7-13-1981

Volume 13 (Part 2)

District Court of the United States for the Northern District of Ohio, Eastern Division

Mr. Kenealy, who later became a member of the Public Utility Commission of Ohio. He was very dedicated -- a very fine man, by the way, and a very dedicated public servant, and he wrote a history of Muny Light; and his review of the early history of Muny Light and this era preceding the 1930's, that the distribution system was extended and the residential district supplied by the private utility -- that's CEI -- and service after service was replaced by the City plan. During these years Muny Light extended this load, duplication the poles, wires and cables, with the result that much of the private utility's equipment was made useless. Mr. Kenealy was 100 percent correct about that.

Let me show you Exhibit 1041.

These are customer shifts from CEI to the Municipal Electric Light Plant, and you see what happened? Immediately they got the new plant and went into business in 1941: 3,500 customers. First, 1,500 -- 1,200 customers, about; then 3,500 in one year. And it's hard to blame them, as a matter of fact, if they get the energy for two thirds of the price.

From 1920 to 1930 we simply don't have any

records. We don't know what happened.

But you see what happened in the Depression? Things sort of sank. Then there comes another period where we don't have much record, but we know the competition was pretty normal and, while there's somewhat of a drift or customer shift to Muny Light in the early 1950's, in the late 1950's, 1956, 1957, they start to pick up again, and that's when the competition started and CEI mounted its own effort to persuade customers to come back.

Then shortly after that Muny Light's sins of the past -- its failure to keep up its equipment, its failure to replace 50-year-old equipment and failure to plan ahead -- began to catch up with it and they began to have frequent interruptions of service where their equipment wouldn't work, and the shifts back to CEI were primarily due to people wanting better service and continuous service.

Now, let me show you Exhibit 1044.

(After an interval.)

MR. LANSDALE: This is the net cumulative customer shifts to MELP; that is to say, keep adding them up as we go along, the

dotted lines are the areas of years when we don't know what happened. And you will see that you have the enormous and sharp increase in the 1910-14, '15, '16 era.

Then in 1930, during the great depression, it took off again and went to about 1937, the area I have mentioned.

Then we have a level period until we get to -- basically to the early '60's, when Muny service started going to pieces and the customers started shifting back, not because the service was cheaper -- it wasn't -- but because they felt that continuity of service was worth the extra price.

And the real competition that matters here that shows the result began in the '60's, and you will see the decline in Muny's customers; and this is what is happening in the actual monopoly market.

Now, if they had kept the momentum that they started out in 1910, if they had built the plant when they needed to, if they had done their planning, if they had had their financing, knowing about the economic advantages that Muny had, if they had had in the latter years the decent

management they had in the early years, it doesn't take a magician to know that CEI would not be here in the service of the City of Cleveland today. I might add that there is one other thing you would wish to ask in connection with natural monopoly: What's happened elsewhere?

It is true that this is a natural monopoly market, do we find that monopoly has resulted everywhere else?

Mr. Norris talked to you about all the municipalities in the State of Ohio that have their own municipal plants.

Yes, they do; but they don't have house-to-house competition the way they have here?

There are very many -- 2,500, I think is the number, something like that, in the country; but do they have competition the way they have it here? No.

Now, we're fortunate in that -- you should know this -- and the evidence will show that in the early years of the industry, 1890, 1900, 1910, when they started out here, there were a great many instances of competition in the electric business, but it didn't take people very long to find out that this was not the way

to go.

The way to go was to do what they did in Ohio and, in 1911, impose price regulations on your public utilities and get rid of the competition which did nothing but increase the cost.

And when we stop to think about the fact that CEI is maintaining a full distribution system in the 30-square miles of the City of Cleveland, virtually all of it where you have service, and that it has taken not alone the Muny Light service but $30 million of taxpayers' money in addition, it's easy to see doubling up of these costs.

Now, it so happens that in 1966, somebody doing a Ph.D. paper at a college somewhere, a fellow named Hellman, made a study of the extent to which there was a competitive situation in the electric business in this country, and he found at that time that there were 38 cities in which there were some sort of competition.

I won't bore you with the rest of this thing; but, for the purpose of this case, we have made a current study, and a witness will be here who will relate that study to you.

Of those 38 that were existing in that time, there are only 18 left of which there is competition -- in which there are conditions admitting of competition.

All of those except Muny Light are relatively small systems, I mean, like 4,000, 5,000 customers. Muny Light -- I have forgotten how many customers it had -- but of the 55,000 or so, it's got 40 some odd thousand at the present time.

In any event, of all of the cities where it exists yet today, there are three or four of them down in Missouri where the customers have -- how much time have I got, if your Honor please?

THE COURT: You started at 3:19, so you have about -- it's 9 minutes after -- you haven't been talking for an hour yet.

MR. LANSDALE: More than a half hour.

I'm sorry. Don't go to sleep just because I've got a half hour yet.

{Laughter.}

MR. LANSDALE: I shouldn't have said that, should I?

In any event, the study of what's happened in these cities that Mr. Hellman found 38 of them

in 1966 is very interesting.

Some of them have been sold out to a municipal system, some of them have been sold out to a private company, and there are 18 of them left.

In three of those that are in Missouri, you have an interesting situation.

There, the municipals serve 80 or 90 percent of all the customers in the community at the present time, and they are interconnected to the Southwestern Public System, which is one of these government hydro-systems with preference power -- and I'll be talking about preference power and PASNY in a few minutes -- where they get this very cheap hydropower. And hydropower is cheap, because the fuel cost of it, you and I both know what fuel cost does.

Now, in those cities where the private company has no access to hydropower, and the cities do, the cities have installed rates -- and are making money -- at 30 or 40 percent less than the privates; and they haven't bought the privates out, they have just driven them out of business, and the private companies are saying to the cities, "Please buy our facilities, we'll

get out."

In any event, that's what's happened in those companies, those cities, and the natural monopoly phenomenon has taken place, because part of the competitive process is the natural advantage that you have, whether it's hydropower, whether it's no taxpayer, or whether it's better skills, better planning.

Now, in the rest of the cities, except in Cleveland, you have, in one form or another, no competition.

They have this situation in a whole bunch of towns in Texas. There, the cities have an ordinance or regulation imposing the same rates on both the private company and the city company -- and the city outfit, and the only time they change customers is when somebody gets mad because a policeman ticketed his car; or they leave a private company and go to the city because they got mad at the private company's meter reader or something of that kind, or they didn't pay their bill and they hope they can change and get with the other company before it catches up with them.

So this is true in Texas, this is true in

almost all of the rest of the companies: either by agreement, expression implied, or by an ordinance or a regulation of some kind, there is, in fact, no competition of any consequence. The only place that we can find where the parties have persisted in active competition is, the City of Cleveland; and experience elsehwere, experience in Cleveland, all tends to support our theory that this is a natural monopoly market, and it's natural that one of us should be driven out.

Now, at this point, let me talk to you for a minute about PASNY power, the Power Authority of the State of New York, and which the City is very indignant that we refused to wheel power for them.

You may remember that Mr. Hauser's letter said they were not going to do it because it would be injurious to our competitive position -- and, believe me, it would have been.

Now, the instruction of the Court, if you will remember on this point, was that it had to be --

{After an interval.}

MR. LANSDALE: In order to be considered essential, it is economically infeasible to duplicate it.

And, in addition -- and I want to emphasize that part of it at this time -- in addition, denial of its use would inflict a severe competitive handicap on the prospective user thereof.

Now, the prospective user thereof here is the City of Cleveland.

And what were they deprived of? They were deprived of hydropower; power which has no fuel cost; power which was very much cheaper than anything that was available to the Cleveland Electric Illuminating Company, because the law which established the Niagara hydro-project provided that, basically, about half of it is available to private power companies and industries in the vicinity of Niagara Falls, and about half of it is available to municipals, cooperatives, other publicly-owned or operated utilities in neighboring states, and Ohio is included in "neighboring states", all right; but the State of Vermont has a -- the State of Pennsylvania and the like, that is either cooperative enterprises or enterprises owned by the state; Vermont is a state.

So this is what we call "preference power".

It is not available to CEI. What we told

Muny Light was that, "We will not wheel for you this preference power. We do not feel that we are obligated" -- we think the evidence will show we were not; and we expect and hope that you will so find: We are not obligated to use our facilities paid for by our customers to provide Muny Light with the ability to drive us out of business.

We told Muny Light not in this same letter but other letters, "We will wheel for you any power which is equally available to us. We will provide for you -- wheel for you power that costs the same to you as it costs to us; but we feel that we do not have to give you the weapons to drive us out of business, because we do not have to do more-- as a matter of fact, we don't think we have to do that -- but, at the most, we have to put you in a position of equality with us," and that's all we said.

And I would like to liken this to a common foot race with somebody, and if the guy I'm racing falls down, I don't have to stop and pick him up if we're in a competitive race.

I ought not to reach out my foot and trip him.

Now, that is the difference that I want to try to convey to you, and this is a difference which I ask you to keep in mind as you listen to the evidence.

Now, I want to indicate one other thing about this PASNY power, however:

That our evidence will show that it was perfectly feasible for Muny Light to provide their own interconnection.

It would have cost them more than if we had furnished them the use of our facilities, but the evidence will show that it would still have been cheaper for them to build their own transmission line to go out to get the PASNY power and bring it in for themselves than it would be to buy power from CEI, or for us to wheel it to them from some of the surrounding companies like Ohio Power, and whatnot.

In this connection, let me show you Exhibit 1036.

(After an interval.)

MR. LANSDALE: 2036 shows three possible interconnections for Muny Light other than interconnecting with CEI.

Remember, that this isn't the State of Texas,

it isn't the State of Alaska, where you have enormous distances to deal with.

This is Northern Ohio. We have Ohio Edison as close as Lorain; we have power as close as Canton; and we have Penelec, Pennsylvania Electric Company as close as Ashtabula -- Conneaut, I mean.

The evidence will show that it was economically feasible in the times and the areas in which we're dealing for Muny Light to have constructed its own transmission line to any of these places, and to have purchased power and to have paid for those lines with the savings that they would have made over and above what it would cost them to generate their energy or to buy it from CEI.

And we have -- the fact of the matter is they didn't do it, and they didn't do it for a couple of reasons.

One of them is they didn't have the management with the sense and the capacity to do it.

And the second one is they didh't have the money.

And the evidence will show that throughout this period, the City of Cleveland, and Muny Light itself, was hurting for money, and they

didn't have the guts to raise their rates in order to get the money to pay for the actual cost of service.

Now, one of the things that the Court charged you was -- in the antitrust laws -- a party may show valid business reasons for not dealing with someone who claims that we should deal with them.

And Mr. Norris talked about interconnection.

In 19 -- Christmastime, 1969, the failure of Muny Light to keep its equipment in repair, and the grossest kind of errors and mistakes by the people operating the plant, resulted in a complete blackout of Muny Light. The whole system went down at Christmastime, 1969.

And there was a great hue and cry to do -- about doing something to give power to the people who suffered thereby, and they came to CEI for emergency help.

And we helped them as fast as we could, and we constructed what you will hear in the evidence of load transfer points, that is, they connected the CEI's facilities to certain of Muny Light's various substations and, in effect, took over part of Muny Light's business supply of electric

energy.

And we were supplying very large amounts of energy, and we had an agreement with the City, a contractual arrangement as to what the cost of that would be, what they will pay for it -- and let me show you Exhibit 1046.

(After an interval.)

MR. LANSDALE: We first started supplying them power -- I think they got the construction done by early February of 1970, and the contract required that they pay, I think it was, 10 days; if it wasn't 10 days, it was 20 days, it was a fairly short period of time; and they never did pay on time, and they only paid the first one or two bills; and the fact of the matter is that they didn't pay us for the service until -- except odds and ends of payments, and occasionally when there was enough complaining by us, but think what we were confronted with:

If we cut them off, -- if you don't pay your bill, you'll get a letter from Muny Light or from CEI which says, "Look, you haven't paid it; just remind you if you don't pay up in 30 days, we'll cut the power off"; and if you don't pay in 30

days, we do cut the power off.

But if we had cut the power off here, we would have had forty some odd thousand customers without any power; and irrespective of legalities or anything else, from the public relations standpoint, we're caught. And so we have to keep supplying power.

Now, you see that they started buying some at the end of 197--- The fact of the matter is the City of Cleveland was broke at that time. You will see the figures. It simply was broke. They simply didn't have the money. Muny Light didn't have the money and they wouldn't raise their rates to provide the income.

The City of Cleveland had discontinued a property tax and had tried to get people to vote an income tax and they had refused, and they were having a problem.

Now, in 1971, towards the end of 1971 we started having these discussions that Mr. Norris mentioned about further interconnection. They wanted what was called a synchronous interconnection. This would have been better for them, no question about it. But this would have been an area in which we couldn't control how much energy they

took. At least there was some limitation on it with the load transfer.

Well, they started paying their bills when they were demanding this new interconnection, or at least they paid them in part.

Finally, they got the interconnection, and what happened as soon as they got it? They didn't pay the bills again.

And this goes off the chart. The bills got so high this chart isn't big enough to show it. And I would like to show you No. 1047. Before they had to pay by reason of the judgment of this Court, the bills got to $20 million.

Now, you may form the impression as you listen to the testimony here that there is a lot of money involved, and there is, and that CEI takes in a very large amount of revenue, and it does. But, believe me, ladies and gentlemen, $20 million means a great deal to the Illuminating Company. It means that they have to go out and borrow the money for their working capital. It means that they either have to hold up their payroll or paying their suppliers or they have to go out and borrow money or sell more shares or something to get it in.

And we were here confronted by the ridiculous situation of the City of Cleveland yelling and screaming that we were abusing them, that they needed it in order to sell it, and after they get it, they won't pay for it and, moreover, they won't raise their rates at least equal to CEI, or whatever they have to do in order for customers to pay the cost of the service.

The fact of the matter is customers of Muny Light have not paid the cost of service since 1964 and they are not paying it now. And you will find that the Muny Light is still not paying its bills. And I submit to you that not getting paid is a valid business reason for not dealing. I do not think that the antitrust laws require you to give your product away.

During this same period the evidence will show they were selling this selfsame product to the customers of the Muny Light plant that they were getting the money and using it for other things and not paying for the energy.

Now, there are a number of other things I could talk about. You will hear a lot about the interconnection, that we made it hard for them,

we delayed it. Sometimes we did, sometimes we didn't, the evidence will show. But we think the evidence will be very clear that nothing that CEI did had the effect of delaying any interconnection of Muny Light once they started the construction of the interconnection.

There is no question but that beginning in 1971, when it's the first time they ever requested the kind of interconnection that they have today, we refused to deal with them until they paid their bills, and we think that this is only right.

There are going to be some other issues before you. One of them is the relevant geographic market. We think that it is the area we are in competition in. The area has not changed for 30 years. We think the Court's charge is the area in which the plaintiff actually competed with the defendant for customers or would have competed for customers except for any action of the defendant during the period July, 1971, to July 1, 1975. I am not aware of any evidence -- I shall be surprised if there is any -- I am not aware of any that we did anything to prevent them from

competing in areas beyond where we have competed for the last 30 years, and I don't believe that there will be any question in your mind when we get to the end of this but that the relevant geographic market is this 30-square mile area.

There are a number of other issues. I'm afraid that this case is going to last a long time. There is going to be a lot of evidence. I believe I have touched on the principal ones and I ask you to maintain an open mind until you get to the end.

THE COURT: Thank you, Mr. Lansdale.

Ladies and gentlemen of the jury, you have now heard the opening statements of counsel. The next order of business will be the presentation of testimony to through the witnesses, the introduction of physical exhibits and various stipulations that counsel have agreed to.

It is 4:30, which is the adjournment hour. I can't really tell but it looks like it's threatening outside, so perhaps we should get you hastily on your way.

Please keep in mind my admonition. You are

not to discuss this case either among yourselves or with anyone else until such time as you have heard all the evidence in this case. You are to keep an open mind until you have heard all of that evidence, the instructions of the Court and until such time as the matter is submitted to you for your final deliberation and your judgment.

Again, also keep in mind the Court's admonition that you are not to read any newspaper, listen to any radiobroadcast or view any television which addresses this case in any form or shape.

With that, ladies and gentlemen, thank you very much. Good-bye. Have a nice trip home. I hope you beat the rain. You are free to go.

You will report at 8:30. Thank you.

(The jurors left the courtroom.)

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(The following proceedings were had in the absence of the jury:)

THE COURT: Just one thing. I will repeat it for the jury in the morning. Again, to eliminate the possibility of any confrontation and to maintain the immunity of the jury as best that can be done, all parties -- I should say all individuals, including the parties and their

counsel and spectators utilize the northwest corridor for ingress and egress to the courtroom as well as the west elevators. The east corridor and east elevators will be utilized by the jurors. This is, as I say, to eliminate the possibility of confrontation and exposure of the jurors to the type of thing that the Court admonishes them not to do.

