident of nature, but it is a fact of reality.

Capacity of interconnections - you want them to be loose and not tight.

As I look down this list, six of those seven went against Florida. The interesting thing is, thinking through this list, we frequently hear about how Pennsylvania has worked. I always warn people - I did Pennsylvania - I did two or three restructuring cases in Pennsylvania. If Pennsylvania worked, it worked for a few sets of reasons that are not exportable. If Texas may work, and remember Texas has not started yet, remember Texas has not started yet - so when you hear people say how well they have done in Texas - they have not flipped the switch yet in Texas. Texas also has key characteristics that are not exportable, but let me do Pennsylvania.

In Pennsylvania, I believe we did a terrific job in defending consumers interests in Pennsylvania, remember, I was an intervenor on behalf of AARP, so my hopes here today as it would have. In Philadelphia, the big case, people were paying almost 14 cents per KWH for electricity. The energy cost part of that was almost eight cents - that is a lot more than you are paying here in Florida today. And at the same time that the customers in Philadelphia were paying seven or eight cents for energy to PECO, they were selling excess capacity to PG&E for two cents. Now of course I made a big stink about that, because why didn't the people in Philadelphia get the two cents for power and PG&E get the 8-cent power? That would have been more friendly to rate payers. The point is that there was this huge margin in Pennsylvania that you could lower their seven or eight cents and let people reduce their costs. Allow PECO to look around for fatter markets than two cents and everyone could be happy because the going-in situation was so bad. (It is not that bad here. Florida

is not bad by any stretch of the imagination.) So you had a starting point that was interesting, you have a very nice balanced load, you are sitting on a coal resource base, you do not have a terribly severe peak. (I bet the difference between Florida and Pennsylvania is fairly dramatic.) PJM is sitting in the middle and through the 1999 report, something like 2/3 of the transmission load emergencies that were declared in the country were declared by PJM. That means that PJM is sitting between all these people. People have power that they want to sell and people want to buy on the other side, but the minute things get hot, they shut it down. As people told me (inaudible). They are sitting in the middle and they can export their problem. Now that can work with one guy but, of course, all 50 states can't export their problem to their neighbors. PJM has a severe load reserve margin requirement, so they really have not deregulated that part. Of course, that was California's mistake, but do not make that mistake here in Florida. Don't give up that 20% margin. Maybe you can fill it a better way but don't give it up because it is very valuable, as the people in California have learned.

So Pennsylvania, what may be a terrific solution for Pennsylvania, given where they started and where they sit. But it doesn't tell me a lot about what I can do here in Florida.

Texas, a little bit different. The big answer in Texas is they are sitting on the resource base. All of those gas plants are at the beginning of the pipeline, not at the end of the pipeline. So it is easy to build plants there and remember, they have not started yet. Now they have declared they will not make California's mistake, that is, they are not going to wait for an explosion in prices, they are going to raise them every six months. Some people think that in two or three years after the prices have gone up every six months it won't look so good in Texas. We will see, maybe the price of gas won't get up. That is what they are dependent upon. So they haven't started yet and that is a different way

to go. If you were sitting on gas and you were telling people, or maybe not telling people, that their price of electricity may go up every six months, ad infinitum, as opposed to San Diego which went through the roof. Remember, it is a different kind of entity.

Also, they control their transmission lines. (I am told that you here in Florida do not.) They probably have a much more balanced mix. I don't know about their peak. It is pretty hot in Texas in some places. There may be a north-south problem as you have here in Florida. Intertie does not matter to them. It may or may not matter to you here in Florida. Neighboring systems - yours are obviously closed as are most of Texas'.

So from my point-of-view, having told people why California would happen, having gone year after year of continuing to monitor and trying to make people understand that this is not just an accident. If you read the '98 report on the 1998 price spikes, we spent a lot of time explaining to people why it wasn't just an accident. Because that was the first answer if you remember, an accident of nature. Go back and read the FERC report, an accident of nature. In 1999, of course, it was not a price problem but a reliability problem and then this year of course, it is only in California.