This has happened in other cases in the past. I appreciate your conformance with my request, gentlemen, or I should say order.

With that, thank you very much.

Is there anything further on behalf of the City?

MR. NORRIS: No.

THE COURT: Anything further on behalf of the defendant?

MR. LANSDALE: No, your Honor.

THE COURT: I would like to see counsel very briefly in my chambers.

(Court was adjourned at 4:35 P.M.)

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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF OHIO
EASTERN DIVISION

City of Cleveland v. C.E.I., et al.
Civil Action No. C75-560

Transcript

Tuesday, July 14, 1981

TUESDAY, JULY 14, 1981, 9:00 O'CLOCK A.M.

{The following proceedings were had in the absence of the jury.}

LAW CLERK SCHMIDTZ: The City of Cleveland, Plaintiff, versus the Cleveland Electric Illuminating Company, Defendant. This is Civil Action No. C75-560.

THE COURT: Is Mr. Pandy going to sit at counsel table today?

MR. PANDY: Yes, your Honor.

{Short discussion was had off the record.}

MR. NORRIS: Your Honor, we have stipulated this morning to four ordinances, 1948, 1950, 1951 and 1957. This has not as yet been given a number but I would like to file this with the Court and we will then assign the joint stipulation number subsequently.

THE COURT: Approach the bench, gentlemen, please. Mr. Norris, Mr. Lansdale --

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{The following proceedings were had at the bench:}

THE COURT: I don't know who the first witness is. I don't know if the Mayor is going to testify.

MR. NORRIS: No. It's Mr. Pandy.

THE COURT: I just wanted to remind you that I will request, if the Mayor is to testify, that you limit his testimony to the structure of Government and/or any other material matter. And if he is desirous of testifying to these other things, if they are material and relevant {inaudible}.

damages at the outset of the case.

That's all I have. And I would request both counsel to please ask proper questions so that we can eliminate the necessity of bench conferences as best we can.

MR. NORRIS: Your Honor, one question I would like to raise.

When we have an exhibit that's already been admitted and the jury hasn't seen it, we have it identified by the witness on the stand, let us say, what is the Court's pleasure?

I would from time to time request that at that point in the trial the document be read, either put on the screen so that the jury can see it or counsel be permitted to read it out loud without asking questions or have the Court read it. I would just like to find out what the Court's pleasure is.

THE COURT: I'm not going to permit that. We will be here indefinitely if I adopted that procedure.

What I will do is we will adjourn promptly at 4:00 o'clock. I will permit the jurors to view the exhibits of the day as long as they are desirous of viewing them on the day that the exhibits were identified and testified to. In the morning between 8:30 and 9:00 o'clock I will also make available to the jurors the exhibits of the previous day for further examination and in that manner they will have a current opportunity of examining all exhibits while the testimony is still in their minds.

To do what you are talking about, Mr. Norris -- and I have tried it on other occasions -- it's very distracting, very distracting. You are going to lose your jury. You are just going to lose your jury and lose the context of the testimony.

MR. NORRIS: Well, then perhaps I would raise this again on a very limited basis. If I have a particular document that I think is short and would not interrupt the continuity, I would want to raise it again.

THE COURT: You can raise it again

but I'm not going to depart from what I have ruled. So let's proceed.

MR. NORRIS: Okay.

{The foregoing proceedings were had at the bench.}

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{Thereupon, the members of the jury entered the courtroom.}

THE COURT: Please be seated. Ladies and gentlemen, we are ready to proceed with the taking of testimony; however, before we commence that I would like to make one little observation and notice for you and that is, to eliminate the possibility of any jury confrontations, I would request that all jurors in going to and from the building utilize this east corridor up to the break here and the east bank of elevators coming and going.

This short corridor together with the north corridor and the west corridor together with the witness rooms have been reserved for ingress and egress to the parties and their witnesses and spectators and so forth.

So with that, Mr. Norris, whomever, you are free to proceed.

MR. NORRIS: We call Mr. Joseph Pandy to the stand.

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JOSEPH PANDY,

of lawful age, called by the plaintiff for examination, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION OF JOSEPH PANDY

terms, capacity

BY MR. NORRIS:

Q Please state your full name.

A Joseph Pandy, Jr.

Q And what is your address?

A 6720 Faye Road, Painesville, Ohio.

Q What is your employment, Mr. Pandy?

A I'm the Commissioner of Light and Power for the City of Cleveland.

Q Otherwise known as Muny Light?

A Yes, sir.

Q How long have you been Commissioner of Muny Light?

A Just over a year, since April of 1980.

Q And what were you employed as prior to that time?

A My initial employment following college was with the

Cleveland Electric Illuminating Company in 1968.

Q And what were you doing for CEI?

A I first worked for CEI as an engineer in their Production Engineer Department doing test work on their plants, capacity testing, performance of equipment, that sort of thing.

Q And then when did you leave CEI?

A In 1971.

Q And where did you go?

A I became the Electric Power Superintendent of the City of Painesville, Ohio.

Q And how long were you there?

A Until October of 1977.

Q During that six-year period, were you the person in charge of the Painesville Municipal System?

A Yes, I was.

Q And you left in 1976?

A 1977.

Q 1977.

And where did you go at that point?

A I became the Manager of San Patricio Cooperative, a rural electric system in South Texas.

Q How long did you stay there?

A For about two and a half years.

Q What were your duties at the rural electric cooperative

in Texas?

A As the Manager of the cooperative, I was responsible for all of its operations, its construction, maintenance of the lines, reliable service to the customers, the financing of the system so that we had adequate funds to pay our bills, the receipt of payments from our customers, the whole utility service.

Q What is a rural electric cooperative?

A A rural electric cooperative is basically an electric system that's designed to serve rural areas mainly.

They're agricultural type areas, they borrow monies from the Federal Government to do their financing, and they serve very sparcely-populated areas.

We had less than three customers to each mile of our line.

Q And how long were you there in Texas?

A Two and a half years.

Q And when did you leave?

A In April of 1980, when I became the Commissioner of Light and Power for Cleveland.

Q Would you please state your educational background, Mr. Pandy?

A I have a Bachelor of Science Degree in Mechanical Engineering from Illinois Institute of Technology, and

I have a Master of Business Administration Degree from Ohio University.

Q Mr. Pandy, what different kinds of electric power companies are there in the industry?

A There are basically four types, categorized as the investor-owned utilities like CEI; the municipal utilities, like the City of Cleveland, Muny Light; rural electric cooperatives, like San Patricio which I had managed; and agencies of the Federal Government, like the Tennessee Valley Authority, probably the largest one.

Q Now, what are the three -- what functions are there in the electric power industry; what different functions are there to be performed?

A There are three basic functions.

The generation or the making of the electricity, the production of it; transmission, which is movement of the power at high voltages over large distances, generally done on steel power transmission lines; and the third function is distribution or the local delivery of power in neighborhoods to businesses, homes, customers.

Q Now, do all four of the types of electric power systems that you've identified all perform these same three functions?

A Generally they do, yes.

Q There has been testimony with respect to -- or there will be -- with respect to a kilowatt.

What is a "kilowatt," would you kindly describe that?

A "Kilowatt" is simply 1,000 watts to be made up by any combination that equals 1,000; ten 100-watt light bulbs, five 200-watt light bulbs, anything that you can -- quantity times the wattage would equal 1,000.

Q There will be testimony with respect to voltage.

Would you explain the concept of "voltage"?

A "Voltage" is simply the potential or electrical motive force that causes the electricity to flow.

The easy way to think of it is if you think of a water system, pressure causes water to flow; and in an electric system, the voltage causes the electricity to flow.

Q What is the function of a meter that would be on the side of a residential home that receives electric power?

A The meter is essentially the device that measures the electricity consumed by the customer.

Q What is a meter loop?

A A meter loop is all the equipment that's attached to the customer's premises to provide service to him.

It includes a conduit that protects the wire going into the customer's premises.

It has a socket for the meter to be placed in; and it has a weather head to keep water from getting into contact with the electrical parts of the loop.

Q Mr. Pandy, immediately to your left leaning against the wall is Plaintiff's Exhibit for identification 3209.

Would you kindly identify 3209 for the jury?

A This is a particular meter loop of which I have spoken. The weather head is the device at the top to seal the loop from moisture, weather.

Basically, these wires that are at the top of the loop would be connected to wires going out to the street to a transformer or distribution circuit.

The wire coming out the bottom of the loop would go to the customer's distribution circuit breakers or fuses, to a distribution panel in the customer's basement or utility room.

The meter socket, of which I spoke, is located here (indicating). The meter plugs into it with four prongs, similar to a duplex plug, and, as you can see, the wires are broken at this point so that, for the electricity to flow to the customer, it has to come through the meter. That's how the meter registers

the amount of electricity that is used.

Q Thank you, Mr. Pandy. Could you put that back against the wall, please?

{Witness complies.}

MR. NORRIS: And, Mrs. Richards, would you kindly put up on the easel Plaintiff's Exhibit 2077?

{The exhibit was placed on the easel.}

Q Mr. Pandy, on the easel --

MR. NORRIS: Mrs. Richards, would you remove those other exhibits so that the exhibit can be seen by the jury in its entirety, please?

Q Mr. Pandy, on the easel is Plaintiff's Exhibit 2077. Would you please describe the generation function, generation power function a little better in more detail using Plaintiff's Exhibit 2077?

A This exhibit shows the common method of electric generation or the making of electricity. In our Northeastern Ohio area the most common fuel used in the generation of electricity is coal because of its abundance in this area.

Coal would come to an electric plant via train or truck, it would be dumped at the plant in a dumper house, conveyed up into the plant on a conveyor belt

and put into a bin to have adequate coal on hand.

The coal is then generally pulverized or ground up to a consistency similar to powdered sugar. It is then blown by large fans into a boiler.

The boiler is simply a very large furnace. The walls of the boiler are tubes, they are pipes that are filled with water, and as the coal is burned in the furnace area of the boiler, the release of that heat turns the water into steam. The steam is piped to a steam turbine. The steam turbine is similar to a jet engine. It's a series of blades like fan blades.

Q Could I interrupt you, Mr. Pandy, and ask Mrs. Richards to hand you Plaintiff's Exhibit 3058.

That's the one. That's the one.

Mr. Pandy, perhaps you would continue with your explanation using both exhibits as you please.

Is that the proper number?

A Yes, Exhibit 3058 is helpful.

It shows the turbine blading that I just spoke of, this series of wheels of blades, and as the steam at high temperature and pressure enters the turbine it strikes these blades and causes them to spin similar to blowing on a pinwheel for a simple example.

These blades turn at high speed, generally at

3,600 revolutions per minute.

The turbine is connected by a shaft to a generator, shown in this area of the chart.

The generator is a large electromagnet that is spun through a coil of wire, and as it is spun it provides the electric power.

Q What other fuels --

A And that's represented here as the power coming out of the generator to a transformer. Basically, the generation function ends at the plant.

Q What other fuels can be used, Mr. Pandy, to generate electricity?

A Well, there are a number of fuels that could be used instead of coal. You could utilize oil, natural gas, nuclear power is coming into wider use.

Q And did you mention hydroelectric power?

A Hydro power is also common, as was mentioned earlier. The PASNY power that we receive is the power of water striking a turbine to help combust it.

Q What difference does it make to the electric power company as to what kind of fuel is used for the generation of electricity?

A Well, there are several differences. The plants vary, the cost, depending on what type of fuel you are

utilizing. Obviously, handling coal involves different equipment than handling oil in a pipe.

So, the plants will vary, the cost, they will vary in reliability, they'll vary in their environmental effects and in other aspects.

Q What happens to the electric power after it is generated?

A From the generating plant, power is normally produced at a voltage in the area of 13,000 volts. The voltage is increased by putting the power through a transformer.

The transformer can be used to increase or decrease voltage and, normally, the voltage is stepped up to a level such as 132,000. It can be as high as 345,000 in this area.

That high voltage electricity is then transmitted out over the steel power lines of the transmission network to various substations.

Q What is the function of a substation?

A At a substation, power is regulated. Normally it is reduced at a substation by passing it through another set of transformers to reduce it from that high voltage back into the range of 13,000 to 33,000 volts for distribution on local circuits.

The substation normally has other equipment

besides a transformer. It has switches, circuit breakers, metering equipment to know how much power is flowing through the substation, things of this nature.

Q Would you then describe the distribution function using Plaintiff's Exhibit 2077?

A The distribution occurs from the substation at these 13,000 to 33,000 volt levels. Circuits are then routed into local neighborhoods normally on wood pole lines and in some modern construction underground.

Those distribution circuits will be on the order of anywhere from 2,000 to 13,000 volts, and then those circuits are reduced by transformers on these wood poles down to 120 or 240 volts for the consumer's usage. For commercial and industrial applications this secondary voltage might be 480.

Basically, you are reducing the power, reducing the voltage down to levels that are acceptable to operate appliances.

Q Would you please explain what is represented by the middle area of Plaintiff's Exhibit 2077?

A This is another form of transmission. As mentioned, you have a 132,000 volt transmission. In today's technology, 345,000 volt transmission is common.

The voltage as low as 13,000 can be put through a transformer, increased up to 345,000 volts for transmission of larger amounts of power over greater distances.

Q Thank you, Mr. Pandy. Would you resume your seat, please.

Can electricity be stored?

A Generally not in any significant quantity.

Q Well, what's the exception to that? You say generally not. To what extent can it be stored?

A Simple batteries store electric energy, but they store it in a very limited amount.

Q How does an electric power company know how much power to produce?

A Well, electric companies keep historical records, logs of what their customers have typically used over a period of time so that they know that at certain times of day people will use more electricity than others, and the generating plant has indicating meters that show the total load for the total usage by all of the customers of the utility, so the system operators know what's being used at any point in time.

Q What is meant by the term capacity for a generating plant?

A Capacity is the ability of the generating plant to meet its load. It is the rating of the plant, the boilers and turbogenerators that produce the electricity.

Units might be rated at 25,000 kilowatts or 25 megawatts and on up in size. Each unit has its own capacity.

Q And do you sometimes talk of the capacity of an entire generating station?

A Yes, you would.

Q And would that, then, be the addition of the capacity of each of the individual units?

A Yes, you'd simply add up the units. If you have a plant that has two 25-megawatt generators and one 15-megawatt generator, you'd say that was a hundred megawatt plant.

Q What do you mean by the expression "on line"?

A "On line" refers to the availability of the generating equipment. It is running. It is another way to say on line, it is available capacity ready to meet the needs of electric customers.

Q What is the meaning of the term "load" in the electric power business?

A "Load" is simply the requirements that the customers place on the utility, the combined usage of

electricity by all the customers of the utility.

Q Does load for an electric power company vary during different times of the day?

A Yes, it does.

Q What is the meaning of the term "demand"?

A "Demand" is the total of all the individual loads of the customers, the maximum amount of electricity that the utility has to produce at any moment.

MR. NORRIS: Mrs. Richards isn't here -- Oh, there she is. I'm sorry.

Mrs. Richards, would you put up on the easel Plaintiff's Exhibit 2705, the Daily Load Curve?

{Plaintiff's Exhibit 2705 was placed on the easel.}

Q Mr. Pandy, would you step to the easel and explain what is represented by Plaintiff's Exhibit 2705?

A This is a typical load curve for the City of Cleveland's system. The chart along the bottom shows various hours of the day, beginning at midnight, through noon, and then back to midnight again.

The vertical line on the chart shows the load of the municipal system in megawatts. That's million watts. We have some fairly big numbers here.

So the load starts out at midnight on the system

on this particular day at about 75 million watts around midnight. Then as we get into the early morning hours the load drops off as more people are turning off "The Tonight Show" and reclining and lights are turned off, and so forth.

The load hits its lowest point about 4:00 o'clock in the morning. It's down to about 60 megawatts.

Then gradually, as people get up and start to use the stoves to cook breakfast and hot water tanks to shower, and so forth, the load begins to come up. It comes up much more quickly in the area of 6:00 o'clock to 8:00 o'clock in the morning. It reaches a minor peak in here slightly before noon. It drops off a little bit as some businesses close down over the noon hour.

Then it fluctuates during the day, tailing off toward 5:00 o'clock in the evening as many businesses close about this time. Then as people go home and go through again the use of residential appliances -- cooking, et cetera -- the load increases.

You also see here the effect of street lights coming on, and the load peaks then in the evening at about 7:00 o'clock p.m. and gradually drops off thereafter as people begin to use less electricity.

It drops off again to the point of midnight at about the 75 megawatts that the day started with.

Q Mr. Pandy, does an electric power company's daily load curve vary depending on the kind of customers that it typically serves?