The real answer is that there are underlying themes here that make it highly doubtful that the best way to put it here in Florida is, if it ain't broke, why are you trying to fix it? If you wanted to try and get some competition for wholesale generation, that makes sense to us, but if you will notice this is a very, very narrow and restricted objective. You want to have more efficient people building your power plants and let me tell you folks, building a gas-fired power plant is not rocket science as far as I can tell. There are ten thousand people who think they can. But at any rate, most of the benefit of

gas was in that cheap price and we don't have it anymore. But if you want to try and get a lot of people to build power plants, you may do that but that does not mean you should give up your reserve margin - your control of those wires or your difficulty here is that the only way you can avoid becoming dependent upon FERC regulation of your wires is to not allow them on. What you really should do is make sure the FERC is going to be able to regulate your wires in a sensible fashion before you become dependent upon having people build merchant plants and then having to buy and trade power.

I think I will stop there. The message is pretty clear and I will take questions if people have questions or you could disagree with me. I am sure there are some who do. But I have a philosophy, the other side gets to present its case so frequently that I don't worry about that too much. So let me stop there and see if there are questions.

Discussion

Question: You were saying that this year we are looking at the situation in California and that people are saying that it's an anomaly and that it's not occurring anywhere else.

Are you expecting it to occur anymore in Pennsylvania or in PJM?

Dr. Cooper: Well, actually, if you look at the November report, we have a little graph which we reprinted from a Cambridge Research Associates document which shows that we have had price spikes all over the country.

You know, price spikes are not unique to California. They started in the Mid-West. We had run-ups in the Northeast. That's the nature of a vulnerable commodity. If you don't have good supply and demand responses, if you don't have good highways, if you don't have a lot merchants around, then you're going to have these volatile spikes.

Will California happen again? No, its a fascinating (I'm a sociologist by training and Fred Kahn says he's not. He always says that he's an economist.) .... Everyone knows about a self-fulfilling prophecy; but, there are also self-defeating prophecies. And, so, California won't happen again.

The Question is: Can people build a really nice market? And my Answer is that the spot

market is never going to be a nice place to live. So, economists come in and say, "Expose consumers to the spot market. Let them see the true value of electricity." And I think that those consumers will unelect you the first chance they get because they get to vote for the kind of system that they want to live in.

So, do I expect exactly the same problems? No. Do I expect them to be as severe as California's? No. Do I expect these markets to work wonderfully well? No.

We find a different set of problems in a different part of the country, all of which can be explained in theory by the same economic characteristics. This leads me to my answer that California won't happen again but that something else will. And it is not going to be what you hoped (if you deregulate the market) would happen.

Question: Not a question but just an observation. Your characterization of transmission lines as interstate highways of commerce somewhat involves the FERC mythology that systems are interconnected for bulk power flows. You know that transmission systems were built to get generators to load and only incidentally were they interconnected with systems and we never had a backbone for a state highway transmission system and we still don't have a backbone. And if we think that we do leads some to believe that all we have to do is open up this market. There is no infrastructure.

Dr. Cooper: Fair criticism. My point is that if you want to have markets for electricity, then you need a highway system. You're right. It wasn't built that way.

And let me give you another example because this is one of the things that really gets me going in California.

If you want the system to work to meet a function (the cable companies will tell you the same thing about broadband: I can't do it on this system. I can't do too much two way.) And the electric utilities will tell you that they can't do too much distributed generation. You'll tell me that you didn't build it to be an interstate highway system. You're absolutely right.

The answer is: If public policy tells them to build it that way, then they will and I will give you three examples (and I'll do a little telecom, although it's not the issue I came for).

If you look at what the cable companies have done in deploying their technology,

1. They have made a choice about how much fiber to pull. They do 500 houses per node instead of 100, which the pure over builders do.

2. They have made choices about how much spectrum to allocate. They've only done 6 MHZ out of 750 MHZ.

3. And the modem does not support it (the broader spectrum).

All of these decisions can be changed in which case you will have a wonderful system

with which to do open access.

Lets go to electricity.

Distributed generation and California's perfect. All 3 utilities in California had a distributed generation proceeding. They were dead set against it. It was the "End of the World." "We might get 10% of our load met by distributed generation." And, of course, you have all these stranded costs and other problems. Now, they'll take the 10% but it's too bad that they didn't start working on it 10 years ago. And so, when they come in and complain, I don't feel so bad because they frustrated things (so much).

Now, do they have to improve the structure of their distribution network? Absolutely. But the simple fact of the matter is (and here's another pitch), distributed generation saves (certainly in California) the 2 scarcest resources, generation and transmission. So, its an ideal solution and they ought to evaluate it as a solution to a bigger problem.

The same is true for the interstate highway system for electricity. You don't have enough interties here, you don't have enough 500 KV wires if you're going to bring in a lot of capacity; and, you know what, you had better be sure that the states to your North are open because even if you have got capacity, they will not let balance your load against theirs to their determent.

California has been shoveling money out of the state since Day One. You hear a lot

about the $12 billion this year which is obvious. In the first year, they exported a billion dollars. The numbers in California are astounding. Here is the number that I calculated from the last market surveillance report. They calculate above market prices. They call them market power and they criticize some of this for scarcity and some may be abuse; but, in the 4 summer months of this last year (I haven't even done the winter), they spent $12 million dollars. The real cost of producing electricity after they opened this market. (The previous 18 months of producing electricity was smaller then this summer's rip-off. Consumers do not want to live there. The cost of redesigning the system is smaller than the rents paid to out-of-state generators this summer. Take those $12 million and put them into redesigning the distribution and interconnection system and the consumers of California would have been better off. So, whenever they tell you we can't do it or it cost too much, in this market, it's worth it. Either that or don't bother. Keep your 20% reserve margin. Make they show you how much you're going to save consumers by getting rid of that reserve margin. It's not enough.

Question: You mentioned at the beginning of your presentation about telecommunications being a good environment for deregulation and electricity not being a good environment and you brought up a comparison between the two.

Dr. Cooper: I didn't say a good environment for deregulation. I said a good environment for competition. Very important.

Fundamental Lesson: You must demonopolize before you deregulate. You MUST

demonopolize before you deregulate. You've got to have competition BEFORE you deregulate. We frequently get the sequencing wrong.

Actually one place where we didn't get the sequencing wrong was Section 271 of the Telecom Act. We actually didn't demonopolize. What we said was that it had to be "open," irreversibly open, before we would allow them to deregulate, that is, to reintegrate local with long distance. So that's a good example.

What is the difference. Well, the challenge is in both the physics and the economics. The physics is absolutely clear. Electrons are miserable little physical beings and bits are wonderful. Bits are perfectly well behaved. You tell them to stop and they stop, you tell them to wait, you tell them to find a neighbor and they get back together. This is the Internet. They will behave perfectly and electrons are exactly the opposite. They go wherever the heck they can. And they kill people if the wrong thing is there at the end. So, the physics are dramatically different. The physics of running an interconnected network are different. And I'm a sociologist and I have tremendous appreciation, this awe, of the difference in the physics between the two industries. The idea of running a real time physical network in electricity is extremely demanding. Everyone in the utility industry will walk in here and lay that on you like crazy and they're right. It's a very, very difficult task.

Now, I have drawn a very different lesson from that than they do. My lesson is that the guys running the grid should have one and only one thing in their mind: running it. They

should not be distracted by making money because then that becomes a very difficult job. They start worrying about whether they can make a little more money doing this, that or the other thing and they don't run the grid so well and they don't let their competitors have access (which the telephone companies do also). I only want them doing one thing. So, the physics are different.

The fundamental difference in economics is that there would appear to be more than adequate capacity so that the network can be easily shared. There are, for matters of history, reciprocal markets to compensate people. So let me take the example of New York (and this will give me the perfect opportunity to pitch unbundled network elements and getting them right.