A Yes, it does. As I mentioned, Muny's load curve comes up with the street lighting, so it peaks toward evening.

A utility with more industrial load, a lot more business type load, might peak during the day.

So this curve could vary, depending on the utility.

Q Mr. Pandy, does the demand for electricity also have variations month by month throughout the year similar to the variations in daily demand that you have just described?

A Yes, it certainly does.

Q There is a pad of paper underneath that exhibit.

Would you kindly demonstrate, just with a drawing, the way in which loads would vary from month to month?

(The witness making a rough drawing on the pad on the easel.)

A Using the same concept as the other chart, the load,

again, is on the vertical line; and here, instead of hours, we have the various months of the year.

I tried to show the concept that loads will be high in a winter type of season, like in January, people have more hours of darkness or people have their lights on longer, furnaces are running, they have Christmas lighting, stores open longer; so the load will be at a high point around this time of year.

Gradually, as the winter becomes less severe and you get into spring, you have less operation of the furnace, you have less lighting, and so forth, the load will drop off.

It will then again increase in the summer months due to air conditioning. People run fans or air conditioners, that will cause a peak on the system.

And, again, the loads will moderate in the fall with the temperatures that are comfortable without the use of space condition equipment.

So the load basically has peaks and valleys through the seasons.

Q Mr. Pandy, do those seasonal changes in demand effect in any way the operation of an electric power system?

A Yes, they do.

Q Would you explain, please?

A Well, in the peak times, we obviously have to have more generating capacity available to meet these loads.

In the easy times, the low-load times, are the times that utilities normally try to schedule their maintenance, take a boiler apart to do preventive maintenance or repairs on it.

So, normally, the utility will use its low points for maintenance.

Q Please explain how a system operator -- you can be seated.

(The witness returns to the witness stand.)

Q How would a system operator determine which units to leave on line to meet loads?

A Normally, the utility operator tries to operate the most efficient equipment he can.

By "efficient," I mean the units that will produce the electricity for the lowest cost.

So, normally, those will be his newest units, it will generally be the larger units that require fewer pounds of coal to produce each kilowatt hour.

Q You've mentioned the matter of maintenance, Mr. Pandy.

What sort of maintenance is required in an electric power generating station?

A Well, an electric power generating station is a complex of mechanical equipment, -- I mentioned coal conveyors, fans, pumps, all of these things are expected to run through the major portion of a year to produce electricity.

So, normally, once or twice a year the plant has to be taken down and gone over thoroughly to do preventive and replacement work on it, to replace bearings that may have worn, to replace parts of the conveying system that may have been damaged by the wear and tear of the coal, to clean the boiler, see that all of the passages in the boiler are free of ashes, things of this nature.

Q What frequency does -- take different units, take a boiler, take a steam boiler, what frequency of maintenance is normally required for a steam boiler?

A Generally, once a year a boiler would be cleaned and maintained.

Q What about a generator such as you've described, what kind of maintenance program is normal for a generator?

A A generator normally only has to be overhauled about every five years, four or five years.

Q Would you please explain the meaning of the term "reserve generating capacity"?

A Reserve generating capacity is, as the name will tell you, spare capacity that -- capacity that you have available for backup of normally-operating equipment.

Q Please explain the meaning of the term "firm generation"?

A "Firm generation" is an electric utility term that is used in planning.

The utility has to be able to serve all of its customers 24 hours a day throughout the year. Customers expect that, no matter what happens.

So in planning its generating units, the utility has to assume the worst of conditions:

What if our biggest generator were to break down today?

So in designing a system, the firm capacity is that capacity which would be available in the event of loss of the single largest unit on the system.

Q How does an electric power company determine how much reserves are necessary?

Q Well, it generally has to have reserves equivalent to its largest unit to follow that firm capacity planning that I just described.

We come back to my example of if the utility had a 50-megawatt unit serving 50 megawatts of load, it has to be prepared for that unit to break down at any instant:

The unit could be hit by a storm; something could break in the mechanical systems. So it would have to have two 25-megawatt units or the equivalent of 50 megawatts in reserve.

Q What is the meaning in the electric power business of "interconnection"?

A "Interconnection" is tying together of two electric systems normally with an interconnection substation so that they can mutually exchange power.

Q What is meant by the term "isolated utility"?

A "Isolated" means you're all alone, you have no interconnections, you're totally dependent on the generating station that you're operating by yourself.

MR. NORRIS: Mrs. Richards, would you please put up on the easel Plaintiff's Exhibit 3207?

{Mrs. Richards complies.}

BY MR. NORRIS:

Q Mr. Pandy, can an isolated system use various groupings of generating units to meet its firm power requirements?

A Yes, it can.

Q If so, would you please explain, using Plaintiff's Exhibit 3207?

Q Well, this exhibit shows --

MR. NORRIS: Excuse me just a minute.

Your Honor, there is a glare on that. I want to make sure that's not glaring for the jury.

THE COURT: Ladies and gentlemen of the jury, are you able to see the exhibit?

(The jurors nodded their heads in the affirmative.)

MR. NORRIS: Thank you, your Honor.

A This exhibit shows three possible schemes for an electric system to serve a load of 10 megawatts in each of them.

Q Are these systems isolated or interconnected?

A These are isolated systems. They are operating on their own.

Q On the exhibit how are those systems designated?

A Systems A, B and C.

Q All right. Continue, please.

A The exhibit uses these blue blocks to represent

generating units of various ratings. The larger blocks are bigger generators, these being 10 megawatts of capacity.

System A has two of those because, to serve 10 megawatts of load in a firm capacity situation, it has to plan for the possibility that one of these units must break down at any time and not be available. So it has to have a 10-megawatt unit to serve the load and a spare.

System B, to serve the same 10-megawatt load as System A had, has three 5-megawatt units. Again the firm planning criterion is, what is the worst thing that could happen if one generator breaks down, and you still have the two to be able to meet the 10 megawatts.

System C serves 10 megawatts with eleven 1-megawatt units because in its planning it assumes one machine breaks down and the other ten are still available to meet the 10-megawatt load.

Q. Which is the best system for meeting a 10-megawatt load, the system used by A, the system used by B, or the system used by C?

A It depends on several factors, but generally System A will have advantages. By building larger units it

gets the benefit of economies of scale.

Each of these units would normally have to have a set of fans, pumps -- all the equipment that goes with the unit. Normally, they would each have operating people, maintenance people. So there would be generally more costs associated with running a number of small units as opposed to a couple of large units.

A simple analogy is if you wanted to transport six people on a highway, is it cheaper to do it with a big station wagon or six smaller vehicles? Normally, you would opt for one large device.

Q Are there any disadvantages that System A would experience that System C would not experience?

A Well, the disadvantage for System A is that it's investment and reserves at 10 megawatts is the same size as its load and its main unit so that it has to buy 10 megawatts of spare capacity, whereas System C has only one megawatt of spare capacity, so it has -- System C has less investment in reserves.

Q How does a utility which is interconnected and not isolated, how does an interconnected utility determine what reserves are necessary?

A It does so in cooperation with the other utility to which it is interconnected. They jointly plan their

reserves.

Q Mrs. Richards, would you please put up on the easel Plaintiff's Exhibit 3208?

Please explain what Plaintiff's Exhibit 3208 represents.

A This exhibit shows --

MR. LANSDALE: May I approach the bench if your Honor please?

THE COURT: Approach the bench.

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(Thereupon, the following discussion was had at side bar out of the hearing of the jury:)

MR. LANSDALE: I'm sorry. If your Honor please, Mr. Norris has fooled me by putting a paper over where "pool" was which I was about to object to.

MR. NORRIS: No, no.

MR. LANSDALE: May I say one other thing?

MR. NORRIS: But he's going to take it off, so you might as well go ahead and state your objection.

MR. LANSDALE: I object to testimony about pool operation. There is no evidence as far

as I know of any prospective or hoped for or claimed pool operation in connection with the case as it now sits, and I object to the description of a pool operation.

MR. NORRIS: The exhibit, your Honor, shows two systems and so the use of the word "pool" is simply a pool of two systems. And the reserve sharing that CEI proposed to Muny Light as early as 1962 involved reserve sharing, so the --

MR. LANSDALE: But --

THE COURT: Just a minute.

MR. NORRIS: So the purpose of this Exhibit is to permit the witness to describe the reserve sharing between two systems versus isolated operations involving two systems.

MR. LANSDALE: There is no reserve sharing ever been proposed to Muny Light by CEI. I know of no instance in which reserve sharing is claimed here.

Do we call it reserve sharing anywhere?

MR. NORRIS: Mr. Lindseth's letter to Mayor Locher, Plaintiff's Exhibit 486 talks about the pooling of personnel and equipment in

times of emergency. It also talks about the mutual standy for emergency purposes and that is reserve sharing.

MR. LANSDALE: No, it is not.

THE COURT: Sustain the objection. There certainly is nothing in here about pooling or CAPCO or a number of utilities.

Now, if you are desirous of pursuing this line of questioning in the context of two utilities which constitute the issues joined in this case, the remaining issues joined in this case, feel free to do so.

MR. NORRIS: Well, that's all I'm going to do, and to satisfy that objection I will leave the label over the word "pool."

THE COURT: Okay.

MR. LANSDALE: All right. May I say one other thing?

Your record is going to be bad, because your witness without designating A, B or C was testifying by pointing at the various things. I want to call your -- invite your attention to that.

MR. NORRIS: I understand.

THE COURT: You better clarify it

for the record so it is clear on the record.}

{The foregoing proceedings were had at side bar out of the hearing of the jury.}

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BY MR. NORRIS:

Q Mr. Pandy, just for the record, when you were using Plaintiff's Exhibit 3207 and you were referring to Systems A, Systems B and Systems C, that's the previous exhibit, and you were pointing to that exhibit, is it correct that when you were pointing to the exhibit meaning System A you meant System A as shown on Exhibit 3207 and the same for System B and System C?

A That's correct.

Q Now, addressing your attention to this exhibit, Mr. Pandy, the --

THE COURT: Are we talking now about 3207?

MR. NORRIS: No, your Honor, I'm now addressing his attention to Plaintiff's Exhibit 3208.

THE COURT: 3208, all right.

MR. NORRIS: Which is entitled two systems.

BY MR. NORRIS:

Q Would you kindly describe how utilities which are interconnected can engage in reserve sharing?

A In this exhibit representing two systems, just to keep with the same numbers, I would assume all of these are the same size units of 10 megawatt capacity just as System A was in the previous exhibit.

If these two electric systems each have to serve their own load in an isolated load, no physical electrical interconnection between them, they each have to operate as System A did in the previous example. They have to have 10 megawatts to serve the load and 10 megawatts as a spare, same thing applies for System B.

So in total, they have 10, 20, 30, 40 megawatts of capacity, 20 of which, two units, are reserves, and those reserves are equal to the load of the two systems, 10 plus 10 or 20 megawatts.

Now, if you interconnect those two systems as represented by a line, electronically linking the two of them as here, they still have 10 and 10 or 20 megawatts of load out here, but, again, using the firm capacity concept, they lost one unit they've lost just 10 megawatts so the reserves are

equivalent to that unit at 10, and they now have 30 megawatts of assured firm capacity available to serve the combined loads.

Their reserves are only a third of their firm capacity as opposed to 100 percent of it when they were isolated.

So, by linking them with an interconnection you decrease their investment in reserves by one unit and you increase the available capacity that can be distributed to customers by one 10-megawatt unit.

Q Using that same exhibit, 3208, let me ask you this question:

Can two interconnected utilities such as depicted there with that line between System A and System B, can those two interconnected utilities engage in transactions other than reserve sharing?

A Yes, they can. They can.

Q What kinds of transactions are now available to System A and System B that were not available to them when they were each operating in an isolated load?

A They can coordinate their maintenance activities. They can mutually buy and sell power in what is normally called economy interchange. They can jointly plan the construction of new generating units

as they are required.

Q Let's take the first of those that you have mentioned, the coordinating of their maintenance operations.

Can you explain what you mean by that?

A By coordinated maintenance we mean that utilities that were separated act as one and they plan, so that if Utility A needs to maintain one of their generators in April, Utility B doesn't do maintenance at the same time. Say, for example, System A would do maintenance on a unit in April and the other system would take its unit out for maintenance in May.

Q What is the meaning of the term "maintenance power" in the electric utility business?

A "Maintenance power" is that power which is supplied by one system to another when one of the systems is doing maintenance work on its equipment.

Q Mr. Pandy, you also mentioned "economy interchange" in your answer a moment ago.

Would you kindly explain what you mean by "economy interchange"?

"Economy interchange" simply means that two utilities try to operate the least expensive unit on the system.

For example, if Utility A had a unit that could

produce a kilowatt hour for 2 cents and Utility B had an older unit that cost 4 cents to produce a kilowatt hour, Utility B would be able to shut this piece of equipment down, Utility A would supply electric energy over the interconnection to the load of Utility B.

They would normally sell this electricity for 3 cents per kilowatt hour. So it would make one penny per kilowatt hour over its cost, but Utility B would be getting the power at one penny cheaper than it could produce it with its own equipment. So that would give both utilities a benefit in the process.

Q You mentioned "coordinated development." What do you mean by the term "coordinated development"?

A "Coordinated development" is the joint planning of generating units by the utility.

Q What is the meaning of the term "wheeling" in the electric power business?

A "Wheeling" is very simply the transmission of electricity from one utility to another. It's transmission at high voltages of large blocks of power.

Q Could wheeling of power take place between System A and System B, assuming that there were two or three

other utility systems between the two of them?

A Yes, it could.

MR. NORRIS: Mrs. Richards, would you put up Plaintiff's Exhibit 2703?

THE COURT: What is the exhibit?

MR. NORRIS: 2703, your Honor. It's entitled "Interconnected Operation."

THE COURT: Thank you.

BY MR. NORRIS:

Q Mr. Pandy, on Plaintiff's Exhibit 2703, on the left is identified Utility X and on the right is identified Utility Y.

Using that exhibit, how would it work for electric power to be wheeled between Utility X and Utility Y?

A This exhibit shows four utilities, X, A, B and Y, each of which would own the facilities within the dotted area of its system.

All four of these utilities are interconnected by means of these lines and, if Utility X, for example, wanted to buy power from Utility Y, that power would be first put out on Utility Y's lines, then wheeled over the lines of Utility B and wheeled over the lines of Utility A for ultimate delivery to the customers of Utility X.

Q And in the electric power business, Mr. Pandy, is wheeling a customary thing?

A Yes, it is.

Q And is there normally a fee paid? In this illustration, using Plaintiff's Exhibit 2703, would there be a fee paid to Utility A and a fee paid to Utility B for the wheeling of power from Y to X?

A Yes, there would be a fee, normally based on how much power was wheeled and how far it was wheeled.

In effect, the utilities that are exchanging power are paying a rental charge for the use of the facilities of the two intermediate utilities.

Q Mr. Pandy, in this illustration could Utility X purchase maintenance power from Utility Y?

A Yes. It could, if it wanted to, for example, shut down its whole generating plant to maintain the whole plant.

In this interconnection arrangement Utilities A, B and Y, which you referred to, could also supply power to the customers of Utility X even with its equipment down for maintenance or other breakdowns.

Q Using that same illustration, could Utility X purchase economy power for Utility Y?

A Yes, it could, similar to the example I gave previously.

If Utility X had a unit that cost 4 cents for production and Utility Y had a 2-cent unit, it would make sense for Utility Y to sell to Utility X at 3 cents, thereby saving them a penny and allowing Utility Y to make a penny.

MR. NORRIS: You can resume your seat, Mr. Pandy.

Q Would you explain the meaning of the term "staggered construction"?

A "Staggered construction" is basically a concept where utilities take turns --

MR. LANSDALE: Object, if your Honor please.

THE COURT: Approach the bench.

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(The following proceedings were had at the bench.)

MR. LANSALE: I realize, if your Honor please, that these are just, allegedly, abstract definitions but what has staggered construction have to do with this case?

MR. NORRIS: Mr. Lindseth's testimony will involve the staggered construction agreement they entered into with Ohio Edison, and I just

wanted to explain the term.

MR. LANSDALE: I'm sorry. What has that got to do with this case?

I don't care if you tell me Mr. Lindseth will be examined about it. This has to do with a cooperative arrangement between those utilities and has no application to this case.

MR. NORRIS: Mr. Lindseth testified one of the benefits of interconnection was it permitted staggered construction, and I think that should be explained before that question is put to Mr. Lindseth.

MR. LANSDALE: There's no claim --

THE COURT: Sustain the objection. Let's proceed. Sustain the objection.

(The foregoing proceedings were had at the bench.)

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BY MR. NORRIS:

Q What is the meaning of the term "coordinated operation"?

A "Coordinated operation" is the joint planning and operation of utility systems by several different utilities.

Q Do many electric power companies operate in isolation?

A No, they don't.

Q Could an interconnected electric power company coordinate with any other electric power company even if the two are not directly interconnected with each other?

A As long as there are interconnections in place, utilities can coordinate with each other.

For example, on the chart --

Q The chart you are referring to is 2703?

A Yes. If I may refer to it, in this chart Utility X can coordinate with Utility Y even though Utility X's direct interconnection is with Utility A at this point. But as long as all of these systems are tied together, one to the other, they can all coordinate together, even though the physical tie point of X is with Utility A. It can still do its operations in coordination with B and Y.

Q Are interconnected operations technically difficult?

A No, they're not.

MR. NORRIS: No further questions, your Honor.

Oh, yes, I'm sorry.

BY MR. NORRIS:

Q I did want you to explain the meaning of the term "kilowatt hour"?

A "Kilowatt hour" is simply kilowatt used for one hour.

The earlier definition I gave of kilowatt being one thousand watts, anytime you use one thousand watts for one hour, you've used a kilowatt hour, which is what the meter registers, and for which you would normally be charged about 5 to 6 cents per kilowatt hour.

MR. NORRIS: No further questions.

THE COURT: Cross-examination.

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CROSS-EXAMINATION OF JOSEPH PANDY

BY MR. LANSDALE:

Q Mr. Pandy, you worked for the Painesville system -- or you managed the Painesville system from 1971 to 1976?

A That's correct.

Q And during that period, an interconnection was established between Painesville and CEI, was it not?

A Yes.

And I would like to correct the previous answer; I worked there till '77, not '76.

Q I'm sorry, my notes said in '77 you went to -- so it was sometime in 1977?

A Yes.

Q What year was interconnection with CEI established?

A In 1976.

Q What time, the latter part of the year, first part of the year, what?

A It was the latter part of the year.

Q The cooperative that you managed in South Texas, what was the maximum load of that system?

A It was approximately 28 megawatts.

Q And did it have any generation?

A The cooperative, San Patricio Electric Cooperative did not have generation of its own; but it was a member of the South Texas Electric Cooperative, which was an affiliation of six co-ops like San Patricio, that jointly owned generation.

Q So that your particular cooperative was, in effect, part of an organization that together owned generation.

How much generation did it own?

A When I first arrived, its generation was approximately 50 megawatts, and it had under construction a

400-megawatt plant of which South Texas owned half or 200 megawatts.

Q Now, so far as your operation was concerned, you were, in effect, operating a distribution-only utility?

A In Texas, that's correct.

Q In Texas, that's correct?

A Yes.

Q And your -- how long was your experience with an interconnection at Painesville?

A I would say it was on the order of five years because in 1972 I became involved in the City's negotiations to get an interconnection.

Q Mr. Pandy, you told me that you got the interconnection in 1976?

A Yes, sir.

Q How long did you have experience in the operation of an interconnection while at Painesville?

A In the operation of one, about one year.

Q You stated, I believe, that -- you described to us four types of electric utilities?

A [The witness nodded his head in the affirmative.]

Q And then you described to us the three functions of production or generation, transmission, and distribution.

My notes show that you stated all generally perform these three functions, that is, production, transmission, and distribution.

Were you referring to all utilities or all types of utilities?

A I wa referring to all types.

Q All types of utilities.

You did not mean to imply that all utilities, generally speaking, perform these three functions?

A No, I did not.

Q All right.

In your description, I think, of the coal power production and the light bulb, where you showed the coal, and you took it through production, transmission, and so on, the only transmission which you told us about was 132 or 345 volts, --

A Kilowatts.

Q -- and kilowatts. And the -- there are other voltages used normally in transmission, are there not, such as 230,000 and 69,000?

A That's correct.

Q And the lower the voltage, generally speaking, the lower the cost of construction per geographic unit like per mile or per half mile, something of that kind?

A Generally, that would be true.

Q Generally speaking?

{The witness nodded his head in the affirmative.}

Q However, the one -- let me divert for a moment here.

You described or told the jury what you mean by voltage, but there is another aspect to electricity which we call the current, do we not?

A Yes, sir.

Q You didn't define what that was that distinguished from voltage. Will you do that, if you can?

A Current is normally measured in amperes or amps. It can -- again, going back to my water analogy where voltage in the water concept is pressure, current is the flow.

Q It is the gallon, right?

A The gallons.

Q The gallons, all right.

A The gallons per minute.

Q And the difference in the size of the transmission line depends upon the economics involved in how many gallons or how many amperes you have to transmit; does it not?

A That and a number of other factors, yes, sir.

Q Well, the amount of amperes that can be transmitted or the amount of current varies as the square of the voltage; does it not?

A Yes, if you are referring to the --

Q So that --

A -- the I squared are losses that occur on the transmission line; that's correct.

Q Right, so that when you increase the voltage by twice, you increase the amount of quantity of energy that can be carried by a lot more than twice; do you not?

A No, sir, I don't believe you do.

Q If you double the voltage, you don't increase by the square of the voltage, Mr. Pandy?

A Well, the amount of power that the line can carry is a product of the voltage times the current, the amperage.

Q The square of the voltage times the current; is it not?

A No, sir, it is not.

Q I ask you to give consideration to this during the recess, Mr. Pandy. I put it to you that the amount of energy carried increases as the square of the voltage increases rather than equally with the increase in voltage so that on a -- on a 132-volt line you carry a lot more current than twice the amount you would

carry on whatever half of it is.

MR. NORRIS: Is there a question before the witness, your Honor?

MR. LANSDALE: I put it to him that that is the fact and if you don't know, look it up or think about it during the recess.

THE WITNESS: I think I can answer, your Honor.

A I believe what you are referring to is the losses, the I squared, the current squared times the resistance is a measure of the loss that occurs on the transmission line.

Q That's the losses. That doesn't have anything to do with the quantity of the current carried, does it, except that the loss is varied with the quantity, but I'm talking about, Mr. Pandy, about the amount of current carried in a 132,000-volt line as compared with a 69,000, for example, or a 345 as compared with a 132.

Do you understand what I am getting at?

A Yes, I do.

Q All right.

A And my answer is that if you double the voltage you double the amount of power that you can carry.

Q I request that you consult a text during the recess, will you?

A I'd be happy to.

Q Will you do that for me?

A Yes, sir.

Q Now, you testified that the utility's record keeping assists you in -- or assists the utility in exercising judgment as to how much energy is going to be used at 7:00 o'clock at night as distinguished from 10:00 o'clock in the morning or 3:00 o'clock in the morning or so on.

There is another facet, is there not, to the study of the amount of energy to be used, and I'm referring to the projection or forecast of the amount of energy that the utility customers will require in a year or two years or three years from now. This is a continuing problem for a utility involved, particularly one involved in generation; is it not?

A Yes, if you are referring to an annual load forecast, it is a continuing problem.

Q Well, you related to us that one of the problems of a utility was making sure that it had the energy which its customers required when they required it; did you not?

A Yes, sir.

Q And, of course, one of the characteristics of the electric business is that electricity can't be stored as you related, so that when the light bulb goes on it has to be instantly manufactured; is it not so?

A Yes, sir.

Q And that is one of the -- that is the unique characteristic of the electric utility industry, that the manufacture and consumption are virtually simultaneous; isn't that so?

A Yes, sir.

Q And that means that the utility not only has to have good judgment as to how much energy will be taken at 9:00 o'clock tonight, but they have to have some judgment as to how much energy will be required three years from now or five years from now; is that not so?

A That's correct.

Q And the planning required into the future is very substantial for an electric utility; is it not?

A Yes, sir.

Q And when we say very substantial, we mean two, three, four, five and ten years ahead planning must be done

in order to be sure that the facilities are in place when the customer pulls the switch on the light bulb; is that not so?

A Yes, sir.

Q Now, you referred to demand.

Mrs. Richards, would you do me a favor and get out the chart that shows the load curve? I think it is 2705.

I want to get a little bit more detailed definition of the word "demand." Just take at any point on that chart, just pick one, pick the morning peak there, if you will. No, the morning peak.

The amount of energy which is shown there is referred to as a demand at that hour at that time; is it not?

A That's correct, the demand --

Q And -- excuse me. I didn't mean to --

A I was just going to say, the demand at that point is about 94 megawatts.

Q That's right.

And so the term "demand" refers to the rate at which electric energy is being demanded by the customers at any particular time, right?

A Correct.

Q Now, in this same connection with the term "demand", there is a term you did not define, but I would like you to, called "load factor."

And if you draw -- take the evening peak there, Mr. Pandy, on the right. The evening peak. Evening peak.

A Sorry.

Q And if you draw a straight line clear across the 24-hour period there -- that is 24 hours, isn't it?

A Yes, sir, it is.

Q -- the 24-hour period and said that was the load curve, we would refer to that as 100 percent load factor; would we not?

A Yes, sir.

Q And so, that load factor is the ratio of the space under the curve that is on that chart and this imaginary 100 percent, the space under this straight line across or the 100 percent; is it not?

A {Nods affirmatively}.

Q So that -- you are nodding your head. You have to say it. The record has to show it.

A Yes, sir, it is the integral of the curve.

Q All right. So that if you take at the maximum demand

for half of the 24-hour, we refer to that as the 50 percent load factor; do we not? Is that correct?

A If you use the maximum demand for --

Q For half of the time.

A -- half of the time period and nothing for the rest of the time period, that would be a 50-percent load factor.

Q That would be a 50-percent load factor, and we can use this terminology in respect to any time period; can we not? An hour, a day, a month, a year, right?

A You can have a daily load factor, a monthly load factor, that's correct.

Q Right, right. All right. Thank you. I didn't mean to stand you up there.

Now, Mr. Pandy, you referred to what may be done with an interconnection, and you were referring, were you not, at that time to what we call a synchronous interconnection?

A Yes, I was.

Q And a synchronous interconnection means one in which the generators on one system are operating at exactly the same speed or in synchronism with the generators on another system; is that not so?

A That's correct.

Q And when this characteristic obtains, the interconnection is live at all times, is it not?

There may be a minimal flow or almost no flow, but it varies from moment to moment and hour to hour, does it not?

A That's correct.

Q And thus, if an emergency arises on one of the systems, the interconnection will permit power instantly to be supplied over the interconnection, provind ghtere is sufficient available in the adjacent system; is this correct?

A Yes, sir.

Q And, of course, if it so happens at the time that the other system is loaded up to its maximum capacity, what will happen is that if this demand is placed on the interconnection, the relays will operate and the system will disconnect; right?

A It will depend on the circumstances of the other utility, whether it was interconnected to beyond one interconnection.

Q Can you imagine a situation, Mr. Pandy, in which the adjoining system is operating at its total available capacity, whether interconnections or not?

A Yes.

Q And in that event, if another system has an emergency and put the deamdn on it over a synchronous interconnection, the relays will automatically disconnect, will they not?

A Depending on their setting. They could, yes.

Q Now, similarly, we had been talking about generating capacity and the other facilities of a utility have their limits to capacity, also, do they not?

A All systems have their limits, yes.

Q We-l, I mean you can't put 132,000 volts over an extension cord that we use in the house for Christmas tree lights, can we?

A Yes, that's certainly a limit on that system.

Q That's beyond the capacity of the system, is it not?

A It certainly is.

Q And when we are dealing with interconnections, these interconnections are of different capacity depending upon the capacity that is built into it; is it not so?

A That's true.

Q And even though the adjacent system has ample generating capacity or other interconnections, if the interconnecting facilities -- be they transformers, the size of the wire or what have you -- are insufficient to carry the demand placed on them by

our theoretical emergency of the adjacent system, similarly, if you've got protective devices in place, the relays will operate and the system will disconnect, will it not?

A Yes.

Q Now, Mr. Pandy, are you conversant with the usual and general terms of an agreement between two utilities for emergency service through synchronous interconnection?

A Yes, sir, I am.

Q It is true, is it not, that each and every interconnection and each and every arrangement between utilities over an interconnection requires a contractual arrangement; is this correct?

A Generally, that's true, yes.

Q And these contractual arrangements are reduced to writing and filed with the Federal Power Commission, or as we now know it the Federal Energy Regulatory Commission, in Washington for all interconnections that involve interstate transactions; is this not correct?

A Yes.

Q And today almost every area between utilities, except in Texas, involve interstate arrangements, do they not?

A That's true.

Q And one of the terms in an arrangement for emergency interconnection or for emergency power is that the utility called upon for the emergency supplies the energy when, as and if available; is this not so?

A That language is used.

Q Beg pardon?

A That language has been used in interconnection.

Q That's the normal language for emergency arrangements, is it not?

A I would say so, yes.

Q Yes. And this is different than the arrangement which you defined as firm power, is it not?

A Yes, it is.

Q And the arrangements between utilities which are interconnected can have many facets, can they not?

For example, you have talked about reserve sharing, you have talked about various coordinated arrangements, you have talked about maintenance power. The contractual arrangements between the utilities normally may involve one, two or more or varying combinations of these arrangements to which you have referred; is this not so?

A That's correct.

Q And no two arrangements between utilities necessarily

or even probably contain each and all of the sundry arrangements to which you have referred in your definition; is this not so?

A It's not a requirement, no.

Q Beg pardon?

A It's not a requirement.

Q Well, it's not a requirement; it's not a fact, either, is it?

A There are many similarities in the arrangements, as you have pointed out previously.

Q And many differences?

A Yes.

Q In any event, whatever the differences and whatever the arrangement, each one of them is what we refer to as -- withdraw that -- each one of them, Mr. Pandy, is what one might term a cooperative arrangement, is it not?

A Yes.

Q And entered into for mutual benefit?

A That's the intent, yes.

Q Now, you -- and they're normally not entered into unless each of the utilities secure a benefit commensuare with the cost involved to them, is that not so?

A I think that's a basic part of contracts, yes.

Q Right.

Now, I wanted to add a bit -- to ask you a bit about economy interchange.

The terms upon which economy power is interchanged between utilities are fairly standard in the industry, are they not?

A. Yes; they're as I described them on a cost savings sharing basis.

Q Well, the cost savings is generally half of the cost, is it not?

A That's what -- yes, half.

Q So that if Utility A is using its expensive generating equipment and the cost is 50 mills, -- I don't know, is that expensive today?

A It's a little high.

Q Give me an expensive one, will you?

A 100 mills is expensive.

Q If they're using expensive equipment that costs 50 mills, and it so happens that a utility -- its load is down that day and it has some generation that it can put on the line that will only cost them 30 mills, it will sell to the utility that has the 50-mill generation at 40 mills, will it not?

A That's correct.

Q And this is what we call economy interchange?

A Yes, it is.

Q And in each case, the price is greater than probably the average cost to the utility doing the generation on either side?

A It would depend on the time of the economy transaction.

Q Well, normally, the economy interchange is made with reference to the -- withdraw that.

A utility operating its equipment -- as I think you've related to us uses the cheapest first?

A Yes.

Q And it uses the next expensive second?

A Correct.

Q And the average cost of generation is the average of all of them?

A That's true.

Q Therefore, unless the economy interchange is with the utility's so-called base load unit, the econmy power has to be sold at something in excess of average cost, does it not?

A Yes, generally.

Q All right.

Now, going back to your three-unit production, transmission and distribution: There are quite a few

companies that are engaged in distribution only, are there not?

A Yes.

Q In fact, most of the municipal operations in this country are of distribution-only utilities, is this not so?

A Yes.

Q And there are engaged -- are there any companies or organizations that you know of that are engaged in production only?

A Any organization?

Q Yes. In Bonneville, for example, it engages in production only, does it not?

A I believe it does, yes.

Q So that you have -- so you have most investor-owned utilities are engaged in all three functions, production, transmission, and distribution, is this not so?

A That's true.

Q You have certain large Federal projects such as Bonneville and TVA, and -- what do you call the one down in Missouri -- Southwestern -- the Southwestern System, that are engaged primarily in production and transmission and the sale at wholesale, is this not so?

A That's true.

Q Although TVA does have some sales at retail, I believe. Does Bonneville sell at retail?

A I don't know.

I know that TVA does; I'm not sure about Bonneville.

Q In any event, Mr. Pandy, there is no company that engages in transmission alone, is there?

A None that I'm aware of.

Q All right.

And the wheeling arrangements to which you referred are arrangements for transmission over facilities in which the wheeler, that is, the company that does the wheeling, happens to have available extra capacity in its transmission system?

A That's correct.

Q You don't know of any company, do you, that is in the business of the transmission of electric power?

A Not as a sole business. I think that was your previous question.

Q Well, you don't know of any company that builds transmission for the purpose of being able to sell transmission, do you?

A I know of companies that build transmission sufficient

to carry loads beyond their own system loads.