In New York, about 3.5 million people have changed their telephone company (2 million, local; about 1.5 million, long distance). They are swap numbers. If you looked at an average customer's telephone bill, you will discover that local charges are about $30/month when you add in all the things that local companies do. Long distance charges are also about an average of $30. So, when these 2 sets of companies swap customers, they end up in the same place roughly, except for what they can compete away. But, in New York, they have competed prices down 20%. In classic, tit-for-tat competition, one guy lowers price, comes up with a new package, the other guy matches. They go down and they find a new equilibrium but we squeeze out all the economic waste. But there is no capital constraint problem. It's easy to run that narrow even though they sweat that its impossible to do; but, we've actually managed to

strongly demonstrate that you can exchange that traffic. You can group their bills, you can do all this other stuff without having any severe differences and you can accommodate all that competition so the management is different, the capacity is there. But what do you have to do. You have to set the unit prices right. Simple observation: If you loose money ever time you get a customer, you're not going to go and compete very much.

So, the physics and the economics are rather different. Demand is very responsive in terms of switching companies, level of demand, the quantity of demand. What is the impact of overloading the telephone network? A fast busy signal.

So what is the impact of overloading the electricity grid? The lights go out. This a big difference. A lot of people get upset then the lights go out and their refrigerator stops running.

Look at the air line industry. This an industry that has now declared that it is a cartel. They want 2 dominant firms, each with about 1/4 of the market. The great debate is whether Delta could become a third dominant firm. What happened to 10?

I think that I need to do my Ed Meese Test here. I ran into Ed Meese recently and he had no idea what I was talking about.

When Ed Meese and Ronald Reagan came into power in Washington, they issued a

series of merger guidelines and they had been in the works before but they came out with Ed Meese's name on it; and, actually, the folks doing your analysis here in Florida used a version of this (and I would argue that you used the wrong part of the merger guidelines). Basically, Ed Meese said that the Department of Justice would consider an industry with a Herfindahl-Hirschman Index (a meaningless index) of 1,800 or higher to be highly concentrated. And the guidelines said that they were likely to challenge any merger that raised that number by 50 points or more. (That means a very small merger by today's standards.) Well, this 1,800 or higher it turns out to be roughly equal to a market with fewer than 6 equal sized competitors. So, a market with fewer than 6 equal sized competitors or its equivalent in the HHI was considered by Ed Meese, that paragon of consumer protection, to be highly concentrated and he was likely to challenge a merger. You think about how many markets in these industries that I've talked about - telecom, cable TV, the airlines - have 6 or more equal sized competitors. It's almost none.

But, Ed went on and he said that an industry with 6 to 10 would be moderately concentrated and he was likely under different circumstances, to challenge mergers that were somewhat larger. And actually, those numbers are well grounded in empiracle analysis, in anti-trust law, etc; and so, I like to apply my Ed Meese test and say, "If that market has fewer than 6 equal sized competitors, just as Ed Meese wouldn't allow more unregulated market power to be created, so too, I say that you should not deregulate a market, unleash that market power in a market that is that concentrated.

Now, I use that test all the time. The Chicago School of Economics would like to squeeze that 6 down to 4; and, in most of these markets, I would even take that as a standard, although it is too generous. The simple fact of the matter is that (and I actually did the calculation here), the Florida generation market is highly concentrated. (My calculation came up with) a 39% market share number for one company and an HHI number was close and if you added the next largest company's market share, you were well above 1,800. So, this is a highly concentrated market. Don't deregulate. Even Ed Meese said that.

Question: It's no secret that the Cal PUC and the Cal ISO have had a rocky relationship at best. If RTO's continue to proliferate around the nation, to what extent can PUC's or PSC's work with those ISO's or Transco's or whatever configuration to make the system work? What's your opinion on that?

Dr. Cooper: When I was cross-examined in New York, I said, "Don't give up responsibility for your PUC having authority over reliability;" and, they said, "Dr. Cooper, don't you realize that the ISO is going to be regulated in Washington?" And, I said, "That's a mistake."