Q Well, there are plenty of companies that build transmission that have spare capacity in them, aren't there?

A Yes.

Q But you don't know of any -- withdraw that.

MR. LANSDALE: Your Honor please, may I approach the bench?

THE COURT: This is an opportune time for us to take a brief recess, it is now almost a quarter to 11:00.

Ladies and gentlemen, we will take a short recess.

During the recess, adhere to my admonition and do not discuss the case either among yourselves or with anyone else; keep an open mind until you have heard all of the evidence and until such time as the matter is submitted to you for your final deliberation and judgment upon the instructions of the Court.

With that, we will take a short recess.

You are free to go, ladies and gentlemen.

(Thereupon the jury left the courtroom.)

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(The following proceedings were had at the bench.)

MR. LANSDALE: All I wanted to do was I wanted Mr. Pandy to check up on this square of the voltage business.

THE COURT: He can do that.

MR. LANSDALE: And I didn't want to quit before --

THE COURT: All right.

(The foregoing proceedings were had at the bench.)

(Short recess had.)

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(The members of the jury returned to the courtroom.)

THE COURT: Please be seated.

You may proceed, Mr. Lansdale.

BY MR. LANSDALE:

Q Mr. Pandy, did you have an opportunity at the recess to check with Dr. Wein or somebody about the way the current capacity varies with voltage?

A Dr. Wein -- Dr. Wein is an economist. Dr. Wein is an economist so, no, I didn't check with him.

Q Well, he testified last time about it, Mr. Pandy.

But, in any event, did you have an opportunity

to check on the correctness of my suggestion to you?

A Well, I think perhaps if I wrote out a couple of equations I could understand your question and you could understand my answer.

Q Did you do any writings during the recess?

A I made a note or two, yes.

Q Well, let me ask you a question, if it is not the fact that the capacity of a transmission line varies as the square of the voltage applied to it?

MR. NORRIS: May I approach the bench?

THE COURT: Overruled. No. He can answer the question.

You will be permitted to ask him to explain.

MR. NORRIS: He wanted to use the board.

THE COURT: Well, okay. We will have him explain.

You may answer the question.

A It varies with a number of factors, one of which is voltage.

Q Well, it varies as a square of the voltage; does it not, Mr. Pandy?

A Along with a number of other factors.

Q What are the other factors?

A The impedance of the line, the capacity, the current that the line is carrying.

Q What?

A The impedance of the line --

Q The impedance of the line, but the second one I didn't get.

A The capacity, the current that the line is carrying.

Q All right, what else?

A There are a number of other factors.

Q That's right, but all of those factors being equal, Mr. Pandy, the amount of current that a line can carry varies in accordance with the square of the voltage; does it not?

A As an approximation I can say that.

Q Thank you.

THE COURT: Redirect.

MR. LANSDALE: I have no further questions.

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REDIRECT EXAMINATION OF JOSEPH PANDY

BY MR. NORRIS:

Q Mr. Pandy, I neglected to ask you if you are a Registered Professional Engineer?

A Yes, I am.

Q In what states?

A Texas.

Q Would you kindly go to the board and complete your answer to Mr. Lansdale's request?

Move that exhibit off so you have a place to write.

THE COURT: I think he completed his answer. If you would like him to explain, you are free to permit him to explain.

Q Mr. Pandy, would you put a fresh sheet up there and explain anything further that you would like to explain in answer to the question Mr. Lansdale put to you?

A Again using the terms that we used, we have a simple relationship of voltage as V to the current, represented by I, and the resistance of the line, represented by R; another simple equation being power reprented by watts is the product of the voltage and the current, V times I.

If you take this equation and substitute for V,

put in IR times I, you end up with square of the current.

It gets into some fairly complicated mathematics.

If in one instance you have a 69 KV line, calculate the power in each instance, for a 69,000 volt line you would have 69 KV times whatever the I for that 69 KV line was.

If in another line you have 132 KV, that will be 132 KV times the current that is carried in a 132 KV line.

It's difficult to make a simple relationship. The amount of power, one versus the other, will depend on the ratio of these numbers.

Q What is the relationship of impedance to the formula that you have put on the board?

A Well, the impedance will have a different effect depending on the different voltage.

Q What is impedance?

A It's an electrical measure of resistance. It's another form of resistance of the system to carry electricity.

Q In trying to determine how much a transmission line can carry, is impedance a necessary element in that calculation?

A Yes, it is.

Q And in trying to determine how much additional power can be carried if you double the voltage, is the fact of impedance something that needs to be taken into consideration?

A Yes, it is.

The point of my answer is you can't simplify relationships as the questions were alleging.

Q Mr. Pandy, are there utilities that construct their own transmission lines specifically to accompany the transmission for other utilities with which they have contracts?

A Yes, there are.

Q Mr. Lansdale asked you about the interconnection between the City of Painesville, while you were there, and the CEI.

When did the City of Painesville first request an interconnection with CEI?

A My direct knowledge of it comes shortly after I arrived in Painesville I began to seek an interconnection; I knew that we needed one very badly.

Q And just say that, when was that, again?

A Late in 1971.

Q And what kind of an interconnection was the City of

Painesville seeking from CEI?

A A synchronous interconnection.

Q What kinds of power transactions over that synchronous interconnection was Painesville seeking?

A The full range of transactions which would normally occur over an interconnection.

Q And what is the full range of transactions that would normally occur over an interconnection, identify them?

A It would be firm power, maintenance power, emergency power, economy interchange, and wheeling service.

Q What about standby power? Would that be included?

A Another term for emergency service.

Q Why did Painesville need an interconnection?

A Because we were one of those isolated systems, we were alone; if we had a problem at our plant, if a boiler blew a tube or we had another -- any form of mechanical breakdown, part of the city would be out of lights, would be out of power.

Q How would an interconnection have improved Painesville's plant operation?

THE COURT: Mr. Norris, you're going beyond the cross-examination how.

Let's keep it within the cross-examination.

BY MR. NORRIS:

Q What discussions did the City of Painesville have with CEI concerning an interconnection?

A Well, we had a long series of negotiations with CEI, some of which I was involved in directly.

MR. LANSDALE: Objection, if your Honor please.

THE COURT: Sustained.

You're just asking the same question over again, Mr. Norris.

Please limit yourself to the cross-examination.

BY MR. NORRIS:

Q Mr. Pandy, did CEI ever refuse to give the City of Painesville an interconnection?

MR. LANSDALE: I object, if your Honor please.

THE COURT: Sustained.

MR. NORRIS: May I approach the bench, your Honor?

THE COURT: Yes, you may.

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(Bench conference ensued on the record.)

MR. NORRIS: This line of questioning, I submit, is within the cross,

because he was asked whether or not the interconnection -- he demonstrated to the jury CEI's a good guy because it gave Painesville an interconnection.

What the truth is, is that they refused an interconnection, also put conditions upon that interconnection, and I have a right to bring up what those conditions were, your Honor.

MR. LANSDALE: That's just baloney.

All I brought out was this guy has practically no experience with interconnections.

THE COURT: That is what the cross-examination was directed to, the experience of Mr. Pandy as it relates to his exposure to synchronous interconnection in Painesville, out of five years, one year's experience with interconnection.

MR. NORRIS: If I may submit, your Honor, --

THE COURT: Sustain the objection.

Let's proceed. I'm not going to waste time up here now.

Let's go on.

MR. NORRIS: I would like to make another statement for the record, your Honor.

THE COURT: All right.

MR. NORRIS: Mr. Lansdale asked the question about when did Painesville get an interconnection with CEI.

THE COURT: Yes, I have that here, Painesville, 1971, that's when he worked there; interconnection established in latter 1976 with CEI.

MR. NORRIS: And it's a critical part of this case, that they are not cooperative with municipal systems in this service area, and I have a right to go into that.

THE COURT: Sustain the objection. Let's proceed.

{End of bench conference.}

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THE COURT: You may proceed, Mr. Norris.

MR. NORRIS: No further questions.

THE COURT: Recross, and please limit yourself to the redirect, Mr. Lansdale.

MR. LANSDALE: Yes, sir.

RECROSS-EXAMINATION OF JOSEPH PANDY, JR.

BY MR. LANSDALE:

Q Mr. Pandy, you put on the board a comparison between the 69 KV line and a 132 KV line.

When we speak of these voltages, we're using relatively nominal terms, are we not? It is not as equally valid to talk about 132 as 138 in the general size of line that we are talking about?

A It is a general --

Q That is to say, twice the 69 KV, the general voltage?

THE COURT: Why don't you ask one question at a time, Mr. Lansdale. Then we won't have the problems that we are confronted with.

You may proceed.

MR. LANSDALE: Yes, sir.

Q These formula which you have put on the paper there, Mr. Pandy, show, do they not, that the amount of current that can be carried with a 138 or 132 KV line is substantially 4 times, approximately 4 times the amount of quantity that can be carried on the 69 KV line; is this not so?

A Substantially so, yes.

Q And if my little hand calculator is correct, the square of 69 is 4761, I put it to you, and the square of 69

is 19,044, I put it to you, and the latter figure divided by the former is 4; is it not? And do you wish -- if you wish to verify that, be my guest.

A If I understood your question, you squared the same number and got different answers each time. You said the square of 69 --

Q I squared 69 --

THE WITNESS: Can I have the question read back, your Honor?

THE COURT: Read the question back, please.

(Record read.)

Q You are 100 percent correct, Mr. Pandy. Let me start again.

The square of 69 is 4761 and the square of 138 is 19,044, which, the latter figure divided by the 4761 that we just talked about is 4.

A I have no reason to doubt your calculator.

Q You have no reason to doubt it and if there is any doubt, well, I'll apologize personally if I turned out to be wrong after you checked me.

Now, the point I'm trying to make is that the voltage, the line carrying -- the current-carrying capacity of the transmission line varies approximately

as the square of the voltage, and had we established that?

A That is one of the factors, yes, I'll agree with you.

MR. LANSDALE: May I have the question reread, if your Honor please?

THE COURT: Read the question back, please.

(Record read.)

A Approximately so.

Q Now, I want to get the reason I got to all this exercise, Mr. Pandy.

In sizing transmission lines, because as you, I think, agreed with me, the smaller voltage lines per foot or per mile are cheaper to build than the larger one, 138, 345 as compared to 69. Because the smaller ones are cheaper to build and the larger ones are more expensive, the size of a transmission line that is used depends upon the economics in relationship to the job that you have the lines to do; is this not correct?

A Yes, that's been the point of my answers, that there are a number of variables involved in the economic analysis. That's why the lines are designed by computers.

MR. LANSDALE: Thank you. I have nothing further.

THE COURT: Do you have anything further, Mr. Norris?

MR. NORRIS: No, your Honor.

THE COURT: Thank you. You may step down, Mr. Pandy.

Call your next witness, please.

MR. HJELMFELT: The City would call George Paraskeva.

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GEORGE C. PARASKEVA,

a witness called on behalf of the plaintiff, being first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION OF GEORGE C. PARASKEVA

BY MR. HJELMFELT:

Q Would you please state your name and address, Mr. Paraskeva?

A My name is George C. Paraskeva. I live at 1506 18th Street, Bismarck, North Dakota.

Q And were you formally employed by the City of Cleveland?

A Yes, I was. From 1948 to 1963.

Q Would you please describe your education?

A I attended elementary and high school in the City of Cleveland. Upon graduation, I attended Fenn College, now Cleveland State University, and, indeed, graduated from Fenn College in 1948 with a degree in electrical engineering.

Q How long have you been employed in the electric utility industry?

A Since 1948, upon graduation. That would now make it 33 years.

Q Are you a registered professional engineer?

Condition
X: poor condition, poor management, failure to follow consultants recommendations

A Yes, I'm registered in the states of Ohio, North Dakota and Wyoming.

Q Have you had any other licenses relevant to the electric utility industry?

A I was licensed as a station engineer operating -- operating stationary engineer in the State of Ohio until about 1970.

Q And what's that license entitle a person to do?

A Upon due examination, that license entitles one to operate or to oversee the operation of steam boilers and steam engines such as are found in power plants.

Q And did you ever have occasion to use that license?

A Yes, I oversaw the operation of the generating plants of the Division of Light and Power, City of Cleveland.

Q By whom are you presently employed?

A I am employed by Basic Electric Power Cooperative, headquartered in Bismarck, North Dakota.

Q And when were you first employed by Basic Electric?

A In 1963.

Q Would you just briefly tell us what Basic Electric Power Cooperative is?

A Basic Electric is a cooperative organization formed by

approximately 25 member cooperatives who, in turn, deliver power to approximately 100 rural electric distribution cooperatives.

A cooperative is an organization owned and controlled by its consumer, by its consumers.

Q And where are these cooperatives located?

A The cooperatives are located in North Dakota, South Dakota, Western Iowa, Southwestern Minnesota, Western Nebraska, Eastern Wyoming, Eastern and Central Montana and Northern Colorado.

Q And what's the total generating capacity owned by Basic Electric?

A Currently under operation and, indeed, also under construction we have approximately 2,300 megawatts of generating capability.

Q And does Basic Electric own all of the transmissions necessary to deliver this power to its customers?

A No, it delivers its power by appropriate wheeling arrangements over investor-owned transmissions, over transmissions owned by the Federal Government and over transmissions owned by the Nebraska Public Power Department.

Q What are your duties with Basic Electric?

A Since 1968 I've been functioning as Chief Engineer of

Basic Electric.

Currently I oversee the functions of the Transmission Department which consists of four divisions, one division responsible for the design and construction of transmission lines, one division responsible for the design and construction of substations, one division responsible for the operation and maintenance of the lines and substations constructed by Basic Electric and the Right-of-Way Division which is responsible for obtaining right-of-way for transmission lines and also buying land on which substations and power plants are built.

I also participate in or oversee various planning studies, investigations or negotiations pertaining to power supply, pertaining to alternate sources of energy such as possible applications of wind, solar, fuel cells and labor negotiations.

Q Turning now to your employment with the City of Cleveland, when were you first employed by the City?

A I was first employed by the City of Cleveland in 1948 in the Division of Utilities Engineering.

Q Now, what relationship does the Division of Utilities Engineering have to the Division of Light and Power?

A I understand in the later '40's, as I understood it, upon the recommendation of management consultants, the Department of Public Utilities formed an Engineering Division which was responsible for providing engineering services to the operating divisions in the Utilities Department such as, for example, the Division of Light and Power, the Water Division, Sewage Division.

Q And what were your particular duties at that time?

A My initial duties involved doing engineering for the Division of Light and Power on its transmission distribution system.

Q Now, referring to Exhibit 2064, which is the one that is up there, would you describe what the solid yellow color represents?

A The solid color, by and large, represents the area in which the Division of Light and Power had its generating and transmission facilities and also the area in which its consumers existed.

The lines beyond the solid yellow or the area beyond the solid yellow by and large represents the rest of the City of Cleveland.

Within the area, at about the foot of East 53rd Street, which would be up in this area up here

(indicating), we had the generating stations of the division.

Coming out of the generating stations switch yards we had the 69 KV system in red indicated here, two circuits going to a major substation on the west side, the West 41st sub, two circuits in red again going to a major substation in the Collinwood area, the Collinwood sub.

Coming out of those substations in green, a- well as out of the generating plant in green, is a representation of the 11,000-volt cables, that the majority of them were underground in ducts, that delivered power to the various substations of the city, and these substations are by and large indicated by various figures here which have been numbered to correspond to their names and capacities as listed on the chart here.

At these substations the 11,000 volts was reduced to 2,400 volts and that was distributed along the streets, alleys, or what have you, back lots, to the area and then from there it was reduced to the voltage by the appropriate transformers that the various consumers required.

THE COURT: Would you read the

question back?

(The question was read by the reporter.)

THE COURT: I think you've gone beyond the question, Mr. Paraskeva.

THE WITNESS: What, sir?

THE COURT: I think your answer has gone beyond the question.

THE WITNESS: I'm sorry.

THE COURT: Please listen to the question and respond to the question.

THE WITNESS: All right.

THE COURT: All right. Proceed.

BY MR. HJELMFELT:

Q You anticipated several of my following questions, Mr. Paraskeva.

THE COURT: Let's not be repetitious.

Q What, in particular, did you do when you first joined the Division of Utilities Engineering?

A My first work for the division at the Division of Utilities Engineering was working on substations for the Division of Light and Power which were either under design or construction at the time, and I also did work on changes or modifications to existing

substations.

Q Why was the system constructing new substations?

A To increase system reliability and voltage regulation. It improved voltage regulation and, indeed, to also reduce losses in the system.

Q Now, how long were you employed by the Utilities Engineering Division?

A I was employed by the Utilities Engineering Division from 1948 to 1950.

Q And what happened in 1950?

A I transferred to the Division of Light and Power and was assigned to work under the Superintendent of the Generating Stations as a Results Engineer.

Q What were your duties as a Results Engineer?

A My duties as a Results Engineer were to study the operation of the power plants and see if they could be operated more efficiently.

Also, at that time, construction was underway for additions to the power plant, and I checked out equipment that was being installed; I prepared diagrams and operating workbooks for the operators that would eventually be operating the new equipment.

Q What -- would you briefly describe the generating facilities that the City had at the time that you

became a Results Engineer in 1950?

A At the time I became Results Engineer in 1950, the generating facilities that existed were the original East 53rd plant to the south of the Shoreway at the foot of East 53rd Street; and across from that was the Lake Road station on the north side of the Shoreway, which was completed or went operational in 1942.

Q And would you --

MR. HJELMFELT: Could we show the exhibit 3028, please?

THE COURT: What exhibit is that?

MR. HJELMFELT: 3028.

(Mrs. Richards places the exhibit on the easel.)

BY MR. HJELMFELT:

Q Just briefly, tell the jury what that is?

A This exhibit represents the old Brooklyn plant that was taken over by the City of Cleveland I believe along about 1906 or so when the City of Cleveland annexed Brooklyn.

As of the time that I went to work for the City of Cleveland, that facility did not exist.

MR. HJELMFELT: And, now, may we see

Exhibit 2463, please?

(The exhibit was placed on the easel by Mrs. Richards.)

THE WITNESS: This is the East 53rd Street plant at the foot of East 53rd Street and the surrounding office facilities.

MR. HJELMFELT: And, now, may we see Exhibit 2464, please?

(The exhibit was placed on the easel by Mrs. Richards.)

THE WITNESS: This is the original portion of the Lake Road plant, which was completed in 1942, indicating the three boiler stacks that were in it at the time.

BY MR. HJELMFELT:

Q What generating facilities were there at the Lake Road plant at that time?

A At that time, there were three boilers and two generators.

One generator was No. 8, rated at 25 megawatts; the No. 7 generator was rated at 12-1/2 megawatts.

The 25-megawatt generator was a condensing generator; the 12-1/2 megawatt generator was not condensing, and its steam was at reduced pressure in

were installed and went operation in 1953.

MR. HJELMFELT: Now, may we see Exhibit 2466, please?

(Exhibit placed on the easel by Mrs. Richards.)

THE COURT: 2363?

MR. HJELMFELT: 2466, your Honor.

THE COURT: -66, I'm sorry.

BY MR. HJELMFELT:

Q Please describe that, briefly.

A This is looking at the Lake Shore plant from the east -- from the east.

You see in line Stacks 1, 2 and 3, which were the original Lake Road plant; Stacks 4 and 5, which went into the 19 -- which were the result of the 1953 addition; and, after my time, you see a sixth stack, and this was the addition after my time for another boiler and turbine.

Q Please explain the relationship of the boilers to the individual turbine generators?

A At Lake Road, there was a -- well, I guess it's sort of an unusual arrangement, in that any of the boilers -- all of the boilers fed into a common pipe or header, and all of the turbines took their steam -- that is,

the turbines at Lake Road -- took their steam off of that header; and also, indeed, so did the pressure - reducing -- temperature-reducing station which was able to supply steam to the old plant at East 53rd Street.

So this was the way that the steam was supplied to the turbines through this common header arrangement.

Q Could you explain a little bit what the common header was?

A The common header was simply a pipe, simply a pipe, and all of the boilers, 1, 2, 3, 4 and 5, supplied their steam into that pipe through appropriate valves and, indeed, check valves, to make sure there wouldn't be any backfeeding in case the boiler was out of service, and all of the turbines took their steam off of that pipe.

So that this avoided the necessity, for example, of shutting down a turbine if a boiler was not available, which would be the case if it was strictly a boiler generator, steam generator combination.

Q Was any steam being produced at the City's East 53rd Street Station at the time you were at Muny Light?

A Yes. Originally, there was enough steam capability, there were boilers at East 53rd Street to supply the

turbines at East 53rd Street at the appropriate pressure and temperature.

With the advent of the Lake Road station and particularly in the later years with the addition in the '50's, operation was such that we tended to minimize the production of steam at East 53rd and maximize the production of steam at the Lake Road generating station so that, indeed, by I believe 1960-61 the boilers at East 53rd Street were not operating any more.

THE COURT: What year was that?

THE WITNESS: 1960-61.

MR. HJELMFELT: May we see Exhibit 2655, please?

(Exhibit 2655 was placed on the easel.)

BY MR. HJELMFELT:

Q Would you please identify that exhibit?

A This exhibit is a representation, a cross-sectional representation, if you will, of the original boilers at the Lake Road plant, namely, Boilers 1, 2 and 3. It is --

MR. HJELMFELT: Thank you, Mr. Paraskeva.

THE WITNESS: Yes.

Q Would you describe briefly now what goes on inside the boiler?

A A number of things go on in it, of course. We can start with the water side, perhaps.

Water, as indicated before, is introduced into the boiler in this case at this top drum at an increased pressure and temperature already as it came from the turbines, the condenser of the turbines, and the water, in a sense, drops down into this particular drum.

From here it goes down to the lower water wall headers and from here all of these pipes -- that's what these dark lines are -- that surround the combustion chamber of the furnace convey the water. As it increases in temperature, the water is conveyed upward.

Finally, by the time you have it in a steaming condition, it starts accumulating here, and that steam is conveyed over to the top part of this drum.

From there the steam goes into the upper heater where it is further elevated in temperature, and then from here leaves and goes into the common header and then from hence on to the turbines.

Here it's rather difficult to follow. You have

incoming air that is needed for combustion of the boiler. That comes in through this heater, which is a double heater in this case. On one side there are hot exit gases on their way to the stack; on the other side is the incoming air and via the ducts, which are fairly hard to follow here.

The air is introduced into the furnace along with the coal that comes from the mills where it was pulverized, as Mr. Pandy indicated, to the consistency of sugar, brought into the furnace, and that's where the combustion takes place.

The coal, of course, comes from the hoppers up above and feeds down into the mills. The ash pits are down here and the slag, and the ash is removed as is some of the fly ash coming out of the hoppers.

Q Thank you.

MR. HJELMFELT: May we see Exhibit 3055, please?

(Exhibit 3055 was placed before the witness.)

Q Could you briefly describe that, Mr. Paraskeva?

A This is what one of the water walls looked like in the furnace of the boiler. These are the tubes that surround the combustion area of the boiler.

MR. HJELMFELT: And now may we see

Plaintiff's Exhibit 3056, please?

(Plaintiff's Exhibit 3056 was placed before the witness.)

THE COURT: Would you take that other one off of there, please?

BY MR. HJELMFELT:

Q Would you please describe that?

A This is a water tube in the boiler that has failed. It has failed and blown out, and you can see by the way it was blown out that there was pressure inside the tube.

This is what I referred to as the fire side. This is as the heat is transmitted normally from the combustion gases through the metal to the water side. So this is a failed tube and it has blown out in operation.

Q What does a boiler operator do when a tube fails like that?

A A tube failure like that requires the boiler to be taken out of service. It requires it to be cooled so that welders can enter and, depending on the severity of the failure, the tube has to be cut out and replaced or, indeed, it could be patched if it wasn't damaged too badly.

Q And how long would it take to make a repair like that?

A Well, again, depending on how fast the boiler could be cooled down, you'd have to figure on the order of 24 hours, I would say, give or take, depending on the location of the failure and whatnot.

Q And does that include the time to bring the plant back on line?

A Well, it may or may not, again, depending on a number of other factors.

Q May we see Plaintiff's Exhibit 3057, please.

Now, would you please describe that very briefly?

A Mr. Pandy described to you a steam turbine, how the steam goes through it and it works against the wheels or the propellers in the turbine and then how it goes to the generator --

THE COURT: Mr. Paraskeva, just answer the question, please.

A This is a gas turbine. The difference here is that you still have a turbine, instead of now instead of having steam to drive the turbine you have combustion gases resulting from the combustion of, say, gas, if you will, or oil for that matter, and then compressed air which is combined herein to blow against the wheels, spin the turbine, and that is mechanically coupled to

your generator and you have the electricity as indicated before.

Q Now, are the economics of operating a combustion turbine like that one different from operating a steam turbine?

A Yes, they are.

Q And in what way?

A Well, a combustion turbine like this costs much less to purchase it. It also costs much less to install.

However, its operating costs are higher, primarily because of the higher cost of the fuel and primarily because of the higher cost of maintenance.

Q Now, would those costs have any impact on the amount of time that a system operator would want to use one of those units?

A Yes, they would. This type of unit you would want to operate, obviously, because of its high operating cost, a minimum amount of time, essentially to carry peak loads or emergency service if you had to.

Q And when would you operate the steam turbine?

A Steam turbine, which would -- which would have lower operating costs, you would operate a maximum amount of time to carry the majority amount, the maximum amount

of load.

Q Now, from a cold start, that is, with no fire in the boiler, how long would it take approximately to bring a steam turbine on line?

A A steam turbine from a cold start would take four to six hours.

Q And how long would it take to bring a combustion turbine on line?

A A combustion turbine like this could be brought on the line within 10 minutes.

Q Now, how long did you remain as a Results Engineer with the City?

A Until 1956.

Q And what was your position after 1956?

A I became the Superintendent of the Light Plant.

Q What were your duties as Superintendent of the Light Plant?

A My duties, essentially, were to operate the Light Plant as efficiently as possible and to maintain the equipment in the best possible condition.

Q And did you supervise other employees at the Light Plant?

A Yes, I did.

Q And --

A By --

Q How many employees did you supervise?

A Well, by 1959 I had approximately 150 employees at the Light Plant. They were, of course, organized under various crews or gangs and reported to appropriate foremen, and I had the Chief of Operations, Mr. Meehan and Mr. Taylor, the Chief of Maintenance reporting to me directly.

Q And what were the steps that you took to insure the efficient operation of the Light Plant?

A To assure the efficient operation of the Light Plant, we maximized the loadings on our most efficient generators and boilers which were located at the Lake Road plant, and we were also able to combine jobs and reduce operating people. By 1959, we had reduced the operating forces from 1956 by about a third.

Q And as Superintendent, what did you do with regard to maintenance of the equipment?

A We had extensive maintenance programs going on, particularly to Boilers 1, 2 and 3 which had been installed in 1942.

We paid particular attention and maintenance, provided maintenance to Boilers 4 and 5 which were

operational in '52 and '53, and we also maintained and did considerable work on the generators at the Lake Road plant.

Q Now, how long did you serve as Superintendent at the Light Plant?

A I served as Superintendent at the Light Plant until 1959.

Q And what did you do then?

A I transferred back to the Dividion of Utilities Engineering as Chief Electrical Engineer.

Q With what sort of duties as Chief Electrical Engineer?

A Again, working in the Division of Utilities Engineering, we had responsibility to provide engineering for all of the operating divisions, but the bulk of my effort, again, was for the Division of Light and Power in the areas of generation, transmission and distribution.

In these areas, I often communicated directly with the Commissioner of the Division of Light and Power.

Q And what sort of responsibilities did you have at that time with respect to the transmission and distribution system of the City?

A Well, we were responsible for the overseeing that certain plants and work orders were being done that would provide changes or modify changes or additions to the transmission distribution system.

We were responsible for preparing specifications, taking bids and making recommendations for the purchase of equipment and material needed by the Division of Light and Power.

We were responsible for work orders and plans for changes and additions to the street light system that the division maintained.

Q And did you retain any responsibilities with regard to the power plant after you left the position of Superintendent?

A Yes, I still -- having come from the power plant, I still maintained an overall operating responsibility for the light plant. However, the day-to-day responsibility was the responsibility of my successor, Mr. George Taylor.

Q And was the Light Plant in good operating condition when you were Chief Electrical Engineer?

A Yes, it was.

Q And did it remain that way as long as you remained with the City?

A Yes, it was.

Q Now, how long did you remain in the position of Chief Electrical Engineer?

A Until 1963 when I went to work for Basic Electric Power Cooperative.

Q What customer classes did the City serve in 1963?

A We had residential consumers, we had commercial consumers, we had industrial consumers, we had the various municipal loads, pumping loads, the City Auditorium and we had the street lights.

Q What street lighting load did the Muny System serve?

A As I recall, we had approximately 50 percent of the street lights in the City of Cleveland.

Q Were any additions made to the City street lighting load during your tenure with the City?

A During the time that I was with the City, we added something on the order of 5 to 6,000 street lights in the City of Cleveland.

Q During your period of employment with the City, how was the City implementing its plants for the Muny System?

A Well, after the 1952 expansion of the Lake Road Generating Plant, the City was largely following the recommendations of its consulting engineers and

planning people.

However, because the loads did not grow as they were forecast, the City deferred or did not add generation in the '50's. It used the lag-in-load growth, the time gained by the lag-in-load growth to improve its operating revenues, net revenues so that it would -- so that it would improve its financial position so that it would, indeed, finance the generation it would be ultimately needing.

It went into substantial economies throughout the system.

Now, it turned its attention to improving its transmission distribution system and one major addition was the 69 KV cables that went into operation, I believe, in along about '57.

Q Excuse me.

Were those the 69 KV cables you indicated on that earlier exhibit, PTX 2064?

A Yes. That was the red lines going to Collinwood and West 41st Street.

Another improvement was at the West 41st Street operating center. There, building additions were made and facilities of one type or another to improve operations.

At the Lake Road plant we added a diesel generator which permitted us to start up the plant in the event of a total shutout -- shutdown without depending on the steaming capability of the East 53rd plant.

And this generator then, since we didn't have to depend on East 53rd, also allowed us to eventually, as I indicated, shut down the boiler capacity at East 53rd, and this resulted in substantial economies both in the use of fuel and in lesser payroll requirements.

By the end of the '50's, going into the '60's, the City did start studies to determine the sort of generation it should add, the size it should add; and then, also, exploring the possibilities of interconnections with others.

Q Was Muny Light ever connected with any other utilities during the period that you were with the City?

A No, it wasn't.

Q During the period --

THE COURT: This probably is a good time for us to recess for lunch, it is now past the noon hour.

Please, ladies and gentlemen, do not discuss

this case either among yourselves or with anyone else during any recess or adjournment of court; and keep in mind that you are to keep an open mind until you have heard all of the evidence in the case, the instructions of the Court as to the law that applies to the case, and until such time as the matter is ultimately submitted to you for your final deliberation and judgment.

With that, you are free to go to lunch, return here at 1:30.

(The Court and Law Clerk Schmitz conferred off the record.)

THE COURT: Mrs. Stevens, we have to arrange transportation for you; if you will just step into my chambers.

You are free to go.

Thank you.

(The jury left the courtroom.)

THE COURT: 1:30, gentlemen, and Ms. Coleman.

(Thereupon the luncheon recess was taken, to reconvene at 1:30 o'clock p.m. the same date.)

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TUESDAY, JULY 14, 1981, 1:45 P.M.

THE COURT: I think we are prepared to proceed.

Mr. Hjelmfelt?

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DIRECT EXAMINATION OF GEORGE C. PARASKEVA (Resumed)

BY MR. HJELMFELT:

Q Mr. Paraskeva, during the period 1952 to 1963, did Muny Light have sufficient generating capacity to serve its load?

A Yes, except for periods where we had contingencies which resulted in loss of units which reduced our capability to below that which was the level of the load during the outage period.

Q Would that be a multiple contingency?

A Yes. Generally it involved more than one mishap or fault in the plant.

Q Could the actual capacity at any time that was available to serve a load exceed what's been defined as firm power or firm generation?

A Yes, because there were times when your total generating capability was available.

Q And during the period 1952 to 1963 could you give us an approximation of what Muny Light's firm generation was?

A Well, on a nameplate basis we had a total capability of 137-1/2 megawatts. Since one of the largest units was 25 megawatts, we would deduct that from the 137-1/2 to come down to 112.5 megawatts of firm capability.

However, taking into account the reduced capability of some of the older units, taking into account the extra capability of the newer units, namely, Generators 9 and 10, by about '63 I was estimating firm capability at about 105 megawatts.

Q Now, would the presence of the common header system have any impact on the measure of firm generation?

A Yes. Again, the presence of the header system tended to improve the availability of units. That is, we weren't simultaneously without a generator and company boiler, and to that extent we had flexibility to do maintenance and whatever and increase the reliability of the plant.

Q Now, during this same period, '52 to '63, how did Muny Light ensure that it would be able to meet its peak demand?

A Well, the peak demand actually occurred for a relatively few hours out of the total hours of the year. It was quite predictable in that we could always expect it around the holiday season, the Christmas season in December or, perhaps, even into January.

For that entire year we would gear our entire maintenance program to make sure that as we approached the holiday season when we expected our peak to occur for the year, that we would have all of our boilers and generators in the best possible operating condition to meet that peak.