It seems to me that states that haven't restructured ought to make it very clear to FERC that either the rules are going to be such that they are entirely comfortable with what those entities are going to do or you want some authority. Now, again, whether or not you in Florida can get that authority remains to be seen; but, this is supposed to be a State's Rights Administration. Maybe you can work that out; but, the answer is that the

dispute between the Cal PUC and the Cal ISO is not simply a problem of (an argument over) authority. It is genuinely a complete abdication of authority. Let me give you the perfect example and that's law enforcement.

Remember, I said earlier that law enforcement has got to be the first thing that you've got to address. You've got to be able to tell people that there are no criminals out there abusing you. You will recall that there was this dispute about bidding records. The Cal PUC said, "We want to see those bidding records." And the ISO said, "You don't have any authority."

And, I continue to ask people, "Has any law enforcement agency reviewed those bidding records with a vicious and savage eye to discovering abuse?" Because you will recall that when FERC did the analysis of the first spikes, they did a report. The Preamble, the very beginning of the report, said, "We have not asked for the data that would allow us to find manipulation." They explicitly designed the study not to answer the question of abuse. And, as far as I can tell, no one as ever, as I said, with a vicious eye, looked at those bidding records to discover abuse.

So, it's not a question of who should. At least in California, I don't care who does it as long as somebody does it; and, to date, as far as I can tell, no one has actually studied those records to find abuse.

And, what I mean by "find abuse," there are 2 stages. This is law enforcement, so, you

look at the bidding patterns. In Canada, there is apparently a case against Enron in which they discovered that one bidder was there with a certain amount of power and right at the last minute disappeared. And, then, the next day Enron appeared with as much power and a much higher price. You might see that pattern in the bidding and then say, "Well, that looks suspicious." Then you go in and seize all the records in those 2 companies and you determine if there was any collusion. So, law enforcement is both patterns and smoking guns. And, I believe that this situation has happened in Canada.

As far as I can tell, and I keep asking (and I may be proven wrong), no one in this country has looked at those (California) records.

Do you want that job? I'll be glad to give you that job. The FERC? Well, you'll trust the FERC? Maybe the Attorney General should do it. Someone has to take care of that question.

Now, let me use the example to distinguish between "abuse" and "imperfect markets." Could that happen without collusion? The answer is that it absolutely could. And, I can't throw people in jail if it happens without collusion; but, I may have to redesign the market so that it's less likely. So, for instance, if you're in California, you know that there are only a handful of people who have any capacity to bid at a given moment in time. So, you say, "I know these guys. I know where their power is going. I haven't had to call them up and ask them. I'm not going to bid or I'm going to drop in my high

bid'" because it is not an effectively competitive market. That's "conscious parallelism." Markets require there to be so many sellers, and presumably, so many buyers, that I can't keep track of them all, that I can't engage in that "non-collusive parallelism." And, we don't know that in California even.

And, I will tell you that the rules were disastrous in California. Basically, and I've been told by the companies, "We bid 95% of our power in at a reasonable price and we bought a lottery ticket on the rest. We put in the last 5% at some outrageous price because we were perfectly happy to take the 95% at the price that we bid; and, Lo and Behold, the market cleared at my (higher) price. And, of course, these fools paid me the same (high) price for everything."

Well, obviously, no one is going to have a one-price auction any more; but, on the other hand, the flyer that they were taking was based on the fact that they knew that there were not a lot of folks who had capacity to offer.

There's apparently a piece in the "Electricity Journal" either recently or soon to come out that reports that the California auction was based on a Nobel Prize winning theory which said that if there are not enough bidders, it won't work; and, so, the title is something like "I'll Take Back the Nobel Price." And it is absolutely true that all economic theories are absolutely true under some circumstances. The problem is that the real world rarely conforms to those silly circumstances.

Question: Along that same line of turning over law enforcement to FERC, one of the proposals that the Florida 2020 Energy Commission is looking at is forcing all our investor owned utilities to transfer their generation facilities into a separate subsidiary which would turn it all over to FERC. What are your thoughts on that?

Dr. Cooper: My recommendation in the November paper is: Don't give up control of your strategic assets until you have complete faith that your interstate highway system is going to work.