Q Now, how did the City operate its system to insure that it could meet daily peaks?

A On a daily basis, essentially we did the same thing. Again, we tried to do as much maintenance as possible during the off-peak periods in the wee hours of the morning if at all possible after the load dropped off, on weekends when the commercial and industrial load was not on, and in addition we had a sort of a -- well, I guess nowadays it is called load maintenance, but it was for it because the pumping loads which were a good part of the total, the water system did not have to pump on our evening peak. Their peak occurred sometime during the day. Therefore, they

could do minimum pumping on our peak and this would help relieve our situation.

And as a last resort, if we felt that we would be short of steaming or generating capability, we would delay putting on street lights for an hour or so, thereby giving preference and priority to the residential and commercial consumers.

Q During the period, again, the same period '52 to '63, did Muny Light consider obtaining power from any other sources?

A Yes, we did.

Q What other sources did the City consider?

A Well, one of the sources that we considered was the Power Authority of the State of New York which had or was building a sort of relatively low-cost hydropower, and a number of munies in Ohio and Pennsylvania and, indeed, New York, did some studies to try to see how to get that power, because that power -- part of it was to be allocated to the preference customers such as cooperatives and munies.

Q Was the City successful in obtaining PASNY power while you were with the City?

A No, it wasn't.

Q Why not?

A Well, as I recall, the total that would be available for the preference customers was about 160 megawatts.

Now, I know at the time there was about 100 munies in Ohio alone, I don't remember how many co-ops; and then there were a number of munies and co-ops in Pennsylvania also.

Now, trying to apportion that 160 megawatts among that many potential users and then, furthermore, trying to deliver that capability to each of those potential users, resulted in a transmission system that was just too expensive and, consequently, that concept never got too far off the ground.

Q Did the City consider any other sources in addition to PASNY power?

A Yes.

As a result of the PASNY studies, we thought, well, it might make sense to try to develop some sort of a pool or cooerdinated operation with some nearby munies; and the two that seemed most logical from the standpoint of the Cleveland system was the City of Orville to the south, and the City of Painesville to the east.

Q And was that arrangement with Orville and Painesville completed while you were with the City?

A No, it wasn't; it wasn't.

Q During the time that you were with the City, did Muny Light plan any additional generation of its own?

A Yes.

Plans were underway to put in generation -- additional generation of our own.

Q Did you play any role in that planning process?

A Yes.

The planning for that added generation was done before I left in '63, and I had a role in gathering the statistics or information for the study.

I also contributed to the recommendations as to the size and type of unit and location.

Q Now, what were the recommendations with respect to that unit?

A The recommendation essentially was to put a megawatt -- I mean, a unit boiler generator combination, if you will, rated at about 75 megawatts at the Lake Road plant.

Q Now, why did the recommendation locate the new unit at the Lake Road plant?

A The reason it did was that this would allow the existing operating people at the Lake Road plant to operate that unit.

We would have to staff separately obviously if the plant -- if that new unit was located elsewhere.

Furthermore, we could also share -- or we could use the existing -- with some modifications -- the existing coal-loading facilities; and, again, with some modifications, we could use the existing switch yard setups.

Q How much firm generation would be added by installing a 75-megawatt unit?

A Adding a 75-megawatt unit would only provide us with 25 megawatts of additional firm generation.

Q Why did the City -- or why was it recommended then that the City build a 75-megawatt unit?

A We were -- the recommendation was to build a 75-megawatt unit with a much higher operating pressure temperature operating conditions, so that we could improve the efficiency and reap the benefits of a much more efficient unit.

This would reduce our operating costs; and we did plan to follow up that unit with subsequent units of that magnitude.

MR. HJELMFELT: May we see Exhibit PTX 2473, please?

(The exhibit was placed on the easel by

Mrs. Richards.}

BY MR. HJELMFELT:

Q Mr. Paraskeva, would you please describe that exhibit for the jury?

A This exhibit indicates certain trends in revenue, for example, and the note on this scale is dollars, on this scale is kilowatt hours and on this scale is years, and years starting with 1930 going to 1980.

Now, the weekly portions, essentially from the periods 1930 to 1960 in each of the lines indicates the actual historical variations of -- for example, the red line shows the kilowatt hour sales from '30 to '60 and then with a projection beyond that; then, similarly, the blue indicates the gross kilowatt hour generation that was historical and then it would be projected in expected and, similarly, the revenue in dollars, the variation to the period 1960 and then a projection based on the approximate sales.

Q Did you play any role in assembling the data that went into that?

A Yes. My role was to assemble some of the historical data.

Q When was that data assembled?

A This was done about 1961.

Q What was the purpose of preparing that kind of data?

A The purpose of data like that and projections like that was to be used as a justification for the recommendation made in the report for the unit to be added.

Q Why does the amount shown for gross projection differ from the amount shown for sales?

A The difference between the gross generated and the sales is some losses. This is from the generator down to actually the meter sales of the various consumers of the division. So the difference is losses.

Q And was the information shown on PTX 2473, was that included in the study for the large unit?

A Yes, it was.

MR. HJELMFELT: May the witness see PTX 1812, please?

BY MR. HJELMFELT:

Q Just identify that for the record, please, Mr. Paraskeva.

A This is the engineering report for expansion of the Lake Road generating plant prepared by Beiswenger, Hoch, Arnold & Associates.

Q Now, was the new generating unit the only change in

the system's power supply that was contemplated by that report?

A No, we contemplated the addition of gas turbines to provide peak or emergency service. We contemplated the pursuing of interconnections for backup and for pool-type of operations.

Q Did the City have a priority among these different expansion plans?

A Based on economics and on feasibility and on need, our priority was to first put in the generating station -- I mean, the generating addition at Lake Road.

Our second priority was the purchase and installation of gas turbines and more or less simultaneously with that to be pursuing interconnections.

Q And did you agree with the recommendation of the consultants?

A Yes, I did.

Q Was the Muny Electric system financially sound in 1963?

A Yes, it was.

Q And was it in good operating condition in 1963?

A Yes, it was.

MR. HJELMFELT: Thank you. I have no further questions on direct.

THE COURT: Mr. Lansdale.

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CROSS-EXAMINATION OF GEORGE C. PARASKEVA

BY MR. LANSDALE:

Q In point of fact, Mr. Paraskeva, 1963 was the best year financially that Muny Light ever had; was it not?

A It may have been. I'm not absolutely sure.

Q Oh, that's right, you weren't there for the entire year 1963, were you?

A No, I wasn't.

Q 1962 was the best year Muny Light had prior to that time while you were there, financially; isn't that so?

A We were doing quite well as I recall.

Q The new units that were installed in 1953, Mr. Paraskeva, were each 25,000 KW; were they not?

A That was in --

Q Each 25 megawatts?

A That was the nameplate rating.

Q Did they, in fact, have a larger capacity than that?

A Yes.

Q How much?

A About 3-1/2 megawatts apiece.

Q About 3-1/2 additional.

And there was no additional capacity -- there was no capacity in addition to that installed during your career at Muny Light, was there?

A No, there wasn't.

Q And after that capacity was installed in 1953 -- and I have forgotten the precise dates of your -- what was your position in 1953?

A In 1953 I was a Results Engineer.

Q You were the Results Engineer.

A At the Lake Road station.

Q In the plant, yes.

And basically, you were in charge of examining and improving the efficiency of the plant in that capacity; were you not?

A That was my assigned responsibility.

Q Yes. And after the installation of those units in 1953, the Municipal Light Plant was confronted with the problem of putting its transmission and distribution system in shape to be able to get that additional generating capacity out to its customers; was it not?

A I would not say that, no, sir.

Q You would not say that.

Isn't it a fact that the period from 1953, roughly, until you left was devoted primarily to the

expansion of its transmission and distribution system?

A I said our major addition was the 69 KV cable system which delivered power from the generating plant to the West 41st and Collinwood substation.

Q Mr. Paraskeva, these two new generating plants were installed in 1953 as we outlined.

In 1954, the City Council authorized the sale of $5 million in bonds for the expansion of the Muny Light System; do you remember that?

A Not specifically.

Q Do you have in front of you Plaintiff's Exhibit 1812?

A Yes, I do.

Q That is the Beiswenger, Hoch, Arnold & Associates report made in 1961; is it not?

A Well, it was being worked on in '61. It was submitted in 1962.

Q Mr. Paraskeva, you are looking for that 1962 date at the initial page in this exhibit; are you not?

A That appears to be the transmittal letter.

Q I will ask you to take a look at that, Mr. Paraskeva, and I will ask you --

THE COURT: What exhibit number is this, please?

MR. LANSDALE: Plaintiff's Exhibit

1812.

Q I will ask you if it isn't a fact that the letter dated 1962 is a proposal by Beiswenger and Hoch to provide engineering services to carry into effect the recommendations of their report for the expansion of the plant which they had made a year previously?

A That is.

Q That's right, isn't it?

A Yes, I guess.

Q And the report itself that we have been looking at, that is the one that recommends the construction of a 75-megawatt unit that you have been referring to, that was completed and handed to the City in 1971, was it not?

A Well, perhaps 1961.

Q Pardon me. '61, yes. 1961; is that correct?

A Yes.

MR. LANSDALE: You nodded. The reporter can't get in a nod, Mr. Paraskeva.

Q Now, I ask you to turn -- and this is the report that you said you participated with the consulting engineers in working on and drafting; is this not so?

A I participated in the recommendations for the size of the unit and its location and heat cycle. That's what

I participated in.

Q And you were responsible, were you not, for giving these engineers information as to the existing condition of the plant and the history of its operation so far as it was relevant to their report?

A Yes.

Q Now, will you look at page 8 of that report?

A Page 8? Yes, sir.

Q It says, does it not, that: "In August, 1954, Council passed Ordinance No. 1816-54 authorizing the" --

Have you found it? I'm sorry, I'm going too fast.

A All right. I've got one 8 but I guess that's the transmittal. Now I've got a second 8. Yeah.

The paragraph that says what?

Q It's the fourth paragraph on that page.

THE COURT: I haven't found it.

MR. LANSDALE: Your Honor, there are two page 8's. There's a transmittal letter and attached to that is a 1961 report, and it's page 8 of that report that I am referring to.

THE COURT: And each one of the paragraphs are numbered D, E, F, G, H?

MR. LANSDALE: No. I'm referring to the fourth paragraph where it says, "In August,

'54, Council passed Ordinance No." --

THE COURT: I don't have that. I have Exhibit 1812, which is the Beiswenger, Hoch, Arnold & Associates proposal for engineering services for expansion of facilities --

MR. LANSDALE: Right, that's the letter.

THE COURT: -- Department of Public Utilities, and there's a letter dated October 31, 1962 that prefaces the report.

MR. LANSDALE: And it attaches a proposal for engineering services which is 11 pages long and is signed by Beiswenger & Hoch. Then there's a page with a picture on it.

THE COURT: I don't have that.

MR. LANSDALE: Then it begins an index.

(Another copy was handed to the Court.)

THE COURT: All right, I have it now. Go ahead.

BY MR. LANSDALE:

Q I'm referring to the fourth paragraph on that page, Mr. Paraskeva, and that advises us that in August, 1954, Council passed an ordinance identified as

Ordinance 1816-54 authorizing the sale of $5 million of bonds for expansion purposes.

Do you follow me? Do you see that?

A Yes.

Q "Proceeds from this issue enabled the Division of Light and Power to construct two 69 KV cable lines with transformers from the Lake Road station to West 41st Street Station."

A Yes.

Q Is that correct? Is that information given there correct?

A Yes. That's what it says here, yes.

Q Well, I want to know whether it is right or not.

A Well, it must be right.

I said I don't remember the bond issue in 1954. Here is a record that says there was a bond issue, so I've got to assume that it was correct.

Q Do you recall the construction of those transmission cables?

A That I do recall, sir.

Q You do recall.

And then you will find that, in addition, it talks about two 69 KV cable lines from Lake Road station to Collinwood station and that was transmission lines to

the west and then transmission lines to the east; right?

A That I have already testified to, yes.

Q And why were these transmission lines built, Mr. Paraskeva?

A To improve the reliability, the voltage regulation of the system, and to reduce losses in the system.

Q And to increase the capacity of the system to get power out to the periphery of the system, was it not?

A It's possible.

But that wasn't the sole or -- the primary or the sole objective. That's -- well, that's a result, objective, a possibility.

Q You were there; I wasn't.

You say it did not increase the capacity, the distribution of the transmission?

A It improved the reliability; it improved the voltage regulation; it improved the system losses.

Q It made it a better system all the way around?

A Yes.

Q And improved the capacity also, did it not?

A To a degree.

Q To a degree; all right.

And that also provided for the start-up

diesel generator that you talked about earlier at the Lake Road station?

A I'm sorry, I don't understand what provided for the start-up --

Q This money, this $5 million, if that was the money that funded that?

A Again, I wasn't aware of what total this $5 million was used for.

Q Turn to page 9 in that same report, the next page.

(The witness complies.)

Q And in 1958, you got another million dollars worth of bonds, did you not, for the installation of transformers in the Collinwood station, freeway street lighting, and a new substation on the west side of Cleveland, is this correct?

A That's what it says there, yes, sir.

Q Is it correct, is it the fact?

A I -- I'm assuming because it says here that it is true, it is a fact, yes.

Q And these new transformers and the new substation increased the capacity and reliability of your distribution system, did they not?

A Of the transmission distribution system?

Q Of the transmission and distribution --

A Yes.

Q And then, as disclosed by that same page, in 1960 you had another $2 million bond issue for improvements to the distribution system?

A Yes, sir; it says so right here.

Q And what kind of improvements were they, if you know?

A Right now, specifically, I don't remember exactly what they did with that program.

Q Generally speaking, however, you were beefing up your transmission and distribution system throughout this almost a decade -- a decade is a long term -- 1953 to 1963?

A Yes, that's true.

Q All right.

Now, in this same Beiswenger and Hoch report, they dealt with the problem of -- that you mentioned, of the fact that adding a 75-thousand megawatt unit would increase your firm capacity only 25 thousand because of the necessity of backup.

At the same time, they strongly recommended, did they not, two additional steps:

One. The construction of an additional 75 - megawatt unit as soon as possible, in the first place, did they not?

A Well, I recall that the first unit was one. Some time after that was completed, if and when the load justified it, we would proceed with the second one, yes; it's an ongoing process.

Q Mr. Paraskeva, didn't they recommend proceeding immediately with the additional 75 megawatts?

A I don't remember whether it was immediate or not.

Besides, you don't do what consultants say necessarily, you use your own judgment also.

Q I thought I recalled your testimony that you agreed with the recommendations of this report, did you not?

A I do agree -- I did agree --

Q You did agree with them?

A I did agree with them.

Q Have you recently read this report in preparation for your testimony here?

A No, I have not.

Q You have not?

A Not recently.

I read the report.

Q You have not, all right.

And I will ask you again, then, is it your testimony that you do not recall whether the recommendation for the additional 75 megawatt unit was

for construction to proceed immediately or whether you would wait to see if the load grew sufficiently for it, which was it?

A I do not recall that it was immediately.

I testified as to what I was recommending as the priorities to be.

Q Now, they also recommended, did they not, that you proceed immediately with the interconnection among Cleveland, Orville and Painesville, did they not?

A Specifically, what the recommendation in the report was, I do not recall.

Q You do not recall.

A I testified that we would be -- that our priorities was to be proceeding with that along with installing the generating unit, looking at -- providing gas turbines, and then proceeding also with trying to develop some sort of an interconnection arrangement.

Q I refer you to page 1 of this report.

A Page 1, sir?

Q Page 1, which is a summary.

{The witness complies.}

Q At the bottom of the page, I invite you to the statement in the summary:

"It is evident that the installation --" that is

75-megawatt unit we're talking about -- "must proceed as rapidly as possible. Interconnections should also be accomplished at the earliest possible date to increase reserves, postpone subsequent expansion, and to offest substantial savings possible."

Did you agree with that recommendation?

A Yes, I sure did.

Q Now, at the same -- approximately the same time that this engineering firm made the report that you have in front of you, they also made a study and a report covering the interconnection between the -- recommendation for the interconnection among Cleveland, Orville, and Painesville, did they not?

A Yes, a study like that had been made.

MR. LANSDALE: Kathy, would you hand the witness Defendant's Exhibit 469?

THE COURT: 469?

MR. LANSDALE: Yes, sir.

THE COURT: Defendant's 469?

MR. LANSDALE: CEI 469.

I think there is also a PTX number duplicating it, but I don't know what it is.

(Exhibit handed to the witness by Ms. Doyle.)

BY MR. LANSDALE:

Q Have you got that in front of you, Mr. Paraskeva?