If you look at California's problem, they control none of their strategic assets, neither generation or transmission. And, that is what the Governor has said. Basically, they turned over the keys to the kingdom to the Feds for this hypothetical market and neither of them is willing to take any responsibility. So, I would certainly not until you're convinced that the monopoly pieces of the industry will work as reasonable.

If it's not a market, it has to be a utility; and, the Chairman tells me that they seem to have accepted the fact that transmission is a utility. But, unfortunately, it's a utility that's regulated in Washington which means that it may be unregulated. If you are concerned about losing control of you strategic assets by the companies being forced to transfer assets out of your control, then keep control of the rest of it. Minimize the number of transactions on which you're dependent. Require your load serving entities to have power plants as close to home as possible. Then, no matter what they do to the transmission system, they can't hurt you because you are not dependent on that

strategic asset.

The most important thing is to go up to the FERC and tell them that they need to fix this market. That is one of the things that I said in the November paper. I need more allies because I think that people are starting to listen to the message.

I think that the Feds understand that the interstate market belongs to them. If they won't let Florida regulate it, then they ought to do a good job.

Question: Tell me some more about market power and market power abuse and the ability of FERC to police that kind of thing. What are they doing in California to try to catch abuses?

Dr. Cooper: We need legislation. After the '92 Act, every time FERC tried to do something good, they got sued and beat around the head. Sometimes they lost and sometimes they won. So they ended up being timid. Even if it was an aggressive FERC, they were never sure of their authority. So if we agree that the interstate market has to work, then there are 2 things it has to do: 1) It has to run the highway system, and 2) It must police interstate abuse.

I think that FERC needs more authority. In the alternative, it is my experience that you should never give the competition authority, to the agency that was created essentially to promote the industry. If you read the FERC's founding statute, it will be to promote

electricity, to improve and advance. If you read the '96 Act, they talk about advancing and promoting. If you go back and look at the Department of Transportation, et cetera, the agencies created to promote the industries are not very good at imposing the pain of competition. One of the things that we have suggested is that maybe we need an Electricity Office at the Federal Trade Commission whose sole responsibility is policing abuse and promoting competition. That's all the FTC does. They don't have this conflict when the industry comes and says that they need more money for this or more money for that. And so, we want clean anti-trust and market power authority.

However, let me make it also clear in another respect that you can't only rely on anti-trust. These industries are too important to only leave it to anti-trust.

Basically, lets take communications. Communications is critical for democracy and freedom of speech, etc. and so we have always imposed higher standards. We don't rely just on the Sherman Act. We have the Communications Act. And, for example, under the Sherman Act, we don't usually prosecute people or worry about market power until there is a highly concentrated market. If you sue someone, like Microsoft, for abuse of market power, if they don't have at least a 50 or 65% market share, you are going to have a hard time in the courts.

In contrast, if you look at the cable horizontal ownership limits, for example, we set these down at 30%. Why? Because controlling eyeballs is more important than controlling commodities.

Is electricity so special and so important that we should impose a higher standard? You bet it is. I like to say that the "E" in e-commerce is electrons. And every one likes to think about bids but the truth turns out that if electrons do not flow, none of it works. And so, electricity is too important to simply leave to "anti-trust." And I would have an authority (if it's the FERC, a separate office) solely responsible for policing, with new authorities. Not one of these markets meets my Ed Meese test. So they have misdefined what a market is and, of course, what is the perfect example of doing it right? Section 271 of the Telecom Act.

In New York, perfectly balanced competition. Fourteen percent of the residential customers have changed their local company; eighteen percent of the business customers. Prices are down 20%. And that's basically in an 18 month period. Once Verizon said that they'd do it right. We're on that track in Pennsylvania. Texas is a little different. Texas has a lot more business than residential; but, Texas is doing pretty good. In Texas, local rates are lower than in Florida. That was my message: Let's do it in Florida too. You can do New York in Florida. And that's a well regulated wire.

And that's what you need in electricity. You need people to share those transmission wires reasonably if you let them build their own power plants.

Well, thank you for letting me yap at you for a couple of hours.