A Yes, sir, I do, I have the CEI Exhibit 469 in front of me.

Q And that is a copy of a report by Beiswenger, Hoch & Associates, the selfsame agency that made the recommendation as to the 75-megawatt unit, dated March 21, 1961?

A That is what the transmittal letter is dated, yes, sir.

Q And this was made at approximately the same time that they made the other report, was it not?

A Yes.

Q Except that this report is directed not alone to the City of Cleveland but also to the City of Painesville and the City of Orville?

A That is correct.

Q Right.

And, in a nutshell, this report recommended that these cities go in together to construct an interconnection system joining their several municipal generating plants, is this not so?

A Yes, it did.

It indicated there would be advantages to -- over the long term to proceed on that basis, yes.

Q Were these advantages which you would regard as substantial and important advantages?

A I would consider them important, yes, sir.

Q Turn, please, to the -- I don't know whether it's the second or third page over, but it is the first page which is filed "Summary," and that says, does it not, that such an interconnection can result in savings in generating costs for the three communities of $7 million in the first 10 years?

A That's what it says.

Q And 37 million in the first 20 years?

A That's what it says.

Q And the costs of making the interconnection are estimated at $3,133,000 to $4,433,000, depending upon whether you have to have some underground in Cleveland or not?

A That's what it says.

Q And did you participate with the consultants in this report in the same manner you did in the report concerning the City of Cleveland generation expansion?

A Yes, I did.

Q And did you then and do you now concur in the recommendation made by these consultants?

A Yes, I do.

Q And Mr. Paraskeva, you referred to some earlier reports. There was a similar report concerning the desirability of this interconnection. We know that or you knew that at the time as a so-called tri-cities interconnection; isn't that what you called it?

A That's true, yes, we called it a tri-city interconnection.

Q And there was an engineering report submitted to the three cities in 1959, I believe, by a different engineering firm, not as elaborate as this, which reached the same conclusion as to its desirability as this report; was there not?

A I --

Q Do you remember that?

A I don't recall that there was a report duplicating or looking specifically at the three cities. I don't recall that offhand.

Q I'm looking for the exhibit number.

Mr. Paraskeva, I've lost my note as to the precise exhibit number of that. I'll get it to you in a moment.

MR. LANSDALE: Do you know what I am talking about, Kathy? The 1959 American Engineering Report to tri-cities?

Q While they are looking for that, we'll pass to something else, Mr. Paraskeva.

Now, Mr. Paraskeva, you -- by the way, who was the Commissioner of Light and Power during your career? I don't mean very early, but in the '50's?

A Mr. Vincent DeMelto.

Q Vincent DeMelto. He was Commissioner of Light and Power during the whole time you were there, wasn't he?

A No, I believe Mr. Fakult followed him before I left.

Q Mr. Fakult went in when --

A Sometime before I left.

Q Sometime before you left. But Mr. DeMelto was there for the majority of the time you were there?

A Yes, that's true.

Q Were you active in the American Public Power Association during the period that you were Results Engineer and later in the Division of Engineering and Superintendent of the plant?

A The American Public Power Association?

Q Yes.

A That's the APPA. I wasn't active. I did attend some meetings, particularly the annual meeting.

Q And Mr. DeMelto was active in that, too, was he not?

A Well, he attended some annual meetings.

Q And there were one or two of those meetings or, at least one, where he made a speech about the desirability of interconnection among municipalities; isn't that correct?

A That may be true, yes.

Q And you helped him draft that speech, didn't you?

A I may have. I don't recall specifically that I did at this time, but I may have.

Q Certainly this is the type of thing that you did with him; was it not?

A Well, I don't know what you mean by type of thing for him. I may have given him some help in preparing a speech for the APPA convention, whatever year that was.

Q Mr. Paraskeva --

MR. LANSDALE: Miss Kathy, will you hand Mr. Paraskeva CEI Exhibit 553.

Q Do you have that in front of you?

A Yes, I do.

Q This is headed, "Memorandum," and it is dated July 20, 1959?

A That it is.

Q And it is signed or, rather, more accurately it is typed, a name as indicated, "T. Foley Treadway"?

A I don't know where that says that.

Q At the end of it.

A Well, if he signed it, I guess he did.

Q The seventh page.

A Yeah, there's typing in there, "T. Foley Treadway."

Q And he was an official or principal of Southern Engineering, wasn't he?

A I recall him as an engineer with Southern Engineering Company, yes, sir.

Q And this report is a report not nearly so elaborate as the Beiswenger-Hoch report in 1961 that we just referred to but is a report in somewhat detail of the economics and the desirability of this selfsame tri-cities interconnection, is it not?

A That is true.

Q And this came to your attention and to the attention of the officials of Muny Light at the time, did it not?

A It's very possible that it did, sir.

Q Well, you recall that it did, don't you, Mr. Paraskeva?

A I don't at this moment in time specifically recall seeing this report. However, I will not deny that I may have seen it at the time. At this moment, I do not recall, sir --

Q All right, sir.

A -- specifically looking at it.

I see it now. It's very logical that I may have seen it at the time it was submitted.

Q Does it look familiar to you?

A Well, yeah. It says, "Interconnections provide good things for the people that interconnect." We know that.

Q You know that?

A Yes, sir.

Q And you knew and you know that this proposed tri-cities interconnection was economical and sound for the cities involved?

A Yes, it was.

Q Thank you.

Now, about 1960 you and Mr. DeMelto recommended to the City administration that you go forward with this interconnection, did you not?

A There was a recommendation made in the 1960's that we do proceed with an interconnection, yes.

Q Well, there was more than one recommendation made in the 1960's to proceed with this interconnection, wasn't there?

A Quite possible.

Q And the first recommendation was made in approximately '60, the year 1960, was it not?

A It probably was. Right now I don't remember specifics

like that.

Q All right. After that recommendation was made, the City employed the Beiswenger-Hoch people to make the two reports to which we have just referred, one of them about new generation, the second one about the interconnection; right?

A That again is a likely way that the events transpired, yes.

Q Now, this report made in 1961 for the new generation and the interconnection, the following year in 1962 the City of Cleveland proceeded to the financing and planning of the report involving the 75-megawatt unit, did it not?

A Yes, as I recall, that's about correct.

Q That is correct.

However, and in any event, this unit was eventually completed in the year 1967 -- well, you weren't there. Construction had not been initiated when you left, had it?

A No, it wasn't.

Q Had the financing been arranged before you left? Do you remember that?

A I don't really remember. We were working on it, but I don't remember we had completed the financing.

Q In any event, you left.

About the time you left was when the work was being done on the recommendations which eventuated in the construction of this unit?

A Yes. We were ready to roll on that.

Q You left at what time in the year 1963?

A July, 1963, as I recall.

Q Did you work at Muny Light right up to the time you left or had you lost interest in Muny Light? And I don't mean that in any derogatory way, Mr. Paraskeva:

When did you actually leave Muny Light and stop paying attention to what was going on there and start worrying about North Dakota?

A I believe it was July 1, to be exact.

Q Were you there when Mayor Locher made a public announcement that they were going forward with the tri-city interconnection that the City wanted? Do you remember that?

A No, I don't remember Mayor Locher making any announcement.

Q You don't remember that. All right.

Now, one of the recommendations of the Beiswenger-Hoch people was that the old units at the East 53rd Street plant be phased out or at least put on reserve status as reserves as soon as possible,

did they not?

A The Beiswenger-Hoch report probably did cover that.

Q Well, I want to know if it did or not.

A Well, specifically, sir, I have not read that report recently.

As I said before, I had participated in it, I had concurred with its recommendation. If the report said that we should reserve -- I mean take the old 53rd units and put them on a reserve or standby basis, I wouldn't be surprised that it did say it.

Q Are you telling me you got on this witness stand without looking at this report to refresh your recollection of those recommendations you have come here and testified that you participated in?

A In principal, to me, the basic part of the reports were the generating unit, the cycle that we needed, and we were talking about replacing and retiring and putting on reserve status the 53rd Street units right along.

I have already testified we had eliminated the boiler capacity at 53rd Street as of 1960-61. We were running a maximizing operation at Lake Road and we were minimizing generation at 53rd Street.

As time went on and as we got more units, I said our priorities were the generating station expansion, to get gas turbine generators, and our priorities were to try to proceed with some kind of interconnection and develop one.

THE COURT: Will you read the question back?

THE COURT: Please, Mr Paraskeva.

{The question was read by the reporter.}

THE COURT: Do you understand the question, sir?

THE WITNESS: Yes.

THE COURT: Please answer the question.

A I have not looked at this report recently.

Q Do you recall if this report said that the recommendation was based upon the preposition that there would be subsequent installations of generating capacity of units of 75 megawatts the same as the first one? That's correct, is it not?

A Yes, it made sense.

Q And, secondly, that it was based upon the supposition that the tri-cities interconnection would go forward,

was it not?

A That was something we were looking forward to, yes.

Q That's right. And as a matter of fact, as an experienced operator of a very substantial electric system, Mr. Paraskeva, you would agree that looking at the period of time when you left Muny Light Plant, prudent managers would not rely upon the generators at the East 53rd Street plant for firm capacity; isn't that correct?

A We were doing everything we could to bring on new generation.

MR. LANSDALE: May I have the question read?

THE COURT: Read the question back.

The witness will listen to the question. If you don't understand the question, we will have it rephrased. The witness will please listen to the question.

{The previous question was read by the reporter.}

A Prudent managers do the best they can with the equipment they have, sir.

THE COURT: I don't think you were responsive to the question, Mr. Paraskeva.

Read the question again.

(The previous question was read again by the reporter.)

A And my answer is that prudent managers rely on the equipment and facilities they have, period. If they don't have anything else, they can't rely on it.

Q But let me ask the question this way, Mr. Paraskeva.

As a prudent manager, would you regard it prudent to rely upon the 1914 generators at the East 53rd Street plant for firm power?

A They were still working. We could still get capability out of them and that's all we had to rely on, so we operated them.

Q But it is not what you would regard as prudent manager of an electric plant to put you in a position that you have to rely on them, would you?

A I would prefer to have something else, yes.

Q You certainly would have.

And, as a matter of fact, in 1953, ten years before 1963, the City had a report from an engineering firm called Burns & McDonnell; did it not?

A Yes, I did.

Q You remember that, don't you?

A I remember it.

Q And that, I think you agreed with me is a reliable and competent engineering consulting firm?

A Burns & McDonnell is a competent consulting firm, yes.

Q Right, and that report recommended to the City that the generating unit at the East 53rd Street plant be replaced as quickly as that capacity could reasonably be replaced?

A That was one of the recommendations as I recall of that report.

Q And that was a good sound recommendation; was it not?

A It was a good recommendation.

Q Let me ask you one more question.

It would be fair to say, would it not, that some 1953 to 1967 is not replacing that capacity as quickly as it reasonably could have been replaced, is it?

A That could be a judgment one could make.

Q Would you make that judgment?

A Well, I don't know. It depends on the circumstances, as I said before. If that's all we had to operate, that's what we did the best we could with.

Q Well, certainly the East 53rd Street capacity could have been replaced a whole lot quicker than 14 years, couldn't it?

A It is possible, but I also testified that we did not

have the load growth during the '50's that was forecast by that same Burns & McDonnell study.

Q Sir, we are talking about replacement, we are not talking about additional capacity, are we?

A Well, whatever.

Q All right, whatever.

Now, the Director of Public Utilities in the '60's when you were there was a man named Klementowicz; was he not?

A That is correct, sir.

Q You participated, did you not, in the drafting of the recommendations that Mr. Klementowicz as Director of Public Utilities made to the Mayor of the City of Cleveland relative to implementing the recommendations of the Beiswenger and Hoch Report for the 75-megawatt unit; did you not?

A I did not participate in any drafting of the recommendations made by Mr. Klementowicz.

Q Maybe I have used the wrong language.

You participated in advising Mr. Klementowicz as to what he ought to recommend to the Mayor; did you not?

A I participated in the study that made -- in the studies that made recommendations, sir.

Q And you are aware, are you not, of the recommendations

which Mr. Klementowicz did make, in fact, to the Mayor?

A If he was following the recommendations of the study, yes. He certainly made the same recommendations to the Mayor, I'm sure.

MR. LANSDALE: Kathy, would you furnish Mr. Paraskeva CEI Exhibit 359.

BY MR. LANSDALE:

Q Take your time to look at that, Mr. Paraskeva. You will note from the second page that you are on the distribution list of that letter, and after you have a chance to look at that, tell me what that is, will you?

A Yes, this is a letter that the Director had prepared and had forwarded to the Mayor dated January 8, '62, and a study of the requirements for the Lake Road station and the findings are as follows, and he lists them. I'm sure they are in accordance with the report, and he says that he has reviewed these, we have reviewed them and it is significant to note that we need the additional capacity, and he's recommending that we proceed with a $12 million issue and, yes, indeed, I was copied for it. I'm glad to see that I was now but I don't recall that I was at the time.

Q And neither you nor I would think that Mr. Klementowicz would have sent that letter without consulting you and Mr. DeMelto on the contents of it, do you?

A Well, I don't recall being consulted on the contents of the letter, no.

Q You do recall being consulted on the recommendations; do you not?

A The recommendations I already said I participated in.

Q Now, will you please -- you see the part of this letter that I want to invite your attention to is the second from the last paragraph, and will you read that, please?

A "It is significant to --"

Q I don't mean read it out loud, read it to yourself.

A All right, I read it.

Q And does that conform to your recollection of the situation at the time?

A Yes, we had --

Q And the situation was, was it not, that all of the firm capacity of the proposed new low-cost generation that he was talking about, the 75-megawatt unit, wasn't it, is already committed wholly for public needs, new exhibition hall, the new increasing loads for street

lighting, waterworks and sewage plants?

A That's what he says here, yes, sir.

Q Well, was it the truth?

A That was true, loads were growing.

Q Now, at or about this same time, Mr. Paraskeva, you were participating, were you not -- at or about the same time is the wrong terminology.

Just the year before in 1961, you participated, did you not, in meetings with CEI, you and Mr. Klementowicz and Mr. DeMelto, maybe others, in meetings with various people at CEI relative to the provision of dual service to various important installations such as water pumping stations, for example; do you recall that?

A Again, I'm not surprised that I would have participated in such a meeting.

Right now, specifically, I don't recall, but I'm not surprised that I would have participated. I'm sure I did.

Q Do you recall that such a study was conducted?

A As I said, I'm not surprised that I had participated in meetings involving dual service to certain loads, but right now I don't remember specifics.

THE COURT: Perhaps this would

be an opportune time for us to take our afternoon break since it is about ten minutes to 3:00. A good time for a little stretch.

Please, ladies and gentlemen of the jury, do not discuss the case either among yourselves or with anyone else. As I keep telling you, keep an open mind until you hear all of the evidence and my instructions on the law and until such time as I give the case to you for your deliberations and your judgment.

With that, you are free to go.

{Recess taken.}

THE COURT: Please be seated.

{The jury entered the courtroom and the following proceedings were had in their hearing and presence.}

THE COURT: Ladies and gentlemen of the jury, so that you may better understand what our procedure will be:

During the course of today's testimony and, in all probability, during the testimony of each day, there will be references made to a number of exhibits.

The Court will submit those exhibits to the

jurors at 4:00 o'clock each day and they will be available for your examination in the jury room at your convenience and at your comfort until you are desirous of leaving in the evening.

The exhibits will also be made available for you each morning so that you may examine any exhibits -- all of the exhibits which you had not seen the evening before.

Even though these exhibits are given to you for examination, you are to keep in mind my admonition:

Although you are permitted to view the exhibits and examine them, you are not to discuss the exhibits either among yourselves or with anyone else. You are to view them for your own convenience and for purposes of your own future recollection.

So with that, you are free to go, Mr. Lansdale.

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BY MR. LANSDALE:

Q Mr. Paraskeva, at recess, I had invited your attention to the conferences that I believe you participated in in the fall of 1961 and the first part of the year 1962 relative to insuring that there was backup service

or dual service to various loads in the city.

You do remember that event, do you not?

A As I said, I'm sure those conferences occured, and it was proper that I should participate in them, and right now I don't remember the specifics of them as to the time, place, and who was there, and specifically what occurred. But it was -- if you say they happened, they did happen.

THE COURT: Mr. Paraskeva, I think probably some of the jurors may have difficulty hearing you.

If you would put that microphone on the clasp.

{The witness complies.}

THE COURT: Now try it.

A {Continuing} As I said, I don't remember the specific conferences.

However, I'm sure they were held; and if they were held, I'm sure that I had participated in them.

If you could perhaps refresh my memory.

Q This is what I wanted to do.

THE COURT: Let's proceed.

Just ask questions.

MR. LANSDALE: Yes.

Q To attempt to refresh your recollection there, I'm